

**HUMMINGBIRD
COMMUNICATIONS LTD.**

Annual Information Form

February 17, 2000

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Certain terms used in this Annual Information Form are defined in the Glossary of Technical Terms. Unless otherwise noted, all amounts are in U.S. dollars and in accordance with U.S. generally accepted accounting principles.

The information given herein is as at September 30, 1999 and incorporates information with respect to PC DOCS Group International Inc. ("PC DOCS") which was acquired by Hummingbird Communications Ltd. on June 23, 1999.

(Copies of the management proxy and information circular for PC DOCS dated April 20, 1999 and the unaudited financial statements of PC DOCS for the nine months ended March 31, 1999 and other information with respect to PC DOCS may be obtained from the public files of the Ontario Securities Commission maintained by Micromedia or viewed on the SEDAR web site at www.sedar.com.)

Incorporation

Hummingbird Communications Ltd. ("Hummingbird" or the "Company") was incorporated under the *Canada Business Corporations Act* on September 27, 1984 as 135748 Canada Inc. Its corporate name was changed to Voiceterm Inc. on December 12, 1984 and to Hummingbird Communications Ltd. on February 20, 1985. On June 4, 1985, the articles of the Company were amended to convert all outstanding Class A Shares into Common Shares and to cancel all authorized and unissued Class B Shares. On September 3, 1985, the Company was amalgamated with 141881 Canada Limited and continued under the name Hummingbird Communications Ltd. On January 13, 1987, the articles were

amended to create an unlimited number of Special Shares, and unlimited number of Preferred Shares issuable in series and to create Redeemable Retractable Preferred Shares Series A. On March 10, 1993, the articles were further amended to create Redeemable Retractable Preferred Shares Series B and on July 9, 1993 and July 30, 1993, the articles were further amended to provide for articles appropriate for a public company and to subdivide the issued and outstanding Common Shares and Special Shares.

In the period from 1995 to 1998, the Company acquired Common Ground Software, Inc. (a California Corporation), Beame & Whiteside Software, Inc. (a Delaware corporation), Andyne Computing Limited (an Ontario corporation) and Datenrevision (a German corporation), as well as acquiring from McGill University and PolarSoft Inc. all rights to their products, HostExplorer TN3270 and TN5250, and all intellectual property and goodwill associated therewith.

In 1999, Hummingbird acquired Leonard's Logic SA (a French corporation) and PC DOCS Group International Inc. (an Ontario corporation), as well as all rights to Financial Frameworks, a software solution for the financial services industry from Context, Inc. (a New York corporation). Later in 1999, Hummingbird disposed of its interest in Datenrevision and on October 1, 1999, PC DOCS Group International Inc. was amalgamated with Hummingbird Communications Ltd.

General Development of the Business

The Company is a computer software development company that designs, manufactures and markets enterprise software solutions, including enterprise information portals, document and knowledge management solutions, data integration & reporting solutions, analytical applications, and network connectivity solutions.

The Company was founded in 1984 as a consulting firm, designing products in the areas of voice-data integration and micro-to-mainframe communication. In 1989, the Company entered the PC X server market with its first product, the DOS-based HCL-Exceed. In January 1991, the Company introduced its Windows-based product, HCL-Exceed/W, and by the end of 1991, the Company had established itself as the market share leader among PC X server software vendors. Since 1991, the Company has continued to enhance the Exceed product line, introducing new Exceed products for all PC operating systems, and developing many other features and functions.

As part of the Company's strategy to expand its product offerings, in 1995 the Company acquired Beame & Whiteside, a developer of NFS products, and re-launched these products under the NFS Maestro brand. In 1997 the Company acquired from McGill University and PolarSoft Inc. all rights to their product, HostExplorer TN3270 and TN5250 terminal emulation. The Company has continued to develop these acquired technologies, releasing numerous upgrades and enhancements to both the NFS Maestro and HostExplorer product lines.

In 1998, the Company acquired Andyne, which developed, marketed and supported a line of business intelligence software and, at the time of the Company's acquisition, had over

120,000 installations in over 3,000 companies worldwide. Andyne's integrated decision support products included Andyne GQL, GQL Reports and PaBLO. These products exploited client/server computing technology to provide powerful access and analysis by end users to data base information stored on server computers. During the second and third quarters of 1998, the Company upgraded these products and introduced its first business intelligence product offering based on those core products: BI/Broker, BI/Query, BI/Web, and BI/Analyze. In April 1998 the Company acquired the Germany-based software consulting and distribution company, Datenrevision. The privately held company specialized in software consulting in the areas of client/server development and data warehousing projects. The Company sold its Datenrevision subsidiary to gedas GmbH of Germany, effective September 1, 1999.

In March 1999, the Company acquired Leonard's Logic SA, a France-based software company which makes Genio, a data transformation and exchange tool that facilitates the flow of information through corporate decision support systems, including data marts, data warehouses and OLAP (on-line analytical processing) environments. Leonard's Logic is based in Paris, France, and has offices in Europe and North America. Also in March 1999, the Company acquired all rights to Financial Frameworks software technology and all intellectual property related thereto from Context, Inc. of New York. Financial Frameworks is a software solution specifically designed for risk management applications within the financial services industry.

The Company believes that the combination of Genio, Financial Frameworks and other products in the Company's data integration and reporting line add up to a complete suite of tools for building data warehouses and data marts, performing integration between operational systems, and providing query and reporting functionality to empower knowledge workers for better-informed business decisions. The Company believes that the suite of software it now offers for the data integration and reporting markets is superior to other solutions in this market, and anticipates that the combination of acquired technologies will result in increased market acceptance and deployment of these products, and thus far the Company believes it has received early acceptance in the marketplace.

In June 1999, the Company acquired PC DOCS Group International Inc., a publicly traded Ontario corporation. PC DOCS develops, markets and supports object-oriented client/server and Internet Document Management and Knowledge Management systems for unstructured data. The Company plans to continue to enhance and market the discrete document and knowledge management product offerings acquired through PC DOCS, while also working to integrate the acquired technologies with the Company's existing Data Integration and Reporting products to develop comprehensive software solutions for the management of all forms of structured and unstructured data. Following the acquisition of PC DOCS, the Company has worked to launch the first solution in this area, the Hummingbird Enterprise Information Portal (EIP), designed to provide customers with the ability to access and analyze all relevant business information from various formats, sources and locations through a single Web browser-based user interface.

The Company's products are sold and supported in over fifty countries around the world. The Company sells its products directly to major accounts, through distributors, value-

added resellers (VARs), systems integrators and original equipment manufacturers (OEMs). Hummingbird's products are used in a wide range of industries, including aerospace/defense, manufacturing, automotive, petrochemical, banking and financial services, legal, telecommunications, utilities, health care, pharmaceutical, government and education. The Company's customers include Alcatel, Bell Canada, Bell South Telecommunications, Boeing, British Telecom Laboratories, Charles Schwab & Company, Chevron, EDS, the Federal Reserve Board, Ford Motor Company, General Electric, GTE Telephone Operations, Hewlett-Packard, IBM, Lucent Technologies, Merrill Lynch, NASA, Nortel Networks, Motorola, Proctor & Gamble, Reuters, Texas Instruments, the U.S. Federal Government and Wal-Mart. During fiscal 1999, no single end-user customer accounted for more than 1.25% of the Company's total revenues.

Hummingbird currently operates from offices in Canada, the United States, Australia, Belgium, France, Germany, Italy, Japan, Korea, Mexico, Singapore, Sweden, Switzerland, The Netherlands, and the United Kingdom. As at September 30, 1999, the Company employs 1420 people.

Description of the Business

Enterprise Information Portals Industry Background

The enterprise information portals (EIP) market is relatively young. Web-based consumer portal sites such as Yahoo!, Excite, Lycos, and InfoSeek have changed the way people look for information on the Web, by providing a single point of access to satisfy their content searching needs. An EIP is a Browser-based system providing ubiquitous access to business related information in the same way that consumer portals are the gateway to the wealth of content on the Web.

In November 1998, Merrill Lynch defined the market in their "Enterprise Information Portals" report, where they described an EIP as an application to "enable companies to unlock internally and externally stored information, and provide users a single gateway to personalized information needed to make informed business decisions." According to Merrill Lynch, the EIP market was estimated to be \$4.4 billion in calendar year 1999, growing to \$14.8 billion by 2002. The EIP market is emerging from a consolidation of the following markets:

- Business intelligence
- Knowledge management
- Document management
- Content management
- Collaboration

The EIP offers the benefits of a consumer portal in a business context to achieve competitive advantage. Enterprises, quick to recognize the success of Internet portals, were excited by the possibilities of an EIP, and many have begun implementations of their own portals. However, these enterprises soon realized the Yahoo! model, while sufficient for Web-based/HTML information, is not sufficient for corporate portals. Companies typically

have many more information repositories than just inter/intranets; these include e-mail, groupware, document management systems, and line of business applications. To create a true Enterprise Information Portal, enterprises need to ensure access to all the information, across the entire enterprise infrastructure.

The rise of Enterprise Resource Planning (ERP) applications and the proliferation of disparate computing systems in corporate environments has caused an exponential increase in the amount of digital data and information (transactional data, documents, digital files, e-mail, video and audio files, etc.) being stored. There is a wealth of information buried in company databases, file servers and desktops. Additionally, the Internet has flooded corporations with information at an astonishing pace and from a dizzying array of sources. Yet cross enterprise access to this information has been difficult if not impossible to accomplish. The power of the EIP lies in the fact that from a single gateway, users will be able to find, extract and analyze business information from all of the sources available to them.

The market for EIP solutions is driven by the fact that all organizations are challenged to become more nimble and responsive in order to thrive in this dynamic world. Enterprises are under immense pressure to rise to the new challenges and opportunities of today's Internet-paced economy. With vast information sources to manage, higher customer expectations and shifting work teams, individual employees need access to relevant, personalized content – in the appropriate context – to make fast, accurate and informed decisions.

The Company's commitment to the EIP marketplace is demonstrated in the fact that all of Hummingbird's products are fully integrated into a coherent EIP strategy. The Company's EIP offering, launched in December 1999, has the ability to incorporate connectivity, data integration, reporting, document management and knowledge management capabilities, as well as an open metadata strategy and published XML-based APIs for integrating additional applications to the EIP environment. The EIP product provides access to all business-critical information and resources, including structured and unstructured enterprise data.

Document and Knowledge Management Systems Industry Background

Commencing in the mid-1980s, the computer industry underwent a significant transformation as PCs began to replace traditional minicomputer and mainframe systems that operated with closed proprietary software systems. This transformation has led to the proliferation of networked computing systems consisting of local and wide area networks which connect multiple PCs in one location and across multiple locations through powerful servers. As organizations began to shift their business-critical applications to PC networks, a need arose for sophisticated, open architecture software solutions that could operate in a client/server environment and across a variety of computing platforms. Concurrently with these changes in computing systems came the increasing market acceptance of structured query language (SQL) database technology and the widespread use of personal productivity applications such as word processing, spreadsheets and presentation graphics.

