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USE CASE

Storage Economics Engagement Customer Summary

INDUSTRY: Information Technology
REGION: Americas
BUSINESS SIZE: Enterprise

TRANSFORM VIRTUALIZATION ECONOMICS RELIABLE TRUSTED INNOVATE INFO
TION GLOBAL CHANGE INTELLIGENT TECHNOLOGY SERVICES VALUE INSIGHT
PORTUNITY SOCIAL INFRASTRUCTURE INTEGRATE ANALYZE DISCOVER COMPET

Executive Summary

XYZ Inc. has asked HDS to help identify, measure, and eventually reduce the total cost of data ownership. A total cost of ownership (TCO) baseline assessment has been completed to help isolate specific problem cost areas and aid the implementation of new strategic plans for improvement. The current storage configuration employed by XYZ Inc. has 187TB of usable capacity and a 21% annual data growth rate.

In reviewing the XYZ Inc. environment Hitachi took many parameters into consideration. This analysis leverages actual XYZ Inc. numbers along with empirical data to calculate potential savings that XYZ Inc. can achieve with the proposed storage architecture refresh.

The Hitachi Data Systems solution includes.

- Virtualization.
- Dynamic tiered storage.
- Improving capacity utilization through Hitachi Dynamic Provisioning (HDP) thin provisioning.

XYZ Inc. can save a total of US$2,310,477 by updating their current storage architecture to the proposed Hitachi solution. The investment payback period is 18 months.

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Key Financial Metrics

Category	Key Financial Metrics
Investment	US$1,399,879 (total 4-year investment)
Estimated payback period	18 months after implementation
Savings	US$2,310,477 (total 4-year savings) US$1,866,686 (Net present value)
Internal rate of return (IRR)	12%
Return on investment (ROI)	41% (Savings /# of years / Investment)

Company Information

Company name	XYZ Inc.
Region	Americas
The country of company headquarters	**CONFIDENTIAL**
Company size (employees)	**250**
Company size (revenue)	**CONFIDENTIAL**
Industry	Information technology

Business Information (before HDS engagement)

Business overview	**CONFIDENTIAL**
Corporate vision	**CONFIDENTIAL**
Corporate goals	**Economical** ■ Capex reduction. ■ Opex reduction. **Technical** ■ Manage 21% data growth.
Challenges	**Data growth %** ■ Underutilization of assets. ■ Labor issue. ■ Performance issues. ■ Migration disruption.
Cost sensitivities	■ Reduction in storage purchase and capacity forecast. ■ Improved return on assets (ROA) . ■ Environmental costs (power, cooling, data center). ■ Recurring maintenance. ■ Management. ■ Data migration.

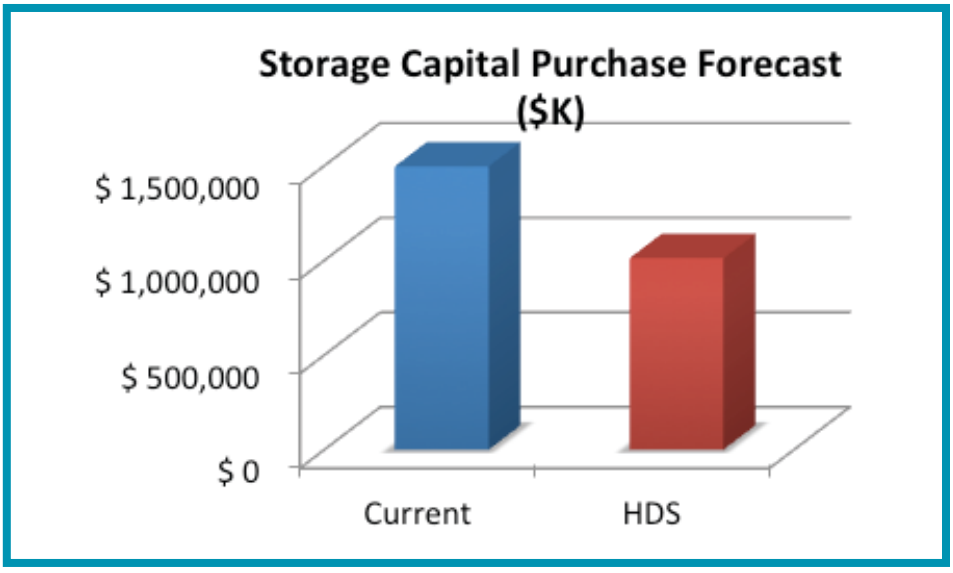
Technical Information (before HDS engagement)

