Messaging, Directories, Groupware, Wireless – Technology Decisions that Make Sense

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GSS 2003 IT Survey: Messaging, Directory Services, Groupware, Wireless

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Executive Summary

Between November 2002 and January 2003 Global System Services Corporation (GSS) asked customers with more than 5000 users either based in the United States or with substantial operations in the US to participate in a survey to assess currently deployed IT infrastructures and IT priorities and plans for 2003. The subject areas covered included operational and budget priorities for IT, currently deployed technologies and products, as well as upgrade and migration activity. The average numbers of users, physical locations, and IT personnel are shown below.

Average Number of Users	33,857
Average Number of Locations	549
Average Number of IT Staff	463

The 2003 GSS IT Survey focused specifically on:

1. E-mail and messaging
2. Directory Services and metadirectories
3. Groupware applications and infrastructure
4. Mobile and wireless

E-mail and Messaging

The survey found that e-mail and messaging in 2003 will not be an area marked by major new products or new customer migration trends from one vendor to another: The maturity of e-mail and messaging technologies and products have resulted in a stable overall situation, although upgrade and small-scale migration driven by enterprise wide standardization continue.

Directory Services

Directory Services is a relatively chaotic space quickly being stabilized by Microsoft stepping into a vacuum where there are no significant competitors. What Novell NDS envisioned but did not achieve in the marketplace Microsoft can realize as the emerging leader in enterprise directory services infrastructure.

Groupware

Traditional groupware and groupware development activity is in decline. Focus has shifted to open web-based technologies and IT investment has shifted towards portals and web applications rather than traditional groupware applications. At the same time, companies that have invested heavily in groupware in the past continue to reap the benefits.

Wireless

Despite customers viewing mobile applications and wireless e-mail as a priority, wireless remains an area of notably slow expansion with less than 1% of all corporate e-mail users using wireless e-mail today. Research in Motion, despite their small size and relatively low number of devices shipped, is by far the most significant vendor.

Major Implications

Broadly, the status of these traditional areas in IT infrastructure software (messaging, directory services, groupware, and wireless) indicate highly conservative IT budgeting and in several ways reflect the ongoing impact on the software industry of open standards and standards-based technologies, e.g., Internet-standards-based protocols, web related technologies, and Java together with Java-based technologies.

Perhaps the single most significant trend is the move away from the concept of integrated IT infrastructure software products towards more capable enterprise wide technologies distinguished by functional category and enabled through standards-based integration, i.e., directory services is today a distinct technology deeply rooted in standards rather than part of a proprietary network operating system or e-mail system solution.

This shift is also reflected in software development with the continuing trend towards improved modularity and reuse, as well as interoperability of applications, enabled by open standards. While IBM has clearly aligned their software strategy with this trend, Microsoft is attempting to duplicate it within their product and technology suite: both integrating open standards and offering proprietary alternatives. Specifically, these are the two most significant vendors in the contest of Java 2 Enterprise Edition (J2EE) and Microsoft .NET.

IT Priorities for 2003

The variety of different issues identified as being among the top 10 priorities of IT organizations was remarkable and together customers identified approximately 30 separate issues as top 5 priorities. Cost reduction, however, remained the overriding theme in IT as it had been in 2002. Direct cost cutting, and initiatives driven by cost reduction such as standardization of products and configurations, and server or application consolidation were among the top 5 priorities overall.

Ranking	Priority	Score
1	Server and Application Consolidation	13
2	Technology/Configuration Standardization	12
3	Security Solutions/Implementation	9
4	Reliability/Uptime	9
5	Overall Cost Reduction	7
6	E-mail Migration/Upgrade	6
7	Operational Support (e.g., 7x24, follow the sun)	6
8	Mobile and Wireless Technology	6
9	Performance/QoS	5
10	Web Services	5

Table 1. Top Ten IT Priorities for 2003

Note: The score value shown in Table 1 represents the aggregate priority of the customers surveyed.

Although cost reduction is paramount security and reliability (up-time and quality of service) were also among the top 5 priorities.

Traditional IT Activities Continue

Nearly all of the issues identified outside of the top 10 were either routine, such as deployment or upgrade (e.g., of accounting, CRM, and ERP solutions), or operational. Cost reduction, therefore, has not displaced ongoing projects or halted routine technology deployments or upgrades. This suggests that no fundamental change in underlying IT spending has taken place but rather that IT spending is tied, perhaps more closely, to the overall revenues and profitability of companies.

