



Cloud and Mobility

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Delivering revolutionary business transformation within a government agency requires navigating a complex maze.

- To deliver solutions through the RightPath framework, we have partnered the best of the NNSA and OCIO capabilities into one integrated team:
 - Program Manager – Travis Howerton, NNSA
 - Architecture – Anil Karmel, NNSA
 - Operations – Robbie Green, OCIO
 - Policy/Partnerships – Peter Tseronis, OCIO
 - Cybersecurity – Mary Hitson, NNSA

There is a perfect storm of disruptive technology on the horizon that will enable a leaner, smarter government.

The key is to have a framework that enables you to turn ideas into execution.





National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources

Cloud Computing

Organizations are faced with large existing technology investments and dwindling budgets



US Data Centers consume between 1.7-2.2% of the energy budget

YOUR cloud



INFRASTRUCTURE ON DEMAND

Virtual Desktops

Enterprise Services
(e.g. ONEvoice)

Servers

M&O Cloud

DOE IE Cloud

NNSA 2NV Cloud

Other Federal
Gov't Clouds

M&O / DOE
Site(s)

Commercial
Cloud Service
Providers

Other
Government
Sites

Cloud
Portal

Service
Catalog

YOURcloud
Enclaves

Secure Hybrid Cloud

LANL's Infrastructure on Demand is the Department's first Infrastructure-as-a-Service secure hybrid cloud service broker to automatically request and provision virtual servers

Value Added Features / Services:

- Full backup / recovery of systems
- System Administrators will support the underlying infrastructure
- No ongoing infrastructure refresh costs
- Automatically provision virtual servers

Requestor Responsibility:

- Security plan
- System Administration / Maintenance of operating system and application

Security Journey

TRADITIONAL SECURITY

Complex

- Multiple provisioning interfaces
- Overlapping admin roles
- Multiple point solutions



Rigid

- Agents in each VM, AV storms
- No granular segmentation
- Rigid – Policies tied to servers



Labor Intensive Compliance

- Not change-aware, data leaks
- Manual assessment
- Manual remediation



VIRTUALIZED SECURITY

Simple

- Single interface for provisioning
- Separation of duties
- Firewall policy reduction
- Virtual security appliances