ECONOMIC MODEL ASSUMPTIONS AND PARAMETERS	
Modeling term	4 years
Depreciation term	4 years
Depreciation	SLN, 0 salvage value
Marginal tax rate	30%
Target IRR	12%
Total storage	187TB
Aggregate CAGR	21%
Aggregate storage price erosion	15% per year
Storage acquisition cost Tier 1	US$10.74/GB usable
Baseline utilization rate	40%
Target utilization	65-70%
Cost of storage FTE	US$120K per year
Current labor ratio 1-to	100TB / FTE
Cost / rack / month	$1,500
Data migration cost (sw, labor)	$7,500 per terabyte

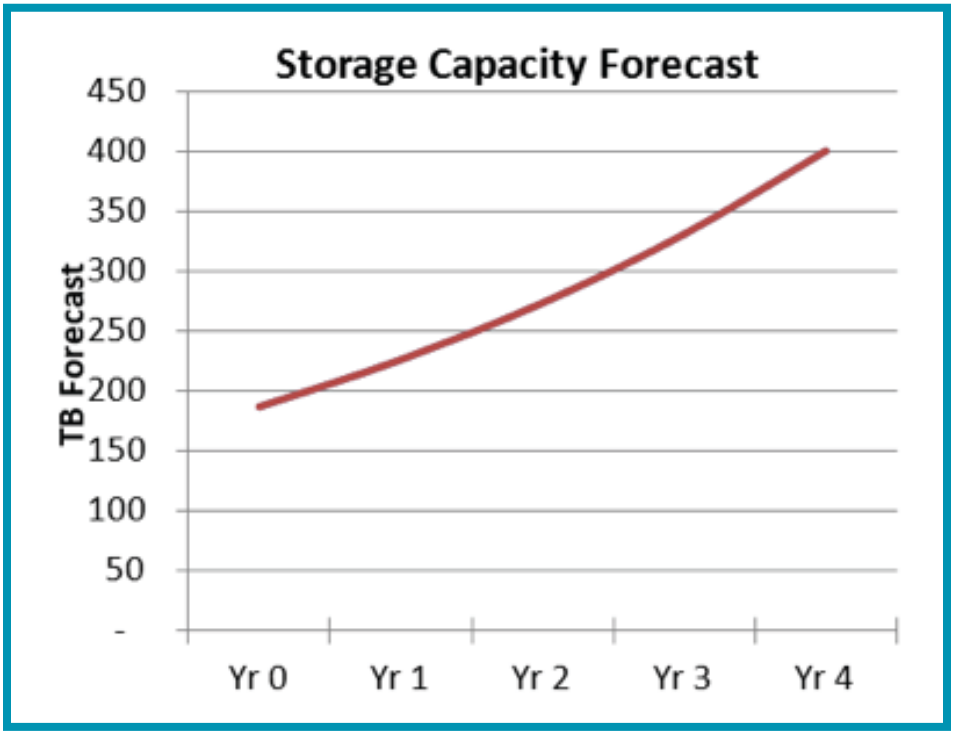
Solution and Services Information (our products and solutions deployed)

Capex reduction – impact on XYZ INC. storage purchase forecast

Capex savings are due largely to reduced cost of purchasing storage hardware over the next 4 years.