New Technology Initiatives

The apparent durability of conventional IT priorities following overall cost reduction is not by itself an indication of the status of new technology investment. New technology investments not related to cost reduction initiatives or currently deployed infrastructures are not significant priorities with three significant exceptions: security technology, wireless, and Web Services. Overall, there appear to be very few new areas of new investment and both security and wireless technology, e.g., RIM pager deployments for senior management, have exceptionally clear business drivers.

While spending on security has increased substantially since 2001 it is not clear from the survey data how much companies are actually spending on wireless and Web Services. Of the two, Web Services would appear to be a far more significant technology because enterprises are continuing to deploy web-based portals and applications in intranet, extranet, and Internet/e-commerce configurations.

J2EE Versus .NET

The J2EE versus .NET debate is outside the scope of the survey, however, the survey revealed that these competing technologies have profound implications for the future of groupware because the data suggest that there is a trend away from conventional groupware towards enterprise portals built using web technologies. Although the major competitors in the enterprise market include IBM, Microsoft, Sun, HP, and others a new contest between IBM and Microsoft appears to be taking shape where IBM and not Sun is the most influential proponent of Java and Java-based technologies.

Server Platforms

With so much recent emphasis on cost reduction, server consolidation is a significant area of activity. Some of this activity focuses on upgrading and deploying new Windows NT/2000 servers because they have proliferated and in some cases phasing out residual pockets of Novell NetWare.

NT Leads in Number of Servers

Not unrelated to the areas of technology examined by the survey, e.g., e-mail and groupware, the dominant server platform in the survey was Windows NT with a combined average number of 80 Windows NT/2000 servers per customer. Windows NT customers were not found to have plans to migrate across server platform although many are migrating or planning to migrate to Windows 2000. Windows XP and Windows 2003 were not cited as server technologies.

Discounting special-purpose servers without individual end users, the average number of users per server for NT remains far less than UNIX and other operating systems for traditional client/server applications. Today, however, this is a function of hardware as well as of the operating system. Intel Itanium processors and hyperthreading (HT technology) are specific attempts to make progress on the hardware side of the equation.

UNIX Versus NT/2000

Customers not using Microsoft Exchange or Active Directory indicated the use of UNIX servers. Server platforms used by customers surveyed included a mix of Solaris, HP-UX, and AIX servers with no specific platform, outside of Windows NT/2000 appearing to have a clear lead.

Linux

The survey did not find that Linux has had a significant impact on the server platform composition of large enterprises, however, the increasing software development activity and industry support for Linux suggest that Linux may yet appear as a mainstream server platform. Linux servers are present in many companies but were not found to be in use for enterprise infrastructure software (e-mail and messaging, directory services, and groupware). Linux exists around the perimeter of the core infrastructure but has yet to displace other operating systems within core IT systems.

The Trend Towards Consolidation

Most companies seem to be consolidating within particular server architectures rather than moving to new platforms for the obvious reason that they are focusing on reducing the cost of existing software and services. In addition to reduced total cost of ownership (TCO) customers hope to improve reliability and to exert tighter control over security by managing fewer servers. Although reliable Wide Area Networks (WANs) are in many cases preconditions of server consolidation increased bandwidth comes with a cost. In other words, the cost equation server consolidation is not solely about having fewer servers.

E-mail and Messaging

Enterprise messaging customers fall in three groups with sharp boundaries: Microsoft, IBM Lotus, and distant second tier systems like Samsung Contact. The survey found that Microsoft Exchange is the dominant e-mail server in the United States with roughly 45% market share for large enterprises. IBM Lotus Domino follows with approximately 30% with a mixture of other server platforms, including HP OpenMail/Samsung Contact and Syntegra ISS, trailing behind.