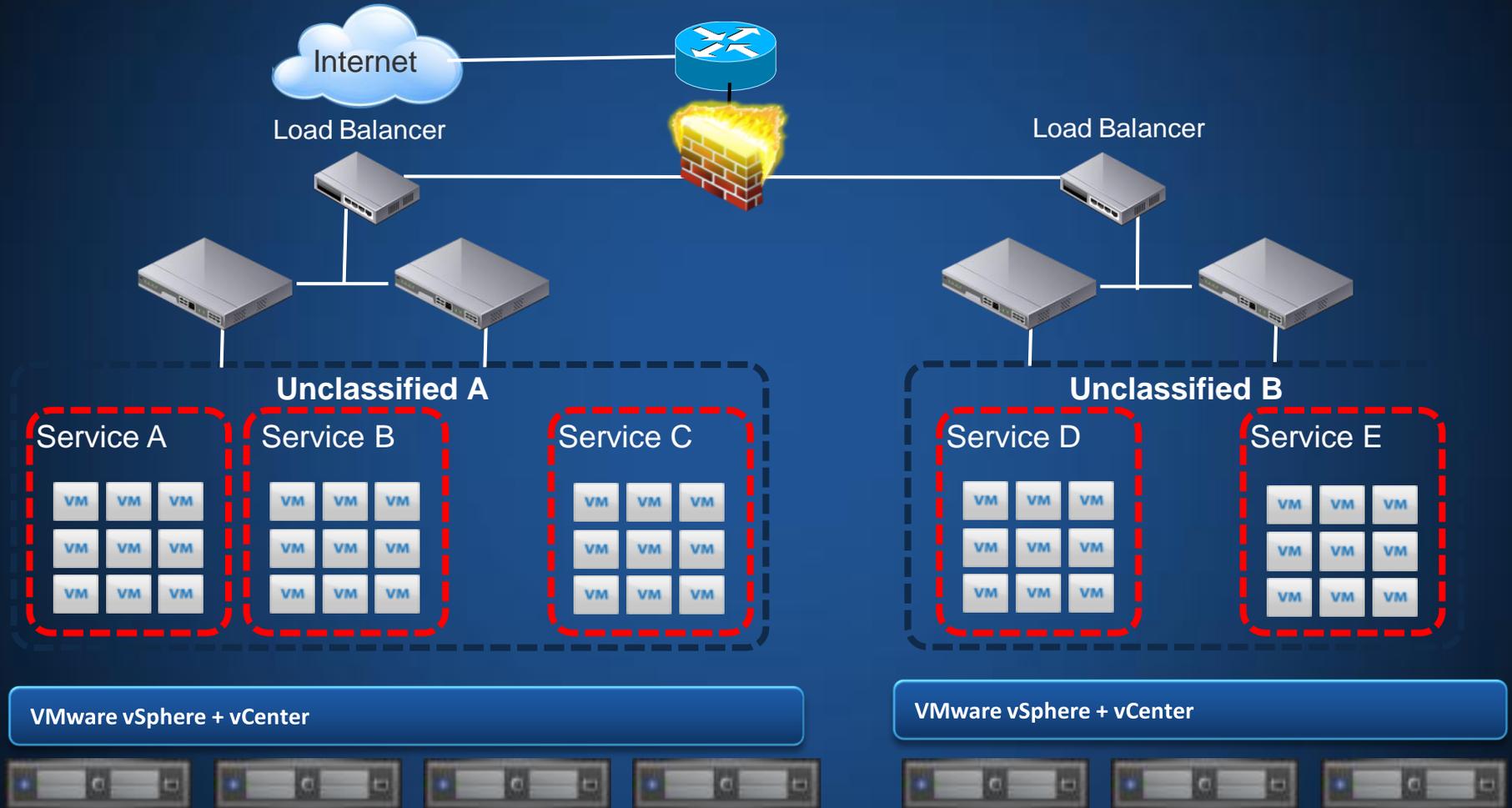
Adaptive

- Agentless
- Adaptive trust zones, compromised apps quarantined
- Virtualization aware firewall

