

New E-Mail and Calendar Support Unified Communications Strategy

Cisco IT Case Study / IP Messaging / Global E-mail and Calendar -

Overview: This case study provides a high level overview of Cisco IT's worldwide implementation of Microsoft Exchange e-mail and calendaring services within the Cisco global network, an innovative enterprise environment that provides these services to 50,000 users in 70 countries. Cisco customers can draw on Cisco IT's real-world experience in this area to support similar enterprise migrations, by reading this overview and also by reading any or all of the four related detailed case studies focusing on the design, the migration process, the communications process, and the training and support processes that were part of this global migration.

***"Similar to other Cisco-on-Cisco strategies, the business is partnering with IT to help drive the integration and improvement of Cisco's converged communications products deployed at Cisco."
—Charlie Giancarlo, Cisco CTO***





Organization of the Global E-mail and Calendar Program Case Study

The Global E-mail and Calendar Program case study consists of five modules and four appendices. Each module discusses the Global E-mail and Calendar Program from a different perspective—architecture, communications, migration, training, and support—and thus the modules are fairly independent of each other. Each appendix, however, is closely associated with a specific module. To view other modules or the complete case study, please visit

<http://www.cisco.com/go/ciscoitnetwork>

The case study organization is as follows:

Module	Title	Description
1	New E-Mail and Calendar Support Unified Communications Strategy	Provides an executive summary, program challenges, program organization, deployment strategy, and e-mail and calendaring solutions
2	Leveraging the IP Network on a Global Messaging Architecture	Contains architecture solutions for the network design, server and site configuration, virus protection, reliability, scalability, and redundancy
3	Communicating to Drive Enterprise Adoption of New E-mail and Calendar	Describes the communications strategy used for the e-mail migration and calendar cutover, including challenges, audience analysis, key messages, and communication channels
4	How Cisco Migrated Nearly 40,000 Mailboxes in 16 Weeks	Contains the e-mail migration and calendar cutover challenges, strategy, and processes
5	Training and Support: Helping Users Leap to a New Messaging System	Contains training and support objectives, challenges, solutions, and metrics as well as describing the Support Model process
A	E-mail and Calendar Policies and Features	Describes the e-mail and calendaring policies established during the migration and the main features of the new system (see Module 1)
B	Communications Details	Contains detailed Communications Plan and Exchange Migration Website information architecture (see Module 3)
C	Detailed Migration Data	Contains detailed information on e-mail migration pilot and calendar cutover weekend activities (see Module 4)
D	Support Details	Includes operational support details and Support Model processes flows (see Module 5)

New E-Mail and Calendar

Support Unified Communications

Strategy

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Introduction

Executive Summary

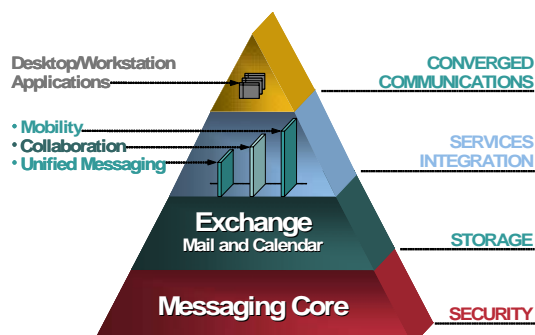
Can exponential growth be bittersweet? Cisco Systems®, a world leader in IP communication solutions, faced this dilemma when accelerated growth caused its internal communication and collaboration requirements to outpace the capacity of its e-mail and calendaring systems. These fragmented tools could not adequately service a network used by over 50,000 employees dispersed throughout 366 sites in 77 countries. With frequent e-mail outages on four different systems and a calendaring product that had reached capacity, these tools no longer met global demands. Furthermore, the lack of a standard messaging system inhibited the implementation of Cisco MeetingPlace® and integration with collaboration products such as mobile mail.

Cisco had attempted more than once to migrate to a more standard messaging environment, but this undertaking required a synergistic blend of strategic vision, strong leadership, innovative design, careful planning and coordination, dedicated support, comprehensive training, and a broad communications campaign to drive user awareness and adoption. Replacing a highly personal productivity tool such as e-mail posed a dramatic cultural shift for users, particularly the 30 percent population of UNIX/Linux engineers.

Compelled by these challenges, Cisco broadened its vision by choosing Exchange for integrating messaging with its Unified Communications and MeetingPlace products. In partnership with Microsoft and EMC, Cisco created a highly-reliable and redundant architecture using a standardized system that could be scaled to support its growth and global complexity. Leveraging the service-oriented network architecture (SONA) model, Cisco developed an innovative Exchange security design with Cisco Secure Sockets Layer (SSL) services on the network layer rather than the host. Likewise, Cisco used its CSM routing/load balancing network module to virtualize e-mail routing by providing one domain address on the mail client, thus eliminating manual changes on the desktop. To maintain its commitment to the UNIX/Linux community, Cisco IT used Novell Evolution, Mozilla, and Microsoft Outlook Web Access to support a heterogeneous client environment.

“Cisco messaging architecture showcases the foundation for enterprise collaboration and mobility solutions at Cisco, including audio/Web conferencing (MeetingPlace) and wireless/mobile e-mail and calendaring access,” says Carina Reyes, Cisco IT worldwide Enterprise Messaging Services manager. See [Figure 1-1](#) for details.

Figure 1-1: Establishing the Foundation at Cisco





"This implementation reflects the long-term commitment of Cisco to deliver an end-to-end architecture for the convergence of voice, video, and data across its own network. In addition, the Global E-mail and Calendar Program is consistent with the long-term Cisco goal of converging unified messaging with IP telephony to form an IP Communications solution."

