DoD Journey to the Cloud - DISA R.A.C.E. private cloud

- Storage and compute capacity-on-demand in secure Department of Defense datacenters via a Capacity Services acquisition and delivery model

June 14, 2011

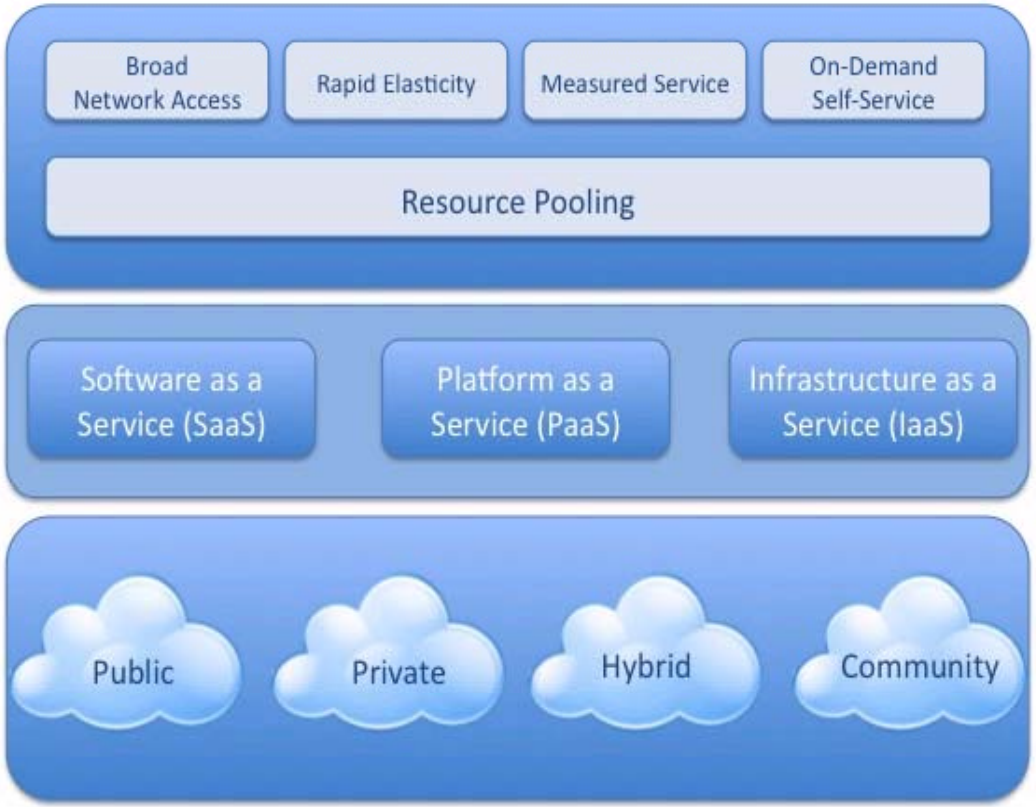
Jana M. Jackson

ViON Corporation

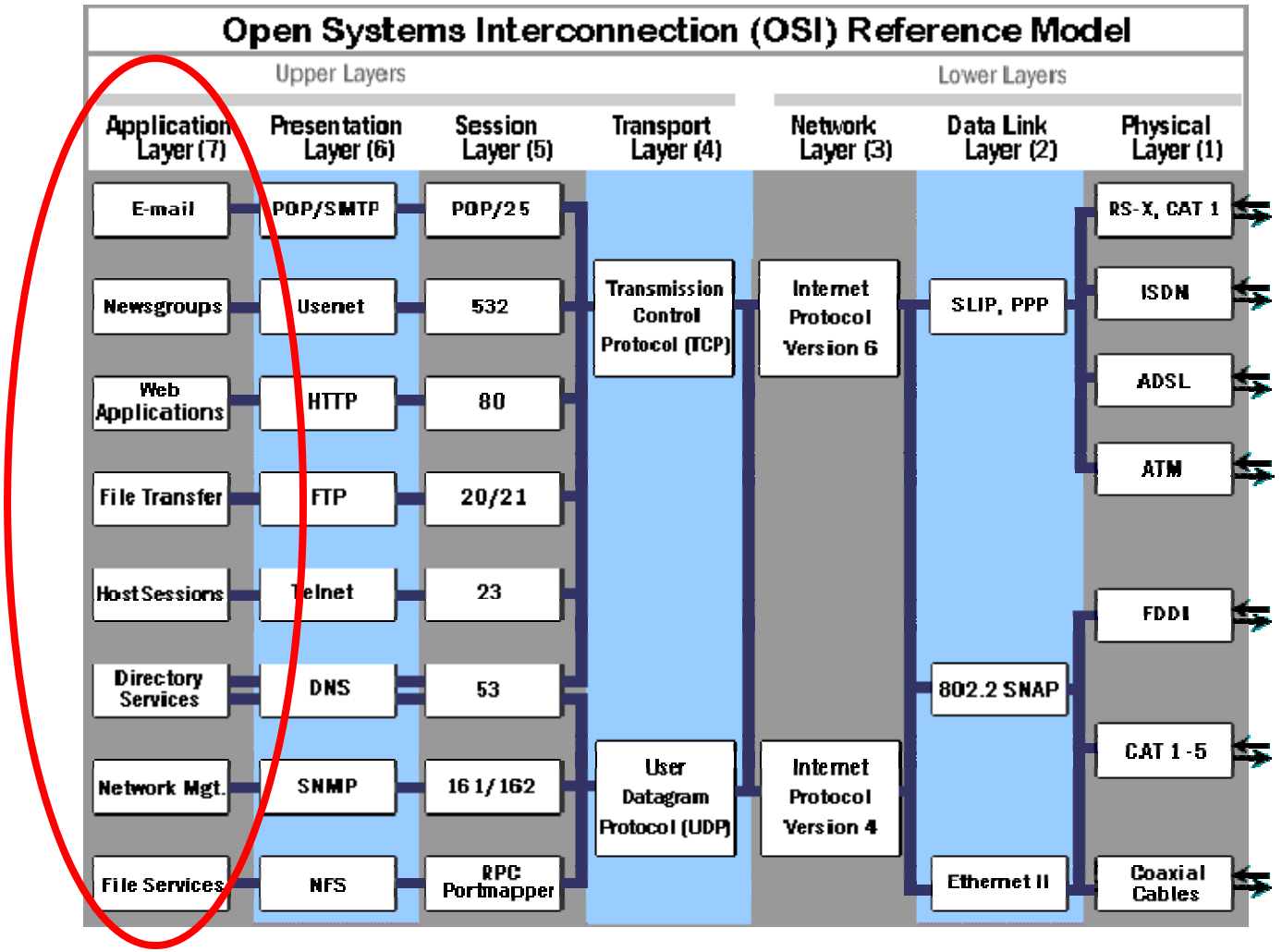
"The Cloud" – 2011 NIST definition

- National Institutes of Standards and Technology (NIST) Cloud Definition – visualized as a "stack"

Visual Model Of NIST Working Definition Of Cloud Computing
http://www.csrc.nist.gov/groups/SNS/cloud-computing/index.html

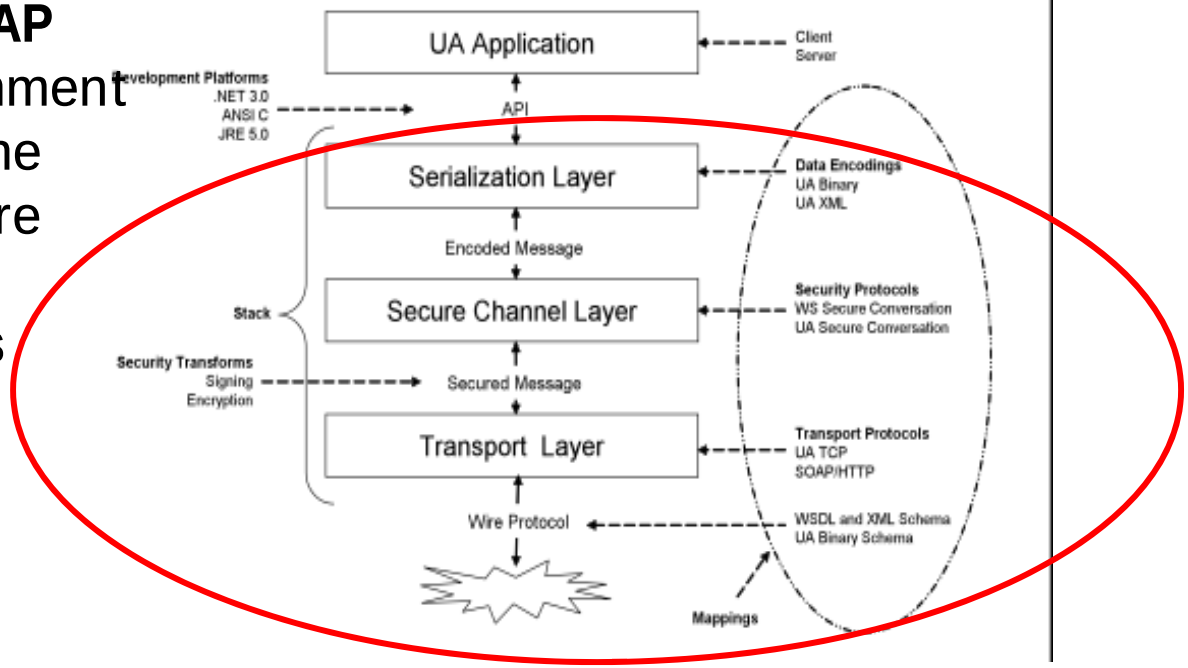


OSI Layers... and "The Cloud" stack



OSI Layers… and securing The Cloud

- This visualization is from the **OPC Foundation**; "layers" to secure against cyber attack align to OSI stack.
- PaaS and SaaS align to OSI Layer 7, i.e., the "Application" layer
  - recommended security techniques and mechanisms reside below (Serialization, Secure Channel, Transport, etc. - in OSI Layers 1-6). Cloud services accessible to government users at the Layer 7 level lack government control over the full stack
  - **FISMA & DIACAP** require government control over the security posture of the entire OSI stack, plus the physical datacenter



