Case Study: Unified Communications at the National Institutes of Health

Kevin Gates, Head, Network Engineering Section, National Library of Medicine

Ajani Baruti, Program Manager, UCC, Versa Integrated Solutions

Nick Wood, UCC SME, UCC, Versa Integrated Solutions

NIH U.S. National Library of Medicine

Background, about NIH

- The world's largest biomedical research agency
  - Comprised of 27 Institutes and Centers (IC's) including the National Library Medicine (NLM)
  - Supports the research of more than 2,500 universities and research institutions
  - 6,000 scientists work in NIH's own research laboratories
  - 300,000 people across the country and around the world working together to prevent disease and improve health
- Telecommunications infrastructure provides 24-hour telephone/network service and the ability for the collaboration of scientific research
  - ISDN telephone system for voice service to 40,000 on/off campus users
  - VideoCast/Podcast to provide real-time video/audio streaming for seminars, conference or live meetings to world-wide audiences over the Internet

Providing a campus solution using MS and Cisco

- NIH is embarking on a multi-year initiative to take advantage of the UCC capabilities and cost saving potential
- Flexible enough to support 27 IC's (approximately 40,000 users) with varying needs and preferences
    - Microsoft Lync is a part of the standard desktop rollout
    - Some IC's had a preference for Cisco products
- Design and Engineer an enterprise solution that supports both preferences
    - Microsoft (Lync/Polycom Phone)
    - Cisco (Jabber/Cisco Phone)
    - Hybrid (Lync/Cisco Phone)
    - Softphone only use

Why move to Unified Communications Collaboration (UCC)?

- UCC integrates voice, video, voicemail, email, fax capabilities
- Provides ability for instant messaging, presence, desktop sharing and video/ audio and provide capabilities with any device, anywhere and anytime.
- Cost Savings
  - Reduction in Equipment
  - Travel/Telework
  - Redirect Staff
- Ease in collaboration with the use of desk phone, laptop, and/or mobile device
  - HD Quality Voice/Video, person-to-person conferencing
  - Messaging: email, fax, voicemail
  - Presence: ability see a person's availability
  - Desktop Sharing: ability to share and edit documents in real-time; whiteboarding
  - Multi-Party Web Conferencing: ability to instantly host meetings with people around the world, in full HD video and audio, with the touch of a button

Design, Implementation, and Challenges faced in a multi-vendor environment

- Complex environment
  - Cisco, Microsoft both intend to be a standalone implementation
  - Integration complexity
- Increase infrastructure cost
- Qualified engineers difficult to find
- Challenging O&M issues and costs

