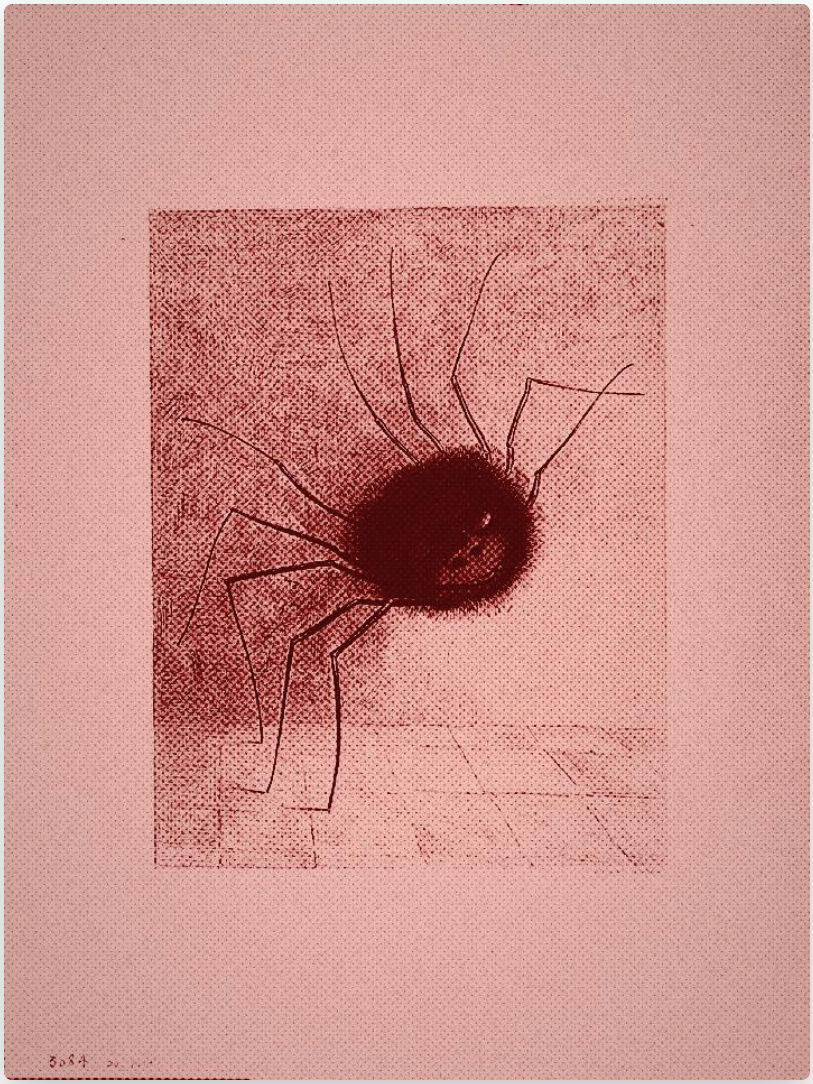
FORM S-1 · REGISTRATION STATEMENT

Redback Networks Inc

IPO priced 1999-05-17 · $23.00 a share · RBAK



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AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON MARCH 16, 1999.

REGISTRATION NO. 333-

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549 FORM S-1 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

REDBACK NETWORKS INC. (EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE	3576	77-0438443
(STATE OR OTHER JURISDICTION OF INCORPORATION OR ORGANIZATION)	(PRIMARY STANDARD INDUSTRIAL CLASSIFICATION CODE NUMBER)	(I.R.S. EMPLOYER IDENTIFICATION NUMBER)

1389 MOFFETT PARK DRIVE SUNNYVALE, CALIFORNIA 94089 (408) 548-3500 (ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF REGISTRANT'S PRINCIPAL EXECUTIVE OFFICES) DENNIS L. BARSEMA PRESIDENT AND CHIEF EXECUTIVE OFFICER REDBACK NETWORKS INC. 1389 MOFFETT PARK DRIVE SUNNYVALE, CALIFORNIA 94089 (408) 548-3500 (NAME, ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF AGENT FOR SERVICE)

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APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC:

AS SOON AS PRACTICABLE AFTER THE EFFECTIVE DATE OF THIS REGISTRATION STATEMENT.

IF ANY OF THE SECURITIES BEING REGISTERED ON THIS FORM ARE TO BE OFFERED ON A DELAYED OR CONTINUOUS BASIS PURSUANT TO RULE 415 UNDER THE SECURITIES ACT OF 1933, AS AMENDED, CHECK THE FOLLOWING BOX. [ ] IF THIS FORM IS FILED TO REGISTER ADDITIONAL SECURITIES FOR AN OFFERING PURSUANT TO RULE 462(B) UNDER THE SECURITIES ACT, PLEASE CHECK THE FOLLOWING BOX AND LIST THE SECURITIES ACT REGISTRATION STATEMENT NUMBER OF THE EARLIER EFFECTIVE REGISTRATION STATEMENT FOR THE SAME OFFERING. [ ] _____ IF THIS FORM IS A POST-EFFECTIVE AMENDMENT FILED PURSUANT TO RULE 462(C) UNDER THE SECURITIES ACT, CHECK THE FOLLOWING BOX AND LIST THE SECURITIES ACT REGISTRATION STATEMENT NUMBER OF THE EARLIER EFFECTIVE REGISTRATION STATEMENT FOR THE SAME OFFERING. [ ] _____ IF THIS FORM IS A POST-EFFECTIVE AMENDMENT FILED PURSUANT TO RULE 462(D) UNDER THE SECURITIES ACT, CHECK THE FOLLOWING BOX AND LIST THE SECURITIES ACT REGISTRATION STATEMENT NUMBER OF THE EARLIER EFFECTIVE REGISTRATION STATEMENT FOR THE SAME OFFERING. [ ] _____ IF DELIVERY OF THE PROSPECTUS IS EXPECTED TO BE MADE PURSUANT TO RULE 434, PLEASE CHECK THE FOLLOWING BOX. [ ] CALCULATION OF REGISTRATION FEE

TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE(1)	AMOUNT OF REGISTRATION FEE
Common Stock, $0.0001 par value.....	$37,375,000	$10,391

(1) ESTIMATED SOLELY FOR THE PURPOSE OF COMPUTING THE AMOUNT OF THE REGISTRATION FEE PURSUANT TO RULE 457(O).

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT THAT SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(A) OF THE SECURITIES ACT OF 1933, AS

AMENDED, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SUCH SECTION 8(A), MAY DETERMINE.

THE INFORMATION IN THIS PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. WE MAY NOT SELL THESE SECURITIES UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES AND WE ARE NOT SOLICITING AN OFFER TO BUY THESE SECURITIES IN ANY STATE WHERE THE OFFER OR SALE IS NOT PERMITTED.

PROSPECTUS (SUBJECT TO COMPLETION) ISSUED , 1999 SHARES

[REDBACK NETWORKS LOGO]

COMMON STOCK

REDBACK NETWORKS IS OFFERING SHARES OF ITS COMMON STOCK. THIS IS OUR INITIAL PUBLIC OFFERING AND NO PUBLIC MARKET CURRENTLY EXISTS FOR OUR SHARES. WE ANTICIPATE THAT THE INITIAL PUBLIC OFFERING PRICE WILL BE BETWEEN $ AND $ PER SHARE.

WE HAVE APPLIED TO LIST OUR COMMON STOCK ON THE NASDAQ NATIONAL MARKET UNDER THE SYMBOL "RBAK."

Investing in Our Common Stock Involves Risks. See "Risk Factors" Beginning on Page 5.

Price $ a Share

	PRICE TO PUBLIC	UNDERWRITING DISCOUNTS AND COMMISSIONS	PROCEEDS TO REDBACK NETWORKS
Per Share	$	$	$
Total	$	$	$

The Securities and Exchange Commission and state securities regulators have not approved or disapproved these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Redback Networks has granted the underwriters the right to purchase up to an additional shares of common stock to cover over-allotments. Morgan Stanley & Co. Incorporated expects to deliver the shares of common stock to purchasers on , 1999.

MORGAN STANLEY DEAN WITTER BANCBOSTON ROBERTSON STEPHENS DAIN RAUSCHER WESSELS a division of Dain Rauscher Incorporated , 1999

[Graphic -- Inside Front Cover]

The heading for the page reads "All Services. All Users. One Solution."

The left third of the page graphically illustrates a variety of uses for the Internet access infrastructure including a web page and an interactive video game.

In the center of the page is a picture of a large crowd of people.

On the right third of the page is a picture of the SMS 1000.

Across the bottom of the page runs the following text:

"The Internet is exploding. Thousands of new users go on-line each month. New high-speed data, audio and video services are constantly being created.

However, bringing large numbers of new users and bandwidth-intensive services together compromises network performance and can delay the introduction of new services.

Fortunately, Redback Networks has a solution. Our Subscriber Management System, or SMS, enables service providers to deploy high-speed services more quickly and at lower cost than is currently possible.

The SMS bridges the operational gap between high-speed access concentrators and backbone routers. By providing the missing elements of subscriber management and traffic translation, the SMS allows service providers to deploy high-speed services without costly new investments in routers.

At the same time, the SMS allows service providers to use existing management systems to manage subscribers, regardless of the access technology or equipment. In addition, the SMS architecture immediately scales to support 4,000 simultaneous subscribers, over 15 times the number available through most large routers.

Carriers can create wholesale services for multiple service providers. Service providers can deliver multiple services -- and generate multiple revenue streams -- through a single connection. With so many features for speeding the deployment of high-speed services, it's not surprising that the SMS is the choice of many of the largest U.S. carriers, and leading service providers."

Also on the bottom of the page is a graphic. On the left side of this graphic, three distinct Internet access modes, DSL, cable and wireless, are all connected to our SMS 1000 product in the center, which is connected to both the Internet and a corporate network.

In the bottom right corner is our logo.

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We were incorporated in Delaware in August 1996. Our principal executive offices are located at 1389 Moffett Park Drive, Sunnyvale, California 94089 and our telephone number is (408) 548-3500. We have filed for trademark protection for "REDBACK." This prospectus also contains trademarks of other companies.

You should rely only on the information contained in this prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus. We are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of the prospectus or any sale of the common stock. In this prospectus, unless the context indicates otherwise, the "Company," "Redback Networks," "Redback," "we," "us," and "our" refer to Redback Networks Inc.

Unless otherwise indicated, all information in this prospectus (1) gives effect to the conversion of all outstanding shares of preferred stock into shares of common stock effective upon the closing of the offering, (2) assumes no exercise of the underwriters' over-allotment option and (3) assumes no exercise of outstanding warrants to purchase, as of the closing, 129,471 shares of our common stock.

UNTIL , 1999 (25 DAYS AFTER COMMENCEMENT OF THIS OFFERING), ALL DEALERS THAT BUY, SELL OR TRADE OUR COMMON STOCK, WHETHER OR NOT PARTICIPATING IN THIS OFFERING, MAY BE REQUIRED TO DELIVER A PROSPECTUS. THIS IS IN ADDITION TO THE DEALERS' OBLIGATION TO DELIVER A PROSPECTUS WHEN ACTING AS UNDERWRITERS AND WITH RESPECT TO THEIR UNSOLD ALLOTMENTS OR SUBSCRIPTIONS.

For investors outside the United States: Neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

Prospectus Summary

You should read the following summary together with the more detailed information regarding our company and the common stock being sold in this offering and our Financial Statements and related notes appearing elsewhere in this prospectus.

Redback Networks

Redback Networks is a leading provider of advanced networking solutions that enable carriers, cable multiple system operators, or MSOs, and service providers to rapidly deploy high-speed broadband access to the Internet and corporate networks. Our Subscriber Management System, or SMS, connects and manages large numbers of subscribers using any of the major high-speed access technologies, including digital subscriber line, or DSL, cable and wireless. We sell our SMS product family through our direct sales force, value-added resellers and distribution partners, such as Nokia and Nortel Networks. Bridging the gap between high-speed access concentrators and backbone routers, our SMS is currently being used by many of the largest carriers and service providers, including UUNET, a subsidiary of MCI Worldcom, SBC, Southwestern Bell Information Services and Pacific Bell Internet, subsidiaries of SBC, GTE, Ameritech, Bell South, Concentric, Earthlink, Flashcom, Korea Telecom, Verio and @Work, a division of @Home.

In recent years, there has been a significant increase in demand by businesses and consumers for broadband, or high-speed, access to the Internet and to corporate networks. While carriers, cable MSOs and service providers are attempting to provide inexpensive and comprehensive broadband access, there are several major challenges associated with scaling and configuring existing network architectures to accommodate large numbers of new high-speed subscribers. We believe widespread deployment of broadband services requires a new network model for subscriber management, which efficiently terminates subscriber connections, manages broadband subscribers, provides flexibility for typical point-to-point broadband connections, and supports multiple broadband access technologies simultaneously.

Our SMS meets the above requirements. Whether deployed by telecommunications carriers at their regional access points, by cable MSOs at a headend or by service providers at a point-of-presence, or POP, the SMS accepts a large concentration of high-speed data traffic from such devices as DSL access multiplexers, or DSLAMs, Cable Modem Termination Systems, or CMTSs, and wireless termination systems. Our SMS reduces the processing requirements placed on backbone routers in broadband networks. Our SMS product family includes the SMS 1000, our flagship solution, which today supports up to 4,000 simultaneous subscribers, and the recently introduced SMS 500, designed for points-of-presence with smaller numbers of subscribers. The key benefits of our solution include:

- Enhances Broadband Operations. Our SMS bridges the operational gap between "last mile" access networks that serve businesses and homes and the backbone routers to the Internet and corporate networks.

- Supports All Major Access Technologies. Our SMS provides a consistent operational model and supports all major access technologies, including DSL, cable, wireless and dial.

- Facilitates Rapid and Scalable Deployment. Our SMS leverages service providers' existing access, accounting and management control systems, including RADIUS databases, enabling them to quickly deploy high-speed access and achieve rapid time-to-market for significant revenue-generating services.

- Provides Platform for the Delivery of Value-Added Services. Our solution enables carriers, cable MSOs and service providers to create and market new service offerings that leverage broadband connectivity and capabilities. For example, our solution enables service selection and tiered services.

- Simplifies End-User Administration and Support. Our solution allows easy configuration and administration of end-user broadband modems, further reducing the cost of providing service.

We are focused on delivering subscriber management solutions to carriers and service providers and intend to leverage our position in the DSL market to penetrate the cable and wireless broadband markets. We believe our software differentiates our solution and provides a competitive advantage by delivering advanced subscriber management services and functionality. We will continue to develop features and functionality that further enhance the ability of carriers, cable MSOs and service providers to deliver profitable services. We intend to expand our product family to address a range of functionality, density and application requirements. 3

The Offering

Common stock offered.....	shares
Common stock to be outstanding after the offering.....	shares
Over-allotment option.....	shares
Use of proceeds.....	We intend to use the proceeds for general corporate purposes, including capital expenditures and working capital. See "Use of Proceeds."
Dividend Policy.....	We do not anticipate paying cash dividends.
Proposed Nasdaq National Market symbol.....	RBAK

The foregoing information excludes 2,104,725 shares of common stock issuable upon exercise of outstanding options as of December 31, 1998 at an average exercise price of $1.49 per share, 129,471 shares of common stock issuable upon exercise of outstanding warrants at an average exercise price of $1.51 per share and 1,273,100 shares of common stock reserved for issuance under our stock plan as of December 31, 1998.

Summary Financial Data

	THREE MONTHS ENDED			
	MAR. 31, 1998	JUN. 30, 1998	SEPT. 30, 1998	DEC. 31, 1998
	(IN THOUSANDS, EXCEPT PER SHARE DATA)			

STATEMENT OF OPERATIONS DATA:				
Net revenues	$ 478	$ 1,294	$ 2,933	$ 4,501
Gross profit	212	618	1,761	3,012
Loss from operations	(2,007)	(2,153)	(2,574)	(3,145)
Net loss	(1,981)	(2,173)	(2,579)	(3,143)
Pro forma basic and diluted net loss per share	$ (.18)	$ (.18)	$ (.19)	$ (.22)
Shares used in computing pro forma basic and diluted net loss per share	11,254	11,899	13,398	14,185

The following table presents summary balance sheet data at December 31, 1998, which has been adjusted for the conversion of Redback Networks preferred stock outstanding as of December 31, 1998 into 10,456,621 shares of common stock and our sale of shares of our common stock in this offering and the application of the estimated proceeds, less estimated expenses. See "Use of Proceeds" and "Capitalization."

At December 31, 1998 Actual as Adjusted

BALANCE SHEET DATA:		
Cash and cash equivalents	$ 8,189	$
Working capital	4,461	
Total assets	14,682	
Long-term obligations, less current portion	1,275	
Total stockholders' equity	6,254	

Risk Factors

This offering and an investment in our common stock involve a high degree of risk. You should carefully consider the following risk factors and the other information in this prospectus before investing in our common stock. Our business, results of operations and financial condition could be seriously harmed by any of the following risks. The trading price of our common stock could decline due to any of these risks, and you may lose all or part of any investment you make in our common stock.

Risks Related to Our Business

Our Business Is Difficult to Evaluate Because We Have a Limited Operating History

We are an early stage company. We were founded in August 1996 and have a very limited operating history. We did not sell any products or services until the end of 1997. An investor in our common stock must consider the risks and difficulties frequently encountered by early stage companies in a new and rapidly evolving market. From February 28, 1998 to February 28, 1999, we have experienced significant growth -- from 39 employees to 117 employees. Our ability to sell products and services, and the level of success, if any, we achieve, depends, among other things, on the level of demand for broadband access services, which is a new and rapidly evolving market. See "Risk Factors -- Sales of our

products are dependent on the widespread adoption of broadband access services." We cannot be certain that our business strategy will be successful or that we will successfully address the risks we face.

We Have a History of Losses and We Expect to Incur Future Losses

We incurred net losses of $142,000 from our inception in August 1996 through December 31, 1996, $4.4 million for the year ended December 31, 1997 and $9.9 million for the year ended December 31, 1998. As of December 31, 1998, we had an accumulated deficit of approximately $14.4 million. We have not achieved profitability and we expect to continue to incur net losses in the future. To date, we have funded our operations from the sale of equity securities, from bank borrowings and by means of equipment lease financing. We expect to continue to incur significant product development, sales and marketing, and general and administrative expenses and, as a result, we would need to generate significant revenues to achieve profitability. Although our revenues have grown in recent quarters, we cannot be certain that we can sustain recent growth rates or that we will ever achieve sufficient revenue levels to achieve profitability. If we do achieve profitability in some future period, we cannot be certain that we would sustain profitability on a quarterly or annual basis in the future.

We Expect Our Quarterly Revenues and Operating Results to Fluctuate Significantly

Our revenues and operating results are likely to vary significantly from quarter to quarter. A number of factors are likely to cause these variations, including:

- Fluctuations in demand for broadband access services;

- The timing and size of sales of our products and services;

- The lack of any significant backlog;

- Announcements of new products and product enhancements by competitors;

- The entry of new competitors into our market, including by acquisition;

- Unexpected delays in introducing new or enhanced products, including manufacturing delays;

- Our ability to control expenses;

- Our ability to ship products on a timely basis and at a reasonable cost; and - The mix of our products sold and the mix of distribution channels through which our products are sold.

A high percentage of our expenses, including those related to engineering, sales and marketing, research and development, and general administrative functions, are essentially fixed in the short term. As a result, if we experience delays in generating or recognizing revenue, our quarterly operating results

are likely to be materially adversely affected. In addition, we plan to increase our operating expenses to expand our engineering and sales and marketing operations, broaden our customer support capabilities, develop new distribution channels, fund increased levels of research and development and build our operational infrastructure. If growth in our revenues does not outpace the increase in these expenses, our business, results of operations and financial condition could be materially adversely affected.

We rely on a single third-party manufacturer to build our products. Any interruption in the operations of this manufacturer would adversely affect our ability to meet our scheduled product deliveries to our customers. This would cause significant variations in our quarterly operating results and our business, results of operations and financial condition would be materially adversely affected.

Due to these and other factors, we believe that quarter-to-quarter comparisons of our operating results may not be meaningful. You should not rely on our results for one quarter as any indication of our future performance. It is likely that in some future quarter our operating results may be below the expectations of public market analysts or investors. If this occurs, the price of our common stock would likely decrease.

OUR LENGTHY AND VARIABLE SALES CYCLE MAKES IT DIFFICULT TO PREDICT THE TIMING OF A SALE OR WHETHER A SALE WILL BE MADE The timing of our sales revenue is difficult to predict because of the length and variability of the sales cycle for our products. Customers often view the purchase of our products as a significant and strategic decision. As a result, customers typically undertake significant procedures relating to the evaluation, testing, implementation and acceptance of our products. This evaluation process frequently results in a lengthy sales cycle, typically ranging from three months to over one year. While our customers are evaluating our products and before they place an order with us, we may incur substantial sales and marketing expenses and expend significant management efforts. In addition, product purchases are frequently subject to unplanned processing and other delays, particularly with respect to larger customers for whom our products represent a very small percentage of overall purchase activity. As a result, if sales forecasted from a specific customer for a particular quarter are not realized in that quarter, our business, results of operations and financial condition could be materially adversely affected.

Our Quarterly Results Depend on a Small Number of Large Orders

To date, a significant portion of our quarterly revenues has resulted from a small number of relatively large orders. For example, in each of the last four quarters in the period ended December 31, 1998, we had at least one customer that accounted for 15% or more of our total revenue in such quarter. In the fourth quarter of 1998, UUNET, Nortel Networks and GTE and its affiliated entities accounted for 28%, 13% and 12%, respectively, of our total revenue. We anticipate that our operating results for any

given period will continue to depend to a significant extent on large orders from a small number of customers. If we fail to receive a large order in any future period, our business, results of operations and financial condition would be materially adversely affected.

WE ARE ENTIRELY DEPENDENT ON THE SUCCESS OF THE SMS PRODUCT FAMILY, INCLUDING THE SMS 1000, THE RECENTLY INTRODUCED SMS 500 AND THE INTRODUCTION OF FUTURE PRODUCTS To date, the SMS product family is the only product family that we have. The SMS 1000 and SMS 500 are the only products that we currently sell. We intend to extend the offerings under the SMS product family in the future, both by introducing new SMS products and by introducing enhancements to existing SMS products. Our inability to timely and successfully introduce new SMS products and SMS product enhancements, or the failure of these new products or enhancements to achieve market acceptance, could materially adversely affect our business, results of operations and financial condition.

To date, substantially all of our revenues have been derived from sales and service related to the SMS 1000 product. The SMS 1000 and any other new high-end SMS product that we may develop and introduce in the future are marketed primarily to large customers. There are only a limited number of large existing and potential customers and this number is not expected to increase significantly in the future.

We recently introduced the SMS 500, which is designed for use by customers that intend to provide services to a smaller number of subscribers than those using the SMS 1000. Given this targeted market, sales of the SMS 500 may involve sales to smaller customers. Sales to smaller customers entail certain risks, including increased credit risks and the need for additional sales and support personnel to support an increased volume of customers. Our business, results of operations and financial condition could be materially adversely affected if any of these risks materialize. The SMS 500 may not achieve a significant degree of market acceptance. If the SMS 500 is not successful, our ability to generate revenues will be limited to sales of the SMS 1000 to our customers with a large number of subscribers, which will have a material adverse effect on our business, results of operations and financial condition.

Many of our customers require product features and capabilities that our SMS products may not have. The requirement that we add features to our products in order to achieve a sale may result in a longer sales cycle, increased research and development expenses and reduced margins on our products. To achieve market acceptance for our products, we must effectively and timely anticipate and adapt to customer requirements and offer products and services that meet customer demands. Our failure to develop products or offer services that satisfy customer requirements would materially adversely affect our business, results of operations and financial condition.

We intend to continue to invest in product and technology development. The development of new or enhanced products is a complex and uncertain process that requires the accurate anticipation of technological and market trends. We may experience design, manufacturing, marketing and other difficulties that could delay or prevent the development, introduction or marketing of new products and enhancements. The introduction of new or enhanced products also requires that we manage the transition from older products in order to minimize disruption in customer ordering patterns and

ensure that adequate supplies of new products can be delivered to meet anticipated customer demand. Our inability to effectively manage this transition would materially adversely affect our business, results of operations and financial condition.

We Need to Gain Acceptance in Other Broadband Access Markets

To date, we have derived substantially all of our revenues from sales of the SMS 1000 for use in the DSL market for broadband access. We intend to expend a substantial amount of time and resources to achieve market acceptance of our products in other markets, including the cable and wireless markets. We cannot be certain that we will be able simultaneously or effectively to address evolving demands in these markets, or that customers in these markets will not choose to implement competing technologies or products. In addition, if we are not first in these markets, there is a risk that competitors will gain market acceptance first, thereby making it difficult, if not impossible, for us to gain subsequent market acceptance. If we are unable to achieve acceptance of our products in these markets, our ability to generate revenues will be limited, and our business, results of operations and financial condition would be materially adversely affected.

