SAND2012-3494C

Sandia National Laboratories

ENTERPRISE COLLABORATION SERVICES

Microsoft Lync

Microsoft Exchange Server 2010

AVAYA

CISCO

POLYCOM

Lync at Sandia

Integrated and Federated

Scott Stephens
Infrastructure Computing Services, 09329
Enterprise Collaboration Services, Solution Architect and Project Lead
2NV RightPath Architecture Integrated Project Team ONEVoice Lead

Phone: 505.844.7136; BB: 505.238.6613; iPhone: 505.340.5324

Scott.Stephens@sandia.gov https://mysite.sandia.gov/Personal/sasteph

Anthony Roscio
Infrastructure Computing Services, 09329
Enterprise Collaboration Services, System Architect and Lync Technical Lead

Phone: 505.844.1921; BB: 505.554.9074

Anthony.Roscio@sandia.gov https://mysite.sandia.gov/Personal/ajrosci

U.S. DEPARTMENT OF ENERGY | NNSA

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Outline

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- Enterprise Collaboration Services
- The History Sandia's Real Time Collaboration platform
- How Lync Relates to Unified Communications
- 2NV RightPath Implications and Opportunities
- Current Lync Status and Future Deliverables
- Native Capabilities Lync Provides
- Lync Integration Capabilities and Opportunities
- Lync Architectural Overview
- Questions and Answers

Enterprise Collaboration Services

Sandia National Laboratories

- ECS is managed by Scott Rogers and lead by Scott Stephens
- We design, implement and maintain highly available, secure Enterprise Class information Systems on 5 different networks
- We have 5 service categories:
  - Email Messaging and Distribution List Management
  - Sharepoint Products and Technologies
    - General purpose self service Sharepoint
    - Business Intelligence Infrastructure and Self Service
    - Enterprise Project Management Infrastructure (Project Server)
    - Software Lifecycle Management Infrastructure (Team Foundation Server)
    - Personal Social Computing sites (Sharepoint Mysites)
    - Enterprise Search Infrastructure (FAST for Sharepoint Search)
    - Sharepoint for Applications
  - Lync Real Time Collaboration
  - Mobility Infrastructure
  - Other Items (transfer.sandia.gov, reidrect.sandia.gov, Reverse Proxy)

Enterprise Collaboration Services

Email, Unified Messaging and List Management	Sharepoint Products and Technologies		Real Time Collaboration	Mobility Platform Support	Reverse Proxy, Managed File Transfer and Other Services
Exchange	Sharepoint SRN SCN SIPRNet	Mysites	Lync Internal Support	Blackberry Enterprise Server	TMG Reverse Proxy (SRN / ECN)
SMTP Transport	SSRS	FAST	Voice Integration	ActiveSync iPad support	MFT transfer.sandia.gov
SPAM/AV	EPM	RMI	Federation	Good for Enterprise	redirect.sandia.gov
Voicemail	ECN SP & Account Mgmt.	SAML	Desktop Video / Desktop Dial tone	Lync Access	Active Directory User Photos
List Management	WFS -> Sharepoint	Developer Farms	MOW Remote Access	MDM Study	Printers.sandia.gov
Public Folders	TFS		Conference Room Integration		Conference Room Scheduler
Mailgate/Majordomo					Sharepoint Branding Support

The History Sandia's Real Time Collaboration platform

Sandia National Laboratories

- Sandia started piloting IBM Sametime ~2003
- We went through a technology evaluation and decided to move to Microsoft Live Communications Server 2003 in ~2004
- We deployed Live Communications Server 2005 in ~2005
- Microsoft Changed the product to Office Communications Server 2007
- We deployed OCS 2007 in 2007, and enabled external business partner collaboration with on primise Live Meeting
- We skipped OCS 2007 R2
- Microsoft has once again rebranded the product to Lync
- Microsoft has combined Office Communicator and Live Meeting into one simple concise client also simply called Lync
- Sandia has completely migrated the backend infrastructure to Lync, and is now migrating desktop Clients