By September 2005, Cisco had accomplished one of the largest migrations to Exchange, transitioning 40,000 mailboxes over 16 weeks, while maintaining a weekly 4.6/5.0 case average satisfaction score. The program strategy, effective training and support, award-winning communications, and world-class project management led to an unexpected 80 percent weekly migration rate—50 percent above target—and a seamless switch to Exchange calendaring over one weekend.

Cost savings, employee satisfaction, stability, and alignment with company strategy had immediate payoffs. The speed of migration avoided \$500K in outside service costs and \$800K in legacy license fees. Between the reliability of its design and Coyote Creek's effective managed service, messaging availability improved from 99.4 to 99.99. The post-migration caseload dropped 20 percent below its pre-migration level, and continues to trend down. In a June 2006 survey, e-mail and calendaring—the lowest-rated IT services in 2003 at 66 and 34 percent—received 83 and 82 percent satisfaction ratings, finishing second and third overall. The new messaging platform enabled the implementation of 13,000 global mobile messaging phones, and integrated calendaring and e-mail with Cisco MeetingPlace, a one-stop scheduling solution with Web/audio conferencing options. With the foundation solidly in place, Cisco can now extend its service offerings with innovative, rich collaborative services.

Business Value

The most important benefits derived from the Global E-mail and Calendar Program are as follows:

- Enterprisewide calendaring—the new architecture enables calendaring across enterprise time zones for group scheduling, global conference room scheduling, and corporate events scheduling.
- Integrated calendar, mail, contacts, and tasks—these functions can be "mixed-and-matched" in the new solution.
- Establishment and enabling of a foundation framework for converging collaboration and communication systems—Exchange becomes the conduit for scheduling and e-mail integration, and for reserving voice conferencing and video conferencing bridges for any meeting, thus allowing Cisco to use other unified communications tools as they become available.
- Replacement of a fragmented and inefficient e-mail and calendaring system—even a modest savings of ten minutes a day in employee productivity can translate into millions in savings for a large global enterprise.
- System scalability—problems with the scalability of legacy systems were resolved with the migration to Exchange, thus enhancing system performance and stability.
- Increased messaging security—this solution provided an additional defensive layer with an antivirus checkpoint. Every Exchange server has third-party software installed on it with options for blocking certain attachments.
- Increased system-level and process efficiency—the new system did not require e-mails to be replicated to different systems, and users could access a global calendar without needing multiple accounts and schedules in different servers.



Background

This section describes the legacy e-mail and calendar issues, as well as early attempts to deploy Exchange globally.

Legacy E-mail Messaging Infrastructure

The legacy solution for sending and receiving e-mail within Cisco consisted of a central core of UNIX mail servers and Sendmail for the management of e-mail. This core is a series of UNIX servers networked together, with gateways accessed through firewalls to the Internet at key locations.

The legacy e-mail messaging infrastructure, excluding the deployment to European and Emerging Markets, is described in the following table:

E-mail System	Function
SendMail	SendMail e-mail messaging system, using five HP UNIX and 11 Sun/Solaris servers and sendmail MTA open source software provided services to approximately 80 percent of users.
Mirapoint	Sixteen Mirapoint messaging appliances supported Web-based e-mail or any standards based e-mail client such as Outlook; provided services to approximately 15 percent of users, mostly engineers.
Microsoft Exchange Server 5.5	Deployed to an 800-user site in Australia and about 100 users in San Jose, California.
Rogue Microsoft Exchange	Several Exchange servers were installed in various locations using shadow IT support.
Microsoft Outlook POP clients	Between 40 and 50 percent of the e-mail clients used Microsoft Outlook as a POP client.
Other clients	UNIX and PC clients were using various other e-mail options such as Netscape Messenger, mutt, pine, and Qualcomm Eudora.

Legacy Calendaring Issues

As Cisco became a large-scale global company with over 40,000 users, it outgrew its enterprise calendaring system. This led to problems with propagation and support of multiple time zones. The following problems were the most visible ones:

- New users had to be added manually, since there was no flow from the HR database. There were no connectors to Active Directory or Lightweight Directory Access Protocol (LDAP).
- For conference rooms to appear in Meeting Maker, they had to be added manually by an administrator from a central location.
- Because of heavy usage and due to the scaling problem, capacity was an issue in the United States, especially in San Jose. When a server was full, users were moved between servers, making it very inconvenient.



- The historical data had to be purged quarterly because Meeting Maker could not hold more data. Users could export data to a text file, but the data could not be re-imported. The manual purge took an entire weekend to complete.
- Frequently when a user created a meeting and invited people who were not on the same Meeting Maker server, it would take two hours to a day to get their invitation. If the users were all on the same server, this was not a problem.
- Users requiring global calendaring—for example, for meeting with people in multiple regions—needed multiple accounts and schedules in different servers because the calendar servers in different regions were not connected with each other, which was very inconvenient and problematic.

Early Attempts to Deploy E-mail and Calendar Globally

Prior to the start of the actual Global E-mail and Calendar Program, several costly and unsuccessful attempts had been made by different groups at Cisco. The early attempts suffered from a lack of cohesive program. The right technology, process, and resources were not applied.

The turning point came when an executive sponsor at the CIO level was assigned and proceeded to restructure the program as a single initiative, with global ownership, global budget, a business sponsor, a direct manager, and an owner. A decision was made to pursue a get-well plan for the European and Emerging Markets and rebuild as needed. This case study only documents the last, and by far, the largest phase of the E-mail and Calendar migration, after E-mail and Calendar migration in European and Emerging Markets had been completed.

European and Emerging Markets Exchange 2003 Deployment

The Exchange 2003 deployment to European and Emerging Markets was a significant event for the Global E-mail and Calendar Program. Achieving a successful migration convinced management that the Global E-mail and Calendar Program was technically feasible. It validated the global migration strategy and gave the team valuable insight for addressing the challenges of a global migration.