We Expect Increased Competition

We may not be able to compete successfully with current or future competitors. If we do not compete successfully against current or future competitors, our business, results of operations and financial condition will be materially adversely affected. Currently, competition in our market is intense. The broadband access markets we are targeting, including DSL, cable and wireless, are new and rapidly evolving and we expect these markets to become highly competitive in the future. In addition, we expect new competitors to emerge in the broadband access market as that market evolves due to technological innovation and regulatory changes. We face actual and potential competition from public and private companies providing backbone routers, access concentrators and subscriber aggregation systems.

Cisco, the leading provider of backbone routers, offers products that compete directly with our SMS products, and also provides a comprehensive range of broadband access systems. We expect companies that offer access concentrators and routers, such as Ascend, which recently announced its pending acquisition by Lucent, to incorporate some subscriber management functionality into their products. In addition, there are private companies that provide subscriber management features in access concentrators or routing platforms.

Many of our principal competitors, including Cisco, Alcatel and Lucent/Ascend, and some companies that may compete with us in the future, are large public companies that have longer operating histories and significantly greater financial, technical, marketing and other resources than we have. As a result, these competitors are able to devote greater resources to the development, promotion, sale and support

of their products. In addition, our competitors that have large market capitalizations or cash reserves are much better positioned than we are to acquire other companies, including our competitors, and thereby acquire new technologies or products that may displace our product lines. Any of these acquisitions could give our competitors a strategic advantage that would materially adversely affect our business, results of operations and financial condition.

Many of our competitors have significantly more established customer support and professional services organizations than we do. In addition, many of our competitors have much greater name recognition and have a more extensive customer base, broader customer relationships and broader product offerings than our company. These companies can leverage their customer bases and broader product offerings and adopt aggressive pricing policies to gain market share. We have encountered, and expect to continue to encounter, potential customers that, due to existing relationships with certain of our larger competitors, are committed to the product offerings of these competitors. As a result, these potential customers may not consider purchasing our products. We expect to face competition in the following areas:

- Product pricing;

- Breadth of product lines;

- Sales and distribution capability;

- Product features and enhancements, including product performance, reliability, size, compatibility and scalability;

- Product ease of deployment;

- Conformance to industry standards; and - Technical support and service.

We expect that competitive pressures may result in price reductions, reduced margins and loss of market share, which would materially adversely affect our business, results of operations and financial condition.

WE ARE DEPENDENT ON A SINGLE CONTRACT MANUFACTURER AND SOME OF THE KEY COMPONENTS IN OUR PRODUCTS COME FROM SINGLE OR LIMITED SOURCES OF SUPPLY We rely on a single third-party manufacturer, Electromax, to build our products. We may not be able to effectively manage our relationship with Electromax and Electromax may not meet our future requirements for timely delivery. We have no written agreement with Electromax. Any interruption in the operations of Electromax would adversely affect our ability to meet our scheduled product deliveries to our customers, which could cause the loss of existing or potential customers and could materially adversely affect our business, results of operations and financial condition. In addition, the products that Electromax builds for us may be insufficient in quality or in quantity to meet our needs. Electromax or any other manufacturer may not meet the technological or delivery requirements of our current products or any future products that we may develop and introduce. The inability of Electromax or any other of our contract manufacturers in the future to provide us with adequate supplies of high-quality products, or the loss of Electromax or any other of our contract manufacturers

in the future, would cause a delay in our ability to fulfill customer orders while we obtain a replacement manufacturer and would have a material adverse effect on our business, results of operations and financial condition.

We currently purchase several key components used in the manufacture of our SMS 1000 product from single or limited sources of supply. We have no guaranteed supply arrangement with these suppliers. Although we currently maintain, and expect to continue to maintain, an inventory of these supplies in an amount equal to our projected needs based on a rolling 3-month forecast, our manufacturers may fail to obtain these supplies in a timely manner in the future. Financial or other difficulties faced by these suppliers or significant changes in demand for these components could limit the availability to us of these components. Any interruption or delay in the supply of any of these components, or the inability to obtain these components from alternate sources at acceptable prices and within a reasonable amount of time, would adversely affect our ability to meet scheduled product deliveries to our customers and would materially adversely affect our business, results of operations and financial condition. In addition, qualifying additional suppliers is time-consuming and expensive.

We currently use a rolling 6-month forecast based on anticipated product orders, product order history and backlog to determine our materials requirements. Lead times for the materials and components that we order vary significantly and depend on numerous factors, including the specific supplier, contract terms and demand for a component at a given time. If actual orders do not match our forecasts, we may have excess or inadequate inventory of certain materials and components, which could materially adversely affect our business, results of operations and financial condition.

We May Be Unable to Properly Manage Growth

We have expanded our operations rapidly since our inception. The number of our employees increased from 39 in February 1998 to 117 in February 1999. We currently intend to continue to expand in order to pursue existing and potential market opportunities. We are currently in the process of hiring additional engineering and sales personnel. We intend to hire a significant number of engineers in 1999. Our ability to continue to attract and retain highly skilled personnel will be a critical factor in determining whether we will be successful in the future. Competition for highly skilled personnel is intense, especially in the San Francisco Bay Area. We may not be successful in attracting, assimilating or retaining qualified personnel to fulfill our current or future needs. If we are unable to do so, our business, results of operations and financial condition could be materially adversely affected. Our planned rapid growth places a significant demand on management and financial and operational resources. In order to grow and achieve future success, we will be required to:

- Retain existing personnel;

- Hire, train, manage and retain additional qualified personnel; and - Effectively manage multiple relationships with our customers, suppliers and other third parties.

We are currently seeking to lease additional office space to accommodate our growing operations. We may not be able to locate necessary office space on commercially reasonable terms or in a timely manner. Failure to do so would have a material adverse effect on our business, results of operations and financial condition. Our current office lease expires in September 1999. Any required relocation may be disruptive to our business.

Our Planned Expansion to International Markets Will Involve New Risks

In 1998, we derived approximately 15% of our revenues from sales to customers outside of the United States. Our ability to achieve future success will depend in part on the expansion of our international sales and operations. International operations are generally subject to a number of risks, including:

- Expenses associated with customizing products for foreign countries;

- Protectionist laws and business practices that favor local competition;

- Dependence on local vendors;

- Multiple, conflicting and changing governmental laws and regulations;

- Longer sales cycles;

- Longer accounts receivable cycles;

- Increased difficulties in collecting accounts receivable;

- Difficulties in managing operations across disparate geographic areas;

- Difficulties associated with enforcing agreements through foreign legal systems;

- Reduced or limited protection of our intellectual property rights in some countries;

- Foreign currency exchange rate fluctuations; and - Political and economic instability.

In addition, if we grow internationally, we will need to expand our worldwide operations and enhance our communications infrastructure. If we fail to implement and improve these systems, our ability to accurately forecast sales demand, manage our supply chain and record and report financial and management information would be adversely affected. This could materially adversely affect our business, results of operations and financial condition.

Undetected Software or Hardware Errors Could Have a Material Adverse Effect on Us

Networking products frequently contain undetected software or hardware errors when first introduced or as new versions are released. We have experienced minor errors in the past in connection with new products. We expect that errors will be found from time to time in new or enhanced products after we

begin commercial shipments. These problems may cause us to incur significant warranty and repair costs, divert the attention of our engineering personnel from our product development efforts and cause significant customer relations problems. The occurrence of these problems could result in the delay or loss of market acceptance of our products and would likely have a material adverse effect on our business, results of operations and financial condition.

Since our customers use our products to provide broadband access to their customers, defects or other performance problems in our products could result in financial or other damages to our customers. They could seek damages for losses from us, which, if they were successful, could have a material adverse effect on our business, results of operations and financial condition. We have not experienced any product liability claims to date. However, a product liability claim brought against us, even if unsuccessful, would likely be time consuming and costly.

OUR FAILURE AND THE FAILURE OF OUR KEY SUPPLIERS AND CUSTOMERS TO BE YEAR 2000 COMPLIANT COULD NEGATIVELY IMPACT OUR BUSINESS The Year 2000 computer issue creates a variety of risks for us. If systems do not correctly recognize date information when the year changes to 2000, our business, results of operations and financial condition could be materially adversely affected. The risks involve:

- Potential warranty or other claims by our customers;

- Errors in systems we use to run our business;

- Errors in systems used by our suppliers;

- Errors in systems used by our customers; and - Potential reduced spending by other companies on broadband Internet access products as a result of significant information systems spending on Year 2000 remediation.

Our internal systems include both our information technology, or IT, and non-IT systems. We have conducted an initial audit of our material internal IT systems, including both our own software products and third-party software and hardware technology. We have not yet initiated an assessment of our non-IT systems. To the extent that we are unable to test the technology provided by third-party vendors, we are seeking assurances from these vendors that their systems are Year 2000 compliant. We may experience material unanticipated problems and costs caused by undetected errors or defects in the technology used in our internal IT and non-IT systems. These unanticipated problems and costs could have a material adverse effect on our business, results of operations and financial condition.

We intend to contact our critical suppliers to determine if the suppliers' operations and the products and services provided to us are Year 2000 compliant. Where practicable, we will attempt to mitigate our risks with respect to the failure of our suppliers to be Year 2000 compliant by locating Year 2000 compliant replacement suppliers. However, our failure to mitigate our Year 2000 risks remains a possibility and could have a material adverse impact on our business, results of operations and financial condition.

We have been informed by Electromax, our contract manufacturer, that its manufacturing systems are Year 2000 compliant. However, Electromax may experience material unanticipated problems and costs caused by undetected errors or defects in the technology used in their internal IT and non-IT systems. These unanticipated problems and costs could cause manufacturing delays or difficulties for our products and harm Electromax's operations. Additionally, Electromax has not yet ascertained whether any of its suppliers is Year 2000 compliant. The failure of a supplier of Electromax to be Year 2000 compliant could also adversely affect Electromax's operations. Any of these events could materially adversely affect our business, results of operations and financial condition.

We believe that the SMS 1000 is Year 2000 compliant. However, despite testing by us and by current and potential customers, and despite assurances from developers of products incorporated into the SMS 1000, the SMS 1000 may contain undetected errors or defects associated with Year 2000 date functions. We believe that, based solely on internal testing, the recently introduced SMS 500 is Year 2000 compliant. We have made assurances to our customers that the SMS 1000 and the SMS 500 are Year 2000 compliant. The failure of our SMS products to be Year 2000 compliant would result in numerous customer claims, which could have a material adverse impact on our business, results of operations and financial condition.

We do not currently have any information concerning the Year 2000 compliance status of our customers. Our current or potential customers may incur significant expenses to achieve Year 2000 compliance. If our customers are not Year 2000 compliant, they may experience material costs to remedy problems, or they may face litigation costs. In either case, spending on Year 2000 issues could reduce or eliminate the budgets that our current or potential customers could have for purchases of our products. As a result, our business, results of operations and financial condition could be materially adversely affected.

To date, our Year 2000 related costs have not been material. We have funded these costs from available cash without separately accounting for these costs. Although our future Year 2000 compliance costs are not expected to be significant, we may experience unanticipated material problems and costs associated with Year 2000 compliance that could adversely affect our business, results of operations and financial condition. We have not yet developed any contingency plan to address situations that may result if we are unable to achieve Year 2000 readiness of our critical operations. The cost of developing and implementing a Year 2000 contingency plan may be material.

We May Not Be Able to Protect Our Proprietary Technology

We rely on a combination of patent, copyright, trademark and trade secret laws and restrictions on disclosure to protect our intellectual property rights. We have filed one U.S. patent application. There can be no assurance that this application will be approved, that any issued patents will protect our intellectual property or that any issued patents will not be challenged by third parties. Furthermore, other parties may independently develop similar or competing technology or design around any patents that may be issued to us. We attempt to protect our intellectual property rights by limiting access to the distribution of our software, documentation and other proprietary information. In

addition, we enter into confidentiality agreements with our employees and certain customers, vendors and strategic partners. We cannot be certain that the steps we have taken will prevent the misappropriation of our intellectual property, particularly in foreign countries where the laws may not protect our proprietary rights as fully as in the United States.

Others may allege that our products infringe upon their proprietary rights. Any parties asserting that our products infringe upon their proprietary rights would force us to defend ourselves or our customers, manufacturers or suppliers against alleged infringement of intellectual property rights. We could incur substantial costs to prosecute or defend this litigation. In addition, intellectual property litigation could force us to do one or more of the following:

- Cease selling, incorporating or using products or services that incorporate the challenged intellectual property;

- Obtain from the holder of the infringed intellectual property right a license to sell or use the relevant technology, which license may not be available on acceptable terms, if at all; or - Redesign those products or services that incorporate the disputed technology.

In the event of a successful claim of infringement against us and our failure or inability to develop non-infringing technology or license the infringed technology on acceptable terms and on a timely basis, our business, results of operations and financial condition would be materially adversely affected. We may be subject to these claims in the future.

We may in the future initiate claims or litigation against third parties for infringement of our proprietary rights in order to determine the scope and validity of our proprietary rights or the proprietary rights of competitors. These claims could result in costly litigation and the diversion of our technical and management personnel. As a result, our business, results of operations and financial condition could be materially adversely affected.

We May Need Additional Capital, Which May Not Be Available

At December 31, 1998, we had approximately $8.2 million in cash, cash equivalents and short-term investments. At December 31, 1998, we had a line of credit in the amount of $2.0 million that expires at the end of July 1999, upon which we had drawn down $1.5 million, and a term loan in the amount of $750,000 that expires at July 31, 2000, $391,000 of which was outstanding. Subsequent to December 31, 1998, we increased the line of credit to $5.0 million. We believe that these amounts, combined with proceeds from this offering and cash anticipated to be available from future operations, will enable us to meet our working capital requirements for at least the next 12 months. We do not currently anticipate the need for additional capital but if cash from available sources is insufficient, or if cash is used for acquisitions or other unanticipated uses, we may need additional capital. The development and marketing of new products and the expansion of reseller channels and associated support personnel will require a significant commitment of resources. In addition, if the market for

broadband access develops at a slower pace than anticipated or if we fail to establish significant market share and achieve a meaningful level of revenue, we may continue to incur significant operating losses and utilize significant amounts of capital. As a result, we could be required to raise substantial additional capital. We cannot be certain that additional capital will be available to us at all, or that, if it is available, it will be on terms favorable to us. Any inability to raise additional capital when we require it would materially adversely affect our business, results of operations and financial condition. Any additional issuance of equity or equity-related securities will be dilutive to our stockholders.

Risks Related to the Broadband Access Industry

SALES OF OUR PRODUCTS ARE DEPENDENT ON THE WIDESPREAD ADOPTION OF BROADBAND ACCESS SERVICES Sales of our products depend on the increased use and widespread adoption of broadband access services, and the ability of our customers to market and sell broadband access services. Our business, results of operations and financial condition would be materially adversely affected if the use of broadband access services does not increase as anticipated or if our customers' broadband access services are not received well by the marketplace. Certain critical issues concerning use of broadband access services are unresolved and will likely affect use of broadband access services. These issues include:

- Security;

- Reliability;

- Bandwidth;

- Congestion;

- Cost;

- Ease of access; and - Quality of service.

Even if these issues are resolved, if the market for products that provide broadband access to the Internet and to corporate networks fails to develop, or develops at a slower pace than anticipated, our business, results of operations and financial condition would be materially adversely affected.

The Broadband Access Services Market Is Subject to Rapid Change

The broadband access services market is new and is characterized by rapid technological change, frequent enhancements to existing products and new product introductions, changes in customer requirements and evolving industry standards. We may not be able to respond quickly or effectively to these developments. The introduction of new products by competitors, market acceptance of products

based on new or alternative technologies, or the emergence of new industry standards, could render our existing products obsolete, which would materially adversely affect our business, results of operations and financial condition.

The emergence of new industry standards might require us to redesign our products. If our products are not in compliance with industry standards that become widespread, our customers and potential customers may not purchase our products. This would have a material adverse effect on our business, results of operations and financial condition.

OUR BUSINESS MAY BE ADVERSELY AFFECTED BY GOVERNMENT REGULATION OF THE COMMUNICATIONS INDUSTRY The jurisdiction of the Federal Communications Commission, or FCC, extends to the communications industry, to our customers and to the products and services that our customers sell. Future FCC regulations, or regulations set forth by other regulatory bodies, may adversely affect the broadband access services industry. Regulation of our customers may have a material adverse affect on our business, results of operations and financial condition. For example, FCC regulatory policies that affect the availability of data and Internet services may impede our customers' penetration into certain markets. In addition, international regulatory bodies are beginning to adopt standards for the communications industry. The delays that these governmental processes entail may cause order cancellations or postponements of product purchases by our customers, which would materially adversely affect our business, results of operations and financial condition.

Risks Related to the Securities Markets

Our Stock Price May Be Volatile

Prior to this offering, you could not buy or sell our common stock publicly. An active public market for our common stock may not develop or be sustained after this offering. We will negotiate and determine the initial public offering price with the representatives of the underwriters based on several factors. This price may vary from the market price of the common stock after this offering. The market price of the common stock may fluctuate significantly in response to the following factors:

- Variations in our quarterly operating results;

- Changes in financial estimates by securities analysts;

- Changes in market valuations of broadband access technology companies;

- Changes in market valuations of networking and telecommunications companies;

- Announcements by us or our competitors of significant contracts, new products or product enhancements, acquisitions, strategic partnerships, joint ventures or capital commitments;

- Loss of a major customer;

- Additions or departures of key personnel;

- Sales of common stock or other securities in the future; and - Fluctuations in stock market prices and volumes.

OUR BUSINESS MAY BE ADVERSELY AFFECTED BY CLASS ACTION LITIGATION DUE TO STOCK PRICE VOLATILITY In the past, securities class action litigation has often been brought against a company following periods of volatility in the market price of the company's securities. We may in the future be the target of similar litigation. If we become engaged in securities class action litigation, our management's attention and resources may be diverted and we may incur substantial costs, resulting in a material adverse effect to our business, results of operations and financial condition.

CONTROL BY EXISTING STOCKHOLDERS MAY LIMIT YOUR ABILITY TO INFLUENCE THE OUTCOME OF DIRECTOR ELECTIONS AND CERTAIN TRANSACTIONS Upon completion of this offering, our executive officers, directors and principal stockholders and their affiliates will beneficially own approximately % of our outstanding common stock (% if the underwriters' over-allotment option is exercised in full). These stockholders, if acting together, would be able to significantly influence all matters requiring approval by our stockholders, including the election of directors and the approval of mergers or other business combination transactions.

Substantial Sales of Our Common Stock Could Adversely Affect Our Stock Price

Sales of a substantial number of shares of our common stock after this offering could adversely affect the market price of our common stock by potentially introducing a large number of sellers of our common stock into a market in which our common stock price is already volatile, thus driving our common stock price down. In addition, the sale of these shares could impair our ability to raise capital through the sale of additional equity securities. Based on shares outstanding as of December 31, 1998, upon completion of this offering, we will have shares of common stock outstanding, or shares if the underwriters' over-allotment option is exercised in full. Our directors, executive officers and current stockholders have executed lock-up agreements that limit their ability to sell shares of our common stock. These stockholders have agreed, subject to limited exceptions, not to sell or otherwise dispose of any shares of our common stock for a period of at least 180 days after the date of this prospectus without the prior written approval of Morgan Stanley & Co. Incorporated. When these lock-up agreements expire, these shares and the shares of common stock underlying any options held by these individuals will become eligible for sale, in some cases pursuant only to the volume, manner of sale and notice requirements of Rule 144. See "Management -- Stock Plans" and "Shares Eligible for Future Sale."

Investors Will Experience Immediate Dilution

The initial public offering price of our common stock is expected to be substantially higher than the book value per share of our outstanding common stock immediately after the offering. Accordingly, if you purchase our common stock in this offering, you will incur immediate dilution of approximately $ in the book value per share of our common stock from the price you pay for our common stock. This calculation assumes that you purchased our common stock for $ per share.

ANTI-TAKEOVER PROVISIONS IN OUR CHARTER DOCUMENTS AND DELAWARE LAW COULD PREVENT OR DELAY A CHANGE IN CONTROL OF OUR COMPANY Provisions in our bylaws and in our certificate of incorporation, both as amended and restated upon the closing of this offering, may have the effect of delaying or preventing a change of control or changes in management of our company. These provisions include:

- The stipulation that a special meeting of stockholders may only be called by stockholders owning at least 50% of our outstanding shares;

- The ability of our board of directors to issue preferred stock without stockholder approval; and - The right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors.

Furthermore, we are subject to the provisions of section 203 of the Delaware General Corporation Law. These provisions prohibit a stockholder owning 15% or more of our outstanding voting stock from consummating a merger or combination with us unless this stockholder receives board approval for the transaction or unless 66 2/3% of the outstanding shares of our voting stock not owned by this stockholder approve the merger or combination.

Special Note Regarding Forward-looking Statements

This prospectus contains forward-looking statements. These statements relate to future events or our future financial performance. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expect," "plan," "anticipate," "believe," "estimate," "predict," "potential," "intend" or "continue," the negative of such terms or other comparable terminology. These statements are only predictions. Actual events or results may differ materially. In evaluating these statements you should specifically consider various factors, including the risks outlined under "Risk Factors." These factors may cause our actual results to differ materially from any forward-looking statement.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We are under no duty to update any of the forward-looking statements after the date of this prospectus to conform such statements to actual results or to changes in our expectations.

Use of Proceeds

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     We estimate that our net proceeds from the sale of the
                       shares of common stock we are offering will be
approximately $          , or $          if the underwriters exercise their
over-allotment option in full, at an assumed initial public offering price of
$          and after deducting estimated underwriting discounts and commissions
and our estimated offering expenses of $          .
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We expect to use the net proceeds from this offering for general corporate purposes, including capital expenditures and working capital. A portion of the net proceeds may also be used to acquire or invest in complementary businesses, technologies, product lines or products. We have no current plans, agreements or commitments with respect to any such acquisitions or investments, and are not engaged in any negotiations with respect to any such acquisitions or investments. Our management will have broad discretion concerning the use of the net proceeds of this offering. We intend to invest the net proceeds of this offering in investment grade, interest-bearing securities pending their use.

Dividend Policy

We have never declared or paid cash dividends on our common stock or other securities and do not currently anticipate paying cash dividends in the future. Our bank line of credit currently prohibits the payment of dividends.

Capitalization

- - The following table sets forth our capitalization as of December 31, 1998.

- - The pro forma information reflects the filing of an amendment to our amended and restated certificate of incorporation to provide for authorized capital stock of 80,000,000 shares of common stock and 10,000,000 shares of undesignated preferred stock and the conversion of all outstanding shares of preferred stock into 10,456,621 shares of common stock on the closing of this offering.

- - The pro forma as adjusted information reflects the sale of the shares of common stock offered hereby after deducting estimated underwriting discounts and commissions and our estimated offering expenses.

The outstanding share information excludes 2,104,725 shares of common stock issuable upon exercise of outstanding options as of December 31, 1998 at an average exercise price of $1.49 per share, 129,471 shares of common stock issuable upon exercise of outstanding warrants at an average exercise price of $1.51 per share and 1,273,100 shares of common stock reserved for issuance under our stock plan as of December 31, 1998. This table should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the Financial Statements and the related notes.

AS OF DECEMBER 31, 1998 PRO FORMA ACTUAL PRO FORMA AS ADJUSTED (IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA) Long-term obligations, less current portion..... $ 1,275 $ 1,275 $ Stockholders' equity (deficit): Preferred stock, $.0001 par value; 13,500,000 shares authorized; 10,456,621 shares issued and outstanding, actual; 10,000,000 shares authorized, pro forma and pro forma as adjusted; no shares issued or outstanding, pro forma and pro forma as adjusted..... 18,884 -- Common stock, $.0001 par value; 22,500,000 shares authorized; 7,825,302 shares issued and outstanding, actual; 80,000,000 shares authorized, 18,281,923 shares issued and outstanding, pro forma; 80,000,000 shares authorized, issued and outstanding, pro forma as adjusted..... 6,741 25,625 Deferred stock compensation..... (4,731) (4,731) Notes receivable from stockholders..... (211) (211) Accumulated deficit..... (14,429) (14,429) Total stockholders' equity..... 6,254 6,254 Total capitalization..... $ 7,529 $ 7,529 $

Dilution

The pro forma net tangible book value of our common stock as of December 31, 1998, giving effect to the conversion of all shares of preferred stock outstanding as of December 31, 1998 into common stock on the closing of this offering, was $6,254,000, or approximately $.34 per share of common stock. Pro forma net tangible book value per share represents the amount of our total tangible assets reduced by the amount of our total liabilities divided by 18,281,923 shares of common stock outstanding after giving effect to the conversion of the preferred stock outstanding as of December 31, 1998 into common stock. After giving effect to the issuance and sale of shares of our common stock in this offering and after deducting estimated underwriting discounts and commissions and our estimated offering expenses, our pro forma net tangible book value as of December 31, 1998 would have been $, or approximately $ per share of common stock. This represents an immediate increase in pro forma net tangible book value of $ per share to existing stockholders and an immediate dilution in net tangible book value of $ per share to new investors. The following table illustrates the per share dilution:

Assumed initial public offering price per share..... $ $ Pro forma net tangible book value per share as of December 31, 1998..... .34 Increase in pro forma net tangible book value per share attributable to new investors..... Pro forma net tangible book value per share after the offering..... Dilution per share to new investors..... $ The following table summarizes on a pro forma basis, giving effect to the conversion of all outstanding shares of preferred stock into common stock on the closing of this offering, as of December 31, 1998, the difference between the number of shares of common stock purchased from Redback Networks by existing stockholders and by new investors, the total consideration paid to Redback Networks by existing stockholders and new investors and the average price per share paid by existing stockholders and by new investors, before deduction of estimated underwriting discounts and commissions and our estimated offering expenses.