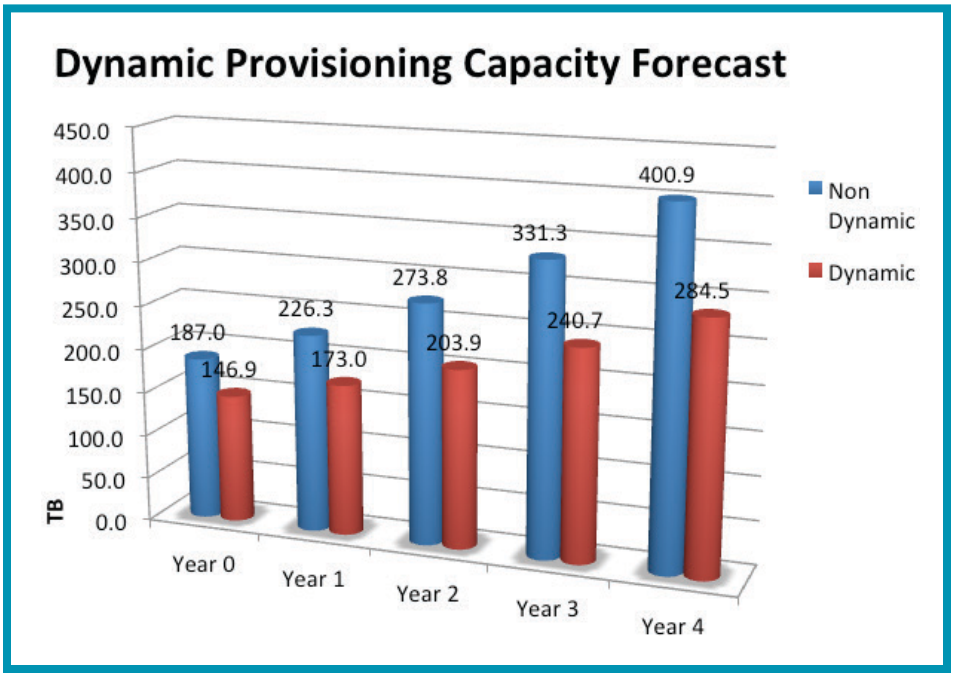


While total storage "appetite" is similar, the cost of acquisition is noticeably less. Further savings can be archived by introducing tiered model architecture, such as the introduction of lower-cost Tier 2 and Tier 3 where acquisition costs per gigabyte are lower.



The effect of dynamic provisioning and utilization improvement on XYZ Inc.'s growth forecast.

Further reductions in total capacity demand are realized through utilization improvements resulting from the implementation of dynamic provisioning.



Consolidation, virtualization, and dynamic tiered storage architectures have a significant and measurable economic (using a lower cost per capacity unit) advantage over monolithic or static architecture, but have little impact on actual capacity requirements, given that the same storage capacity is required to house existing data.

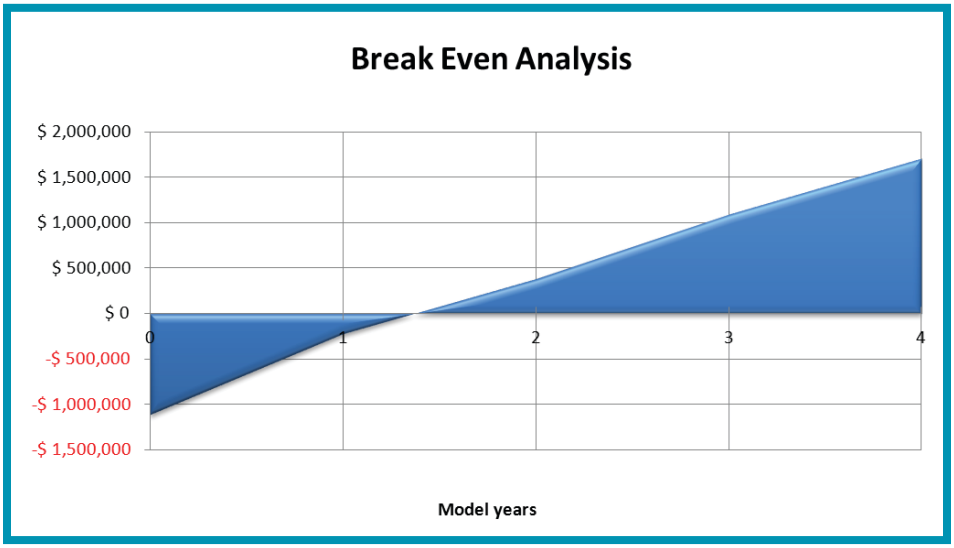
However, dynamic provisioning will help XYZ Inc. drive its current utilization rate from an average level of 40% today to a level of 65-70% with the subsequent reduction in capacity acquisition required over the next 4 years.

Figure 3 above illustrates the effect dynamic provisioning will have on XYZ Inc.'s capacity forecast over the next four years. It is estimated that XYZ Inc. will avoid purchasing 30% of the overall storage requirements. In addition to the capex savings, there is additional saving in terms of environmental, labor, maintenance, and depreciation that have not been calculated as part of this business case.