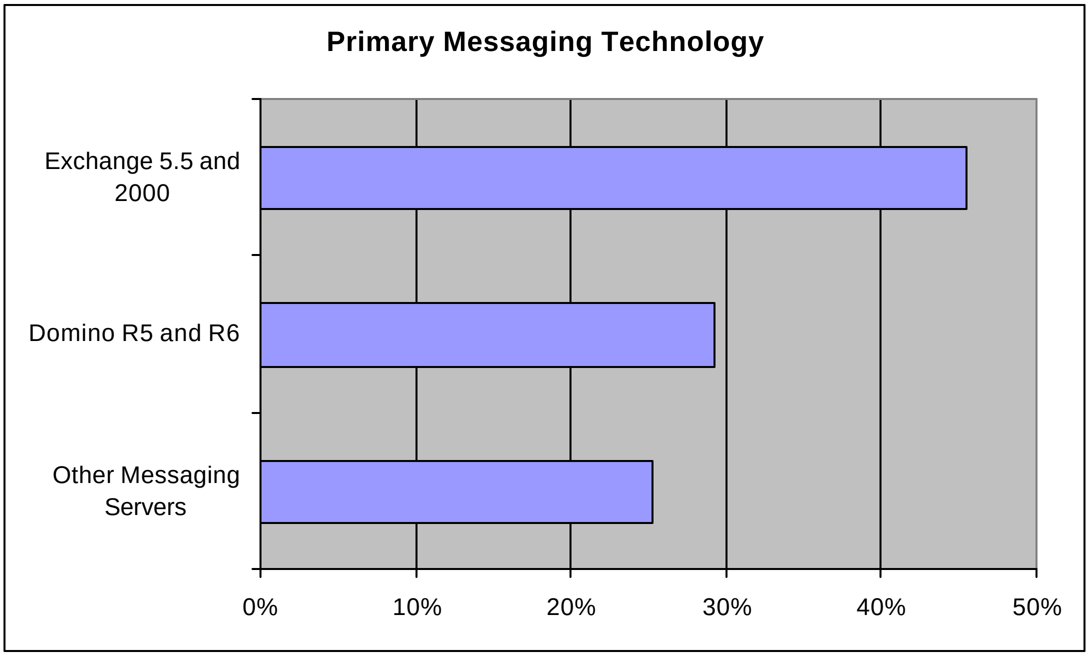

Figure 1. Primary Messaging/Groupware Platform

It can be expected that Microsoft Exchange has a greater lead among smaller businesses since products such as Samsung Contact and Syntegra ISS are not designed for or marketed to small and medium sized companies. While there is evidence outside the scope of the present survey that IBM Lotus Domino has a significantly greater percentage market share abroad relative to Microsoft Exchange the survey results neither support nor contraindicate that proposition.

Client Applications

Overwhelmingly, Microsoft Outlook 2000 was found to be the most commonly deployed e-mail client application, with a 2:1 lead over Lotus Notes despite the fact that the Domino server platform enjoys 30% market share relative to a total of 45% for Microsoft Exchange. In other words, perhaps ½ of IBM Lotus Domino customers are using Outlook e-mail client applications. Outlook appears to be the e-mail client of choice, regardless of server platform. This could be attributed to the fact that Outlook ships with the number one office suite, Microsoft Office, and to the fact that there are relatively few users of groupware applications other than group scheduling.

E-mail Migration and Upgrade

Migration from one type of e-mail system to another does not appear to be an issue for 2003. Some migration activity, however, is going on due to standardizing on a single product, e.g., eliminating the remnants of alternative products deployed within the enterprise. The majority of customers using a particular product are either engaged in upgrades (not migrations) to newer versions of these products or are planning to begin upgrades in the next 12 months:

- Exchange 5.5 to Exchange 2000 or Titanium
- IBM Lotus Domino R4 or R5 to IBM Lotus Domino R6
- HP OpenMail to Samsung Contact

- Syntegra ISS'98 to Syntegra ISS 2001

Upgrades to Exchange 2000 are preceded by Active Directory deployments. There has been some speculation among analysts that uptake of Exchange 2000 has been hampered by a dependency on Active Directory. However, GSS found that 40% of Exchange customers are either using Exchange 2000 or in process of already upgrading from Exchange 5.5. It remains true, however, that the majority of Exchange servers today (over 60%) are running Exchange version 5.5.

Instant Messaging

Despite the recent press coverage of Instant Messaging in the enterprise only 15% of customers surveyed indicated an interest in IM. The data suggest that IM is not being deployed either by a large number of companies or on an enterprise scale at this time. IM has become a business tool but it has not generally been embraced by IT and is typically unsupported.

Products like Lotus Sametime and Microsoft Placeware integrate secure IM with web-based collaborative tools. These products are making inroads but are not in widespread use. However, businesses are seeking to reduce travel costs so the future of products in this category is certainly bright.