As the means of computing changed, the variety and use of both structured and unstructured data within organizations grew. Structured data, such as sales records, inventory data or accounting and billing information, is typically stored in tables in traditional database management systems. Unstructured data, such as word processing, spreadsheet, CAD, image, graphics and multimedia files, is produced by a myriad of desktop and professional applications. Unstructured data typically exists in hard copy as well as in a multitude of electronic data types and file formats. In a typical corporate environment, unstructured electronic documents are created, modified, distributed and stored using multiple software systems which run on a variety of different platforms that may be geographically dispersed, with little compatibility or data sharing capability between systems.

In recent years, the Internet has emerged as an increasingly important medium for communications and information publishing. The Internet and the World Wide Web have dramatically increased the volumes of unstructured information available in organizations today. As well, Internet technologies are having a significant influence on the configuration of network computing environments as organizations are increasingly adopting private “intranets” based on Internet data formats and communications technologies to connect geographically dispersed networks and information repositories. Although the Internet and corporate intranets have given users widespread access to new sources of unstructured information, the tools available for harnessing, managing and controlling that information are limited.

Many organizations have begun to recognize that a competitive advantage can be gained from the more effective use of available information, in particular, by the rapid searching of text or other unstructured information contained in internal or external databases, including through the Internet.

The proliferation of relational database management systems enabled the effective management of much of the structured data within large organizations. However, these systems are not designed to manage the complexity and variety of unstructured data, resulting in inefficiencies in document-related processes that hamper productivity at the individual, team, department and enterprise levels. Without an effective means of searching for and reusing unstructured enterprise information, individuals are often forced to recreate documents, duplicating effort and increasing the risk of error and inconsistency. As a result, individuals are spending a disproportionate amount of their time locating, assembling, processing and duplicating data rather than engaging in more productive activities.

In addition, today's PC users often work in collaborative teams that are geographically dispersed and use different client platforms. The lack of effective tools for communicating and sharing information across organizational and geographic borders and for automating workflow among individuals makes group collaboration even more time-consuming, inefficient and error-prone.

In order to resolve these problems, several vendors have come forth in recent years with Enterprise Document Management (EDM) technologies. EDM systems provide a means to

store, easily locate and retrieve document-based information throughout the document's life cycle. An effective document management system must be able to operate in a heterogeneous computing environment, permit users to collaborate and contribute information across enterprise and geographic boundaries and be flexible enough to adapt to emerging hardware and software platforms, including the Internet and intranets. In addition, the ability to create libraries for secure document access and retrieval based on a variety of criteria, to maintain a record of user activity and to control multiple document versions is essential. While a number of technology suppliers have developed proprietary software systems to address these challenges, many of these solutions serve only single applications (for example, word processing) and individual environments (for example, a single network operating system) and therefore do not address enterprise-wide concerns.

Information Retrieval (IR) software builds a comprehensive index of all terms that appear in documents, which can then be searched in their original format for relevant information. Unlike traditional database management systems, IR does not require information to be rigorously structured before it is stored and later accessed. Typically embedded as a core component within a larger EDM software solution, IR technology provides an effective mechanism for retrieving documents based on their content without needing to know where specifically on an organization's networks they may be physically stored.

As the technologies of EDM and IR have evolved within the context of the new challenges and opportunities presented by the emergence of the Internet, many organizations have started to seek better ways to leverage these core technologies and take better advantage of their collected organizational knowledge. Knowledge Management is the process of capturing an organization's collective expertise, wherever it resides, in databases, EDM systems, workgroup servers (such as Lotus Notes and Microsoft Exchange Server) or on paper, and distributing this expertise automatically to the users who most need access to it. Knowledge Management systems combine advanced document management technology, sophisticated information retrieval and innovative content analysis techniques, leveraging the collective knowledge and experience of an organization to accelerate innovation and sharpen competitive edge.

Data Integration and Reporting Industry Background

The data integration and reporting marketplace is relatively young, though beyond the "evangelistic" phase. Companies today recognize that in order to remain competitive they require solutions that leverage and utilize their investments in data. The market, sometimes also referred to as the "data analysis market" encompasses three main areas: data warehousing (framing and unifying multiple data sources in a coherent information repository); data exchange (transforming and exchanging information between disparate enterprise applications to achieve consistency between operational systems), and; query and reporting (user-driven multidimensional querying, reporting, manipulating and exploring data to discover and analyze trends and patterns).

The demand for data integration and reporting technologies has surged in recent times, driven by the general business climate for increased competition. Companies in nearly every industry are looking to improve their time-to-market, customer services, and

operational processes by utilizing more effectively and quickly the vast amounts of data they have acquired and in which they have invested. In essence, data integration and reporting software allows companies to transform information into knowledge, enabling fast and informed business decisions at any organizational level.

The rapid growth in recent years of the data integration and reporting market is due in part to the increasing need by organizations to enhance their competitive capabilities in their own markets, by effectively utilizing their acquired vast data repositories. Data integration and reporting systems allows corporations to “mine” large amounts of data to optimize their businesses, by providing end users with an accurate, fast and simplified ability to predict business trends and make informed business decisions. The trend today is for decisions to be made in lower organizational levels, and data integration and reporting software equips employees at all organizational levels with the decision support tools that reduce training time and that are tailored to their environments.

An important trend in the data integration and reporting market is fat-client versus thin-client technology. Today, there is a trend toward thin-client technology (where the bulk of processing is performed at the server level rather than the client), providing a multitude of operational benefits for the enterprise and the user. The Company’s data integration and reporting products capitalize on this trend, utilizing the same content, security, and user profiles as well as centralized administration for both fat and thin clients from a single server. The Company’s data integration and reporting solutions are scalable, meeting the needs of organizations as their decision support requirements grow. One of the major challenges facing the data analysis market today is scalability. As increasing numbers and varieties of applications are deployed across enterprises, the need for scalable decision support systems has grown, and will continue to grow. The Company believes that its expertise in network connectivity scalable solutions positions it for ongoing development and enhancement in the area of scalable data integration and reporting solutions.

Network Connectivity Industry Background

Organizations are increasingly integrating their computing resources into enterprise-wide internetworks of personal computers, workstations, minicomputers and mainframes. The integration of these enterprise-wide resources enhances productivity by enabling users to communicate with each other, and to share data and applications throughout the entire organization and offers price and performance advantages over mainframe and minicomputer only environments. Because users typically access the network through PC desktops, there has developed a need for high performance, reliable internetworking software to enable PCs to access the diverse and otherwise incompatible resources available on the network. This shift to internetwork computing has been facilitated by the emergence and proliferation of certain open standards, including the X Window System, TCP/IP, NFS, terminal emulation protocols, Web-based technology (HTTP) and others.

X Windows and X Servers

X Windows has grown in popularity largely due to the increased deployment of the UNIX operating system in client/server environments. Although X Windows was designed as a

universal network-based graphics and windowing system and is commonly used for applications on Digital VMS, IBM mainframe and other operating systems, its most significant application is in UNIX environments. X Windows has assisted in the expansion of the UNIX market by providing an industry-standard network windowing solution for UNIX, utilizing an intuitive graphical user interface. The X Window System is currently available in version X11R6.4, commonly called "Broadway". A major feature of this version is the extension of X to the Internet and the Web, allowing Broadway-enabled browsers and companion X servers to provide remote access to interactive Windows and UNIX applications.

Today, virtually all UNIX systems are shipped with X Windows bundled in. PC X server software was introduced in 1988 to enable PCs to display X Windows applications. PC X server software became accepted as an attractive means of enabling PC users to obtain access to X applications on a network, while still permitting local desktop DOS or Windows application processing. With the proliferation of more powerful 386-, 486- and Pentium-based PCs, PC X server software has evolved to deliver higher performance at significantly lower incremental cost.

The Company believes that the historical growth in the PC X server market is attributable to a number of factors. The primary factors driving this growth included the proliferation of 386-, 486- and Pentium-based PCs, and the large and growing installed base of PCs networked via the TCP/IP protocol. TCP/IP is the most commonly used protocol both for open inter-connectivity among disparate networks and for X Windows networking. The proliferation of UNIX workstations and the increased number of X-compliant applications also drove the growth in the PC X server market. A PC running PC X server software can simultaneously display multiple X applications and local PC applications in separate windows, and enables the user to copy and paste data, text and graphics from one window to another. This allows the transfer of information among otherwise incompatible computer environments. Since the graphical user interfaces of Windows and OSF/Motif, the most commonly used window manager in the X Windows environment, are similar in look and feel, users can switch easily from Windows applications to X applications.

PC X servers have now evolved to become a vital component of PC internetworking, offering a wide variety of connectivity and administrative features. The functionality of PC X server products has increased significantly as user requirements have become more sophisticated. Today, PC X server products deliver a highly functional suite of internetworking utilities and services, including file and print services, various terminal emulations, security tools, network management abilities, and other integrated applications.

International Data Corporation (IDC), a market analyst research company, reported that the PC X server market in calendar year 1998 was valued at US \$131.8 million, and that Hummingbird Communications increased its worldwide revenue and shipments marketshare to over 67%. The Company has been the market share leader since 1991. For 1998, the Company's closest competitor had 11.5% share of the market. The review for calendar year 1999 was unavailable at the time of this Annual Information Form.

There can be no assurance that the Company's market share will remain at this level in the future.

Internetworking Protocols, Including NFS, TN3270, and Others

Internetworking software is based on communications protocols, which are the basic rules controlling and facilitating the transmission of data over networks. Communications protocols include conventions for formatting messages into packets, adding addresses and routing information, transmitting the packets to the proper recipient device, and re-assembling the packets into the complete message. A complete set of protocols is referred to as a suite or "stack". The many different protocol suites in use today can be categorized into two classes: vendor proprietary protocols, such as IBM's SNA, APPC and APPN, Digital's DECnet, Novell's IPX and Apple's AppleTalk; and open protocols, such as TCP/IP, and protocols based on the International Standards Organization's Open Systems Interconnection specification.

The Network File System (NFS) is a core component of the PC desktop internetworking software suite. It is a well-defined set of procedures for passing data between machines of differing architectures. NFS is basically an industry standard technology that ensures that heterogeneous computers "understand" the data in the same way. Since its introduction in 1984, NFS has become the standard for distributed interoperable print and file services in multivendor computer environments. Today, almost every UNIX system shipped includes NFS as its primary remote file system. For heterogeneous computer environments, the NFS open protocol is the only available file system that will operate across diverse environments.

The NFS market is followed by analysts as a component of TCP/IP applications suites, which are internetworking productivity packages sold with NFS software and other networking applications. The market is not regularly followed as a stand-alone market. However, according to industry analysts, the NFS market will experience moderate growth over the next few years as it is the predominant utility used to transfer files between the growing installed base of TCP/IP systems.

