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**Presentation**  
to the  
**Science, Technology and Telecommunications**  
**Committee**

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**Marlin Mackey**  
**Secretary/State CIO**  
**“IT Service Life Cycle”**

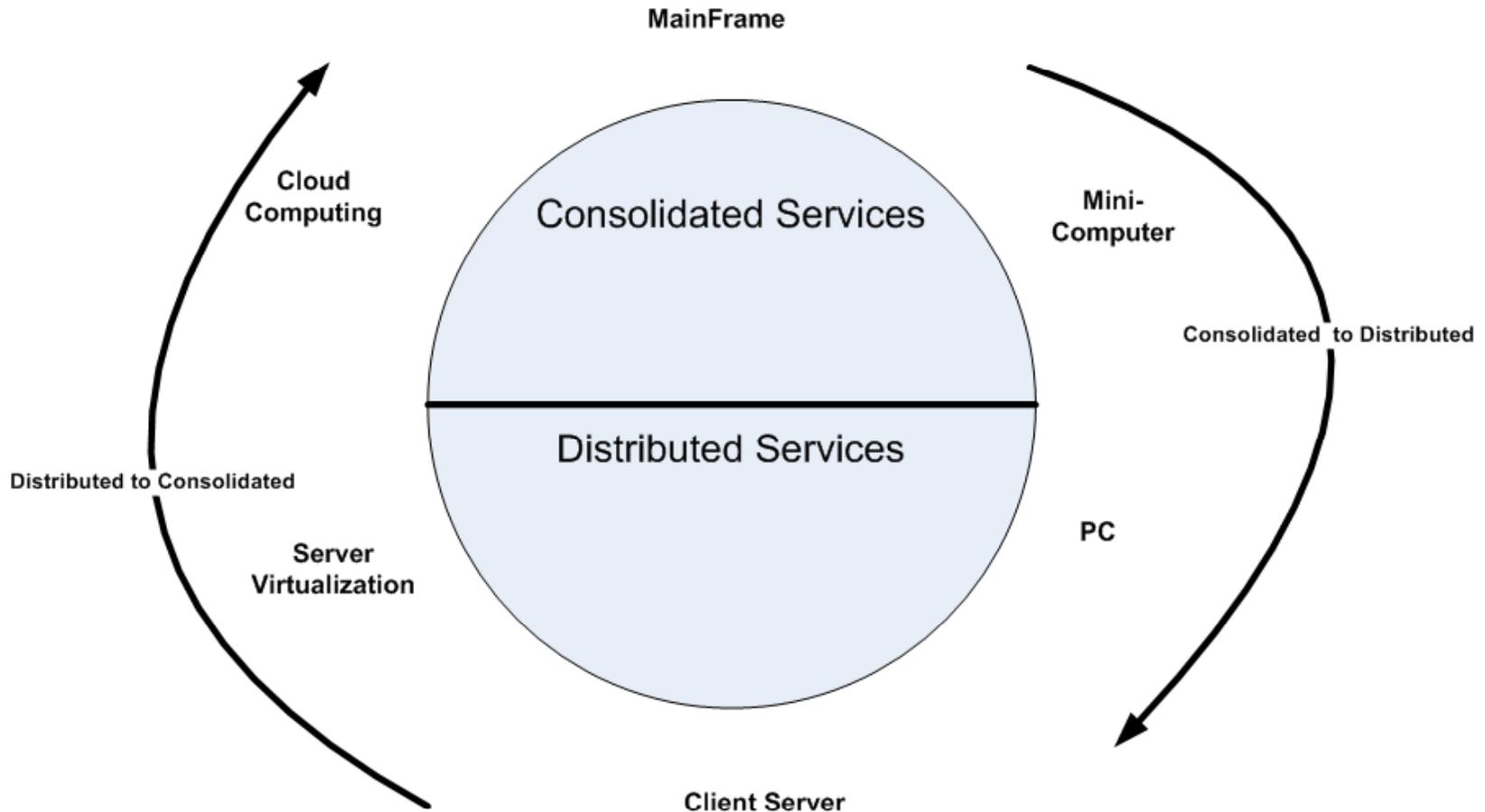
November 29, 2010



NEW MEXICO  
DEPARTMENT OF  
INFORMATION TECHNOLOGY

# IT Lifecycle Follows Technology

Consolidated Services to Distributed Services To Consolidated Services



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# Agenda



- IT Historic Milestones
- Consolidation vs. Distribution Life Cycle
- National Trend
- New Mexico Consolidation Activities
- New Mexico Strategic Initiatives

