

Technology Tutorials

UNITY VOICE MESSAGING TRANSCRIPT



Program and Presenter Opening

James Trimble: Hello and welcome to this “Cisco on Cisco” Tutorial on Cisco IT’s deployment of Cisco Unity Voice Messaging. I’m James Trimble, and I’m a Network Engineer in the Unified Communications team.

The theme of our show today is an overview of the Cisco Unity deployment and our migration from legacy voicemail systems.

It is my pleasure to introduce the guest of today’s show: David Neustedter, a Network Engineer from the Unified Communications team.

David, thanks for joining us today.

David Neustedter: Thank you, James. It’s a real pleasure to be here and to be able to present our migration to a Cisco Unity solution.

Challenge: Integrating Voice and Data Technologies across the Global Network

David Neustedter: With Unity voice messaging within Cisco Systems, we are presented with a series of challenges. Cisco Unity includes several technology components. The first and most critical component is the Cisco Unified Communications Manager deployed in a centralized call processing environment.

In addition to that, we have the challenge of voice mail message interoperability between the legacy voice mail system and the new Unity

system coupled with the integration of Active Directory in Exchange.

Integrating these technologies on a global scale is one of the biggest challenges facing the IT infrastructure organization. It required a complement of specialized skills and tight alignment through the planning and communication processes.

We met this challenge by creating a strong cross-functional team and leveraging competencies in the existing technology group areas.

Solution: Global Voice Messaging Numbering Plan

One of the key advantages we had using our own solutions for call processing and voice messaging was the ability to come up with a unified dial plan. This was strategically the most important environmental aspect that we had to address.

Within the voice messaging environment itself we had to determine what would be the optimal primary extension and how to integrate the Unity clusters to the centralized call processing environment to maintain continuity within that dial plan.

To address this we chose to use an eight-digit dial plan. Our existing internal extensions were globally unique on a seven-digit basis. However, addressing them from the phones required an eight dialed prefix in order to reach these seven-digit internal extensions.

Within the Unity environment we merged these into what we referred to as our eight plus seven-digit dial plan. This allows the Unity extensions to be globally addressable from the dial plan either within Unity or within the telephony numbering system.

The one exception to this was the San Jose campus. The size and scale of our San Jose campus presented a particular challenge to the users where they were used to dialing only five digits within the voice mail system. In order to alleviate confusion during this large cutover we injected into our Unity environment five-digit mailboxes for all of our San Jose users. This had the advantage of allowing all users within the global environment to now address San Jose users with a five-digit unique extension from San Jose alone. In addition, all North American users including those in San Jose could also be reached by a ten-digit extension.

Challenge: Maintaining Availability of Networked Voice Mail to All Users During Migration

One of the biggest challenges we faced during the migration was the maintaining of continuity between the legacy voice mail system and the new Unity environment. We had two options in addressing the migration. We could use or do a flash cut which would be to globally migrate all users worldwide to the new solution at once. Or we could choose a phased migration where we incrementally migrated users on some basis.

A slow phase migration was not ideal. Neither was a Unity flash cut. To address this we chose an aggressive initial migration which would cover approximately 75 percent of our users in a very short period of time and then complete the migration of the smaller sites on a site-by-site basis.

We did this using the Cisco Unity Bridge as a migration tool. The Cisco Unity Bridge gives us analog networking to the Octel systems with full voice messaging interoperability.

James Trimble:

So David, when integrating with the Octel systems, what network functionality did we lose?

- David Neustedter:* We didn't actually lose any functionality. Most of our networking between our Octel systems was done through what we referred to as blind addressing. That is, you had to dial _____ numerically to find the user and it basically located the Octel system on the other end based upon the three-digit prefix that was assigned to the seven-digit extension.
- Only within the San Jose environment did they have five-digit dialing within the addressing and only within a local Octel system or in the San Jose campus were they able to address users using their spell-by-name directory. When we migrated to the Unity solution, because of our migration plan, we were able to now provide all the users within the Unity systems an alphabetic directory of all global system subscribers whether they were on the Octel systems or the Unity systems. This included the recorded name for the individual users to help someone identify the proper user from a list.
- James Trimble:* Thanks.
- David Neustedter:* The first phase of our migration process was to centrally provision all of the voice mail accounts in the Unity and Unity Bridge environments. This enabled us within the Unity environment before migrating a single user to be able to use it to address and identify all Octel subscribers.
- Now that we have completed the migration, the Unity Bridge has been phased out and replaced with the more modern VPIM protocol which allows us to use standard SMTP messaging between disparate voice mail systems.