The Company has made great strides in the Network File System market since introducing NFS Maestro in fiscal 1995, and is now considered a major contender, earning independent product awards and enjoying excellent reception in the marketplace. According to industry technology reviewers, Hummingbird NFS Maestro is regarded as the highest-performance and best value NFS solution available.

TN3270, TN5250, and other terminal emulations (desktop to mainframe connectivity), provide network-based users access to host computers and resources, the critical component of back office systems, which provide the majority of an enterprise's data storage and computing resources. The on-going growth in the host access market has been fueled by the widespread use of standards-based networking protocols, such as TCP/IP, and the growth in the IBM host-based market. According to IDC, the worldwide market for total host access client shipments increased 40.3% from 8.2 million in 1997 to 11.5 million units in 1998. Traditional clients grew 26.9% from 8 million units in 1997 to 10.2 million in 1998. The world market for thin-client, browser-based units, however, grew

more than 500% in 1998 to represent 12.1% of total host access units. IDC predicts that this market will grow from 11.5 million units in 1998 to 27.9 million units in 2003, representing a CAGR of 19.3%.

Strategy

The Company's principal business strategy is to maintain technological leadership in each of its current markets by continued investment in research and development; to extend its international sales and support capability, both directly and through business partnerships; to expand its strategic relationships with the leading developers of complementary software and hardware, and; to increase its penetration of selected markets.

The Company focuses its research and development resources on the advancement of enterprise software technology in the areas of enterprise information portals, document and knowledge management, data integration, reporting and analytic applications, and network connectivity. The Company's long-standing leadership in the network connectivity market and strategic acquisitions in other areas have allowed the Company to grow a large and diverse global customer base, facilitating growth in all areas of the Company's business.

The Company continues to innovate and enhance discrete product offerings in each of its current technology areas to meet customer needs. In addition, the Company has recognized increasing market demand for fully integrated information management solutions that work with all sources and forms of enterprise information through a single user interface. Effective management of information will be an increasingly important competitive factor in the success of business enterprises in the future. This will require organizations to implement a cohesive approach to information management, which addresses all forms of structured and unstructured data.

"Structured" data is defined as information organized in databases with clearly defined fields, columns and rows. Examples of structured data include sales records, accounting records, customer profiles, transaction records, bills of materials, marketing databases and inventory records. "Unstructured" data is defined as business-critical information stored in word-processing documents, spreadsheets, presentation graphics, Internet/intranet pages, CAD drawings, multimedia audio/video clips, electronic mail messages and electronic facsimile documents. The need to provide users with integrated access to all forms and sources of both structured and unstructured data is driving the growth of the Enterprise Information Portals market.

The Company's specific strategies to achieve its overall corporate objectives are as follows:

Maintain Technological Leadership. The Company believes that its success to date has resulted largely from its technological innovation and leadership in the PC X server industry. The Company was the first to offer PC X server products for both DOS and Windows and the first to offer many product features and advancements. The Company

strives to continue to be the first to release products implementing new features and that support new operating systems, protocols, and user environments and to add new, innovative features that improve the functionality, performance, reliability and compatibility of all of its products.

As part of its business strategy to broaden its product and technology offering, and to provide a wide range of enterprise internetworking capabilities, the Company continues to develop and acquire additional products and technologies. In fiscal 1995, the Company added the NFS Maestro line of products to its existing product portfolio by acquiring Beame & Whiteside Software, Inc. In fiscal 1997, the Company acquired from McGill University and PolarSoft Inc. the HostExplorer TN3270 and TN5250 terminal emulation software, enhancing its connectivity product offering further. On-going product and technology development is focused on existing product upgrades and enhancements, and new product introductions.

On January 5, 1998, the Company acquired Andyne Computing Limited, a leading provider of decision support client software (business intelligence), pursuant to a plan of arrangement. All these products provide innovative features for enterprise users and were designed in response to customer and overall market demand.

Following the acquisition of Andyne, the Company had already extended its expertise and competitive standing in the access, management and analysis of structured data through data warehousing and business intelligence technologies. In fiscal 1999, the Company enhanced its presence in this area through the acquisition of Leonard's Logic, bringing the sophisticated Genio data transformation and integration products into the Company's portfolio.

During fiscal 1999, the Company acquired PC DOCS, an established leader in the field of unstructured data management. The Company considers PC DOCS' software products for the document and knowledge management markets to be technologically superior to competing solutions in its industry, and believes that the combination of the two companies has already afforded an expanding sales and marketing channel for the products of both companies. The integration of both structured and unstructured data management capabilities within a single product portfolio is now the Company's most significant competitive differentiation.

The acquisitions of Andyne, PC DOCS and Leonard's Logic have allowed the Company to respond quickly to the growing need for integrated information management solutions, entering the new and rapidly growing market for enterprise information portals with a combined product offering that integrates elements from each of the Company's existing lines through a newly developed software core.

In addition, the Company continues to research and monitor new markets that provide for high potential levels of growth, and further acquisition opportunities that may enhance its technology offering, professional services capability and overall competitive standing in its markets.

Provide Multiplatform Solutions. The Company is committed to offering products across a broad range of hardware platforms and operating systems. The Company currently offers its enterprise information portal product, document and knowledge management systems, network connectivity applications, and data integration and reporting solutions for all major operating systems and user environments, including Windows, Windows NT, Windows 95/98 and Windows 2000, and will support additional operating systems as they gain market acceptance. In particular, recent upgrades to a number of the Company's products have incorporated support for the latest Linux open source network operating system platform. The Company believes that, because of the architecture of its products and the experience of its development team, it is able to support new operating systems and environments soon after their introduction, and that this represents an important competitive advantage.

Leverage Distribution Channels. The Company believes that its highly effective distribution channel is important to its leadership in all of its markets. The Company sells its products through a select group of specialized distributors and resellers and through a direct sales organization. This sales organization is focused on sales to strategic large accounts and the support of distributors and resellers. Because the Company's products contribute a substantial portion of revenue to many of its distributors and resellers, the Company believes that these distributors and resellers are highly focused on sales of the Company's products. Accordingly, the Company believes that its distribution channels represent an important competitive advantage. The Company intends to strengthen its direct and indirect distribution channels in selected markets, while continuing to focus on enhancing the productivity of its existing distribution network.

Increase Market Penetration Outside North America. An important component of the Company's growth strategy is its focus on markets outside of North America as the technology areas on which the company focuses achieve increasing acceptance in these markets. The Company continues to apply resources toward the development of key international markets. The Company today has offices in Australia, Belgium, France, Germany, Italy, Japan, Korea, Mexico, Singapore, Sweden, Switzerland, The Netherlands, and the United Kingdom, in addition to offices throughout the United States and Canada.

Focus on Customer Support. The Company seeks to provide a high level of customer service and support. The Company believes that its experience in solving customer problems, together with the technical expertise of its support personnel, combine to differentiate the Company from its competitors and constitutes a competitive advantage. The Company also believes that its extensive experience in servicing its large customer base has assisted the Company in developing over time, a robust and stable product line.

Broaden Target Market. A major objective of the Company is to be a leader in the enterprise software and solutions market. With its initial, highly successful PC X server products, Hummingbird has established a dominant share in this market segment. The Company has extended the scope of its offerings beyond PC X servers to a broader enterprise software market that includes the EIP market, the document and knowledge management market and the data integration and reporting market. By utilizing its distribution network and capitalizing on its market leadership, the Company intends to

increase the significance of all of its products. Over time, the Company intends to offer further enterprise software solutions through both internally developed and, potentially, acquired products and technologies.

Year 2000 Preparedness. A review has been undertaken of the Company's products and the Company believes that with respect to their specific applications, such products meet with current industry expectations regarding the Year 2000 and that, provided customers and users of these products are otherwise prepared for the Year 2000, they will not have been and should not be materially adversely affected by that event with respect to the specific applications. See also: "Year 2000 Readiness" on page 28.

Products

The Company has four product lines, consisting of its enterprise information portals products, its document and knowledge management products, its data integration and reporting line and its network connectivity product line. During fiscal 1999, sales of network connectivity products accounted for more than 60% of the Company's total revenues.

Document and Knowledge Management Products

The Company's best known document management product, DOCS Open, is a client/server system which enables organizations to organize, access and share unstructured electronic data across an enterprise, including on multiple hardware, operating systems and database platforms. DOCS Open has a search and retrieval capability which can be based on a document "profile" containing a variety of customizable information fields which describe the key attributes of each document, such as author, project name or security classification. Document searches may incorporate these attributes, as well as words contained within the document itself. DOCS Open is integrated with many commonly used desktop applications, including those offered by Microsoft, Lotus Development Corporation, a division of IBM Corporation ("Lotus") and WordPerfect, a division of Corel Corporation Limited. Additionally, the product's open architecture enables it to operate on popular network operating systems, including Novell, Microsoft and Banyan, and to support the leading SQL databases including Oracle, Sybase and Microsoft NT SQL Server.

The emergence of the Internet and, in particular, the World Wide Web has brought organizations' networking and electronic document management needs to the forefront. Organizations are being challenged to find ways to take advantage of the near universal access to document-based information that the Web provides. In addition, Internet technologies deployed within corporate computing environments ("intranets") have provided a new framework for the cost-effective deployment of information systems and related applications.

In recent years, the Company has focused on the development of an expanded product architecture that integrates Web-based document management into the current

client/server environment. The DOCSFusion Server, released in December, 1997, is based on a server-centric, thin-client architecture. DOCSFusion Server is the first in a new line of server-based products from the Company that will integrate the DOCS Open document management architecture with additional applications running on both servers and clients. The Company believes that by delivering products based on the DOCSFusion platform, that are easier to install, to use, to deploy and to support in a corporate Intranet environment, it now has an opportunity to reach a broader market and deliver products in higher volume.

The first client interface to the DOCSFusion Server, CyberDOCS, delivers full document management functionality over an intranet, extranet or the Internet. CyberDOCS includes functionality such as: check-in/check-out, searching across multiple repositories, audit history, document creation and full customization capabilities. With DOCSFusion Server and CyberDOCS, users can choose multiple points of entry to corporate documents. As a result, users have access to the same document repository whether they are using DOCS Open or any Web browser running CyberDOCS.

DOCS Open 3.8 and DOCSFusion 3.0, the current versions of the Company's document management software, provide enterprise-wide scalability and enable users to share, manage and control documents within an organization, across divisional and geographical borders. DOCS Open 3.8 is a 32-bit product designed specifically for Windows 95/98/2000 and NT desktops. DOCSFusion 3.0 centralizes the full range of DOCS Open features at the application server level and enables powerful document management seamlessly across a mix of different client environments – from Windows PC's to Web-browsers. DOCSFusion 3.0 is a high-performance, stateless server process for Windows NT servers, featuring DCOM connectivity, a fault tolerant architecture, configurable SQL connection pooling, server side caching, simultaneous multi-repository searching and many other advanced features.

