



ROCKEFELLER COLLEGE OF PUBLIC
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Center for
Technology in Government

Find Your Silver Lining:

*A Cloud Decision-Making Tool for New
York State*

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December 13, 2011

Acknowledgements



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Project Sponsors

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Presentation Overview

- Cloud Benefits and Concerns
- Mapping the Current Environment
 - Current practices in other states
 - New York State’s IT strategy and the cloud
- The “Cloud Decision-Making Checklist”
 - Versatile tool that organizes pertinent information in a standardized format
- OCFS Use Cases

Defining the Cloud

- Five Key Characteristics
 - Broad Network Access
 - Measured Service
 - On-Demand Self-Service
 - Rapid Elasticity
 - Resource Pooling
- Major Deployment Models:
 - Public, Private, Hybrid, and Community
- Service Models:
 - Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS)

Benefits

- Economies of Scale
 - Fixed costs spread across many organizations

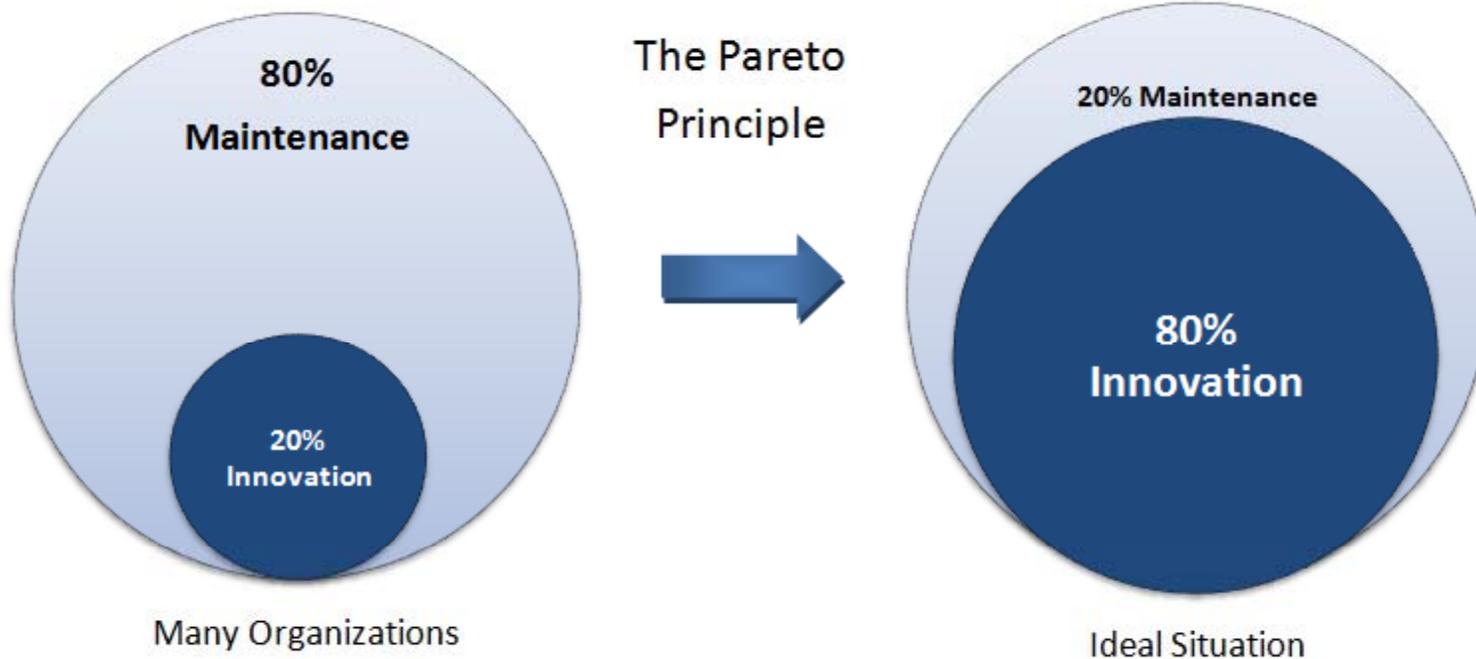
Technology	Cost in Medium-sized Data Center (1,000 Servers)	Cost in Very Large Data Center (50,000 Servers)	Ratio
Network	\$95 per Mbit/sec/month	\$13 per Mbit/sec/month	7.1
Storage	\$2.20 per GByte / month	\$0.40 per GByte / month	5.7
Administration	~140 Servers / administrator	>1000 Servers / administrator	7.1