Cisco Voice Messaging Environment

- Prior to the migration our environment consisted of 184 Octel systems distributed across North America, Europe, South America, Africa and Asia and the Asia Pacific region. Also within these systems there were different forms of Octel. We had Aria systems in North America. We had Serenade systems in Europe and Asia Pacific. We also had several standalone Unity systems for small sites where it just was cost prohibitive to attempt to bring in an Octel PBX.
- James Trimble:* David, why are there so many different locations in Africa and Asia Pacific compared to Europe and the Americas?
- David Neustedter:* When we did the migration we needed to take into consideration the network topology. So while we were able in North America to collapse the systems down into four primary sites, and in Europe we were able to use only a single site, we were forced in the Asia Pacific region or our network in Africa where our network between countries was not as robust or reliable, we were forced to isolate our Unity systems along with our call processing environment to ensure that should we lose a network connectivity we did not lose functionality and impact sales at the site.
- A good example of this is when we had the tsunami a few years back in Indonesia. The size and scale of the tsunami actually severed several major communication trunks in the Pacific Ocean or in the Indian Ocean. This disrupted network traffic between some of our Cisco sites. However, from our customers' perspective our voice messaging systems were consistent. Our network mail globally was unaffected by this change even though we had to route through slower links that would have affected voice traffic.

Cisco Voice Messaging Environment: Post Unity Migration

Our final design within the Unity environment reduced us from 184 Octel systems to 49 Cisco Unity systems, the bulk of which were in North

America. In Europe, the Middle East and Africa we were able to resolve down to eight systems, six located in our data center in Amsterdam, one in Dubai which serviced the Middle East and one in Johannesburg servicing the South African area.

In Asia Pac we isolated our systems into Hong Kong, Tokyo, Singapore, Bangalore and Sidney with the bulk of our systems in Bangalore supporting our growing campus there.

Solution: Initial Cisco Unity Solution Components

The Cisco Unity system consists of several different components. The primary component of course is the Cisco Unity failover server. This consists of the primary Unity server and a secondary Unity server that are configured in a failover configuration. Should service fail on one the other can immediately resume service.

In addition to that, we have Cisco Unity Bridge server, the Bridge Head server. The Bridge Head server functions as a controller for the Cisco Unity Bridge servers. The Bridge servers ran the software that allowed analog integration between the Octel systems and our Unity systems.

Coupled with that was the Cisco Unified Call Manager solution mostly configured in centralized call processing formats. This was the primary hub to all the communications. The Unity Bridge servers, the Octel systems, the Unity systems all integrated through our Cisco Unified Call Manager PBX systems.

To tie all the Unity and underlying Exchange systems together we required a Microsoft Active Directory system isolated into its own independent domain. Each domain controller also serving as a global catalog server.

We initially deployed Microsoft Exchange 2000 as a message store and as a routing service isolating into four routing regions to ensure continuity of service throughout our environment. On top of this we also used a Cisco IP Interactive Voice Response system to provide large scale directory and menuing systems and we also have an internal system called Telephony Number Management that we used to provide the foundational management aspect relating all subscribers within our system to their individually assigned extensions.

Solution: Current Cisco Unity Solution Components

Other solutions that we used that were homegrown were the Unity Management Application which allows us to establish core parameters around which our Unity servers would be managed. The Distribution List Manager which allows individual users to assign globally unique distribution lists accessible anywhere within our Unity system. And also the Cisco PCA Redirector which gave us a single unified URL for web access to voice mail.

Solution: Cisco Unity Geographic Distribution

The Cisco Unity solution was derived around our centralized call processing environment and the distribution of our call processing centers. The primary solution for centralized call processing was the Unity servers co-located with the centralized call processing server. Or with the campus call-processing servers. This provides the best support reliability and ensures that no matter what happens with the network the Unity and the Call Managers are always able to communicate and calls are always processed to voice mail when they are needed.

In some rare instances where we had large sites where Survival

Remote Site Telephony could not be deployed, we implemented stand alone call manager clusters but we back called their Unity access to the large data centers, again relying on the ability of Unity to transmit across those distances safely and with a good performance to provide voice messaging from a central location.

For smaller sites where we had SRST services, all of the voice services were provided by the centralized call processing servers and if we lost network connectivity the sites would resort to SRST mode, survivable remote site telephony.

Solution: Architecture Summary

From an architectural summary we consolidated 184 Octel systems into 49 centralized Unity systems. We established a new voice calling and messaging dial plan that allowed a consistent memory throughout all of our telephony environment.

The Cisco Unity Bridge preserved network voice mail to the Legacy systems during the migration and the use of a separate Microsoft Active Directory Forest and Exchange infrastructure allowed us to speed the deployment and rapidly while maintaining additional security concerns that would not have been possible in an integrated environment.

Solution: Migration Summary

We were able to preserve the sending of messages between the environments with careful planning and testing of each site's migration during the cutover. Scheduling the sites requires planning to allow sufficient feedback and tinkering the process between site migrations before you tackle the largest or most critical sites.

Once the migration process was optimized we were able to cut over as many users as our organization could support at one time. Planning for and dealing with the public distribution lists was an important factor in the migration and should be a consideration in any Enterprise customer's migration.

One of the key things that we did and every organization should do is take the time to clean up your information before you do the migration. Over time our Octel environment had accumulated a lot of mailboxes that we unfortunately were paying for in spite of the fact that they were no longer were in use. A proactive search and elimination of all of this extraneous data helped us streamline the migration process.