Although the early migration ran into several problems with stability and performance, upgrading to Exchange 2003 and Outlook 2003 resolved 90 percent of the performance issues that users had experienced with Exchange 2000 and Outlook XP.

Challenges

The legacy e-mail and calendar infrastructure issues and the large scale of the program posed many challenges for a global e-mail and calendar migration:

- Every single employee at Cisco uses these applications dozens of times a day—that is, every user at Cisco that has a mailbox.
- Cisco employees were very much used to the applications that they had chosen and had used for years.
- There were already several rogue Exchange and e-mail servers set up within Cisco, outside of Cisco IT control.
- Almost all e-mail and calendaring data was stored in two different locations—80 percent on Direct Attached Storage (DAS) and 20 percent on a Storage Area Network (SAN)—making storage unreliable.



- There were many heterogeneous e-mail clients such as UNIX, Linux, Mac, and Microsoft Windows, and employees felt strongly about the advantages of each.
- There were disparate systems for security management, which could not be consolidated until a cohesive messaging solution was implemented.

To address these challenges, Cisco built a dedicated global organization committed to tackling each of these challenges. For example, a separate UNIX/Linux track team focused on the large engineering community of UNIX and Linux users and developed specialized tools for their migration.

Global Mail and Calendar Program Organization

The Global E-mail and Calendar Program was implemented by a global cross-functional team with members chosen for their expertise in the various disciplines and functions needed to further the initiative. In addition to the Program Manager, the Global E-mail and Calendar team was divided into the following tracks, each having its own lead and representing a major program deliverable:

Track	Function
Design and Engineering	Defined functional requirements, developed architectural solution, and managed site deployment.
Communications	Developed strategy for disseminating information about changes to users through various media, and also worked closely with Training and Client Support tracks to manage and deliver consistent and timely communications.
Messaging Migration	Managed the client migration automation, scheduling, and client communications. Each region had its own local project manager under a global messaging program manager.
Calendar Cutover	Managed Meeting Maker cutover, which included coordination with WPR (Facilities) to populate the global address list with official conference room data and related training and support.
Automation/Tools	Focused on process automation—such as the Client Migration Management (CMM) tool and back-end processes—migration status tracking, and overall integration with IT infrastructure.
UNIX/Linux Track	Focused on addressing the e-mail and calendaring needs of the large community of UNIX and Linux platform users, including developing tools, performing functional testing, and providing support.
Training Track	Worked closely with the Communications group to develop the strategy and the courses to support the client migration, the Outlook e-mail and calendaring features, and the calendar cutover. The group developed schedules for training different levels of user.
Support and Operations Model	Included overseeing operational support of the Exchange infrastructure. Managed the support of all users during the client e-mail migration and the calendar cutover. Handled Vendor Management Office (VMO) contract negotiations with hardware and software vendors such as Microsoft, and HP, as well as outsource vendors.



E-mail and Calendaring Solution

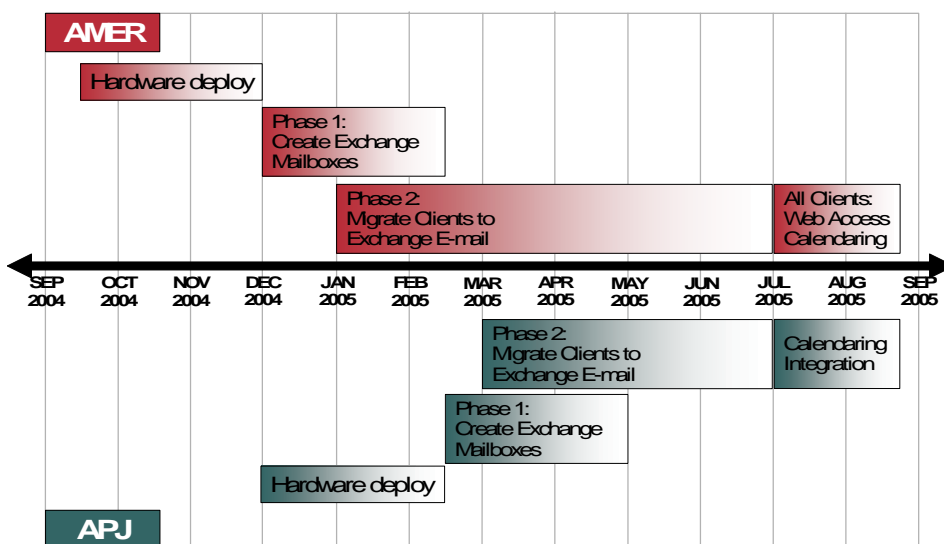
This section describes the deployment strategy and the new e-mail and calendaring solution. For a detailed list of the new e-mail and calendar features, see [“New Feature Functions and Benefits for Users”](#) on page A-6. For a description of the new e-mail and calendar policies, see [“E-mail and Calendaring Policies”](#) on page A-2.

Deployment Strategy

Global E-mail and Calendar Roadmap

Figure 1-2 illustrates the Global E-mail and Calendar Program milestones.

Figure 1-2: Global E-mail and Calendar Program Roadmap



Deployment Site Consolidation (Design)

Originally 11 global sites were considered, but the Exchange deployment was consolidated to only five sites, which greatly simplified the project logistics.

The original site placement criterion was based on Outlook XP “offline mode,” requiring less than 300 to 350 millisecond (ms) latency. Latency is the most critical factor regarding performance acceptable to end users. The following considerations were taken into account for revising the site placement:

- Outlook 2003 “cached mode” is much less sensitive to latency than Outlook XP “offline mode,” yielding acceptable e-mail performance over links with up to 1-second latency, which reduced the number of server sites needed.
- The two sites in the European and Emerging Markets could be consolidated to one in Amsterdam, because no “edge” site exceeded the 500 ms latency to Amsterdam.



