

# Bulletin

## **Mangosoft: Secure File-Sharing Services over the Internet**

*Analyst: Doug Chandler*

### **IDC Opinion**

*How is Mangosoft, with its new file-sharing service Mangomind, positioned to meet customers' needs regarding beyond-the-firewall file access and management?*

Mangosoft's Mangomind file-sharing software service allows organizations to set up their internal customers to share files and collaborate on digital documents securely outside of the corporate firewall. The Windows-based tool has the potential to greatly improve business-to-business (B2B) communications and collaboration and seems especially well suited to industries such as legal, financial, and consulting, in which file sharing is critical. Mangomind faces competition from a variety of sources, including Web storage sites that offer file sharing, Internet "meeting rooms" and, importantly, traditional if imperfect file-sharing methods such as email. With a renewed emphasis on marketing and partnering, Mangosoft has the potential to leverage Mangomind's solid technology core and build a significant customer base around the service.

## Corporate Information

- **Company name:** Mangosoft Inc.
- **Headquarters:** Westborough, Massachusetts
- **Founded:** 1995
- **Products/services:** Cachelink, Mangomind
- **President and CEO:** Dale Vincent
- **Number of employees:** Over 40
- **Status:** Publicly traded under BB: MNGX

## Introduction

The IT industry saw the first wave of “collaborative software” applications launched in the late 1980s and early 1990s. During this period, significant numbers of PCs began to be connected not only back to large, central computer systems, but also to each other across local area networks (LANs). At the time, the focus was on “groupware” or “workgroup software” that would let groups of employees within a single organization collaborate on specific documents, typically in the context of a group project. (PC-based email, of course, also became prevalent during this period.) In addition, a group of independent software vendors (ISVs) rolled out document management software applications that were specifically designed to allow document-intensive businesses (e.g., law offices) to gain better control over their burgeoning number of electronic documents.

Among the earlier workgroup software applications, Lotus Notes has survived as an industrial-strength platform for collaboration, both within a single organization as well as across multiple firms that have adopted Notes. However, as is characteristic of many enterprise applications that were developed before the Internet explosion of the mid-1990s, Notes is a resource-intensive program that requires a fair amount of integration, training, and support to be used effectively.

*The advent of the modern-day Internet has created a whole new set of opportunities for organizations that need to collaborate on and share electronic files across both geographic space and time.*

The advent of the modern-day Internet has created a whole new set of opportunities for organizations that need to collaborate on and share electronic files across both geographic space and time. The creation of the Web, together with phenomena such as instant messaging, chat rooms, peer-to-peer programs such as Napster, and other Internet-based tools, have led millions of individual users to share data and communicate outside corporate firewalls. Meanwhile,

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with prices falling for reliable network bandwidth and storage capacity, along with improvements in Internet security, it has become practical for individuals to use the Internet itself as a platform for collaboration and file sharing. In contrast with earlier initiatives around collaborative software, which tended to center on complex, expensive, and proprietary software platforms, Internet-based tools in this space emphasize simplicity, an open platform (ultimately, the Internet itself), low costs for implementation and management, and relatively limited training requirements.

*Fundamentally, Mangomind “Internet-enables” Microsoft applications, allowing users on the Windows PC platform to securely and effectively share files and collaborate outside the corporate firewall across any distance at any time.*

Mangosoft’s latest initiative, called Mangomind, is an Internet-based collaborative tool that is sold as a subscription service to customers. Fundamentally, Mangomind “Internet-enables” Microsoft applications, allowing users on the Windows PC platform to securely and effectively share files and collaborate outside the corporate firewall across any distance at any time. Although this bulletin profiles Mangosoft and all of its products and services, the primary focus is on the company’s Mangomind initiative and the position this service gives Mangosoft in the marketplace moving forward.

## **Company Background**

Unlike many of its dot-com competitors, Mangosoft can trace its roots as far back as 1995, and the company has survived more than one tectonic shift since that time in the IT marketplace. The firm, based in Westborough, Massachusetts, views itself as an Internet infrastructure company that is built on expertise in areas including clustering, pooling, caching, file systems, distributed directories, and distributed data management. (Indeed, many of its founding technologists came from established firms like Digital Equipment Corp., a company that was an important contributor to the development of clustering technologies.) With 11 patents either held or pending, Mangosoft has a significant technology base on which it can build a variety of enterprise solutions.

