Chapter 1: Introduction—Planning a Migration to Cisco Unity with the Cisco Unity Bridge

The Cisco Unity Bridge acts as a networking gateway between Cisco Unity and an Avaya Octel system on an Octel analog network. With the Bridge, Cisco Unity subscribers can send messages to and receive messages from Octel subscribers.

This *Cisco Unity Bridge Design Guide* provides you with the information you need to plan a deployment of the Bridge. The focus of this Guide is to discuss the implications of the design decision you will make. The detailed information you will need to implement the plan can be found in the following Bridge documentation:

- The *Cisco Unity Bridge System Requirements, and Supported Hardware and Software* document, available at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_system_requirements_list.html
- The *Cisco Unity Bridge Installation Guide*, available at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_installation_guides_list.html
- The *Cisco Unity Bridge Networking Guide*, available at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_installation_and_configuration_guides_list.html

Creating a Migration Project Plan—Preliminary Goals and Expectations

Consider the following when planning the migration:

- Find out whether there are factors—external to the tasks that are directly related to the migration—that may affect the migration schedule. For example, personnel or budget constraints may need to be considered.
- Take into account other significant projects that will occur at the same time as the migration, such as phone system changes or e-mail network changes.
- Document the Exchange and Active Directory network, if you intend to install Cisco Unity in a Unified Messaging configuration. This information will help you determine whether network updates are needed.

- Find out whether there are project dependencies that may affect the schedule, such as the acquisition of hardware and software.
- Determine whether there are geographic or administrative limitations to consider that affect which Octel servers can be migrated and when they can be migrated.
- Document the Octel network and servers. This information will help you determine the order in which the Octel servers should be migrated.
- Define the migration phases: determine the order in which the Octel servers will be migrated and whether more than one Octel server will be migrated at a time. In most cases, it makes sense to migrate an entire Octel server to Cisco Unity; however, if necessary, a subset of Octel subscribers on one Octel server can be migrated. In addition, you should plan for a testing phase to address Octel analog networking issues, and a pilot phase to allow the migration team to come up to speed.
- Create a project schedule that details the start and end dates of each phase of the project.
- Determine if there is a target completion date or pace for the migration. Or will the dates be determined by the project plan?
- Investigate and define the tolerance level and adaptive capability of the user population. How much communication and training will be necessary to ensure usability and acceptance of the new system during the course of the migration?

Determining Avaya Dependence and Relationship

Different companies have varying levels of dependency on Avaya. For example, some have a contract with Avaya or a third party for ongoing administration of the Octel network. Some companies play a more active role in the administration of their own Octel network. Communication and coordination with those responsible for administration of the Octel network is crucial during the course of the migration. For all phases of the migration, be sure to consider what work will be required of Avaya or another third party administrator, and the cost of doing the work.

Evaluating Feature Parity and Usability

What are the most critical features of the current voice messaging system? Migration plans should include mapping the critical and popular features of the current voice messaging system to the features in Cisco Unity. You may need to send out a survey to the subscribers to solicit their feedback.

We recommend that you compare the existing voice mail network to what Cisco Unity will provide when it is fully deployed throughout the network.

- Which features in your current system map directly to equivalent features in Cisco Unity?
- Which features do not map directly, but Cisco Unity provides acceptable alternatives?
- Which features do not map to similar Cisco Unity features?

- Which features does Cisco Unity provide that the existing voice mail network does not provide?

When you have created a list, prioritize the items, making note of the following considerations:

- Is it critical for the feature to remain intact during each phase of the migration?
- What would the impact be if the feature were temporarily unavailable or limited during a particular migration phase?

Creating a Migration Planning Team

Key people from different teams need to be involved during the planning and implementation phases of the migration. When forming the migration team, include a representative from:

- The group responsible for the phone network.
- The group responsible for the Octel voice network. There should be someone on the team that has the contacts and authority to request and schedule administrative changes to the Octel network, request network statistics, reports and configuration, and so on.
- The group responsible for the corporate e-mail network.
- The group responsible for the corporate Active Directory network.
- The group responsible for internal voice and e-mail support issues.
- The executive group.
- The group responsible for workplace resources.