# IT Historic Milestones



- **Period I – Mechanical Age (1450-1840)**
  - **Gutenberg printing press** 1450
  - **Oughtred's slide rule** early 1600's
  - **Babbage's difference engine** 1822
  - **Augusta Byron – First programmer** 1840

# IT Historic Milestones



## ■ Period II – Electromechanical Age (1840-1940)

- |                             |                               |
|-----------------------------|-------------------------------|
| □ Voltaic Battery           | late 18 <sup>th</sup> century |
| □ Telegraph                 | early 1800's                  |
| □ Bell's Telephone          | 1876                          |
| □ Marconi's radio           | 1894                          |
| □ Hollerith's punched cards | 1890                          |
| □ Aiken's Mark 1 computer   | 1940                          |

# IT Historic Milestones



## ■ Period III – Electronic Age (1940 – Present)

- ENIAC vacuum tube computer 1946
- EDSAC first stored program 1949
- UNIVAC first commercial computer 1951
- Digital Computing (4 generations)

# IT Historic Milestones



- **Digital Computing (4 generations)**
  1. **Vacuum tubes, punched cards (1951-1958)**
  2. **Transistors, mag tape (1959-1963)**
  3. **Integrated circuits (1964-1979)**
    - **Mainframe centralized processing**
    - **Mini-computer, first distributed processing**
  4. **Microprocessor, PC, GUI (1979-present)**
    - **Distributed processing**
    - **PC processing**
    - **Client server processing**

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# Consolidation (Defined)



- **Equipment and Data Centers**
- **Applications in support of common functions**
- **Services**
- **Support Staff**
  - **Network**
  - **Infrastructure**
  - **Operations**
  - **Data management**
  - **Applications support**
  - **Security**

# Consolidation vs. Distribution Life Cycle



- **Mainframe processing – Consolidated**
- **Mini-computer processing – Distributed**
- **PC stand alone processing**
- **PC networked (terminal access/local processing)**
- **Client server processing – local/distributed**
- **Thick client/thin client – local/distributed**
- **Move to consolidated server based processing**
- **Move to consolidated data centers**
- **Move to virtualized processing**
- **Move to cloud processing**

# National Trend - Priorities



## New Mexico (2009)

- Consolidation
- Business Continuity
- Service Management
- Broadband Services
- Security
- Cloud Computing

## National (2009 NASCIO)

- Consolidation
- Shared Service Management
- Cost Management
- Security
- Records Management
- ERP

## New Mexico (2010)

- Consolidation
- Business Continuity
- Shared Services
- Broadband Services
- Security
- Cloud Computing

## National (2010 NASCIO)

- Cost Control
- Consolidation
- Shared Services
- Broadband
- ARRA
- Security

## New Mexico (2011)

- Consolidation
- Broadband Services
- Cloud Computing
- Cost Saving/Value enhancement
- Grant Implementation
- Security

## National (2011 NASCIO)

- Consolidation
- Cost Control
- Health Care
- Cloud Computing
- Shared Services
- Governance

# National Trend – State Initiatives



- Responses from 29 states in 2007 reveal a strong trend towards states consolidating their computing assets into raised floor, secured, centralized data center facilities. Many states are utilizing remote back-up data center facilities for the purpose of back-up and disaster recovery and business continuity. (NASCIO 2007 Survey)

Status of State's Data Center Consolidation Initiatives		
Initiative	Percent	Count
Completed	14%	4 of 29
In Progress/ Partial	38%	11 of 29
In Planning Phase	24%	7 of 29
Proposed	17%	5 of 29
No Activity	7%	2 of 29

# National Trend - Consolidated Data Center Components



Infrastructure and/or Infrastructure Applications Used or Planned to be Used in States' Consolidated Data Center Platforms		
Level of Use	Equipment	Percent
Level 1	• Mainframes	96.6%
	• Physical Security	96.6%
	• Storage Area Network (SAN)	96.6%
Level 2	• Dual power feeds	89.7%
	• Dual internet connections	89.7%
	• Network Management	89.7%
	• Servers	89.7%
	• Dual power feeds	86.2%
	• Dual internet connections	86.2%
	• Network Management	86.2%
	• Network Attached Storage (NAS)	82.8%
• Network Operation Center	82.8%	
Level 3	• Redundant systems and network infrastructure with no single point of failure	75.9%
	• Telephony, VoIP	72.4%
Level 4	• Dual backup generators	58.6%
	• Production Output (e.g. printing, burning of CDs, video and tape)	55.2%

