

## Storage Economics Engagement Customer Summary

**INDUSTRY:** Information management, subscription service, financial news

**REGION:** Americas

**BUSINESS SIZE:** Enterprise



TRANSFORM VIRTUALIZATION ECONOMICS RELIABLE TRUSTED INNOVATE INFORMATION GLOBAL CHANGE INTELLIGENT TECHNOLOGY SERVICES VALUE INSIGHT OPPORTUNITY SOCIAL INFRASTRUCTURE INTEGRATE ANALYZE DISCOVER COMPET

## Executive Summary

The data growth rate for these systems is 27%.

2 different denominators (storage capacity) were used in this analysis.

- TCO will use the usable storage capacity, which includes primary usable storage, usable secondary and usable DR storage capacity.
- The second measurement is total cost of primary data storage (TCpsO). This factor removes the secondary and DR copies from the total. What is left is the primary or first instance of written data. This total does include local copies and snap copies that reside on the primary storage array, but does not include the remote and DR copies.

The blended unit cost of storage has been calculated to be :

- XYZ Inc. TCO is US\$5,663.20 per terabyte/year.
- XYZ Inc. Total cost of primary storage ownership is US\$7,006.59 per terabyte/year.
- ABC Inc. TCO is US\$6,485.14 per terabyte/year.
- ABC Inc. total cost of primary storage ownership is US\$10,385.62 per terabyte/year.

## Contents

- Executive Summary
- Key Financial Metrics
- Company Information
- Business Information (before HDS engagement)
- Technical Information (before HDS engagement)
- Solution and Services Information (our products and solutions deployed)
- Resulting Benefits

**Proposed HDS Storage Solutions and Benefits:**

- Virtualization (in the controller) introduced to lower-tiered storage pools. Existing Hitachi Universal Storage Platform V (USP V) arrays are capable with most of the hardware and software already in place. Arrays that are virtualized will significantly reduce (by 90%) the cost of migration and the cost of usable but unallocated capacity (by 40%).
- Use virtualization-assisted methods for all array migrations.
- Improve how copy data is propagated to secondary sites at ABC Inc.
- Thin provisioning for Tiers 2 and 3. This reduces the cost of growth, and provides a 1-time capacity reclamation for the storage pools that migrate from thick to thin.
- Archive functions. These remove infrequently-used data or copies to a very low cost of searchable/indexed archive storage.
- Reclamation of 150TB from the thinning of volumes and data moving from Tiers 2 and 3 to the archive Tier 4. This reclaimed capacity would be used to provide for organic growth over the remainder of the year.

- The total usable capacity would stay at 1,192TB.
- Old EVA, 3Par and 9500 systems are retired, and the capacity would be replaced with Tier 4 archive storage.
- Only cheaper Tier 4 disk capacity would be purchased in the remaining 5 months of the year.
- Stays same would be in place, performing the combined effort of DR, backups, management, etc. Very little impact in the blended TCO would be seen from current rates. Current levels of overtime and contractor help would be the same.

The TCO rates from a converged XYZ Inc. storage pool and organization are:

- TCO per terabyte/year of US\$6,130.72.
  - Compared to the original combined terabyte/year of US\$12,148.34.
- TCpsO per terabyte/year of US\$7,708.02.
  - Compared to the original combined TCpsO per terabyte/year of US\$17,392.21.

A total savings of US\$2,109,590 is achieved after 4 years.

**Key Financial Metrics**

Category	Key Financial Metrics
Investment	0 (total 4-year investment)
Estimated payback period	< 1 Month
Savings	2,109,590 (total 4-year savings) 1,661,427 (net present value)
Internal rate of return (IRR)	10%
Return on investment (ROI)	N/A (Savings/# of years/investment)

## Company Information

Company name	XYZ Inc.
Region	Americas
The country of company headquarters	United States of America
Company size (employees)	7000
Company size (revenue)	US\$1.5 billion
Industry	Information management, subscription service, financial news

## Business Information (before HDS engagement)

Business overview	<b>CONFIDENTIAL</b>
Corporate vision	<b>CONFIDENTIAL</b>
Corporate goals	<b>Technical</b>
Cost sensitivities	<ul style="list-style-type: none"> <li>■ Manage 30% data growth.</li> <li>■ Hardware lease/depreciation.</li> <li>■ Hardware maintenance.</li> <li>■ Software maintenance.</li> <li>■ Storage management labor.</li> <li>■ Migration.</li> <li>■ Floor space.</li> <li>■ Power and cooling.</li> <li>■ Cost of waste.</li> </ul>

## Technical Information (before HDS engagement)

STORAGE HARDWARE		
	XYZ Inc.	ABC Inc.
Raw, usable, allocated	568TB usable 459TB usable (100TB is DR) Includes 161TB NAS	800TB Raw 624TB usable Fibre Channel (389TB primary, 200TB secondary, 35TB DR). Includes 69TB NAS.
TCO baseline (denominator)	568TB for TCO 459TB for TCpsO	624TB for TCO 389TB for TCpsO
Number of frames (model #)	18 frames (3 HP XP) (1 USPV) (1 USPVM) (13 9500 AMS) starting to virtualize behind UPS V (30% done now).	15 frames (6 3Par) (2 USP V) (1 USP VM) (6 EVA).