- The five Asia Pacific sites could be consolidated to one site each in Hong Kong and Bangalore, because Asia Pacific has a redundant WAN topology that provides continued service availability.
- The deployment to European and Emerging Markets validated the viability of a centralized site design with a network latency (1 second end-to-end) design boundary.
- Budget savings for Asia Pacific site reduction were \$615K Capital Expenditure.
- The consolidation simplified and reduced deployment and sustained support costs.
- The consolidation shortened production startup lead-times (fewer sites to prepare and set up).

Data Center Deployment

The new Exchange servers are arranged in clusters called “pods” and use a common Global Addressing List (GAL) that allows employees to use a local account for e-mail and calendar, yet view all employee and conference room free/busy schedules across geographies. The Pods are a centralized collection of Domain Name Servers (DNS), Distributed Director Exchange mail and storage servers, Active Directory domain controllers, and CSS switches—distributed worldwide. Users need only one Exchange account to schedule meetings with employees and conference rooms across the geographic Pods.

After the migration, e-mail and calendaring services were all handled through Exchange servers that were deployed in pods at five global sites, as follows:

- San Jose, California
- Research Triangle Park (RTP) in Raleigh, North Carolina
- Amsterdam
- Bangalore
- Hong Kong

New Flexible E-mail Environment

At Cisco, e-mail is highly used and considered by employees as a very personal application. The Global E-mail and Calendar Program team specifically designed the Exchange implementation with e-mail flexibility to allow users to select their preferred e-mail client application.

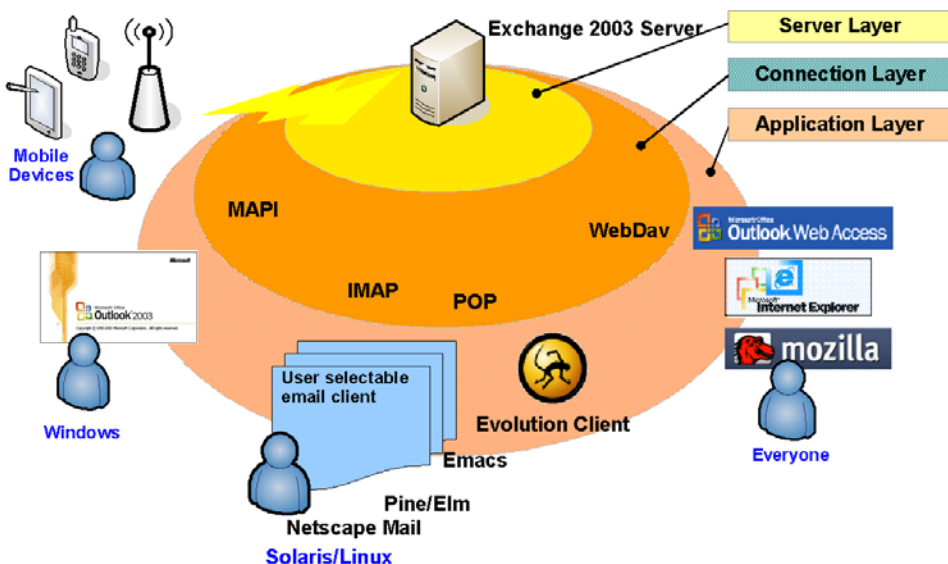
After the client migration, users were able to manage their e-mail with Microsoft Outlook 2003, Novell Evolution, or Microsoft Outlook Web Access (OWA) within a Microsoft Exchange 2003 infrastructure. Users could now exploit Exchange collaborative features globally—for example, shared contact folders, information sharing, tasks, and user-defined mailbox access. The biggest adjustment after the migration was becoming familiar with the new IMAP/POP and other client/server and shared resources environment.

The Cisco e-mail architecture offers both Exchange and non-Exchange-based e-mail delivery. Windows-based users have access to an Exchange/Outlook 2003 combination that provides a completely integrated e-mail and calendar solution. For Linux and UNIX platforms, users have a choice of e-mail delivery methods and can access the global calendar with either Novell's Ximian Evolution client or with a Web browser and Microsoft OWA.



Figure 1-3 illustrates this flexible strategy.

Figure 1-3: New Flexible E-mail Environment



Exchange 2003 allows Windows users to choose their preferred e-mail application and connection method, as shown in the following table. Outlook 2003 users are recommended to use MAPI.

E-mail options	Connection Method	Comments
Microsoft Outlook 2003	MAPI	<ul style="list-style-type: none"> Maximum level of e-mail functionality Maximum level of calendaring functionality Future Unified Messaging and MeetingPlace integration
Microsoft Outlook 2003	IMAP/POP	<ul style="list-style-type: none"> Not recommended
Netscape Messenger v7.0 or Mozilla v1.6	IMAP/POP	<ul style="list-style-type: none"> Must use Outlook 2003 or OWA for calendaring and Out of Office Requires server-side rules for calendaring notifications
Qualcomm Eudora	POP	<ul style="list-style-type: none"> Not recommended Availability and support of Eudora reaching its end-of-life



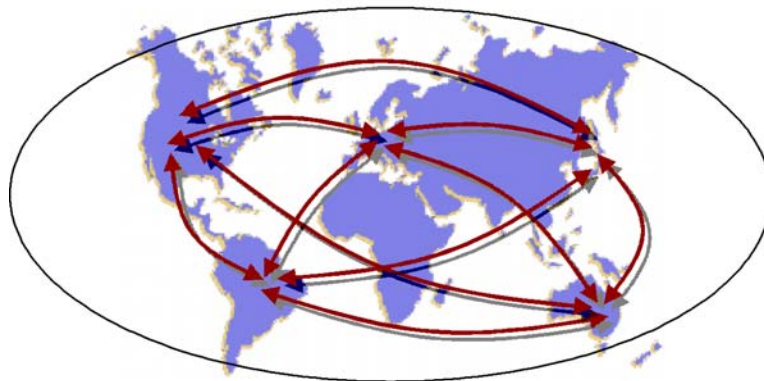
Exchange 2003 allows UNIX and Linux users to choose their preferred e-mail application and connection method, as shown in the following table. Users should consider the calendaring implications when selecting their e-mail application of choice.