# National Trend - Driving Factors and Obstacles



Factors Driving States' Strategies to Consolidate Data Centers	
Driving factors	Percent
Disaster recovery	82.8%
Replication, redundancy and fault tolerance	75.9%
Cost savings	65.5%
Security and data classification	62.1%
Better access to new technologies for all agencies	55.2%
Aging state facilities	51.7%
Improved information sharing/ data integration	51.7%
Energy conservation/ Environmental concerns	41.4%
Size	37.9%
Business applications	24.1%

Obstacles or Challenges Experienced as a Result of States' Data Center Consolidation Initiatives	
Perceived Challenges	Percent
Workforce resistance to change	89.7%
Agencies' desire to remain autonomous	86.2%
Problems experienced in moving localized devices away from current customer base	48.3%
Backlash when consolidation didn't meet specific business needs	20.7%
Higher than anticipated costs	17.2%
Seeking exemptions from state statutory and regulatory requirements	17.2%
Seeking exemptions from federal statutory and regulatory requirements	17.2%
Failure to identify and adhere to service levels	3.4%

# NM Consolidation Activities



## Enterprise Services

### **Infrastructure**

- Data center services (resilient data center)
- Mainframe services
- Application hosting
- Server administration
- Storage and backup
- Security
- Network services
  - Wide area network
  - Local area network
  - Network engineering and design

### **Broadband and Radio**

- Two-way radio communications
- Digital Microwave communications
- Radio dispatch

### **Enterprise Applications**

- Email
- Help Desk
- Desktop telephony
- Cellular telephony
- Audio and video conferencing
- Managed desktop service
- File and print services
- Website hosting
- Web application design and development
- Application maintenance
- Database management

### **SHARE**

- Financials
- HCM

# New Mexico Consolidation Activities - Servers



SONM Data Center	Servers and Applications	Total Number	Number Since Governor's Office Directive
	Number of co-located servers at the State of New Mexico Enterprise Center	<b>333</b>	<b>147</b>
	Number of agency applications residing on State of New Mexico enterprise servers	<b>39</b>	<b>25</b>
	Number of co-located servers replaced by moving application to enterprise servers	<b>16</b>	<b>11</b>

# New Mexico Strategic Initiatives - Consolidation Related



- Implement statewide broadband network (voice, data, video)
- Implement business continuity service (contracts signed)
- Implement private cloud computing (several services in development)
- Implement web/video conferencing
- Implement Performance Command Center (training stage)
- Implement Service Based Organization (In process)
- Provide enterprise training (ongoing, 7 of top 10 delivered)
- Complete consolidation of production equipment (in process)
- Implement virtual desktop service (pilot phase)

# NM Strategic Initiatives - Value Enhancement/Cost Savings



- DoIT created a Value Enhancement/Cost Savings Task Force
  - ITC representative
  - DFA budget representatives
  - State Engineer CIO
  - DOT CIO
  - DoIT Deputy Secretaries
  
- The team has identified 27 items for consideration and evaluation
  
- Gartner presented a national view on value/cost initiatives (team and ITC)
  
- DoIT Benchmarked New Mexico with National Initiatives and Ideas
  
- Team has prioritized recommendations for implementation

# NM Strategic Initiatives - Value Enhancement Matrix\*



<b>Factors Improving Value</b>	<b>Possible Area of Action</b>
Process	
1. Delivery	Online services
2. Production	Develop shared services
3. Value Chain	Process redesign
4. Infrastructure	Expansion
Governance	
5. Transparency	Improve feedback loop
6. Collaboration	Extend and improve
7. Open Standards	Promote interoperability
8. Authority	Develop new patterns