### Quantitative results

The blended unit cost of storage has been calculated to be:

- XYZ Inc. TCO is US\$5,663.20 per terabyte/year.
- XYZ Inc. Total cost of primary storage ownership is US\$7,006.59 per terabyte/year.
- ABC Inc. TCO is US\$6,485.14 per terabyte/year.
- ABC Inc. Total cost of primary storage ownership is US\$10,385.62 per terabyte/year.

Cost elements as defined by XYZ Inc. include the following elements:

#### Depreciation

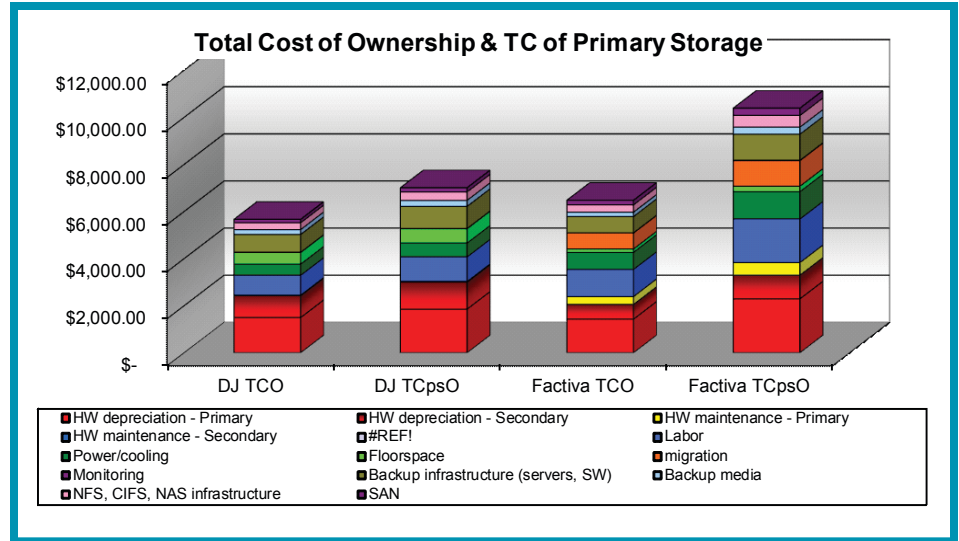
- Depreciation as a combined total is about 30-40% of the TCO.
- There are 3 segments of the total depreciation cost.
  - Primary storage.
  - Secondary storage.
  - DR storage.

#### Hardware and software maintenance

- This is a relatively small part of TCO. Some older ABC Inc. systems are incurring monthly rates, but these are targeted for replacement soon.
- XYZ Inc. tends to replace old systems quickly after the warranty period.
- Maintenance will increase with the age of the assets (warranty costs are pre-paid, but long migration times or extending the useful life of an asset will increase vendor maintenance costs).

#### Power, cooling and floor space

- Only 5% of the TCO.
- This number is suspiciously low. More work has been started to review the BTU and kVA ratings of all arrays.



- Different rates of power and cooling applied according to where the storage is located.
- Virtualization as a single investment can reduce the cost of migration (per terabyte) by 90%.

#### Storage management labor

- Currently 15-20% of the TCO for XYZ Inc.
- This is within a normal range, perhaps a little lower given the complexity of these systems.
  - Lots of overtime is required. Burn-out may be a factor for change since high levels of overtime are unsustainable.
  - Some work is being shifted to contractors.
  - Some tasks are not getting done due to the staff being stretched very thin.

#### Migration costs

- Currently zero for XYZ Inc. and a 2010 cost of \$422,700.00 for ABC Inc.
- As the assets get older, and more data is required to be moved to new arrays, this number will spike. Looking forward, and with no change in how data is migrated (or re-mastered) this cost element will grow to a much large part of the TCO.

#### Monitoring

- Dedicated servers for console operations.
- Does not include HCL per-ticket costs.

#### NAS infrastructure

- NetApp and EMC filers.

#### Backup

- 12% of TCO.
- This cost includes media servers, licenses and media.

#### Data circuits, SAN

- <1% of TCO.
- SAN switches, LAN surcharges include local and long distance leased circuits.

## Options for XYZ Inc. to reduce unit cost

- Virtualization (in the controller) can be introduced to lower-tiered storage pools. Existing HDS USPV arrays are capable with most of the hardware and software already in place. Arrays that are virtualized will significantly reduce (by 90%) the cost of migration and the cost of usable but unallocated capacity (by 40%).
- Use virtualization-assisted methods for all array migrations.
- Review how copy data is propagated to secondary sites at ABC Inc.
- Thin provisioning for Tiers 2 and 3 will reduce the cost of growth, as well as provide a 1-time capacity reclamation for the storage pools that migrate from thick to thin.
- Archive functions can remove infrequently used data or copies to a very low cost of searchable/indexed archive storage.

