



Leveraging the Power of Cloud Computing in Government

BROOKINGS

Wednesday, July 21, 2010

Dr. David McClure
Associate Administrator
Citizen Services and Innovative Technologies
General Services Administration

Changing the Way Government Leverages Technology....

Cheaper

- Drive Innovation: Work with private industry encouraging innovation and furthering competition among providers to drive best value solutions for the Government
- Use Only What's Needed: Eliminate high upfront costs by aligning costs with actual use or consumption of IT resources
- Put the Power in the Hands of the End Users: Move operating complexities to the Cloud, allowing Agencies to focus on core mission objectives

Faster

- Provide One-Stop Shop: Simplify acquisition of IT services by making it as simple as buying a book, booking an airline ticket, or making a dinner reservation online
- Turn Up of IT Quickly: Services can be provisioned in hours or days versus traditional IT methods which may take months to deploy
- Scale Rapidly: Deliver elastic computing, allowing Agencies to rapidly expand or contract IT resources to support unplanned events or spikes in usage

Greener

- Energy Efficiency: Create virtualized hardware and software services so Government uses only what's needed, avoiding overbuilding data center and server capacity
- Reuse Across Agencies: Provide shared, resource pooling, for greater reuse and ability to leverage underutilized IT resources across Government

Cloud Computing promotes a provider-consumer relationship over a vendor-user relationship.

1 Service Based Consumer concerns are abstracted from provider concerns through self service driven interfaces

2 Scalable & Elastic Services scale on-demand to add or remove resources as needed.

3 Shared Services share a pool of computing resources to build economies of scale.

4 Measured Use Services are tracked with usage metrics to enable multiple payment models.

5 Internet/Network Based Services are delivered through use of Internet or broad network access.

Sources: NIST and Gartner

These represent a fundamental shift in computing for most government agencies

- ❑ Understand and gain agreement on the drivers behind adopting a specific cloud approach
 - ❑ Resource reduction/cost constraints
 - ❑ Need for specific cloud characteristic (elasticity, scalability, usage-based model)
 - ❑ Need for rapid implementation
 - ❑ Infrastructure, software, platform services or all three

- ❑ Culturally grasp the move to services rather than buying physical technology

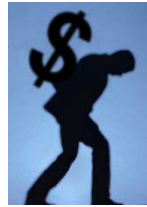
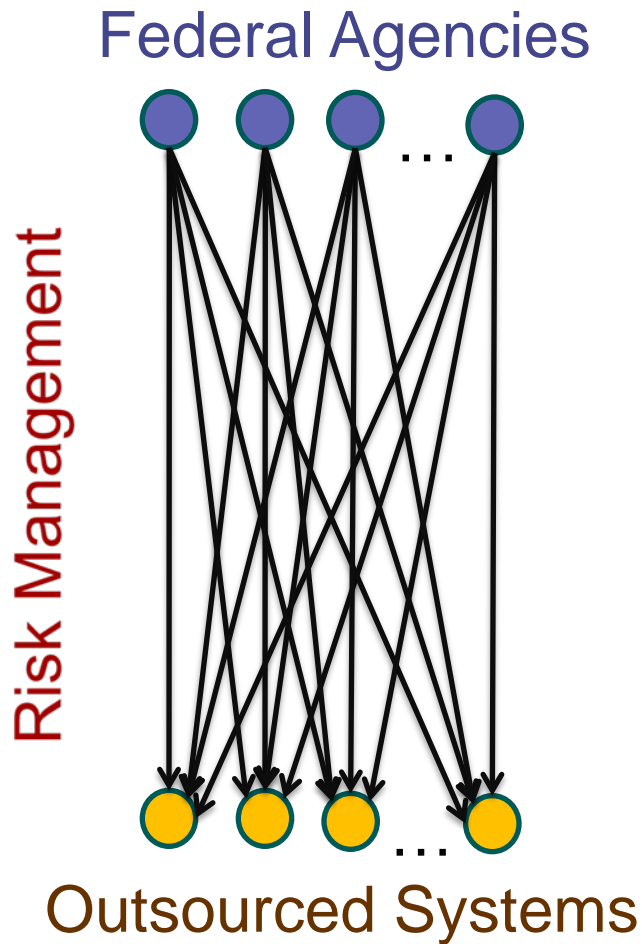
- ❑ Cloud computing solutions need to be part of an overall IT investment portfolio strategy (Reduce capex? Infrastructure? Apps inventory?)