The Company has also introduced a group of complementary add-on products designed to build upon the core functionality of DOCS Open 3.8 and DOCSFusion 3.0. These products include:

DOCS Document Sentry Agent (DSA): Provides an added layer of configurable security for DOCS Open libraries.

DOCS Unplugged: Extends full DOCS Open functionality to mobile computer users and to desktop users when they are not connected to their network. Changes made to checked-out documents are automatically resynchronized when the documents are checked back into the network.

DOCS Interchange for Microsoft Exchange: Enables DOCS Open users to publish documents stored in a DOCS Open library to specified public folders in Microsoft Exchange.

DOCS Interchange for Lotus Notes: Allows users to replicate documents from DOCS Open libraries to a Lotus Notes database, while still maintaining links between replicated copies.

DOCS Development Kit (DDK): Enables developers and system integrators to build customized applications for DOCS Open with an object-oriented tool set.

DOCS Enterprise Suite: The convergence of complementary document management technologies - imaging and routing - has created an opportunity for organizations to extend the functionality of document management to a broad range of strategic business processes. DOCS Enterprise Suite enables organizations to take advantage of these technologies. DOCS Enterprise Suite combines DOCS Open, DOCS Imaging and DOCS Routing into one integrated product and provides a single source for enterprise document management, ad hoc imaging and serial and parallel routing. This combination enables users to manage critical corporate data, capture digitized images and route documents to others directly from the DOCS Open Power Desktop or a different desktop application.

DOCS Imaging: Enables DOCS Open users to integrate and manage scanned documents, faxes, OCR text, and other electronic images on their network.

DOCS Routing: Enables DOCS Open users to logically route documents for review and approval, incorporating comments and providing status checks.

The Company's products in the Knowledge Management (KM) market are available on many different hardware platforms and operating systems, including Windows 95/98/2000, Windows NT and a wide variety of UNIX-based systems. The Company's software supports the development of applications employing many graphical user interfaces such as Windows and OSF/Motif.

The Company's KM products include:

SearchServer: SearchServer is an SQL-based family of high-performance indexing and retrieval software products. First introduced SearchServer in April 1993 and the Company currently markets version 4.0. SearchServer incorporates the Company's core indexing and retrieval engine. This product allows MIS professionals and third party application developers, particularly those familiar with the SQL programming language, to prototype and implement text-retrieval solutions that can be deployed in corporations and other large organizations. SearchServer is designed to allow developers to build a wide variety of IR applications that are easy to use. These applications include customer service, corporate publishing, regulatory submissions and litigation support and may take advantage of the Company's Intuitive Searching feature, which enables end-users to search for and retrieve information in a natural and instinctive way using words, phrases and representative passages of text.

SearchBuilder: The SearchBuilder series of products features high-level graphical development tools for integrating SearchServer in custom application solutions for the Windows desktop. Fulcrum supports a variety of leading application development environments such as Microsoft Visual Basic and Visual C++.

Fulcrum Knowledge Server: Formerly known as DOCSFulcrum, Knowledge Server is the Company's latest knowledge management solution. This product ties together information stored in diverse repositories and formats such as Lotus Notes, Microsoft Exchange Server, Web sites, file systems, document management systems, databases, and more. These sources are gathered together into a common information model called a Knowledge Map, which presents diverse information sources as a logical, unified folder hierarchy. The Knowledge Map can be customized for the enterprise presenting a logical "business view" of all available information, insulating users from the need to concern themselves with the physical location or access requirements of individual data sources. Users can also create personalized views of the various information sources by creating personal folders that match their own areas of responsibility.

In January 1999, PC DOCS introduced the Enterprise Table Of Contents™ (ETOC), a neural network-based content analysis technology that extends the functionality of Knowledge Server by automatically classifying information from a variety of different sources and repositories into browseable hierarchies. In May 1999, PC DOCS launched new versions of each of its main document and knowledge management products. Knowledge Server 3.0, the latest version of the Company's Web-accessible, enterprise knowledge management product line, gives users the ability to categorize and manage relevant intellectual assets across an entire organization. DOCSFusion 3.0, an upgraded Windows NT Server-based document management server, and PowerDOCS 3.0, its Windows-based client, are the latest enhancements to the Company's three-tier document management suite. DOCS Open 3.8, released at the same time is the newest version of the Company's client-server document management product line.

In September 1999, the Company introduced DOCS RM, a fully integrated single vendor document management and records management solution certified with both the U.S. Department of Defense (DoD DISA 5015.2) and the U.S. National Archives and Records Agency.

Data Integration and Reporting Products

Data integration and reporting software allows users to sort and retrieve operational data according to specified queries and to perform analyses on this data. It is estimated by industry analysts that the data integration and reporting market is valued in a range between \$US1 billion and \$US4 billion and will continue to generate growth at about 35% annually.

The Company's data integration and reporting solutions allow non-technical end users to access, query, report, extract, transform and analyze information stored in corporate data warehouses, data marts, and business applications. The Company's software enables end users to perform powerful queries and analyses using various tools and sophisticated reports. In addition, the Company's software shields the user from the complexities of the multidimensional languages and program technicalities, providing a querying technique more intuitive to the end user, resulting in greater ease of use and increased accuracy. Essentially, the user does not have to understand technical concepts.

The Company's data integration and reporting products provide enterprise-wide interoperability, including Windows platforms (Windows 95/98/2000, NT) and most popular databases, including Oracle, Sybase, IBM DB2 and SQL/400, Informix, and Microsoft SQL Server. Multidimensional database/OLAP server support includes Microsoft OLE DB, Hyperion Essbase, and Informix Metacube and others.

The Company believes that an important trend in the data integration and reporting market is the emerging importance of centralized metadata repositories. With the proliferation of different enterprise applications and decision support systems in many organizations, users are often faced with the need to interpret and navigate multiple metadata definitions in order to arrive at a consolidated view of available information. Hummingbird's Genio product offerings address this need, supporting the varied information search and analytical needs of corporate information consumers by providing access to all information from multiple decision support systems through a single, consistent view of metadata.

Hummingbird Genio Suite is a data exchange solution that transforms, cleanses, enriches and directs information across the entire spectrum of decision support systems and enterprise applications. Genio's hub-and-spoke architecture addresses simple and complex data exchange processes within a procedure-driven graphical environment. Genio automates many data exchange tasks that normally require tedious programming, allowing IT professionals to rapidly develop data transformation routines for an immediate return on investment. Genio Suite consists of an integrated suite of components that allows organizations to design, deploy and maintain data transformation and exchange processes with great ease. Increasingly, corporations around the world are embracing data integration and reporting solutions to analyze and report on their data quickly and easily.

Expanding the scope of its product offerings in the area of data integration and reporting, the Company built on the acquisition of Leonard's Logic during fiscal 1999 to launch Genio 3.1 in the fourth quarter, as well as Genio support for Solaris and other UNIX platforms.

Network Connectivity Products

The Exceed PC X server series of products is available for all popular PC operating systems, including Windows, Windows NT, and Windows 95/98. Exceed 6.2, the most recent version of the Company's PC X servers, released in September 1999, provides access from Windows-based, traditional client desktops to UNIX servers, expanded access to Linux servers, and more. A key feature of Exceed 6.2 is Hummingbird Update, a new utility included in all Hummingbird Windows-based, traditional connectivity products. It provides administrators with the ability to ensure their end users always have the latest update of their installed Hummingbird product. IT Administrators may hide or reveal the advanced management functionality delivered with Hummingbird Update, giving them the ability to either conduct an enterprise-wide update across an intranet or the Internet all at once or allow each individual user to perform updates when required.

In connection with its strategy to maintain technological leadership in the PC X server market, the Company also offers a range of PC-based software development tools. The Company's Exceed products incorporate X development tools that allow developers to write X-compliant applications which run on PCs with Windows, Windows NT, Windows 95/98/2000, or which can be ported to other platforms.

The Company's NFS Maestro line provides administrators with solutions for mixed PC and UNIX environments -- from any Windows NT, Windows 95/98 and Windows desktops to the many different types of computing environments: including UNIX, VMS, Macintosh computers, IBM mainframes, and the Internet. Desktop users on a network can access remote data in a familiar graphical Windows environment without having to understand UNIX, NFS commands or underlying network complexities. The NFS client provides quick access to file and print services on any NFS server throughout the network. In addition, the NFS client includes a suite of TCP/IP client applications that provide networking functions. The NFS server applications make local operating system resources available to other NFS clients throughout the enterprise. The Company shipped its first release of the NFS Maestro line in November 1995, as Version 5.0. The product line has undergone several product upgrades and enhancements and is currently shipping as version 6.2.

HostExplorer provides high-speed desktop connectivity to enterprise hosts, including IBM mainframe, AS/400 and UNIX systems. HostExplorer delivers all TN3270, TN3270E, TN5250, TN5250E, and Telnet terminal model types and runs with Windows NT, Windows 95/98/2000 and Windows 3.1 operating systems across corporate intranets and the Internet. HostExplorer provides an industry first with its unique direct Windows Explorer connectivity to host systems.

One of the most important areas of recent development for the Company's network connectivity products has been in the area of web-based solutions. Reliable, cost effective, and secure access to business-critical applications and information across enterprise intranets and extranets is crucial for a broad mixture of users in today's business networks. HostExplorer Web, introduced in October 1998, delivers secure, high-speed access to enterprise hosts through standard web browsers. The latest version of this product, version 2.0, released in June 1999, includes enhanced support for system security and common host gateways as well as numerous other enhancements. Also in October 1998, the Company introduced Exceed Web, a centrally managed, Java-based Thin X solution that allows corporations to use a familiar browser interface to provide users with access to X Window applications. Exceed Web, currently available in version 2.0, is based on the Company's industry leading Exceed PC X Server software.

Global Professional Services and Training

A critical component of the Company's product offerings is its consulting and education, through its Global Professional Services group. The Company's Global Professional Services staff helps customers to maximize their return on investment in their technology. In addition to on-going comprehensive training courses, the Company's Global Professional Services group offers a wide range of customer services including: building data models and reports, analyzing data and building data sources using the Company's

analysis tools, mix-and match programming services (integrating the company's products into existing corporate applications), development of customized courses and course materials, and more. By providing a wealth of expertise in all aspects of the Company's technologies, the Global Professional Services group is able to offer customers guidance through every stage of deployment of the Company's products.

Marketing, Sales and Distribution

Hummingbird markets its products through a large and established network of distributors and resellers across North America, Europe, Australia and the rest of the world, as well as through its own direct sales force to major multinational accounts. As at September 30, 1999, the Company had a total of 517 employees engaged in marketing and sales.

