CLOUD STORAGE OPTIONS: THE TRUE COSTS

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The cloud presents organizations with a new way to deliver IT services. It can significantly lower costs, improve efficiency, and, if implemented well, provide significant competitive advantage. But cloud computing takes a number of forms: private, public hybrid and combinations of these. These options can be confusing in terms of their technical implementations as well as their economics.

This session describes the various types of clouds and major trends in the cloud market. It also looks at the economic issues to consider when making the decision on whether to go with cloud, and if you choose cloud, which path to take.

Attend this webinar to learn how to:

• Understand cloud variations and the technical and economic considerations associated with each.
• Gain insight into the cost and other economic factors associated with implementing cloud solutions.
• Become familiar with specific cloud use cases and their economic profiles.
WHY IS CLOUD INTERESTING?

- Cloud brings greater agility and flexibility to IT
  - Scale up or down based on dynamically changing needs (especially where unstructured data is an issue)
  - Choose the financial and cloud delivery models that make sense for you

- Potential for universal access and services connectivity
  - Flexibility of application choices
  - Access to applications and data anywhere, anytime, and from any device

- Cost reduction (maybe)
  - Depending on delivery and financial models chosen, cloud can provide savings in some cases
HOW BIG IS THE CLOUD?

- Lots of ways to measure the impact of cloud

**Public cloud services**
- 17.4% CAGR through 2017
- End-user spending on public cloud services will reach almost US$250 billion by 2017

Source: Gartner, 2013

**Private cloud IT infrastructure (hardware and software)**
- 17.6% CAGR through 2017
- Software will grow faster than hardware
- Spending will grow to US$22.2 billion by 2017

Source: IDC, 2013

**Top reasons for using a private cloud**
- Reduce IT staff count
- Improve service levels and business agility
- Quicker implementation of new services and business processes

Source: IDC, 2012
Three models dominate the cloud market

- **Private cloud**: Implemented totally within the enterprise firewall and under complete control of the IT department
- **Public cloud**: Implemented typically by service providers making resources available to enterprises and the general public via the Internet
- **Hybrid cloud**: Combines private and public models; workloads reside on either or both and can easily interoperate
CLOUD IS NOT 1 SIZE FITS ALL

AT YOUR DATA CENTER

- Traditional Storage Needs
  - Private Cloud

OFFSITE DATA CENTER

- Hybrid Cloud
- Public Cloud

Storage

- TIER 1
- TIER 1
- TIER 3
ONE FOUNDATION, MULTIPLE IMPLEMENTATIONS

FLEXIBILITY AND CHOICE TO MEET A VARIETY OF DEPLOYMENT MODELS

- Traditional Storage Needs
- Private Cloud
- Hybrid Cloud
- Public Cloud

Virtualized Storage

TIER 1
TIER 2
TIER 3

STRONGER NEED FOR
- Strict SLAs
- High performance
- Data security
- Control

STRONGER NEED FOR
- Opex financial model
- Flexibility of use
- Fast reaction to change
WHY CLOUD ECONOMICS IS IMPORTANT

- Cloud, like any other option, involves true TCO considerations
  - Cloud decisions can be long-term and “sticky”
  - A real TCO evaluation involves many variables that may not be obvious up front (such as costs of data center modernization)
- Cloud delivery models present different cost profiles
  - Capex vs. opex
  - Network access costs and data transfer costs
  - Optional services (such as security)
- Costs and other economic considerations must be measured against benefits of various cloud (and non-cloud) options
- The cloud market is highly competitive
  - Requires a careful look at exactly what you are getting (are low published prices real?)
  - Need to understand total costs given your exact needs
AGENDA

1. OVERVIEW OF CLOUD MARKET AND CLOUD DELIVERY OPTIONS
2. CLOUD ECONOMICS PRINCIPLES
3. CLOUD ECONOMICS USE CASES
4. CONCLUSIONS: UNDERSTAND AND COMPARE
KEY PRINCIPLES OF I.T. ECONOMICS

- It is becoming essential to apply economic and financial principles to IT
  - Architectures, roadmaps, standards
  - Operational excellence
  - Consumption behaviors

- Use TCO to measure and compare

- Four key principles of storage and IT economics
  1. Price does not equal cost – price is about 20% of TCO
  2. Thirty-four different types of cost – where is your sensitivity
  3. There are economically superior IT architectures
  4. Econometrics – “You cannot improve what you cannot measure”

- Cloud economics requires an awareness of hard and soft costs
DO CLOUDS REDUCE UNIT COSTS?

- We need to first understand current unit costs before we start to compare to cloud offerings
  - Much more to consider than just the price (as it will be lower)

- Cloud may introduce new costs
  - Risk
  - Performance, latency
  - Additional circuits
  - Onboarding, migration, lifecycle costs
  - Penalties
  - Vendor management

- Measure these costs over a multi-year horizon, then calculate the PV cost to determine if is really lower

- Make sure that you are reducing costs, not just shifting costs

- Don’t get seduced by very low-cost cloud pricing
SHIFTING THE COSTS?