*Mangomind (Mangosoft InterNet Drive) was developed around the most widely adopted end-user platform today, Microsoft Windows, with the notion that it would allow the greatest number of users to benefit from file collaboration, regardless of whether or not they were behind their company’s firewall.*

In 2000, Mangosoft launched Cachelink, a licensable software product that allows PCs connected on a LAN to achieve greatly accelerated Web-page access by providing group-caching capabilities across the LAN.

Some of the fundamental technology in Cachelink, in turn, provided Mangosoft with a basis on which to build a more powerful application that would let organizations bring LAN-based collaborative capabilities to the Internet, outside the corporate firewall. Mangomind (Mangosoft InterNet Drive) was developed around the most widely adopted end-user platform today, Microsoft Windows, with the notion that it would allow the greatest number of users to benefit from file collaboration, regardless of whether or not they were behind their company’s firewall.

## Products and Services

### ***Cachelink***

Cachelink is a licensable software product that stores frequently viewed Web pages and downloadable files, allowing them to be accessed by all PCs connected to the LAN. It is designed to complement a PC's browser cache by linking LAN-connected PCs together to create a single cache pool. Mangosoft positions Cachelink against hardware-based caching systems, and company officials say that the application saves companies time and money through increased productivity and reduced wide area network (WAN) usage.

### ***Mangomind***

*With Mangomind, the company is taking a services approach that acknowledges that software-as-a-service is a concept that customers are increasingly accepting and applying to their own IT strategies.*

Mangomind is currently Mangosoft's flagship technology, but unlike Cachelink, it is sold exclusively as a subscription service. With Mangomind, the company is taking a services approach that acknowledges that software-as-a-service is a concept that customers are increasingly accepting and applying to their own IT strategies. Because of its ability to scale up rapidly to meet customers' unpredictable file sharing and collaboration needs, Mangomind is well-suited to the subscription service model, which more easily accommodates spikes in usage and numbers of users.

Mangosoft officials position Mangomind's value proposition in the following manner:

- It provides a secure solution that allows users, either within an enterprise or across enterprise boundaries, to collaborate through a shared file service with simultaneous access across the Internet. This capability, they note, effectively extends these users' working environment globally in a secure manner.
- Officials also assert that Mangomind provides a simple-to-implement and easy-to-use alternative to more elaborate virtual private network (VPN) solutions and other remote file access capabilities. For users who need access to their own files from remote locations via the Internet, Mangomind is a low-cost answer that does not require them to learn anything new.
- In addition, company officials say that Mangomind represents a new type of Internet storage service, with features that extend it beyond the other Internet storage services that have largely focused on consumer and small business customers. Mangomind has always been clearly targeted at enterprise customers with users who are very familiar with the Windows file system as a standard operating environment. It is designed to operate as a natural extension of that environment. Mangomind can serve as a central repository that allows active file sharing and collaborative work, or it can be used to provide a secure, automatic, online backup facility.

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Historically, these three solution categories, which might be labeled as B2B middleware, VPN solutions, and storage services,

respectively, have been recognized as separate and distinct segments. However, the Internet seems to be driving some convergence of these market segments today.

Mangosoft asserts that it is not competing directly with the established leaders in any of these categories. Rather, the company positions Mangomind as being complementary to existing solutions in each of these categories. The company also believes that the economics of Web-based services will continue to fuel technology convergence in these areas, with existing segments becoming increasingly blurred.

## **Mangomind's Key Features**

### ***Simultaneous Multiuser Access***

*Mangomind leverages Mangosoft's patented version of hybrid peer-to-peer pooling technology to allow multiple authorized users at any location to simultaneously access and share files.*

Mangomind leverages Mangosoft's patented version of hybrid peer-to-peer pooling technology to allow multiple authorized users at any location to simultaneously access and share files. The software is designed to properly arbitrate between readers and writers of files to ensure that files are kept up to date and that changes are never lost. Users operate directly on files without additional copies being made. They can also create an identity profile for the drive, allowing them to access the same files from multiple computers. The company says that most Windows applications work natively with Mangomind over the Internet the same way they do over a LAN.

### ***Remote File Access***

Mangomind uses advanced compression techniques to expedite file transmission and allows users to access files from multiple machines in a secure manner.