Understanding Network Topologies and Data

Octel Network

Gathering General Network Information

Familiarity with the topology and administration of the existing Octel voice mail network is critical to successful migration planning. The following data should be gathered for consideration when making migration decisions:

- Network addressing numbering plan
- Total number of servers
- Total number of subscribers
- Geographical distribution

- Phone system(s)
- Phone network routing
- Analog network stability/risk
- Traffic reports
- Traffic patterns
- Critical vs. non-critical locations
- Current network traffic statistics
- Distribution lists
- Feature packages
- Special Applications

Compiling Specific Information for Each Octel Server in the Network

A worksheet should be compiled for reference during migration planning and deployment. This information will be referenced frequently and should be kept up to date on a regular basis throughout the project. Record the following for each Octel server in the network:

- Location
- Number of subscribers
- Model
- Software release
- Access phone number
- Type(s) of network access in use
- Type(s) of network transmission in use
- Is Octel analog networking licensed?
- Is Octel analog networking currently in use?
- Number of analog ports
- Node number
- Node serial number
- Digits in mailbox
- Mailbox range

- Network address range
- Prefix(es) to dial (from other Octel servers)
- Allow name transmission?
- Transmission schedule (normal, urgent, administrative)
- Node response allowed?
- System Manager contact information
- Avaya contact information

Testing the Health of the Existing Octel Analog Network Prior to Introduction of the Cisco Unity Bridge

Cisco Unity Bridge communication with Octel servers in the network relies heavily upon dependable phone system communication. In many cases, the existing Octel network relies primarily on Octel digital networking for delivery of network messages between nodes. Octel analog networking may be used only as backup connectivity between the Octel servers in the network, or as primary connectivity to a limited number of sites. As a result, testing or verification of analog connectivity between the various Octel servers in the network may be neglected, or the configuration may not be up to date with the existing network.

To avoid the risk of analog connectivity problems negatively affecting the success of the Cisco Unity migration, steps should be taken to test the analog connectivity between the Octel servers in the network and the location(s) where the Cisco Unity Bridge will be located. Testing will allow existing issues to be identified and addressed in the isolation of the Octel analog network. Those responsible for problem resolution can fix the problems in the environment with which they are most familiar, without having to consider whether the Cisco Unity Bridge is contributing to the problem behavior, and without the pressure and time constraints of making changes during deployment of Cisco Unity and the Bridge.

The steps below detail the ideal way to test the Octel network health. If an Octel server is not available for testing, simulate the steps as closely as possible. The cost and resources necessary to conduct the testing prior to introducing the Cisco Unity Bridge to the Octel analog network will be more than justified. Once the Cisco Unity Bridge is introduced, it becomes a challenge to accurately identify the source of communication problems and determine ownership of the resolution.

1. Identify or acquire an Octel server (with Octel analog networking capability) for use as a test system.
2. As closely as possible, physically locate the test Octel server where the Cisco Unity Bridge will be located. Use the same environment in which the Bridge will exist, including applicable IP/analog gateways, phones system, hunt groups, and so on.
3. Identify existing test mailboxes on each production Octel server in the network. If none are available, request their addition.
4. Configure an Octel analog networking node profile on each Octel server in the network with the serial number of the test Octel server.

5. Create a test mailbox on the test Octel server.
6. Configure an Octel analog networking profile on the test Octel server for each Octel server in the network.
7. Send test messages in all routes and in both directions, from the test Octel server to all production nodes and from each production node to the test Octel server.
8. Test other critical analog networking functionality, such as administrative name retrieval.
9. For each analog route between the test Octel server and the production Octel servers, document any failures that occur, or any other questionable behavior.
10. Engage Avaya (or whoever is responsible) to investigate any connectivity problems within the existing Octel voice network. Provide details for all failures, and request investigation and resolution.
11. As issues are resolved, retest to verify the resolution.
12. When message delivery is successful between the test Octel and all production servers:
    - Document the phone number, extension, and dialing sequence configured on each node profile on the test Octel. These numbers should be used when configuring the Octel Node profiles on the Cisco Unity Bridge server(s).
    - Document the phone number, extension, and dialing sequence configured on each production Octel for the test Octel server. These numbers should be used when configuring the production Octel servers to communicate with the Cisco Unity Bridge server(s).
    - Document all issues encountered and the steps that were taken to resolve them. This will provide a reference resource if the problems return, or if similar behavior is observed.

Cisco Unity Voice Network—Present and Future

Make note of the following:

- What, if any, Cisco Unity systems have already been deployed within the organization?
- What will the Cisco Unity network look like after successful deployment of the Cisco Unity Bridge? Consider the following:
  - Network addressing numbering plan
  - Total number of servers
  - Total number of subscribers
  - Geographical distribution
  - Phone system(s)
  - Phone network routing

- Which Cisco Unity clients will be used?
- Will the configuration(s) be Unified Messaging, Voice Messaging, or both?

