Enterprise Consolidation Projects

2012 GTC East
September 5-6, 2012
Albany, New York
IT Transformation
High-Priority Projects

• Converged Network Services
• Data Center Consolidation
• Enterprise Identity and Access Management
• Email Consolidation
Objective / Goals

• Consolidate countless diverged networks
• Deliver data, voice, and video services to agencies using a shared service delivery model
• Allow exchange of data between agencies in a structured and secure fashion
• Replace legacy voice and data network with low cost internet-based solutions
uniteNY Program
CONVERGED NETWORK SERVICES

Wide Area Network (NYeNet) – State owned & operated fiber-optic network along the NYS Thruway and Northway “Highway”

Last Mile Connectivity – Leased 3rd party circuits that connect State buildings to NYeNet “Local Roads to the Highway”

Local Area Network (LAN) – Connectivity between any device within a building to WAN “On-ramps to the Local Roads” and/or “Highway”

Unified Communications (End-Point service offerings including VoIP phone, faxing, video unit, desktop, call recording)
Today – NYS is Decentralized

**Core Wide Area Network (WAN)**
- WAN connectivity provided at the Core locations (Plaza, Large Data Centers, and sites on the Fiber Core)
- Services do not address all agency locations
- Services do not address “last mile” WAN connectivity
- Services do not address customer requirements
- Classified as a shared network through OCS
- Increase costs connecting to services at remote locations

**Agency Wide Area Network (WAN)**
- Agencies have created their own contracts and WAN capabilities to address the limitations of the core WAN
- WAN solutions vary in service level and capability
- Multiple vendors and solutions
- Little or no volume discount pricing based on statewide service agreements

**Higher Operational Costs** – The network encompasses 3000+ sites, 125,000+ phones, 500+ phone systems, and 150,000 active ports.

**Security Risk** – At least 50% of routers and 30% of switches are running software that is no longer vendor supported.

**Barriers to Statewide Mobility and Collaboration** – The current configuration of the State's network infrastructure physically separates data traffic by agencies and groups within agencies.
The Future – A Converged Network

Migrating to this service delivery model will reduce costs, simplify complex network operations, and provide business enabling technologies across agencies.

Seamless network connectivity for all agencies, increasing interoperability

Converged voice, video, and data services on single network infrastructure, reducing cost of transport services

Consolidated ingress/egress access points for client and business partner connections, reducing cost and enhancing security

High throughput, low latency seamless core WAN, delivering services for voice, video, and data

Centrally managed shared service organization, providing consistent business enabling solutions

Standardized set of:
- Processes
- Tools
- Network protocols
- Hardware Standards

Standardized service delivery model meeting cross-agency requirements
Multitude of Services

Agencies will be presented with multiple service offerings to select from.

- Faxing
- Internet
- IVR
- Conferencing (Web/Teleconference)
- Managed/Unmanaged
- Video (Web/Teleconference)
- Chat
- Presence
- Voicemail
- IP Phone (Physical/Software)
### Flow to Statewide Service Offerings

<table>
<thead>
<tr>
<th>Site Survey</th>
<th>Extensive on-site survey of LAN/WAN, firewall and closet configurations. (2300+ Sites)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review</td>
<td>Core Team will review results, and determine migration and implementation wave.</td>
</tr>
<tr>
<td>Install</td>
<td>Migration of surveyed site onto the new Statewide Services.</td>
</tr>
</tbody>
</table>

To ensure a smooth transition to the Statewide services offerings, each site will undergo a repeatable methodology to ensure the site is ready for migration. This will identify potential issues within the site and allow the Core Team to make recommendations for the site’s migration path.
uniteNY Program
CONVERGED NETWORK SERVICES
Service Provider Approach

Design allows for multi-tier approach for increased security and functionality while following a service provider methodology.