### ***Security and Data Backup***

*Users can set access (e.g., read and write) permissions for files and folders on the Mangomind drive.*

Users can set access (e.g., read and write) permissions for files and folders on the Mangomind drive. Data is encrypted at the client so that all files are securely transmitted and stored. All data remains encrypted when stored at the hosting facility, so neither Mangosoft nor the hosting service provider (Exodus) is able to read the customer's data. The 128-bit, industrial-strength encryption is a Mangosoft-patented implementation of BSAFE Crypto-C encryption software from RSA Security. Data is backed up daily at the Mangomind drive host site and can be recovered in the event of accidental deletion by the user.

### ***Offline (Disconnected) Access***

*Mangomind automatically synchronizes the files the next time the user connects to the Internet.*

Users can access stored copies of files on their local drive when they are offline. Mangomind's automatic caching process ensures that users always have access to the latest-possible version of their files. Mangomind automatically synchronizes the files the next time the user connects to the Internet. If two or more users have made changes to the same file while offline, Mangomind allows for conflict resolution so that no changes are lost.

## Windows Compatibility

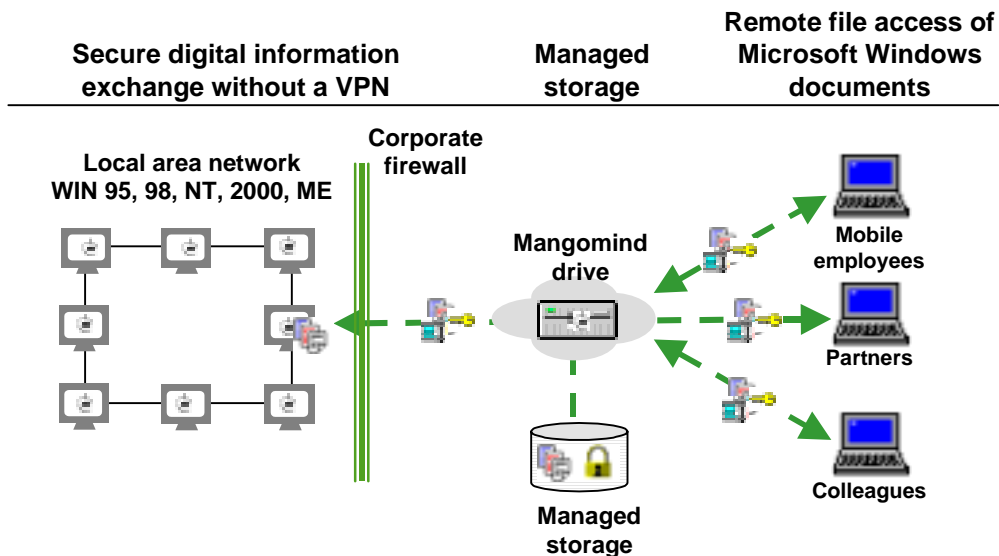
Mangomind is a Win32 file system whose functionality is programmatically accessible through Windows file-system application programming interfaces (APIs). It supports a complete set of file system operations that can be executed directly or indirectly through operating system services and DLLs. To users, Mangomind looks and functions like any drive they access in a Windows environment.

## How Mangomind Works

*Once users have joined a drive, they can all create, read, modify, and delete files there.*

The first person to join a Mangomind drive (see Figure 1) invites other users to join the drive and sets access permissions for files and folders. Invited users then go to the Mangosoft Web page, where they download client software and install it on their PC. Invited Mangomind drive users who join the drive can then access and share files on the drive. Once users have joined a drive, they can all create, read, modify, and delete files there. Information is kept up to date, and each user's latest changes are available to the other users.

**Figure 1**  
**Mangomind Extends the Desktop Beyond the Enterprise**



Source: Mangosoft, 2001

## Mangomind's Hosting and Storage Infrastructure

Mangomind is hosted at an Exodus data center in Waltham, Massachusetts. StorageNetworks, a storage service provider (SSP) with headquarters in Waltham, provides Mangomind's storage capacity.

## **Pricing**

Standard pricing starts at \$30 per seat per month, with a discount schedule based on the number of seats, amount of storage, and the duration of the contract. Pricing includes 10MB of storage per seat.

Enterprise pricing is available, with discounts based on storage volume and length of contract.