Messaging Add-on Products and Services

Approximately 30% of customers indicated an interest in messaging related software tools and services to help them with upgrades and operational challenges. However, the degree of budgeting for add-on products, software tools and services for 2003 is unclear and little overall emphasis was placed on e-mail add on products such as monitoring tools, anti-spam, and e-mail anti-virus products. The majority of customers appear to have solutions in place for the most critical needs and to believe that these needs are being adequately addressed. However, a remarkable 40% of companies were interested in anti-spam technology although spam did not appear among the top IT (and budget) priorities for 2003. Wireless e-mail servers are another add-on product worthy of note.

Customer Satisfaction

Customers indicated a high average level of satisfaction (4.3 on a 5-point scale) with the products they have deployed with no significant variation between products. This could be taken to suggest that the products are mature and that, regardless of US market share, the principle vendors have succeeded in the past few years in addressing the vast majority of serious customer issues.

E-mail and Messaging Trends

Overall, messaging customers seem to be maintaining existing infrastructures and focusing on routine upgrades and operational issues. No evidence was found suggesting any significant shift in vendor market share or technology in 2003. At the same time, customers are showing interest in professional or outsourcing services related to e-mail or e-mail add-on products but these are not priorities. This would support the view that customers are prioritizing IT issues related to messaging based on financial and business priorities rather than on IT specific concerns.

Directory Services

Like messaging, directory services is an area with a few dominant groups and with sharp boundaries but it is a much more complex class of technology because it is associated with all of the following:

- Identity Management
- Authentication
- Metadirectories
- Single sign-on
- Corporate Address Books
- Provisioning

The definition of directory services assumed by the survey was related to networking (including remote access), e-mail, and applications, i.e., authentication services for web applications. Microsoft NT domains and Novell NDS were the significant directory services for networks but Microsoft Windows NT domains and Active Directory are, considered together, the most common directory technology used for e-mail.

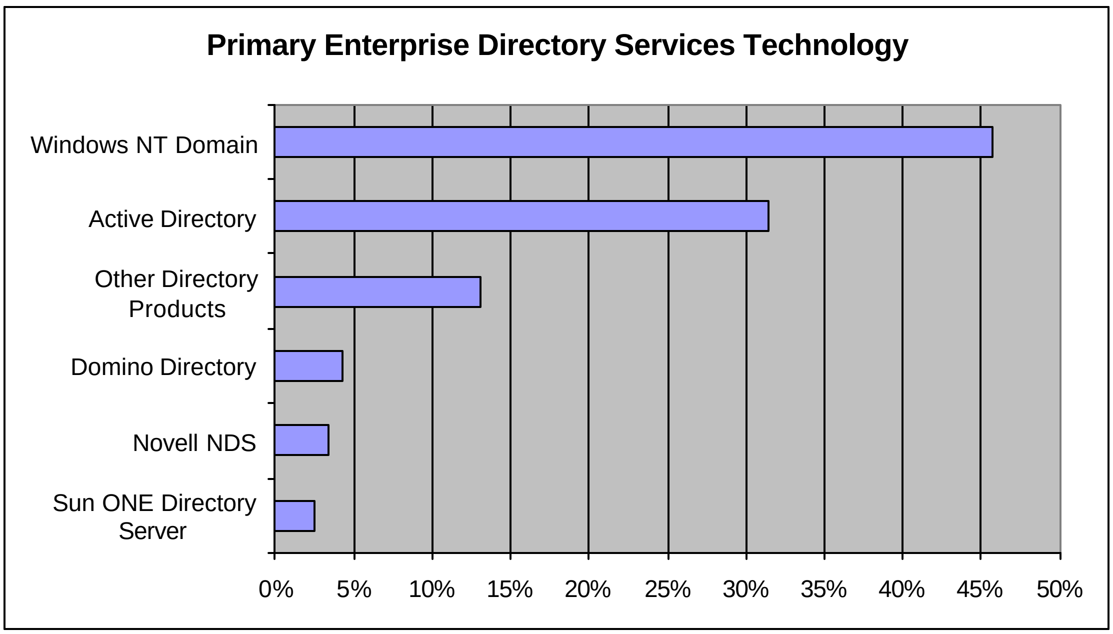

Figure 2. Distribution of Internal Directory Standards

Microsoft's displacement of Novell in the LAN/WAN market has left them in a commanding position with respect to directory services and without any significant competitor. The wide margin for Microsoft Windows NT Domains and Active Directory may be largely due to the deployment of non-Microsoft e-mail systems, e.g., Domino, in environments where Microsoft technologies are used for networking.

