“Future of the Data Center”

Maine Digital Government Summit

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Session Description

A new data center is the perfect opportunity to start fresh by implementing technologies that are *faster, cheaper, greener and more scalable*.

This session will provide you with the latest industry trends for Data Centers as well as an update on Maine's new center focusing on strategies, metrics and opportunities and their potential impact on the State of Maine

We Talk About…

- Driving Innovation to the Citizen
- Getting the most out of limited resources
- Limited capital funding
- Facilities constraints
- Being innovative – being willing to think outside the box
- Changing technology
- Reducing total cost of ownership
- Improving service delivery

And, we talk about…cloud

Trends

Risk management concerns such as Continuity of Government and Emergency Preparedness receiving more attention in the decision process of *where to host* government applications and data

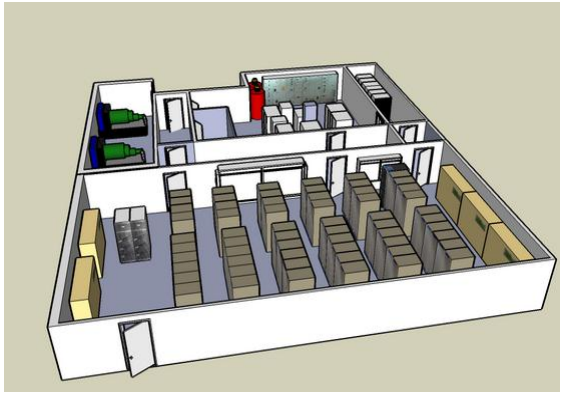
Non-essential services will be hosted with *lowest cost reasonable risk* service providers

Which *may or may not reside* outside government-provided and operated hosting centers

Cloud

Outsource

Co-Lo



A different idea?

Future of the Data Center

- Long-term, the State intends to get out of the data center business, and out-source.
- Before doing so, we would need to figure out how to handle:
  - Legal issues
  - Data security
  - Data privacy
  - Performance guarantees (service level agreement)
  - Operational logistics
  - Maintenance of equipment (if the outsourced service is hosting our servers, etc.)
  - Options for data center hosting

Trends

Selecting *where to host* applications and data resulting in traditional data centers being considered viable alternatives to “The Cloud” website, application, and virtualized infrastructure hosting providers

What Problem Are We Trying to Solve?

Cope with changing technology?

No capital funding?

Go green?

Improve service delivery?

Deal with growth?

Attain scalability?

Reduce cost?

Improve efficiency?

Improve security?

Fundamental Considerations

- Protection of investments in existing skills & infrastructure
- Acquisition and Funding Strategies
- Delivery and Sustainment
- Location
- Security / Privacy / Liabilities
- SLA's – Well defined & enforceable
- Quality Assurance Plan
  - Roles & Responsibilities
  - Methods of Surveillance / Monitoring
  - Problem Reporting
  - Escalation Procedures
  - Ordering, Delivery, Installation
- Extrication / Disentanglement
- Define YOUR REQUIREMENTS **"What Problem(s) Solving?**