SHARES PURCHASED		TOTAL CONSIDERATION		AVERAGE
NUMBER	PERCENT	AMOUNT	PERCENT	PRICE PER SHARE

Existing stockholders.....	18,281,923	$20,014,000	$1.10
New investors.....			
Totals.....	100.0%	100.0%	

As of December 31, 1998, there were options outstanding to purchase a total of 2,104,725 shares of common stock at a weighted average exercise price of approximately $1.49 per share; 129,471 shares of common stock issuable upon exercise of outstanding warrants at a weighted average exercise price of $1.51 per share; and 1,273,100 shares of common stock reserved for issuance under our stock plan. To the extent outstanding options or warrants are exercised, there will be further dilution to new investors. See "Management -- Stock Plans."

Selected Financial Data

The following selected financial data should be read in conjunction with our Financial Statements and related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this prospectus. The statement of operations data for the period from August 30, 1996 (inception) through December 31, 1996 and for the fiscal years ended December 31, 1997 and December 31, 1998, and the balance sheet data at December 31, 1997 and December 31, 1998 are derived from audited financial statements included elsewhere in this prospectus. The balance sheet data at December 31, 1996 is derived from audited financial statements not included in this prospectus.

	PERIOD FROM AUGUST 30, 1996 (INCEPTION) THROUGH DECEMBER 31, 1996	YEAR ENDED DECEMBER 31, 1997	1998
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		
STATEMENT OF OPERATIONS DATA:			
Net revenues.....	$ --	$ 48	$ 9,206
Cost of revenues.....	--	29	3,603
Gross profit.....	--	19	5,603
Operating expenses:			
Research and development.....	124	3,249	5,727
Selling, general and administrative.....	19	1,317	8,875
Amortization of deferred stock compensation.....	--	--	880
Total operating expenses.....	143	4,566	15,482
Loss from operations.....	(143)	(4,547)	(9,879)
Interest and other income.....	1	221	254
Interest expense.....	--	(85)	(251)
Net loss.....	$(142)	$(4,411)	$(9,876)
Basic and diluted net loss per share.....	$(.22)	$ (4.10)	$ (3.57)
Shares used in computing net loss per share.....	658	1,076	2,769
Pro forma net loss per share:			
Basic and diluted net loss per share.....			$ (.78)
Shares used in computing net loss per share.....			12,684

DECEMBER 31, 1996 1997 1998 (IN THOUSANDS)

BALANCE SHEET DATA:			
Cash and cash equivalents.....	$ 119	$ 3,084	$ 8,189
Working capital.....	12	5,630	4,461
Total assets.....	216	7,849	14,682
Long-term obligations, less current portion.....	--	827	1,275

Accumulated deficit	(142)	(4,553)	(14,429)
Total stockholders' equity	83	6,081	6,254

Management's Discussion and Analysis of Financial Condition and Results of Operations

The following commentary should be read in conjunction with the Financial Statements and related notes contained elsewhere in this prospectus. The discussion contains forward-looking statements that involve risks and uncertainties. These statements relate to future events or our future financial performance. In many cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "plans," "anticipates," "believes," "estimates," "predicts," "potential," "intend" or "continue," or the negative of such terms and other comparable terminology. These statements are only predictions. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of certain factors, including, but not limited to, those set forth under "Risk Factors" and elsewhere in this prospectus.

Overview

Redback Networks provides advanced networking solutions that enable carriers, cable MSOs and service providers to rapidly deploy high-speed broadband access technologies such as DSL, cable and wireless. We sell our products to a number of different types of carriers, including incumbent local exchange carriers, or ILECs, competitive local exchange carriers, or CLECs, cable MSOs and service providers. Our products are sold through a direct sales force, value-added resellers, or VARs, and strategic distribution partners.

We recognize revenues, net of allowances, when we ship products to our customers, provided no significant outstanding vendor obligations remain and collection is considered probable. We recognize support revenue ratably over the support period and service revenues as services are performed. Currently, all of our product sales and service arrangements provide for pricing and payment in U.S. dollars. Since we have no other product line, our business, financial condition and results of operations are dependent on acceptance of our SMS solution in the broadband market.

From inception through December 1997, our operating activities consisted primarily of research and development activities and building our management team. We shipped our first products in December 1997, but did not begin shipping our products in material quantities until the second quarter of 1998. To date, we have derived substantially all of our revenues from sales of our flagship product, the SMS 1000, in the DSL market. Our success will depend on our ability to sell products not only in the DSL market, but also in other markets, including the cable and wireless markets. We released the SMS 500 in early March 1999. The SMS 500 is targeted at service provider facilities supporting a smaller number of subscribers than facilities using the SMS 1000. We cannot be certain that the SMS 1000, the SMS 500 or any future products will achieve widespread market acceptance.

To date, a significant portion of our revenues has resulted from a small number of relatively large orders. Substantially all of our sales are made on the basis of purchase orders rather than long-term agreements. As a result, we may commit resources to the production of products without having received advance purchase commitments from customers. If we are unable to sell products to which we have devoted significant resources or if orders for our products are cancelled or delayed, our inventory levels could become excessive. Any subsequent write-off of inventory could have a material adverse effect on our business, results of operations and financial condition.

We anticipate that our operating results for any given period will continue to be dependent to a significant extent on large purchase orders, which can be delayed or cancelled by our customers without penalty. In addition, we anticipate that our operating results for a given period will continue to be dependent on a small number of customers. Sales to UUNET, a subsidiary of MCI Worldcom, Nortel Networks and GTE and its affiliated entities accounted for 28%, 13% and 12%, respectively, of our total revenues for the quarter ended December 31, 1998. If we fail to receive a significant purchase order that we expected for a given quarter, our revenues for that quarter, or following quarters, will be adversely affected. This could adversely affect our business, results of operations and financial condition. Furthermore, if any of our customers experience financial difficulties, our sales to these customers may be reduced and we may have difficulty in collecting accounts receivable from these customers. Any delay in large customer orders or customer financial difficulties could have a material adverse effect on our business, results of operations and financial condition.

We currently use Electromax to assemble our products. We also rely on single or limited source suppliers to manufacture certain key components of our products. A significant portion of our cost of revenues is related to these outsourcing arrangements. These relationships are subject to a variety of risks.

Currently, competition in our market is intense. We continue to add features to our products based on the needs of our customers. This has resulted in increased research and development expenses and may result in reduced operating margins on our products and a longer sales cycle. We expect competition to increase in the future. This competition may also result in price reductions and loss of market share. We expect that product life cycles will remain relatively short and that the average selling price and gross margins for our products will decline as each product matures. Accordingly, we must introduce new products on a timely basis with improved performance characteristics. Further, we must reduce production costs and sell sufficient volumes in order to maintain gross margins. If we fail to reduce our production costs or achieve volume shipment requirements, our product margins will decline rapidly. Any of the above events could have a material adverse effect on our business, results of operations and financial condition.

In 1998, we recorded total deferred stock compensation of $5.6 million in connection with stock and stock options granted during 1998 at prices subsequently deemed to be below fair market value on the date of grant. Options granted are typically subject to a four year vesting period. Stock grants are generally subject to our right to repurchase the stock, which lapses over a four year period. We are amortizing the deferred stock compensation over the vesting periods of the applicable options and the

repurchase periods for the restricted stock. We amortized $880,000 of deferred stock compensation in the year ended December 31, 1998, leaving approximately $4.7 million to be amortized over the remaining vesting periods. In 1999, we recorded approximately $3.0 million in additional deferred stock compensation for stock options granted in January and February 1999 at prices subsequently deemed to be below fair market value on the date of grant.

Results of Operations

Quarterly Results of Operations

The following table sets forth our unaudited quarterly results of operations, in dollars and as a percentage of net revenues, for the four quarters ended December 31, 1998. You should read the following table in conjunction with the Financial Statements and related notes contained elsewhere in this prospectus. We have prepared this unaudited information on the same basis as the audited Financial Statements. This table includes all adjustments, consisting only of normal recurring adjustments, that we consider necessary for a fair presentation of our financial position and operating results for the quarters presented. You should not draw any conclusions about our future results from the results of operations for any quarter.

	THREE MONTHS ENDED			
	MAR. 31, 1998	JUN. 30, 1998	SEPT. 30, 1998	DEC. 31, 1998
	(IN THOUSANDS)			
Net revenues	$ 478	$ 1,294	$ 2,933	$ 4,501
Cost of revenues	266	676	1,172	1,489
Gross profit	212	618	1,761	3,012
Operating expenses:				
Research and development	863	1,062	1,583	2,219
Selling, general and administrative	1,333	1,656	2,519	3,367
Amortization of deferred stock compensation	23	53	233	571
Total operating expenses	2,219	2,771	4,335	6,157
Loss from operations	(2,007)	(2,153)	(2,574)	(3,145)
Other income (expense)	26	(20)	(5)	2
Net loss	$(1,981)	$(2,173)	$(2,579)	$(3,143)

	AS A PERCENTAGE OF NET REVENUES			
	MAR. 31, 1998	JUN. 30, 1998	SEPT. 30, 1998	DEC. 31, 1998
Net revenues	100.0%	100.0%	100.0%	100.0%
Cost of revenues	55.6	52.2	40.0	33.1
Gross profit	44.4	47.8	60.0	66.9
Operating expenses:				
Research and development	180.5	82.1	54.0	49.3
Selling, general and administrative	278.9	128.0	85.9	74.8
Amortization of deferred stock compensation	4.8	4.1	7.9	12.7
Total operating expenses	464.2	214.2	147.8	136.8
Loss from operations	(419.8)	(166.4)	(87.8)	(69.9)
Other income (expense)	5.4	(1.5)	(.1)	.1
Net loss	(414.4)%	(167.9)%	(87.9)%	(69.8)%

Net Revenues. Our net revenues increased in each of the four quarters ended December 31, 1998 due to the sale of an increasing number of SMS 1000s, our principal product. Significant revenues from GTE began in the third quarter of 1998 and from UUNET and Nortel Networks in the fourth quarter of 1998.

Cost of Revenues; Gross Profit. Cost of revenues includes all costs associated with the production of our product, including cost of materials, manufacturing and assembly costs paid to contract manufacturers and related overhead costs associated with our manufacturing personnel. Additionally, all warranty costs and any inventory provisions or write-downs are expensed as cost of revenues. Cost of revenues, expressed in absolute dollars, increased in each of the four quarters ended December 31, 1998 primarily as a result of increased product sales. Gross margin, expressed as a percentage of net revenues, increased in each quarter primarily due to reduced costs of certain key components, a decrease in related overhead costs resulting from shipments of our products in material quantities and changes in product configuration. Specifically, over the last two quarters of 1998, our customers have been purchasing the SMS 1000 with more interface slots filled, which increases gross margins. Changes in product configuration will cause our gross margins to vary in future periods.

Research and Development. Research and development expenses consist primarily of salaries and related costs of employees engaged in research and development activities, as well as related cost of materials. Our research and development expenditures increased in absolute dollars in each of the four quarters ended December 31, 1998 primarily as a result of increased personnel costs. This increase reflects research and development efforts associated with new products, such as the SMS 500, and new features and functionality for the SMS 1000. To date, we have expensed research and development expenses as incurred. Because the market for our products is characterized by rapidly changing technology, industry standards and customer demands, we expect our research and development expenses to increase in absolute dollars.

Selling, General and Administrative. Selling, general and administrative expenses consist primarily of employee-related expenses, including commissions paid to sales representatives and marketing and facility-related expenses. During each of the four quarters ended December 31, 1998, selling, general and administrative expenses increased in absolute dollars. These increases were mainly due to the hiring of additional sales and administrative personnel, the payment to sales representatives of increased commissions resulting from increased sales, and additional marketing expenses. We anticipate that selling, general and administrative expenses will continue to increase in absolute dollars as a result of increases in sales force personnel, commissions on higher revenues, additional marketing activities and costs associated with public company reporting requirements.

Amortization of Deferred Stock Compensation. Amortization of deferred stock compensation increased during each of the four quarters ended December 31, 1998. This increase was a result of a greater number of shares of stock and stock options granted during the last two quarters of the year, which was associated with our increased hiring efforts and the amortization of deferred compensation on prior grants.

Other Income (Expense). Our other income consists of interest earned on our cash and cash equivalents offset by other expenses, principally interest expense paid on our capital leases and borrowings.

We have not recorded a provision for income taxes because we experienced net losses from inception through 1998. As of December 31, 1998, we had net operating loss carryforwards of approximately $11.6 million. These carryforwards will expire at various dates beginning in 2004 through 2018, if not utilized. Utilization of the net operating losses may be subject to a substantial annual limitation due to the ownership change limitations contained in the Internal Revenue Code and similar state provisions. There is sufficient uncertainty regarding the reliability of the deferred tax assets such that a full valuation allowance has been recorded. The annual limitation may result in the expiration of the net operating loss and credits before utilization. See note 4 of the notes to Financial Statements.

Inception to December 31, 1996 and Years Ended December 31, 1997 and 1998

Net Revenues. We did not generate any revenues until December 1997. Our net revenues increased from $48,000 in 1997 to $9.2 million in 1998 as we began shipping the SMS 1000 in volume.

Cost of Revenues; Gross Profit. Our cost of revenues increased from $29,000 in 1997 to $3.6 million in 1998 as we began shipping the SMS 1000 in material quantities. Gross margin increased from 40% in 1997 to 61% in 1998 primarily due to reduced costs of certain key components, a decrease in related overhead costs as a percentage of revenues resulting from an increase in shipments, and changes in product configuration.

Research and Development. Our research and development expenses increased from $124,000 for the period from inception to December 31, 1996 to $3.2 million in 1997 and $5.7 million in 1998. These increases were due mainly to an increase in the number of research and development personnel and related costs associated with the development of the SMS 500 and new features and functionality of the SMS 1000.

Selling, General and Administrative. Our selling, general and administrative expenses for the period from inception to December 31, 1996 were not material. These expenses increased from $1.3 million in 1997 to $8.9 million in 1998 due to the addition of sales and administrative personnel, commissions on higher sales and additional marketing and facility-related expenses.

Amortization of Deferred Stock Compensation. In 1998, we recorded amortization of deferred stock compensation of $880,000 in connection with stock and stock options granted during 1998 at prices subsequently deemed to be below fair market value on the date of grant.

Other Income (Expense). Our other income, net of expenses, for the period from inception to December 31, 1996 was not material. Our other income, net of expenses, decreased from $136,000 in 1997 to $3,000 in 1998 due primarily to higher interest expense charges resulting from increases in the amount of capital equipment we leased, partially offset by interest earned on our cash and cash equivalents.

Liquidity and Capital Resources

Since our inception, we have financed our operations through private sales of securities and, to a lesser extent, bank borrowings and equipment lease financing. During 1998, we used $6.6 million in cash for operating activities, compared to $3.8 million in 1997. This increase resulted from the significant expansion of our operations during this period, including increases in inventory and accounts receivable. We expect that accounts receivable and inventory will continue to increase if our revenues continue to rise and that we will continue to increase our investment in capital assets to expand our operations.

Our principal source of liquidity as of December 31, 1998 consisted of $8.2 million in cash and cash equivalents. As of December 31, 1998, we had a credit facility that includes a term loan and a revolving line of credit that provides for borrowings up to the lesser of $2.0 million or 80% of eligible accounts receivable, as defined in the credit facility. Our line of credit bears interest at the bank's prime lending rate plus .5% and expires on July 31, 1999. As of December 31, 1998, we had $1.9 million in outstanding bank indebtedness, consisting of $391,000 under the term loan and $1.5 million under the line of credit. In January 1999, we repaid the amount outstanding under the line of credit. As of December 31, 1998, we were not in compliance with the profitability covenant under the line of credit. We obtained a waiver of this covenant as of December 31, 1998. In January 1999, we increased the limit on the line of credit from $2.0 million to $5.0 million.

Purchases of property and equipment, including equipment purchased under capital leases, increased from $1.5 million in 1997 to $2.7 million in 1998, and consisted primarily of purchases of computer equipment, including workstations and servers to support our increased research and develop- ment activities. We expect our capital expenditures to increase as we further expand our research and development efforts and as our employee base grows. The timing and amount of future capital expenditures will depend primarily on our future growth. We expect to spend approximately $4.1 million for capital expenditures in fiscal 1999 for computer equipment, including workstations and servers to support our increased research and development activities.

We believe that the net proceeds from this offering, together with our existing cash balances, anticipated cash flows from operations and credit line and capital lease financing, will be sufficient to meet our operating and capital requirements for at least the next 12 months. However, we could be required, or could elect, to raise additional funds during that period and we may need to raise additional capital in the future. Additional capital may not be available at all, or may only be available on terms unfavorable to us. Any additional issuance of equity or equity-related securities will be dilutive to our stockholders.

Recent Accounting Pronouncements

In March 1998, the American Institute of Certified Public Accountants, or AICPA, issued Statement of Position, or SOP, No. 98-1, Accounting for the Costs of Computer Software Developed or Obtained for Internal Use. SOP No. 98-1 requires that entities capitalize certain costs related to internal-use

software once certain criteria have been met. We expect that the adoption of SOP No. 98-1 will not have a material impact on our financial position, results of operations or cash flows. We will be required to implement SOP No. 98-1 for the year ending December 31, 1999.

In April 1998, the AICPA issued SOP No. 98-5, Reporting on the Costs of Start-Up Activities. SOP No. 98-5 requires that all start-up costs related to new operations must be expensed as incurred. In addition, all start-up costs that were capitalized in the past must be written off when SOP No. 98-5 is adopted. We expect that the adoption of SOP No. 98-5 will not have a material impact on our financial position, results of operations or cash flows. We will be required to implement SOP No. 98-5 for the year ending December 31, 1999.

In June 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards, or SFAS, No. 133, Accounting for Derivative Instruments and Hedging Activities. SFAS No. 133 establishes methods of accounting for derivative financial instruments and hedging activities related to those instruments as well as other hedging activities. Because we currently hold no derivative instruments and do not engage in hedging activities, we expect that the adoption of SFAS No. 133 will not have a material impact on our financial position, results of operations or cash flows. We will be required to implement SFAS No. 133 for the year ending December 31, 2000.

Year 2000 Compliance

Historically, computer programs used two digits -- rather than four -- to designate specific years. Computer programs that use two digits to designate a specific year may recognize a date using "00" as the year 1900 rather than the year 2000. This could result in a system failure or miscalculations causing disruptions of operations, including, among other things, a temporary inability to process transactions, send invoices or engage in normal business activities. This is known as the Year 2000 problem.

We have relationships with, and are to varying degrees dependent upon, a large number of third parties that provide information, goods and services to us or who manufacture and ship our products. Our business, results of operations and financial condition could be materially adversely affected if any of the third parties with whom we have relationships were to experience significant Year 2000 related problems. In addition, our business, results of operations and financial condition could be materially adversely affected if any of our key customers encounter significant Year 2000 related problems that cause them to delay or cancel substantial purchase orders or product deliveries.

We have been informed by Electromax, our contract manufacturer, that its manufacturing systems are Year 2000 compliant. However, Electromax may experience material unanticipated problems and costs caused by undetected errors or defects in the technology used in their internal IT and non-IT systems. These unanticipated problems and costs could have a material adverse effect on their business, results of operations and financial condition. Additionally, Electromax is unable to ascertain whether any of its suppliers is Year 2000 compliant. The failure of a supplier of Electromax to be Year 2000 compliant could adversely affect Electromax's operations, which could materially adversely affect our business, results of operations and financial condition.

Our products are ultimately used with a number of different hardware and software products, and to the extent any third-party products are not Year 2000 compliant, the interoperability of our products could be adversely affected. Given the large number of third-party components used in conjunction with our products and our limited resources, we do not expect to review third-party products for Year 2000 compliance.

We have conducted an initial audit of our critical internal financial, informational and operational systems to identify and evaluate those areas that may be affected as a result of the Year 2000 problem. To date, we have not incurred material expense associated with our efforts to become Year 2000 compliant and do not anticipate that any future costs associated with our Year 2000 remediation efforts will be material.

Although we plan to complete modifications or upgrades of our systems prior to the Year 2000, we may not be able to develop and implement a plan that adequately addresses the Year 2000 problem in a timely manner. If we are not able to address the Year 2000 problem adequately, we may be unable to conduct our business. This would have a material adverse effect on our results of operations and financial condition.

Business

Overview

Redback Networks is a leading provider of advanced networking solutions that enable carriers, cable multiple system operators, or MSOs, and service providers to rapidly deploy high-speed broadband access to the Internet and corporate networks. Our Subscriber Management System, or SMS, connects and manages large numbers of subscribers using any of the major high-speed access technologies, including digital subscriber line, or DSL, cable and wireless. We sell our SMS product family through our direct sales force, VARs and distribution partners, such as Nokia and Nortel Networks. Bridging the gap between high-speed access concentrators and backbone routers, our SMS is currently being used by many of the largest carriers and service providers, including UUNET, a subsidiary of MCI Worldcom, SBC, Southwestern Bell Information Services and Pacific Bell Internet, subsidiaries of SBC, GTE, Ameritech, Bell South, Concentric, Earthlink, Flashcom, Korea Telecom, Verio and @Work, a division of @Home.

Industry Background

Increasing Demand for Broadband Access Services

In recent years, there has been a significant increase in demand by businesses and consumers for broadband, or high-speed, access to the Internet and to corporate networks. Increasing numbers of users are relying on Internet Protocol, or IP, based networks to access corporate intranets and the World Wide Web and to participate in network-dependent activities such as email, electronic commerce, telecommuting and on-line entertainment. Consumers are seeking low-cost, high-speed access to bandwidth-intensive Internet content and services such as highly graphical Web sites, audio, video and high-speed data. International Data Corporation, or IDC, predicts that by the end of 1999, one in three U.S. households will be online. Businesses have even greater requirements for high-speed access in order to implement electronic commerce strategies or Web-based business models, and to provide employees and others with robust telecommuting capabilities. These applications often require the transmission of large, multimedia-intensive files, which is practical only with high-speed data access services.

Emerging Broadband Internet Access Options

Carriers, cable MSOs and service providers are responding to this demand for high-speed access by providing inexpensive and comprehensive broadband services. These services deliver "always on" availability that eliminates the tedious dial-up process associated with analog modem technologies. Changes in telecommunications regulations have facilitated the development of broadband strategies by local access providers, using the following technologies:

DSL. The market for digital subscriber line, or DSL, services is expanding rapidly. DSL operates over standard copper telephone wires, leveraging an extensive network infrastructure that can be upgraded for broadband services. Various implementations of DSL are being developed and deployed, including full-rate ADSL, or Asymmetrical DSL, and G.lite for consumer applications and SDSL, or Symmetrical DSL, for business applications. Certain applications of DSL can also serve as an affordable replacement for dedicated lines used to deliver high-speed data services. Incumbent local exchange carriers, or ILECs, including Ameritech, Bell Atlantic, Bell South, GTE, Pacific Bell, SBC and US West, have deployed DSL services. Telecommunications regulatory reform has enabled the new competitive local exchange carriers, or CLECs, and leading Internet exchange carriers including Covad Communications, MCI Worldcom, NorthPoint Communications, Rhythms NetConnections, and Sprint, to provide DSL service over the same telephone infrastructure used by the ILECs.

Interactive Cable. High-speed interactive communication across the cable infrastructure is made possible by the combination of two-way cable, cable modems installed in the home and cable modem termination systems, or CMTSs, installed at major cable concentration points, known as headends. Several companies are currently deploying broadband access services across two-way cable, including

@Home and TimeWarner, through its Roadrunner service. IDC estimates that, as of the end of 1998, there were 95 million homes passed by cable. With upgrades to two-way cable, cable MSOs are well positioned to deploy broadband access services.

Wireless. As an alternative to wireline access, certain carriers and service providers are using wireless technologies to provide cost-effective broadband access. Many of these providers are in the early stages of using their licenses to deploy broadband wireless access services.

Fiber-to-the-Curb. Fiber optic cable supports an alternative broadband access technology based on light and photonics that offers nearly unlimited bandwidth capacity. Where deployment costs are justified by service opportunity, fiber optic cable is being deployed in the "last mile" from the telephone central office to the subscriber. Recent fiber-to-the-curb initiatives have been pursued by several ILECs.

Obstacles to Deploying Broadband Access

Regardless of the type of broadband access delivered, deployments of broadband services pose several major challenges associated with scaling and configuring existing architectures to accommodate large numbers of new high-speed subscribers. The traditional dial network model, relying on analog modems and standard telephone lines, is structured so that service providers can aggregate subscribers using remote access servers, or RASs, located at the service providers' data centers. Although constrained by speed, this network model allows service providers not only to aggregate subscriber connections and pass the traffic to routers, but also to manage subscriber provisioning, authentication and accounting in the RAS.