Use of LDAP for Integration and Applications

While few companies cited LDAP-specific products such as IBM Directory Server as being a part of their directory services strategy LDAP itself is ubiquitous and is now in wide use. It is also important to note that LDAP is supported by all of the major directory services technologies except Windows NT domains. Technically a protocol, LDAP is a key enabler for interoperability, e.g., authentication and synchronization, as well as for development of web applications.

Metadirectories

Among the companies surveyed very few had invested in metadirectories. Syntegra and Sun ONE Directory Server were two of the products mentioned although insufficient data were available to draw conclusions. Of these two products Sun ONE was more commonly used to support applications while Syntegra was implemented as a true metadirectory.

Metadirectories appear not to have gained popularity because customers have looked to standardization on a single technology to solve directory management problems. Although that technology appears to be Active Directory the actual number of completed implementations and migrations is far less than the total number of customers who indicate that Active Directory is their standard. One indicator is that relatively few Microsoft Exchange 2000 migrations have been completed while the majority of users remain on Exchange 5.5, an obsolete product scheduled for discontinuation.

Directory Add-on Products and Services

Outside of mainstream directory implementations and migrations, which were very common, and a small percentage of customers working with metadirectories, directory services does not appear to be an area of intense activity for 2003. Nonetheless, roughly 20% of companies expressed interest in professional or outsourcing services related to directory services or in software tools for directory migration and synchronization. This suggests that current directory products do not integrate with one another effectively. IT budgeting for directory services related consulting and software tools falls under the umbrella of directory implementation or migration for Microsoft Active Directory.

Provisioning

In addition to customers currently working with metadirectories an additional 15% of customers recognize the need for a single provisioning and directory management tool. However, what would be required of such a tool would clearly vary significantly across customer environments. The main stumbling block to metadirectory technology has been the cost and degree of customization. In effect, metadirectories often serve as a technology platform to develop a custom provisioning system. To satisfy these developing requirements a highly modular and configurable provisioning tool would be needed to improve upon existing metadirectory technology and reduce relative costs by reducing the degree of custom programming and customization needed.

Customer Satisfaction

Despite apparent integration issues between directory products indicated by the level of interest in directory tools and services, customers indicated an exceptionally high level of satisfaction (4 out of 5 on average) with the products they are using and indicated few areas for improvement.

Directory Services Trends

Most customers are heavily committed to standardization on a single directory technology but when this is not possible metadirectories are used, although only by the largest of companies. Various applications and systems contain isolated directories or user databases but the overall situation is towards integration through standards, e.g., LDAP.

Two main factors have contributed to a more homogenous directory services landscape in the past 3-5 years: (1) customers tend to have standardized internally and have been moving applications onto that standard. e.g., Windows NT domains and Active Directory, and (2) steady improvement of LDAP support in most major infrastructure software products.

Groupware

The word groupware is categorical and refers fundamentally to the combination of e-mail, directories, and group scheduling together with workflow and collaborative tools. As a result there is no specific technology that can be correctly described as groupware although there are integrated groupware products, principally IBM Lotus Domino. For the purposes of the survey customers were asked specifically about groupware applications such as user-friendly databases and workflow, as well as group scheduling (calendaring).

Less than half of the customers surveyed indicated they are using groupware. This means that the majority of customers are using simple e-mail and directories with users either relying on stand-alone PIM functionality in applications like Microsoft Outlook and Lotus Notes, or not using PIM features at all. Among the customers using groupware two camps are apparent:

- Groupware Applications Camp - Customers using both calendaring and a combination of off-the-shelf and custom-developed groupware applications, largely on the IBM Lotus Domino platform; and
- Calendaring Camp - Customers using only calendaring and sometimes Shared Folders in Microsoft Exchange or Discussion in IBM Lotus Domino

The calendaring camp is not actually using groupware because there is no concept of workflow and no significant collaborative tools outside of e-mail, a shared calendar, and simple Shared Folders, and there are no groupware applications. Removing this group from the consideration leaves only 14% of customers using groupware in the true sense of that word and of these the vast majority of applications are not widely deployed, i.e., the applications are largely departmental or focused on cross-functional workgroups. Few companies appear to have developed and deployed enterprise wide groupware applications although there are examples of web-based intranet portals and large-scale web applications on the Domino platform.