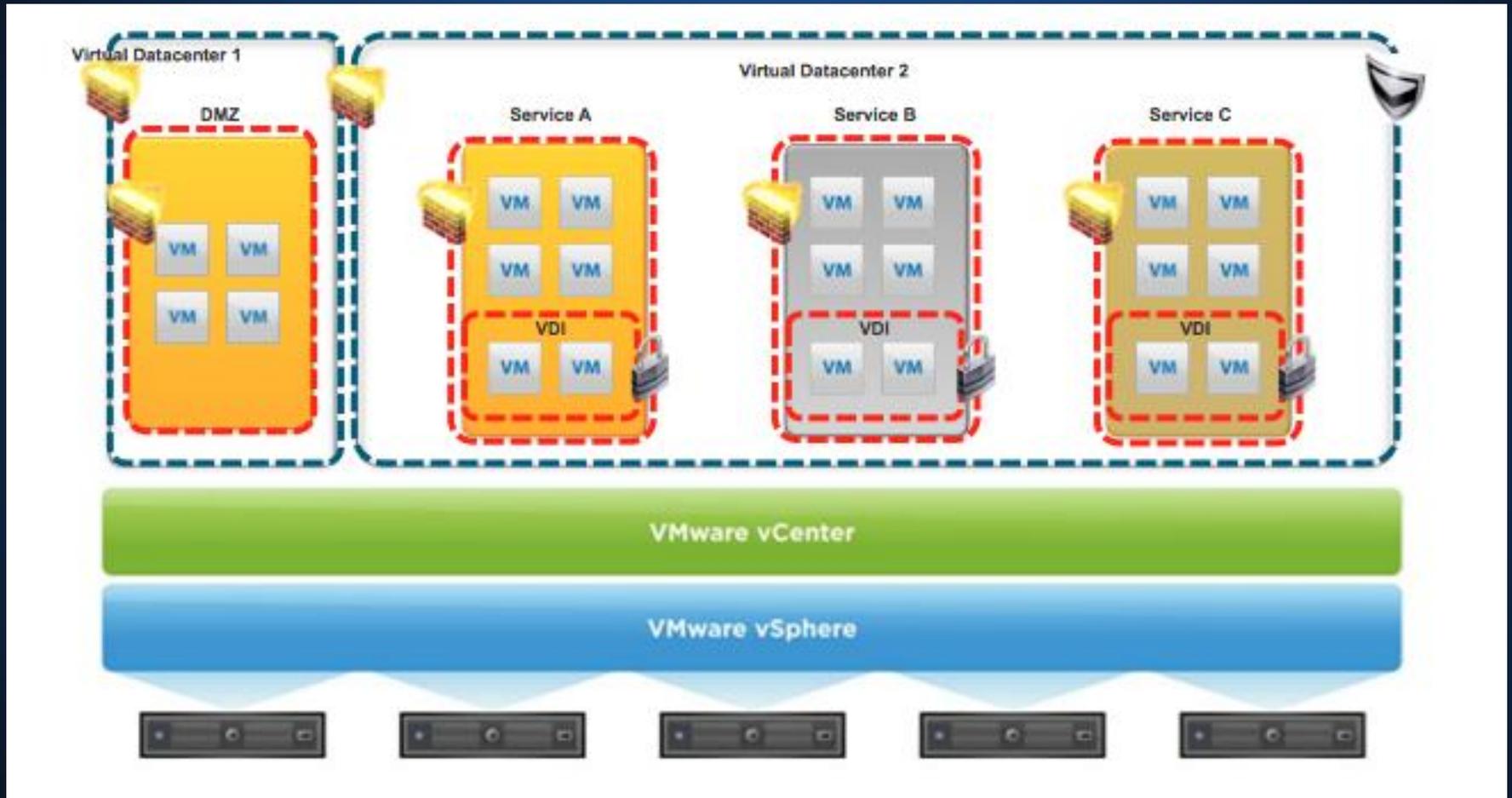
Automatic Compliance

- Discover sensitive data
- Continuous assessment
- Automated remediation, programmable

