

A New Approach to Enterprise Communications:

THE SIP-BASED MXI200 ENTERPRISE MEDIA EXCHANGE
FROM ZULTYS



FROST & SULLIVAN

COMMUNICATIONS CHALLENGES FACING ENTERPRISES

Market conditions directly impact how enterprises operate: as the dynamics change, so does the business planning. From a business standpoint, the downturn in the economy has forced companies to reduce their expenditures, deferring unnecessary purchases and postponing acquisitions that cannot be readily cost-justified. Enterprises are also constantly seeking for new product enhancements that will enable them to lower their operational costs and reduce the complexity of system administration. In addition, from a technology perspective, businesses have been on a quest for higher employee productivity, fueling demand for new multimedia applications empowering users to become more efficient.

The new millennium is expected to bring a profound change in the communications requirements for a typical enterprise. Regional offices are being networked, employees are increasingly more mobile, access for teleworkers has become an imperative, and increased competition is spurring the need for higher levels of corporate network availability to customers and partners. Therefore, the technology decision makers must consider the following while evaluating a product:

- A lower total cost of ownership should be achieved relative to other solutions
- The installation and management must be simple and intuitive
- The platform applications ought to increase the productivity of their employees

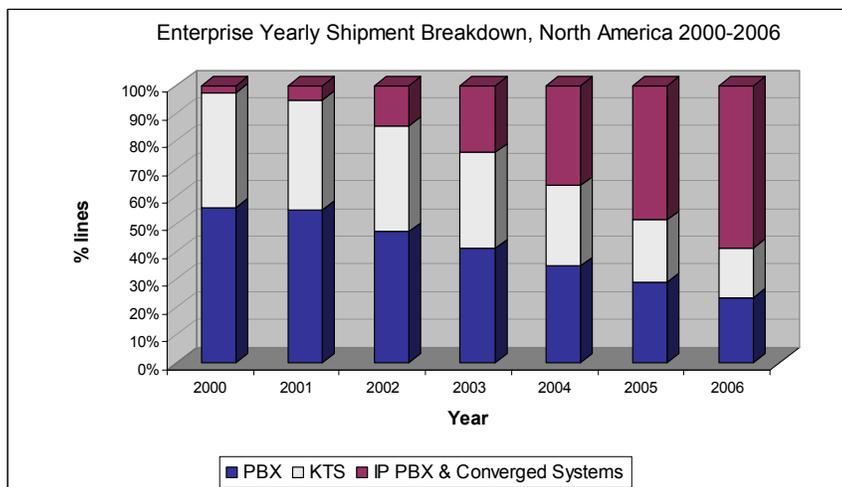
These prevalent market conditions call for a paradigm shift in the enterprise telephony market. A single, converged network can deliver tangible benefits to a company, such as a simpler back office and lower operational costs. Hence, there is a growing consensus that the corporate telephony system of the future will no longer be a traditional TDM-based product, but rather a converged communications platform.

This white paper, written by Frost & Sullivan and commissioned by Zultys Technologies, discusses the changing enterprise telephony market conditions and how a total, all-in-one box enterprise media exchange solution can help organizations to achieve the above goals. Zultys' SIP-Based MX1200 Enterprise Media Exchange is an integrated and price competitive solution that was developed to provide end users with a variety of communications features, in a standards-based system that can be easily expandable.

MARKET TRENDS

Maturing of TDM-Based Installed Base

A massive PBX replacement activity occurred prior to 2000: most customers chose to replace their existing systems having still some years of operation left by new Y2K compliant systems



instead of sinking additional money to make their older systems support Y2K. Consequently, this lowered the average age of the installed base in North America, and there have been fewer replacement systems shipped in the interim.

As these systems begin to mature, companies are exploring their options with regard to the next generation of communications equipment. The timing is right to introduce innovative technologies that can make a difference to the bottom line. This replacement opportunity is expected to start materializing in 2004, creating many opportunities for all the industry participants.