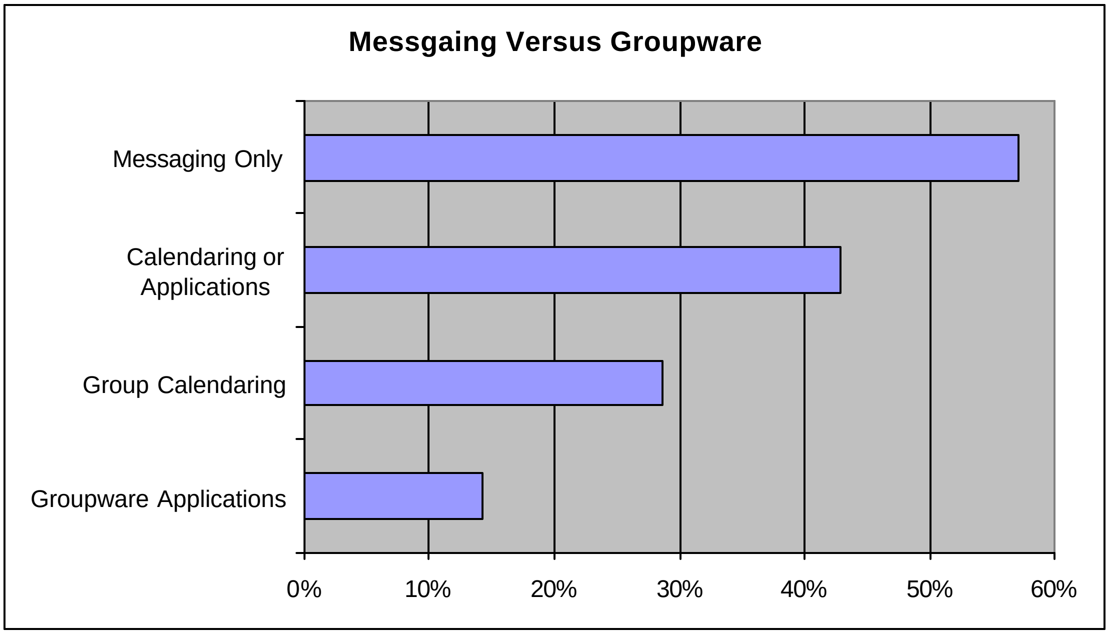

Figure 3. Messaging Versus Calendaring and Groupware Applications

Not only are groupware users a relatively small minority but less than ½ of IBM Lotus Domino customers are using Domino—the most capable groupware platform—for groupware applications. The survey found an almost total absence of groupware applications on all versions of Microsoft Exchange.

Portals Displacing Groupware

In sharp contrast to the situation in groupware there appears to be strong growth in the area of enterprise portals ranging from departmental and workgroup tools to enterprise, extranet, and Internet solutions. Customers seem to be deploying portals at an increasing pace and are meeting a growing variety of internal IT and business needs with portals. Enterprise portals, however, are typically not based on groupware platforms. Instead, the technology behind enterprise portals is consistent with that of the web and e-commerce in general and enjoys the openness and scalability of web technologies, e.g., Internet standards-based protocols, web technologies like HTML and JavaScript, and Java-based technologies such as servlets and J2EE.

Traditional groupware applications appear to be in a holding pattern, if not in outright decline. Anecdotally, the survey noted one significant customer phasing out groupware applications as a part of a migration from Domino to Exchange driven by post-acquisition enterprise standards with no intention of replacing this functionality within affected departments. Overall, the trend away from monolithic groupware platforms towards open web-based technologies is clear.

Groupware Add-on Products and Services

Customers are maintaining their investment in groupware technology, principally IBM Lotus Domino, and are not generally looking for outside services in 2003. Customers that have invested in groupware and that are leveraging it effectively tend to have the resources they require to manage, develop, and deploy routine services like e-mail and also applications on their existing infrastructures. However, there is strong interest (roughly 30% of respondents) in add-on tools to automate administration and maintenance tasks and to gain additional monitoring capability. Customers expressed greater interest in add-on products related to groupware than for e-mail alone while interest in services was low for both e-mail and groupware compared with previous years.

Customer Satisfaction

Those companies that remain committed to groupware indicate extremely high levels of satisfaction (4.5 out of 5) with current products. IBM Lotus dominates the groupware application category and their customers seem to be happier with their choice of groupware platform than Exchange 5.5 customers, perhaps because Microsoft did not deliver significant new groupware functionality on the Exchange platform after the mid 1990's.

Groupware Trends

Overall there appears to be an absence of momentum for traditional groupware. Newer technologies and specifically open Internet standards-based and web-based technologies are taking the place of integrated groupware platforms.