How Lync Relates to Unified Communications

Sandia National Laboratories

- Unified Communications (UC)
  - A category of services intended to optimize an organizations communications and collaborative efforts in an integrated delivery
  - There are many definitions and derivations, but we have focused on the services offered, and the value it provides to the organization and how it enables people to be more effective
  - We have identified 4 major categories within UC
    - Enterprise Voice (Digital and Analog phones, Desktop Dial tone and mobile)
    - Unified Messaging (Email, Instant Messaging and Voicemail)
    - Real Time Collaboration (Web Conferencing, Application/Desktop Sharing)
    - Audio/Video Conferencing and Streaming (Conference Room & Desktop)
  - These categories of services are not limited to intranet or pc the delivery model extends to general Internet locations and mobility platforms
- Lync is a major component of Unified Communications for Sandia
  - Lync itself is not UC
  - The platform provides many capabilities and integrates with other UC components

Unified Communications

An evolving communications technology architecture which automates and unifies all forms of human and device communications in context, and with a common experience. Its purpose is to optimize business processes and enhance human communications by reducing latency, managing flows, and eliminating device and media dependencies [Rick McCharles]

ITIL Support Model

Enterprise Voice	A/V Conferencing	Real Time Collaboration	Unified Messaging
Office Devices ISDN, Analog, IP	Conference Room	Desktop / Application Sharing	Email
Desktop Dial Tone USB Type Devices, Web Cams	Desktop	Web Conferencing	Instant Messaging
Kiosk Devices Phones in Conference Rooms	Mobile	White Boards	Voicemail
Applications / Systems Fire Alarms			Text Messaging
Mobile Cell Phones, Pagers			Fax

Presence Awareness

Communication Based Process Automation (CBPA)

Location Based Services (LBS)

Application Integration

Business Partner Federation

Public Federation

TDM

Ethernet

Cyber Security / Information Protection

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Mobile Cell Phones, Pagers			Fax

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2NV RightPath Implications and Opportunities

Sandia National Laboratories

- The ONEVoice portion of 2NV fits very well with Sandia's current and future strategy for Unified Communications
- We have looked forward to the opportunity to communicate and collaborate with our external business partners more effectively for many years
- Sandia is well positioned to take advantage of the 2NV effort
- Sandia has a leading role regarding the ONEVoice Sub Team in the RightPath Architecture Integrated Project Team
- We are working very close with the other Sub Teams Identity Management and One NNSA Network
  - Insure contact synchronization will support NSE presence awareness
  - Understand the impacts of Encryptors from site to site

Current Lync Status and Future Deliverables

Sandia National Laboratories

Status

- Lync backend servers fully online and load balanced
- Lync environment is currently running in a backward compatible state with old OCS environment for CWA
- Client deployment is currently underway

Future Deliverables

- Continue to work with the ONEVoice Sub-IPT for architectural integration
- Turn off legacy OCS system
- Load balance edge servers
- Enable Lync federation and stand up XMPP Gateway
  - Dynamic Federation as well as Direct Federation with known Business Partners
- Configure Lync servers to enable iOS (iPhone/iPad) devices to support Lync Mobility Client
- Add Site Resilient Disaster Recovery and Branch Office Capabilities for California Site
- Splunk integration for complete holistic intrusion detection capabilities similar to what has been accomplished with email and inbound SMTP

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- Deploy IMExpert into production