## Solution and Services Information

### Projecting a composite TCO

XYZ Inc. asked for an estimate if both ABC Inc. and XYZ Inc. (classic) were to be converged into a single storage pool and single organization. This transformation would include more than just averaging the results from this report, since several key changes would be applied to the combined design:

- Most all of the resulting storage capacity would be virtualized (array, volume, and LUN).
- Archive solutions would be put in place to move old data to a cheap/deep tier of storage.
- Thin provisioning would be used for overallocation.

## Resulting Benefits

### Overview

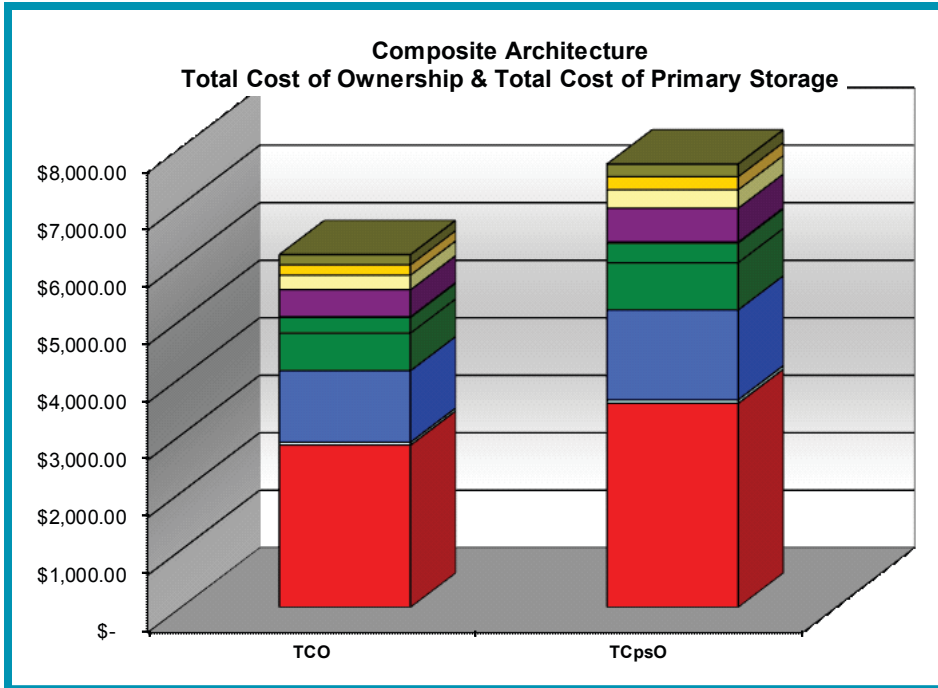
The new projected TCO would be set for January 2011, giving time to make the transformation and convergence of XYZ Inc. and ABC Inc. The compounded benefits off this new solution would include:

- Reclamation of capacity (estimated at 150TB) from the thinning of volumes and data moving from Tiers 2 and 3 to the archive Tier 4. This reclaimed capacity would be used to provide for organic growth over the remainder of 2010.
- The total usable capacity would stay at 1,192TB.
- Old EVA, 3Par and 9500 systems would be retired, and the capacity would be replaced with Tier 4 archive storage.
- Only cheaper Tier 4 disk capacity would be purchased in the remaining 5 months of 2010.
- Stays same would be in place, performing the combined effort of DR, backups, management, etc. Very little impact in the blended TCO would be seen from current rates. Current levels of overtime and contractor help would be the same.

### The projected TCO rates would be

- TCO per terabyte/year of US\$6,130.72.
- TCpsO per terabyte/year of US\$7,708.02.

## USE CASE



### Technical

- Capacity reclaimed 150TB.

### Economic

The TCO rates from a converged XYZ Inc. storage pool and organization are:

- TCO per terabyte/year of US\$6,130.72.
  - Compared to the original combined TB/year of \$12,148.34.
- TCpsO per terabyte/year of US\$7,708.02.
  - Compared to the original combined TCpsO per terabyte/year of \$17,392.21.

A total savings of \$2,109,590 is achieved after 4 years.

### © Hitachi Data Systems

**Corporate Headquarters**  
2845 Lafayette Street  
Santa Clara, CA 96050-2639 USA  
www.HDS.com

**Regional Contact Information**  
**Americas:** +1 408 970 1000 or info@hds.com  
**Europe, Middle East and Africa:** +44 (0) 1753 618000 or info.emea@hds.com  
**Asia Pacific:** +852 3189 7900 or hds.marketing.apac@hds.com



© Hitachi Data Systems Corporation 2013. All rights reserved. HITACHI is a trademark or registered trademark of Hitachi, Ltd. All other trademarks, service marks, and company names are properties of their respective owners.

Notice: This document is for informational purposes only, and does not set forth any warranty, expressed or implied, concerning any equipment or service offered or to be offered by Hitachi Data Systems Corporation.

345 Marketing & Design, June 2013