The Company supports its distributors and resellers through education, training and customer assistance by the Company's experienced sales, marketing, systems engineering and technical support staff. The Company believes that its highly effective distribution channels are important to its leadership in the enterprise software market. The Company sells its products through a group of specialized distributors and resellers and a direct sales organization focused on sales to strategic large accounts and the support of distributors and resellers. Because the Company's products contribute a substantial portion of revenue for many of these distributors, the Company believes that these distributors are highly focused on sales of the Company's products. Accordingly, the Company believes these channels represent an important competitive advantage. The Company intends to strengthen its direct and indirect distribution channels in selected markets, while continuing to focus on enhancing the productivity of its existing distribution network.

The Company markets its products in the United States through a network of authorized distributors, resellers and systems integrators. To date, the United States has been the Company's most important geographic market representing approximately 53% of its sales for fiscal 1999. In addition to addressing the U.S. market through its Toronto based headquarters, the Company maintains offices in several North American cities, including Ottawa, Ontario; Mountain View, California; Washington, D.C.; Raleigh, North Carolina; Burlington, Massachusetts; Tallahassee, Florida; Dallas, Texas; New York, NY; Los Angeles, California; Atlanta, Georgia; and Chicago, Illinois. The Mountain View office primarily supports distributors, resellers and customers in Silicon Valley and on the U.S. west coast and coordinates public relations activities, focusing on United States trade publications. The Washington, D.C. office primarily supports the U.S. federal government market. The New York office focuses primarily on the US financial district market. The North Carolina office was acquired with the purchase of Beame & Whiteside and maintains sales and research and development teams that work in tandem with the Company's worldwide operations. The Ottawa and Burlington offices were acquired with the purchase of PC DOCS and maintain sales, marketing and technical support teams that focus on the Company's EIP and document and knowledge management products. All other North American offices focus on sales in their respective geographies and provide support for local resellers and distributors.

The Company's direct sales force markets primarily to major accounts and educational institutions, performs telemarketing and supports distributors and resellers. Significant analysis of the customer's enterprise network and requirements may precede the sales proposal, requiring the involvement of the Company's technical support and system engineering personnel. These employees participate directly in the sales cycle by educating prospective customers on the advantages of internetwork computing and business intelligence/decision support solutions, and by assisting in system planning, configuration and integration.

Marketing activities outside of the United States are handled predominantly by way of indirect channels through accredited distributors and resellers in each country where products are sold. For fiscal 1999, sales in Canada represented approximately 4% of total sales, sales in Europe approximately 38% and sales in the rest of the world approximately 5%. The Company has resellers throughout Europe. The Company established a European sales office in Geneva, Switzerland in March 1992, and since that time has established offices in the United Kingdom, Germany, France, Sweden, Italy, Holland and Belgium. In the rest of the world, the Company has offices or arrangements with local resellers in Australia, South Korea, Hong Kong, Taiwan, Singapore, Malaysia, Thailand, Indonesia, India, China, Mexico, Venezuela, New Zealand and Israel.

The Company relies significantly on its independent distributors and resellers for the distribution of its products. The Company's agreements with independent distributors and resellers, in large part, are nonexclusive and may be terminated by either party without cause. The Company's distributors and resellers are not within the control of the Company, are not obligated to purchase products from the Company and may represent other lines of products. There can be no assurance that these distributors and resellers will not give higher priority to the sale of other products, which could include products of competitors. A reduction in sales efforts or discontinuance of sales of the Company's products by its distributors and resellers could lead to reduced sales and could adversely affect the Company's operating results. There can be no assurance as to the Company's ability to retain its existing distributors and resellers or the Company's ability to add distributors and resellers in the future. Moreover, the Company's industry has been characterized from time to time by financial difficulties experienced by resellers and distributors. Although the Company monitors its distributors and resellers closely, and has not experienced significant problems to date relating to financial difficulties of distributors or resellers, there can be no assurance that it will not encounter such problems in the future. Any such problems could lead to reduced sales and could adversely affect the Company's operating results.

A substantial portion of the Company's sales, both through its direct sales force and through indirect channels, consists of site licenses purchased by large organizations. A site license is a license that permits a customer to copy the Company's software for many users, or to install the software on a customer's network for use by a number of users. Each user of the Company's software pursuant to a site license is referred to as a "seat." Many of Hummingbird's customers place repeat site license orders as their networks grow and as additional users need access to network applications.

As the market for enterprise software solutions continues to grow worldwide, the principal objectives of the Company's marketing strategy are to maintain its position as a recognized enterprise software leader, enhance its position as a key and developing player in the business intelligence/decision support industry, to differentiate its products from other competitive solutions and to raise awareness of the benefits of the Company's products. The Company's marketing activities include participation in trade shows and conferences, advertising, public relations and publication of technical articles.

The Company participates in organizations involved in the development of internetworking standards. Participation in these organizations allows the Company to engage in discussions related to changes in internetworking technology and the development of standards and to respond quickly to such changes and developments.

Backlog

The Company normally ships its products within a short period after receipt of purchase orders. Accordingly, the Company typically does not have a material backlog of unfilled orders, and sales in any quarter are substantially dependent on orders booked in that quarter. Any significant weakening in customer demand would therefore have an almost immediate adverse impact on the Company's operating results.

Product Development

The Company believes that its success to date has resulted largely from its technological innovation and leadership in its traditional markets. The Company must continue to develop and introduce new features and functionality in order to maintain its competitive position, and to broaden its enterprise software offering.

The Company's product development team focuses on enhancing the Company's products by continually increasing performance and adding new features and support options. Software enhancements are based on new protocol and standards releases, such as new PC operating system releases, customer suggestions and requests, and internally engineered innovations. Historically, the Company has issued new software releases approximately twice per year per product.

Given the rapidly evolving nature of the software industry, the Company considers its program of new product development and on-going product enhancements to be a significant competitive advantage. During fiscal 1997, the Company released Version 6 for each of Exceed and NFS Maestro. In fiscal 1998, the Company introduced its business intelligence line of products, including BI/Suite, BI/Query, BI/Broker, BI/Web, and BI/Analyze. In addition the Exceed, NFS Maestro, and HostExplorer lines were upgraded to version 6.1. Exceed Web, HostExplorer Web, JuMP Server and JuMP Add-on Server were also introduced. In fiscal 1999, the Company introduced enhancements to its entire range of connectivity products, with version 6.2 of Exceed, HostExplorer and the NFS Maestro family of products, as well as version 2.0 of both HostExplorer Web and Exceed Web. The Company also upgraded its data integration and reporting products, introducing BI/Suite version 5.2 and versions 3.0 and 3.1 of the Genio Suite data

transformation engine, as well as introducing Genio for Unix. The Company intends to further enhance its existing product offerings through fiscal 2000 through its on-going research and development efforts and the addition of potentially acquired products and technologies.

The Company continues to emphasize research and development. As at September 30, 1999, the Company had 425 employees in engineering, research and development, focused on providing the most comprehensive EIP, document and knowledge management, data integration and reporting, and network connectivity solutions available. Included in this group is a staff of experienced technical writers who prepare all technical documentation. The Company's main research and development locations are in Toronto, Ottawa, Kingston, Halifax, Tallahassee, and Paris, France.

The market for the Company's products is characterized by rapid technological change, evolving industry standards, changes in end-user requirements and frequent new product introductions and enhancements. The introduction of products embodying new technologies and the emergence of new industry standards could render the Company's existing products and products currently under development obsolete and unmarketable. For example, DOS has been largely supplanted by Windows and, as a result, sales of the Company's Exceed for DOS product declined. The Company addresses the evolution of PC operating systems by developing products for new systems as they emerge, and currently offers products for all principal PC operating systems. In recent years, the trend toward 32-bit windowing environments on the PC desktop, especially Windows 95/98/2000, and Windows NT, has caused sales of 16-bit Windows software to decline in favor of sales of products for 32-bit Windows platforms. There can be no assurance, however, that the Company will continue to be successful in developing products for other new systems in a timely manner.

The Company's future success will depend upon its ability to enhance its current products and to develop and introduce new products that keep pace with technological developments and respond to evolving end-user requirements. There can be no assurance that the Company will be successful in developing and marketing new products or product enhancements on a timely basis, or that new products or product enhancements developed by the Company will achieve market acceptance. In addition, software products as complex as those offered by the Company may contain undetected errors or failures when first introduced or as new versions are released. There can be no assurance that, despite extensive testing by the Company and by current and potential customers, errors will not be found in new products after commencement of commercial shipments. Such errors could result in loss of or delay in market acceptance.

During fiscal 1999, the Company spent approximately \$22.5 million on research and development, compared to approximately \$14.9 million in fiscal 1998 and \$15 million in fiscal 1997.

Service and Support

The Company provides customers with telephone and e-mail access to its technical support staff. In addition, technical support staff often make customer on-site visits. The Company's technical support engineers not only provide assistance in diagnosing problems, but work closely with customers to address system integration issues and to assist in increasing the efficiency and productivity of their systems. The Company maintains in-house hardware platforms and host applications from numerous vendors, in order to permit compatibility testing during product development and replication of customer problems to assist in customer support. The Company's customer support department also provides reseller and customer training. Training courses are held regularly at the Canadian head office and in the United States and Europe. In addition, to serve its customers more fully, the Company began offering local technical support from its European offices. The customer support staff consists of 146 employees.

In addition, the Company employs 112 people in the area of professional services, providing global cross-product consulting and training services to customers and partners. The global professional services team was created in order to provide a team of highly skilled business and technical analysts, who are available to guide, manage and assist any project involving Hummingbird products.

The Company generally provides a 90-day service warranty for its products. The Company also notifies registered customers of new releases and offers upgrades at between 15-20% of the suggested list price of the product as a means of encouraging customer upgrades. The Company seeks to incorporate into its products, features and functionality which are responsive to customer needs, including an easy to use installation facility and over-the-network installation and upgrade capability. Most larger sales are site licenses under which customers may purchase an annual maintenance program, which entitles them to an automatic upgrade upon shipment of a new release.

The Company believes that its experience in solving customer problems together with the technical expertise of its support personnel, combine to differentiate the Company from its competitors and constitute a competitive advantage.

Competition

The market for the Company's products is intensely competitive and significantly affected by new product introductions and other market activities of industry participants. The Company believes that the principal competitive factors affecting its market include ease of use, functionality, product architecture, price, product quality and innovation, customer support, scope and effectiveness of sales distribution and marketing efforts, and overall market perception/reputation.

The Company competes in the network connectivity market (including PC X server, TCP/IP, NFS and mainframe connectivity software), the data integration and reporting market (including business intelligence and data transformation software), the document and knowledge management market, and the enterprise information portals market.

The Company's assessment of its competitors' product and services offerings is based on its knowledge of the software industry, as derived from market intelligence, public announcements and demonstrations, trade shows and publications, promotional and technical literature and industry analysts' reports.

In the area of network connectivity, the Company has dominated the PC X server market since 1993 and, for the calendar year 1998, according to the leading industry analyst report, commanded approximately 67% of the worldwide market share. The Company's market share in this area is approximately four-and-one-half times that of its nearest competitor. Management believes that the Company's "ownership" hold on this market will continue to grow and strengthen over the next two years as other market players continue to lose market share.