With broadband access technologies, however, subscriber connections are first concentrated by the carriers and cable MSOs using technology-specific access concentrators such as DSL access multiplexers, or DSLAMs, and CMTSs. From there, high-speed data circuits are aggregated at a central facility by carriers, cable MSOs or other service providers who terminate subscriber connections and provide backbone connectivity to the Internet. These service providers therefore need to manage thousands of subscribers' connections and to route subscribers' data to and from the Internet. While service providers have been using traditional routers to provide both the circuit termination and Internet connectivity functions, routers were only designed to address the Internet connection task and are limited to managing several hundred subscribers, significantly less than the thousands of potential subscribers associated with a widely deployed service. In addition, unlike existing RASs used in the traditional analog modem dial network model, routers were not designed to provide broadband subscriber management functions such as provisioning, authentication and accounting.

Broadband technologies pose additional challenges for service providers interested in offering more than one type of broadband service. Each broadband access technology uses different equipment at the service provider's facility. As a result, service providers offering multiple broadband services significantly increase their costs, as they must purchase different routers and deploy different operational models for each broadband service they choose to offer to their subscribers. The traditional broadband network model is depicted below:

Separate Networks for Each Access Technology

[Diagram]

Another obstacle to deploying broadband services is the point-to-point, or dedicated, nature of broadband access technologies. Whether the access method is DSL, cable or wireless, each of these technologies provides a dedicated link from one starting point, such as a home or small office, to a single destination network, such as a service provider or a corporation. Thus, a telecommuter who purchases a DSL service for connecting to a corporate network is unable to use the same line to access directly a consumer service provider for personal Web surfing.

There is a growing demand from carriers, cable MSOs and service providers to address these issues so that they are able to provide their customers with reliable, scalable, easy-to-use high-speed access on a cost-effective basis. Carriers, cable MSOs and service providers require highly scalable networks and the ability to manage and groom individual subscriber data streams into simplified IP flows for backbone routers. Service providers must be able to rapidly and cost-effectively aggregate data streams from diverse broadband access technologies from different carriers and cable MSOs.

The Redback Networks Solution

Redback Networks provides solutions that make it possible for carriers, cable MSOs and service providers to connect and manage large numbers of subscribers using high-speed access technologies such as DSL, cable and wireless. Our Subscriber Management System, or SMS, lets carriers, cable MSOs and service providers connect thousands of subscribers quickly and cost-effectively, as well as manage subscriber accounts and service profiles. Carriers, cable MSOs and service providers are able to deliver different kinds of high-speed broadband access and a variety of service offerings with a single operational structure. Our SMS network model is described below:

Redback Supports All Major Broadband Technologies [Diagram]

Key benefits of our solution include the following:

Enhances Broadband Operations. The SMS bridges the operational gap between "last mile" access networks that serve businesses and homes and the backbone routers used by service providers. The SMS accepts a large concentration of high-speed data traffic from multiple access concentrators and translates it to an IP data stream, relieving backbone routers of traffic translation and management responsibilities. In this process, the SMS manages individual subscriber connections and reduces the number of routers required for widespread deployment of broadband services.

Supports All Major Access Technologies. The SMS provides and supports a consistent operational model across major access technologies including DSL, cable, wireless and dial, and can be deployed by all types of access providers, including ILECs and CLECs, cable MSOs and service providers. For example, a service provider, using the SMS, can offer DSL services today and later add or resell a cable or wireless service offering through the same SMS. With the SMS, providers are able to utilize one product and one familiar operational model to deliver multiple broadband access technologies to serve thousands of subscribers.

Facilitates Rapid and Scalable Deployment. The SMS supports service providers' existing access, accounting and management control systems, including RADIUS, enabling them to quickly deploy high-speed access and achieve rapid time-to-market for significant revenue-generating services. RADIUS is the industry standard database used by traditional remote access servers, or RASs. We designed our solution to be interoperable with equipment from multiple vendors, for easy integration into existing network environments. For example, the SMS has built-in support for the major DSL protocols and implementations. Additionally, the SMS is compatible with existing backbone routers and leverages the high-performance levels of these routers. Once in place, the SMS architecture is inherently more scalable than a router-based architecture. The SMS 1000 today supports up to 4,000 simultaneous subscriber sessions, over fifteen times the number of subscribers supported by conventional routers.

Provides Platform for the Delivery of Value-Added Services. Our solution enables providers to create and market new service offerings that leverage basic broadband connectivity and capabilities. The multiple context functionality of the SMS lets service providers configure subscribers to access multiple services across a single physical link. For example, a telecommuter can access a corporate network from home while his or her family simultaneously accesses consumer Internet services through the same connection. Thus, a service provider previously generating a flat monthly access fee can offer value-added services and generate multiple revenue streams through "re-profiling". In addition, a wholesale provider of network services can partition high-speed transport services among multiple service providers or corporate customers through a single SMS with "re-selling". A large provider can use this capability to provide wholesale access to up to 20 smaller providers per SMS chassis -- a significant improvement for wholesale transactions.

Simplifies End-User Administration and Support. Our approach allows easy configuration and administration of end-user broadband modems, reducing service providers' costs and enhancing their ability to rapidly deploy services to thousands of subscribers. For example, we utilize point-to-point over Ethernet, or PPPoE, technology to provide individualized services for multiple users sharing a single connection, such as multiple PCs in a home or office. The SMS also supports a variety of means to manage users, resulting in reduced training and lower operational expenses.

Strategy

Our objective is to be the leading provider of advanced solutions that enable carriers, cable MSOs and service providers to rapidly deploy high-speed broadband access to the Internet and corporate networks. Key elements of our strategy include the following:

Extend Leadership in the Carrier and Service Provider Market. We are focused on delivering subscriber management solutions to carriers and service providers and have established early market leadership in the DSL market through account wins in several major networks. We currently have orders or installations at four of the five RBOCs, including SBC, Bell Atlantic, Bell South and Ameritech, as well as installations at other national and international carriers, including GTE and Korea Telecom. Additionally, we have several leading service providers as customers, including UUNET, a subsidiary of MCI Worldcom, Earthlink, Concentric, Southwestern Bell Information Services and Pacific Bell Internet, subsidiaries of SBC, and @Work, a division of @Home. We plan to extend our market leadership position by continuing to invest in sales and marketing efforts that let us further penetrate existing accounts, develop early customer relationships and win new service provider accounts for all types of broadband access.

Penetrate Cable and Wireless Broadband Markets. We intend to leverage our leadership position in DSL subscriber management to penetrate other critical broadband access markets, such as cable, wireless and fiber-to-the-curb. We plan to continue to enhance our solutions that support multiple broadband access technologies and to expand our sales and marketing efforts accordingly. By offering service providers the ability to support multiple broadband access technologies, we believe our solution will gain acceptance across multiple broadband access markets.

Expand Global Distribution and Strengthen Strategic Relationships. We currently pursue a direct and indirect sales strategy to penetrate carrier, cable MSO and service provider organizations in North America, focusing primarily on large Internet service providers, or ISPs, ILECs and CLECs. We also target smaller service providers through VARs that participate in our authorized PowerPartners program. We are expanding our presence globally by increasing the scope and size of our sales force, including adding dedicated sales resources in both Europe and Asia. To further support our global sales objectives, we have established strategic relationships with leading communications and networking companies that have significant customer relationships in place. These partners, including Nortel Networks and Nokia, have enabled us to rapidly expand our global sales presence and to leverage their established relationships with major carriers and service providers.

Leverage Leading Software Capabilities. We believe our Access Operating System, or AOS, software differentiates our solution and gives us a competitive advantage in the marketplace. Leveraging our highly experienced team of software engineers, we intend to continue to enhance our wholesale, security, bandwidth management, subscriber accounting and billing, and network management capabilities. We expect our current and future products will share a common software foundation and offer a consistent operational model.

Enable New Consumer and Business Services. We believe our solution provides a highly flexible platform for the creation and delivery of new value-added services. We will continue to work directly with our customers to develop features and functionality that further enhance the ability of service providers to deliver profitable new broadband-based services. We believe this approach will increase the value we offer in both new and existing installations, as well as contribute to the continued business success of our customers. Examples of these new services include tiered "gold" or "platinum" high-availability services, virtual private networks, or VPNs, and bundled teleworker services.

Deliver Broad Product Family. Our flagship SMS 1000 is targeted at carriers, cable MSOs and large service providers. We have expanded our product offering with the SMS 500, which is targeted at service provider facilities with fewer subscribers than those using the SMS 1000. Our strategy is to continue to leverage our AOS software across multiple access technologies and products. In so doing, we intend to address a range of functionality, density and application requirements of carriers, cable MSOs and small and large service providers.

Customers

The following is a representative list of companies that have purchased our products and services:

SERVICE PROVIDERS:	CARRIERS:	RESELLERS:
Concentric	Ameritech	ECI Telecom
Earthlink	AT&T Wireless	Fujitsu
Flashcom	Bell Atlantic	GTI
Pacific Bell Internet, a subsidiary of SBC	Bell South	Lucent
Southwestern Bell Information Systems, a subsidiary of SBC	GTE	Nokia
UUNET, a subsidiary of MCI Worldcom	Korea Telecom	Nortel Networks
Verio	SBC	Sumitomo Electronics
@Work, a division of @Home	Sprint	
	Williams Communications	

The following examples illustrate how organizations are using our products to deploy broadband service offerings.

Network Service Provider

One of the world's largest network service providers, or NSPs, announced that it intended to roll out its DSL service by early 1999. The rollout, which has the potential to be the largest DSL deployment offered by any service provider to date, includes two different categories of DSL services: (1) Symmetrical DSL, or SDSL, services designed to support business applications such as Web hosting, e-commerce and bulk file transfer; and (2) Asymmetrical DSL, or ADSL, services targeted at consumer applications such as Internet surfing, home shopping and interactive games. In order to offer a broad deployment on a rapid time schedule, the service provider required a solution that would enable it to quickly and easily scale to large proportions.

The NSP chose us to anchor its DSL service offering, and plans to deploy the SMS 1000 as an edge device that performs all of the aggregation, management and conversion functions necessary to deliver router-ready IP data streams to the backbone. The NSP will aggregate as many as 4,000 subscribers per SMS 1000 over high-speed links issuing from various central office sources. The NSP will be able to handle the extra volume of traffic resulting from high-speed DSL without adding any more router power to its backbone. Using the SMS 1000's powerful multiple context functionality, the NSP will deliver wholesale DSL services.

Internet Service Provider

One of the largest consumer ISPs, was interested in adding broadband access to its portfolio of access services. The ISP was already a leader in traditional dial-up access with hundreds of thousands of subscribers, and was looking to add cable access and ADSL access over various transfer modes. Specifically, the ISP received DSL capacity from strategic wholesale partners, and cable capacity through an affiliated cable MSO. The ISP was facing the issue of how to cost-effectively aggregate subscriber traffic from these different access technologies while maintaining its existing, and highly successful, operational model.

By using our SMS 1000 in its large points-of-presence, or POPs, the ISP was able to aggregate its different DSL and cable feeds using a single vendor's device. Additionally, because the SMS 1000 was fully integrated with the ISP's existing RADIUS billing and authentication systems, the ISP was able to leverage and retain its many years of operating expertise and continue using its existing operational model with new broadband service offerings.

Incumbent Local Exchange Carrier Affiliate

An unregulated affiliate of an ILEC, had been operating trials of its DSL Internet access service in a limited number of communities and households for over a year and planned to announce a much broader service deployment and breakthrough pricing levels. The ILEC affiliate needed a highly scalable and production-proven solution to handle the massive demand it expected to receive for its services. It was looking for a solution that would improve upon the router-based architecture already in use in the service trials.

The ILEC affiliate selected our SMS 1000 as the subscriber management platform to aggregate subscriber traffic in its service. Today, SMS 1000s are being deployed in the ILEC affiliate's DSL-enabled POPs to manage live traffic from thousands of subscribers, and the service deployment has been scaling rapidly.

Sales and Marketing

We sell our products through a direct sales force, VARs, and strategic distribution partners.

Direct Sales. Our direct sales force is located in North America and is focused on the largest service provider, cable MSO and carrier opportunities. As of February 28, 1999, our direct sales force consisted of 35 persons located in various cities throughout North America. In addition, we are currently building sales organizations in Europe and Asia, both of which will be focused on large international accounts.

VARs. We sell our SMS solutions through VARs and network integrators that participate in our authorized PowerPartners reseller program. PowerPartners are responsible for system installation, preliminary technical support and follow-on services to customers in their respective locations. Our authorized PowerPartners program provides a wide range of sales and marketing support materials, sales and technical training courses, a partners-only web site, and various cooperative marketing opportunities.

Strategic Distribution Partners. In order to further support our global sales objectives, we have established strategic relationships with leading communications and networking companies that have significant customer relationships already in place. These partners, including Nortel Networks and Nokia, have enabled us to rapidly expand our global sales presence and to leverage their established relationships with major carriers and service providers.

Marketing. We have a variety of marketing programs and initiatives to support the sale and distribution of our products. The audience for these activities includes our sales organization, strategic partners and authorized resellers, existing and prospective customers, and the trade press, analysts and others who are influential in the industry. Marketing activities include participation in technical conferences, preparation of sales tools, business cases, competitive analyses and other marketing collateral, sales training, publication of customer deployments, new product information and educational articles in industry journals, maintenance of our World Wide Web site and direct marketing to prospective customers. We also participate in leading industry tradeshows, such as Networld + InterOp at Las Vegas, where we received an award for Best of Show in May 1998 in the Wide Area Network, or WAN, and remote access devices category.

Products and Technology

Our SMS solutions enable broadband service providers to deliver high-speed Internet access and services by bridging the operational gap between high-speed access equipment in the telco central office or cable/wireless headend and network service provider backbone routers. Whether deployed by telecommunications carriers at their regional access points, by cable MSOs at a headend or by service providers at a point-of-presence, or POP, the SMS accepts a large concentration of high-speed data traffic from such devices as DSL access multiplexers, or DSLAMs, Cable Modem Termination Systems, or CMTSs, and wireless termination systems. The SMS applies scalable user configuration and management to the data streams, and then performs all of the translations necessary to convert the traffic to IP, relieving the service provider backbone routers of frame translations that can cause congestion on high-volume networks.

Description of the Sms Product Family

We currently offer two SMS solutions, (1) the SMS 1000 and (2) the SMS 500.

SMS 1000. We began shipping the flagship SMS 1000 in December 1997. To date, our customers for the SMS 1000 have included UUNET, a subsidiary of MCI Worldcom, SBC, Southwestern Bell Information Services and Pacific Bell Internet, subsidiaries of SBC, GTE, Ameritech, Bell South, Concentric, Earthlink, Flashcom, Korea Telecom, Verio and @Work, a division of @Home. Each SMS 1000 today can support up to 4,000 simultaneous subscribers and is targeted at major ISPs, ILECs, CLECs and cable MSOs. The chassis consists of six modular interface slots, which can be populated with modules supporting DS-3 and OC-3 ATM, DS-3 Frame Relay, 10/100 megabit Ethernet and other transmission protocols.

SMS 500. Targeted initially for service provider facilities with fewer subscribers than those using the SMS 1000, we released the SMS 500 for general availability in March 1999. The SMS 500 is a smaller chassis with two modular interface slots and supports up to 1,000 simultaneous subscribers. The SMS 500 supports ATM, Frame Relay and 10/100 megabit Ethernet, as well as T-1 connections.

Access Operating System Software

Our Access Operating System software, or AOS, is an advanced operating system developed to optimize the subscriber management and routing functions in our SMS products. AOS operates on both the SMS 500 and SMS 1000, and was developed specifically to support the aggregation of large numbers of subscriber circuits. It supports a large variety of encapsulations in use in the networking industry today, and provides sophisticated traffic management features such as traffic shaping and rate policing.

In addition, our AOS supports the routing and bridging of IP packets and is capable of running dynamic routing protocols. It supports authentication mechanisms such as Challenge Handshake Authentication Protocol, or CHAP, and Password Authentication Protocol, or PAP, and provides tools necessary to manage a large network of subscribers. AOS supports the unique capability to dynamically bind subscriber sessions to services. This capability enables dynamic service selection to be deployed by carriers and service providers alike. The AOS also supports the Layer 2 Tunneling Protocol, or L2TP, which is critical to the deployment of virtual private networks by service providers. We are a co-author of the PPP-over-Ethernet specification, or PPPoE, a protocol that greatly simplifies broadband access and service provider selection, and the PPPoE functionality in our AOS is a leading implementation. Another distinguishing feature of our AOS is its support for multiple contexts, which allows a service provider to partition a single SMS unit into as many as twenty multiple virtual logical devices.

Some of the key functions that our AOS supports include:

Policing and Rate Limiting. Policing and rate limiting supports the creation of different service classes and provides service providers with predictable traffic behavior for better management of their networks.

Routing Protocol Support. AOS includes support for certain popular routing protocols. In addition, we will continue to leverage and expand the routing protocol support that our SMS product line offers.

Layer 2 Tunneling Protocol (L2TP). We support Layer 2 Tunneling Protocol, or L2TP, the standard method of building a virtual private network, or VPN, allowing fixed and mobile users, including telecommuters, to simulate a private network using a shared infrastructure, such as the Internet. VPNs also allow mobile users to make secure connections to their corporate intranets or extranets over the public Internet.

Web-based Management. The Web-based management capabilities in our AOS allow service providers to streamline operations and simplify troubleshooting through a common, easy-to-use browser interface.

Bulk Statistics. The bulk statistics capabilities in our AOS allow service providers access to information that enables them to provide efficient storage and transfer of high volume accounting data.

Research and Development

We have assembled a team of highly experienced networking engineers with experience at leading communications companies. Our engineering expertise includes routers and routing protocols, access products, ATM/Frame Relay switching, WAN interfaces and network management. As of February 28, 1999, we employed 51 engineers, with plans to continue expanding all functional areas of the engineering organization. During 1998 we spent $5.7 million on research and development.

Our research and development process is driven by market demand. Product development begins with a comprehensive functional product specification based on input from the product management and sales organizations. In addition, we value feedback from customers and have incorporated a significant amount of customer-requested functionality to date. We are also active in industry bodies and standards committees and utilize information from these organizations in the product development process.

We are focusing development efforts on, among other things, supporting carrier services and additional industry standards, expanding the capacity of existing products and extending network management capabilities. In addition, we are committed to extending the functionality of our AOS software to enable additional competitive advantage for our customers.

Customer Service and Support

Our customer service and support organization installs and maintains products sold in North America by our direct sales force, as well as certain products sold by our authorized resellers and partners. Generally, our strategic distribution partners and authorized resellers provide installation and first-level, or preliminary, support to their customers, while we provide backup support.

Our Technical Assistance Center, or TAC, employs systems engineers who work closely with our direct sales personnel, partners and resellers to assist end users with post-sales support issues. We have retained field systems engineers to provide pre-sales support and installation services for direct sales customers.

Manufacturing

Our manufacturing operations consist primarily of prototype development, materials planning and procurement, final assembly, testing and quality control. We use several independent suppliers to provide certain printed circuit boards, chassis and subassemblies. We subcontract substantially all of our manufacturing to Electromax, located in San Jose, California. In addition, we use a combination of standard parts and components obtained through Wyle Electronics, located in Santa Clara, California. Several key components are purchased from sole or limited sources of supply. See "Risk Factors -- We are dependent on a single contract manufacturer and some of the key components in our products come from single or limited sources of supply."

Competition

The broadband access markets we are targeting, including DSL, cable and wireless, are new and rapidly evolving and we expect these markets to become highly competitive in the future. In addition, we expect that new competitors will emerge as the market for broadband access itself evolves due to technological innovation and regulatory changes. We encounter current or potential competition from public and private companies providing backbone routers, access concentrators and subscriber aggregation systems.

Cisco, the leading provider of backbone routers, offers products that compete directly with our SMS products, and also provides a comprehensive range of broadband access systems. We expect companies that offer access concentrators and routers, such as Nortel Networks and Ascend, which recently announced its pending acquisition by Lucent, to incorporate some subscriber management functionality into their products. In addition, there are private companies that provide subscriber management features in access concentrators or routing platforms.

Some of our current and potential competitors, including Cisco, Alcatel and Lucent/Ascend are large public companies that have longer operating histories and significantly greater financial, technical, marketing and other resources than we do. As a result, these competitors are able to devote greater resources to the development, promotion, sale and support of their products. In addition, competitors with large market capitalizations or cash reserves are much better positioned than we are to acquire other companies, including our competitors, and thereby acquire new technologies or products that may displace our product lines. Any of these acquisitions could give the acquiring competitor a strategic advantage that would materially adversely affect our business, results of operations and financial condition.

Many of our competitors have significantly more established customer support and professional services organizations than we do. In addition, many of our competitors have more extensive customer bases and broader customer relationships than us, including relationships with many of our current and potential customers. Moreover, these competitors often have broader product offerings than we do. These companies can leverage their customer relationships and broader product offerings and adopt aggressive pricing policies to gain market share. As a result, we may not be able to maintain a competitive position against current or future competitors. Our failure to maintain and enhance our competitive position within the market could seriously harm our business, results of operations and financial condition.

Patents and Proprietary Rights

Our success and ability to compete are dependent on our ability to develop and maintain the proprietary aspects of our technology. We rely on a combination of patent, trademark, copyright and trade secret laws, employee and third-party nondisclosure agreements and licensing arrangements to protect our intellectual property. These legal protections afford only limited protection for our technology. We have one patent application pending in the United States and we have no foreign patents or patent applications. Our pending patent application may not result in the issuance of any patents. If any patent is issued, it might be invalidated or circumvented or otherwise fail to provide us any meaningful protection. In addition, we cannot be certain that others will not independently develop substantially equivalent intellectual property or otherwise gain access to our trade secrets or intellectual property, or disclose our intellectual property or trade secrets, or that we can meaningfully protect our intellectual property. Our failure to protect our intellectual property effectively could have a material adverse effect on our business, financial condition or results of operations. We have licensed technology from third parties for incorporation into our units, and we expect to continue to enter into such agreements for future products. Our licenses may result in royalty payments to third parties, the cross-license of technology by us or payment of other consideration. If our arrangements are not concluded on commercially reasonable terms, our business, financial condition or results of operations could be materially adversely affected.

Employees

At February 28, 1999, we had a total of 117 employees, all of whom were based in the United States. Of the total, 51 were in research and development, 41 were engaged in sales, marketing and business development, 7 were engaged in customer support services operations, and 18 were in administration, finance and operations. None of our employees are subject to a collective bargaining agreement and we believe that our relations with our employees are good.

Facilities

Our principal administrative, sales, marketing and research and development facility occupies approximately 32,000 square feet in Sunnyvale, California pursuant to a lease that expires in September 1999. We believe that our existing facilities are adequate until this lease expires and that suitable additional or alternative space will be available in the future on commercially reasonable terms as needed. We have sales offices throughout the United States, including regional sales offices in California, Colorado, Virginia and Washington.

Legal Proceedings

We are not aware of any pending legal proceedings against us that, individually or in the aggregate, would have a material adverse effect on our business, results of operations or financial condition. We may in the future be party to litigation arising in the course of our business, including claims that we allegedly infringe third-party trademarks and other intellectual property rights. These claims, even if not meritorious, could result in the expenditure of significant financial and managerial resources.

Management

Directors and Officers

The following table sets forth certain information regarding our directors and officers as of December 31, 1998:

Name Age Position

Dennis L. Barsema(1)	44	President, Chief Executive Officer and Director
Geoffrey C. Darby(1)	52	Vice President of Finance, Chief Financial Officer and Secretary
Randall J. Kruep(1)	38	Vice President of Worldwide Sales
William E. Miskovetz(1)	40	Vice President of Engineering
Larry D. Blair	46	Vice President of Marketing
David D. Childers	51	Director of Customer Support
Gilles G. Concordel	37	Vice President of Business Development
Gaurav Garg	33	Vice President of Business Development and Strategic Planning
Edward S. Harriman	44	Chief Technology Officer
Sean K. Laskey	37	Vice President of Operations
Carrie J. Perzow	42	Vice President of Human Resources
William M. Salkewicz	38	Director of Software Development
Daniel A. Simone	39	Vice President of Product Management
James R. Flach(2)	51	Director
Pierre R. Lamond(3)	68	Director, Chairman of the Board
Daniel J. Warmenhoven(2)(3)	48	Director

(1) Executive officer (2) Member of compensation committee (3) Member of audit committee Dennis L. Barsema has served as our President and Chief Executive Officer and has been a director since joining us in November 1997. Prior to that time, Mr. Barsema was the Senior Vice President and General Manager at Centigram, a telecommunications company, from January 1996 to November 1997. From October 1993 to December 1995, he served as Vice President at SoftSwitch, a telecommunications company. Prior to that time, he served as Vice President at Primary Access and AT&T Paradyne. Mr. Barsema holds a BS in Business Management from Northern Illinois University.