\*from Gartner analysis

# NM Strategic Initiatives - Value Enhancement Mapping



Value Enhancement Initiative	Process				Governance			
	1. Delivery: online/civic engagement	2. Production: integrated/shared services	3. Value Chain: industry reconfiguration	4. Infrastructure extension	5. Feedback/transparency	6. Massive Collaboration	7. New and open standards	8. New patterns of authority
1 Server Consolidation		X						
2 Private cloud computing (IaaS, PaaS, SaaS, etc.)		X				X		
3 Broadband Infrastructure			X					
4 Virtual Desktop		X						
5 Data Compression & Encryption		X						
6 Enterprise Licensing (Microsoft, Oracle)		X						
7 Business Application Sharing		X						
8 Security (Encryption & Firewall Mgmt)						X		
9 Resource Consolidation (DBA's & Desktop Support)		X						
10 Enterprise Training		X						
11 Data Warehouse/Business Intelligence				X				
12 Conferencing—(Audio, Web, Video)*	X	X						
13 State PMO		X						
14 Web Content Management/Document Management		X		X				
15 Payment Processing		X						
16 Case Management		X						
17 Medical Records			X					
18 Master Person Index			X					
19 Disaster Recovery		X						
20 Z/OS Linux (Mainframe)		X						
<b>Total</b>	<b>1</b>	<b>15</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>

\*Note: External Conferencing: 1, Internal Conferencing: 2

# 2010 Accomplishments

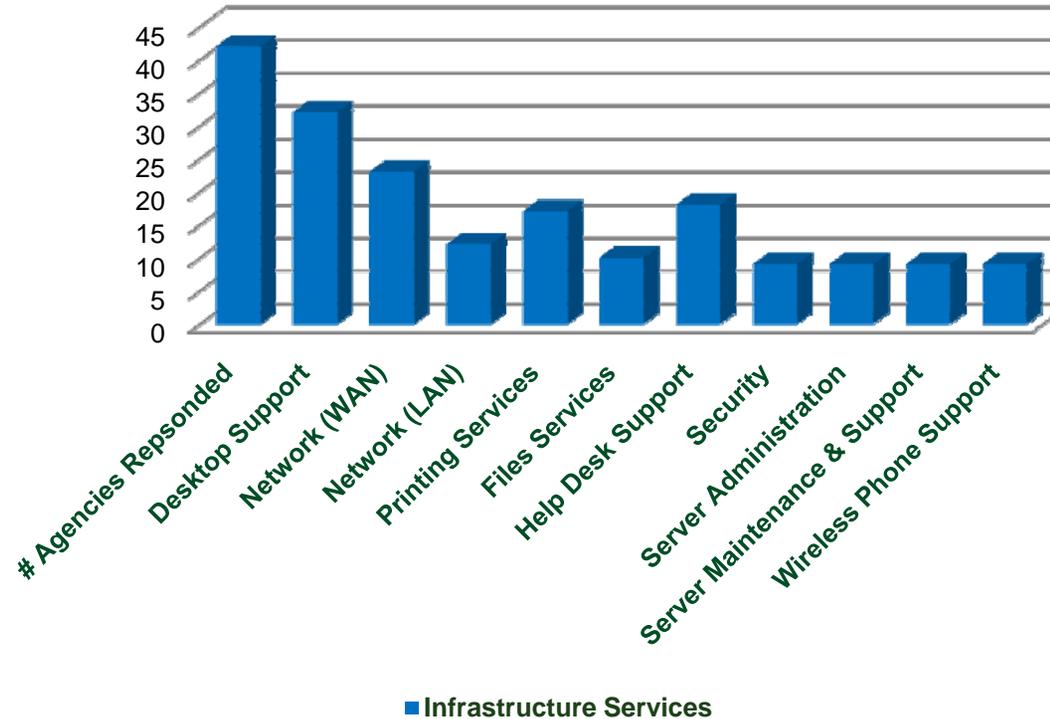


1. Applied/received \$43,000,000 in federal grants
2. Granted FCC license for public safety network (21 nationally)
3. Reduced operating expenses by 15% (\$7M)
4. Reduced Service Rates by \$3m (FY11) and \$1.8m (FY12)
5. Developed the transparency Sunshine Portal
6. Developed prioritized list of cost/value initiatives
7. Completed Service Support Plan for Spaceport
8. Completed design and pricing for unified communications
9. Completed Phase 1 of server consolidation
10. Implemented performance dashboard
11. Implemented SHARE improvements and master schedule
12. Implemented new IT governance structure
13. Implemented new IT Security Policy and Rule
14. Completed Development Phase I for Cloud Services
15. Updated State IT Strategic Plan, ITC Approved
16. Successful oversight of IT projects