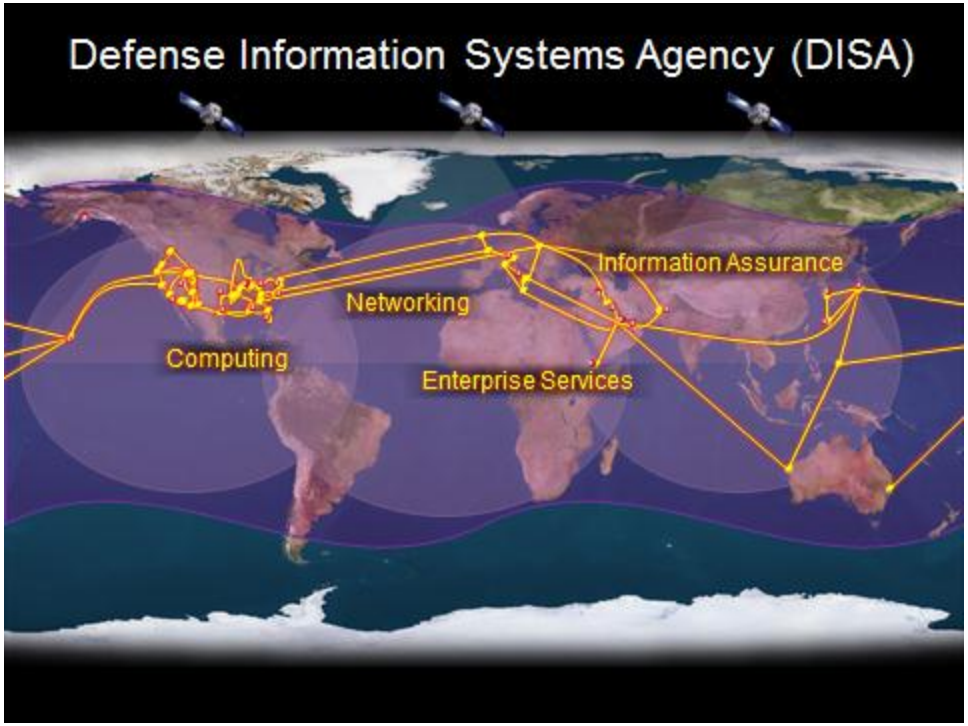
Acquisition and Funding Strategies

- Long Term Commitments
  - Location, Security, Pricing, Terms, SLA's, QAP
  - Quantities
- Up Front / Initiation Fees
- Price Erosion
- Technology Refresh
- Tracking, Billing, & Audit Capabilities
  - Inspection / Verification
- Platform Choices

Typical Data Center Challenges

- Responsiveness – slow, lacking timely scalability
  - Little agility to scale up and down to meet demand
  - Long delivery times
    - Lag time from demand-to-solution to ready-for-use
- Over provisioning – acquiring more than is needed to
  - Ensure systems work
  - Avoid the long procurement process
- Aging infrastructure –Keeping technology appropriately fresh
  - Capital intense
  - Increased security risks
  - Higher than necessary costs

Defense Information Systems Agency



Business as usual was…

- Too rigid
  - Little agility or flexibility
  - Could not quickly scale up and down based on operations tempo
- Too slow
  - Long delivery times
  - Lag time from demand – to solution – to ready-for-use
- Too expensive
  - Poor data center efficiency – paying for unused capacity
  - Hard, non-recoverable investments
  - High procurement costs

15 Defense Enterprise Computing Centers (DECCs) serving the DoD
$1 billion fee-for service data processing business

So….What Was the Answer for DISA?

They Began to Crawl Into the Cloud…

…By Attacking Scalability – and Cost

…With Capacity-on-Demand

Results With Capacity Services

- **Mission and operations**
  - Just-in-time capacity – matching capacity to demand – quickly
  - Tech refresh on auto pilot – predictable and funded
    - Eliminated technology obsolescence
  - Better asset and configuration management

- **Speed and agility – pre-competed sources of capacity**
  - Call orders against single contract – delivery from months to days
  - Much reduced procurement time, cost – buying a service, not hardware
    - Avoided single procurements for each upgrade and expansion

- **Total cost of ownership** Dramatic reduction!
  - Paid only for what is used with all costs inclusive
  - Managed down excess capacity to near zero
  - Reduced procurement time and associated “grey” costs
  - Gained economy of scale and buying power

“A Different Approach”