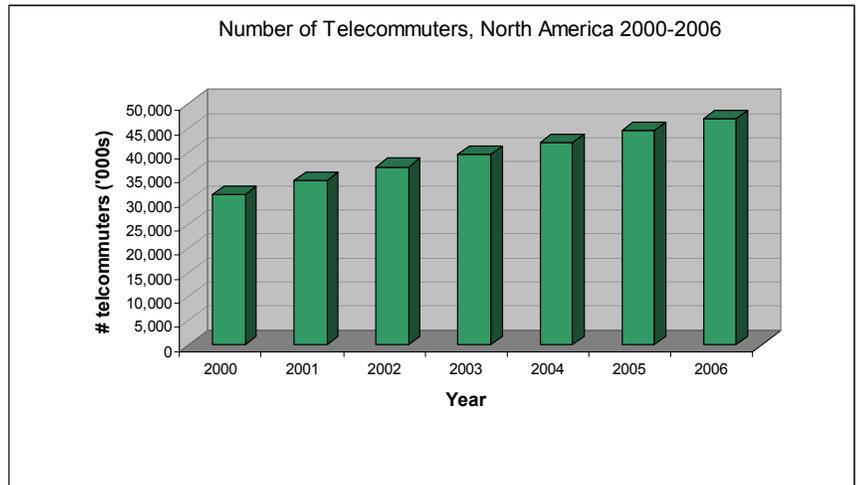
Greater Level of Employee Mobility

Employees are increasingly mobile, whether they are on the premise or off. Progress in technologies such as presence, indoor wireless mobile networks and conferencing, among others, have enabled employees to be more mobile while still being able to stay connected with their customers, partners or fellow colleagues.

An IP telephony solution empowers mobile workers to access applications via their corporate network regardless of where they are or the time of day. More importantly, the technology allows them to seamlessly travel, and still maintain a “virtual presence” at their offices. They no longer need to leave various contact numbers and e-mail addresses so they can be reached when they are traveling.

Increasing Number of Remote Workers

Lifestyle changes, economic reasons, and technology advancements have all driven the move towards remote workers. Due to downsizing and the need to decrease operational costs, businesses have begun to reduce their office spaces, particularly in large metropolitan locations. Allowing employees to work from home makes it easier to



accomplish this task. Moreover, finding affordable talent has required businesses to seek employees outside of their local area. Hence, the lines between home and workplace are becoming increasingly blurred, and jobs are no longer defined by location, but rather, by function.

This trend is captured in the above figure. The US Bureau of Labor Statistics currently defines a telecommuter as “an employee in a non-agricultural industry who worked at home during the survey week as part of their primary or secondary job”. This definition encompasses workers who are specifically compensated for the work they do at home, in addition to employees who take work home with them after hours.

Technology advancements empower businesses to allow employees to work off-site without having to spend more capital on telecommunications. More importantly, the innovations allow employees to have remote access to the company’s network at a very low cost. Telephone features, corporate databases and network applications can be retrieved remotely, creating virtual offices anywhere, anytime.

Advent of Integrated Systems

Based on the reigning conditions, the integrated communication platform is likely to become the design of choice, because it allows enterprises to gradually migrate towards a converged voice and data network. For instance, the solution could be deployed in a new branch office location that is networked to a larger office still using a traditional TDM-based PBX.

The integrated platform makes sense because it supports IP telephony applications and appliances while transparently routing data over the IP network. Furthermore, this design can greatly simplify MACs (Moves, Adds and Changes), which can be a time consuming and complex task that often entails a service technician's visit and can cost between \$125 and \$200. Recognizing this, vendors such as Nortel (BCM), Avaya (IP Office) and Intel (ICCP) have all introduced new integrated systems within the past year.

Emergence of Open Standards

Open standards are specifications that enable developers to design and implement products as modular components that can interoperate with each other as part of a complete systems architecture. In the past, proprietary standards greatly diminished the utility of some productivity-enhancing applications, because they were not able to interoperate with programs running in other systems. Developers were not so encouraged to create applications that could run only on a limited number of systems.

Recently, there has been a push towards open standards in the software and communications industries, in order to enable products and applications to interoperate among each other, and simplify the complexity associated with applications and system design. This is a positive development for enterprise customers, since the end result is greater choice and better prices. Conversely, a limited number of applications can conceivably force platform customers to pay for more features than they actually require.