Solution: Training Summary

Training was a key aspect to the Unity migration. Our training strategy was defined as scalable with a variety of training materials available to the end users on-demand. The end user training was designed to be modular, web-based and recommended according to the users' roles in the company. We used learning aids such as batch cards, quick reference guides and user manuals and then we had executive assistant workshops to give those people that were most reliant on the voice mail systems mandatory instructor led training targeted specifically at the most power users in our company.

James Trimble:

So, David, did we encounter any hurdles while training our user community?

David Neustedter:

We encountered some significant hurdles. Probably the most significant of those hurdles was simply the resistance to change. Any organization is gonna face this in that you have users who have become comfortable with the solution they are using and migrating to any new solution is gonna bring resistance.

In the training aspect this meant that a lot of people didn't go to the training. Or they didn't take it until several weeks afterward and they complained about the solution once it was implemented. For us, not using the ability to customize Unity but relying solely on the native Unity conversation made some significant changes that if users didn't attend the training they were gonna run into some issues when they first did the migration.

Another key aspect to our training solution was the ability to localize the training and deliver in multiple languages native to the theatre in which the users resided.

Solution: Communications Summary

Communications was the key to the success of the migration. Our communication strategy sourced global communications at the program level with localized distribution and implementation by the local support teams. The global communications plan detailed a plan that reflected user feedback and communications preferences. We were able to tailor the communications based upon what the users told us they would like in the communications.

We solicited executive sponsorship and employed the executive sponsorship to build awareness of the migration and drive adoption prior to the migration start. And also to encourage the rapid adoption and positive perspective of the system during migration.

Communications vehicles that were used varied widely. We included a lot of web sites, e-mail traffic, voice messages as well as posters, flyers and badge cards. We established a variety of feedback mechanisms and channels including e-mail aliases, focus groups, surveys and internal web sites.

Program Unity ROI Overview

The primary goal of the Unity program was to establish a clear return on the investment. The overall ROI over a period of 36 months based on capital expenses netted us \$12.3 million in initial cost divided by \$4 million in annual savings. The \$4 million of initial cost was Unity software and server costs. The remainder was one-time integration and service costs. Our annual savings of \$4 million from our operational expense reductions rapidly allowed for a quick return on this initial investment.

The ROI included the co-existence of Octel and Unity networks and associated expenses for a migration period of over 13 months. Are there any questions?

Q&A

James Trimble:

Yes. Do we need to make any major design changes during the implementation? Or did the implementation follow the design we had expected?

David Neustedter:

No. We actually didn't have to make any design changes during the implementation. Good planning and close coupling with the unified communications business unit all allowed us to establish a design that was very conservative in nature and was able to be implemented without any major issues or hurdles.

One thing we did discover after the implementation though was that we were too conservative in our sizing. We ensured that our Unity based upon the existing knowledge of our Octel systems and how the ports were utilized we established maximum loads on our Unity servers based

upon the types of client and the traffic they were facing. We discovered once we were in place the Unity servers and the way that they integrated with the call manager made port efficiency much higher, allowing us to scale to almost twice what our original spec had specified.

James Trimble: That's great. Have you found any support advantages with the Unity servers versus the Legacy systems?

David Neustedter: There's some real good key support advantages. The Unity implementation was done on platforms common to our server and data center infrastructure. This allowed us to leverage rather than all of the support falling on a single telephony team or on outsourced telephony environments, we were able to leverage our existing hosting teams and data center support teams as well as network support teams to distribute the support load allowing our voice and telephony people to focus specifically on the application and provide better support and end user service by getting greater visibility into our environment.

James Trimble: Great. How do you see our solution evolving going forward?

David Neustedter: Going forward there's a lot of significant improvements that we're gonna face. One of the key things that we'll have going forward is the improvement in server technology will allow us to expand to a much higher supported level of users per node. Our next significant migration will move us up to 5,000 users on a single Unity pod with a lot more services that will be supported there. Full IMAP integration voice recognition systems.

Further Resources

James Trimble: Great, thank you, David, I'm afraid that's about all the time we have for questions today.

And for more information about technologies and solutions deployed at Cisco, you can go to the Cisco on Cisco site where you can find Case Studies with information about: what we deploy, what benefits we've gained, what lessons we've learned, and some operational practices and presentations to help you learn more.

Below that, you'll see a toll-free number you can call for more information or to place an order; and you can order Cisco resources on the web from the URL at the bottom of this page.

I'd like to thank those of you watching for spending this time with us, and for being interested in what the Cisco on Cisco Technology Tutorials are all about. We hope that you've enjoyed this seminar and that it has helped answer some of your questions about Cisco Unity voice messaging.

And thank you, David, for spending this time with us and sharing with us your expertise and your enthusiasm for the Cisco Unity solution.

David Neustedter: It was a pleasure, James. Thanks for joining and see you soon!



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