Capacity-on-Demand

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21st Century Leadership

Capacity-on-Demand – as a Service

Service User

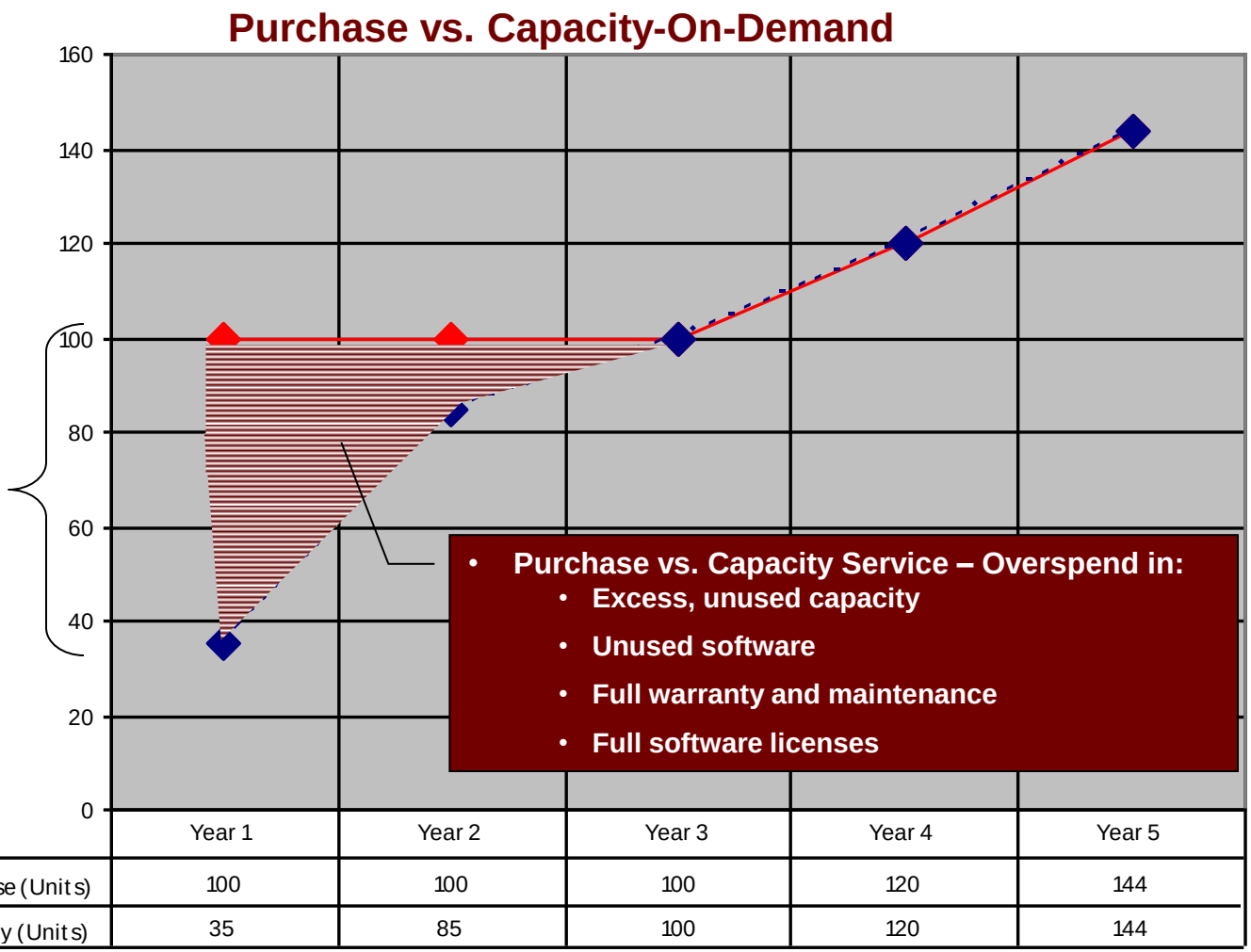
- Procures computing, storage, network assets as a service
  - Issues call orders to scale up and down based on demand – response in days
  - Includes maintenance and tech refresh
- Retains operational control and oversight
  - Shares capacity management with the capacity vendor
- Sets quality of service desired
- Pays for service based on the measured capacity required
- Pays with operating dollars

Service Provider

- Provides data center capacity as a pay-as-you-go service
- Retains ownership of the servers, storage, and network assets
- Locates equipment in customer's data center
- Provides racks, cabling, etc.
- Acquires, installs, maintains, de-installs, configures all hardware
- Provides tech refresh and software – as part of the cost
- Meets SLAs

Efficiency and Cost-Effectiveness

- If you purchase a 100TB system, and
- The actual capacity need is 35TB in year 1; growing to 85TB in year 2 and 100TB in year 3
- Excess capacity purchased in year 1 is 65TB and year 2 is 15TB
- Highlighted region is overspend in advance of actual need



	Year 1	Year 2	Year 3	Year 4	Year 5
Purchase (Units)	100	100	100	120	144
Capacity (Units)	35	85	100	120	144

It is a significant change…..

Total Cost of Ownership

Costs for the "Normal" Way of Doing Business

- The hardware itself
- Maintenance and warranty
- Software licenses
- Procurement lead times, staff time
- Preparation for use – racks, installation, security compliance
- Tech refresh
- Improvements in functions and features
- Data center inefficiency

Cost with Capacity Services

- Cost per TB or CPU per day declining over time

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Total Cost of Ownership (TCO)

Operational "Costs"

- HW, SW, Prep, Install
- Lack of flexibility, efficiency
- Lack of just-in-time capacity
- Technology obsolescence
- Maintenance renewals

Indirect or Grey Costs

- High cost of the procurement process
  - Preparation of RFIs, acquisition packages, draft RFQs/RFPs, etc.
  - Staff time for
    - Preparing specifications
    - Writing acquisition packages
    - Managing the contracting process
    - Handling reviews and protests
- Planning and arguing for capital funding against anticipated demand
- Paying for unused capacity
- Paying to refresh technology

Conclusions

Customers will insist they pay for compute, storage, and networking capacity as an “as allocated” or “as needed” monthly utility service

Consistent with how they charge their internal end-user customers & matching cash outflows to inflows

On-site utility-billed capacity-on-demand hosting and operations of information technology equipment and software will continue to gain in popularity

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Conclusions

- Starts with definition of what want to accomplish
- Success requires preparation, hard work, and commitment on both sides
- Managing relationships and risk is essential
- Use the model for that which makes sense
  - Options Exist
  - Determine what is suitable and what is not
- Understanding TCO is crucial

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Conclusions

Doing More with Less

Public / Private Partnerships

Consolidation

Transformation

Collaboration

Driving Innovation to the Citizen

THANK YOU!!

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