ENTERPRISE COMMUNICATIONS SYSTEMS REQUIREMENTS

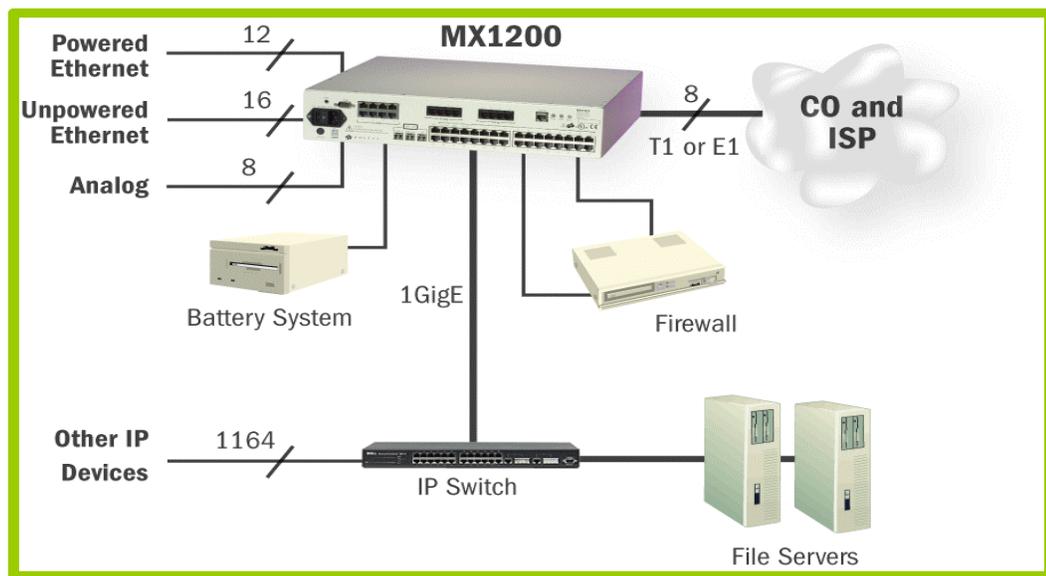
Bearing in mind the reigning economic conditions, state of the enterprise telecom industry, and technological trends, the decision maker should consider the following factors when considering a new enterprise communication system purchase:

- Maximizing the return on the original investment
- High system reliability
- Simple architecture that is highly scalable
- Ease of deployment, maintenance and system administration

- Availability of productivity software
- Straightforward integration with legacy PBXs
- Standards-based interfaces facilitating interoperability and software development

INTRODUCING THE ZULTYS MX1200

The MX1200 is a Linux-based Enterprise Media Exchange that can integrate voice, data, video and fax in a compact system that can be easily expanded. It is a standards-based enterprise telephony offering that consists of a single 2U box that can be quickly deployed. The figure below depicts a sample system topology.



The MX1200 includes a SIP registrar, user agent client and server, presence server, and instant messaging support. Presence indications can be set and used by everyone provisioned in the system. Operators can view the presence of everyone in the enterprise, quickly determine availability, and forward calls to users or their voicemail with a drag and drop operation. ACD members can view the presence of other members in their group and quickly send instant messages to other agents who have knowledge on a particular topic, resulting in a more timely resolution of customer issues.