Native Capabilities Lync Provides

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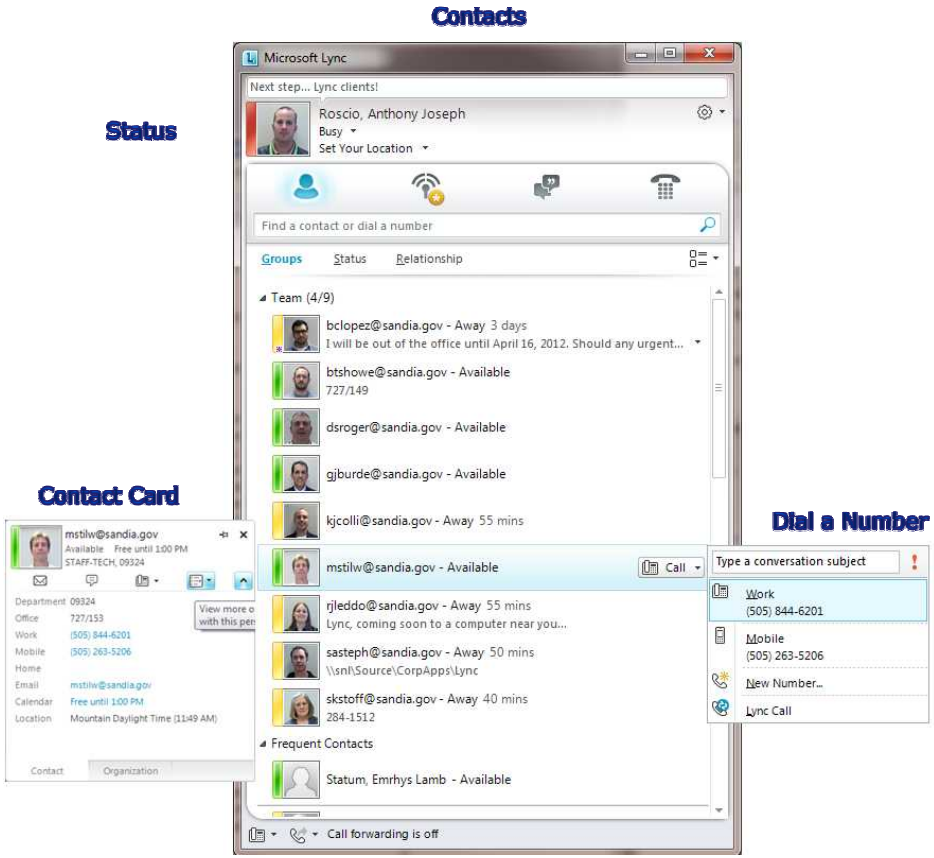
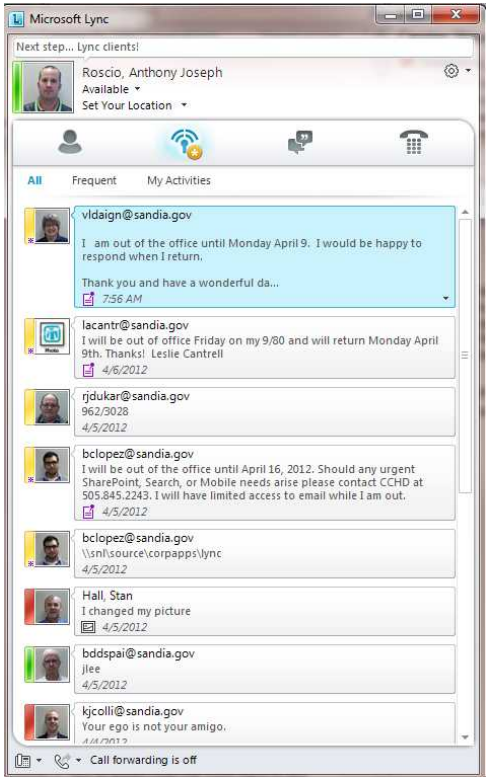
- Lync builds on an existing rich toolset of real-time collaboration capabilities
- Instant messaging, presence awareness for groups and individuals
- Desktop sharing, application sharing, whiteboard and polling
- Lync adds HD Audio and Video conferencing capabilities (720p)
  - Available for internal and external business partners
- Mac Client Lync 2011, on par with Windows Client
- Mobility Client provides native support rather than via web proxy
- Server site reporting capabilities