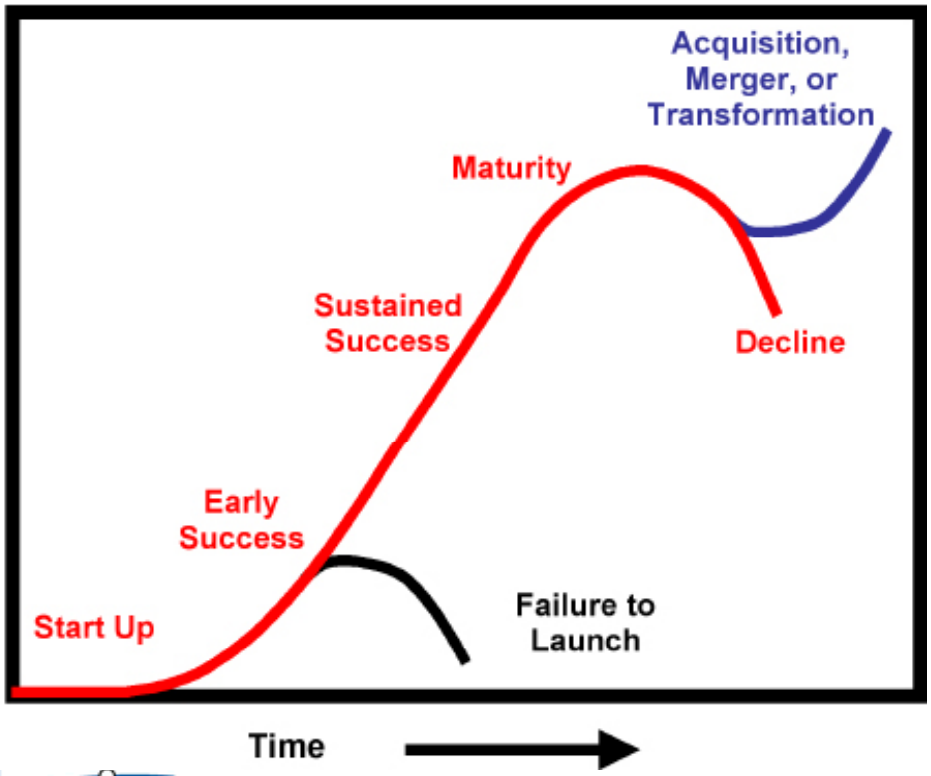
Case Study – Visits and Epiphanies

- DISA's 2006-2010 Corporate Engagements and Journey to the Cloud
- Chief Information Officer and Director, Strategic Planning (CIO/SPI); Chief Technology Officer; Chief Information Assurance Executive; Deputy CIO; and Corporate & Customer Engagement Executive
  … see below some companies who's corporate strategists' talked to us