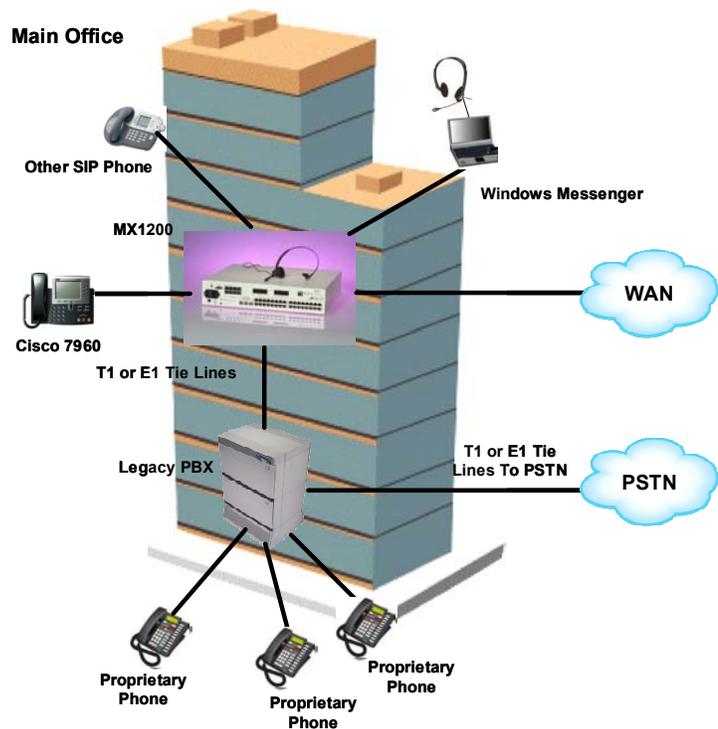


The system comes with an auto attendant, informal call center application, voice mail, and a built-in IP gateway complete with firewall and NAT. All functions are configured using one windows-based Administrative UI. With the MX1200, addresses (extensions) belong to the users and not to individual devices. This means that by dialing a single number, a user can be reached at all devices they have registered with the system. The MX1200 also introduces the concept of binding. With binding, users can go anywhere in the enterprise, log into the client application, and then bind to any device the system knows about. Users can then receive calls at that location.

In designing the platform, Zultys sought a truly open IP communications platform that embraced SIP, the Session Initiation Protocol. This IETF standard specifies call control for multi-party sessions, IP phone calls or multimedia distribution, which also leverages the Internet and Web infrastructures. SIP can provide conferencing capabilities and offers more scalability and less complexity than H.323, the prior de-facto signaling standard. Moreover, it is a text-based protocol that is a lot easier to implement than H.323, which is based on binary encoding. This factor coupled with Microsoft's backing (SIP is supported by Windows XP) will constitute key drivers for the future development of SIP applications. The Linux OS provides an open source environment that allows Zultys to offer a highly stable product and rapidly introduce features in a timely manner. The compact kernel and its trademark stability are increasingly making Linux a popular choice for IP telephony operating environments.

Sample Scenario

This example illustrates how an office having a legacy TDM-based PBX system can preserve their current investment and expand their telephony abilities by integrating with a new MX1200. This integration is done using standard T1 or E1 tie lines. With this approach, calls are made seamlessly between internal users on both systems and between users and the PSTN. New functionality can be added as required and users can be instantaneously



created via the system administrator tool. This single UI allows the administrator to establish system settings, users, devices, dial plans, voice mail and auto attendant, routing and the firewall and NAT setup. This interface also enables administrators to quickly add software licenses to expand functionality, upgrade the software, monitor usage and perform backup and restore operations.

The MX1200 frees the enterprise from having to select from the limited number of proprietary handsets offered by the legacy PBX vendor. The enterprise now has a selection of SIP phones and applications from multiple vendors. The MX1200 fully supports Windows Messenger and the Cisco 7960 IP Phone running SIP, and is compatible with many other SIP devices available today.

The MX1200 provides a natural migration path for this office, should the enterprise management decide that they want to allow calls to be made over the Internet, as well as to the PSTN. Any of the T1 or E1 interfaces on the MX1200 can be configured for voice or data operation. An additional circuit can be enabled on the MX1200 and connected to an ISP. PPP or Frame relay can be configured and the MX1200 can act as a firewall and application layer gateway for SIP calls to and from the Internet.

First Name	Last Name	Extension	DID	User Name	ID	User Profile	Admin Profile	ACD/Operator Profile
Howard	Zip4	770	328-1556	HowardZip4	HowardZip4	Default		
Howard	Hart	704	328-1554	HowardHart	HowardHart	Default	NetAdmin	
Iain	Milnes	222		IainMilnes	IainMilnes	Executives	ReadAdmin	
Ignati	Gigentch	319		Ignati.Gigentch	Ignati.Gigentch	Default	NetAdmin	
Ip	Dialog02	5111		Ip.Dialog02	Ip.Dialog02	Default		
Ip	Dialog01	5110		Ip.Dialog01	Ip.Dialog01	Default		
Jeff	Stein	640		Jeff.Stein	Jeff.Stein	Default	ReadAdmin	
Jumin	Zhao	415		Jumin.Zhao	Jumin.Zhao	Default	ReadAdmin	
Karen	Burger	612		Karen.Burger	Karen.Burger	Default		
Kathryn	Dmitrieva	782		Kathryn.Dmitrieva	Kathryn.Dmitrieva	Default		
Leonid	Aganorik	305		Leonid.Aganorik	Leonid.Aganorik	Default	ReadAdmin	
Linda	Zheng	785		Linda.Zheng	Linda.Zheng	Default	ReadAdmin	Bilingual
Lisa	Mulhai	611		Lisa.Mulhai	Lisa.Mulhai	Default		

