

NOAA's Approach to Consolidation in the Cloud

David Layton
Chief Enterprise Architect
NOAA OCIO

May 16, 2012



Agenda



- What's Driving the Transition to the Cloud?
 - The Business Case for Cloud Computing
 - Federal Cloud First Policy
- NOAA's Cloud Transition Approach
 - Migration Framework
 - Selecting Services for Transition
 - Implementation Guidance
- NOAA Lessons Learned from the Cloud



The Business Case For Cloud Computing

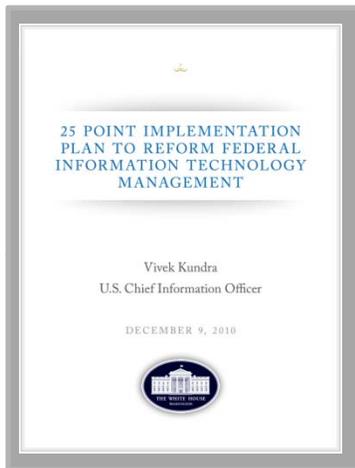


Cloud Technology versus Legacy Data Center Infrastructure

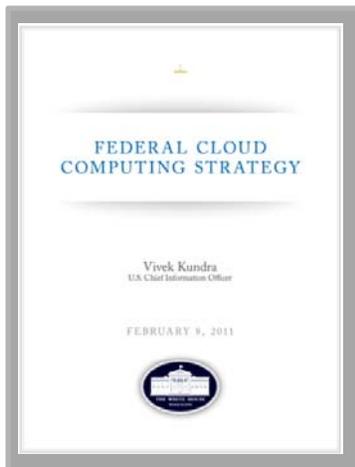
EFFICIENCY	
Cloud Benefits	Current Environment
<ul style="list-style-type: none"> Improved asset utilization (server utilization > 60-70%) Aggregated demand and accelerated system consolidation (e.g., Federal Data Center Consolidation Initiative) Improved productivity in application development, application management, network, and end-user 	<ul style="list-style-type: none"> Low asset utilization (server utilization < 30% typical) Fragmented demand and duplicative systems Difficult-to-manage systems
AGILITY	
Cloud Benefits	Current Environment
<ul style="list-style-type: none"> Purchase "as-a-service" from trusted cloud providers Near-instantaneous increases and reductions in capacity More responsive to urgent agency needs 	<ul style="list-style-type: none"> Years required to build data centers for new services Months required to increase capacity of existing services
INNOVATION	
Cloud Benefits	Current Environment
<ul style="list-style-type: none"> Shift focus from asset ownership to service management Tap into private sector innovation Encourages entrepreneurial culture Better linked to emerging technologies (e.g., devices) 	<ul style="list-style-type: none"> Burdened by asset management De-coupled from private sector innovation engines Risk-adverse culture



Federal Cloud First Policy



- The Federal “Cloud First” policy is grounded in the Federal CIO’s [25 Point Implementation Plan to Reform Federal IT Management](#), and revolves around a three-part strategy:
 - Using commercial cloud technologies where feasible
 - Launching private government clouds
 - Utilizing regional clouds with state and local governments where appropriate



- The [Federal Cloud Computing Strategy](#) requires agencies to default to cloud-based solutions whenever a secure, reliable and cost-effective cloud option exists
- Recognizes that transition to the cloud:
 - Requires a dramatic shift in the way agencies acquire IT – from capital expenditures to operating expenditures
 - Entails a learning curve as the government analyzes how to best procure the new service-based model



NOAA's Cloud Transition Approach

Migration Framework



Select

- Identify which IT services to move & when
- Identify sources of value (efficiency, agility, innovation)
- Determine organizational readiness, security, market availability & technology lifecycle

Provision

- Aggregate demand where possible
- Ensure interoperability & integration
- Contract effectively
- Repurpose/decommission legacy infrastructure to free resources

Manage

- Shift IT mindset from assets to services
- Build new skillsets
- Actively monitor SLAs
- Re-evaluate service models periodically

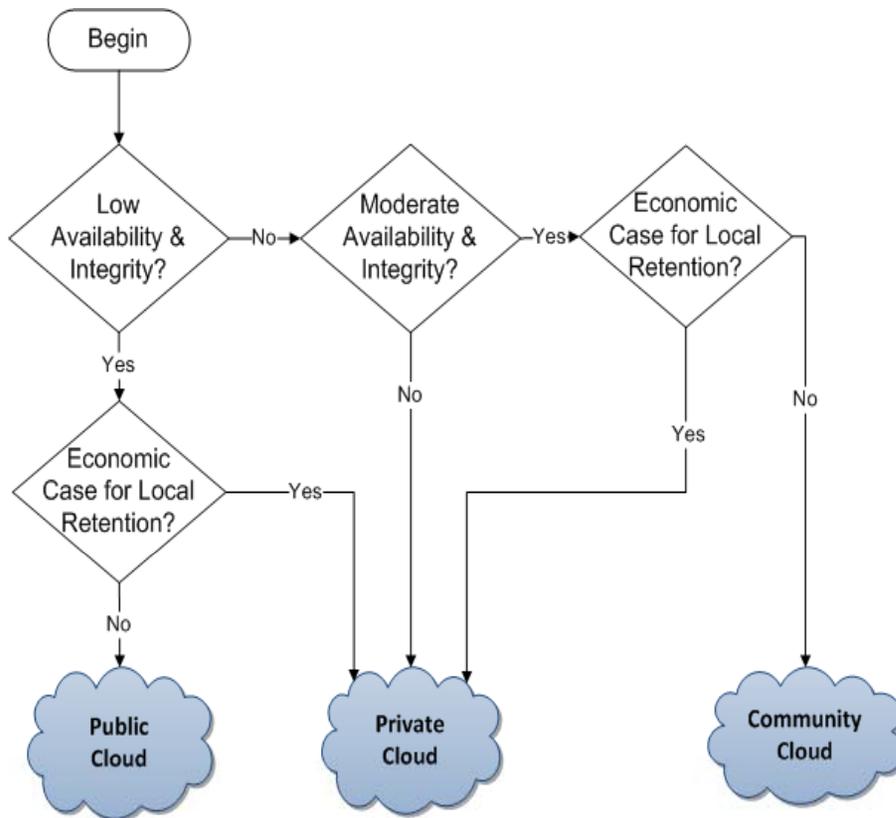


NOAA's Cloud Transition Approach

Selecting Services for Transition



Cloud Transition Decision Framework



- **Public Cloud** - available to the general public or a large industry group and is owned by an organization selling cloud services.
- **Community Cloud** - shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off premise.
- **Private Cloud** - is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

Source of Cloud Definitions: NIST Special Publication (SP) 800-145.



NOAA's Cloud Transition Approach *Implementation Guidance*



- Plan required investments now:

FY-12	IT capital investments must demonstrate that cloud solutions were considered as an alternative
FY-13	IT capital investments must justify why cloud alternatives were not selected (i.e., cloud is the default solution - absent a justification for why not)

- Virtualize first
- Acquire commodity IT cloud services strategically based on aggregated requirements
- Use NOAA Data Center Consolidation Plan as a driver
- Build on previous NOAA cloud success stories and lessons learned



NOAA Lessons Learned from the Cloud



- Have an exit strategy going in
- Learn from those who have gone before
- Terms of Service matter
- Communications are critical
- Training is essential
- Watch for policy gaps
- Pilots should be pilots