E-mail options	Connection Method	Comments
Netscape Messenger v7.0 or Mozilla v1.6	IMAP/POP	<ul style="list-style-type: none">• Must use OWA for calendaring and Out of Office
Pine	IMAP/POP	<ul style="list-style-type: none">• Must use OWA for calendaring and Out of Office
Microsoft Outlook Web Access (OWA)	via Netscape Messenger v7.0 or Mozilla v1.6	<ul style="list-style-type: none">• No server-side rules available• Includes calendaring functionality• Basic level of e-mail functionality
fetchmail/procmail	IMAP/POP	<ul style="list-style-type: none">• Must use OWA for calendaring and Out of Office
Novell Evolution 1.4 on Cisco Linux 4.30-3 +	Microsoft Exchange Connector	<ul style="list-style-type: none">• No server-side rules available• Interface is similar to Outlook• Integrated e-mail/calendaring

Global Calendaring

The largest payback from the E-mail and Calendar migration was the ability to provide a truly global scheduling capability for the first time at Cisco (see [Figure 1-4](#)). Because all users access the same global infrastructure and client software can translate time zones, scheduling of international events and meetings was vastly improved. It was far more stable than the legacy calendaring system and provided a richer feature set that enhanced collaboration from the outset.

Figure 1-4: Exchange Global Calendaring



Exchange Calendaring allows employees to use one account to schedule meetings with any employee or conference room in any geography.



New Exchange Calendaring Applications

After the cutover, the following Exchange calendaring application options were available to users:

Application	Supported OS	Description
Microsoft Outlook 2003	Microsoft Windows	Outlook 2003 provides the most functionality; benefits are as follows: <ul style="list-style-type: none"> • Calendars are displayed side-by-side, including the user's own calendar, meeting room calendars, and shared calendars. • Calendars scroll together, and are color-coded and labeled to allow quick comparison. • Free/busy data is updated automatically when users change their calendar or log out of Outlook, or every 15 minutes while they are logged in. • Two months of free/busy data is always available (user can adjust timeframe).
Novell Evolution	Linux	Novell Evolution emulates a variety of Microsoft Outlook functions on the Linux platform.
Microsoft Outlook Web Access (OWA)	UNIX, Linux, and Microsoft Windows	OWA provides a few Outlook 2003 functions, such as multicalendar display, but it has the least functionality of the three applications.

Results

Sixteen weeks from the beginning of the migration, most of the 50,000 Cisco employees had migrated successfully to Exchange. The project was completed by the middle of July, nearly 30 days ahead of schedule, even though the start date had been delayed by more than a month.

After the initial deployment of MeetingPlace 5.3 in early 2006, Cisco employees discovered how easy it was to integrate e-mail with meetings and meetings with conferencing bridges and shared desktop applications.

Support Case Loads

Support case loads were lower for the quarter following the migration than for the quarter preceding the migration (37 percent fewer e-mail cases and 64 percent fewer calendaring cases), while customer satisfaction was very high (4.7 out of 5.0) during the migration.

IT Messaging Survey

Two customer surveys were conducted after the migration. The first survey was conducted in January/February 2006 to measure the level of satisfaction with the new messaging services, identify user concerns, and gather information for future enhancements. The survey was sent to 5000 users randomly selected from different organizations, and 32 percent (nearly 1600) responded: engineering (33 percent), customer advocacy (17 percent), sales (13 percent), marketing (11 percent), IT (5 percent), and other (21 percent).



The following data was obtained from the February/January 2006 survey:

- Eighty percent of respondents spent more than 25 percent of their workday doing e-mail.
- Ninety percent of respondents used Outlook 2003 to manage e-mail, and 92 percent used it to manage calendaring.
- E-mail satisfaction was 71 percent (excluding 17 percent neutral), and calendaring satisfaction was 64 percent (excluding 20 percent neutral).

Note: Additional optimization and enhancements are planned to address specific issues with calendaring.

- Fifty-five percent of respondents received e-mail and calendar training during the migration; of these, 90 percent felt that the training was useful.
- Ninety percent of respondents were satisfied with e-mail support, and 89 percent were satisfied with calendar support.

IT Services Client Satisfaction Survey

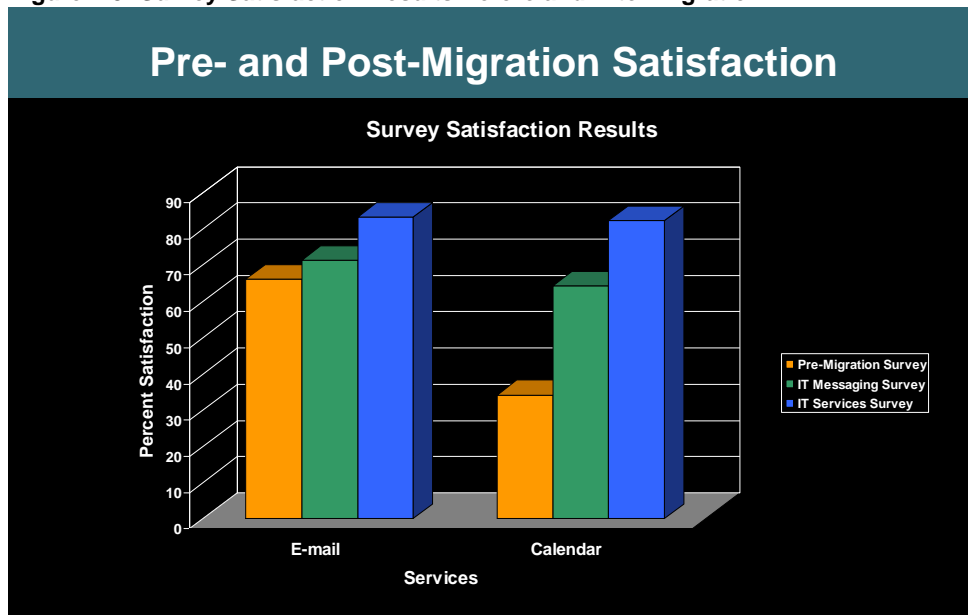
Another survey, conducted in June/July 2006, measured the level of satisfaction with all IT services. This survey was sent to nearly 17,000 employees worldwide, and 12 percent (over 2000) responded. The top five contributors were, in order of participation: sales (52 percent), IT (13 percent), engineering (12 percent), customer advocacy (12 percent), and other (11 percent).