Understanding Interoperability During Migration

Automatic Bridge Subscriber Creation, Modification, and Deletion

As part of the Cisco Unity Bridge networking feature, the CsBridgeConnector component on a Cisco Unity bridgehead server automatically processes text names that are received from Octel servers via the Cisco Unity Bridge. Because of differences in the implementation of addressing by name via the phone on Cisco Unity vs. Octel, name searching on Cisco Unity for the resulting auto-created first and last names does not always occur as expected.

Below is a brief description of the behavior that occurs when you address an Octel NameNet entry by name via the Octel phone conversation, and when you address a Bridge Subscriber by name via the Cisco Unity phone conversation.

Addressing via Octel

Octel systems use a single 3- to 20-character (ASCII 7 bit) field for mailbox name. This single field is used for matching when an Octel subscriber is addressing by name via the phone.

This same field is the string that is passed when another Octel node requests a name for a mailbox via Octel analog networking. This same information is subsequently stored in the NameNet directory of the requesting node to allow addressing by name on the remote system. Therefore, NameNet directory name spellings are consistent throughout all Octel nodes on the Network.

Typically, these mailbox names are stored last name first. Whether the names are stored first name first or last name first, the format is usually kept consistent throughout all nodes on the network. No matter which format a customer has chosen to use, subscribers addressing by name have no configuration options on how they wish to spell the names. Spelled names are matched against this single mailbox name field, as entered.

Addressing via Cisco Unity

Cisco Unity has three different fields for storing the mailbox name of a subscriber: First Name, Last Name (both with a maximum of 32 Unicode characters), and Display Name (with a maximum of 128 Unicode characters).

The First Name and Last Name fields are used for matching when a Cisco Unity subscriber is addressing by name via the phone. This allows subscribers the flexibility to personalize their options for addressing by name; each subscriber can choose either first name first or last name first.

Display Name is a display only field that displays when a subscriber is searching on names in a PC-based client application.

There are a number of decisions to be made related to the automatic creation, modification, and deletion of Bridge subscribers, and how to automatically process the information received.

For detailed discussions of these issues, refer to the "About Bridge Networking" chapter of the *Cisco Unity Bridge Networking Guide*. This guide is available at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_installation_and_configuration_guides_list.html.

High-Level Example Migration Plan in Five Phases

Planning Phase

- Establish migration planning team
- Set goals and expectations
- Determine Avaya dependence and relationship
- Conduct user surveys
- Evaluate feature parity and usability
- Document Octel network information
  - General Octel network information
  - Octel server networking details
- Document target Cisco Unity end state
- Determine dependencies
- Identify support teams
  - Pre-production phases
  - Day one support
  - On-going support
- Identify end-user training requirements
- Establish proposed migration schedule
  - Lab testing

  - Alpha pilot
  - Site migration order and priorities
- Identify project risks

Lab Testing Phase

- Create and communicate a schedule
- Document entrance criteria and dependencies
  - Identify lab test team
  - Acquire all necessary hardware and software
  - Obtain necessary licenses
  - Arrange replication of the corporate database
  - Communicate plans to Avaya or to the Octel network administrator
  - Test the mailboxes configured on Octel production servers
  - Create test requirements and procedures
  - Obtain applicable approvals
- Deploy Exchange and Cisco Unity for pilot location
- Deploy Cisco Unity bridgehead server
- Deploy Cisco Unity Bridge(s)
- Prepare the network
  - Resolve names and IP addresses
  - Grant permissions to the Cisco Unity Bridge(s) to relay e-mail through the Exchange SMTP virtual server
  - Configure SMTP connectors (if applicable) for routing between Exchange and the Cisco Unity Bridge(s)
  - Extend the Active Directory schema
  - Set up the Voice Connector for Bridge Networking
- Configure the Cisco Unity server designated as the bridgehead
  - Designate the bridgehead server
  - Set Bridge options
  - Configure the subscriber template that will be used for auto-created Bridge subscribers

  - Create and configure Bridge delivery locations
- Configure settings on all Cisco Unity servers in the network
  - Set the primary location addressing options
- Create Cisco Unity subscriber accounts for lab test users
- Add the serial number and mailbox ID to Cisco Unity subscriber accounts
- Configure the phone system for the Cisco Unity Bridge(s)
- Configure the Bridge(s)
  - Install the License File Wizard and the license file
  - Configure the system settings and Digital Networking settings
  - Configure the Unity Node profile(s)
  - Configure the Octel Node profile(s)
  - Configure the line settings
- Configure the Octel servers
  - Create an Octel analog networking profile for Cisco Unity and the Bridge
- Create Bridge subscribers
- Conduct tests
  - Message delivery tests
  - MAC and administration tests
- Verify that exit criteria have been met