Case Study – Hype & Business Cycles

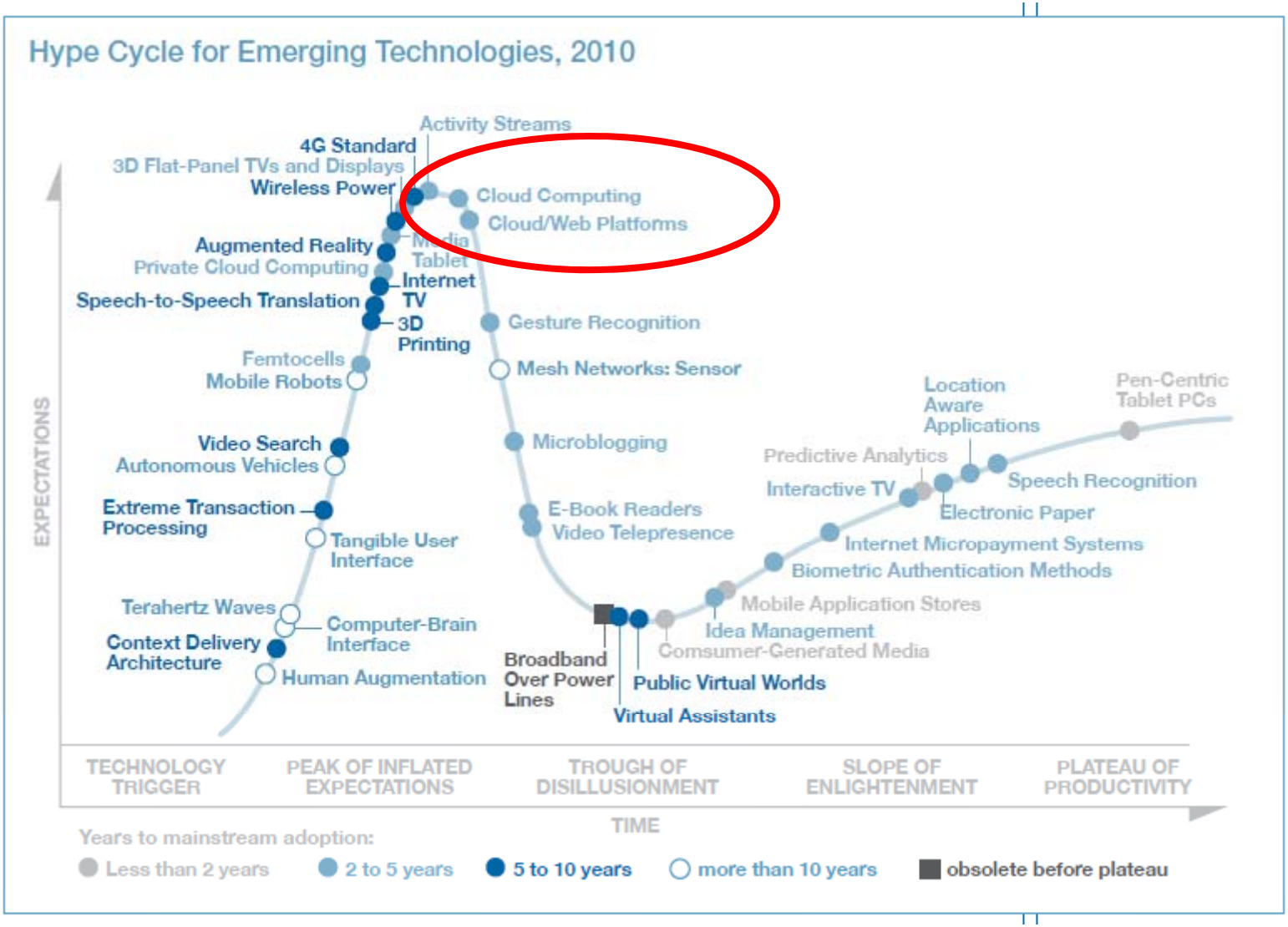
Comparing and contrasting

- The business cycle
- The Gartner Hype Cycle



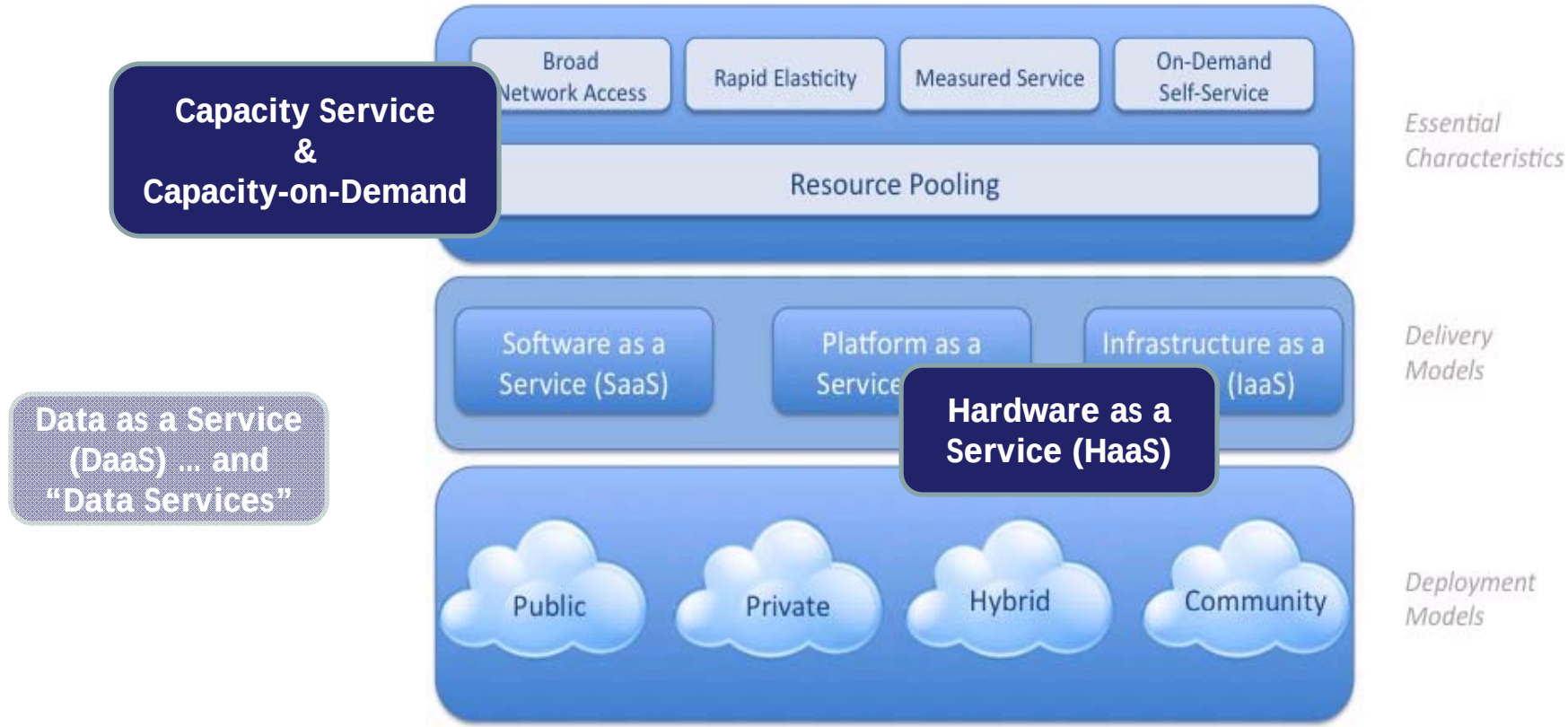
Source: Gartner (August 2010)

Case Study – Gartner on "The Cloud"

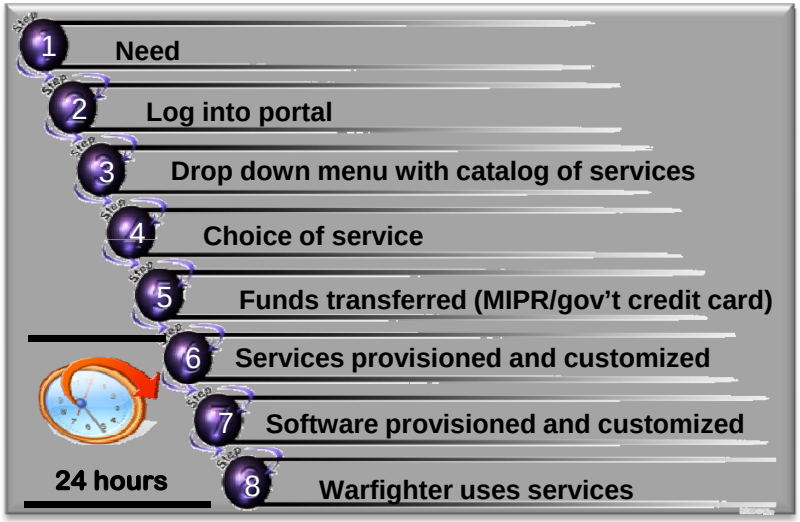


Case Study – Dept of Defense Cloud

- Initiated late 2006, launched 2008 as "**DISA R.A.C.E.**"
- **HaaS** delivery model: gear hosted inside secure gov't facility
- **Capacity Service** acquisition & funding strategy
- **Capacity-on-Demand** delivery & sustainment model