## **Customers**

Mangosoft cites the companies discussed in the following sections as examples of the way customers and prospects can use Mangomind.

### ***EVision Technologies***

*The firm uses Mangomind to connect its team of consultants in the context of ongoing consulting projects.*

EVision is a Web development and business process consulting firm that services midsize customers in the New England region. The firm uses Mangomind to connect its team of consultants in the context of ongoing consulting projects. Mangomind allows these consultants to view and collaborate on files that pertain to a particular project, even when project team members are physically dispersed at various locations in the field. The firm also uses Mangomind folders to make human resources–related files such as W2 forms, tax documents, and expense reports available to its employees.

### ***Ginsburg Development Corp.***

Ginsburg Development is a real-estate developer serving the greater New York metropolitan area. As part of its operations, the company creates a mobile field office at each development site and requires a way to share and collaborate on files that are located back at headquarters on its internal network. Because Ginsburg has a hybrid WAN, it is complex and costly to set up VPN access for remote sites. Ginsburg officials note that in the past the company has needed to set up an FTP server to handle the delivery of large computer-aided design (CAD) files, but that Mangomind's compression techniques have allowed the firm to move these files to a Mangomind drive instead. The company also cites the lack of training required for its Windows users in the field to start using Mangomind as an advantage.

*The firm manages many projects across multiple locations and organizations and has been attracted by Mangomind's ease of use, remote file access capability, and robust security, according to company officials.*

### ***Deloitte Touche Tohmatsu***

Deloitte Touche Tohmatsu is currently evaluating Mangomind for multiuser Internet file-sharing purposes, both for themselves and for their customers. The firm manages many projects across multiple locations and organizations and has been attracted by Mangomind's ease of use, remote file access capability, and robust security, according to company officials.

## **Sales and Marketing Strategies**

Mangosoft is currently pursuing a three-tiered sales and marketing strategy for Cachelink and Mangomind. First, its direct sales team is

targeting the Fortune 1000 as well as leading consulting, financial, and legal firms.

Second, the company has launched a channel-oriented marketing strategy. Earlier experience with the Cachelink product helped Mangosoft establish channel access in the United States, and the company is now aggressively seeking international expansion. Also, Mangosoft is looking to build additional reseller relationships for Mangomind with vertical specialists to penetrate certain key segments such as legal, financial, and consulting.

Third, Mangosoft is focused on establishing original equipment manufacturer (OEM) relationships. The first of these relationships was with 3Com.

Beyond these specific targets, Mangomind is also pursuing the broad category of mobile computing users through a range of direct advertising and sales efforts, niche resellers, and OEM arrangements with key potential partners that focus on that user base.

The following sections discuss the relationships Mangosoft has developed as part of its marketing strategy.

### ***3Com Partnership***

3Com has bundled Mangosoft's Cachelink Web caching software with 3Com's OfficeConnect LAN Modem and router product lines. The combined solutions are positioned as providing accelerated Internet access for small-to-medium-size businesses without the cost of higher-speed Internet access.

### ***Intel's Peer-to-Peer Working Group***

Mangosoft was one of the original members of Intel's Peer-to-Peer Working Group, along with companies such as IBM and Hewlett-Packard (HP). The group is focused on developing standards and protocols for peer-to-peer computing. Cachelink is a peer-to-peer product, and Mangomind's hybrid architecture blends a secure, peer-to-peer usage model and distributed caching optimizations with the manageability and reliability of client/server networking.

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### ***Resellers***

Mangosoft has established reseller relationships for Cachelink with a number of horizontal and vertical resellers in the United States and abroad. Mangosoft is also working to add resellers for Mangomind in key vertical markets.

### **The Competitive Landscape**

As an Internet file sharing and collaboration tool, Mangomind competes with other solutions that attempt to offer this kind of functionality. The competition includes the following:

- Personal Web-based storage sites

- Meeting room solutions
- VPN solutions
- Established customer practices

Several of the leading Web-based storage firms have begun to reposition themselves as their earlier “free Web-disk” strategies have not resulted in profitability. For example, Driveway has now closed its free storage site and is pursuing business as a software company. Xdrive, although still in the Web-storage business, is shifting from a business-to-consumer (B2C) to a B2B strategy, with a strong emphasis on file sharing and collaboration over the Web. Xdrive also integrates with Windows, a feature that the company has emphasized from the beginning.