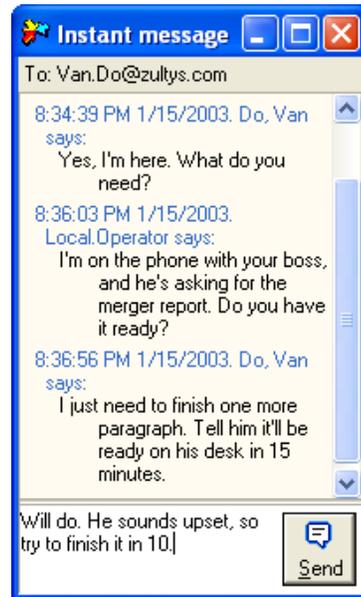
A Unique Combination of Benefits

The open system design, flexibility to grow and an enticing value proposition are key elements that can make next-generation telephony solutions appealing to enterprises seeking for a new communications system. The Zultys approach offers the following unique combination of benefits:

- **Integration:**
 - All-in-one box: The MX1200 combines the functions of a PBX, auto attendant, voice mail system, ACD and Internet Gateway all into a single 2U box.

- Simple administration, provisioning, monitoring and maintenance: one windows-based software interface for system administrators accessible anywhere in the network. The administrator does not have to learn multiple programs or memorize a command line interface.
- Quick and easy deployment of system and phones: all that is required is to scan or enter the MAC address of the phone into the Administrative UI, associate it with the end user(s), and then plug it in anywhere in the network. This rollout method works with the Cisco 7960 IP phone as well as with other IP phones.
- ***Expandability:***
 - Straightforward capacity expansion: from 25 to 1,200 users. End users only need to purchase software license keys that they enter into the Administrative UI to expand the system capabilities (a quick and painless procedure).
 - Lower TCO (Total Cost of Ownership): no additional costs or hidden costs. The MX1200 has all the hardware it needs to support up to 1,200 users without the need of any further investment.
- ***Open Standards:***
 - Standards supported: SIP, VoiceXML (2.0) and TAPI
 - Linux operating system: The MX1200 runs on a highly stable real time Linux operating system that is open and extensible.
 - Interoperability with other vendors' IP phones: Guaranteed support for other vendors' desktops and applications, such as the Cisco 7960 IP Phone and Windows Messenger.
 - Standards-based QoS: IEEE 802.1p at Layer 2 (specifying up to 8 priority levels) and Differentiated Services at Layer 3. The MX1200 can establish the rules for traffic entering and leaving the enterprise.
 - Power over Ethernet (PoE) support: as specified by the IEEE 802.3af committee.
- ***Productivity:***
 - Ease of use: intuitive user interface. Common in appearance whether the user is using it to operate as a standard user, operator, or a member of an ACD group.

- Client Software (MXIE): enables voice, instant messaging and chat. It allows the user to set up rules for presence and call handling and provides integration with Outlook, Goldmine and other CRM applications.
- Instant Messaging (IM): Integration with Windows Messenger in the SIP (Communications Service) mode only (not the proprietary .NET mode).



CONCLUSION

Voice and data convergence is frequently misunderstood to be an end in itself. In reality, it represents an evolutionary step in achieving a lower TCO by providing simpler maintenance, reducing costs and increasing the employees' productivity. Several approaches have been already attempted by a variety of market participants.

The MX1200 architecture allows for an easy initial setup, administration, a single point of storage for all applications and straightforward expansion capabilities. Standards-based applications can empower employees to generate additional revenues and increase their productivity. By embracing SIP and Linux, Zultys is providing a really open platform that can greatly facilitate the development of a variety of these applications.

Frost & Sullivan believes that the North American enterprise market will become ripe for a significant replacement cycle starting from 2004, as the existing installed base eventually matures. This will provide converged system vendors with a prime opportunity to capture new

system sales. The MX1200 platform can be well positioned within this landscape to attain a niche for small and medium sized companies seeking to have plenty of room left for future expansion. By overcoming obstacles associated with being a new market entrant, and remaining committed to the development of additional applications and peripheral hardware (such as IP phones), Zultys can capture the necessary mindshare to become a contender in the enterprise IP telephony space.

This paper is part of an on-going coverage of worldwide Information and Communications Technologies markets by Frost & Sullivan (www.frost.com), an international growth consulting company. Working closely with our clients, we use advanced market research methods to identify and analyze the critical market challenges they must address to become successful competitors in their industry. Our solutions are focused on these challenges in order to provide our clients strategies, which enable them to increase revenues, market share, and profitability.

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