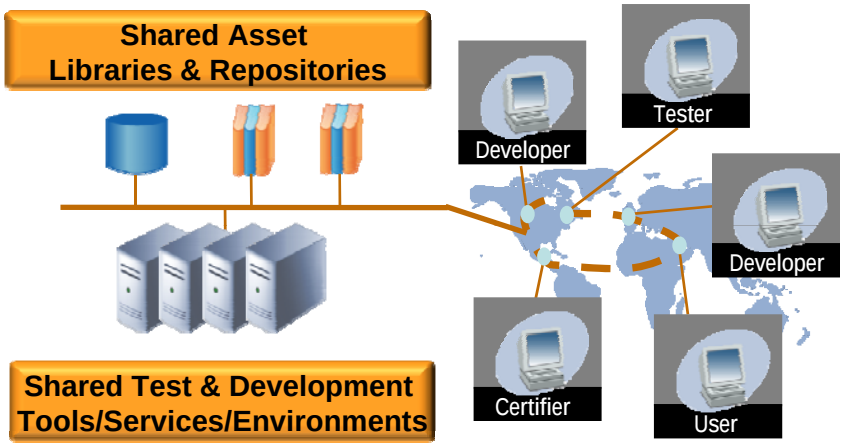


DISA RACE - Private DoD Cloud



- Warfighters determine what & how much they use
- Pay for what you use – scale up & down in minutes

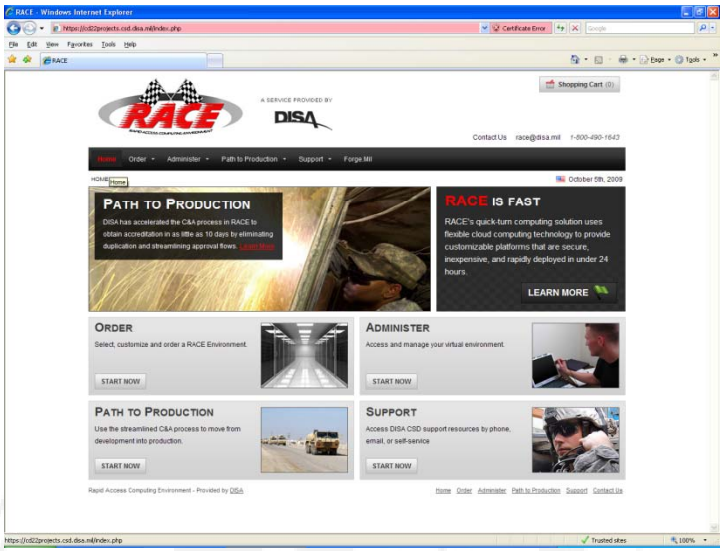
Rapid, Standard, Self-Service Capabilities
Self-provisioned Data Processing & Storage



A collaborative platform for rapidly deliver of Dependable software and services in support of net-centric operations and warfare

Agile Development
And Testing

DISA RACE - Private DoD Cloud



FY09/FY10

- Development/Test
  - 24-hour automated provisioning
  - Customer root access
  - Ability to promote from Dev to Test
  - Standard CSD Operating Environments (LAMP & Windows)
  - Minimized and streamlined accreditation
  - Increase capacity ~ 24 hours
  - Month-to-month service
  - Reduced cost

Today

- Production
  - RACE T&D customers can acquire Production via RACE Portal
  - Ability to promote from test to DECC production
  - Integrated, Automated accreditation process
  - Interface with Forge.Mil
  - SIPRNet deployment

FY11 Initiatives

- Begin offering Platforms as a Service
- Develop Enterprise Portal
- Interface with Forge.Mil continuous integration services
- Offer application software in RACE

User Self-Service ~ Highly Standardized ~ Cost Effective ~ Fast

Case Study – Eipolgue

- Government "Capacity Services" acquisition strategy and contracting, Vs. Commercial "Cloud" models
- The 2011 GSA Cloud BPA agreements for FED & STATES
  - 7-step GSA order process; vendor establishes administrator account; 12 actions to set up instance
  - Terms and conditions – commercially reasonable practices Vs. the Federal Acquisition Regulation (FAR)
  - Commercial providers Vs. government contractors - how business models affect assumptions of risk
  - Accountability – government contract language and punitive remedies Vs. pay-it-forward "service credits"
- What are suitable applications and data for governments to put in the commercial Cloud?

Questions?