Pilot Testing Phase

- Create and communicate a schedule
- Document entrance criteria and dependencies
  - Verify completion of lab test phase
  - Acquire all necessary hardware and software
  - Obtain necessary licenses
  - Communicate plans to Avaya or to the Octel network administrator
  - Test mailboxes configured on Octel production servers
  - Obtain applicable approvals

  - Draft a schedule for the migration
  - Determine the Cisco Unity Bridge server location
  - Determine Cisco Unity Bridge server Octel Node distribution, if multiple Bridge servers will be deployed
  - Determine Voice Connector location and dedicated server requirements
  - Plan to deploy Cisco Unity and Exchange in a data center where the Cisco Unity bridgehead will be located
  - Plan to deploy Cisco Unity and Exchange in the data center of the pilot site
  - Identify pilot users
  - Identify and communicate special addressing considerations for pilot users
- Deploy Cisco Unity bridgehead server
- Deploy Cisco Unity Bridge(s)
- Prepare the network
  - Resolve names and IP addresses
  - Grant permissions to the Cisco Unity Bridge(s) to relay e-mail through the Exchange SMTP virtual server
  - Configure SMTP connectors (if applicable) for routing between Exchange and the Cisco Unity Bridge(s)
  - Extend the Active Directory schema
  - Set up the Voice Connector for Bridge Networking
- Configure the Cisco Unity server designated as the bridgehead
  - Designate the bridgehead server
  - Set Bridge options
  - Configure the subscriber template that will be used for auto-created Bridge subscribers
  - Create and configure Bridge delivery locations
- Configure settings on all Cisco Unity servers in the network
  - Set the primary location addressing options
- Create Cisco Unity subscriber accounts for pilot users
- Add the serial number and mailbox ID to Cisco Unity subscriber accounts
- Configure the phone system for the Cisco Unity Bridge(s)

- Configure the Bridge(s)
  - Install the License File Wizard and the license file
  - Configure the system settings and Digital Networking settings
  - Configure the Unity Node profile(s)
  - Configure the Octel Node profile(s)
  - Configure the line settings
- Configure the Octel servers
  - Create an Octel analog networking profile for Cisco Unity and the Bridge
  - Configure necessary prefixes for pilot Cisco Unity subscribers
- Create Bridge subscribers
- Conduct tests
  - Message delivery tests
  - MAC and administration tests
- Verify that exit criteria have been met

Migrate Location 1 Phase

- Create and communicate a schedule
- Document entrance criteria and dependencies
  - Verify completion of pilot test phase
  - Communicate plans to Avaya or to the Octel network administrator
  - Plan to deploy Cisco Unity and Exchange in the data center of the site to be migrated
- Delete from the bridgehead server the Bridge subscriber accounts for subscribers who are being migrated
- Create Cisco Unity subscriber accounts on the respective home server(s) for subscribers who are being migrated, including legacy mailbox and serial numbers
- Delete from the applicable Bridge server the Octel Node that is being migrated
- Add to all Bridge servers the Unity Node that is being migrated
- For the serial number being migrated to Cisco Unity, modify the Octel analog networking profile on each Octel system to use analog transmission to the phone number of the applicable Bridge server
- Remove from the network the Octel that is being migrated

- Delete from the bridgehead server the Bridge delivery location for the Octel node that is being migrated
- Conduct tests
  - Message delivery tests
  - MAC and administration tests
- Verify that exit criteria have been met

Migrate Location 2 Phase

- See all tasks in the “Migrate Location 1 Phase” section.

Migrating from Octel to Cisco Unity—An Illustrative Design Story

The following design story illustrates a typical migration from Octel to Cisco Unity via the Cisco Unity Bridge (note that the design story makes use of a fictional company, "ComPany LLC"). The narrative takes you through the various migration stages, explaining the reasons behind the decisions made, and describing how the choices that were made affected the implementation.

Introduction

ComPany LLC had employees in multiple offices across the United States, as well as in several offices in Europe and Asia. Prior to beginning the migration to Cisco Unity, they used an Octel Network for voice mail worldwide. Each branch office had an Octel system, and the corporate headquarters in New York had four Octel systems. Aria systems were used in the United States, and Serenade systems were used in Europe and Asia. Within each region, Octel digital networking was used, and connectivity between the Aria and Serenade systems was provided through Octel analog networking.