A small but significant percentage of customers remain committed to traditional groupware and have become adept at leveraging the technology to meet IT and business requirements. Evidently the former group (using applications) comprises companies that made decisive and substantial commitments to groupware technology and that are now reaping the benefits. The remainder of groupware customers are using the technology for simple e-mail and are perhaps not leveraging their investment effectively.

Wireless

The survey received a lower level of response with respect to wireless technologies and it seems non controversial to say that adoption of wireless applications and e-mail is unremarkable.

Wireless E-mail: The Killer Niche

The only mobile application in widespread use is e-mail on wireless PDA devices accounting for approximately 1% of all large enterprise e-mail users. It is easy to account for this on the bases of cost and return on investment. Only the time of a very small percentage of end users is sufficiently valuable to justify the cost of the device, the wireless service, and of IT support. All of the of IT departments in the survey that have deployed a wireless e-mail solution officially support at least one wireless device.

Device of Choice: RIM

By a wide margin the device of choice was RIM (near 50% of corporate wireless e-mail users in the survey) followed by wireless Palm OS and PocketPC devices running neck and neck (roughly 25% of corporate wireless e-mail users for each). These numbers tell a remarkable story if one considers the number of each device shipped each year. In fact RIM has shipped far fewer devices while Palm holds a substantial lead in device sales with PocketPC behind. These numbers are almost reversed in the corporate IT environment. RIM, representing the minority of devices, dominates. Palm OS devices, representing more devices than any other type are tied for 2nd and 3rd place. PocketPC, despite massive investments in enterprise solutions and marketing on the part of numerous vendors, has yet to best Palm and holds only half the market share of RIM. The actual numbers of Palm OS and PocketPC devices used in the enterprise for wireless e-mail is extremely small compared with the total numbers of devices shipped.

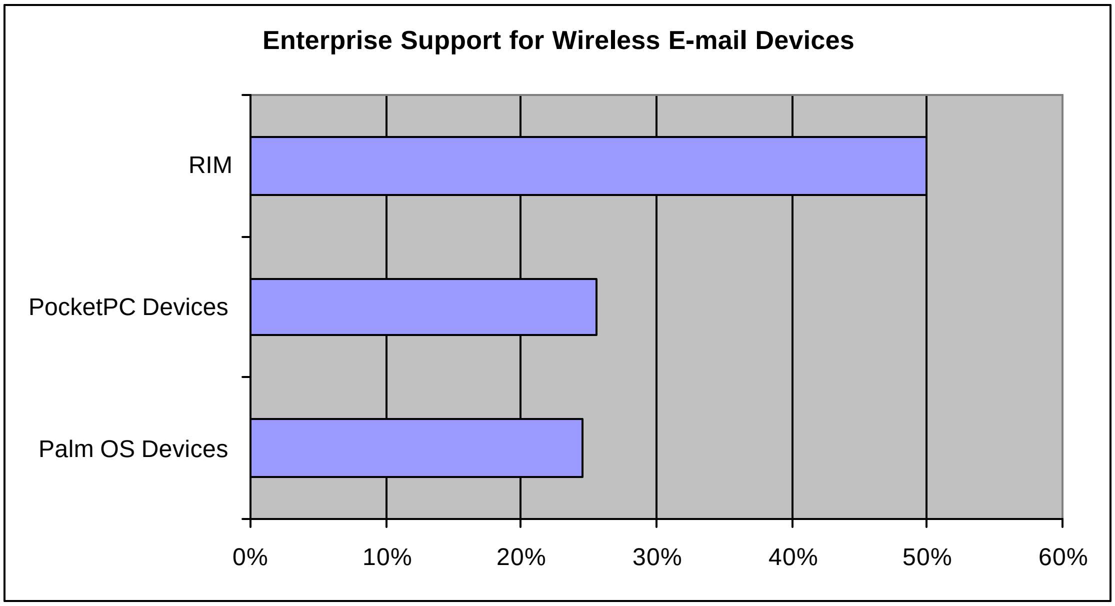

Figure 4. RIM Versus Palm and Pocket PC for Wireless E-mail

The lesson of these numbers is clear: market focus. RIM provides secure, reliable e-mail on wireless devices over multiple wireless networks. As a PDA operating system RIM is clearly inferior and exhibits a marked lack of 3rd party applications and development tools. Further, RIM's hardware products while having excellent battery life simply lack the rich features of high-end Palm OS and PocketPC devices. RIM does one specific thing very well: the single most important wireless application for corporate users.