Jana.Jackson@vion.com

(703) 864-0084

Backup Slides

Federal Budget Battles Wreak Havoc with DoD Programs

Problem Statement

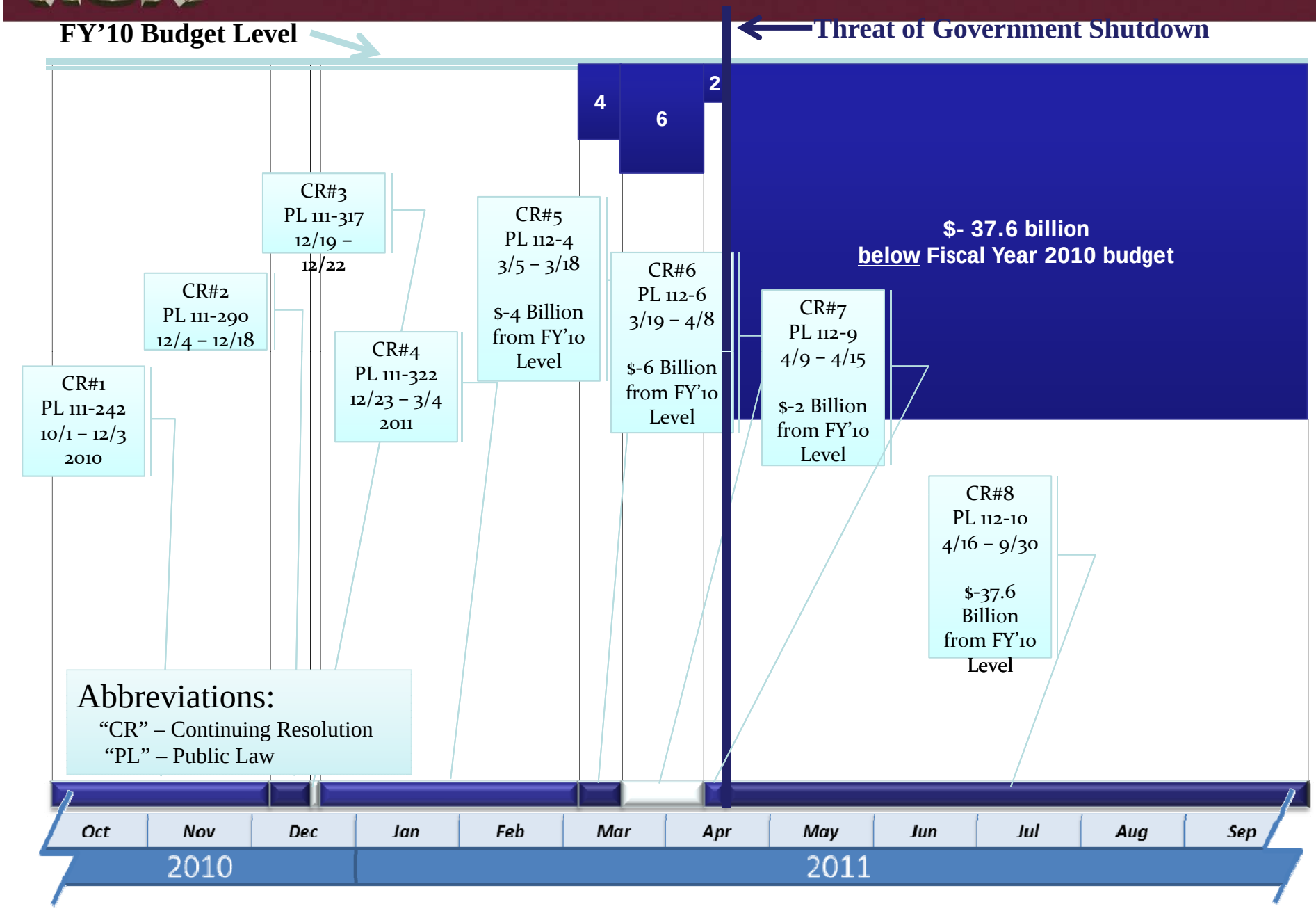
January 27, 2011 – a SPAWAR Program Manager to DON CIO Terry Halvorsen,

Information Technology programs-of-record are being delayed or caused to fail due to being "**re-iterated**" and "rocked by **execution year changes** and **reprogramming** that had nothing to do with the program manager."

- Re-iterated = schedules of capability deliverables are refactored.
- Execution Year Changes = budget changes affecting 'this year' funds.
- Reprogramming = transitioning budget monies to other requirements.

Tremendous risk to program execution.

FY'11 Continuing Resolutions Threaten "Execution Year" Funds



As technology budgets were cut… how did ESS fare?

As technology budgets DoD-wide were cut, the following happened:

Program baselines were re-iterated, re-factored, and reprogrammed
– especially 'discretionary' technology buys (new) and upgrades

Procurements were delayed, re-factored, sometimes cancelled
– especially those funded by Procurement and R&D dollars

Compute and storage capacity continued to operate in the DISA DECCS
– daily operations and technology refresh of the Enterprise Storage Services capacity-on-demand/ capacity services contract continued, unhindered by gov't self-induced delays (i.e., budget battles)

Rates charged for use of the DISA DECCs were lowered
– mandatory 'give back, going forward' of monies saved
– high availability enterprise storage rates went down significantly

DISA's capacity services contracts lessened DoD's risks

Enterprise Storage Services (ESS) – Uninterrupted service

FY'10 Budget Level

Threat of Government Shutdown

Secure data storage – hosted inside Defense enterprise computing centers (HaaS model)