Create Service Building Blocks
Install Telephony Model (Enterprise Features)
(Cross Cluster Sign on)
Design Feature Packages & Setup Infrastructure

Set Inventory Levels
Add Divisions

Assign Numbering Block
Assign Resources to Locations

Manage Numbering Plan
Manage & Register Phones
Manage End Users & Mobility
Admin Group Line Features

Manage Phone Features
Manage Speed Dials
Set Single Number Reach
Change Presence Monitoring
View & Manage Directories
Multiple Options - One Size Does Not Fit All

Agencies will have multiple options for interconnectivity to the SES

- **WAN**
  - Multiple Connection types and speeds
  - Pairing with 3rd Party Networks
  - MPLS, QOS, Multicast, IP4/IP6 Support

- **UC**
  - TDM (Integration into existing PBX)
  - IP (Existing System or new installation)

- **LAN**
  - Managed (services down to port level)
  - Unmanaged (services up to Demarc only)
Users will experience one portal for their needs, instead of separate portals for different tasks.

End to End Monitoring and tools to isolate and troubleshoot possible issues on the system.

Enhanced 911 Support.

Self Service (Change Display Name / Reset Password / Speed Dials / Reset Voice Mail Passwords / Online Help Guides).
Data Center Consolidation
Gary Kuchark; Project Director
TBD; Data Center Architect

Objective / Goals

• Consolidate 11,000+ servers in 45 raised floor data centers to public or private cloud

• Provide Disaster Recovery capabilities

• Improve reliable infrastructure service at a market-driven competitive cost
DATA CENTER CONSOLIDATION
How Did We Get Here?

• Deloitte Study From Last Year
• What’s a Data Center and How Many are There?
• Status of Current Data Centers
• How Does This Save Us Money?
• Identified 45 Raised Floor Data Centers (and well over 1,100 server rooms)

• Consolidated the Board of Elections Data Center this Fiscal Year

• Negotiating a Tier 3 Data Center Space

• Reduced some Costs through “Cluster Buys”
DATA CENTER CONSOLIDATION
What’s Our Strategy?

• Quick Wins at the Cluster Level

• Rationalize Wave Plan for Data Center migrations

• Develop Wave Infrastructure & Application Migration Strategy

• Migrate & Consolidate the New; close the old

• Hold “Lessons Learned” Workshop After Each Wave is Migrated
Data Center Consolidation
Strategic Initiative #1
(Quick Wins At The Cluster Level)

• Develop cluster specific strategy
• Consolidate at the cluster level
• Identify security needs of agencies before consolidation
• Virtualize/Rationalize/Consolidate at the cluster level
• Aggregate purchasing within clusters to drive discounts
• Close/Repurpose data centers once consolidated
• Hold “Lessons Learned” Workshop with DCC team for information sharing
• Validate Wave Plan
• Are the issues raised in study still the issues?
• What security issues need to be solved before State consolidation?
• Execute Wave migration -- Enough talking, Move It Already!
• Hold “Lessons Learned” workshop after each Wave is migrated
• Migrate & Consolidate the New; close the old
DATA CENTER CONSOLIDATION
Strategic Initiative #3
(Develop Wave Infrastructure & Application Strategy)

• Develop an infrastructure and application migration strategy for each data center.

• One size does NOT fit all.

• What are the interdependencies?

• Combination of “solutions” – lift & shift, buy new and migrate, V-2-V, P-2-V

• Strategy depends on the Big 3 plus 1: Time, $$~, people, plus ...

• Application deadlines! Business is still going on.

• Security/auditing/reporting aspects of multi-tenant environment need to be assessed and solved before moves as well (learn from cluster consolidation).
• OK -- Plan Done, Dates Picked ... Time to Do it!
• It Takes a Village....
• Everyone, All Hands On Deck
• Once Up & Running, Time to Close the Old Data Center(s)
DATA CENTER CONSOLIDATION
Strategic Initiative #5
(Lessons Learned)

• Learn from wave migrations.
• What worked?
• What didn’t work?
• What did we miss?
• What needs to be changed?
• How is reporting/chargeback handled?
Objectives/Goals

• Single-sign-on capability for State employees, citizens, and vendors

• Align with the Federal Identity, Credential, and Access Management (FICAM) framework

• Implement central monitoring and governance functions
ENTERPRISE IDENTITY & ACCESS MANAGEMENT

Key Elements

• Provide customers with statewide IAM services that are standards based and support key identity and account management functions.