Geoffrey C. Darby has served as our Vice President of Finance, Chief Financial Officer and Secretary since August 1998. From August 1994 to July 1998, he served as Vice President of Finance and Chief Financial Officer of Visioneer, a digital imaging company. From February 1989 to August 1994, he served as Vice President of Finance and Chief Financial Officer of Megatest, a provider of testing equipment for the semiconductor industry. Prior to that time, Mr. Darby was Assistant Treasurer of Compaq from February 1987 to December 1988. Mr. Darby holds a BS (Hons) from Southampton University in England and is a Chartered Accountant in the United Kingdom.

Randall J. Kruep has served as our Vice President of Worldwide Sales since January 1999. From September 1997 to January 1999, Mr. Kruep served as our Vice President of Sales. Previously, Mr. Kruep was Senior Director of Telecom Sales for Fore Systems, an ATM/switching company, from May 1996 to July 1997. Prior to that time, he was a Regional Sales Manager at Cisco, a networking company, from May 1992 to May 1996. From May 1982 to May 1992 he was Director of Sales at Motorola in the Information Systems Group. Mr. Kruep holds a BA in Finance and Communications from Southern Illinois University and an MBA from Fontbonne College.

William E. Miskovetz has served as our Vice President of Engineering since May 1998. Previously, he was Vice President of Engineering at FreeGate, a networking company, from January 1997 to May 1998. From May 1991 to January 1997, he held various engineering and management positions at Cisco, a networking company. Mr. Miskovetz holds a BS in Computer Science from the University of Illinois.

Larry D. Blair has served as our Vice President of Marketing since January 1998. Previously, Mr. Blair was Vice President of Marketing at Ipsilon Networks, a high-performance IP switch company. Prior to that time, Mr. Blair was a co-founder and the Vice President of Marketing at Kalpana, an ethernet switch company, from January 1990 to June 1995. Mr. Blair holds a BSEE from Rochester Institute of Technology.

David D. Childers has served as our Director of Customer Support since July 1998. Previously, Mr. Childers was Senior Manager of Customer Support at Ascend, a networking company, from April 1995 to July 1998. From May 1975 to April 1995, Mr. Childers held various management positions at US West, a telecommunications company. Mr. Childers holds an AA from Community College Denver.

Gilles G. Concordel is one of our co-founders and has served as Vice President of Business Development since December 1996. From November 1994 to December 1996, Mr. Concordel worked for Pacific Telesis, a telecommunications company, as Director of Multimedia Technology. From March 1991 to October 1994, he headed the multimedia business unit at Teknekron Communications

Systems, a communications systems company. Mr. Concordel holds a Masters degree in Physics/Math from Ecole Polytechnique, a Masters degree in Telecommunications from Ecole Nationale Superieure des Telecommunications and an MBA from HEC, France/University of California at Los Angeles.

Gaurav Garg is one of our co-founders and has served as our Vice President of Business Development and Strategic Planning since August 1996. Previously, Mr. Garg was a principal engineer at Bay Networks, a networking company, from July 1990 to July 1996. Mr. Garg holds BAEE, BACS and MSEE degrees from Washington University at St. Louis.

Edward S. Harriman has served as our Chief Technology Officer since March 1999 and has been with Redback Networks since November 1996. Prior to joining Redback Networks, Mr. Harriman was a Consulting Engineer at Bay Networks, a networking company, from February 1989 to November 1996. Previously, Mr. Harriman was Principal Engineer at Bolt Beranek Newman, an Internet company, from February 1980 to February 1989. Mr. Harriman received his BA in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology.

Sean K. Laskey has served as our Vice President of Operations since October 1997. Previously, Mr. Laskey was Director of Operations at Tut Systems, a provider of advanced communications products from July 1996 to July 1997. From September 1990 to June 1996, Mr. Laskey held various management positions at Network Peripherals, a maker of networking equipment. Prior to that time, he was a Manufacturing and Materials Manager at Sun Microsystems, a software and computer systems company, from April 1987 to September 1990.

Carrie J. Perzow has served as our Vice President of Human Resources since October 1998. From February 1995 to September 1998, she was the Vice President of Human Resources for Centigram, a telecommunications company. Prior to that time, she held various management positions at Sun Microsystems, a software and computer systems company, from June 1992 to January 1995. Ms. Perzow previously worked in various HR management positions at 3Com Corporation and Scientific Micro Systems. Ms. Perzow holds a BA in Sociology from the University of California at Santa Barbara.

William M. Salkewicz is one of our co-founders and has served as our Director of Software Development since December 1996. Previously, Mr. Salkewicz was a Principal Engineer at Bay Networks, a networking company, from February 1992 to November 1996. From June 1988 to February 1992, Mr. Salkewicz was a Principal Engineer at Digital Equipment Corporation, a maker of computer peripherals. Mr. Salkewicz holds a BSEE and a BSCS from Western New England College.

Daniel A. Simone has served as our Vice President of Product Management since January 1997. Previously, Mr. Simone worked at Bay Networks, a networking company, from June 1992 to January 1997 as Director of Product Management. Prior to Bay Networks, Mr. Simone held various positions at Motorola, a maker of communications equipment. Mr. Simone holds a BSEE from Marquette University, an MSEE from Marquette University and an MBA from the University of Chicago.

James R. Flach has served as one of our directors since January 1997. From January 1997 to November 1997, Mr. Flach served as our President and Chief Executive Officer. Mr. Flach has been a partner of Accel Partners, a venture capital firm, since September 1992. He currently serves as Chairman of

Sentient Networks, a multi-service access switch company, and is also a director of Hybrid Networks, a broadband access equipment company. Additionally, Mr. Flach serves on the board of a number of private companies. Mr. Flach holds a BS in Physics from Rensselaer Polytechnic Institute and an MS in Applied Mathematics from the Rochester Institute of Technology.

Pierre R. Lamond has served as our Chairman of the Board since November 1996. Mr. Lamond has been a partner with Sequoia Capital, a venture capital firm, since 1981. He is currently the Chairman of CombiChem, a computational drug discovery company, and Vitesse Semiconductor, a semiconductor company. Additionally, Mr. Lamond serves on the board of a number of private companies. Prior to joining Sequoia, Mr. Lamond was a founder and technical director of National Semiconductor and the general manager of its Integrated Circuit Division. Mr. Lamond holds an MS in Electrical Engineering from Northeastern University and an MS in Physics from Toulouse University.

Daniel J. Warmenhoven has served as one of our directors since January 1998. Mr. Warmenhoven has been President, Chief Executive Officer and a Director of Network Appliance, a network data storage devices company, since October 1994. Prior to that time, Mr. Warmenhoven served as Chairman, President and Chief Executive Officer of Network Equipment Technologies. Prior to joining Network Equipment Technologies, he spent five years with Hewlett-Packard serving in a number of senior management positions. Before that time, he served thirteen years with IBM. Mr. Warmenhoven holds a BSEE from Princeton University.

Our executive officers are appointed by our board of directors and serve until their successors are elected or appointed. There are no family relationships among any of our directors or executive officers.

Board Committees

The board of directors has a compensation committee and an audit committee.

Compensation Committee. The compensation committee of the board of directors reviews and makes recommendations to the board regarding all forms of compensation provided to our executive officers and directors, including stock compensation and loans. In addition, the compensation committee reviews and makes recommendations on bonus and stock compensation arrangements for all of our employees. As part of the foregoing, the compensation committee also administers our 1999 Stock Incentive Plan, 1999 Employee Stock Purchase Plan and 1999 Directors' Option Plan. The current members of the compensation committee are Messrs. Flach and Warmenhoven.

Audit Committee. The audit committee of the board of directors reviews and monitors our corporate financial reporting and our internal and external audits, including, among other things, our internal audit and control functions, the results and scope of the annual audit and other services provided by our independent auditors and our compliance with legal matters that have a significant impact on our financial reports. The audit committee also consults with our management and our independent auditors prior to the presentation of financial statements to stockholders and, as appropriate, initiates inquiries into aspects of our financial affairs. In addition, the audit committee has the responsibility to

consider 41 and recommend the appointment of, and to review fee arrangements with, our independent auditors. The current members of the audit committee are Messrs. Lamond and Warmenhoven.

Director Compensation

Directors do not receive any cash fees for their service on the board or any board committee, but they are entitled to reimbursement for all reasonable out-of-pocket expenses incurred in connection with their attendance at board and board committee meetings. Mr. Warmenhoven received options to purchase 75,000 shares of common stock when he joined the board of directors. Following this offering, Messrs. Lamond and Flach will each receive an initial grant of options to purchase 25,000 shares of common stock and all directors will receive automatic annual option grants under our 1999 Directors' Option Plan.

Compensation Committee Interlocks and Insider Participation

The compensation committee of the board of directors currently consists of Messrs. Flach and Warmenhoven. No interlocking relationship exists between any member of our board of directors or our compensation committee and any member of the board of directors or compensation committee of any other company, and no such interlocking relationship has existed in the past.

Indemnification

In March 1999, the board of directors authorized Redback Networks to enter into indemnification agreements with each of our directors and executive officers. The form of indemnification agreement provides that we will indemnify our directors and executive officers to the fullest extent permitted by Delaware law, our certificate of incorporation and our bylaws, against any and all of their expenses incurred by reason of their status as a director or executive officer.

Our certificate of incorporation and bylaws each contain certain provisions relating to the limitation of liability and indemnification of our directors and officers. Our certificate of incorporation provides that our directors will not be personally liable to Redback Networks or our stockholders for monetary damages for breach of fiduciary duty as a director, except for liability - for any breach of the director's duty of loyalty to Redback Networks or our stockholders;

- for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;

- in respect of certain unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or - for any transaction from which the director derives any improper personal benefit.

This provision in the certificate of incorporation does not eliminate the directors' fiduciary duty, and in appropriate circumstances equitable remedies such as injunctive or other forms of non-monetary relief will remain available under Delaware General Corporation law.

Our certificate of incorporation also provides that if the Delaware General Corporation Law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors will be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law. The foregoing provisions of our certificate of incorporation are not intended to limit the liability of our directors or officers for any violation of applicable federal securities laws.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, our bylaws provide that - we are required to indemnify our directors and officers to the fullest extent permitted by the Delaware General Corporation Law;

- we may, in our discretion, indemnify other current and former employees of Redback Networks as provided by the Delaware General Corporation Law;

- to the fullest extent permitted by the Delaware General Corporation Law, we are required to advance all expenses incurred bY our directors and officers in connection with a legal proceeding (subject to certain exceptions);

- the rights conferred in the bylaws are not exclusive; and - any retroactive amendment of our bylaw provisions relating to indemnification shall not affect any indemnification rights or obligations relating to any pre-existing state of facts.

Executive Compensation

The following table sets forth information with respect to compensation for the fiscal year ended December 31, 1998 paid by us for services rendered by our Chief Executive Officer and our other executive officers whose total salary and bonus for such fiscal year exceeded $100,000, collectively referred to below as the Named Executive Officers:

Summary Compensation Table

			LONG-TERM COMPENSATION AWARDS	
	ANNUAL COMPENSATION		SECURITIES	
NAME AND PRINCIPAL POSITION	SALARY($)	BONUS($)	UNDERLYING OPTIONS(#)	OTHER ANNUAL COMPENSATION($)

Dennis L. Barsema..... $180,000 $ 90,000 $ -- -- President, Chief Executive Officer and Director Geoffrey C. Darby(1)..... 72,000 7,000 225,000 -- Vice President of Finance, Chief Financial Officer and Secretary Randall J. Kruep..... 90,000 135,422(2) 75,000 53,000(3) Vice President of Worldwide Sales William E. Miskovetz(4)..... 93,750 15,000 317,500 -- Vice

President of Engineering (1) Represents the total amount of compensation Mr. Darby received in 1998 for the portion of the year during which he was one of our executive officers. Mr. Darby joined us in August 1998. See "Management -- Directors and Officers." (2) Represents commission income. (3) Represents reimbursement for relocation expenses. (4) Represents the total amount of compensation Mr. Miskovetz received in 1998 for the portion of the year during which he was one of our executive officers. Mr. Miskovetz joined us in May 1998.

Option Grants in Last Fiscal Year

The following table sets forth each grant of stock options during the year ended December 31, 1998 to each of the Named Executive Officers. No stock appreciation rights were granted to these individuals during that year.

	INDIVIDUAL GRANTS				POTENTIAL REALIZABLE VALUE AT ASSUMED ANNUAL RATES OF STOCK PRICE APPRECIATION FOR OPTION TERM(4)	
NAME	NUMBER OF SECURITIES UNDERLYING OPTIONS GRANTED(#)(1)	% OF TOTAL OPTIONS GRANTED TO EMPLOYEES IN 1998(2)	EXERCISE PRICE ($/SH)(3)	EXPIRATION DATE	5%($)	10% ($)
Dennis L. Barsema(5).....	--	--%	$ --	--	--	--
Geoffrey C. Darby.....	125,000	4.6	.80	8/3/08	$62,889	$159,374
	100,000	3.7	.80	8/3/08	50,312	127,499
Randall J. Kruep(6).....	30,000	1.1	.60	5/27/08	11,320	28,687
	27,333	1.0	3.00	12/15/08	51,569	130,685
	17,667	.7	3.00	12/15/08	33,332	84,470
William E. Miskovetz.....	247,500	9.1	.30	4/13/08	46,695	118,335
	30,000	1.1	1.00	9/1/08	18,867	47,812
	20,000	.7	3.00	12/15/08	37,734	95,625
	20,000	.7	3.00	12/15/08	37,734	95,625

(1) Each of the options listed in the table is immediately exercisable. The shares purchasable under the options may be repurchased by Redback Networks at the original exercise price paid per share if the optionee ceases service before vesting in such shares. The repurchase right lapses and the optionee vests as to 25% of the option shares upon completion of 12 months of service from the vesting start date and the balance in a series of equal monthly installments over the next three years of service

thereafter. The option shares will vest upon an acquisition of Redback Networks by merger or asset sale, unless our repurchase right with respect to the unvested option shares is transferred to the acquiring entity. In addition, the repurchase right as to Mr. Barsema's shares will lapse in full, and the vesting as to Mr. Darby's shares will be accelerated in full if, upon a merger or asset sale, they are not offered a position equal to or better than their existing position. In the event of a merger or asset sale, the vesting on Mr. Kruep's shares will be redetermined as if the shares vested over a three, rather than four, year period.

(2) Based on a total of 2,709,100 options granted to our employees during the 12 months ended December 31, 1998.

(3) The exercise price was equal to the fair market value of our common stock as valued by our board of directors on the date of grant. In determining this fair market value, the board of directors took into account the purchase price paid by investors for shares of our preferred stock (taking into account the liquidation preferences and other rights, privileges and preferences associated with such preferred stock) and an evaluation by the board of directors of our revenues, operating history and prospects. The exercise price may be paid in cash, in shares of our common stock valued at fair market value on the exercise date or through a cashless exercise procedure involving a same-day sale of the purchased shares. We may also finance the option exercise by lending the optionee sufficient funds to pay the exercise price for the purchased shares, together with any federal and state income tax liability incurred by the optionee in connection with such exercise.

(4) The potential realizable value is calculated based on the ten-year term of the option at the time of grant. Stock price appreciation of 5% and 10% is assumed pursuant to rules promulgated by the Securities and Exchange Commission and does not represent our prediction of our stock price performance. The potential realizable value at 5% and 10% appreciation is calculated by assuming that the estimated fair market value on the date of grant appreciates at the indicated rate for the entire term of the option and that the option is exercised at the exercise price and sold on the last day of its term at the appreciated price. See footnote 3 for information on how the fair market value of our common stock was estimated. The initial public offering price is higher than the estimated fair market value on the date of grant, and the potential realizable value of the option grants would be significantly higher than the numbers shown in the table if future stock prices were projected to the end of the option term by applying the same annual rates of stock price appreciation to the initial public offering price.

(5) Does not include 1,053,480 shares of restricted stock granted to Mr. Barsema in December 1997. See "Management -- Certain Transactions."

(6) Does not include 300,000 shares of restricted stock granted to Mr. Kruep in August 1997. See "Management -- Certain Transactions."

Aggregated Option Exercises in Last Fiscal Year and Fiscal Year-end Option Values

The following table sets forth for each of the Named Executive Officers the number of options exercised during the fiscal year ended December 31, 1998 and the number and value of securities underlying unexercised options that are held by the Named Executive Officers as of December 31, 1998. No stock appreciation rights were exercised by the Named Executive Officers in fiscal year 1998, and no stock appreciation rights were outstanding at the end of that year.

			NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS AT DECEMBER 31, 1998(#)(2)		VALUE OF UNEXERCISED IN-THE-MONEY OPTIONS AT DECEMBER 31, 1998($)(3)	
NAME	SHARES ACQUIRED ON EXERCISE(#)	VALUE REALIZED($)(1)	VESTED	UNVESTED	VESTED	UNVESTED
Dennis L. Barsema.....	--	$ --	--	--	--	$ --
Geoffrey C. Darby.....	--	--	--	225,000	--	495,000
Randall J. Kruep.....	30,000	0	--	45,000	--	--
William E. Miskovetz.....	97,500	0	--	220,000	--	465,000

(1) Equal to the fair market value of the purchased shares on the option exercise date, less the exercise price paid for such shares.

(2) The options are immediately exercisable for all of the option shares, but any shares purchased under those options will be subject to repurchase by Redback Networks, at the original exercise price paid per share, if the optionee ceases service with Redback Networks before vesting in such shares. The heading "Vested" refers to shares that are no longer subject to repurchase; the heading "Unvested" refers to shares subject to repurchase as of December 31, 1998.

(3) Based on the fair market value of our common stock as determined by our board of directors at the end of 1998 of $3.00 per share, less the exercise price payable or paid for such shares. The fair market value of our common stock at the end of 1998 was estimated by the board of directors on the basis of the purchase price paid by investors for shares of our preferred stock (taking into account the liquidation preferences and other rights, privileges and preferences associated with the preferred stock) and an evaluation by the board of our revenues, operating history and prospects. The initial public offering price is higher than the estimated fair market value at fiscal year-end, and the value of unexercised options would be higher than the numbers shown in the table if the value were calculated by subtracting the exercise price from the initial public offering price.

Stock Plans

1999 Stock Incentive Plan

Share Reserve. Our board of directors adopted our 1999 Stock Incentive Plan on March 3, 1999, subject to stockholder approval. We have reserved 2,500,000 shares of our common stock for issuance under the 1999 Stock Incentive Plan. Any shares not yet issued under our 1997 Stock Plan on the date of this offering will also be available under the 1999 Stock Incentive Plan. On January 1 of each year, starting with the year 2000, the number of shares in the reserve will automatically increase by 5% of the total number of shares of common stock that are outstanding at that time or by 1,500,000 shares, whichever is less. In general, if options or shares awarded under the 1999 Stock Incentive Plan or the 1997 Stock Plan are forfeited, then those options or shares will again become available for awards under the 1999 Stock Incentive Plan. We have not yet granted any options under the 1999 Stock Incentive Plan.

Administration. The compensation committee of our board of directors administers the 1999 Stock Incentive Plan. The committee has the complete discretion to make all decisions relating to the interpretation and operation of our 1999 Stock Incentive Plan. The committee has the discretion to determine who will receive an award, what type of award it will be, how many shares will be covered by the award, what the vesting requirements will be (if any), and what the other features and conditions of each award will be. The compensation committee may also reprice outstanding options and modify outstanding awards in other ways.

Eligibility. The following groups of individuals are eligible to participate in the 1999 Stock Incentive Plan:

- Employees;

- Members of our board of directors who are not employees; and - Consultants.

Types of Award. The 1999 Stock Incentive Plan provides for the following types of award:

- Incentive stock options to purchase shares of our common stock;

- Nonstatutory stock options to purchase shares of our common stock; and - Restricted shares of our common stock.

Options. An optionee who exercises an incentive stock option may qualify for favorable tax treatment under Section 422 of the Internal Revenue Code of 1986. Nonstatutory stock options, however, do not qualify for such favorable tax treatment. The exercise price for incentive stock options granted under the 1999 Stock Incentive Plan may not be less than 100% of the fair market value of our common stock on the option grant date. In the case of nonstatutory stock options, the minimum exercise price is 30% of the fair market value of our common stock on the option grant date. Optionees may pay the exercise price by using:

- Cash;

- Shares of common stock that the optionee already owns;

- A full-recourse promissory note, except that the par value of newly issued shares must be paid in cash;

- An immediate sale of the option shares through a broker designated by us; or - A loan from a broker designated by us, secured by the option shares.

Options vest at the time or times determined by the compensation committee. In most cases, our options vest over the four-year period following the date of grant. Options generally expire 10 years after they are granted, except that they generally expire earlier if the optionee's service terminates earlier. The 1999 Stock Incentive Plan provides that no participant may receive options covering more than 1,000,000 shares in the same year, except that a newly hired employee may receive options covering up to 2,000,000 shares in the first year of employment.

Salary Reduction Option Program. The compensation committee may offer our employees, non-employee directors and consultants the opportunity to convert a portion of their salaries or fees into nonstatutory stock options. Individuals who have been selected for this program, if they wish to participate, must file an irrevocable election before the end of a calendar year. In the election, they must specify how much they would like to contribute during the next year, within the limits established by the committee. On the first business day in January of the next year, we will grant them an option under the 1999 Stock Incentive Plan. The exercise price of this option will be equal to one-third of the market price of our stock on the date of grant. The number of shares covered by the option will be equal to the amount of the salary or fee reduction that the participant elected, divided by an amount equal to two-thirds of the market price of our stock on the date of grant. As a result, the total discount under the option (the market price of the option shares on the grant date less the aggregate exercise price payable for those shares) will be equal to the dollar amount of the reduction in the optionee's compensation for the calendar year in which the grant is made. The option will generally become exercisable in 12 equal monthly installments, as the optionee completes each calendar month of service in the year of the grant. The option generally remains exercisable for 10 years from the date of grant, even if the optionee's service terminates earlier. The other terms applicable to grants under this program are substantially the same as the terms described above for regular nonstatutory option grants.

Restricted Shares. Restricted shares may be awarded under the 1999 Stock Incentive Plan in return for:

- Cash;

- A full-recourse promissory note, except that the par value of newly issued shares must be paid in cash;

- Services already provided to us; and - In the case of treasury shares only, services to be provided to us in the future.

Restricted shares vest at the time or times determined by the compensation committee.

Change in Control. If a change in control of Redback Networks occurs, an option or restricted stock award under the 1999 Stock Incentive Plan will generally become fully vested. However, if the surviving corporation assumes the option or award or replaces it with a comparable award, then vesting

accelerates only to the extent determined by the compensation committee. A change in control includes:

- A merger of Redback Networks after which our own stockholders own 50% or less of the surviving corporation (or its parent company);

- A sale of all or substantially all of our assets;

- A proxy contest that results in the replacement of more than one-half of our directors over a 24-month period; or - An acquisition of 50% or more of our outstanding stock by any person or group, other than a person related to Redback Networks (such as a holding company owned by our stockholders).

Amendments or Termination. Our board may amend or terminate the 1999 Stock Incentive Plan at any time. If our board amends the plan, it does not need to ask for stockholder approval of the amendment unless applicable law requires it. The 1999 Stock Incentive Plan will continue in effect indefinitely, unless the board decides to terminate the plan earlier.

1999 Employee Stock Purchase Plan

Share Reserve and Administration. Our board of directors adopted our 1999 Employee Stock Purchase Plan on March 3, 1999, subject to stockholder approval. Our 1999 Employee Stock Purchase Plan is intended to qualify under Section 423 of the Internal Revenue Code. We have reserved 1,000,000 shares of our common stock for issuance under the plan. On May 1 of each year, starting with the year 2000, the number of shares in the reserve will automatically be restored to 1,000,000. In other words, the reserve will be increased by the number of shares that have been issued under the 1999 Employee Stock Purchase Plan during the prior 12-month period. The plan will be administered by the compensation committee of our board of directors.

Eligibility. All of our employees are eligible to participate if they are employed by us for more than 20 hours per week and for more than five months per year. Eligible employees may begin participating in the 1999 Employee Stock Purchase Plan at the start of any offering period. Each offering period lasts 24 months. Overlapping offering periods start on May 1 and November 1 of each year. However, the first offering period will start on the effective date of this offering and end on April 30, 2001.

Amount of Contributions. Our 1999 Employee Stock Purchase Plan permits each eligible employee to purchase common stock through payroll deductions. Each employee's payroll deductions may not exceed 15% of the employee's cash compensation. Purchases of our common stock will occur on April 30 and October 31 of each year. Each participant may purchase up to 1,000 shares on any purchase date (2,000 shares per year). But the value of the shares purchased in any calendar year (measured as of the beginning of the applicable offering period) may not exceed $25,000.

Purchase Price. The price of each share of common stock purchased under our 1999 Employee Stock Purchase Plan will be 85% of the lower of:

- The fair market value per share of common stock on the date immediately before the first day of the applicable offering period; or - The fair market value per share of common stock on the purchase date.

In the case of the first offering period, the price per share under the plan will be 85% of the lower of:

- The price per share to the public in this offering; or - The fair market value per share of common stock on the purchase date.