- ❑ Be realistic in cost estimates

- ❑ Cloud creates opportunities to aggregating some sourcing

- ❑ Don't focus on the technology, focus on the desired outcomes driving the needs

Risks	Mitigation Strategies
Security	<ul style="list-style-type: none">▪ Standardized C&A Process▪ Ongoing monitoring▪ Match security level of cloud computing implementation to security requirements
Data Ownership	<ul style="list-style-type: none">▪ Implement policy to establish ownership▪ Execute policy enforcement
Records Management	<ul style="list-style-type: none">▪ Define e-discovery and forensic processes and policies
SLAs	<ul style="list-style-type: none">▪ Define specific internal requirements prior to acquisition▪ Clear contractual requirements and validation of vendor capability prior to acquisition▪ Strategy to address interoperability and portability
Change Management	<ul style="list-style-type: none">▪ Secure buy-in of management▪ Educate personnel on advantages, risks and mitigations of cloud implementation▪ Start with pilot activities, keep activities feasible
Portability	<ul style="list-style-type: none">▪ Adopt standards▪ Partner with other agencies to decrease risks



: Duplicative risk management efforts



: Incompatible requirements

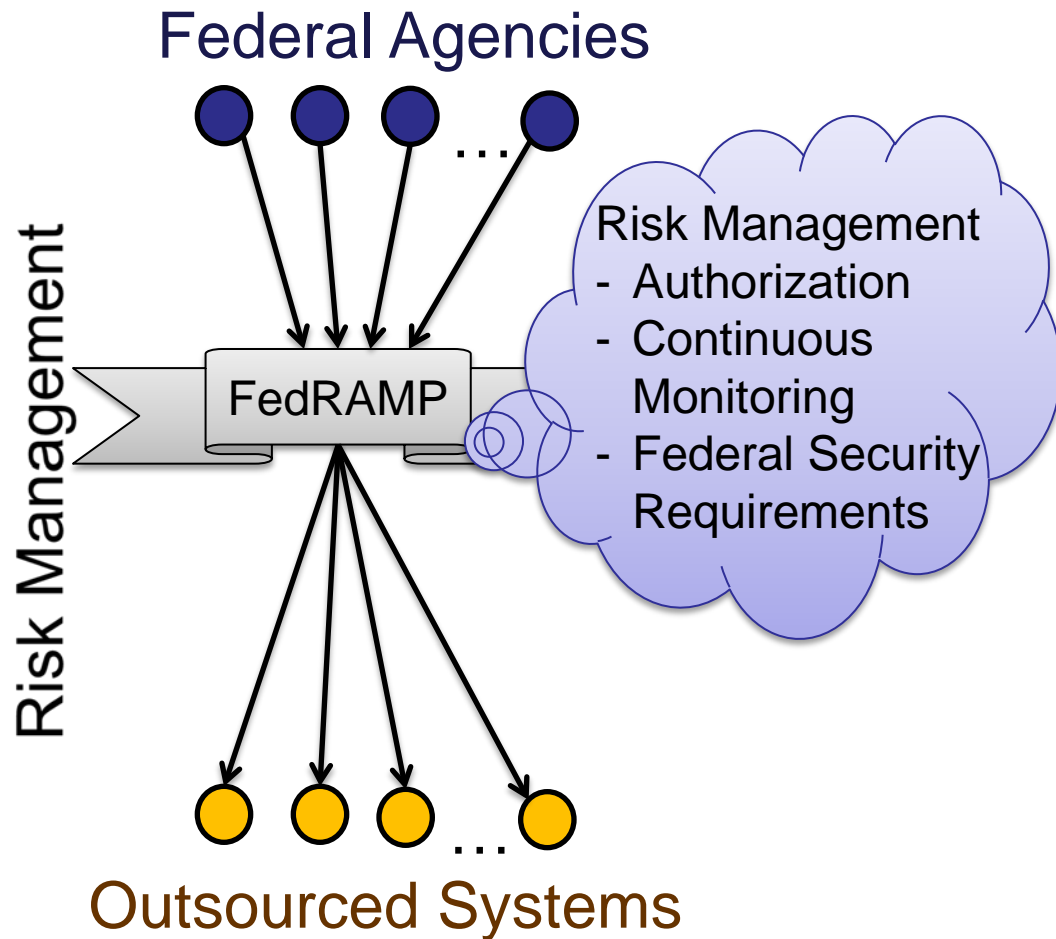


: Acquisition slowed by lengthy compliance processes



: Potential for inconsistent application of Federal security requirements

Solution: Government-wide Risk Management of Shared Systems



: Risk management cost savings and increased effectiveness



: Interagency vetted approach



: Rapid acquisition through consolidated risk management

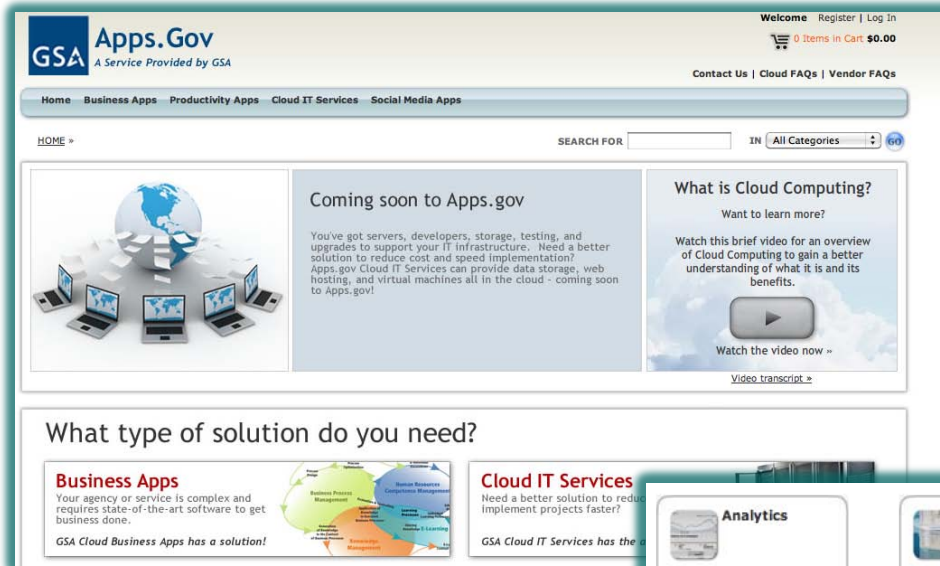


: Consistent application of Federal security requirements

FedRAMP: Federal Risk and Authorization Management Program

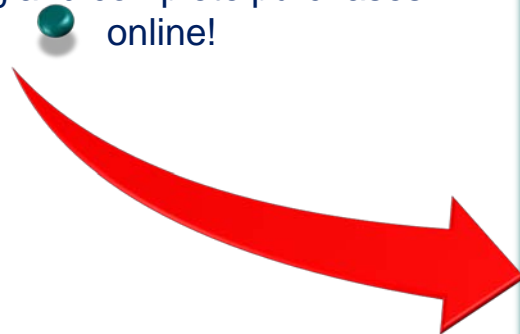
Apps.gov: Simplifying Cloud Procurements

Online storefront for Cloud Services



Recently updated, Apps.gov provides government buyers with information and buying tools to complete their procurements.

Government users can identify cloud solutions by category, find pricing and complete purchases online!