$- 37.6 billion
below FY-2010 budget

CR#1
PL 111-242

PL 111-290
12/4 – 12/18

CR#4
PL 111-322
12/23 – 3/4
2011

$-4 Billion
from FY
2010 Lev

CR#6
PL 112-6
3/19 – 4/8

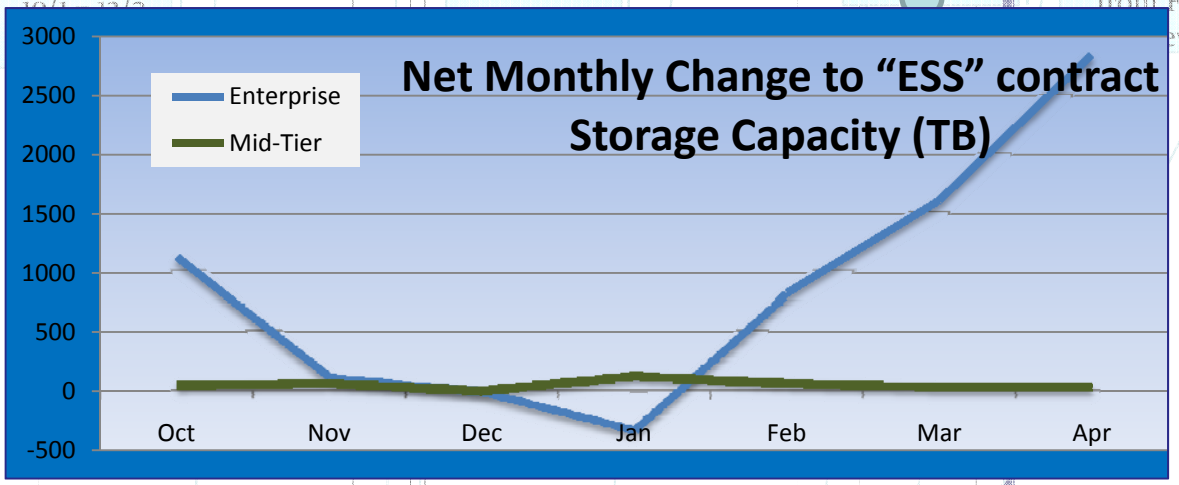
$-6 Billion
from FY
20 evel

CR#7
PL 112-9
4/9 – 4/15

$-2 Billion
from FY
evel

CR#8
PL 112-10
4/16 – 9/30

$-28 Billion
from FY
2010 Level



Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

2010 2011

ESS capacity-on-demand contract continually delivers Tech Refresh

FY'10 Budget Level

Threat of Government Shutdown

Seamless installations and upgrades to gear, including technical refresh

$- 37.6 billion below FY-2010 budget

CR#1
PL 111-242

CR#2
PL 111-290
12/4 – 12/18

PL 111-322
12/23 – 3/4
2011

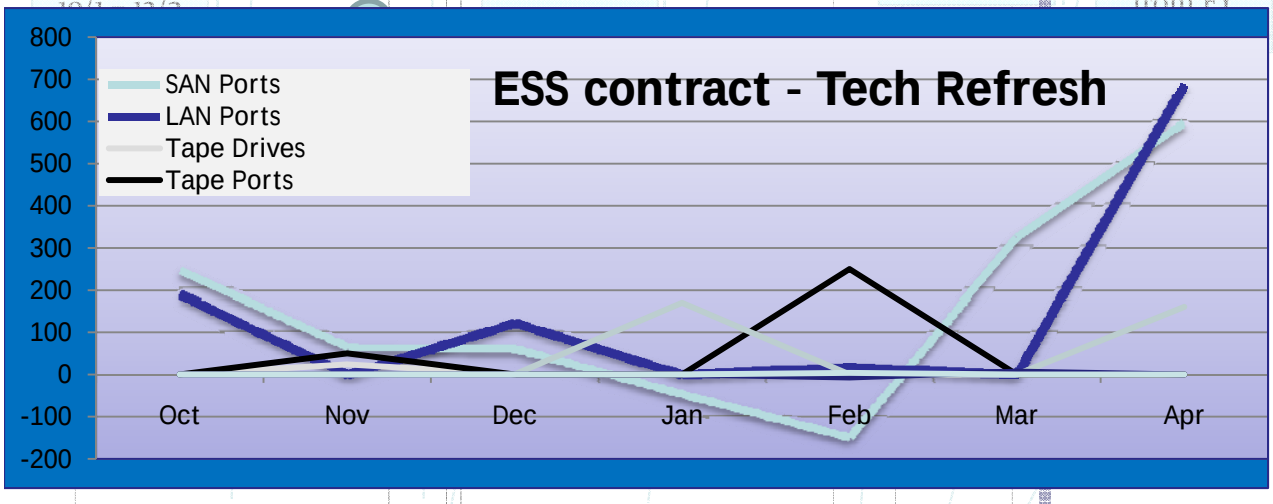
$-6 Billion from FY 2010 Level

CR#7
PL 112-9
4/9 – 4/15

$-2 Billion from FY

CR#8
PL 112-10
4/16 – 9/30

$-28 Billion from FY 2010 Level



Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

2010 2011

ViON and Capacity-on-Demand buffer risk

Characteristics of ViON Capacity-on-Demand Enterprise Storage Service (ESS)