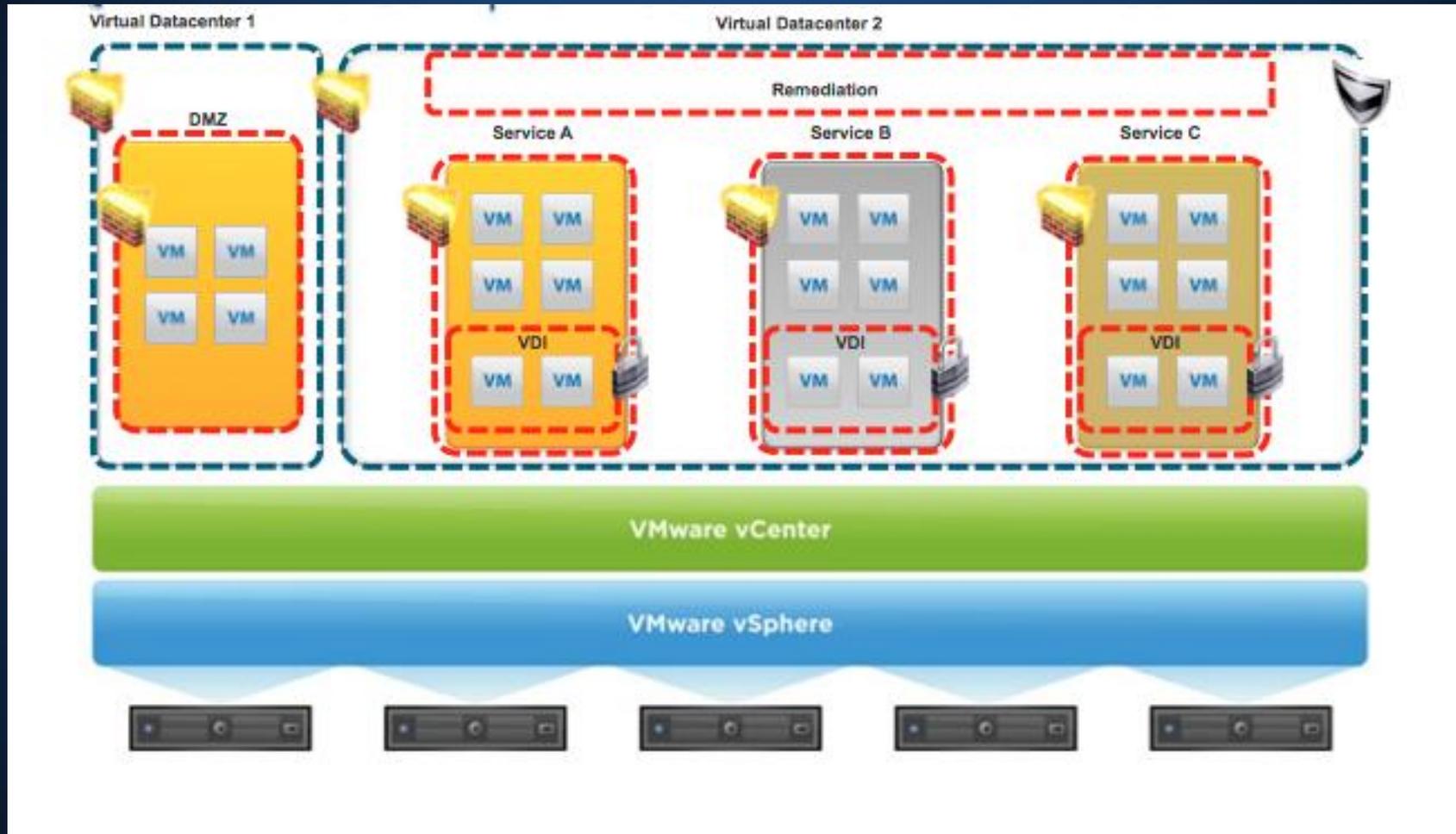
Physical Security Architecture



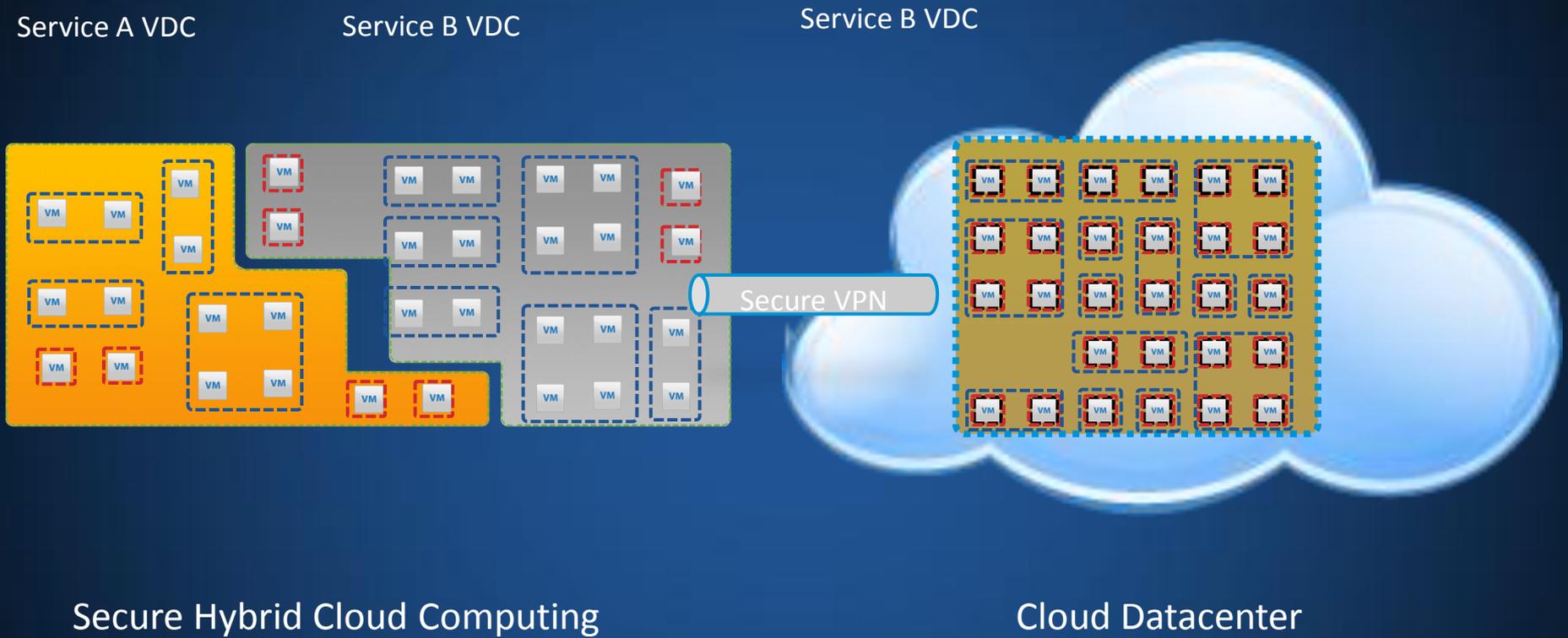
Cloud Security: Protect the VDI Clients



Cloud Security: Quarantine the Compromised Virtual Machines

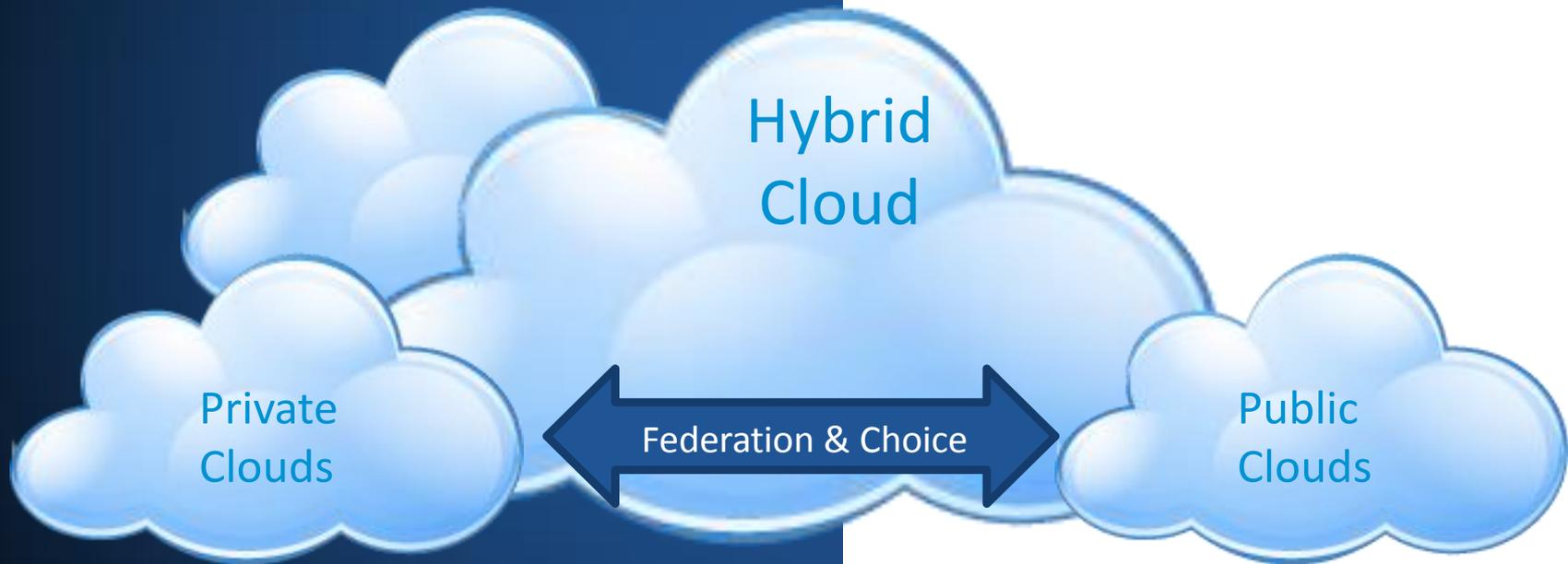


Secure Hybrid Cloud Computing



Cross Cloud Management Makes Hybrid Cloud Real

- Visualize resources across hybrid clouds
- Copy and operate resources across clouds
- Deliver enterprise level security

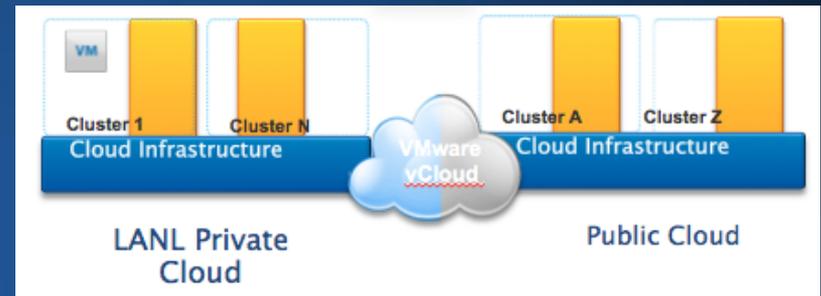


Elastic Compute

Benefits:

Cross cluster mobility
within or across
datacenters

On demand networks
without physical
network configuration



LANL IoD Elastic Compute



INFRASTRUCTURE ON DEMAND



KILOWATT HOURS
188381
 saved per year

Environmentally Sustainable Computing
 Deploying a virtual server as opposed to racking and stacking a physical system results in considerable power savings and reduced electronic waste.
See for yourself!