Analytics Data analyzing software that helps your agency make decisions and improve processes. VIEW ALL	Asset management Software that may include financial analysis, asset selection, and other financial software. VIEW ALL	Business intelligence Software providing historical, current, and predictive views of business operations. VIEW ALL	Business management Software that helps you plan, organize, staff, and control your organization. VIEW ALL	Business processes Software for management, operational and supporting processes that helps your agency. VIEW ALL
CRM Track and organize info about your current and prospective customers to improve service. VIEW ALL	Communication Software that helps facilitate communication between various groups or systems. VIEW ALL	Configuration management Helps you manage and control changes to software projects. VIEW ALL	Dashboard Easy to read executive overview information displayed in a dashboard presentation. VIEW ALL	Data management Your data is a valuable resource. Use these tools to help you manage your data. VIEW ALL
Design Software to help you design for web and other media. VIEW ALL	EDI/XML translation Included translation software for both EDI and XML. VIEW ALL	ERP Software that serves your enterprise. Includes accounting, purchasing, HR and more. VIEW ALL	Educational and training Software for delivering, tracking and managing training and education over the Internet. VIEW ALL	Electronic commerce & auction tools Cloud web commerce and online auctioning. VIEW ALL

Upcoming

- Cloud Computing Executive Steering Committee Meeting
- Storage Virtualization: The Next Revolution in the Federal Cloud
- Security Working Group Meeting
- Standards Working Group Meeting
- Cloud Computing Advisory Council Meeting

Quick Reference Docs

- IaaS RFQ (pdf)
- SaaS RFI (pdf)
- SaaS June Update Rqmts
- OMB Circular A-11

Welcome to Info.Apps.gov

Info.Apps.gov is a place where agencies can gather information about how Cloud Computing can help create sustainable, more cost-effective IT Services for the Federal Government.