• Provide central self-service user interface (NY.gov ID Portal) that provides a streamlined process to register and connect with agency services.

• Enhance user experience and lower risk by reducing number of user IDs and passwords.

• Ensure timely granting of access to basic agency services and revocation of access privileges.

• Reduce risk of fraud by deploying fraud prevention/detection and strong authentication solutions.

• Reduce support costs by starting to retire legacy IAM solutions where effort is duplicated with shared service solution.
NYS’ Existing IAM Environment

Disparate sources of information for NYS employees and contractors
(Several HR technology systems exist within NYS but there are no standard processes or implementation standards)

Many user authentication repositories
(7 separate user authentication repositories are currently in use within 14 agencies)

Disparate and overlapping manual IAM business processes

Many COTS and homegrown tools providing similar functionality to manage user access
(Over 20 user provisioning tools exist across 14 agencies, including three in one agency)

Limited integration with agency applications for user provisioning
(Only 2 agency repositories are currently integrated with CIO/OFT’s homegrown provisioning tool)
NYS’ future state EIAM shared services environment is based upon standardized business processes that align with the ICAM model and national standards, and a NYS approved reference architecture.
ENTERPRISE IDENTITY & ACCESS MANAGEMENT
Where Are We Today?

- EIAM Request for Information
- On-Boarding of New Apps
- NYSDS Stabilization
- Outreach
ENTERPRISE IDENTITY & ACCESS MANAGEMENT

RFI Major Findings

• Based on vendor responses, we are on the right track with delivering centralized EIAM services integration for those who do not have their own robust IAM capabilities, and standards based Federation for those who do.

• The EIAM integration approach should remain application and business need focused and not infrastructure focused. Citizen and Business facing applications are the most important.

• The EIAM solution needs to include expanding NYSDS to provide robust multifactor authentication as an option, but to continue to support authorization at the application level.

• RFI responses included potentially useful identity validation services with third party authentication that could be utilized to complement existing NYS capabilities.
Key Driver: Continue to let applications drive EIAM adoption.

- Deliver continuous on-boarding for agencies that pose immediate IAM needs.

- These early adopters, or “Champions”, will lead the way for others to follow
  - OGS – Business Services Center
  - DEC – eBusiness
  - DOL – Unemployment Insurance
  - DOB - Statewide Financial System

- Applications which have met “quick win” criteria will be integrated into the existing NYSDS as soon as possible, and later migrated to the full EIAM solution once it is fully developed.

- All migrations will be executed as sub-projects within the larger scope of the EIAM Transformation project.
**Key Driver:** Strengthen the existing NYSDS solution through short-term strategic improvements, to ensure the operations and infrastructure can accommodate future enhancements and meet the needs of current and future EIAM customers. This includes but is not limited to:

- Analyzing and remediating current NYSDS issues and establishing sound policies and procedures to mitigate and diminish risks
- Establishing and documenting EIAM Governance and Operating Standards to provide oversight and establish support models
- Further developing and vetting of the NYS Trust model
**Key Driver:** Need to plan for the integration and migration, at an early stage, of those applications that are under development but not yet deployed so that the implementation of the EIAM shared service is seamless. This includes:

- Division of the Budget (e-Licensing)
- NYS Department of Health (Multiple opportunities)
- Establish communications with stakeholders; Cluster CIO’s, ISO’s, EIAM workgroup, EIAM governance board

Outreach will assist us in developing enhanced application onboarding processes and procedures and will help to ensure Consumer–Facing applications are compatible with the EIAM solution.
Objectives/Goals

• Manage eMail services in a single, high-availability statewide environment

• Provide common platform for eMail, statewide user directory, calendaring, IM, collaboration tools

• Provide foundation for integration with enhanced voice, text, video, audio communications