<table>
<thead>
<tr>
<th>Storage Total Cost Element</th>
<th>Traditional Ownership</th>
<th>Private Cloud, Utility</th>
<th>Public Cloud</th>
</tr>
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<tbody>
<tr>
<td>Depreciation</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>X</td>
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<tr>
<td>Labor</td>
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<td>(?)</td>
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<tr>
<td>Electricity</td>
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<td>X</td>
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<td></td>
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<td>Backups</td>
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<td></td>
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<td>X</td>
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<td>Usage penalty</td>
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<tr>
<td>Onboarding or offboarding</td>
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<td>X</td>
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</tbody>
</table>
- **Websites**
  - www.economizeyourstorage.com

- **White papers, books**
  - “Cloudonomics” by Joe Weinman, 2012

- **Blogs**
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Cloud introduces paradigm shift to IT and business
- Significant benefits to be realized

Many options available; key to value is matching option attributes to your use case
- One size does not fit all
- The details matter

Storage use cases
- Systems of record
  - The day-to-day business, mission-critical
- Systems of reference
  - New(er) applications, business-important
RELATIVE ACQUISITION COSTS

- Acquisition costs are very low
- Other costs need to be considered
- With cloud, emphasis changes
THE DETAILS MATTER

- Information is readily available, so take the time to understand it
  - What are the rules, what do they mean, how do they apply to you
    - On-boarding costs
      - Network charges, requests, one time charges, gateways
    - Off-boarding costs
      - Network charges, requests, excess charges
    - Free retrieval
      - Five % per month is .167% a day
    - Retrieval time is impacted by daily rate

- Simple models, vendor calculators, and 3rd-party tools available as well
## A SIMPLE MODEL

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<tbody>
<tr>
<td>TB Stored</td>
<td>300</td>
</tr>
<tr>
<td>$$/Hour per Employee</td>
<td>$ 60</td>
</tr>
<tr>
<td>FTE Affected</td>
<td>5.00</td>
</tr>
<tr>
<td>Retrieval Hours</td>
<td>24</td>
</tr>
</tbody>
</table>
CONSIDERATIONS

300TB, NO USE BEYOND UPLOAD, DOWNLOAD

- Onboarding
  - Cost of storage
  - Requests
  - Network

- Offboarding
  - Requests
  - Network
  - Excess charges
    - Delete vs. retrieve is a plus

TCO Including Onboarding and Offboarding

![Graph showing TCO for different storage options over 1 to 3 years.](image)
WHAT ARE YOUR REQUIREMENTS?

- What if retrieve is 5% with 4-hour response?

- Or 5% with 24-hour response?
TIME IS MONEY

- Five % of 300TB
  - 15,360GB
    - 2,565GB per day
- Five FTE group
  - $60/hour
UNDERSTAND YOUR USE CASE

- Retention period and disposition
  - Longer is better
  - Delete better than retrieve

- Retrievals
  - Percent per interval
  - Response time

- What is the cost to wait?
  - Who or what is waiting on data?

- Don’t be misled by low acquisition cost
OUR AGENDA FOR TODAY

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Assess your goals and priorities in moving to the cloud up front
- What problems are you trying to solve?
- Understand your use cases
- Determine mix of delivery and financial models

Carefully assess options available to you
- Gain a full understanding of all associated costs
- Take a “full-TCO” approach to determining the costs of your choices
- Measure vendors and providers against realistic economics metrics as well as functional ones

If cost is a high priority in moving to the cloud, make sure you fully understand all costs associated with the move – there is more to the cloud than just acquisition costs!
YOUR PATH TO THE CLOUD

Do it yourself or bring in HDS Services

Transform into a service-defined IT organization

Increase business agility with on-demand consumption of infrastructure

More Cost Effective
More Efficient
More Responsive
More Flexible

CONSOLIDATE
VIRTUALIZE
AUTOMATE
SELF SERVE
PRIVATE CLOUD
HYBRID
PUBLIC

TRANSFORM
Hitachi Services Framework
QUESTIONS AND DISCUSSION
UPCOMING WEBTECHS

- WebTechs
  - Best Practices for Deploying Exchange for Microsoft Private Cloud, January 29 a.m. PT, noon ET

Check [www.hds.com/webtech](http://www.hds.com/webtech) for

- Links to the recording, the presentation, and Q&A (available next week)
- Schedule and registration for upcoming WebTech sessions
- Questions will be posted in the HDS Community: [http://community.hds.com/groups/webtech](http://community.hds.com/groups/webtech)
THANK YOU