Meeting room solutions provided by firms such as eRoom and Intralinks also offer basic file sharing in the context of electronic white boards, Internet chat, and similar features.

Mangosoft also faces potential competition from established ISVs such as Oracle and Microsoft itself, both of which are capable of developing Internet file-sharing and collaboration functions within the context of their own products. Obviously, such a strategy from Microsoft would create a serious competitive situation for Mangosoft.

*Mangosoft positions Mangomind as an immediate and more cost-effective way to offer remote file access.*

Many organizations use VPNs to provide file access to remote workers. However, VPNs can be costly to implement and maintain. Mangosoft positions Mangomind as an immediate and more cost-effective way to offer remote file access. In addition, it is important to note that Mangomind will continue to compete with the established (if imperfect) ways in which end users currently share and collaborate on files, including email attachments, instant messaging programs, storage on internal network drives, large proprietary applications that provide group access (e.g., Lotus Notes), and FTP servers. None of these approaches necessarily provides the level of functionality that many users may require, and some of them are clearly not Internet based. Nevertheless, these solutions enjoy the status of being an ingrained practice for many customers, and therefore they represent a competitive obstacle for a service such as Mangomind.

*One of Mangomind's key advantages is that it does not ask Windows-based users to fundamentally change the way they work.*

### **IDC Analysis**

One of Mangomind's key advantages is that it does not ask Windows-based users to fundamentally change the way they work. This compatibility is a distinct advantage in a market in which customers appear to be seeking products that can be easily and seamlessly integrated into their current working environments. Windows itself thrives on the fact that it is installed across such a high percentage of PCs; at this level, convenience and functionality are valued by end users more highly than sheer elegance, and it is convenient that most other users are also using Windows-based machines.

Also, the fact that customers subscribe to Mangomind as a service, rather than having to license, install, and manage it as a product, should make it attractive to firms that are wary of adding another technology to their IT environment. In this way, Mangomind's value proposition is related to that put forth by application service providers (ASPs), which promise to provide application functionality without requiring the management overhead typically associated with running software applications.

Mangosoft faces the challenge of creating greater visibility and "buzz" for an Internet-based product at a time when customers seem to be reevaluating the best way to use the Internet as part of their businesses. Certainly, IDC expects to see a slowdown in overall spending regarding ecommerce-related spending, as larger firms feel less competition from start-up dot-coms and at the same time find that their own customers, partners, and suppliers are not necessarily using the Internet as heavily as was predicted in many quarters.

*As an application, Mangomind is probably most accurately viewed as a piece of productivity software that is ultimately focused on making end users more productive in their day-to-day management of and collaboration on Windows-based files.*

As an application, Mangomind is probably most accurately viewed as a piece of productivity software that is ultimately focused on making end users more productive in their day-to-day management of and collaboration on Windows-based files. In this respect, Mangomind may be somewhat immune to failures of the industry's more elaborate Web initiatives of the past 12 to 18 months.

Earlier in the PC's history, software utilities such as Norton Utilities and others enjoyed strong popularity because they were undeniably useful to the average end user. When PCs became more widely networked, network versions of the leading utility packages became available. The customer base shifted over time to include not only end users but also IS managers and network administrators who wanted to distribute these tools over their networks.

*As a service, Mangomind seems to resonate with Microsoft's .NET initiative, which also emphasizes functionality delivered through Internet services as opposed to traditional, licensed software.*

Similarly, with the help of stronger marketing and greater visibility within the market, Mangomind has the potential of being adopted broadly as more firms understand the advantages of being able to have their end users share files outside the firewall. As a service, Mangomind seems to resonate with Microsoft's .NET initiative, which also emphasizes functionality delivered through Internet services as opposed to traditional, licensed software.

Overall, IDC expects to see the service provider or "computing utility" model of functionality delivered as a subscription service become widely adopted by customer organizations. More and more firms have become disenchanted with the high cost and uncertain functionality associated with the traditional end-customer IT strategy of owning and operating the IT infrastructure. The service model offers the ability to scale quickly, change suppliers almost at will, and implement solutions rapidly in a highly competitive environment.

Mangosoft's Mangomind service represents an early and potentially significant example of the way that carefully crafted Web-based services can enable easy migration from traditional client/server software.

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