(Armbrust, et al. 6)

Benefits

Productivity

- Organizations can move resources from maintenance to mission-critical tasks and innovation



Benefits

- Scalability
 - Forecasting demand is difficult
 - Need-based storage
- Flexibility and Mobility
 - Remote access
 - Software updates
 - Information sharing

Concerns

- Data Security
 - Big name public clouds are prime targets for hackers
 - High profile cloud hacking incidents have caused the perception that the cloud is less secure
 - Uncertainty in the literature regarding the security of the public cloud
- Privacy
 - Externally-hosted servers create liability and accountability questions
 - Third party access
 - Legal requirements (e.g. HIPAA)

Concerns

- Compliance
 - Some funding and legal agreements require that data be hosted in a certain location
 - Agencies need to consider the varying requirements for different levels of government
- Organizational Issues
 - Technology push vs. demand pull
 - Management and policy often play catch-up to technology

Mapping the Current Environment

Current Practices at the State Level

- Colorado
 - Outsourcing email
 - Selective private cloud strategy
- Michigan
 - MiCloud email
 - Selective private cloud strategy
- Utah
 - Initial public cloud strategy
 - Strong private cloud (state platform provider)

Mapping the Current Environment

Cost Savings from State Cloud Strategies

State	Cloud Solution	Estimated Savings
Colorado	Deploying email to the public cloud	\$8 million annually and avoid paying about \$20 million in infrastructure over 3 years
Michigan	Deploying data storage to state owned private cloud	\$293,460 in the first year, more projected
Utah	Hosting servers on state owned private cloud	\$4 million annually

Mapping the Current Environment

New York's Goals

- Drive down cost and improve service quality
 - Consolidation
 - Virtualization of OFT services
- Cloud helps increase efficiency
- SAGE Commission goals provide insight on strategies moving forward

The Cloud Decision-Making Checklist

- Examine system attributes
 - Standardized metric
 - Useful for pilot programs or wholesale deployment
 - Can be used to match types of applications/systems to appropriate service offerings
 - Standardization promotes integration
- Checklist designed to help managers make decisions
 - Weigh criteria based on agency needs
 - Consider the benefits and concerns

The Cloud Decision-Making Checklist

- **Interoperability**
 - Describe the extent to which an application needs to integrate with other applications and/or systems.
 - Describe the extent to which an application can integrate with other applications and/or systems.
- **Data Portability**
 - Describe the extent to which an application's components and systems can operate in alternate environments.
- **Licensing Concerns**
 - Describe any special licensing requirements that might prevent an agency from hosting certain applications on the cloud.
- **Customization**
 - Describe the extent to which the application has special requirements that need to be met for it to operate

The Cloud Decision-Making Checklist

- **User Authentication**
 - Describe the extent to which the agency seeks to differentiate system access based on a user's role.
- **Data Storage**
 - Describe any policies regarding where, how, and with whom the data is stored (e.g. record retention policies, ownership, funding requirements, and e-discovery).
- **Data Sensitivity**
 - Describe the extent to which the data needs to be protected from unauthorized and/or unintended access.
- **Criticality**
 - Describe the extent to which the data needs to be accessible

Use Cases

Domestic Violence Information System (DVIS)

- Tracks statistical information about agencies that offer shelter programs
- System 7
 - Interoperable and portable
- User Authentication
- Customization
- Low criticality and sensitivity
 - No personal information
- Public cloud candidate

Use Cases

Consumer Information System (CIS)

- Tracks client cases for Center for the Blind and Visually Handicapped (CBVH)
- HIPAA regulations
- System 7 (similar to DVIS)
- User authentication and customization
- Low to moderate criticality
- HIPAA-certified public cloud candidate

Use Cases

New Yorkers Volunteer Website

- Publishes information and promotes volunteerism on the Internet
- Highly interoperable and portable
- Data is already publicly available
- Public cloud candidate

Use Cases

CONNECTIONS (CONX)

- Statewide automated child welfare system
- Outdated legacy systems
 - Low interoperability and portability
- High data sensitivity
 - Requires User Authentication
- High criticality
- Not an appropriate candidate for the cloud



Questions?