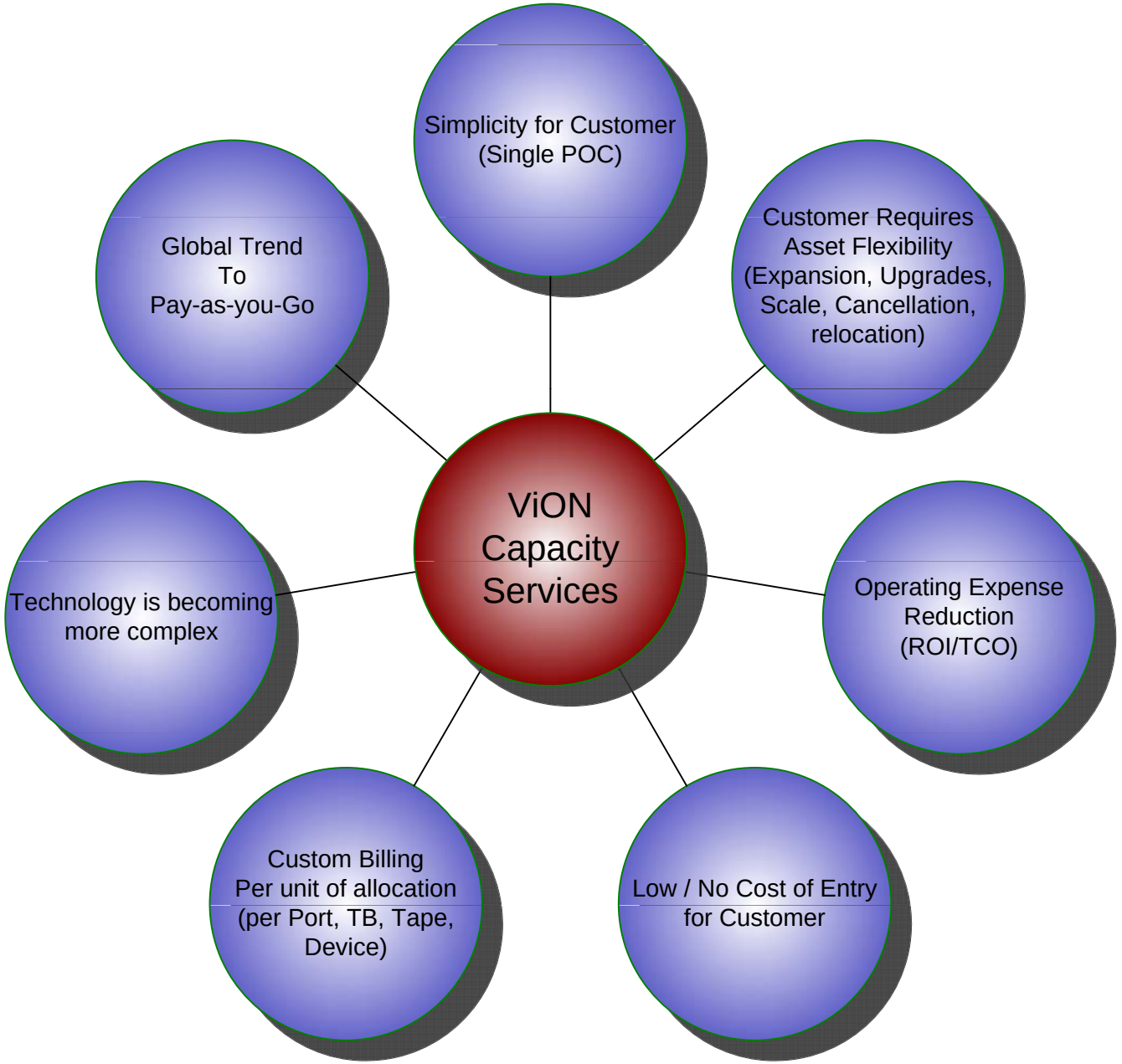
- Tech refresh *and* maintenance are included in the monthly subscription cost
- Enterprise and mid-tier storage, plus associated infrastructure and management software
- Capability is 100% government controlled; hosted & secured inside DoD facilities
- Cloud-like "dial-up/ dial-down" rapid provisioning, in DIACAP-certifiable form
- DoD data is stored, protected, and served-up per government FAR and SLA requirements (as opposed to commercial Cloud provider T&Cs on SLAs)
- Funding is by O&M dollars; lends more stability than Procurement or R&D funding
- Multi-year contract and funding obligations introduce predictability and sustainability
- Since capacity flexes up and/or down, a PM can avoid "purchase-to-peak" creep

Risk Resolution

- Capacity on Demand acquisitions and operations of critical (i.e., MAC I, MAC II) computing and storage infrastructure services are strongly positioned to *mitigate the negative programmatic impacts of execution-year changes to budgets and Congressionally-driven Continuing Resolutions, plus unpredictable capacity fluctuations due to unforeseeable changes (as users self-provision).*

Seven Years Experience Delivering Information Technology as a "CAPACITY SERVICE"

Originating factors



Benefits

Capital-expensed Purchase

- Purchase systems to meet ***projected*** requirements resulting in ordering ***more capacity than needed*** in the short term
- Use procurement funds
- Purchase installation services separately (as separate line items) to "integrate" solution (storage or processing)
- Purchase tech refresh separately
- Purchase maintenance services separately
- You pay
  - Invoice after equipment is delivered, then
  - Invoice for labor hours as delivered
- You are responsible for "ready-for-use"
- Very low "volume purchasing" leverage

Capacity Services

- Purchase the capacity you need to meet ***today's*** requirements scaling up and down as demands dictate
- Use O&M funds
- Services for installation, configuration, and capacity upgrade are included in unit price (no additional charge)
- Tech refresh included
- Maintenance included
- Pay only after equipment is accepted as "***Ready-for-Use***"
- Risk borne by the capacity service provider
- Maximizes "volume purchasing" leverage

Cost Comparison

Capital-expensed Purchase

Inefficient, time consuming purchasing

- Transactional not aggregate requirements
- Doesn't achieve volume discount
- "Add-on" capacity – no discount advantage

Purchase excess capacity routinely

- Predicated on growth *AND* acquisition cycle time
- "Add-on" capacity "paid" in advance

Over-spend in unused capacity

- $$$ invested in hardware and software
- Maintenance $$$ invested
- Inefficient floor space, power, asset use

Continuous purchase cycles

- Each capacity add means a procurement
- Expensive and time consuming

Capacity Services

Efficient purchasing

- Competed on enterprise scale
- Each call order has lowest unit cost
- "Add-on" capacity at lowest unit cost
- Simplified configuration items
- No missed components, extra parts

Just-in-time capacity

- Capacity matched to demands
- Capacity delivered in days

No funding excess capacity

- System sized to meet requirement
- Add capacity as needed – scale up and down

Time savings

- Single procurement
- Streamlined ordering

Risk Comparison

Capital-expensed Purchase

Government retains technical risk

- Government reviews BOM
- Responsible for missing/wrong components

Excess system capacity

- Exceeds “day 1” requirements
- May never grow into system

New procurement action every time

- Add capacity
- Provide missing parts

Government schedules not tied to use

- Delivery = 30 days ARO then invoice
- Installation may be a separate invoice
- Professional services billed monthly
- Then government has “ready-for-use”

Capacity Services

Lower Technical Risk

- ViON responsible for configuration
- ViON “Makes it Work”

Less Schedule Risk

- Shorter “Ready-for-Use” Cycle
- ViON invoices POST “Ready for Use”

Less Financial Risk

- Just-in-Time Capacity
- Add and reduce capacity “at will”

Lower Contractual Risk

- Shorter acquisition lead-time
- Pre-competed
- Vastly enhanced Volume Purchasing