UCC Deployment Models
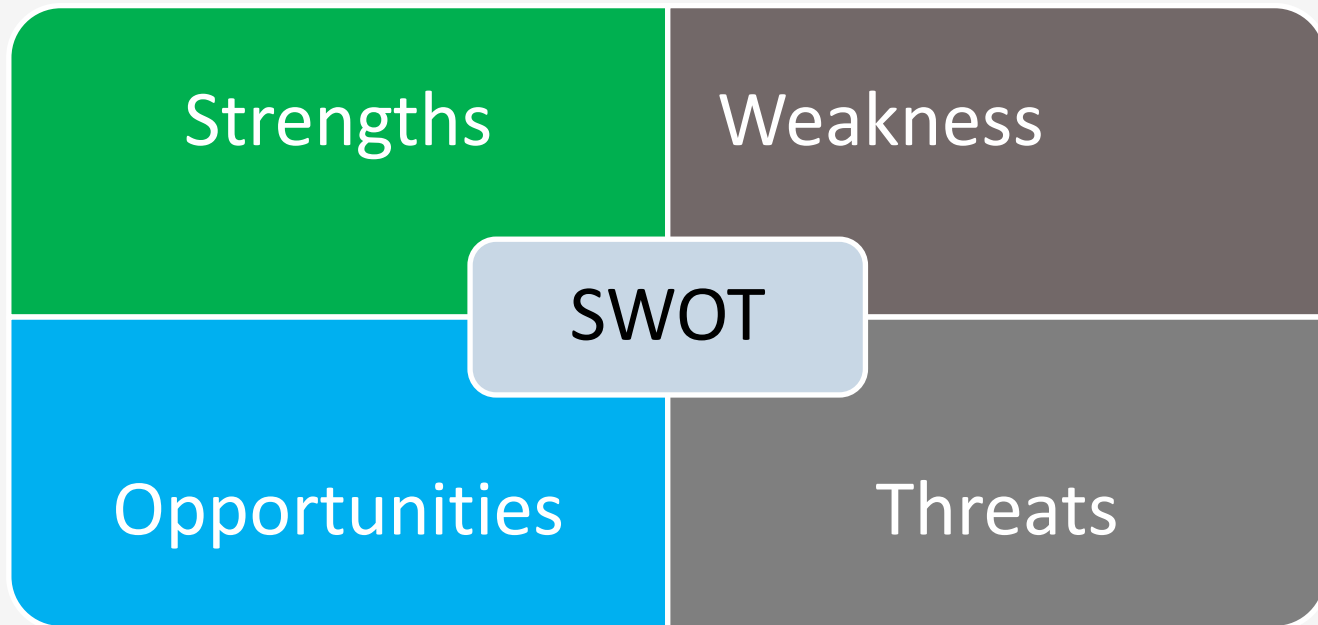

Cisco Desk Phone	Polycom Desk Phone	Cisco Desk Phone
Cisco Jabber Soft Phone	Microsoft Lync Soft Phone	Microsoft Lync Soft Phone
Cisco Unity Voicemail	Microsoft Unified Messaging Voicemail	Microsoft Unified Messaging Voicemail

- End-to-End Product Portfolio which integrates well.
- Unified Solution and Unified Management, CUCM centralized call control.
- Superior features for audio, video &web conferences
- Linux Based Architecture, proven higher OS stability.
- Third Party Interoperability apart from all native integration within
- No third party dependency for support
- Enterprise license Agreement or ELA
- Gartner leader for Corportate telephony and conferencing solutions for 2014,2015

- No missed call notifications as an email with the current version. Features available now on new version. Upgrade awaited.
- Additional training required for IC's since users are already using Lync.
- More expensive endpoints than Polycom.
- Interoperability with Microsoft Tools need additional configuration.

- New product roll outs and unified monitoring solutions such as Prime Assurance and Analytics.
- Increased focus on cloud solutions
- Reachability to Advanced Resources from Cisco for deployment and auditing.

Dependency on Single Vendor/Platform

CISCO

- Microsoft Lync already deployed across NIH.
- Best use case when no desk phones required.
- ELA exists with Microsoft
- Polycom phones are cheaper ~$100-200 than Cisco
- Inherent reporting Capabilities.
- IC's are already adjusted to Lync Client so no new training is required.

- NO End-to-End Product Portfolio
- Dependency on Microsoft AD user existence
- NO Unified Solution and centralized Management
- Windows Based Architecture, limited troubleshooting
- Polycom Deskphones do not have unified management and have less features and average user experience vs Cisco
- Third party (Polycom) Dependency for support
- No Video possible between Lync Client and Polycom Phone
- Off-net or Non Lync to Lync call, still dependent on Cisco Call manager for call control even though invisible from user experience.

Microsoft
Polycom™

- Rebranded as Skype for Business, increased focus on Microsoft cloud too.
- Increased focus on inherent capability for analytics with Skype for Business

- Polycom and Microsoft interoperability changes
- Since Cisco is part of call control for all off net calls, Interworking with Cisco.

- Cisco Deskphones can be managed centrally without loss of telephony feature.
- Better user Experience of Cisco Phones vs Polycom
- No New deployment required for Lync soft phones (Lync already deployed for users)
- Cost Effective, since Lync is already deployed.
- IC's are already adjusted to Lync Client so no new training is required.

- No Message Waiting Indicator on Cisco Phones
- Missed call notifications appear when you answer a call on your Cisco IP phone, a Lync notification says you missed a call, Manual Mitigation
- Presence between the Cisco IP phone and Lync desktop client does not update on Lync when you are on a call
- Cisco phone will not ring if incoming call is from a Lync client, Manual Mitigation by disabling reverse number lookup.
- Call control is still not centralized and dependency exists on multiple infrastructure components .
- Distributed Management
- Complexity in troubleshooting with multi vendor product support.