Green IT»
Streamlined»
Scalable»
Secure»

CLOUD COMPUTING AT LANL

LANL's Infrastructure on Demand (IoD) gives you the ability to request and receive virtual Windows, Linux or Solaris servers. The virtual environment functions identically to a physical environment with greater reliability for users and flexibility for the system owner. Providing basic information on our request form will launch the process to dynamically provision a virtual server on demand, reducing average server provisioning cycle time from 30 days to 30 minutes.

- OUR SERVICE**
- NIE will provide users of this service:
- Full Operating System backups of Virtual Servers on a weekly basis
 - Inobstrusive refresh of the underlying server infrastructure
 - 24x7x365 Tier 3 On-Call Support

- YOUR RESPONSIBILITIES**
- Users of this service (system requestors / owners) will be responsible for:
- Security Plan Compliance (patching of operating system, file backups, etc)
 - Application Installation, Configuration, Maintenance and Support
 - User Interface / Tier 1 and 2 Support

FOR CUSTOMERS

Crypto card login required

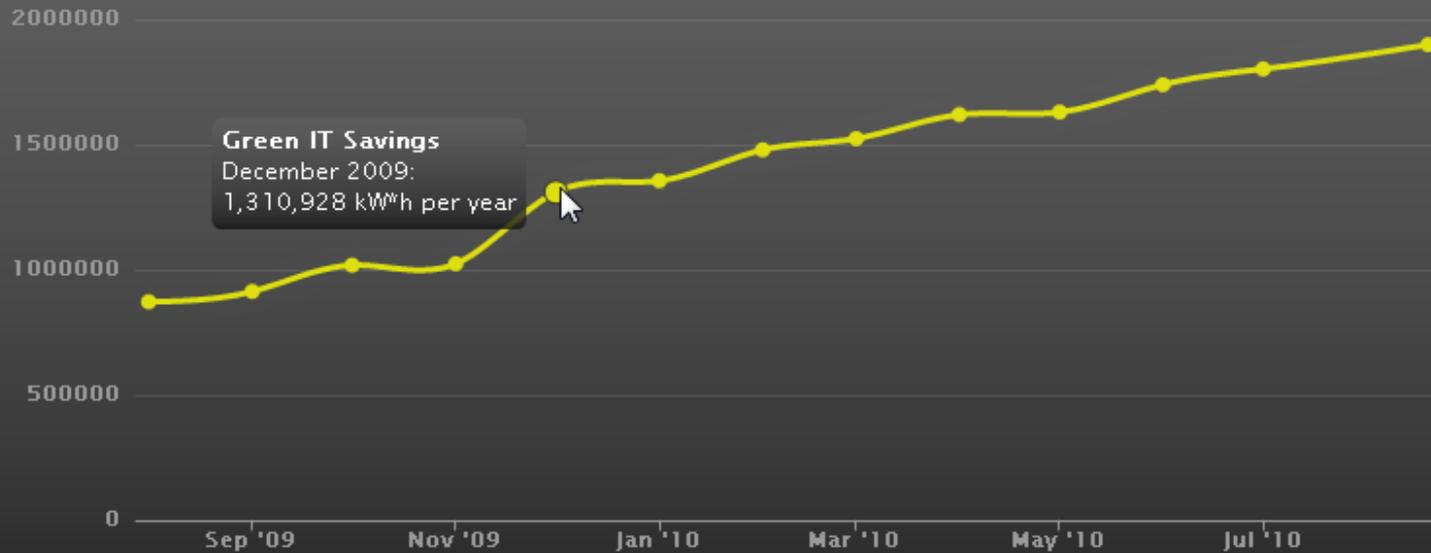
▫ Already a user? [Customer Login](#)

SUPPORT

Please refer to the [FAQ page](#) for all general questions

For further info, contact iod@lanl.gov

Kilowatt Hours Saved Per Year Over Time



Real Life Savings



It takes **8,900** kilowatt hours to provide electricity to **one** average US house for a year. With the energy saved annually through Infrastructure on Demand (IoD), LANL can power **216** homes.