• Provide for retention and preservation of data

• Reduce costs
State employees will be able to communicate and collaborate using digital tools from any location, at any time.
# Email Consolidation Strategy Focuses On Statewide Business Objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>Strategy</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure <strong>mission-critical service availability</strong> in all shared services</td>
<td>HA and DR solution</td>
<td>Achieve 99.95% availability</td>
</tr>
<tr>
<td>Manage mail services in a <strong>single statewide environment</strong></td>
<td>Private cloud</td>
<td>Control, security, proximity</td>
</tr>
<tr>
<td>Continue to <strong>support key business processes</strong> that rely on email</td>
<td>Incorporate Notes/Domino email</td>
<td>Conserve agencies’ application investment, avoid unneeded redevelopment cost</td>
</tr>
<tr>
<td>Establish an <strong>open integration approach</strong> for new processes</td>
<td>Define and publish standard interface specs</td>
<td>Reduce development and support costs through reusable approaches</td>
</tr>
<tr>
<td>Comply with laws and regulations for <strong>retention and preservation</strong> of data</td>
<td>Integrated archiving service</td>
<td>Avoid potential penalties, improve case outcomes, reduce cost for litigation support</td>
</tr>
<tr>
<td>Enable enhanced inter- and intra-agency <strong>collaboration</strong></td>
<td>Enterprise IM, address lists, calendaring</td>
<td>Meet collaboration needs of newly forming clusters and cross-agency initiatives</td>
</tr>
</tbody>
</table>
## EMAIL CONSOLIDATION
### Services And Functions

<table>
<thead>
<tr>
<th>ITT Email Deliverables</th>
<th>ITT Converged Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Email</td>
<td>• Presence integration with UC</td>
</tr>
<tr>
<td>• Contacts/global address list</td>
<td>• Voice integration</td>
</tr>
<tr>
<td>• Global calendar/scheduling sync</td>
<td>• Text</td>
</tr>
<tr>
<td>• Tasks</td>
<td>• Video chat: point-to-point, fixed and mobile</td>
</tr>
<tr>
<td>• Instant messaging (chat)</td>
<td>• Audio conferencing</td>
</tr>
<tr>
<td>• Collaboration space (content libraries)</td>
<td>• Video conferencing</td>
</tr>
<tr>
<td>• Archiving</td>
<td>• Web conferencing</td>
</tr>
<tr>
<td>• eDiscovery</td>
<td></td>
</tr>
<tr>
<td>• Anti-virus / anti-spam / anti-malware</td>
<td></td>
</tr>
<tr>
<td>• Mobile sync with services (mobile messaging)</td>
<td></td>
</tr>
<tr>
<td>• Presence</td>
<td></td>
</tr>
</tbody>
</table>
Deploy private cloud that includes platforms for Domino users

Office-based and remote users

- Archiving and Search
- Mobile Device Synchronization
- Domino/Notes Services
- Anti-Virus, Anti-Spam
- Backup, DR
- Address Book/Calendar Sync

Mobile users
### Email systems by brand as reported in the September 2011 Email surveys

<table>
<thead>
<tr>
<th>Email Systems</th>
<th>Agencies</th>
<th>Mailboxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Executive Branch Mailboxes</td>
<td>43</td>
<td>156,306</td>
</tr>
<tr>
<td>NYSeMail</td>
<td>17</td>
<td>72,000</td>
</tr>
<tr>
<td>Exchange</td>
<td>14</td>
<td>32,888</td>
</tr>
<tr>
<td>Groupwise</td>
<td>5</td>
<td>29,722</td>
</tr>
<tr>
<td>Lotus Notes</td>
<td>7</td>
<td>16,219</td>
</tr>
<tr>
<td>Oracle SMC <em>(OPWDD secure mailboxes)</em></td>
<td></td>
<td>5,477</td>
</tr>
</tbody>
</table>
EMAIL CONSOLIDATION
Delivery Strategy

• Design and implementation of consolidated, private cloud platform that provides uniform services to all State agencies

• During interim period, migrate additional agencies to an enhanced NYSeMail
EMAIL CONSOLIDATION
Risks And Issues

- Security
- Authentication
- Network Access
- Archiving / eDiscovery / Records Retention
- Confidentiality
- Integration with Converged Network
- Integration with Enterprise Identity & Access Mgt. (EIAM)
- Payment Methodology
- Communication and User Transitions
- Dual Migrations for Some Agencies
Thank You

www.its.ny.gov