Wireless Add-on Products and Services

The IT spending situation and business prospects for mobile and wireless services in 2003 are poor. Customers did not indicate significant interest in professional or outsourcing services or add-on software or tools related to wireless applications or e-mail. It seems apparent that vendors providing these solutions, and the small scale of these solutions, reduce the need for traditional system integrators and niche software suppliers.

Wireless E-mail Servers

A number of products, most notably the GoodLink server from Good Technologies are making headway in providing secure, reliable e-mail on multiple wireless devices and over multiple wireless networks. These products allow IT departments to easily support the devices that users prefer rather than being dependent on a single PDA vendor such as RIM. It is unclear how successful these companies will be given RIM's commanding position. However, user demand for superior devices may ultimately drive companies away from RIM hardware.

There are also a number of software products that enable 'push' delivery of e-mail to wireless devices as well as wireless browsing of e-mail through Wireless Application Protocol (WAP), including Microsoft Mobile Information Server (integrated with Exchange 2000), and IBM Lotus Domino Everyplace. Although they are interesting, the survey found no customers using these products in a production setting, with the exception of Domino Everyplace SMS, which is actually an e-mail-to-pager and e-mail-to-SMS gateway. Broadly, WAP access to e-mail has not been adopted mainly due to user interface limitations, security concerns, and wireless data coverage issues.

Customer Satisfaction

Customers that have deployed wireless e-mail solutions indicate an average degree of satisfaction (3 on a 5-point scale) and indicated a number of areas for improvement including coverage, performance, security, and standardization. Broadly, wireless solutions in the corporate IT environment are not enterprise class products.

Wireless Trends

Before the wireless Internet hype of the recent past mobile applications, wireless messaging devices, and two-way pagers were used for highly specific purposes and only for certain users. In 2003 this is still true but on a larger scale. The greatest differences are in the capability of the devices and in the emergence of wireless e-mail as a mission-critical application for some types of business users and in certain industries. Enterprise-wide deployments of wireless e-mail are unlikely to become a reality in the foreseeable future. Wireless e-mail server software products could lower the cost per user to enable wireless e-mail in the messaging infrastructure, regardless of device or mobile operator issues, thus there may be an eventual increase in the adoption of wireless e-mail.

Conclusions

2003 is a year of continued consolidation and conservative IT spending marked by low levels of new technology adoption. The 2003 GSS Survey found that:

- E-mail and messaging is a mature space with gradual movement towards new versions
- Directory Services technology is moving quickly towards domination by Microsoft
- Adoption of groupware has been supplanted by enterprise portal solutions
- Use of wireless is very limited with niche players having the upper hand

In the first half of the 1990's there was a convergence of technologies into a few integrated infrastructure platforms and groupware, today there are more and more specialized products that offer far more within their niche. Today's products are components in a larger IT landscape enabled through standards, whether open or proprietary. In terms of software development and tools there is clear a trend toward modular interoperable enterprise software components that integrate through standards-based protocols and interfaces such as LDAP and Web Services. This trend has been made possible by open standards and standards-based technologies, e.g., Internet-standards-based protocols, web related technologies, and Java together with Java-based technologies.

The evolving effect of open standards and particularly of Internet-based technologies on IT is apparent across the board whether as an enabler, a competitor, or as a market force. At the same time, the emphasis of customers is no longer on open standards per se but rather on internal standardization driven by cost reduction. Cost reduction also comes into play with respect to software development and maintenance where both internal standardization and open standards help to reduce TCO.

Both IBM and Microsoft are targeting enterprises with technologies and products that fit these trends. Microsoft's .NET products support many standards but lock developers and customers into Microsoft proprietary technologies. IBM has boldly embraced standards for development, particularly J2EE, and is committed to breaking out the functionality of its existing products in standards-based packages. However, 2003 is probably not going to be the year in which customers make significant choices in this developing contest.

About GSS

Global System Services Corporation (GSS) is a provider of research, software, and solutions for e-mail and messaging, directory services, groupware, and wireless to customers worldwide. GSS provides a full spectrum of services to enterprises and technology companies ranging from strategic technology consultation to implementation. GSS is based in Mountain View, California. Additional information is available on the Internet at http://www.gssnet.com, by sending email to info@gssnet.com or by calling +1 (650) 965-8669.