Full Operating System backups of Virtual Servers on a weekly basis

Security Plan Compliance (patching of

SUPPORT

Server Operating System

Linux VM - No OS Installed

CPU: 1 CPU

Memory: 1024MB

Disk Space: 20GB

	 BRONZE	 SILVER	 GOLD
Workload	Normal	High Availability	Mission Critical
Storage	SATA	SATA	Fiber Channel
Replication <small>?</small>	No	Yes	Yes
Snapshot <small>?</small>	4 hrs	4 hrs	2 hrs

Total: \$67 per month

Next

Server Operating System

Windows Server 2008 Standard 64-Bit

CPUs: 2 CPU

Memory: 2048MB

Disk Space: 80GB

	 BRONZE	 SILVER	 GOLD
Workload	Normal	High Availability	Mission Critical
Storage	SATA	SATA	Fiber Channel
Replication <small>?</small>	No	Yes	Yes
Snapshot <small>?</small>	4 hrs	4 hrs	2 hrs

Total: \$134 per month

Next



The main content area of the page is a dark gray rectangle. In the bottom right corner of this area is a login panel with a dark gray background and rounded corners. The panel features the VMware logo in the top left, followed by the "ID" logo and the text "Infrastructure on Demand". Below this, there are two white input fields for "User name:" and "Password:". A checkbox labeled "Keep me logged in" is checked. A white "Login" button is positioned at the bottom right of the panel. The top right corner of the login panel has a decorative graphic of overlapping colored triangles in shades of blue, green, and yellow.



Virtual Machine Management

Virtual Machine Management

Virtual Machine Administration



Virtual Machine Management > Virtual Machines

Virtual Machines

New | Actions | Settings

System Name	CPU (#)	Memory (MB)	Disk (GB)	Total Monthly Cost	Expiration Date	Status
Sum = \$2,881.00						

Requester: [Redacted] (5)

[Redacted]	1	1536	143	\$134.00	12/31/2011	Active
[Redacted]	2	4096	75	\$268.00	12/31/2011	Active
[Redacted]	1	1024	78	\$67.00	12/31/2011	Active
[Redacted]	2	8192	928	\$804.00	12/31/2011	Active
[Redacted]	4	30720	90	\$1,608.00	12/30/3799	Active

Requester: [Redacted] (2)

[Redacted]	2	4096	100	\$268.00	12/7/2011	Active
[Redacted]	1	1024	30.86	\$67.00	12/31/2011	Active

Requester: [Redacted] (1)

[Redacted]	1	4096	80	\$268.00	6/8/2012	Active
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View All Site Content

Documents

Lists

- Virtual Machines
- Snapshots Library

Recycle Bin



Virtual Machine Management

This List: Snapshots Libra

Virtual Machine Management

Virtual Machine Administration



Virtual Machine Management > Snapshots Library

Snapshots Library

New | Upload | Actions | Settings

Name	Virtual Machine	Snapshot Description	Created	Expiration Date
Virtual Machine : SCOTT-TEST (1)				
SCOTT-TEST1 - SCOTT-TEST	SCOTT-TEST		8/4/2011 9:24 AM	8/11/2011
Virtual Machine : TESTMIE (1)				
Heather Test - TESTMIE	TESTMIE	This is a test of the workflows as they stand now	7/12/2011 11:19 AM	7/19/2011

View All Site Content

Documents

Lists

- Virtual Machines
- Snapshots Library

Recycle Bin

Create a New Snapshot

Snapshot Title:

Virtual Machine:

Description:

Warning: If you already have 5 snapshots for this virtual machine, this snapshot will not be created! Please delete one of your snapshots before trying to create a new one.

Also, if you get an error when you try to Create this Snapshot, it is because you already have a snapshot for this Virtual Machine with the same name. Please change the Snapshot Title and try again.

Create Snapshot

Cancel

PEOPLE



Change How People Behave

- Embrace cloud services
- Adapt to new cost model
- Educate users on new self-service delivery model

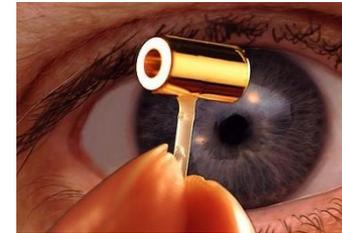
PROCESSES



Change How We Do Things

- Reduce 30 day cycle time to 30 minutes
- Execute business process reengineering
- Reduce physical infrastructure procurements

TECHNOLOGY



Evolve our Capabilities

- Employ best-in-class cybersecurity
- Deploy predefined templates
- Calculate energy savings