Other Provisions. Employees may end their participation in the 1999 Employee Stock Purchase Plan at any time. Participation ends automatically upon termination of employment with Redback Networks. If a change in control of Redback Networks occurs, our 1999 Employee Stock Purchase Plan will end and shares will be purchased with the payroll deductions accumulated to date by participating employees, unless the plan is assumed by the surviving corporation or its parent. Our board of directors may amend or terminate the 1999 Employee Stock Purchase Plan at any time. Our Chief Executive Officer may also amend the plan in certain respects. If our board increases the number of shares of common stock reserved for issuance under the plan (except for the automatic increases described above), it must seek the approval of our stockholders.

1999 Directors' Option Plan

Share Reserve. Our board of directors adopted our 1999 Directors' Option Plan on March 3, 1999, subject to stockholder approval. We have reserved 200,000 shares of our common stock for issuance under the plan. On January 1 of each year, starting with the year 2000, the number of shares in the reserve will automatically be restored to 200,000. In other words, the reserve will be increased by the number of shares that have been optioned under the 1999 Directors' Option Plan during the prior 12-month period. In general, if options granted under the 1999 Directors' Option Plan are forfeited, then those options will again become available for grants under the plan. The Directors' Option Plan will be administered by the compensation committee of our board of directors, although all grants under the plan are automatic and non-discretionary.

Initial Grants. Only the non-employee members of our board of directors will be eligible for option grants under the 1999 Directors' Option Plan. Each non-employee director who did not previously receive options to buy our common stock will receive an initial option to buy 25,000 shares on the date of this offering. Each non-employee director who first joins our board after the effective date of this offering will receive an initial option for 25,000 shares. That grant will occur when the director takes office. The initial options vest in equal monthly installments over the four-year period following the date of grant, except that all vesting for the first year occurs at the close of that year.

Annual Grants. At the time of each of our annual stockholders' meetings, beginning in 2000, each non-employee director who will continue to be a director after that meeting will automatically be granted an annual option for 10,000 shares of our common stock. However, a new non-employee director who is receiving the 25,000-share initial option will not receive the 10,000-share annual option in the same calendar year. The annual options vest in equal monthly installments over the one-year period following the date of grant.

Other Option Terms. The exercise price of each non-employee director's option will be equal to the fair market value of our common stock on the option grant date. A director may pay the exercise price by using cash, shares of common stock that the director already owns, or an immediate sale of the option shares through a broker designated by us. The non-employee directors' options have a 10-year term, except that they expire one year after a director leaves the board (if earlier). If a change in control of Redback Networks occurs, a non-employee director's option granted under the 1999 Directors' Option Plan will become fully vested (unless the accounting rules applicable to a pooling of interests preclude acceleration). Vesting also accelerates in the event of the optionee's death or disability.

Amendments or Termination. Our board may amend or terminate the 1999 Directors' Option Plan at any time. If our board amends the plan, it does not need to ask for stockholder approval of the amendment unless applicable law requires it. The 1999 Directors' Option Plan will continue in effect indefinitely, unless the board decides to terminate the plan.

Certain Transactions

Sales of Stock to Insiders

Since August 30, 1996, we have issued and sold securities to the following persons who are executive officers, directors or principal stockholders of Redback Networks. These figures reflect activity through December 31, 1998.

INVESTOR(1)	SERIES A PREFERRED STOCK(2)	SERIES B PREFERRED STOCK(3)	SERIES C PREFERRED STOCK(4)	SERIES D PREFERRED STOCK(5)	COMMON STOCK	TOTAL SHARES AS CONVERTED(6)
Dennis L. Barsema.....	--	--	--	--	1,053,480	1,053,480
Geoffrey C. Darby.....	--	--	--	--	--	--
Randall J. Kruep.....	--	--	--	--	330,000	330,000
William E. Miskovetz.....	--	--	--	--	97,500	97,500
James R. Flach(7).....	--	2,500,001	392,171	409,508	150,000	3,451,680
Pierre R. Lamond(8).....	1,500,000	2,555,004	622,453	419,130	--	5,096,587
Daniel J. Warmenhoven.....	--	--	--	--	75,000	75,000
Funds affiliated with Sequoia Capital(9).....	1,500,000	2,455,002	612,703	419,130	--	4,986,835
Funds Affiliated with Accel Partners(10).....	--	2,500,001	387,296	409,508	--	3,296,805
Funds affiliated with Mayfield Fund(11).....	--	--	1,500,000	212,746	--	1,712,746

(1) See "Principal Stockholders" for more detail on shares held by these purchasers.

(2) The per share purchase price for our series A preferred stock was $.13.

(3) The per share purchase price for our series B preferred stock was $1.00.

(4) The per share purchase price for our series C preferred stock was $2.00.

(5) The per share purchase price for our series D preferred stock was $7.87.

(6) Reflects the conversion to common stock of each share of series A, series B, series C and series D preferred stock that will be effective upon the closing of our initial public offering.

(7) These figures include 4,875 shares of our series C preferred stock and 150,000 shares of our common stock held individually by Mr. Flach. These figures also include holdings by entities related to Accel Partners which include: Accel Internet/Strategic Technology Fund L.P., Accel Investors '96 L.P., Accel Keiretsu V L.P., Accel V L.P. and Ellmore C. Patterson Partners. Mr. Flach, a director of Redback Networks, is a partner of Accel Partners.

(8) These figures include 50,001 shares of our series B preferred stock and 4,875 shares of our series C preferred stock held by the Pierre R. and Christine E. Lamond Trust dated November 22, 1985 and 50,001 shares of our series B preferred stock and 4,875 shares of our series C preferred stock held by the David A. Lamond Trust dated November 16, 1992. These figures also include holdings by entities related to Sequoia Capital which include: Sequoia 1995 LLC, Sequoia 1997, Sequoia Capital VIII, Sequoia Technology Partners VII and SQP 1997. Mr. Lamond, a director and chairman of the board of Redback Networks, is a partner of Sequoia Capital.

(9) Sequoia Capital includes the following entities managed by Sequoia Capital: Sequoia 1995 LLC, Sequoia 1997, Sequoia Capital VIII, Sequoia Technology Partners VII and SQP 1997. Pierre R. Lamond, a director and chairman of the board of Redback Networks, is a partner of Sequoia Capital.

(10) Accel Partners includes the following entities managed by Accel Partners: Accel Internet/ Strategic Technology Fund L.P., Accel Investors '96 L.P., Accel Keiretsu V L.P., Accel V L.P.

and Ellmore C. Patterson Partners. James R. Flach, a director of Redback Networks, is a partner of Accel Partners.

(11) Mayfield Fund includes the following entities managed by Mayfield Fund: Mayfield Associates Fund III and Mayfield VIII.

In addition, we have granted options to certain of our executive officers. See "Management -- Option Grants."

Series a Financing

On September 24, 1996, we issued an aggregate of 1,687,500 shares of series A preferred stock at a per share purchase price of $.13 to four investors, including entities affiliated with Sequoia Capital.

Series B Financing

On January 14, 1997, we issued an aggregate of 5,134,498 shares of series B preferred stock at a per share purchase price of $1.00 to 14 investors, including entities affiliated with Sequoia Capital, Accel Partners and Pierre Lamond.

Series C Financing

On October 23, 1997, we issued an aggregate of 2,557,999 shares of series C preferred stock at a per share purchase price of $2.00 to 16 investors, including James Flach and entities affiliated with Sequoia Capital, Accel Partners, Mayfield Fund and Pierre Lamond.

Series D Financing

On July 2, 1998, we issued an aggregate of 1,076,624 shares of series D preferred stock at a per share purchase price of $7.87 to 14 investors, including entities affiliated with Sequoia Capital, Accel Partners and Mayfield Fund. On January 21, 1999, we issued an aggregate of 63,532 shares of series D preferred stock at a per share purchase price of $7.87 to TDF Management Pte Ltd.

Loans to Certain Executive Officers

In April 1997, we loaned $105,000 to Live Wire Communications Inc. under a promissory note. Darrell Scherbarth, who was then one of our officers, was president and chief executive officer of Live Wire Communications Inc. The note accrued interest at a rate of 5.9%. We forgave the principal of $105,000 and recorded this amount as a compensation expense in 1997.

In December 1997, we loaned $104,696 to Dennis Barsema, our president, chief executive officer and a director, under a promissory note. The note accrues interest at a rate of 5.81% compounded annually and expires on December 3, 2000, on which date all unpaid interest and principal is due on demand. The full amount of this note is currently outstanding, plus accrued interest. In January 1998, we advanced $210,626 to Mr. Barsema for the purchase of Redback Networks common stock pursuant to a subscription agreement dated December 1997. The principal balance of this note, together with interest accrued and unpaid to date, is due and payable in January 2002. Interest will accrue under the note on any unpaid principal balance at the rate of 5.93% per annum, compounded annually. The full amount of this note is currently outstanding, plus accrued interest. This note is secured by a pledge of the purchased common stock.

Option Grants

In the past, we have granted options to our executive officers and directors. We intend to grant additional options to our directors and officers in the future. See "Management -- Option Grants in Last Fiscal Year" and "Management -- Director Compensation."

Indemnification and Limitation of Director and Officer Liability

We have entered into an Indemnification Agreement with each of our executive officers and directors. See "Management -- Indemnification."

We believe that the transactions set forth above were made on terms no less favorable to us than could have been obtained from unaffiliated third parties. All future transactions, including loans between us and our officers, directors, principal stockholders and their affiliates will be approved by a majority of the board of directors, and will continue to be on terms no less favorable to us than could be obtained from unaffiliated third parties.

Principal Stockholders

The following table sets forth the beneficial ownership of Redback Networks common stock as of December 31, 1998 and as adjusted to reflect the sale of the common stock offered hereby for: (1) each person who is known by us to beneficially own more than 5% of our common stock; (2) the chief executive officer and each of our executive officers, (3) each of our directors; (4) Gaurav Garg, one of our founders; and (5) all of our directors and executive officers as a group. Except as otherwise indicated, we believe that the beneficial owners of the common stock listed below, based on information furnished by such owners, have sole voting and investment power with respect to such shares. The percentage of beneficial ownership for the following table is based on 18,281,923 shares of common stock outstanding as of December 31, 1998 assuming conversion of all outstanding shares of preferred stock into common stock, and shares of common stock outstanding after the completion of this offering assuming no exercise of the underwriters' over-allotment option.

		PERCENTAGE OF SHARES BENEFICIALLY OWNED	
NAME OF BENEFICIAL OWNER	NUMBER OF SHARES BENEFICIALLY OWNED(1)	BEFORE OFFERING(1)	AFTER OFFERING(1)(2)
EXECUTIVE OFFICERS, DIRECTORS AND FOUNDER			
Dennis J. Barsema	953,480	5.2%	
Geoffrey C. Darby(3)	225,000	1.2	
Randall J. Kruep(4)	375,000	2.0	
William E. Miskovetz(5)	317,500	1.7	
Gaurav Garg	872,550	4.8	
James R. Flach(6)	3,451,680	18.9	
Pierre R. Lamond(7)	5,096,587	27.9	
Daniel J. Warmenhoven	75,000	*	

OTHER 5% STOCKHOLDERS Entities affiliated with Sequoia Capital(8)... 4,986,835 27.3 3000 Sand Hill Road Building 4, Suite 280 Menlo Park, CA 94025 Entities affiliated with Accel Partners(9).... 3,296,805 18.0 428 University Avenue Palo Alto, CA 94301 Entities affiliated with Mayfield Fund(10).... 1,712,746 9.4 2800 Sand Hill Road Menlo Park, CA 94025 All executive officers and directors as a group (7 persons)(11)..... 10,494,247 55.9 * Represents beneficial ownership of less than 1%.

(1) Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission and generally includes voting or investment power with respect to securities. Common stock subject to options currently exercisable within 60 days of December 31, 1998 are deemed outstanding for purposes of computing the percentage ownership of the person holding such option but are not deemed outstanding for purposes of computing the percentage ownership of any other person. Except where indicated, and subject to community property laws where applicable, the persons in the table above have sole voting and investment power with respect to all common stock shown as beneficially owned by them. Unless otherwise indicated, the address of each of the individuals listed in the table is c/o Redback Networks Inc., 1389 Moffett Park Drive, Sunnyvale, CA 94089.

(2) Assumes no exercise of the underwriters' over-allotment option.

(3) Includes options immediately exercisable for 225,000 shares.

(4) Includes options immediately exercisable for 45,000 shares.

(5) Includes options immediately exercisable for 220,000 shares.

(6) Includes 154,875 shares owned individually by Mr. Flach, 356,053 shares held by Accel Internet/ Strategic Technology Fund L.P., 158,247 shares held by Accel Investors '96 L.P., 52,746 shares held by Accel Keiretsu V L.P., 2,657,230 shares held by Accel V L.P. and 72,529 shares held by Ellmore C. Patterson Partners.

(7) Includes 54,876 shares owned by the Pierre R. and Christine E. Lamond Trust dated November 22, 1985, 54,876 shares held in the David A. Lamond Trust dated November 16, 1992, 137,031 shares held by Sequoia 1995 LLC, 4,441 shares held by Sequoia 1997, 4,614,266 shares held by Sequoia Capital VII and 223,218 shares held by Sequoia Technology Partners VII.

(8) Includes 137,031 shares held by Sequoia 1995 LLC, 4,441 shares held by Sequoia 1997, 4,614,266 shares held by Sequoia Capital VII, 223,218 shares held by Sequoia Technology Partners VII and 7,879 shares held by SQP 1997.

(9) Includes 356,053 shares held by Accel Internet/Strategic Technology Fund L.P., 158,247 shares held by Accel Investors '96 L.P., 52,746 shares held by Accel Keiretsu V L.P., 2,657,230 shares held by Accel V L.P. and 72,529 shares held by Ellmore C. Patterson Partners.

(10) Includes 85,638 shares held by Mayfield Associates Fund III and 1,627,108 shares held by Mayfield VIII.

(11) Includes options immediately exercisable for 490,000 shares.

Description of Capital Stock

General

On the closing of this offering, our authorized capital stock will consist of 80,000,000 shares of common stock, $.0001 par value, and 10,000,000 shares of preferred stock, $.0001 par value. The following summary of certain provisions of the common stock and the preferred stock does not purport to be complete and is subject to, and qualified in its entirety by, our certificate of incorporation and bylaws and by the provisions of applicable law.

Common Stock

As of December 31, 1998, there were 7,825,302 shares of common stock outstanding that were held of record by approximately 120 stockholders. There will be shares of Common Stock outstanding (assuming no exercise of the underwriters' over-allotment option and assuming no exercise after December 31, 1998, of outstanding options) after giving effect to the sale of the shares of common stock to the public offered hereby and the conversion of our preferred stock into common stock at a one-to-one ratio.

The holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders. Subject to preferences that may be applicable to any outstanding preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the board of directors out of funds legally available therefor. See "Dividend Policy." In the event of the liquidation, dissolution or winding up of Redback Networks, the holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding. The common stock has no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and nonassessable, and the shares of common stock to be issued upon completion of this offering will be fully paid and nonassessable.

Preferred Stock

The board of directors has the authority to issue the preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof, including dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, redemption prices, liquidation preferences and the number of shares constituting any series or the designation of such series, without further vote or action by the stockholders. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control of Redback Networks without further action by the stockholders and may adversely affect the voting and other rights of the holders of common stock. The issuance of

preferred stock with voting and conversion rights may adversely affect the voting power of the holders of common stock, including the loss of voting control to others. At present, we have no plans to issue any of the preferred stock.

Warrants

Immediately following the closing of this offering, there will be four warrants to purchase preferred stock convertible into common stock. There are two warrants outstanding to purchase an aggregate of 99,375 shares of series B preferred stock at $1.00 per share, one warrant outstanding to purchase 24,000 shares of series C preferred stock at $2.00 per share and one warrant outstanding to purchase 6,096 shares of series D preferred stock at $7.87 per share. Each of the outstanding warrants for the series B preferred stock expire on February 14, 2002 and July 31, 2003 respectively. The outstanding warrant to purchase series C preferred stock expires on February 28, 2004. The outstanding warrant to purchase series D preferred stock expires on August 21, 2004.

ANTITAKEOVER EFFECTS OF PROVISIONS OF THE CERTIFICATE OF INCORPORATION, BYLAWS AND DELAWARE LAW

Certificate of Incorporation and Bylaws

The certificate of incorporation provides that, effective upon the closing of this offering, all stockholder actions must be effected at a duly called meeting and not by a consent in writing. The bylaws provide that our stockholders may call a special meeting of stockholders only upon a request of stockholders owning at least 50% of our capital stock. These provisions of the certificate of incorporation and bylaws could discourage potential acquisition proposals and could delay or prevent a change in control of Redback Networks. These provisions are intended to enhance the likelihood of continuity and stability in the composition of the board of directors and in the policies formulated by the board of directors and to discourage certain types of transactions that may involve an actual or threatened change of control of Redback Networks. These provisions are designed to reduce the vulnerability of Redback Networks to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, these provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts. These provisions also may have the effect of preventing changes in our management. See "Risk Factors -- Antitakeover provisions in our charter documents and Delaware law could prevent or delay a change in control of our company."

Delaware Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which, subject to certain exceptions, prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date that the interested stockholder became an interested stockholder, unless:

- prior to becoming an interested stockholder, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding those shares owned (x) by persons who are directors and also officers and (y) by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or - on or subsequent to becoming an interested stockholder, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 defines business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or - the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

Registration Rights

After this offering, the holders of 11,634,435 shares of common stock will be entitled to certain rights with respect to the registration of these shares under the Securities Act. Under the terms of our agreement with the holders of these registrable securities, if we propose to register any of our securities

under the Securities Act, either for our own account or for the account of other security holders exercising registration rights, these holders are entitled to notice of that registration and are entitled to include shares of their registrable common stock therein. Additionally, holders of 10,520,153 shares of common stock are also entitled to certain demand registration rights pursuant to which they may require us to file a registration statement under the Securities Act at our expense with respect to their shares of common stock, and we are required to use our best efforts to effect that registration. Further, the holders of these demand rights may require us to file additional registration statements on Form S-3. All of these registration rights are subject to certain conditions and limitations, including the right of the underwriters of an offering to limit the number of shares included in that registration and our right not to effect a requested registration within six months following an offering of our securities, including the offering made hereby.

Transfer Agent and Registrar

The Transfer Agent and Registrar for our common stock is U.S. Stock Transfer Corporation.

Shares Eligible for Future Sale

Upon the completion of this offering, we will have shares of common stock outstanding, assuming the issuance of shares of common stock offered hereby and no exercise of options after December 31, 1998. Of these shares, the shares sold in the offering will be freely tradable without restriction or further registration under the Securities Act, except that any shares held by our affiliates, as that term is defined under the Securities Act, may generally only be sold in compliance with the limitations of Rule 144 described below.

Sales of Restricted Shares

The remaining 18,281,923 shares of common stock are deemed restricted shares under Rule 144. The number of shares of common stock available for sale in the public market is limited by restrictions under the Securities Act and lock-up agreements under which the holders of these shares have agreed, subject to limited exceptions, not to sell or otherwise dispose of any of their shares for a period of 180 days after the date of this prospectus without the prior written consent of Morgan Stanley & Co. Incorporated. On the date of this prospectus, no shares other than the shares offered hereby will be eligible for sale. Beginning 180 days after the date of this prospectus, or earlier with the consent of Morgan Stanley & Co. Incorporated 18,281,923 restricted shares will become available for sale in the public market subject to certain limitations of Rule 144 of the Securities Act.

In general, under Rule 144 of the Securities Act as currently in effect, beginning 90 days after this offering, a person (or persons whose shares are aggregated) who has beneficially owned restricted shares for at least one year, including a person who may be deemed an affiliate, is entitled to sell within any three-month period a number of shares of common stock that does not exceed the greater of 1% of

the then-outstanding shares of our common stock (approximately shares after giving effect to this offering) and the average weekly trading volume of our common stock on the Nasdaq National Market during the four calendar weeks preceding that sale. Sales under Rule 144 of the Securities Act are subject to certain restrictions relating to manner of sale, notice and the availability of current public information about us. A person who is not our affiliate at any time during the 90 days preceding a sale, and who has beneficially owned shares for at least two years, would be entitled to sell their shares immediately following this offering without regard to the volume limitations, manner of sale provisions or notice or other requirements of Rule 144 of the Securities Act. However, the transfer agent may require an opinion of counsel that a proposed sale of shares comes within the terms of Rule 144 of the Securities Act prior to effecting a transfer of the subject shares.

Prior to this offering, there has been no public market for our common stock and we do not know the effect, if any, that the sale or availability for sale of shares of additional common stock will have on the market price of our common stock. Nevertheless, sales of substantial amounts of these shares in the public market, or the perception that these sales could occur, could adversely affect the market price of the common stock and could impair our future ability to raise capital through an offering of our equity securities.

Options

As of December 31, 1998, there were a total of 2,064,725 shares of common stock subject to outstanding options under our 1997 Stock Option Plan, of which 124,156 were vested, and 40,000 shares of common stock subject to outstanding options issued outside our 1997 Stock Option Plan, none of which were vested. However, all of these shares are subject to lock-up agreements. Immediately after the completion of the offering, Redback Networks intends to file registration statements on Form S-8 under the Securities Act to register all of the shares of common stock issued or reserved for future issuance under the 1997 Stock Option Plan and issued outside the 1997 Stock Option Plan. On the date 180 days after the effective date of the offering, a total of shares of common stock subject to outstanding options will be vested. After the effective dates of the registration statements on Form S-8, shares purchased upon exercise of options granted pursuant to the 1997 Stock Plan and shares granted outside the 1997 Stock Plan generally would be available for resale in the public market.

Rule 701 under the Securities Act provides that shares of common stock acquired on the exercise of outstanding options may be resold by persons other than our affiliates, beginning 90 days after the date of this prospectus, subject only to the manner of sale provisions of Rule 144, and by affiliates, beginning 90 days after the date of this prospectus, subject to all provisions of Rule 144 except its one-year minimum holding period. We intend to file one or more registration statements on form S-8 under the Securities Act to register all shares of common stock subject to outstanding stock options and common stock issued or issuable pursuant to our 1997 Stock Plan. We expect to file the registration statement covering shares offered pursuant to the 1997 Stock Plan and the 1999 Stock Incentive Plan

approximately 30 days after the closing of this offering. Such registration statements are expected to become effective upon filing. Shares covered by these registration statements will thereupon be eligible for sale in the public markets, subject to the lock-up agreements, if applicable.

Lock-up Agreements

The officers, directors and stockholders of Redback Networks have agreed, subject to limited exceptions, not to sell or otherwise dispose of any of their shares for a period of 180 days after the date of the offering. Morgan Stanley & Co. Incorporated, however, may in its sole discretion, at any time without notice, release all or any portion of the shares subject to lock-up agreements. See "Underwriters."

Underwriters

Under the terms and subject to conditions contained in the underwriting agreement dated the date hereof, the underwriters named below, for whom Morgan Stanley & Co. Incorporated, BancBoston Robertson Stephens Inc., and Dain Rauscher Wessels, a division of Dain Rauscher Incorporated, are serving as representatives, have severally agreed to purchase, and we have agreed to sell to them, an aggregate of shares of common stock. The number of shares of common stock that each underwriter has agreed to purchase is set forth opposite its name below:

Number Name of Shares

Morgan Stanley & Co. Incorporated..... BancBoston Robertson Stephens Inc. ..... Dain Rauscher Wessels.....

Total.....

The underwriters are offering the shares subject to their acceptance of the shares from us and subject to prior sale. The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the shares of common stock offered hereby are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the shares of common stock offered hereby, other than those covered by the over-allotment option described below, if any of the shares are taken.

The underwriters initially propose to offer part of the shares of common stock directly to the public at the public offering price set forth on the cover page hereof and part to certain dealers at a price that represents a concession not in excess of $ a share under the public offering price. Any underwriters may allow, and such dealers may reallow, a concession not in excess of $ a share to other underwriters or to certain other dealers. After the initial offering of the shares of common stock, the offering price and other selling terms may from time to time be varied by the representatives of the underwriters.

Pursuant to the underwriting agreement, we have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to an aggregate of additional shares of common stock at the public offering price set forth on the cover page hereof, less underwriting discounts and commissions. The underwriters may exercise such option solely for the purpose of covering over-allotments, if any, made in connection with the offering of the shares of common stock offered hereby. To the extent such option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase approximately the same percentage of such additional shares of common stock as the number set forth next to such underwriter's name in the preceding table bears to the total number of shares of common stock set forth next to the names of all underwriters in the preceding table.

At our request, the underwriters have reserved up to 10% of the shares of common stock to be sold in the offering and offered hereby for sale, at the initial public offering price, to certain persons designated by us. The number of shares of common stock available for sale to the general public will be reduced to the extent these persons purchase the reserved shares. Any reserved shares which are not so purchased will be offered by the underwriters to the general public on the same basis as the other shares offered hereby.

We, our directors, officers and certain other of our stockholders have each agreed that, without the prior written consent of Morgan Stanley & Co. Incorporated on behalf of the underwriters, or otherwise during the period ending 180 days after the date of this prospectus, we will not directly or indirectly:

- offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for common stock; or - enter into any swap or similar agreement that transfers to another, in whole or in part, the economic risk of ownership of the common stock;

whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise.