ComPany decided to implement Cisco Unity as their new voice messaging system. Their existing Octel environment was primarily digital, with analog transmission used only for failover. At the end of the implementation, when all systems were converted to Cisco Unity, voice mail networking was entirely digital. However, it is important to note that during the transition period between voice messaging systems, the use of analog networking was required. This meant that analog connectivity testing was done prior to implementation, and analog troubleshooting staff was available throughout the migration.

Prior to the migration, all Octel systems were administered by Avaya, and the phone system, Exchange, and Active Directory were administered in-house. The Cisco Unity network would also be administered and supported by the in-house teams. This meant that Avaya support needed to be coordinated during the migration, and the in-house teams needed to be trained to support voice messaging.

Before working on a migration strategy, ComPany realized it was best to understand both the starting point and desired end point. Therefore, ComPany began by documenting their existing Octel network. They also created and distributed a survey to understand the voice mail features used actively by their employees, as well as identifying unused features in the current system, and a wish list of desired functionality. Because Active Directory and Exchange were already deployed company-wide, they would be introducing Cisco Unity into the existing environment to provide Unified Messaging. This meant it was critical that they also document their existing Active Directory and Exchange implementation. When all of the data was compiled and evaluated, they began planning their Cisco Unity network.

Migration Phase One: Planning

Through the employee survey, and documentation of their existing environment and planned environment, ComPany identified the functionality that was critical to their daily business. In a migration environment where two unique systems interoperate, there are limitations on voice messaging that do not exist in a

homogeneous environment. Taking this into account, ComPany determined there were some things that had to work properly regardless of the costs (real and perceived), and others that could be compromised on during the migration. At their first migration planning meeting, they compiled and prioritized a list of requirements within three categories: Critical, Beneficial, and Optional.

Critical Functionality

- Limit the amount of money spent for Avaya administration
- Standardize the dial plan
- Prove the concept
- Configure the Bridges to allow for the most efficient delivery
- Use the current infrastructure
- Determine strategy for handling distribution list impacts
- Retain current addressing scheme

Beneficial Functionality

- Provide voice name confirmation when addressing all users
- Limit hardware costs
- Minimize impacts to intra-corporate office communications
- Minimize PSTN toll charges

Optional Functionality

- Allow outside callers to call a single number and be able to reach the voice mail of any subscriber
- Retain Octel messages after migration
- Allow GUI client access
- Keep the conversation consistent with the conversation of the current system
- Allow extended absence notification
- Provide a broadcast messages feature

During the migration there would be additional technical support overhead required, and varied functionality available to users depending on the system they use. Therefore, ComPany also decided that the migration should be completed as quickly as feasible. They imposed a six-month time restriction on the portion of the migration that most affects users (that is, six months from the pilot implementation date to the final planned Octel decommissioning date).

With the priorities and time frame decided, the technical team began planning a phased deployment strategy that would provide for all the critical elements, and allow for implementation of beneficial and optional

elements based on return on investment criteria. They determined that the ROI considerations were: monetary cost, administrative resources, user impact, schedule impact, and long term value. The phased conversion to Cisco Unity was chosen to allow training and support to occur at a pace that the technical team could handle.

ComPany also decided to take this opportunity to standardize mailbox numbers for all employees to 7 digits. This would allow employees to send a voice message to another employee by using the same number they use to call that employee. Currently employee mailboxes were distributed across Octel systems, based on geographic location; that same means of distribution would be carried across to Cisco Unity.

During this initial planning phase, ComPany also decided on a plan for two small sites in Asia. These sites used Octel voice mail, but Exchange had not yet been deployed. ComPany did not want to deploy Cisco Unity or Exchange at these two sites until other issues could be resolved, and the time frame for this was uncertain. Voice messaging with these Asian sites was minimal, and there was no problem with keeping in place the Cisco Unity Bridge solution implemented for the phased migration, to allow continued voice messaging connectivity.

The technical implementation team met several times to produce the following outline of the implementation details and schedule.

Cisco Unity Servers

- Cisco Unity servers co-located in each data center with the partner Exchange server
- Primary location configuration and addressing options defined
- Cisco Unity subscriber account attributes defined
- Distribution List administration policy defined

Cisco Unity Bridgehead Server

- Cisco Unity bridgehead server located in the corporate data center
- Bridge Options defined
- Unknown Caller settings defined
- Bridge delivery location configuration defined
- Auto-created Bridge subscriber settings defined
- Pre-populated directory with some Bridge subscriber accounts, including recorded voice names

Exchange Servers

- Additional Exchange server added for the Voice Connector
- Voice Connector Exchange server located in the corporate data center

- Plan defined for adding a second Voice Connector, with criteria defining when it would be necessary
- Necessary mail routing changes documented (allow relaying, SMTP connector, MX records)