Messaging services received the second and third highest levels of overall satisfaction in the IT 2006 survey. The results were as follows:

- E-mail services: 83 percent (excluding 9 percent neutral)
- Calendar services: 82 percent (excluding 11 percent neutral)

Figure 1-5 compares both post-migration survey scores to the results of a 2003 survey, where satisfaction was 66 percent for e-mail and 34 percent for calendaring.

Figure 1-5: Survey Satisfaction Results Before and After Migration





Program Management Leadership Lessons

This section describes the lessons learned by the Global E-mail and Calendar Program manager.

Implement a Unified Approach under Strong Leadership

A unified global approach was essential for tackling a project of this magnitude and criticality. Consistent leadership, strong executive sponsorship, and a single cohesive and dedicated team and budget were essential to the success of the project. "Management sponsorship is a lever on the speed of execution," says Teh Cheng, Global E-mail and Calendar Program manager. "When key decisions need to be made, availability, accessibility, and support of the managers and executive sponsor can significantly speed up or slow down project delivery."

Empower and Trust in your Team

Fostering the right work environment for the team boosted morale and improved team dynamics significantly. This approach allowed management to understand the real problems and enable team members to make qualified decisions. For such a large project, it is essential to have a functioning team and to trust in the team. By being nonjudgmental and by trusting team members to make decisions on their own, the program manager sends a strong message that people's ideas are worth listening to, helps develop the decision-making skills of team members, and empowers them to work together as a unit.

Communicate Adequately Trade-offs and Progress

It is important for the program manager to build integrity, trust, credibility, and exert influence both informally and formally (through directives). Daily minute-by-minute dialog fits under the basic skills of project management. The project manager should guide the dialog but not dominate it. The program manager must help ensure that the team members understand the trade-offs during internal dialogs: what the decision will cost; what they will have to give up; what they will get in return. The program manager should recognize what is not working right in order to move forward. Also, the program manager must focus on the weekly tangible project progress that leads to the milestone, since the project will be built up piece by piece. At some point the project manager will turn a corner and realize that a major change has taken place.

Manage Both Upwards and Downwards

"The program manager must be a buffer between the team and upper management and users," says Teh Cheng, Cisco IT Global E-mail and Calendar Program manager. "These dual roles can sometimes be conflicting, since the program manager has to manage both upwards and downwards. The program manager manages the dynamics, the tension, and the communications within the team and management, as well as between the team and its clients. It is essential for the direct manager and the program manager to partner tightly with the team, so that team members know that they are well supported."



Formalize Change Management and Control

At the beginning of the actual migration, a change management process was put in place. Changes were documented and approved through a well-advertised control process. Before a change could be made, the managers affected had to agree on it. The change management process applied to everyone involved in the project, both team members and management and was stored in a collaborative area for all team members to update and review. The change management was important to guarantee quality control throughout the deployment and to resolve control issues that had plagued previous migration attempts. The change management process gave the team a degree of control over incoming changes. Before this, changes were approved in an unplanned manner. An approval process helped ensure that the budget was kept under control and that changes were approved by the right people and communicated adequately to those who needed to be informed.

Have Fun

A good gauge of the health of your team is how much fun the members are having. During the last phase of the deployment, everyone was excited because much progress was being made. The team had enough confidence; they knew that poor decisions could be cleaned up later. The team members enjoyed the project, team events, and doing their job. There were differences of opinion, but these were healthy, positive debates. Team members adopted decisions instead of fighting decisions.

E-mail and Calendar Policies and Features

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E-mail and Calendaring Policies

This section contains all the E-mail and Calendaring policies.

Exchange Mailbox Quota Policy

Users need to effectively manage their e-mail due to the quota limits placed on their Exchange mailbox.

The mailbox quotas for Exchange are set as follows:

Mailbox Quota	Message	Consequence
350 MB	Quota warning issued	A warning notification is issued but no restrictions are applied.
400 MB	Prohibit Send Limit	User cannot send e-mail but continues to receive e-mail
450 MB	Prohibit Send & Receive Limit	User cannot send or receive e-mail. Senders receive a delivery failure notice allowing them to send at a later time.

These quotas are neither arbitrary nor variable. The mailbox quota size rationale is dependent on a balance of server resources, current mail volumes, and projected growth. In contrast to the previous mail system, the Outlook/Exchange system makes use of the server much more than point-of-presence (POP) mail servers. Because server resources are finite, each mailbox was allocated a primary quota of server data storage, based on the current mail volume within Cisco and allowing some room for growth.

Exchange Quotas Compared to Current Mailbox Sizes

A recent audit of all current mail servers at Cisco showed that the average mailbox size was slightly less than 100 MB. While some users need to learn how to effectively manage their mailbox size, the Exchange mailbox quota limits are set higher than standard usage today. Users that were on Mirapoint servers had a 150-MB mailbox limit and are now benefiting from increased space.