Like many organizations which take advantage of modern storage architectures, XYZ Inc. will be able to realize significant CAPEX and OPEX savings in areas related to technical, business, and operational benefits. These are summarized in the following figures and tables.

Return on XYZ Inc.'s storage transformation project: 18 months

The estimated payback period was derived based on the computations outlined below:



The 4-Year ROI and Storage Cost Reduction Model Summary

The 4-year ROI and storage cost reduction model developed for XYZ Inc. (US$)

			Year 1	Year 2	Year 3	Year 4	
	Cash investment						
		-$ 1,112,925		-$ 146,085	-$ 140,869	-$ 336,401	***Use Case Totals***
Savings	**Environmental savings**		$ 108,000	$ 135,907	$ 171,026	$ 215,219	**630,151**
	Disk Purchase Forecast Savings		$ 116,161	$ 119,471	$ 122,876	$ 126,378	**484,886**
	Storage area management savings		$ 31,117	$ 32,361	$ 33,656	$ 35,002	**132,136**
	Reclamation - Thin Provisioning		$ 290,919	$ 97,486	$ 109,583	$ 122,783	**620,770**
	HW and SW Maintenance Savings		$ 341,714	$ 372,886	$ 407,175	$ 133,714	**1,255,489**
	Data Remastering - Migration		$ 0	$ 0	$ 0	$ 315,563	**315,563**
Sum of Savings			$ 887,910	$ 758,112	$ 844,315	$ 948,659	
Net cash flow		-$ 1,112,925	$ 887,910	$ 612,027	$ 703,446	$ 612,258	
Cumulative cash flow		-$ 1,112,925	-$ 225,015	$ 387,012	$ 1,090,458	$ 1,702,716	

Total investment	$ 1,399,879	
Total savings	$ 2,490,337	
Client-supplied Internal Rate of Return	12.00%	
Calculated Internal Rate of Return	46.66%	
NPV of savings	$ 1,998,106	
ROI Method 1 - Simple ROI	44%	Savings / # of years / investment
ROI Method 2 - Benefit over Investment	78%	Savings - Investment / Investment
ROI Method 3 - Net Present Value	85%	NPV of Savings / NPV of investment
Estimated payback period	18 months	

Resulting Benefits

Estimated capex/opex savings to be achieved by XYZ Inc. implementing a new storage architecture (US$)

Type of cost reduction or savings		Estimated amount saved or reduced over four years
Environmental	**630,151**	Reduction in the number of racks required in the data center to house the new storage environment. The data center footprint will be reduced from 8 racks to 2. Further improvements yet to be calculated: Less wasted space per drive, reduced power and air-conditioning, reduced C02 admissions.
Storage purchase forecast	**424,886**	This represents the estimated four CAPEX costs XYZ INC. will save by employing an HDS integrated storage solution. Further savings to be realized by deploying a integrated tier storage model.
Dynamic thin provisioning	**620,770**	By implementing Dynamic Provisioning, projected storage capacity growth needs should be reduced by 30%. It is estimated that XYZ Inc. will save purchasing approximately 116TB of added storage over the next 4 years. Dynamic Provisioning increases the capacity actually holding data (the utilization rate) so less capacity is required.
Storage management – cost of labor	**132,136**	This 4-year opex savings reduces management time **from 50 hours per week down to 40 hours per week or 0.25 FTE each year**. With a centralized console, centralized resources, and less frames to manage, XYZ Inc. will reduce the time it takes to perform basic storage area management tasks such as storage provisioning and problem resolution. The .025 FTE could be redeployed on project base work.
Maintenance cost avoidance	**1,255,489**	This represents the 4-year opex costs XYZ Inc. will save by consolidating older EMC arrays. The consolidation and reduction of the older arrays will reduce the hardware and software maintenance costs for these arrays.
Data migration costs	**315,563**	This conservative amount represents the difference (reduction) in total cost to migrate data across storage structures based on a non-virtualized and a virtualized environment. Virtualization significantly reduces the effort, planning, number of change windows, and service disruption required when upgrading application servers attached to the SAN. The migration savings are dependent on the proposed phase 2 solution, which introduces dynamic integrated virtualized storage.

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

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