The Company's principal competitors in the PC X server market and other areas of network connectivity include Walker Richer Quinn, Inc., NetManage, Inc., Attachmate Corporation, Intergraph Corporation and Sun Microsystems, Inc. To a lesser degree the Company experiences competition from The Santa Cruz Operation, Inc., Novell, Inc. and Microsoft Corporation. Some of the Company's competitors have greater financial, technical, sales and marketing and other resources than the Company. As the market for the Company's network connectivity products expands, and as many of the Company's products are based on open, non-proprietary standards, the Company believes that additional companies may enter the market and thereby intensify competition.

Since entering the network connectivity market early in its history, the Company has increased its recognition and standing in this market area, earning numerous independent awards for technological strength and gaining many large enterprise installations. The Company's various network connectivity products are considered by industry analysts and technology reviewers to be leaders in their markets.

The Company's data integration and reporting products compete in several interrelated areas of the overall business intelligence market, including the data querying and reporting market; the multidimensional analysis/OLAP market; the emerging desktop data mining market; the data transformation market; and the market for integrated query, analysis and reporting products. The business intelligence market is still relatively new and as such is characterized by rapid technological change and a dynamic competitive landscape. The Company's main competition in this area comes from Cognos Inc., Brio Technology Inc., Business Objects, Oracle Corporation and Seagate Technology, Inc., as well as indirectly from Microstrategy, Inc., Informatica Corporation, Informix Software, Inc., Hyperion Solutions Corporation and Microsoft Corporation.

Given the Company's relatively recent entry into the data integration and reporting market, many of the Company's competitors have longer operating histories in this area and, therefore, more established market recognition. Management believes that the Company currently competes favorably with respect to the principal competitive factors outlined above, and that the addition of the Genio product line to the portfolio during fiscal 1999 confers a significant technological advantage compared to the identified competition.

The Company's document and knowledge management products are targeted at the market for open, client/server and thin-client information management solutions, and the Company's competitors offer a variety of products and services to address this market. The Company's document and knowledge management products currently encounter direct competition from Documentum, Inc., FileNet Corporation, Open Text Corporation, Verity Inc., Excalibur Technologies Corporation and Lotus Development Corporation (a subsidiary of IBM). Certain of these competitors have longer operating histories, greater financial, technical, marketing and other resources, greater name recognition and a larger installed base of customers than the Company. In addition to the Company's current competitors in this area, the Company may face competition from new competitors, including relational database management systems vendors such as Oracle Corporation and Sybase, Inc., and operating system and application vendors such as Microsoft Corporation. Certain of these companies currently conduct joint marketing activities with the Company.

For the calendar year 1998, the industry's leading analyst report stated that the Company's products commanded a 42% share of the overall worldwide market for business-process-centric document management, based on measurement of installed customer base. Management believes that the Company's share of this market will continue to grow and strengthen over the next two years as the Company continues to enhance and extend its product lines.

The enterprise information portals market is still relatively new and as such is characterized by rapid technological change and a dynamic competitive landscape. Given the Company's relatively recent entry into this market, certain of the Company's competitors have longer operating histories in this area and, therefore, more established market recognition. In the area of enterprise information portals, the Company's principal competitors are Autonomy Inc., Plumtree Software, KnowledgeTrack Corporation, Viador Inc., Brio, IBM Corporation and Verity Inc. Certain of the Company's competitors and potential competitors have significantly greater financial, technical, sales and marketing and other resources than the Company has. There can be no assurance that the Company will be able to maintain its market leadership positions in the face of increased competition. Management believes that the Company currently competes favorably with respect to the companies listed above, and that the introduction of the first Hummingbird EIP product line early in fiscal 2000 will confer a significant technological advantage compared to the identified competition.

Increased competition may result in price reductions, reduced gross margins and loss of market share, any of which could have a material adverse effect on the Company's business, operating results and financial condition. There can be no assurance that the Company will be able to compete successfully against current and future competitors or that competitive pressures faced by the Company will not materially and adversely affect its business, results from operations and financial condition.

Because of the open architecture of some of the Company's software, third parties may develop their own applications on top of the Company's platform which could compete

with applications developed by the Company. If the Company's target customers as a result do not widely adopt and purchase the Company's products, or if third parties were to compete with applications developed by the Company, the Company's business, results from operations, and financial condition could be materially adversely affected.

Proprietary Technology

The Company's success is heavily dependent upon proprietary technology. The Company has no patents, and existing copyright laws afford only limited practical protection for the Company's software. In addition, the laws of some foreign countries do not protect the Company's proprietary rights to the same extent as do the laws of the United States and Canada. Accordingly, the Company relies primarily on trade secret protection and confidentiality and proprietary information agreements to protect its intellectual property. The loss of any material trademark, trade name or copyright could have a material adverse effect on the Company. There can be no assurance that the Company's efforts to protect its intellectual property rights will be successful. Despite the Company's precautions, it may be possible for unauthorized third parties to copy certain portions of the Company's products or to obtain and use information that the Company regards as proprietary.

A substantial portion of the Company's sales are derived from the licensing of Company products under "shrink wrap" license agreements that are not signed by licensees and therefore may be unenforceable under the laws of certain foreign jurisdictions. Although the Company does not believe that its products infringe on the rights of third parties, there can be no assurance that third parties will not assert infringement claims against the Company in the future or that any such assertion will not result in costly litigation or require the Company to obtain a license to intellectual property rights of such parties. In addition, there can be no assurance that such licenses will be available on reasonable terms or at all.

While the Company's competitive position may be affected by its ability to protect its proprietary information, the Company believes that because of the rapid pace of technological change in the industry, factors such as the technical expertise, knowledge and innovative skill of the Company's management and technical personnel, name recognition, the timeliness and quality of support services provided by the Company and its ability to rapidly develop, enhance and market software products may be more significant in maintaining the Company's competitive position.

Employees

As of September 30, 1999, the Company had a total of 1420 full time employees, including 425 in product development, 517 in sales and marketing, 258 in customer support and professional services, and 220 in administration. None of the Company's employees are subject to a collective bargaining agreement nor has the Company experienced any work stoppages. The Company believes that its employee relations are good.

Manufacturing and Facilities

The Company utilizes subcontractors to manufacture its media, produce its manuals and package its products. The Company believes that there is a large number of other manufacturing facilities available to meet its needs.

The Company's headquarters are located in Toronto, Ontario, Canada. The Company leases these premises, which consist of approximately 54,600 square feet. The Company has also purchased an adjacent building of approximately 85,000 square feet required to house the continued and future growth of its head office operations. The Company's other offices are leased on varying terms.

Year 2000 Readiness

The Company implemented a Year 2000 Readiness program designed to ensure that the Company's computer systems, hardware and equipment would function properly beyond 1999. The Company's Year 2000 Readiness program incorporates a thorough investigation and review across four different areas: internal IT systems, internal non-IT systems, third-party considerations, and the Company's own products. The tasks common to each of these areas of focus are: (a) the identification and assessment of Year 2000 issues; (b) prioritization of these identified issues; (c) assessment of compliance; (d) remedy; (e) testing; and (f) design and implementation of contingency and business continuation plans.

Internal IT Systems: The Company commenced testing on all internal IT systems, hardware and software in 1998, and continued to test the remainder of the systems and hardware throughout the course of the compliance program. The majority of work in this area was completed as originally scheduled by September 30, 1999. The compliance program was extended to incorporate further reviews necessitated by acquisitions, to ensure that all IT systems in place at acquired companies were also compliant.

Based on its assessments and experience to date, the Company believes that it has not and will not experience any material disruption as a result of Year 2000 issues with any of its internal IT systems. However, there can be no assurance that the systems of other companies on which the Company's systems rely will not experience Year 2000 disruptions and that such disruptions will not have an adverse affect on the Company's systems.

Internal Non-IT Systems: The non-IT systems section includes the hardware, software and associated embedded computer technologies that are used to operate Company facilities, equipment and other activities that are not related to IT systems. The majority of work in this area was completed as originally scheduled by September 30, 1999. The compliance program was extended to incorporate further reviews necessitated by acquisitions, to ensure that all non-IT systems in place at acquired companies were also compliant.

Based on its assessments and experience to date, the Company believes that it has not and will not experience any material disruption as a result of Year 2000 issues with any of its internal non-IT systems. However, there can be no assurance that the systems of other companies on which the Company's non-IT systems rely will not experience Year 2000

disruptions and that such disruptions will not have an adverse affect on the Company's systems.

Third-Party Considerations: As part of its overall Year 2000 readiness planning, the Company identified, prioritized and communicated with critical suppliers, distributors and customers to determine the extent to which the Company might be vulnerable in the event that those parties failed to properly identify and remedy their own Year 2000 issues.

Detailed evaluations of the most critical third parties were completed through questionnaires, interviews, on-site visits and other available means. The Company tested critical system interfaces with these third parties, formulated appropriate contingency and business continuation plans to address any third-party issues likely to arise and has actively monitored the progress made by these third parties in performing their own Year 2000 preparations.

Products: The Company has completed its review of the software products that it has developed and sells and has determined which are not Year 2000 compliant. Where appropriate, modifications to certain products were made to ensure that they were Year 2000 compliant. Both existing and prospective customers were informed of the Year 2000 status of their particular products and whether the Company intended to make them compliant. Although the Company believes that identified modifications have made the selected products Year 2000 compliant, no assurance can be given that additional modifications for Year 2000 compliance will not be necessary. In addition, as the Company's software is typically installed with a customer's other software which may not be Year 2000 compliant, Year 2000 issues may arise which could be attributed to the Company's software products. The Company may incur additional costs in ascertaining the cause of these problems.

The majority of the costs related to the Year 2000 compliance program will be expensed as incurred and are expected to be funded through operating cash flows. In the aggregate, these costs have so far not been and are not expected to be substantially different from normal, recurring costs that are incurred for system development and implementation. As a result, these costs are not expected to have a material adverse effect on the Company's overall results of operations or cash flows.

The assessment of the costs of the Company's Year 2000 compliance effort, and the timetable for the Company's planned completion of the Year 2000 compliance program, are management's best estimates. These estimates were based upon numerous assumptions as to future events, including assumptions as to the continued availability of certain resources, in particular personnel with experience in this area, and as to the ability of such personnel to locate and either reprogram or replace, and test, all affected computer software systems and hardware in accordance with the Company's planned schedule. There can be no guarantee that these estimates will prove accurate, and actual results could differ from those estimated if these assumptions prove inaccurate. Based upon progress and experience to date, however, the Company believes that it is unlikely that the foregoing factors will cause actual results to differ significantly from those estimated.