Octel Systems

- Plan defined for any necessary Avaya administrative support
- New serial number configured on the network for testing and pilot
- Octel server settings for Bridge nodes defined
- Distribution List administration policy defined

Cisco Unity Bridge Servers

- Delivery Schedules defined to allow for the most efficient delivery
- Two Bridge servers, one located in the corporate data center (with U.S. and Asia Octel nodes defined) and one in the London data center (with Europe Octel nodes defined)
- Bridge server settings defined

Administrative

- Pilot group chosen in Stamford, Connecticut
- Organizational changes that are required in Active Directory defined (schema extensions, new OU for Bridge subscribers, locations OU)
- Naming conventions defined
- OS and Exchange patch installation scheduled
- Third-party software requirements defined and testing scheduled
- Backup strategy defined and tested

The order of migration to Cisco Unity was determined based on the locations between which the majority of the voice mail traffic occurred. The goal was to minimize messaging between users on different voice mail systems. The greatest traffic was among the Octel systems at the corporate offices, next was traffic among the European sites, and finally the traffic between the corporate offices and Stamford, Connecticut. A relatively moderate amount of voice messaging traffic occurred between the other sites. The following order was chosen for migration:

1. Stamford pilot users.
2. Remaining Stamford subscribers.
3. Subscribers on the four corporate Octel systems.

4. Other Octel systems in the U.S.
5. Octel systems in Europe.

Bridge networking infrastructure was implemented to handle the estimated maximum messaging load from the time at which all Stamford subscribers were using Cisco Unity, to the time at which the corporate site was also converted to Cisco Unity.

Proof of concept was an important requirement and each site was dependant on Octel networking for daily business, so it was decided that a new node would be introduced to the Octel network, first for testing and then as a pilot environment for a group of production users. The cost of having this new node programmed on every Octel was balanced by the benefits of a small-scale test of the implementation plans in the production environment.

In preparation for the next phase, ComPany needed to make the necessary modifications to the existing systems, and then to begin acquiring and configuring the additional hardware, software, and licensing that would be required for Bridge networking. Because much of the infrastructure would need to be in place to begin the testing phase, the scheduled start date was based on completion of these tasks. The testing phase was scheduled to last one month, with the pilot to follow immediately after. Given the pilot start date and the six-month migration plan, key milestones and dependencies were identified for the following: management approval, Avaya support, testing, user notification and training, and implementation of each system.

Migration Phase Two: Testing

The effort to determine and test the planned configuration and user settings for Cisco Unity was done separately as part of the Cisco Unity implementation planning. This migration test phase was specifically designed to test the planned implementation for migration.

Prior to beginning the Cisco Unity Bridge testing, an Octel system with a new serial number, node, prefix, and phone number was added to the network, and test mailboxes were created on all Octel systems. Bi-directional message flow between Stamford and all other sites was tested by using Octel analog networking. Adjustments to message delivery settings (for example, retry interval and dial string) were made as necessary for each site. Because many voice mail networking routes used digital networking, testing the analog networking with an Octel allowed any existing analog connectivity issues to be resolved before introducing the Bridge variable.

To begin Bridge testing, the network needed to be prepared by extending the Active Directory schema and installing the Cisco Unity bridgehead server, the Cisco Unity pilot server, the Cisco Unity Bridge servers, and the Voice Connector server. On each server, the options and settings were configured, and the following objects were created, according to the conventions defined in the planning phase:

- On the pilot Cisco Unity server, test Unity subscribers with legacy Bridge properties
- On both Bridge servers, a Unity Node that represented the serial number previously used on the test Octel

- Bridge delivery locations for each Octel system (including prefixes)
- On the U.S. Bridge, Octel Nodes for each U.S. and Asia Octel system
- On the London Bridge, Octel Nodes for each Europe Octel system
- Test Bridge subscribers
- Test public distribution lists with both Cisco Unity and Bridge subscribers

Bridge placement in the U.S. and Europe was planned to minimize PSTN toll charges and the impact of the analog connectivity issues. Message delivery with this configuration during the testing phase proved successful, and thus allowed the Octel node delivery schedules on the Bridge to be configured for timely message delivery.

A test plan was developed to test Cisco Unity Bridge networking for the following:

- Bi-directional message flow
- Blind addressing
- Subscriber addressing
- Administration
- Directory synchronization

This test plan was first used in the testing phase, but was also reused as a sanity check at each phase of the migration.

Based on the findings of the test phase, ComPany developed internal tracing and troubleshooting reference materials for tier 1 and tier 2 technical support.