The restrictions described in the previous paragraph do not apply to:

- the sale of any shares to the underwriters;

- the issuance by Redback Networks of shares of common stock upon the exercise of an option or a warrant or the conversion of a security outstanding on the date of this prospectus of which the underwriters have been advised in writing;

- transactions by any person other than Redback Networks relating to shares of common stock or other securities acquired in open market transactions after the completion of the offering of the shares;

- the granting of stock options pursuant to our existing employee benefit plans, provided that such options do not become exercisable and such options do not vest during such 180-day period; or - certain gifts or transfers to trusts, provided that the transferees enter into lock-up agreements similar

to those described in the previous paragraph.

The underwriters have informed us that they do not intend sales to discretionary accounts to exceed five percent of the total number of shares of common stock offered by them.

We have submitted an application to have our common stock approved for quotation on the Nasdaq National Market under the symbol "RBAK."

In order to facilitate the offering of the common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. Specifically, the underwriters may over-allot in connection with the offering, creating a short position in the common stock for their own account. In addition, to cover over-allotments or to stabilize the price of the common stock, the underwriters may bid for, and purchase, shares of common stock in the open market. Finally, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the common stock in the offering if the syndicate repurchases previously distributed shares of common stock in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the common stock above independent market levels. The underwriters are not required to engage in these activities and may end any of these activities at any time.

We and the underwriters have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act.

Pricing of the Offering

Prior to this offering, there has been no public market for the shares of common stock. Consequently, the public offering price for the shares of common stock will be determined by negotiations between Redback Networks and the representatives of the underwriters. Among the factors to be considered in determining the public offering price will be:

- our record of operations, current financial position and future prospects;

- the experience of our management;

- our sales, earnings and certain other financial operating information in recent periods; and - the price-earnings ratios, price-sales ratios, market prices of securities and certain financial and operating information of companies engaged in activities similar to ours.

Our estimated public offering price range is subject to change as a result of market conditions and other factors.

Legal Matters

The validity of the common stock offered hereby will be passed upon for us by Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, Menlo Park, California. As of the date of this prospectus, certain members and employees of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, beneficially owned an aggregate of 29,871 shares of our common stock. Certain legal matters in connection with this offering will be passed upon for the underwriters by Wilson Sonsini Goodrich & Rosati, Professional Corporation, Palo Alto, California.

Experts

Our financial statements as of December 31, 1997 and 1998 and for the period from August 30, 1996 (inception) to December 31, 1996 and for each of the two years in the period ended December 31, 1998, included in this prospectus have been so included in reliance on the report of PricewaterhouseCoopers LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

Additional Information

We filed with the Securities and Exchange Commission, or SEC, Washington, D.C. 20549, a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock offered hereby. This prospectus does not contain all the information set forth in the registration statement and the exhibits and schedules filed therewith. For further information with respect to Redback Networks and the common stock offered hereby, reference is made to the registration statement and to the exhibits and schedules filed therewith. Statements contained in this prospectus as to the contents of any contract or other document referred to are not necessarily complete, and each of these statements is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement. A copy of the registration statement and the exhibits and schedules filed therewith may be inspected without charge at the public reference facilities maintained by the SEC in Room 1024, 450 Fifth Street, N.W. Washington, D.C. 20549, and at the SEC's regional offices located at the Northwestern Atrium Center, 500 West Madison Street, Suite 1400, Chicago, Illinois 60661 and Seven World Trade Center, 13th Floor, New York, New York 10048, and copies of all or any part of the registration statement may be obtained from such offices upon payment of the fees prescribed by the SEC. The SEC maintains a World Wide Web site that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. The address of the site is http://www.sec.gov.

Upon completion of this offering, we will become subject to the information and periodic reporting requirements of the Securities Exchange Act of 1934, and, in accordance therewith, will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy

statements and other information will be available for inspection and copying at the regional offices, public reference facilities and web site of the SEC referred to above.

Redback Networks Inc.

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Report of Independent Accountants

To the Board of Directors and Stockholders of Redback Networks Inc.

In our opinion, the accompanying balance sheet and the related statements of operations, of stockholders' equity and of cash flows present fairly, in all material respects, the financial position of Redback Networks Inc. at December 31, 1997 and 1998, and the results of its operations and its cash flows for the period from August 30, 1996 (inception) through December 31, 1996 and the years ended December 31, 1997 and 1998, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

PricewaterhouseCoopers LLP San Jose, California March 5, 1999

Redback Networks Inc.

Balance Sheet

December 31, 1997 1998

ASSETS		
Current assets:		
Cash and cash equivalents	$ 3,084,000	$ 8,189,000
Short-term investments	3,139,000	--
Accounts receivable, less allowances of $0 and $340,000	48,000	2,342,000
Inventory	89,000	821,000
Other current assets	211,000	262,000
Total current assets	6,571,000	11,614,000
Property and equipment, net	1,066,000	2,822,000
Notes receivable from related party	105,000	111,000
Other assets	107,000	135,000
	$ 7,849,000	$ 14,682,000
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Borrowings, current	$ 247,000	$ 1,747,000
Capital lease obligations, current	149,000	560,000
Accounts payable	451,000	2,060,000
Accrued liabilities	94,000	2,005,000
Deferred revenue	--	781,000
Total current liabilities	941,000	7,153,000
Borrowings, less current portion	391,000	144,000
Capital lease obligations, less current portion	436,000	1,131,000
	1,768,000	8,428,000
Commitments (Note 6)		
Stockholders' equity:		
Convertible Preferred Stock: Series A, B, C and D; $0.0001 par value; 13,500,000 shares authorized; 9,379,997 and 10,456,621 issued and outstanding at December 31, 1997 and 1998	10,419,000	18,884,000
Common Stock: $0.0001 par value; 22,500,000 shares authorized; 6,734,132 and 7,825,302 shares issued and outstanding at December 31, 1997 and 1998	426,000	6,741,000
Deferred stock compensation	--	(4,731,000)
Stock subscription receivable	(211,000)	--
Notes receivable from stockholder	--	(211,000)
Accumulated deficit	(4,553,000)	(14,429,000)
Total stockholders' equity	6,081,000	6,254,000
	$ 7,849,000	$ 14,682,000

The accompanying notes are an integral part of these statements. F-3

Redback Networks Inc.

Statement of Operations

FOR THE PERIOD FROM AUGUST 30, 1996 (INCEPTION) THROUGH YEAR ENDED DECEMBER 31, DECEMBER 31, ---------- 1996 1997 1998

Net revenues	$ --	$ 48,000	$ 9,206,000
Cost of revenues	--	29,000	3,603,000
Gross profit	--	19,000	5,603,000
Operating expenses:			
Research and development	124,000	3,249,000	5,727,000
Selling, general and administrative	19,000	1,317,000	8,875,000
Amortization of deferred stock compensation	--	--	880,000
Total operating expenses	143,000	4,566,000	15,482,000
Loss from operations	(143,000)	(4,547,000)	(9,879,000)
Interest and other income	1,000	221,000	254,000
Interest expense	--	(85,000)	(251,000)
Net loss	$(142,000)	$(4,411,000)	$(9,876,000)
Basic and diluted net loss per share	$ (.22)	$ (4.10)	$ (3.57)
Shares used in computing net loss per share	658,000	1,076,000	2,769,000
Pro-forma net loss per share (unaudited):			
Basic and diluted net loss per share			$ (.78)
Shares used in computing net loss per share			12,684,000

The accompanying notes are an integral part of these statements. F-4

Redback Networks Inc.

Statement of Stockholders' Equity

	CONVERTIBLE PREFERRED STOCK		COMMON STOCK		DEFERRED STOCK	NOTES RECEIVABLE FROM
	SHARES	AMOUNT	SHARES	AMOUNT	COMPENSATION	STOCKHOLDER
Issuance of Series A Convertible Preferred Stock, net	1,687,500	$ 217,000	--	$ --	$ --	$ --
Issuance of Common Stock	--	--	2,829,996	8,000	--	--
Net loss	--	--	--	--	--	--
Balance at December 31, 1996	1,687,500	217,000	2,829,996	8,000	--	--
Issuance of Series B Convertible Preferred Stock, net	5,134,498	5,119,000	--	--	--	--
Issuance of Series C Convertible Preferred Stock, net	2,557,999	5,083,000	--	--	--	--
Exercise of stock options	--	--	106,875	6,000	--	--
Issuance of Common Stock	--	--	4,199,730	385,000	--	(211,000)
Issuance of Common Stock and warrants for services	--	--	90,746	31,000	--	--
Repurchase of Common Stock	--	--	(493,215)	(4,000)	--	--
Net loss	--	--	--	--	--	--
Balance at December 31, 1997	9,379,997	10,419,000	6,734,132	426,000	--	

(211,000)	--						
Issuance of Series D Convertible Preferred Stock, net	1,076,624	8,465,000	--	--	--	--	--
Exercise of stock options	--	--	836,875	345,000	--	--	--
Issuance of Common Stock	--	--	631,502	142,000	--	--	--
Issuance of Common Stock and warrants for services	--	--	102,900	255,000	--	--	--
Repurchase of Common Stock	--	--	(480,107)	(38,000)	--	--	--
Deferred stock compensation	--	--	--	5,611,000	(5,611,000)	--	--
Amortization of deferred stock compensation	--	--	--	--	880,000	--	--
Issuance of notes receivable	--	--	--	--	--	211,000	(211,000)
Net loss	--	--	--	--	--	--	--
Balance at December 31, 1998	10,456,621	$18,884,000	7,825,302	$6,741,000	$(4,731,000)	$ --	$(211,000)

	ACCUMULATED DEFICIT	TOTAL STOCKHOLDERS' EQUITY
Issuance of Series A Convertible Preferred Stock, net	$ --	$ 217,000
Issuance of Common Stock	--	8,000
Net loss	(142,000)	(142,000)
Balance at December 31, 1996	(142,000)	83,000
Issuance of Series B Convertible Preferred Stock, net	--	5,119,000
Issuance of Series C Convertible Preferred Stock, net	--	5,083,000
Exercise of stock options	--	6,000
Issuance of Common Stock	--	174,000
Issuance of Common Stock and warrants for services	--	31,000
Repurchase of Common Stock	--	(4,000)
Net loss	(4,411,000)	(4,411,000)
Balance at December 31, 1997	(4,553,000)	6,081,000
Issuance of Series D Convertible Preferred Stock, net	--	8,465,000
Exercise of stock options	--	345,000
Issuance of Common Stock	--	142,000
Issuance of Common Stock and warrants for services	--	255,000
Repurchase of Common Stock	--	(38,000)
Deferred stock compensation	--	--
Amortization of deferred stock compensation	--	880,000
Issuance of notes receivable	--	--
Net loss	(9,876,000)	(9,876,000)
Balance at December 31, 1998	$(14,429,000)	$ 6,254,000

The accompanying notes are an integral part of these financial statements.

Redback Networks Inc.

Statement of Cash Flows

	FOR THE PERIOD FROM AUGUST 30, 1996 (INCEPTION) THROUGH DECEMBER 31, 1996	YEAR ENDED DECEMBER 31, 1997	YEAR ENDED DECEMBER 31, 1998
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	$(142,000)	$(4,411,000)	$(9,876,000)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	2,000	281,000	922,000
Amortization of deferred stock compensation	--	--	880,000
Write-off of fixed assets	--	200,000	--
Other noncash charges	--	136,000	255,000
Changes in assets and liabilities:			
Accounts receivable	--	(48,000)	(2,294,000)
Inventory	--	(89,000)	(732,000)
Other current assets	(26,000)	(185,000)	(51,000)
Other assets	(34,000)	(73,000)	(34,000)
Accounts payable	31,000	420,000	1,609,000
Accrued liabilities	102,000	(8,000)	1,911,000
Deferred revenue	--	--	781,000
Net cash used by operating activities	(67,000)	(3,777,000)	(6,629,000)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of property and equipment	(39,000)	(899,000)	(1,234,000)
Purchase of short-term investments	--	(3,139,000)	--
Sale of short-term investments	--	--	3,139,000
Advances to related parties	--	(210,000)	--
Net cash (used) provided by investing activities	(39,000)	(4,248,000)	1,905,000
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from issuance of Convertible Preferred Stock, net	217,000	10,202,000	8,465,000
Proceeds from issuance of Common Stock, net	8,000	176,000	449,000
Principal payments on capital lease obligations	--	(26,000)	(338,000)
Proceeds from bank borrowings	--	700,000	1,500,000
Repayments of bank borrowings	--	(62,000)	(247,000)
Net cash provided by financing activities	225,000	10,990,000	9,829,000
Net increase in cash and cash equivalents	119,000	2,965,000	5,105,000
Cash and cash equivalents at beginning of period	--	119,000	3,084,000
Cash and cash equivalents at end of period	$ 119,000	$ 3,084,000	$ 8,189,000
SUPPLEMENTAL CASH FLOW INFORMATION:			
Cash paid for interest	$ --	$ 60,000	$ 222,000
SUPPLEMENTAL NON-CASH INVESTING AND FINANCING ACTIVITY:			
Property and equipment acquired under capital leases	$ --	$ 611,000	$ 1,444,000

The accompanying notes are an integral part of these statements.

Redback Networks Inc.

Notes to Financial Statements

Note 1 -- the Company and Summary of Significant Accounting Policies:

The Company

Redback Networks Inc., (the "Company" or "Redback"), was incorporated in Delaware on August 30, 1996. Redback is a leading provider of advanced networking solutions that enable carriers, cable multiple system operators and service providers to rapidly deploy high-speed broadband access to the Internet and corporate networks. Redback's Subscriber Management System connects and manages large numbers of subscribers using any of the major high-speed access technologies including digital subscriber line, cable and wireless. The Company operates in one business segment.

Through December 31, 1997, the Company was considered to be in the development stage and was principally engaged in research and development, raising capital and building its management team. During 1998, the Company ceased to be in the development stage.

Stock Splits

Share information for all periods has been retroactively adjusted to reflect a 4-for-1 Common Stock split effected in January 1997 and a 3-for-2 Common Stock split effected in September 1998.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Revenue Recognition

Product sales are recognized upon shipment provided that no significant vendor obligations remain and collection is considered probable.

Services revenue consists primarily of post-contract customer support, training, consulting and installation services. Post-contract customer support revenues are recognized ratably over the support period, which is generally one year. Revenues from training, consulting services and installation are recognized as the services are performed. Service revenues to date have not been significant.

Warranty and Sales Returns Allowances

The Company provides a limited warranty for its products. A provision for the estimated warranty cost and a provision for sales returns are recorded at the time revenue is recognized based on the Company's historical experience.

Cash Equivalents and Short-term Investments

The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents, and investments with original maturity dates greater than three months but less than 12 months to be short-term investments. Cash equivalents at December 31, 1997 and 1998 consist of money-market funds and commercial paper totaling $2,930,000 and $7,735,000, respectively, the carrying amounts of which approximates fair value. At December 31, 1997, the

Company had short-term investments which consisted of $3,139,000 of commercial paper which was held to maturity. The cost of this investment approximated fair value at December 31, 1997.

Concentration of Credit Risk, Foreign Operations and Significant Customers

Financial instruments which potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents, short-term investments and accounts receivable. The Company places its temporary cash investments in money market funds and commercial paper with high credit quality financial institutions. The Company's accounts receivable are derived from revenue earned from customers located in the U.S. and certain foreign countries, including Canada, Korea, Finland and China. Sales to foreign customers in 1998, which were denominated in U.S. dollars, accounted for 15% of total revenues. Sales to any one foreign country did not exceed 10% of total revenues in 1998. The Company performs ongoing credit evaluations of its customers' financial condition and, generally, requires no collateral from its customers. The Company maintains an

allowance for doubtful accounts receivable based upon the expected collectibility of accounts receivable. The Company has generated all of its revenues to date from the sale of one product, the SMS 1000.

During the year ended December 31, 1998, two customers accounted for 18% and 19% of the Company's revenue and at December 31, 1998, these two customers each accounted for 9% of total gross receivables.

The Company is dependent on a single contract manufacturer and some of the key components in the Company's product come from single or limited sources of supply.

Inventory

Inventory, which consists principally of raw materials and finished goods, is stated at the lower of cost or market, cost being determined under the first-in, first-out method.

Property and Equipment

Property and equipment are stated at cost. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally two to five years, or the lease term of the respective assets.

Long-lived Assets

The Company periodically evaluates the recoverability of its long-lived assets based on expected undiscounted cash flows and recognizes impairment from the carrying value of long-lived assets, if any, based on the fair value of such assets.

Stock-based Compensation

The Company accounts for stock-based employee compensation arrangements in accordance with provisions of Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees," ("APB No. 25") and complies with the disclosure provisions of Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation ("SFAS No. 123").

The Company accounts for equity instruments issued to non-employees in accordance with the provisions of SFAS No. 123 and Emerging Issues Task Force ("EITF") 96-18.

Income Taxes

The Company accounts for income taxes under the liability method, which requires, among other things, that deferred income taxes be provided for temporary differences between the tax bases of the Company's assets and liabilities and their financial statement reported amounts. In addition, deferred tax assets are recorded for the future benefit of utilizing net operating losses and research and development credit carryforwards. A valuation allowance is provided against deferred tax assets unless it is more likely than not that they will be realized.

Research and Development

Research and development costs are charged to operations as incurred.

Fair Value

The carrying value of the Company's financial instruments, including cash and cash equivalents, short-term investments, accounts receivable, accounts payable and accrued liabilities approximate their fair values due to their relatively short maturities. The Company does not hold or issue financial instruments for trading purposes.

Capitalized Software Development Costs

Software development costs not qualifying for capitalization are included in research and development and are expensed as incurred. After technological feasibility is established, material software development costs are capitalized. The capitalized cost is then amortized on a straight-line basis over the estimated product life or on the ratio of current revenues to total projected product revenues, if greater. The Company defines technological feasibility as the establishment of a working model, which typically occurs upon completion of the first beta version. To date, the period between achieving technological feasibility, and the general availability of the related products has been short and software development costs qualifying for capitalization have been insignificant. Accordingly, the Company has not capitalized any software development costs.

Comprehensive Income

Effective January 1, 1998, the Company adopted the provisions of SFAS No. 130, "Reporting Comprehensive Income." SFAS No. 130 establishes standards for reporting comprehensive income and its components in financial statements. Comprehensive income, as defined, includes all changes in equity during a period from non-owner sources. To date, the Company has not had any transactions that are required to be reported in comprehensive income.

Net Loss Per Share

The Company computes net loss per share in accordance with SFAS No. 128, "Earnings per Share" and SEC Staff Accounting Bulletin No. 98 ("SAB 98"). Under the provisions of SFAS No. 128 and SAB 98, basic net loss per share is computed by dividing the net loss for the period by the weighted average number of common shares outstanding during the period. Weighted average shares exclude shares subject to repurchase ("restricted shares"). Diluted net loss per share is computed by dividing the net loss for the period by the weighted average number of common and common equivalent shares outstanding during the period, if dilutive. Common equivalent shares, composed of unvested restricted

shares and incremental common shares issuable upon the exercise of stock options and warrants and upon conversion of Series A, B, C, and D Convertible Preferred Stock.

The following table sets forth the computation of basic and diluted net loss per share for the periods indicated:

FOR THE PERIOD FROM AUGUST 30, 1996 (INCEPTION) THROUGH YEAR ENDED DECEMBER 31, DECEMBER 31, ---------- 1996 1997 1998

Numerator:			
Net loss	$ (142,000)	$(4,411,000)	$(9,876,000)
Denominator:			
Weighted average common shares outstanding	1,911,000	4,534,000	7,420,000
Weighted average unvested common shares subject to repurchase	(1,253,000)	(3,458,000)	(4,651,000)
Denominator for basic and diluted calculation	658,000	1,076,000	2,769,000
Basic and diluted net loss per share	$ (.22)	$ (4.10)	$ (3.57)

Options to purchase 232,500, and 2,104,725 shares of Common Stock at an average exercise price of $.16 and $1.49, per share and warrants to purchase 99,375 and 129,421 shares of Preferred Stock at an average exercise price of $1.00 and $1.51 per share, have not been included in the computation of diluted net loss per share for 1997 and 1998, respectively, as their effect would have been anti-dilutive.

Pro Forma Net Loss Per Share (Unaudited)

Pro forma net loss per share for the year ended December 31, 1998 is computed using the weighted average number of common shares outstanding, including the pro forma effects of the automatic conversion of the Company's Series A, B, C and D Convertible Preferred Stock into shares of the Company's common stock effective upon the closing of the Company's initial public offering as if such conversion occurred on January 1, 1998, or at date of original issuance, if later. The resulting pro forma adjustment includes an increase in the weighted average shares used to compute basic net loss per share of 9,915,000 for the year ended December 31, 1998.

New Accounting Pronouncements

In March 1998, the American Institute of Certified Public Accountants ("AICPA") issued Statement of Position ("SOP") No. 98-1, "Accounting for the Costs of Computer Software Developed or Obtained for Internal Use." SOP No. 98-1 requires that entities capitalize certain costs related to internal-use software once certain criteria have been met. The Company expects that the adoption of SOP No. 98-1 will not have a material impact on its financial position, results of operations or cash flows. The Company will be required to implement SOP No. 98-1 for the year ending December 31, 1999.

In April 1998, the AICPA issued SOP No. 98-5, "Reporting on the Costs of Start-Up Activities." SOP No. 98-5 requires that all start-up costs related to new operations must be expensed as incurred. In

addition, all start-up costs that were capitalized in the past must be written off when SOP No. 98-5 is adopted. The Company expects that the adoption of SOP No. 98-5 will not have a material impact on its financial position, results of operations or cash flows. The Company will be required to implement SOP No. 98-5 for the year ending December 31, 1999.

In June 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards ("SFAS") No. 133, "Accounting for Derivative Instruments and Hedging Activities." SFAS No. 133 established methods of accounting for derivative financial instruments and hedging activities related to those instruments as well as other hedging activities. Because the Company currently holds no derivative instruments and does not engage in hedging activities, the Company expects that the adoption of SFAS No. 133 will not have a material impact on its financial position, results of operations or cash flows. The Company will be required to implement SFAS No. 133 for the year ending December 31, 2000.

Note 2 -- Balance Sheet Components:

December 31, 1997 1998

INVENTORY		
Raw materials	$ 89,000	$ 563,000
Finished goods	--	258,000
	$ 89,000	$ 821,000
PROPERTY AND EQUIPMENT, NET		
Computer equipment	$1,180,000	$ 3,554,000
Furniture and fixtures	148,000	358,000
Leasehold improvements	21,000	115,000
	1,349,000	4,027,000
Less: Accumulated depreciation and amortization	(283,000)	(1,205,000)
	$1,066,000	$ 2,822,000
ACCRUED LIABILITIES		
Accrued compensation	$ 94,000	$ 494,000
Accrued professional fees	--	458,000
Accrued warranty	--	338,000
Other	--	715,000
	$ 94,000	$ 2,005,000

Property and equipment includes $611,000 and $2,055,000 of computer equipment, internal-use software and furniture and fixtures under capital leases at December 31, 1997 and 1998, respectively. Accumulated amortization of assets under capital leases totaled $80,000 and $552,000 at December 31, 1997 and 1998, respectively.

Note 3 -- Related Party Transactions:

In April 1997, the Company loaned $105,000 to an affiliate of an officer under a promissory note. The note accrued interest at a rate of 5.9%. The principal of $105,000 was forgiven by the Company and recorded as compensation expense in 1997.

Redback Networks Inc.

Notes to Financial Statements (Continued)

In December 1997, the Company loaned $105,000 to an officer under a promissory note. The note accrues interest at a rate of 5.81% compounded annually and expires on December 3, 2000, on which date all unpaid interest and principal is due on demand. The balance of the note and accrued interest was $111,000 at December 31, 1998.

In January 1998, the Company advanced $211,000 under a full recourse promissory note to one of its officers for the purchase of Common Stock of the Company pursuant to a December 1997 stock subscription. The principal balance of this note, together with interest accrued and unpaid to date, is

due and payable in January 2002. Interest accrues under the note on any unpaid principal balance at the rate of 5.93% per annum, compounded annually.

Note 4 -- Income Taxes:

No provisions for income taxes have been recorded as the Company has incurred net losses since inception.

At December 31, 1998, the Company had approximately $11.6 million of federal and state net operating loss carryforwards available to offset future taxable income which expire in varying amounts beginning in 2011 and 2004, respectively. Under the Tax Reform Act of 1986, the amounts of and benefits from net operating loss carryforwards may be impaired or limited in certain circumstances. Events which cause limitations in the amount of net operating losses that the Company may utilize in any one year include, but are not limited to, a cumulative ownership change of more than 50%, as defined, over a three year period. Such a change may have occurred as a result of the preferred stock issuances during 1997 and 1998.

As of December 31, 1998, the Company had gross deferred tax assets of approximately $5.4 million, related primarily to net operating loss carryforwards and certain reserves that are not currently deductible for tax purposes. Management believes that, based on a number of factors, the available objective evidence creates sufficient uncertainty regarding the realizability of the deferred tax assets such that a full valuation allowance has been recorded.