It is also recognized that the purchasing patterns of software customers and thus the demand for software might be affected by the Year 2000 in a number of different ways. Customers in the process of replacing or upgrading software not designed to accommodate the Year 2000 may generate some portion of the current demand for software. Once such customers have completed their preparations for the Year 2000, the software industry, generally, and the Company, specifically, may experience deceleration from the strong annual growth rates recently experienced in the software marketplace. In addition, as certain customers have expended significant amounts of time and money on resolving their Year 2000 issues, they may reduce or completely cancel expenditures that had been allocated for the Company's software products. No assurance can be given that general market conditions such as these will not have a material effect on the Company's operations.

Selected Consolidated Financial Information
(U.S. GAAP, U.S. \$ 000's, except per share amounts)

For the years ended September 30,

(See Notes 3 & 4)	<u>1999</u>	<u>1998</u>	<u>1997</u>	<u>1996</u>	<u>1995</u>
Sales (Note 1)	165,930	129,957	118,061	86,849	54,403
Cost of sales	16,759	6,148	4,612	4,177	3,757
Gross Profit	<u>149,171</u>	<u>123,809</u>	<u>113,449</u>	<u>82,672</u>	<u>50,646</u>
Expenses					
Sales and marketing	65,779	40,449	30,577	22,339	14,465
Research and development	22,546	14,929	15,050	11,175	5,643
General and administration	16,178	9,601	9,102	7,161	5,121
Merger and restructuring	8,750	5,715	-	-	-
Compensation related to stock options	141	723	960	1,047	366
Amortization of intangibles	13,014	3,507	2,502	2,356	1,083
Write off of intangibles	15,839	1,498	6,156	5,291	2,294
Total Expenses	<u>142,247</u>	<u>76,422</u>	<u>64,347</u>	<u>49,369</u>	<u>28,972</u>
Income from operations before other income	6,924	47,387	49,102	33,303	21,674
Other Income	4,455	6,870	5,409	5,259	1,968
Gain on sale of investment in subsidiary	5,204				
Income before taxes	16,583	54,257	54,511	38,562	23,642
Income taxes	16,304	27,658	25,534	20,682	12,167
Net Income for the year	<u>279</u>	<u>26,599</u>	<u>28,977</u>	<u>17,880</u>	<u>11,475</u>
Basic earnings per share (Note 2)	<u>0.02</u>	<u>1.70</u>	<u>1.88</u>	<u>1.19</u>	<u>0.83</u>
Diluted earnings per share (Note 2)	<u>0.02</u>	<u>1.68</u>	<u>1.84</u>	<u>1.15</u>	<u>0.80</u>

Balance Sheet Data

As at September 30,

	<u>1999</u>	<u>1998</u>	<u>1997</u>	<u>1996</u>	<u>1995</u>
Total Assets	366,396	204,119	176,520	136,948	111,967

Quarterly Results (unaudited)
(U.S. GAAP)

Fiscal Quarter	Sales (U.S.\$ 000's)	Net Income (U.S.\$ 000's)	Basic earnings per share (U.S.\$)	Diluted earnings per share (U.S.\$)
Dec 31/94	10,009	422	0.03	0.03
Mar 31/95	11,032	2,920	0.22	0.21
Jun 30/95	15,828	4,027	0.29	0.28
Sep 30/95	17,534	4,106	0.29	0.28
Dec 31/95	18,673	(498)	(0.03)	(0.03)
Mar 31/96	20,315	5,189	0.35	0.33
Jun 30/96	22,357	5,872	0.39	0.38
Sep 30/96	25,504	7,317	0.48	0.47
Dec 31/96	26,008	7,038	0.46	0.45
Mar 31/97	27,567	4,187	0.27	0.27
Jun 30/97	31,040	8,589	0.56	0.55
Sep 30/97	33,446	9,163	0.59	0.57
Dec 31/97	31,274	7,016	0.45	0.44
Mar 31/98	31,664	2,550	0.17	0.16
Jun 30/98	33,479	8,549	0.54	0.54
Sep 30/98	33,540	8,484	0.54	0.54
Dec 31/98	30,614	5,230	0.34	0.34
Mar 31/99	34,351	1,956	0.13	0.13
Jun 30/99	42,533	(11,285)	(0.73)	(0.73)
Sep 30/99	58,432	4,378	0.28	0.28

Selected Consolidated Financial Information
(Canadian GAAP, U.S. \$ 000's, except per share amounts)

	For the years ended September 30,				
(See Note 3)	<u>1999</u>	<u>1998</u>	<u>1997</u>	<u>1996</u>	<u>1995</u>
Sales (Note 1)	165,930	126,053	101,039	74,934	46,785
Cost of sales	16,759	5,662	2,957	2,868	2,819
Gross Profit	<u>149,171</u>	<u>120,391</u>	<u>98,082</u>	<u>72,066</u>	<u>43,966</u>
Expenses					
Sales and marketing	65,779	37,121	21,972	17,203	10,747
Research and development	22,546	13,550	12,075	8,529	3,846
General and administration	16,178	9,048	6,510	4,377	2,863
Merger and restructuring	8,750	1,352	-	-	-
Amortization of intangibles	23,351	12,909	5,398	3,449	1,083
Write off of intangibles	1,819	4,330	-	-	-
Total Expenses	<u>138,423</u>	<u>78,310</u>	<u>45,955</u>	<u>33,558</u>	<u>18,539</u>
Income from operations before other income	10,748	42,081	52,127	38,508	25,427
Other Income	4,455	6,798	5,456	5,127	1,891
Gain on sale of investment in subsidiary	5,204				
Income before taxes	20,407	48,879	57,583	43,635	27,318
Income taxes	16,105	27,929	27,359	21,023	12,438
Net Income for the year	<u>4,302</u>	<u>20,950</u>	<u>30,224</u>	<u>22,612</u>	<u>14,880</u>
Basic earnings per share (Note 2)	<u>0.28</u>	<u>1.37</u>	<u>2.18</u>	<u>1.65</u>	<u>1.21</u>
Diluted earnings per share (Note 2)	<u>0.28</u>	<u>1.30</u>	<u>2.02</u>	<u>1.57</u>	<u>1.16</u>

Balance Sheet Data

	As at September 30,				
	<u>1999</u>	<u>1998</u>	<u>1997</u>	<u>1996</u>	<u>1995</u>
Total Assets	383,846	244,714	169,373	131,990	102,938

**Quarterly Results (unaudited)
(Canadian GAAP)**

Fiscal Quarter	Sales (U.S.\$ 000's)	Net Income (U.S.\$ 000's)	Basic earnings Per share(U.S.\$)	Diluted earnings per share (U.S.\$)
Dec 31/94	8,282	2,852	0.23	0.23
Mar 31/95	9,182	3,100	0.26	0.25
Jun 30/95	13,836	4,148	0.34	0.32
Sep 30/95	15,485	4,780	0.38	0.36
Dec 31/95	16,200	5,242	0.38	0.37
Mar 31/96	17,631	5,178	0.38	0.37
Jun 30/96	19,307	5,714	0.42	0.40
Sep 30/96	21,796	6,478	0.47	0.43
Dec 31/96	22,251	6,638	0.48	0.45
Mar 31/97	23,460	6,736	0.49	0.46
Jun 30/97	26,269	7,511	0.54	0.50
Sep 30/97	29,059	9,339	0.67	0.61
Dec 31/97	27,370	7,898	0.56	0.52
Mar 31/98	31,664	1,423	0.09	0.09
Jun 30/98	33,479	5,867	0.37	0.35
Sep 30/98	33,540	5,762	0.35	0.34
Dec 31/98	30,614	3,248	0.21	0.21
Mar 31/99	34,351	2,975	0.19	0.19
Jun 30/99	42,533	(4,182)	(0.27)	(0.27)
Sep 30/99	58,432	2,261	0.15	0.15

Notes:

- (1) **Effective October 1, 1995, the Company adopted a new accounting policy, whereby revenue from post contract customer support is recognized ratably over the period the customer support services are provided, which is generally one year.**
- (2) **Adjusted to reflect a 54.02 to 1 subdivision of Common Shares and Special Shares effected on June 18,1993 and the conversion of all Special Shares into Common Shares.**
- (3) **Certain amounts have been reclassified to conform to the presentation adopted in the most recently completed fiscal year.**
- (4) **Prior years' figures have been restated to include the results of Andyne Computing Limited. Andyne was acquired during fiscal 1998 and accounted for as a pooling of interests under U.S. GAAP.**

Dividends

The Company has not paid a cash dividend on its common shares in the five years ended September 30, 1999. The Company's current intention is to reinvest its earnings to finance the growth of its business. The Company does not intend to pay dividends on its common shares in the foreseeable future.

Management's Discussion and Analysis

Reference is made to the section entitled "Management's Discussion and Analysis" on pages 10 to 24 of the 1999 Annual Report to Shareholders, which section is incorporated herein by reference.

Market for Securities

The Company's common shares are listed and posted for trading on The Toronto Stock Exchange and The Nasdaq National Stock Market.

Directors and Officers

Directors

Name and Municipality of Residence

Principal Occupation and Date Elected Director

FRED SORKIN Toronto, Ontario	Chairman of the Board and Chief Executive Officer of the Company September, 1984
ALAN BARRY LITWIN Toronto, Ontario	President and Secretary of the Company September, 1984
JOHN T. McLENNAN Ottawa, Ontario	President, Jenmark Consulting Corporation, a management consulting firm October, 1995
ANDREW J. MALIK New York, New York	Managing Director, Lehman Brothers Inc., an investment banking firm November, 1997
HAROLD HUGHES Los Altos Hill, California	Chairman of Pandesic, LLC, an e-Commerce firm March, 1998
INDER P.S. DUGGAL Richmond Hill, Ontario	Chief Financial Officer and Chief Controller of the Company May, 1999

During the past five years, each of the directors has held the principal occupation listed beside his name, except for Mr. McLennan, who left his position as President and Chief Executive Officer of Bell Canada in September 1997 and became the President of Jenmark Consulting Corporation thereafter. Jenmark Consulting Corporation is engaged in management consulting in the telecommunications and technology sectors. At the present

time, neither Mr. McLennan nor Jenmark Consulting Corporation has entered into any contracts with the Company. Mr McLennan was appointed Vice Chairman of the board of directors of the Company in June, 1999.

Mr. Malik became a director of the Company in November 1997. He is the Co-Head of East Coast Technology Banking of Lehman Brothers Inc., and has been their Managing Director for the past eleven years. Currently neither Mr. Malik nor Lehman Brothers have any contracts with the Company. Prior to joining Lehman, he was a partner of L.F. Rothschild, Unterberg Towbin for sixteen years.

Mr. Harold Hughes was appointed to the Board in March, 1998. Mr. Hughes is the Chairman of Pandesic, LLC, an e-Commerce software supplier owned jointly by Intel and SAP. Mr. Hughes brings to the Board many years of experience and credibility that Management believes will be very useful in the future growth of the company. For the previous 23 years Mr. Hughes was employed by Intel, a major U.S. manufacturer of semi conductor devices. During his time with Intel he held a number of positions in financial and operational management. His most recent assignment was V.P. and Director of Planning and Logistics.