The goals of the testing phase were to evaluate network impacts, test Cisco Unity and Bridge administration, evaluate directory synchronization, develop a test plan, understand how to troubleshoot Bridge networking, and test message delivery. These goals were accomplished on schedule, so the creation of user documentation and training materials began in preparation for the pilot phase.

There was one final issue that needed to be considered before the pilot phase could begin, and that was a plan for handling administrative tasks. A support plan was in place for the existing Octel systems, and a new plan had been outlined for Cisco Unity at the point at which the migration was completed. However, in the interim while both systems were in place, additional administration and coordination was required. Therefore, ComPany developed a process to handle subscriber moves, adds, and changes during the migration, including public and system distribution list updates, and documented Bridge directory synchronization and NameNet implications.

Migration Phase Three: Pilot

The pilot site was chosen because of its size and proximity to the corporate offices, and because of the Octel configuration. The Stamford Octel homed 400 subscribers, divided among three addressable prefixes. For the pilot, only the mailboxes that corresponded to one prefix were moved to Cisco Unity. On each of the Octel systems, this one prefix was changed to correspond to the new node profile and serial number now being used for communicating with the Cisco Unity Bridge. This allowed network message addressing to remain the same for all employees.

The infrastructure for the Stamford office was housed at the corporate offices, and the Cisco Unity server would be located there as well. The Cisco Unity server designated to home the pilot users was scaled to handle all 400 subscribers who would be homed there at the completion of the migration.

The goals of the pilot phase were for ComPany to see the results of their requirements and compromises in a live environment, to obtain feedback on the Cisco Unity implementation and on its interoperability with the Octel environment, and to get a feel for message delivery timing and reliability. To obtain the best feedback on the implementation, it was important that the pilot group include a cross section of the voice mail user base. Because the 100 pilot users were chosen based on their phone prefix, they represented many organizations and job functions.

The pilot implementation was also the first opportunity to test the user training, documentation, and technical support. The pilot users were notified in advance and provided with high level information on Cisco Unity and Bridge networking. Over a weekend, new mailboxes with legacy Bridge properties were created for the pilot users, and their phones were changed to forward to Cisco Unity for voice mail. Their Octel mailboxes no longer accepted messages, but they were left in place for one week to allow subscribers to review existing messages.

On day one, the pilot subscribers were provided with written documentation and an opportunity to attend a live training session on Cisco Unity. The majority of the documentation covered Cisco Unity features and functionality, especially any features or functions that were unavailable, new, or different in Cisco Unity. In addition, material was presented on the issues subscribers might see during the migration phase, primarily regarding how to address network messages, including details on blind addressing, auto-creation of Bridge subscribers, and Bridge subscriber addressing via the phone (TUI) and online (GUI) user interfaces.

The pilot phase lasted three weeks, during which time the test plan was completed, necessary configuration modifications were made, and feedback from subscribers was requested on both the functionality and training. The decision to proceed to the next phase included evaluation of network and support impacts, and implementation of feedback received from subscribers and the technical support teams.

Migration Phase Four: First Octel Replaced with Cisco Unity

Phase four began with advance notification to the remaining Stamford Octel subscribers. Once again, over a weekend, new subscriber accounts were created in Cisco Unity for each migrating subscriber. The Stamford Octel was removed from the network; again, subscribers were allowed one week to review existing

messages, but no new messages would be received on this system. The Cisco Unity server used in the pilot phase was now home to all 400 subscribers from the Stamford Octel system.

To complete this migration phase, the migration team did the following:

- Deleted any existing Bridge subscriber accounts for the migrating Stamford subscribers
- Created Cisco Unity subscriber accounts with legacy properties for migrating subscribers
- Deleted the Octel Node for the Stamford Octel from the U.S. Bridge server
- Modified Octel profiles for the pilot serial number to include two additional prefixes
- Deleted the Bridge delivery location for the Stamford Octel from the Cisco Unity bridgehead
- Removed the Stamford Octel from the network

On day one, the users were again provided with written documentation on Cisco Unity, and had an opportunity to attend a live training session.

> Note: Cisco Unity provides for creation of personal distributions lists, and the documentation given to users included a recommendation that subscribers use these lists only for employees in their office until the migration was completed. Though it is possible to add Bridge subscribers and Cisco Unity subscribers network-wide to the lists, ComPany determined that during the migration, the support costs outweighed the benefits of this functionality. Meanwhile, public distribution lists were made available, and individual assistance was provided when necessary to ensure that distribution list needs were met during the migration.