Mailbox Quota Is a Change for Many Windows Users

Many Windows clients at Cisco used an Internet Message Access Protocol (IMAP)/POP connection to their e-mail server prior to the Global E-mail and Calendar migration. A POP connection moves all server mail to the user's computer e-mail application and results in a net zero mailbox size. After the Exchange implementation, Microsoft Windows users are encouraged to use Messaging Application Programming Interface (MAPI).

Exchange Data Migration Policy

The items described in this section were not migrated to the users' Exchange mailboxes.



Contacts and Address Book

Due to the complexity of personalized Contacts and Address Book settings across the various e-mail applications at Cisco, it was not possible to programmatically migrate the data accurately to Exchange. Microsoft Windows users were provided with the Mail Import Tool for Outlook 2003 to copy contacts and address books from Qualcomm Eudora, Netscape mail, or Microsoft Outlook Express to Microsoft Outlook 2003.

Server-side Mail

Server-side mail was not copied or moved to Exchange mailboxes during migrations. Users could access their current e-mail server mailbox after completing their migration to Exchange. To retain the server-side mail, users needed to move/copy the server-side mail to a client-side e-mail application.

Server-side Rules

Due to the complexity of rules used on the current e-mail servers, and given that server-side mailbox structures were not replicated in new Exchange mailboxes, it was not possible to migrate users' current server-side rules. All client and server-side rules created are subject to the Exchange Server Rules policy.

Filtering E-mail with Exchange 2003 Server Rules

Following are important facts for using rules in Exchange 2003:

- Rules have a 32 KB limit (including both server-side and client-side rules). This equates to approximately 40 to 50 rules depending on their complexity.
- Server-based rules run even if the e-mail application is not connected.
- Server-based rules are faster than client-side rules. Client-side rules can cause performance issues because they rely upon the network to transfer and process data. (The slower the network connection, the longer these rules take to execute.)
- Rules are server-based unless the user created a rule with one of the following actions:
 - Move or copy a message to a local folder on user's computer
 - Play a sound
 - Open another program
 - Have the server reply with a specific template



Calendar Policies

No new Meeting Maker accounts were created after the calendar cutover date. All Meeting Maker servers were retired during the cutover, but users were still able to access historic Meeting Maker calendar data.

No Meeting Maker Calendar Data Migration

Meeting Maker data was not migrated to Exchange calendaring. Meeting Maker data was stored in a proprietary database, thus making it impossible to accurately replicate the Meeting Maker data in the Exchange database structure. After the cutover, users had to access historic Meeting Maker calendar data in order to migrate it. The Global E-mail and Calendar Program team investigated multiple solutions for data conversion, including server-side and client-side solutions, but found no solution that met the enterprise requirements.

Converting Data to Outlook (Client-side)

Two different client-side utilities were circulating within Cisco at the time of the migration, but these are not supported by IT. For those using these utilities, their meeting attendees are not notified when the user imported the data from Meeting Maker to Outlook. The user has to invite the attendees in Outlook Calendar. In addition, neither of the utilities is easy to manage when trying to import data from more than one calendar into Outlook. This issue is especially challenging for administrative assistants who support multiple managers, directors, or executives.

Non-Conference Room Resources

Non-conference room resources—TVs, VCRs, and projectors—are not available for booking in Exchange Calendaring. These resources require an owner of the global data feed into Exchange, and the global owners have not yet been identified. A follow-up project will be launched after the cutover to determine a global owner or a process to make non-conference room resources available for booking in Exchange.

Multiple Control Units Available in Exchange

The only exception to the NonConference Room Resources policy is videoconferencing equipment or Multipoint Control Units (MCU). MCUs—more commonly known as Video Bridges—are the only group of resources managed by a global owner; therefore, Exchange calendaring permits this.

Online/Offline Meeting Rooms

Workplace Resources (WPR) owns and manages the policies that affect online/offline conference room status. Cisco IT only implements the policies as set forth by Workplace Resources.

Requesting Changes to Conference Room Status

Workplace Resources processes all requests for changes to conference room status.

Online Meeting Rooms

Anyone at Cisco with an Exchange account can book conference rooms with an Online status. If the room is available at the selected booking time, the booking processes automatically with a confirmation of the booking displaying immediately after sending the meeting request.



Offline Meeting Rooms

Meeting rooms marked as (Offline) in Exchange are owned by a proxy. These rooms cannot be automatically booked, and the request is accepted or rejected by the room's proxy owner.

Room Booking

Due to the No Data Migration policy, after the cutover to Exchange calendaring, all users must book the same conference rooms for meetings in Exchange that they previously booked for meetings in Meeting Maker.

- Be respectful of fellow Cisco employees by only booking conference rooms for days and times required for a meeting.
- Only book meeting rooms for a maximum of one year from the initial meeting date, regardless of whether it is for an individual meeting or a recurring meeting.
- Cancel room reservations that are no longer needed.

Summit / Large Conference Room Bookings

To request the replication of a conference room booking in Exchange for a large meeting or event already scheduled in Meeting Maker, users needed to open a support case. This service was available only for the two weeks prior to the migration.

The Support Track team replicated conference room bookings in Exchange Calendar only if all the following criteria were met:

- The user required the conference room in the period from the date of the cutover up to two weeks after the cutover.
- The user required the conference room for a large meeting or event (10 or more people), or for a meeting that includes customers.
- The user had the conference room reserved in Meeting Maker and only required a replication of this booking in Microsoft Exchange Calendar. If the user could not show a booking in Meeting Maker for the same time period as the booking he or she had requested in Exchange Calendar, the booking was not replicated.

To modify an existing support-replicated booking—in case of cancellation or changes—the user must open another support case.