# NM Strategic Initiatives – Common Agency Services



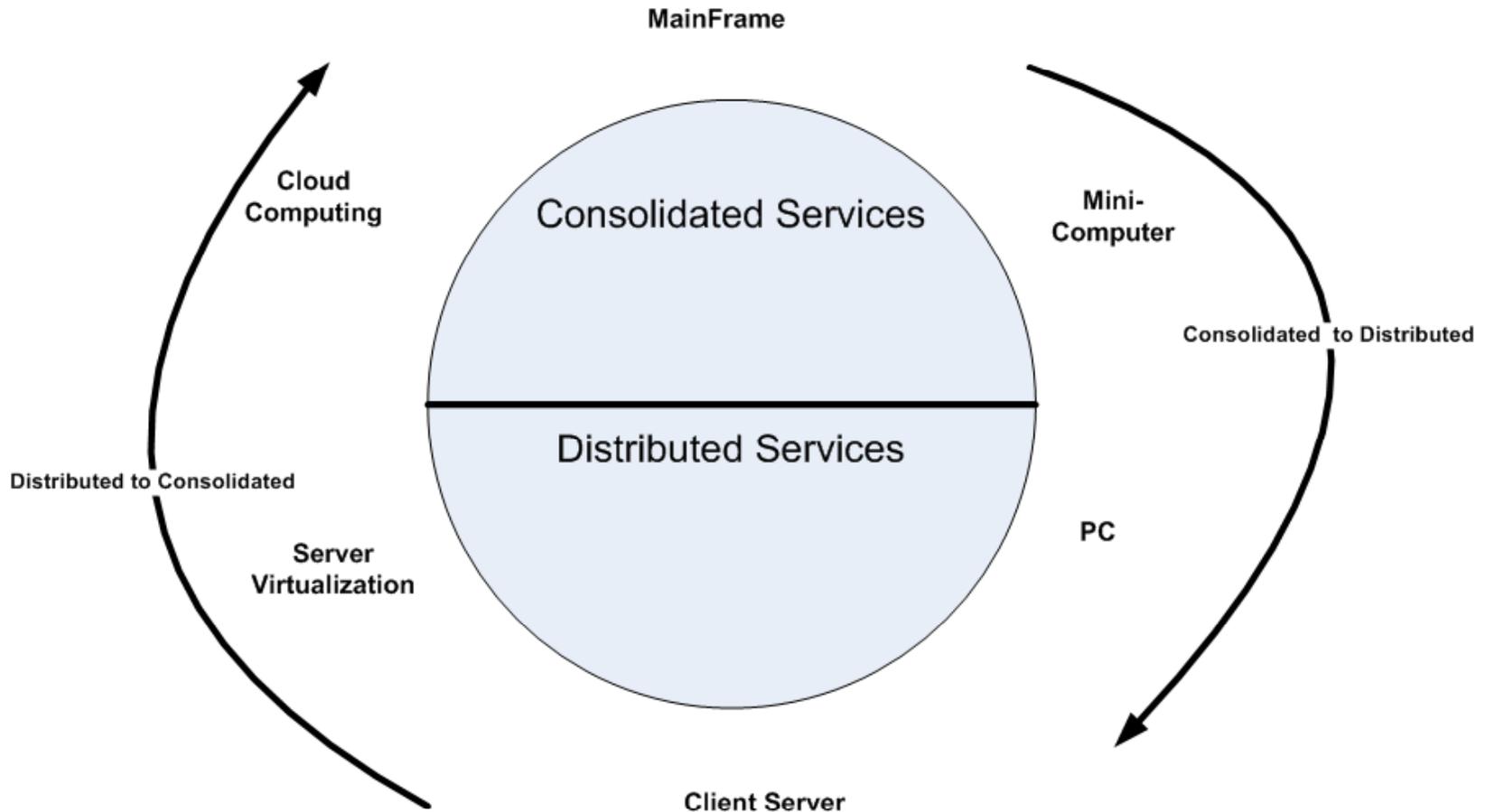
**Top 10 Infrastructure Services As Reported By Agencies**



**Possible Consolidation Item**

# IT Lifecycle Follows Technology

Consolidated Services to Distributed Services To Consolidated Services



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Thank You.....



**Questions?**