Mobility

Delivering a comprehensive platform for
on-the-go worker capabilities

- Deploying modern wireless technology is incredibly difficult within government
- Multiple federal approvals are required that slow speed to impact or block progress all together
- Customers demand devices they are most familiar with yet show little interest in devices we are comfortable with securing
- True wireless automation and a connected government are years, if not decades away

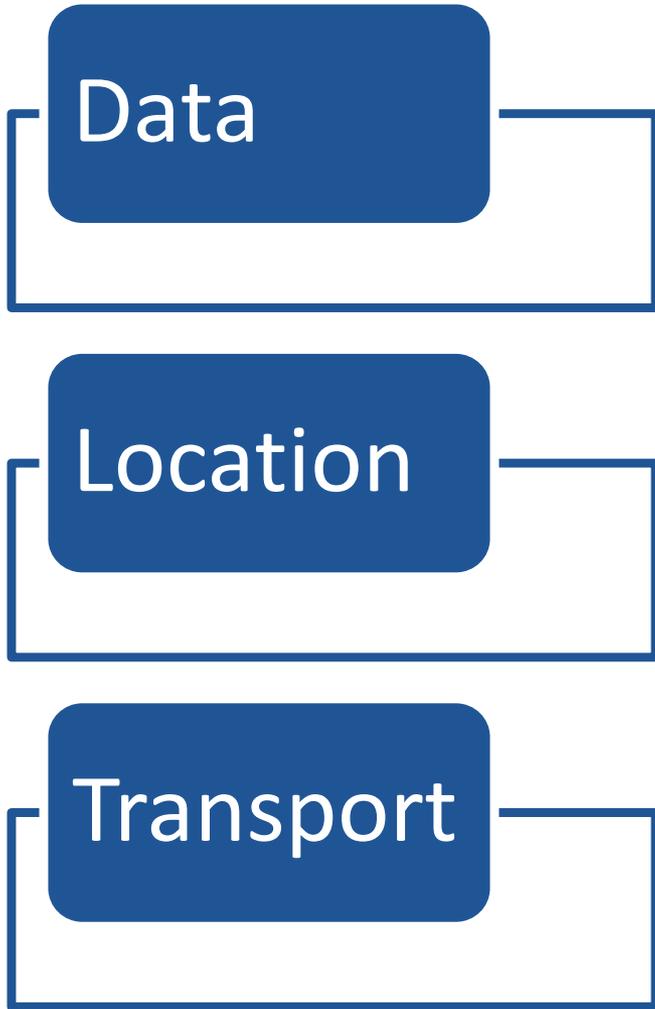
The Enterprise Mobility project takes a field of dreams approach to infrastructure...



To make mobility real...

Data has to be available everywhere,
while limiting where it goes

Rethink Mobility



- There are two main strategies for data security: Virtualization and Containerization. Secure the data not the device.
- Employees must be able to work wherever they are at on the device of their choosing.
- You don't truly understand your risk until you understand your transport.

What Does Mobility Mean For You?

- Virtual Workforce
- Cost Savings
- BYOD
- Classified Wireless

The logo for V FORCE 21 is displayed on a black rectangular background. The word 'V' is in white, 'FORCE' is in white with a blue globe icon replacing the letter 'O', and '21' is in blue.

PEOPLE



Change How People Behave

- Bring Your Own Device
- Mobile/Virtual Worker
- Collaboration
- Mobile Applications

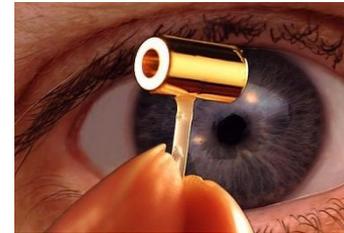
PROCESSES



Change How We Do Things

- Enterprise Mobility Policy
- Risk Management Framework
- Enterprise C&A and Procurements

TECHNOLOGY



Evolve our Capabilities

- 802.11 everywhere
- VDI and containerization
- Sensor Networks
- Classified Wireless

Today's investments create a target rich environment for future cycles of innovation

- Interactive Intelligence
 - Business
 - Social
 - Cyber
- Enabling VForce21
- NextGen Cybersecurity

In less than one year, we will move from an antiquated architecture to thought leaders by leveraging key technologies coupled with people and process evolution to transform an agency

Begin with the end goal in mind

Focus on real business solutions

Take a lean, agile approach to technology

Rapid results

Low risk

Low cost

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