New Feature Functions and Benefits for Users

Table A-1 describes the major feature enhancements and benefits provided by the Global E-mail and Calendar Program. This information was included in the Exchange migration Website.

Table A-1: Feature Functions and Benefits

Enhancement	Description
Enterprisewide global calendaring	<ul style="list-style-type: none">• A single global calendar across the enterprise eliminates the redundancy currently required to support multiple e-mail and calendar applications and makes possible group scheduling.• The global calendar is an integrated calendar, e-mail, contact, and task application that allows users to “mix and match” functions. For example, a personal address book list can be used for both e-mail and for proposing meetings.• The calendar solution acts as a base infrastructure for a new set of productivity-enhancing applications, such as Cisco Unified Messaging, PDA synchronization, wireless access, access from anywhere via VPN, and Web access to e-mail and calendar.• The global calendar is a Cisco-on-Cisco solution that allows users to manage and schedule MeetingPlace, voice mail, and videoconferencing, and also provides support for Mobility Mobile Mail.• Applications can be integrated. For example, training invitations become a calendar invite; resources can be embedded in the calendar; and the schedule for training classes can be set, canceled, and rescheduled in real time.• The cost of hardware and software is reduced for Cisco.• Cisco can support its clients with Cisco Unified Messaging products and services.
Integration with antivirus and antispam partners	<p>Cisco continues to work with strategic antivirus partners, such as Microsoft, to improve security technologies. The partnerships help to attack viruses and spam in several layers:</p> <ul style="list-style-type: none">• All inbound mail servers—third-party software is installed to create the initial line of defense from Internet borne viruses/worms.• Core server layer—third-party software is installed to provide policy flexibility, such as preventing mail carrying viruses/worms from entering Cisco until a fix becomes available.• All Exchange servers—third-party software is installed with options for blocking certain attachments. <p>At the desktop/laptop level, Cisco Security Agent is installed to detect and prompt users of any malicious behavior on the computer. Antivirus software is installed to detect and clean/delete viruses. For Windows users, Outlook 2003 provides junk mail filtering and attachment blocking. For more information, see OWA & Outlook 2003 Antivirus and Antispam.</p>



Table A-1: Feature Functions and Benefits (Continued)

Enhancement	Description
Flexible support for Windows users	<p>Using Outlook 2003 connected to Exchange via MAPI provides Windows users with a fully integrated e-mail and calendaring solution. Users also benefit from Cached Mode, which synchronizes Outlook 2003 with the Exchange mailbox, yet retains messages on the server. This mode allows users to view mail and calendaring offline, which is not possible when users connect Outlook 2003 to Exchange via IMAP or POP. The connection methods available are as follows:</p> <ul style="list-style-type: none"> • MAPI—Outlook 2003 • IMAP/POP—Outlook 2003, Netscape Messenger, Mozilla • Eudora—POP (not recommended; has been retired since the migration)
OWA & Outlook 2003 antivirus and antispyam	<p>Microsoft improved the antivirus and antispyam capabilities of Outlook 2003 and Outlook Web Access (OWA), especially when used on an Exchange 2003 mail server. The security enhancements are as follows:</p> <ul style="list-style-type: none"> • Web beacon blocking—blocks the download of pictures/attachments, or blocks links with references to external content • Junk e-mail filter—manages “blocked” and “safe” senders lists • Update spam detection—notifies user when e-mail is moved to the Junk E-mail folder • E-mail attachment blocking—associated with unsafe files • Address book blocking—prevents programs from sending e-mail from user’s address book • External content blocking—blocks references to external content
Improved e-mail performance	<p>This upgrade provides performance enhancements for clients such as on-the-fly compression of e-mail between Outlook and Exchange. This feature is of particular benefit to dial-up and remote users.</p> <p>Note: The new performance enhancements are only valid when using Outlook 2003 in conjunction with an Exchange 2003 server.</p>
Improved Outlook Web Access (OWA)	<p>Microsoft Office Outlook Web Access (OWA) provided by Exchange Server 2003 was greatly enhanced with major new features, including the following:</p> <ul style="list-style-type: none"> • Create Rules (server-side)—allows the user to set up simple rules on the navigation pane. These rules also function in the Outlook 2003 client. • Quick Flags—allows the user to visually mark those e-mail items that need further action. These flags also display in Outlook 2003. • Spell Checker—is available in several languages and can be started manually or set up to always check spelling before sending e-mail. • Reply Header and Body Not Indented—to improve readability of e-mails that have been replied to or forwarded many times. • Meeting Requests Enhancements—forward meeting requests, send reply to meeting organizer, edit meeting cancellation notice, set reminders on meeting requests, view schedules from meeting request. • Create Personal Signature—include signature in every message. • For antivirus and antispyam features, see OWA & Outlook 2003 Antivirus and Antispyam.

**Table A-1: Feature Functions and Benefits (Continued)**

Enhancement	Description
Flexible support for UNIX/ Linux users	Exchange 2003 offers flexible e-mail options to UNIX and Linux users and allows users to choose a preferred e-mail application and connection method: <ul style="list-style-type: none">• IMAP/POP—Netscape Messenger, Mozilla, Pine, fetchmail/procmail• Internet browser—Outlook Web Access (OWA)• Exchange Connector—Novell Evolution on Cisco Linux
Increased mailbox capacity	The Exchange 2003 upgrade increases mailbox capacity from 150 MB to 300 MB. Mailbox quotas were established in a new policy: <ul style="list-style-type: none">• 350 MB—a warning is issued.• 400 MB—user cannot send any more e-mail but can continue to receive.• 450 MB—user cannot send or receive any more e-mail. Senders receive a delivery failure notice.
Active Directory integration	User e-mail accounts are held in Active Directory, which is tied to the Exchange system.

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