Note 5 -- Borrowings:

The Company had $638,000 and $391,000 outstanding under a loan and security agreement with a bank at December 31, 1997 and 1998, respectively. The loan agreement provides for borrowings of up to $750,000 which are secured by the Company's property and equipment. Under the terms of the loan agreement, certain transactions, including payment of dividends, are prohibited without the bank's consent. The loan bears interest at the prime rate (7.75% at December 31, 1998) plus .5% per annum. The Company is required to make monthly repayments on this loan through July 2000.

Principal payments under the loan are due as follows:

Year Ended December 31,

1999..... $247,000 2000..... 144,000 $391,000
In August 1998, the Company's loan and security agreement with its bank was amended to include a revolving line that provides for additional borrowings of up to, the lessor of $2 million, or 80% of eligible

accounts receivable. The line bears interest at the prime rate plus .5% per annum. At December 31, 1998, the Company had $1,500,000 outstanding and due under this line. No additional amounts were available under the line as of December 31, 1998. Borrowings under the agreement are secured by certain of the Company's assets. The revolving line matures in July 1999 and contains certain financial covenants, mainly relating to liquidity and profitability. See Note 12.

The Company was not in compliance with a covenant under this line at December 31, 1998. The Company has obtained a waiver of this covenant as of December 31, 1998.

Note 6 -- Commitments:

The Company leases office space and equipment under noncancelable operating and capital leases with various expiration dates through 2001. The terms of the facility lease provide for rental payments on a graduated scale. The facility lease expires in September 1999. The Company recognizes rent expense on a straight-line basis over the lease period. Rental expense for 1996, 1997 and 1998 was $0, $144,000 and $441,000, respectively.

At December 31, 1998, the Company had an equipment lease line that provides for a total purchases under the facility of $2,750,000.

Future minimum lease payments under noncancelable operating and capital leases, including operating lease commitments entered into subsequent to December 31, 1998, are as follows:

YEAR ENDED DECEMBER 31,	CAPITAL LEASES	OPERATING LEASES
1999	$ 767,000	$479,000
2000	813,000	--
2001	443,000	--
Total minimum lease payments	2,023,000	$479,000
Less: Amount representing interest	332,000	
Present value of capital lease obligations	1,691,000	
Less: Current portion	560,000	
Non-current portion of capital lease obligations	$1,131,000	

Note 7 -- Convertible Preferred Stock:

Convertible Preferred Stock at December 31, 1998 consists of the following:

SERIES	SHARES DESIGNATED	SHARES OUTSTANDING	LIQUIDATION AMOUNT	PROCEEDS NET OF ISSUANCE COSTS

A	1,687,500	1,687,500	$ 225,000	$ 217,000
B	5,233,875	5,134,498	5,135,000	5,119,000
C	2,582,001	2,557,999	5,116,000	5,083,000
D	1,350,000	1,076,624	8,477,000	8,465,000
	10,853,376	10,456,621	$18,953,000	$18,884,000

The holders of the Convertible Preferred Stock have various rights and preferences as follows:

Voting

Each share of Series A, B, C and D has voting rights equal to an equivalent number of shares of Common Stock into which it is convertible and votes together as one class with the Common Stock.

As long as at least 375,000 shares of Convertible Preferred Stock remain outstanding, the Company must obtain approval from a majority of the holders of Convertible Preferred Stock in order to alter the articles of incorporation as related to the rights, preferences or privileges of the Convertible Preferred Stock. As long as any shares of Convertible Preferred Stock remain outstanding, the Company must obtain approval from a majority of the holders of Convertible Preferred Stock in order to change the authorized number of shares of Convertible Preferred Stock, change the authorized number of Directors, authorize a dividend for any class or series other than Convertible Preferred Stock, create a new class of stock or effect a merger, consolidation or sale of assets where the existing stockholders retain less than 50% of the voting stock of the surviving entity.

The holders of the existing Convertible Preferred Stock and Common Stock, respectively, voting separately as a class, shall be entitled to elect two directors at each annual meeting of the stockholders.

Dividends

Holders of Series A, B, C and D Convertible Preferred Stock are entitled to receive noncumulative dividends at the per annum rate of $.013, $.10, $.20 and $.787 per share, respectively, when and if declared by the Board of Directors. No dividends on Convertible Preferred Stock or Common Stock have been declared from inception through December 31, 1998.

Liquidation

In the event of any liquidation, dissolution or winding up of the Company, including a merger, acquisition or sale of assets where the beneficial owners of the Company's Common Stock and Convertible Preferred Stock own less than 50% of the resulting voting power of the surviving entity,

the holders of Series A, B, C and D Convertible Preferred Stock are entitled to receive an amount of $.13, $1.00, $2.00 and $7.87 per share, respectively, plus any declared but unpaid dividends prior to and in preference to any distribution to the holders of Common Stock. The remaining assets, if any, shall be distributed among the holders of Series C Preferred Stock, Series D Preferred Stock and Common Stock pro rata in proportion to the number of shares of Common Stock held by each (assuming conversion of all such Series C and Series D Preferred Stock) until, with respect to the holders of Series C Preferred Stock, such holders shall have received an aggregate of $4.00 per share, and with respect to the holders of Series D Preferred Stock, such holders shall have received an aggregate of $11.81 per share; thereafter, the holders of Common Stock shall receive all of the remaining assets of the Company pro rata based on the number of shares of Common Stock held by each. Should the Company's legally available assets be insufficient to satisfy the liquidation preferences, the funds will be distributed ratably to the Series A, B, C and D Convertible Preferred Stock holders.

Conversion

Each share of Series A, B, C and D Convertible Preferred Stock is convertible, at the option of the holder, according to a conversion ratio which is subject to adjustment for dilution. Each share of Series A, B, C and D Convertible Preferred Stock automatically converts into the number of shares of

Common Stock into which such shares are convertible, at the then effective conversion ratio, upon: (1) the closing of a public offering of Common Stock at a per share price of at least $.66, $2.50, $5.00 and $10.00 per share, respectively, with gross proceeds of at least $7,500,000, (2) a merger, sale of substantially all of the assets or other transactions which result in a change in control or (3) the consent of the holders of the majority of Convertible Preferred Stock.

At December 31, 1998, the Company has reserved 1,687,500, 5,233,875, 2,582,001 and 1,350,000 shares of Common Stock for the conversion of Series A, B, C and D Convertible Preferred Stock, respectively.

Warrants for Convertible Preferred Stock

In connection with certain borrowings, the Company issued warrants to purchase 99,375, 24,000 and 6,096 shares of Series B, C and D Convertible Preferred Stock for $1.00, $2.00 and $7.87 per share, respectively, in 1997 and 1998. Such warrants expire through 2004. Using the Black-Scholes pricing

model, the Company estimated that the fair value of the warrants was $98,000 at the dates of grant. The Company recognized $25,000 and $28,000 of interest expense associated with these warrants during 1997 and 1998, respectively.

Note 8 -- Common Stock:

A portion of the Common Stock outstanding is subject to a right of repurchase by the Company which generally lapses over a four year period. All grants to non-employee service providers and other non-employees were fully vested at the date of issuance. At December 31, 1997 and 1998, there were 4,985,588 and 4,241,400 shares subject to repurchase.

The Company issued 90,746 and 102,900 shares of Common Stock to consultants and other service providers of the Company in 1997 and 1998, respectively. The fair value of the Common Stock issued was determined to be $6,000 and $227,000 in 1997 and 1998, respectively, based on the fair value of the services received or Common Stock issued, whichever was more reliably measurable, and has been recognized in general and administrative expenses.

The Company issued 2,829,996, 2,072,230 and 29,252 restricted shares of Common Stock outside the 1997 Stock Option Plan in 1996, 1997 and 1998, respectively. The weighted average fair value of the restricted shares issued was $0, $.05 and $.50, in 1996, 1997 and 1998, respectively.

Note 9 -- Stock Options

In April 1997, the Company adopted the 1997 Stock Plan (the "Plan"). The Plan provides for the granting of stock options and common stock to employees and consultants of the Company. Options granted under the Plan may be either incentive stock options or nonqualified stock options. Incentive stock options ("ISO") may be granted only to Company employees (including officers and directors who are also employees). Nonqualified stock options ("NSO") may be granted to Company employees and consultants. The Company has reserved 7,071,096 shares of Common Stock for issuance under the Plan.

Options under the Plan may be granted for periods of up to ten years and at prices no less than 85% of the estimated fair value of the shares on the date of grant as determined by the Board of Directors, provided, however, that (i) the exercise price of an ISO and NSO shall not be less than 100% and 85% of the estimated fair value of the shares on the date of grant, respectively, and (ii) the exercise price of an ISO and NSO granted to a 10% shareholder shall not be less than 110% of the estimated fair value of the

shares on the date of grant, respectively. Options are generally exercisable immediately, subject to repurchase options held by the Company. The repurchase options lapse over a maximum period of five years at such times and under such conditions as determined by the Board of Directors. To date, options and restricted stock granted generally vest over four years.

		OPTIONS OUTSTANDING	
	SHARES AVAILABLE FOR GRANT	NUMBER OUTSTANDING	WEIGHTED AVERAGE EXERCISE PRICE
Authorized	3,900,000	--	$ --
Options granted	(331,500)	331,500	.13
Common Stock granted	(2,218,246)	--	--
Options exercised	--	(99,000)	.06
Common Stock repurchased	7,500	--	--
Balance at December 31, 1997	1,357,754	232,500	.16
Authorized	3,171,096	--	--
Options granted	(2,669,100)	2,669,100	1.25
Common Stock granted	(705,150)	--	--
Options exercised	--	(836,875)	.41
Common Stock repurchased	118,500	--	--
Balance at December 31, 1998	1,273,100	2,064,725	1.47

	OPTIONS OUTSTANDING AT DECEMBER 31, 1998			OPTIONS EXERCISABLE AT DECEMBER 31, 1998	
RANGE OF EXERCISE PRICE	NUMBER OUTSTANDING	WEIGHTED AVERAGE REMAINING CONTRACTUAL LIFE	WEIGHTED AVERAGE EXERCISE PRICE	NUMBER OUTSTANDING	WEIGHTED AVERAGE EXERCISE PRICE
$.05 - 1.00	1,111,725	9.36 years	$ .56	1,011,725	$ .54
2.00	449,000	9.79 years	2.00	409,000	2.00
3.00	504,000	9.94 years	3.00	469,416	3.00
	2,064,725	9.60 years	1.47	1,890,141	1.46

A total of 124,156 options with an average exercise price of $.18 per share are vested at December 31, 1998.

In 1997, the Company issued, to an employee, options to purchase 7,875 shares of Common Stock at an exercise price of $0.20 per share outside the Plan. These options were exercised in 1997. In 1998, the Company issued, to two employees, options to purchase 40,000 shares of Common Stock at an exercise price of $3.00 per share outside the Plan. These options were outstanding at December 31, 1998.

Fair Value Disclosures

Had compensation cost for the Company's stock-based compensation plan been determined based on the fair value at the grant dates for the awards under a method prescribed by SFAS No. 123, the Company's net loss would not have been materially different.

Redback Networks Inc.

Notes to Financial Statements (Continued)

The Company calculated the minimum fair value of each option grant on the date of grant using the Black-Scholes pricing model with the following assumptions:

YEARS ENDED DECEMBER 31, 1997 1998

Expected life (years)	5	5
Risk free interest rate	6.03%	5.12%
Expected volatility	--	--
Dividend yield	--	--

The weighted average fair values of options granted during 1997 and 1998 were as follows:

YEAR ENDED DECEMBER 31, 1997	WEIGHTED AVERAGE EXERCISE PRICE	WEIGHTED AVERAGE FAIR VALUE
Exercise price equal to market value	$ .13	$ .03

Year Ended December 31, 1998

Exercise price equal to market value	.60	.13
Exercise price less than market value	1.31	2.46

The weighted average fair value of restricted shares of Common Stock granted under the Plan in 1997 and 1998 was $.13 and $.77, respectively.

Note 10 -- Deferred Stock Compensation:

In the year ended December 31, 1998, the Company recorded deferred stock compensation expense of approximately $5,611,000 related to the issuance of stock options and restricted shares at prices subsequently determined to be below fair market value. These charges are being amortized over a period of four years from the date of option or restricted shares issuance. Amortization of $880,000 has been recognized as stock compensation expense in the year ended December 31, 1998.

Note 11 -- Employee Benefit Plans:

The Company sponsors a 401(k) defined contribution plan covering all employees. Contributions made by the Company are determined annually by the Board of Directors. There have been no Company contributions to the plan since inception.

Note 12 -- Subsequent Events:

Loan Agreement

In January 1999, the Company repaid the $1.5 million in borrowings under the loan and security agreement with a bank which was outstanding as of December 31, 1998. In January 1999, the Company's loan and security agreement with the bank was amended to increase the revolving line from $2.0 million to $5.0 million.

Preferred Stock

In January 1999, the Company sold 63,532 shares of Series D Preferred Stock for $500,000.

Redback Networks Inc.

Notes to Financial Statements (Continued)

Amendment to Certificate of Incorporation

In March 1999, the Board of Directors approved, subject to stockholder approval, an amendment to the Company's certificate of incorporation to provide for an increase in the authorized capital stock to 24,500,000 shares of common stock.

In March 1999, the Company also approved an amendment to the Company's certificate of incorporation to provide for an increase in the authorized capital stock to 80,000,000 shares of Common Stock and 10,000,000 shares of undesignated Preferred Stock upon the completion of the Company's proposed initial public offering. Upon completion of the initial public offering, all previously issued and outstanding Preferred Stock will be converted into shares of Common Stock and warrants to purchase shares of Preferred Stock will be converted into warrants to purchase shares of Common Stock.

Stock Plans

During the period from January 1, 1999 to February 28, 1999, the Company granted options to purchase 838,100 shares of Common Stock at exercise prices of $4.75 to $8.75 per share. The Company recorded deferred stock compensation expense of approximately $3.0 million related to the issuance of these options.

In March 1999, the Board of Directors approved, subject to stockholder approval, an increase in the common shares available for issuance under the 1997 Stock Plan of 600,000 shares.

In March 1999, the Board of Directors approved, subject to stockholder approval, the adoption of the 1999 Stock Incentive Plan ("1999 Plan") and reserved 2,500,000 shares of common shares for issuance under this Plan. Shares not yet issued under the 1997 Stock Plan will also be available under the 1999 Plan. The 1999 Plan allows the grant of ISO, NSO and restricted stock to employees, non-employee board members and consultants.

In March 1999, the Board of Directors approved, subject to stockholder approval, the adoption of the 1999 Employee Stock Purchase Plan and reserved 1,000,000 shares of Common Stock for issuance under this Plan.

In March 1999, the Board of Directors approved, subject to stockholder approval, the adoption of the 1999 Directors' Option Plan and reserved 200,000 shares of Common Stock for issuance under this Plan.

[Graphic -- Inside Back Cover]

Across the top of the page reads "Redback Networks. Enabling high-speed access for the masses."

The page has two graphics on the right side and one graphic on the bottom left side.

The first graphic on the right is a picture of the SMS 1000. Below that is a picture of the SMS 500. The following caption is above these graphics:

- "Redback Networks' Subscriber Management Systems are used by leading carriers and service providers to deploy high-speed services and manage subscribers."

Next to these graphics is the following text:

- "Deployed in production networks worldwide by leading carriers and service providers. Supports all major broadband technologies. Scalable to thousands of subscribers. Ease of delivering connectivity cuts time to market. Multiple service creation opportunities."

Text runs down the left side of the page and down to the bottom right which reads:

- "Redback Networks delivers solutions that allow carriers, cable MSOs and service providers to quickly and cost-effectively bring high-speed Internet access services to market."

"Powerful solutions for managing high-speed subscribers Redback Networks' Subscriber Management Systems, or SMSs are powerful, advanced networking solutions that bridge the operational gap between high-speed access networks that serve businesses and homes and backbone routers. The SMS accepts the high-speed data traffic of thousands of individual subscribers and translates it to simple Internet protocol data streams, relieving backbone routers of processing and management tasks. By relieving routers of subscriber management functions, the SMS enhances router performance and helps reduce the need for additional router investment.

Rapid, scalable deployment of Internet access The SMS allows providers to offer high-speed Internet access using DSL, cable and wireless technologies alone or in combination. Because the SMS leverages existing access, accounting and management control systems, it speeds the deployment of these technologies and gives providers a competitive advantage. For example, the SMS supports the same industry-standard RADIUS database technology used with traditional dial network subscribers, thus reducing staff training and operational costs.

Service creation enables new revenues for service providers In addition to streamlining basic high-speed access, the SMS allows providers to create and market new service offerings that leverage high-speed connectivity.

With the SMS's service selection capabilities, service providers can add value to their high-speed access offerings by "re-profiling" and "re-selling" lines to subscribers multiple times. Possible services include "business by day/family by night" billing as well as different qualities of service. In addition, wholesale providers of network transport can use the SMS to cost-effectively provide access bandwidth to service provider customers."

The graphic on the bottom-left side of the page depicts three distinct Internet access modes, DSL, cable and wireless, each connected to the SMS 1000 product, which is connected to both the Internet and a corporate network. The caption for this graphic reads:

- "The SMS bridges the operational gap between high-speed subscribers and the Internet, supports all major high-speed access technologies, and accelerates the deployment of new services."

In the bottom right corner is our logo.

[Redback Networks Logo]

Part Ii

Information Not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, payable by the Company in connection with the sale of Common Stock being registered. All amounts are estimates except the SEC registration fee and the NASD filing fees.

SEC Registration fee	$ 10,391
NASD fee	4,238
Nasdaq National Market listing fee	27,795
Printing and engraving expenses	150,000
Legal fees and expenses	400,000
Accounting fees and expenses	250,000
Blue sky fees and expenses	10,000
Transfer agent fees	10,000
Miscellaneous fees and expenses	87,576
Total	$950,000

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law authorizes a court to award or a corporation's Board of Directors to grant indemnification to directors and officers, including reimbursement for expenses incurred, in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities arising under the Securities Act of 1933, as amended (the "Securities Act"). Article VII, Section 6, of the Registrant's Bylaws provides for mandatory indemnification of its directors and permissible indemnification of officers and employees to the maximum extent permitted by the Delaware General Corporation Law. The Registrant's Certificate of Incorporation provides that, pursuant to Delaware law, its directors shall not be liable for monetary damages for breach of the directors' fiduciary duty as directors to the Company and its stockholders. This provision in the Certificate of Incorporation does not eliminate the directors' fiduciary duty, and in appropriate circumstances equitable remedies such as injunctive or other forms of non-monetary relief will remain available under Delaware law. In addition, each director will continue to be subject to liability for breach of the director's duty of loyalty to the Company for acts or omissions not in good faith or involving intentional misconduct, for knowing violations of law, for actions leading to improper personal benefit to the director, and for payment of dividends or approval of stock repurchases or redemptions that are unlawful under Delaware law. The provision also does not affect a director's responsibilities under any other law, such as the federal securities laws or state or federal environmental laws. The Registrant has entered into Indemnification Agreements with its officers and

directors, a form of which is attached as Exhibit 10.1 hereto and incorporated herein by reference. The Indemnification Agreements provide the Registrant's officers and directors with further indemnification to the maximum extent permitted by the Delaware General Corporation Law. Reference is made to Section 7 of the Underwriting Agreement contained in Exhibit 1.1 hereto, indemnifying officers and directors of the Registrant against certain liabilities.

Item 15. Recent Sales of Unregistered Securities

Since the Company's inception on August 30, 1996, the Company has issued and sold the following securities (which numbers reflect the four for one stock split effected January 13, 1997 and the three for two stock split effected September 11, 1998):

1. From inception through December 31, 1998, the Company granted options to purchase 3,000,600 shares of common stock and granted 2,923,396 shares of restricted common stock at exercise prices ranging from $.053 to $3.00 per share to employees, consultants, directors and other service providers pursuant to its 1997 Stock Plan. Additionally, the Company granted options to purchase 47,875 shares of common stock and granted 4,931,478 shares of restricted common stock at exercise prices ranging from $.001667 to $3.00 per share to employees, consultants, directors and other service providers outside of the 1997 Stock Plan.

2. From inception through December 31, 1998, the Company issued and sold an aggregate of 8,798,624 shares of its common stock to employees, consultants, directors and other service providers for aggregate consideration of approximately $1,172,000 pursuant to direct issuances or exercises of options granted both under its 1997 Stock Plan and outside of that 1997 Stock Plan.

3. In September 1996, the Company issued and sold an aggregate of 1,687,500 shares of its Series A Preferred Stock for an aggregate purchase price of approximately $225,000, or $.13 per share.

4. In January 1997, the Company issued and sold 5,134,498 shares of its Series B Preferred Stock for an aggregate purchase price of approximately $5,135,000, or $1.00 per share.

5. In February and July 1997, the Company issued warrants to purchase 52,500 and 46,875 shares respectively, of its Series B Preferred Stock at an exercise price of $1.00 per share.

6. In October 1997, the Company issued and sold 2,557,999 shares of its Series C Preferred Stock for an aggregate purchase price of approximately $5,116,000, or $2.00 per share.

7. In March 1998, the Company issued a warrant to purchase 24,000 shares of its Series C Preferred Stock at an exercise price of $2.00 per share.

8. In July 1998, the Company issued and sold 1,076,624 shares of its Series D Preferred Stock for an aggregate purchase price of approximately $8,477,000, or $7.87.

9. In October 1998, the Company issued a warrant to purchase 6,096 shares of its Series D Preferred Stock at an exercise price of $7.87 per share.

10. In January 1999, the Company issued and sold 63,532 shares of its Series D Preferred Stock for an aggregate purchase price of approximately $499,997, or $7.87 per share.

The sale of the above securities was deemed to be exempt from registration under the Securities Act in reliance upon Section 4(2) of the Securities Act or Regulation D promulgated thereunder, or Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving any public offering or transactions pursuant to compensation benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of securities in each such transaction represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were affixed to the share certificates issued in such transactions. All recipients had adequate access, through their relationships with the Registrant, to information about the Registrant.

Item 16. Exhibits and Financial Statement Schedules

(a) EXHIBITS

Exhibit Number Description

1.1*	Form of Underwriting Agreement
3.1	Certificate of Incorporation of the Registrant, as amended to date
3.2*	Form of Restated Certificate of Incorporation of the Registrant, to be filed upon the closing of the offering made pursuant to this Registration Statement
3.3	Bylaws of the Registrant
3.4*	Form of Amended and Restated Bylaws of the Registrant, to be effective upon the closing of the offering made pursuant to this Registration Statement
4.1	Reference is made to Exhibits 3.1, 3.2, 3.3 and 3.4
4.2*	Form of Registrant's Common Stock Certificate
5.1*	Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP
10.1	Form of Indemnification Agreement
10.2	1999 Stock Incentive Plan
10.3	1999 Employee Stock Purchase Plan
10.4	1999 Directors' Option Plan
10.5	Sublease between Registrant and Infoseek Corporation, dated January 12, 1998 (without exhibits)
10.6	First Amendment to Sublease between Registrant and Infoseek Corporation, dated January 15, 1999
23.1	Consent of PricewaterhouseCoopers LLP, Independent Accountants
23.2*	Consent of Counsel. Reference is made to Exhibit 5.1.....
24.1	Power of Attorney. Reference is made to page II-5.....
27.1	Financial Data Schedule.....

* to be filed by amendment.

(b) FINANCIAL STATEMENT SCHEDULES Schedules not listed above have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings

The Registrant hereby undertakes to provide to the Underwriters at the closing specified in the Underwriting Agreement, certificates in such denominations and registered in such names as required by the Underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the Delaware General Corporation Law, the Certificate of Incorporation or the Bylaws of the Registrant, the Underwriting Agreement, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer, or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered hereunder, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue. II-3 The Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of Prospectus filed as part of this Registration Statement in reliance upon Rule 430A and contained in a form of Prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this Registration Statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of Prospectus shall be deemed to be a new Registration Statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Signatures

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Sunnyvale, State of California, on this 16th day of March, 1999.

Redback Networks Inc.

By: /s/ DENNIS L. BARSEMA Dennis L. Barsema President and Chief Executive Officer

Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS, that each individual whose signature appears below constitutes and appoints Dennis L. Barsema and Geoffrey C. Darby, and each of them, his true and lawful attorneys-in-fact and agents with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and to sign any registration statement for the same offering covered by this Registration Statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act of 1933, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

PURSUANT TO THE REQUIREMENTS OF THE SECURITIES ACT OF 1933, AS AMENDED, THIS REGISTRATION STATEMENT HAS BEEN SIGNED BY THE FOLLOWING PERSONS ON BEHALF OF THE REGISTRANT AND IN THE CAPACITIES AND ON THE DATES INDICATED:

Signature Title Date

/s/ DENNIS L. BARSEMA - ---------- Dennis L. Barsema	President, Chief Executive Officer (Principal Executive Officer) and Director	March 16, 1999
/s/ GEOFFREY C. DARBY - ---------- Geoffrey C. Darby	Chief Financial Officer (Principal Financial and Accounting Officer) and Secretary	March 16, 1999

/s/ JAMES R. FLACH Director March 16, 1999 James R. Flach /s/ PIERRE R. LAMOND Director March 16, 1999 Pierre R. Lamond /s/ DANIEL J. WARMENHOVEN Director March 16, 1999 Daniel J. Warmenhoven

Index to Exhibits

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