During this time, all technical support resources across ComPany were given training and reference materials on Cisco Unity. Though many areas would not be migrating to Cisco Unity for some time, the entire voice mail network was now a heterogeneous environment, and Octel users could also be affected by the changes, because they would be addressing messages to Cisco Unity subscribers. Because the environment was constantly changing, a web page was created with information on the current migration status of each site. This proved to be a valuable resource for both the support staff and the employees.

As in phase three, evaluations of the network impacts and user feedback were done. No new issues were discovered, and the preparation for the conversion of the corporate office to Cisco Unity was completed. The next phase began on schedule two weeks after the end of phase four.

Migration Phase Five: Second Octel Replaced with Cisco Unity

The corporate office Octel systems were migrated to Cisco Unity next. This phase would be made up of the largest number of subscriber conversions, and technical resources were planned accordingly. In this phase, Cisco Unity would represent multiple serial numbers previously assigned to Octel systems.

As before, subscribers were provided with advanced notice of the voice mail changes, and were given Cisco Unity documentation and training.

To complete this migration phase, the migration team did the following:

- Deleted any existing Bridge subscriber accounts for the migrating New York subscribers
- Created Cisco Unity subscriber accounts with legacy properties for the migrating subscribers
- Deleted from the U.S. Bridge the Octel Nodes for the New York Octel systems
- Added to both Bridges the Unity Nodes for the New York serial numbers
- Modified profiles for the New York serial numbers on the Aria systems, to route to the U.S. Bridge phone number via Octel analog networking
- Modified profiles for the New York serial numbers on the Serenade systems to route to the London Bridge phone number via Octel analog networking
- Deleted from the Cisco Unity bridgehead the Bridge delivery locations for the New York Octel systems
- Removed the New York Octel systems from the network

The test plan was run again in this new configuration, and the impacts and feedback were evaluated by the support team.

Now that the corporate migration was completed, a process was documented that incorporated information from both the Stamford and corporate office migrations, detailing the following:

- Installing and configuring each Cisco Unity
- Testing connectivity within the Cisco Unity network
- Testing Octel connectivity
- Migrating subscribers

Documenting this process was especially important, because the remaining sites were located around the world, and local support teams would need to be relied on to handle the majority of the Cisco Unity implementations at their sites.

Migration Phase Six: Additional Octel Systems Replaced with Cisco Unity

Additional Cisco Unity servers were configured to replace each Octel in the U.S. and then in Europe as the migration proceeded. The documented processes for migration were repeated as each Cisco Unity system was built and deployed at the remaining sites.

One or two Octel systems were migrated at a time, depending on size and physical location. In each case the same serial number was retained so that the remaining Octel systems would only need to be updated to use analog networking to route calls to the appropriate Bridge phone number, instead of to the now

decommissioned Octel system. With each migrated system, both Bridge servers were programmed with the new Unity nodes, and the corresponding Octel node and Bridge delivery location were deleted.

When the final U.S. site was migrated to Cisco Unity and the Octel node was deleted from the New York Bridge, the New York Bridge now handled voice messaging only to the two Asia Octel systems. All other voice mail traffic was either internal to the Cisco Unity network, or routed through the London Bridge to the Europe Octel systems.

At several points during the migration, evaluations of documentation and message delivery performance were done, and modifications were made as necessary. For example, London was the first site in Europe to be converted, and because the Europe sites used Serenade systems, some adjustments were necessary to the subscriber documentation and training materials.

Migration Phase Seven: Planned Migration Completed

When the final Octel system in Europe was replaced with Cisco Unity, the last Octel node configured on the London Bridge was deleted. Because each Unity node had also been programmed on the New York Bridge, the London Bridge was no longer necessary, and so it was removed from the network.

Because the sites in Asia were still using Octel voice mail, the New York Bridge, Cisco Unity bridgehead server, Voice Connector Exchange server, and legacy properties on each Cisco Unity subscriber account remained in place to allow voice messaging between Cisco Unity and Octel subscribers. A plan was put in place for the support team in New York to handle ongoing moves, adds, and changes involving the Asia systems, and for support of the Bridge networking systems. The IT organization continued their efforts to migrate the Asia sites to Exchange, and in correlation to Cisco Unity. When the migration to Unified Messaging was completed, the New York support team would be responsible for removing the remaining components of Bridge networking.

The majority of the implementation team refocused on other efforts, as the Cisco Unity voice mail systems were now supported by the in-house IT staff that had been trained throughout the migration process. The success of the migration was communicated to all employees, along with information on voice messaging to the remaining Octel users in Asia for the near future, and the updated voice mail support process.