Interoperability Roadblocks in future

- Multi-vendor deployment gives flexibility to adopt innovations and new features being introduced by either vendor. New technology adoption and migration between solutions can be easier, rather than re-deployment

HYBRID

CISCO

Microsoft

# NLM's Customer Perspective on UCC NIH Implementation

- About the National Library of Medicine, MEEC member, and one of 27 Institutes/Centers at the NIH
  - Established in 1836 as the "Library of the Office of the Surgeon General of the Army"
  - It is the world's largest biomedical library and the developer of electronic information services that deliver trillions of bytes of data to millions of users every day.
  - Consists of approximately 1,800 Staff

# Project Planning, coordination with the service provider

- Microsoft Lync (Skype for Business) vs. Cisco Jabber
  - The Pilot
  - Selection
  - Leveraging MEEC MS Licensing
- Preparation
  - Selling project to leadership, gaining support
  - Collecting information from division/departments
  - Hardware procurements
  - Project collaboration with service provider
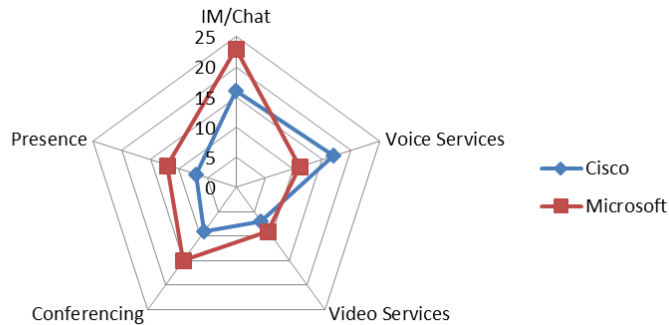 - Small test deployments

NLM Pilot Survey Results
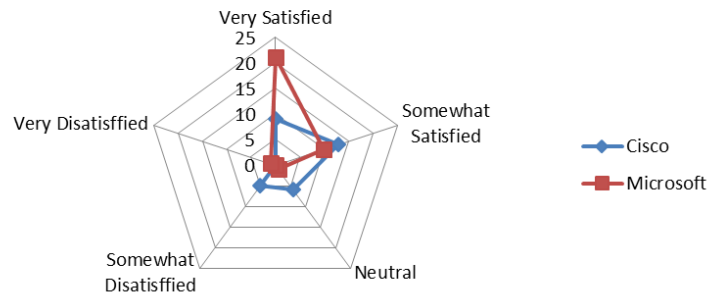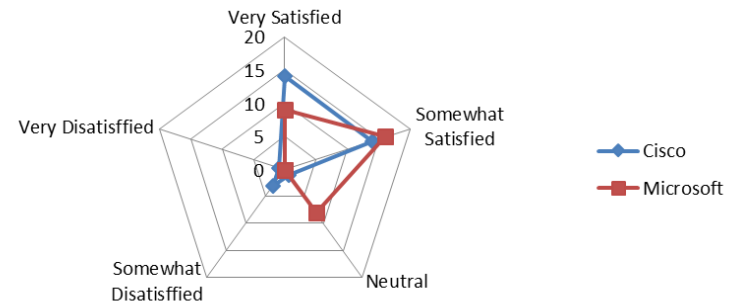
NIH U.S. National Library of Medicine
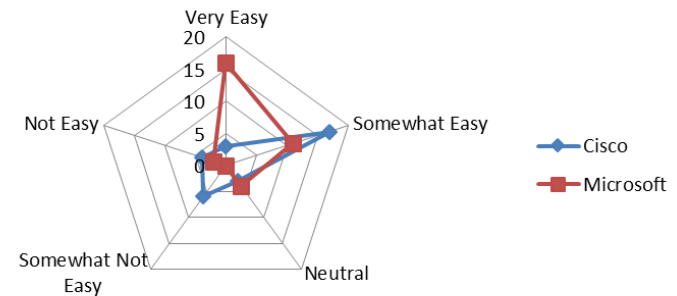
End-User Implementation and lessons learned

- User awareness and selling the change
  - Provide demonstrations
  - Identify benefits and features for new functionality
  - Early adopters
- Deploying hardware
  - In place before voice activation
  - Opportunity to train and promote
- Broadcast message
  - Include information valuable to users, make them excited about this "new" technology
  - Include "did you know" and other feature benefits

End-User Implementation and lessons learned

- Activation
  - Be available and visible
  - Provide guidance and test with users
- Training
  - End-user Features and Solution Training
    - Soft Clients (MS Lync and Cisco Jabber)
    - Phones (Cisco and Polycom) Phone Features
  - Administrators and Specialists (Train the Trainers)
- Follow-up
- Provide continuous feedback with the service provider
  - Any unresolved issues, new issues
  - Changes in the deployment lineup
  - Conduct pre-deployment meetings
  - Review any post deployment challenges and address them.

Panel Q&A