Getting Started

- What is Cloud Computing?**
Get to know the five characteristics of cloud computing, its services and deployment models.
- When Cloud Computing Makes Sense**
Find out what types of scenarios could benefit from moving to the cloud.
- What are the Services?**
 - Software as a Service (SaaS)
 - Infrastructure as a Service (IaaS)
 - Platform as a Service (PaaS)

Cloud Highlights

- Online seminar: Storage Virtualization, the Next Round of the Federal Cloud (June 10)
- Getting to 'Yes' in the Federal Cloud (May 25)
- GSA Solicitation Solidifies Cloud Commitment
- Cloud Computing: Two Steps Forward, Two Steps Back (May 24)
- Feds Advance Cloud Adoption Plans (May 21) SA
- Australia, UK Put Government Data

Keeping you informed in upcoming events!

Reference Documents at your fingertips!

News and Information on Cloud and Data Center Topics

Provides tools to navigate the cloud landscape.

Info.Apps.gov is a place where agencies can gather information about how Cloud Computing can help create sustainable, more cost-effective IT Services for the Federal Government.

- **Prototyping/Proof of Concept**
- **Web Application Serving**
- **Public-facing Web Sites**
- **Collaboration**
- **Development/Testing**
- **SaaS**

Looking for.....

- Try before you buy
- Unpredictable workload
- Peripheral processing
- Cost avoidance
- Large interactive customer base
- Avoid Redesign
- Rapid Provisioning
- Large Economies of Scale

Benefits Realized By Agencies To Date

- Cost Reduction
- Faster Deployment of Systems
- Faster Access to Information
- Increased Productivity
- Scalability
- Improved Vulnerability Assessment
- Improved Self-Service Capabilities

Agencies That Have Implemented

- Bureau of Engraving and Printing
- Environmental Protection Agency
- Army
- Air Force
- Veterans Affairs
- General Services Administration
- NASA
- NASA Jet Propulsion Laboratory
- Securities and Exchange Commission
- Social Security Administration
- Department of Treasury
- USDA Forest Service
- Department of Defense DISA
- Federal Labor Relations Board
- Department of the Interior

Agency Name	Description	Highlight
Air Force	Requirement for 44.3% reduction in staff by 2013 led to cloud implementation to manage web self-service, incident management, customer surveys, analytics, and knowledge management	<ul style="list-style-type: none"> • Savings of \$4m/year in manpower reductions • Time for locating customer information reduced from 20 min to 2 min
Bureau of Engraving and Printing	Used SaaS services to replace BEP's public-facing webpage and the eCommerce storefront	<ul style="list-style-type: none"> • Reduced infrastructure costs from \$800k to \$1,550
GSA	Consolidated emergency notification systems into one SaaS product, available 24x7	<ul style="list-style-type: none"> • Reduced annual maintenance costs from \$77k to \$17k, about 22% • Increased security and eliminated capital costs
NASA Jet Propulsion Lab	Used cloud solution to complete processing of 180,000 high-res images from the Cassini spacecraft in 5 hours	<ul style="list-style-type: none"> • Processing costs totaled less than \$200 • Imagery in the hands of scientists two weeks ahead of the schedule provided by in-house IT resources
SEC	Used cloud solution to handle increase in investor inquiries to the Office of Investor Education of up to 90,000 contacts annually	<ul style="list-style-type: none"> • Reduced investor response time from 30 days to 7 days • Created a paperless system for handling investor inquiries • Reduced timeline for system configuration from months to minutes
SSA	Used cloud technology to develop the Online Answers Knowledge base to manage the millions of inquiries SSA receives annually	<ul style="list-style-type: none"> • Nearly 99% of \$25m web self-service sessions handled without agent intervention • Largest work year savings of any existing eService
Treasury	Moved to a cloud-based system for the Treasury Vulnerability Assessment System	<ul style="list-style-type: none"> • 458% Increase in scanning • 86% reduction in cost per scan • 12% increase in vulnerability detection • Production operation and deployment in 1 day • Freed 2 Engineer FTE's