Native Capabilities Lync Provides





Lync Integration Capabilities and Opportunities

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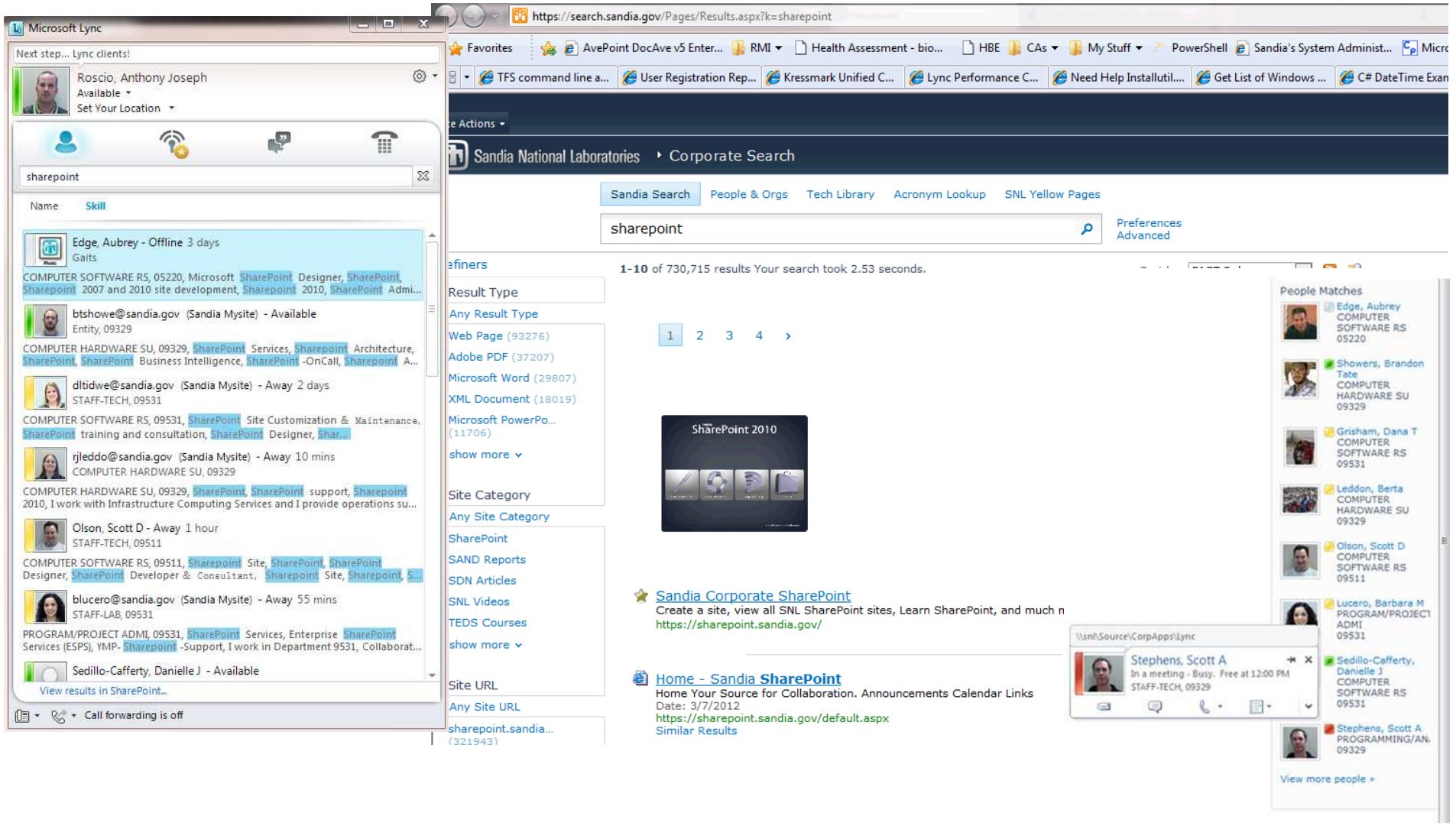
- Lync has a natural and seeming less transparent integration with Microsoft's entire product line
  - Outlook integration with Lync Meeting Scheduling and contact synchronization
  - Listen to Exchange based Voicemail from the Lync Client
  - Contact card and presence information available at a glance
  - Skill search integration with Sharepoint Mysites
  - Integrated presence awareness throughout the Sharepoint stack and Office products
  - Browser integration to enable phone number recognition and dial initiation
  - Photos pulled from Active Directory
- In addition to native federation Lync can also be integrated with any XMPP system/device via the XMPP Gateway
  - Jabber, IBM Sametime
  - 2NV will be releasing Socialcast which will utilize Lync Federation via XMPP
- Lync can integrate with phone systems to enable inbound and outbound desktop to phone audio calls
- In addition to using native conference room camera systems that have built in Lync Clients, there are integration paths with traditional VTC systems
- Lync offers a much more enhanced Web-Services API layer for custom applications to leverage presence as well as messaging in and out of the platform