The term of office for all directors expires at the time of the election of their successors at the next annual meeting of shareholders of the Company.

The board of directors has an audit committee and an executive compensation committee, but does not have an executive committee. The members of the audit committee are Messrs. Malik (chairman), McLennan and Sorkin and of the executive compensation committee are Messrs. McLennan (chairman), Malik and Sorkin.

Officers

<u>Name and Municipality of Residence</u>	<u>Position and Principal Occupation</u>
FRED SORKIN Toronto, Ontario	Chairman of the Board and Chief Executive Officer
ALAN BARRY LITWIN Toronto, Ontario	President and Secretary
INDER P.S. DUGGAL Richmond Hill, Ontario	Chief Financial Officer and Chief Controller
GWYN FISHER Ottawa, Ontario	Senior Vice President, Research & Development
HOSSAM ABOU ZEID Toronto, Ontario	Senior Vice President, Sales & Marketing
JULIUS da COSTA Mississauga, Ontario	Senior Vice President, Sales
FABRIZIO MIGNINI Paris, France	Senior Vice President
HOWARD P. WALLACE Toronto, Ontario	Senior Vice President
BOB BERKOW New York, New York	General Manager, CompInfo

SEROJA BEITDASHTOO Newport Beach, California	Vice President
EUGENE CHERNY Toronto, Ontario	Vice President
CHRIS DEGNAN Philadelphia, Pennsylvania	Vice President
RODNEY DESMEULES Essex, U.K.	Vice President
ELIAS DIAMANTOPOLOUS Ottawa, Ontario	Vice President
LYNNE HARDWICK Toronto, Ontario	Vice President
BILL MARTIN San Jose, California	Vice President
TRUNG NGUYEN Toronto, Ontario	Vice President
MICHAEL O'CONNOR CLARKE Toronto, Ontario	Vice President
RODNEY PIETTE Washington, D.C.	Vice President
LISA REINHOLD Burlington, Massachusetts	Vice President
MARTHA TURNER Washington, D.C.	Vice President
NORM VOKEY Markham, Ontario	Vice President
FRED WHITESIDE Burlington, Ontario	Vice President

Each of the officers of the Company has been employed at his or her principal occupation as indicated above, or in other positions with the Company, for the last five years, except as follows. Prior to joining Hummingbird, Joey Beitdashtoo held the position of vice president at Cognos Incorporated. Gwyn Fisher, Fabrizio Mignini, Bob Berkow, Chris Degnan, Elias Diamantopolous, Bill Martin, Michael O'Connor Clarke, Lisa Reinhold and Martha Turner all held senior management positions with PC DOCS.

As a group, directors and senior officers own, directly or indirectly, or exercise control or direction over 2,822,746 (16.2% of the total outstanding) common shares of the Company, as at January 31, 2000. The information as to shares owned indirectly or over which control or direction is exercised by the directors and officers, but which are not registered in their names, not being within the knowledge of the Company, has been furnished by such directors and officers.

Additional Information

Additional information including directors' and officers' remuneration and indebtedness, principal holders of the Company's securities, options to purchase securities and interests of insiders and material transactions, where applicable, is contained in the Company's Management Proxy Circular prepared for the fiscal 2000 annual general meeting.

Additional financial information is provided in the Company's comparative consolidated financial statements for its most recently completed financial year contained in its annual report to shareholders. A copy of this annual information form and each such document, including any interim financial statements released by the Company, may be obtained upon request from the Secretary of the Company.

At any time while the securities of the Company are in the course of a distribution, the Secretary of the Company will provide any person, upon request, with a copy of: (i) this annual information form; (ii) the Company's most recent annual report containing the audited consolidated financial statements of the Company for the most recently completed fiscal year together with the accompanying report of the auditor; (iii) any interim financial statements of the Company subsequent to the financial statements for the most recently completed fiscal year; (iv) the management proxy circular for the most recent annual meeting of shareholders involving the election of directors; and (iv) any other document incorporated by reference into the preliminary short form prospectus or the (final) short form prospectus filed in connection with such distribution of securities.

Right of First Refusal

Pursuant to an agreement dated April 2, 1992, as amended, between Mr. Litwin and Mr. Sorkin, each of Mr. Litwin and Mr. Sorkin has granted the other a right of first refusal with respect to any Common Shares he owns.

Glossary of Technical Terms

Browser is a client program (software) that is used to look at various kinds of Internet resources on the World Wide Web.

Client is a software program that is used to contact and obtain data from a server software program on another computer, often across a distance. Each client program is designed to work with one or more specific kinds of server programs, and each server requires a specific kind of client.

Compute server (or application server) is a computer on a network running applications, which can be accessed by other nodes or computers, on the network.

Data Analysis includes data warehousing, data mining, and on-line analytical processing (OLAP).

Data Mart is a database, or collection of databases, designed to help managers make strategic business decisions. Data marts are usually smaller and more focused than data warehouses (enterprise wide).

Data Mining is the automatic discovery and analysis of data trends and patterns.

Data Warehouse is a collection of data designed to support management decision making. A data warehouse includes development of systems to extract data from operating systems plus installation of a warehouse database system. Generally, data warehouses combine many different databases across an enterprise.

E-mail (electronic mail) is a message, usually text, sent from one person to another via computer and which may contain document attachments. E-mail can also be sent automatically to a large number of addresses.

Fat Client is software that is installed and maintained on the desktop computer rather than on the server (see Thin client). This software performs the bulk of the data processing operations.

FTP (File Transfer Protocol) is a very common method of moving files between two Internet sites. FTP is a special way to login to another Internet site for the purposes of retrieving and/or sending files.

Host is a computer, such as a mainframe, mid-range computer, mini computer or workstation that provides processing capability to multiple users. It may be accessed by terminals or other computers.

HTML (Hyper Text Mark Up Language) is the standard document format used on the World Wide Web.

HTTP (Hyper Text Transport Protocol) is the protocol for moving hypertext files across the Internet, with a HTTP client program on one end, and a HTTP server program on the other end. HTTP is currently the most important protocol used in the World Wide Web.

Internet is the vast collection of inter-connected networks that all use the TCP/IP protocols and that evolved from the *ARPANET* of the late 60's and early 70's. An internetwork is the connection of 2 or more networks.

Intranet refers to the utilization of Internet and Web technologies within a corporate internetwork involving collaborative document and information sharing across diverse computing platforms.

Java is a high level programming language developed by Sun Microsystems. It is an object-oriented language simpler than C++, eliminating common programming errors. Compiled Java code can run on most computers, and is well suited for the Web.

Local Area Network (LAN) is a computer network limited to the immediate area, usually the same building or floor of a building.

Multithreaded refers to multiple units of execution, providing for increased speed and more efficient usage of computer resources.

Network is the connection of 2 or more computers so that they can share resources.

Node is a single computer connected to a network.

NFS or Network File System is an open protocol that allows users to access and share files and print services with a wide range of computer environments.

OLAP (On-line Analytical Processing) allows users to manipulate and view data within a multidimensional framework in order to make critical business decisions. OLAP includes querying, reporting, manipulating and exploring data in an organizational data repository.

PC X server is software that implements the display server component of the X Window System on a personal computer. PC X servers are perceived as being the "glue" that ties together personal computers and networked computer systems, enabling PCs to access and display graphics oriented and other applications running on these computers.

Server is a computer, or a software package that provides a specific kind of service to client software running on other computers. The term can refer to a particular piece of software, such as a Web server, or to the machine on which the software is running. A single server could have several different server software packages running on it, thus providing many different servers to clients on the network.

TCP/IP or Transmission Control Protocol/Internet Protocol is a network protocol developed in the 1970s by the U.S. military. Today, it is one of the most common network

protocols in use and is the underlying network protocol for the Internet and the majority of UNIX and X Windows systems.

Telnet is the command and program used to login from one Internet site to another. The telnet command/program gets you to the "login" prompt of another host.

Terminal emulation is a device or application that allows a computer user to send commands to another computer. At a minimum, it involves the use of a keyboard and a display screen and some simple circuitry. Usually terminal software in a personal computer is used and acts as ("emulates") a physical terminal, allowing commands to be typed to a computer somewhere else.

Thin Client is software that is installed and maintained on a centralized server, rather than on each desktop computer. "Thin" and "fat" client technologies have divided the computer industry into two camps: one led by Netscape and Sun advocating Java based thin clients running on network computers, the other led by Microsoft and Intel advocating larger applications running locally on the desktop.

UNIX is today's most widely used multi-user, multitasking operating system used in many technical and commercial environments. The X Window System was originally associated with the UNIX environment, but now operates in a variety of other open computing environments.

VMS, also known as *OpenVMS*, is a product of Digital Electronic Corporation (DEC) that supports the VAX and Alpha operating platforms.

WAN (Wide Area Network) is any internetwork or network that covers an area larger than a single building or campus.

Window is a specific area on the display screen in which an application is displayed. How windows look is defined by the graphic user interface and how windows behave is enforced by the window manager.

Workstation is a computer designed to incorporate graphics and networking capability with an operating system that supports multitasking. Workstations normally include large, high-resolution displays, a keyboard and mouse or other graphics input devices. The majority of workstations today support applications that run under X Windows.

World Wide Web ("Web") is a network of computer servers that uses a special communications protocol to link different servers throughout the Internet and permits communication of graphics, video and sound. The Web is based on a client/server model and a set of standards for information access and navigation that permits non-technical users to exploit the capabilities of the Internet.

X development tools are a set of program libraries and subroutines used by software developers to design X Windows applications.

X server is a component of the X Window System that controls the users' display. It consists of a protocol and input/output functions that interact with the screen, keyboard and mouse.

X terminal is a single purpose computer terminal specifically designed to provide the display server component of the X Window System. As opposed to workstations, an X terminal does not support an industry standard operating system nor does it provide local disk storage. The only function of an X terminal is to display X applications running elsewhere on a network.

X Window System (or X) is a network computing windows system standard designed by MIT that provides computer users with a single graphical display environment providing access to all elements of their computing network. The X Window System is a network transparent system that allows multiple software applications from multiple remote computers to be displayed simultaneously on the same user's screen.

X11R6.4, or "Broadway", is the current release of the X Window system protocol.

Trademarks

Hummingbird, the Hummingbird wordmark and logo, Hummingbird Communications Ltd., Hummingbird Genio, BI/Suite, CyberDOCS, DOCS Open, DOCSFusion, PowerDOCS, DOCSFulcrum, DOCS RM, Fulcrum, SearchServer, Enterprise Now!, Exceed, Exceed 3D, Exceed Web, Exceed XDX, HostExplorer, HostExplorer Web, JuMP, NFS Maestro, NFS Maestro Gateway, NFS Maestro Server, and NFS Maestro Solo are trademarks of Hummingbird and/or its subsidiaries which may be registered in certain jurisdictions. All other trademarks are the property of their respective holders.