Lync Integration Capabilities and Opportunities



Lync Integration Capabilities and Opportunities

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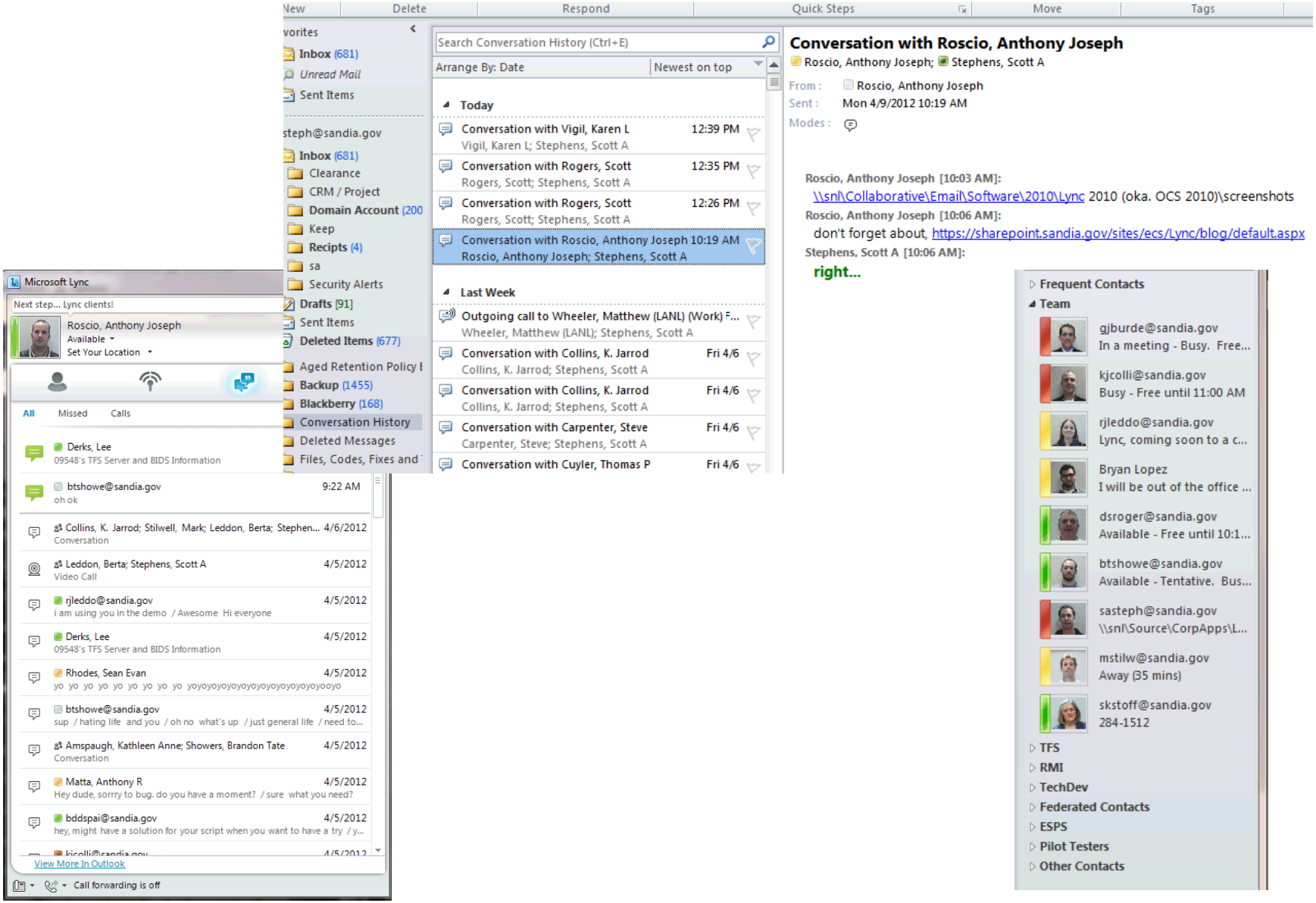

Lync Integration / Logical Architecture

Microsoft® Lync™

Ethernet

Media Gateway

TDM

5ESS

Public Switched Telephone Network

Enterprise IP Network

Microsoft® Exchange Server 2010

VoIP Switches

Cisco

Needs Media Gateway for Legacy

Cell Tower

G P O N

Mobile Devices

Legacy Devices and Systems

Sandia Desktop

Email, Voicemail and Chat

IP Phone

Logitech HD Webcam

USB

Polycom CX300

Sandia Conference Room

H.323 Systems

iPad with Lync Client (no A/V at this time)

Polycom Roundtable

Polycom HDX 7000

Lync Architectural Overview

- Lync Infrastructure is a Multi-Tier, Highly Available Enterprise Edition deployment
  - 2 Front End Servers
  - 2 Director Servers
  - 2 Mediation Servers
  - 2 Edge Servers
  - 2 Sets of redundant load balancers for internal and external traffic
  - 2 Node Server array running Threat Management Gateway for Reverse Proxy capabilities
- Forefront Edge protection for SIP Hygiene and Antivirus protection
- Backend Database located on Enterprise Edition SQL Cluster
- Additional Monitoring Server running for statistics and reporting

Physical Lync Architecture

Questions and Answers

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Scott.Stephens@sandia.gov https://mysite.sandia.gov/Personal/sasteph