How Much Does That Computer Really Cost – The OpenVMS Advantage

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In Year 2015...

More user

>1 Billion more
in the network

More devices

15 Billion
connected devices

More data

>1,000 Exabytes
Internet data volume

Data traffic via the Internet

150,000,000,000,000,000,000 Bytes*
until 2009

245,000,000,000,000,000,000 Bytes*
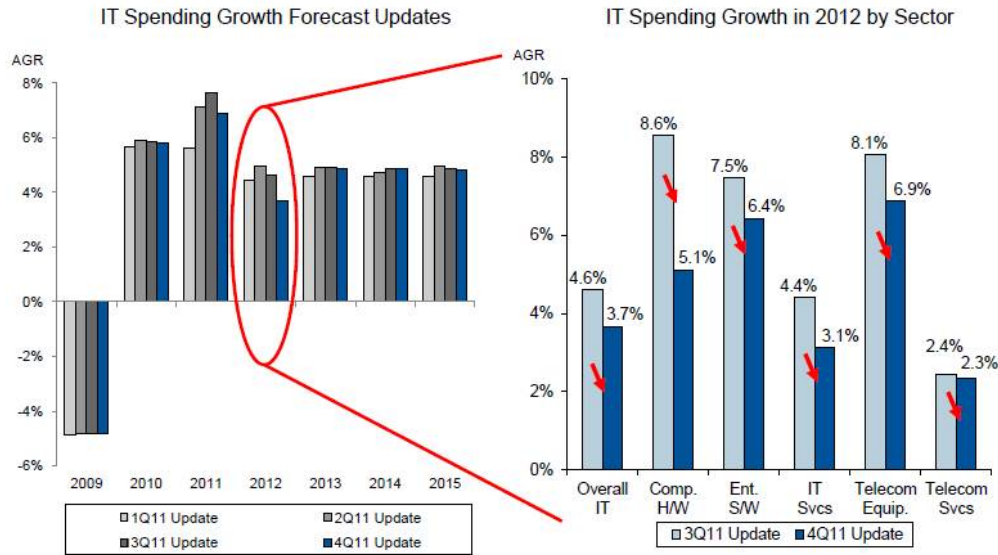only in 2010

*Exabytes

Source:
http://www.cisco.com/assets/cdc_content_elements/networking_solutions/service_provider/visual_networking_ip_traffic_chart.html
http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html   extrapolated to 2015

Economic Slowdown, Eurozone Crisis and Thailand Floods dent outlook for 2012

Global IT Spending Forecast Revised Downward From 4.6% to 3.7% For 2012

Data Center IT Issues and Priorities

The biggest challenge that large enterprises expect to face with respect to their data center hardware infrastructure through the end of 2011 is data growth. Of respondents worldwide, 47% ranked data growth among their top three challenges, while 20% named it as their single biggest challenge. Second and third place went to system performance and scalability (37%), and network congestion and connectivity architecture (36%).

The most significant driver of strategic change in the data center through 2011, according to our respondents, will be business continuity and availability (50%).

Cost containment initiatives ranked second with 37% followed by the need to maintain or improve user service levels and satisfaction at 36%.

Forty-one percent of respondents worldwide plan to invest in cloud computing or cloud services by the end of 2011, though only 25% consider it one of their top three investment priorities.

Source: Gartner, Nov 2010

"General Motors is not in the business of making cars; General Motors is in the business of making money."

Alfred P. Sloan
President & CEO of General Motors
1875 – 1966

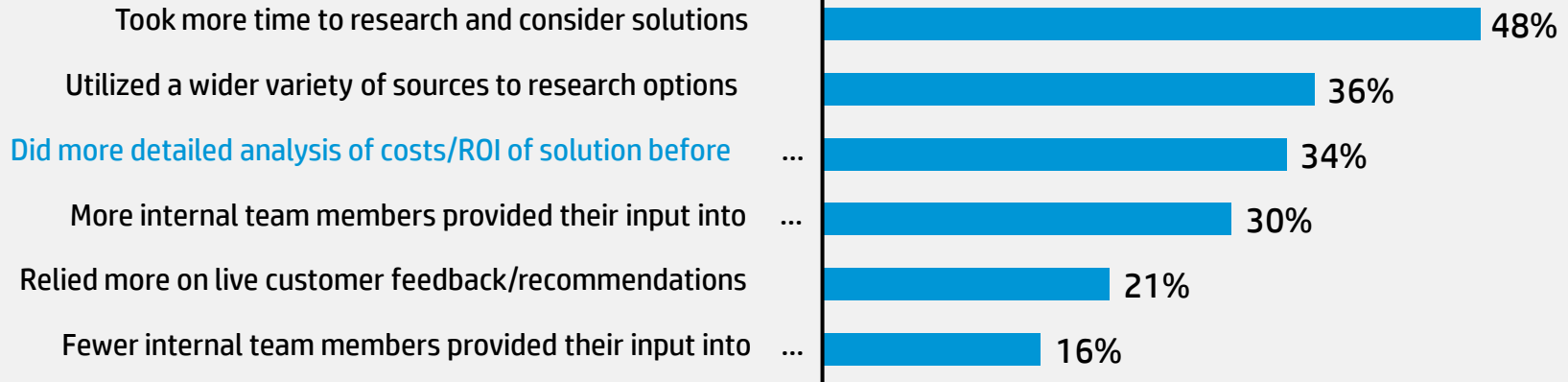"Money speaks sense in a language all nations understand…"

Aphra Behn
First professional woman writer in English
1640 – 1689

Buyer's Decision Process Significantly Changed

Demand Creation Specialists B2B Buyer Survey - 2011
Multiple Responses Allowed

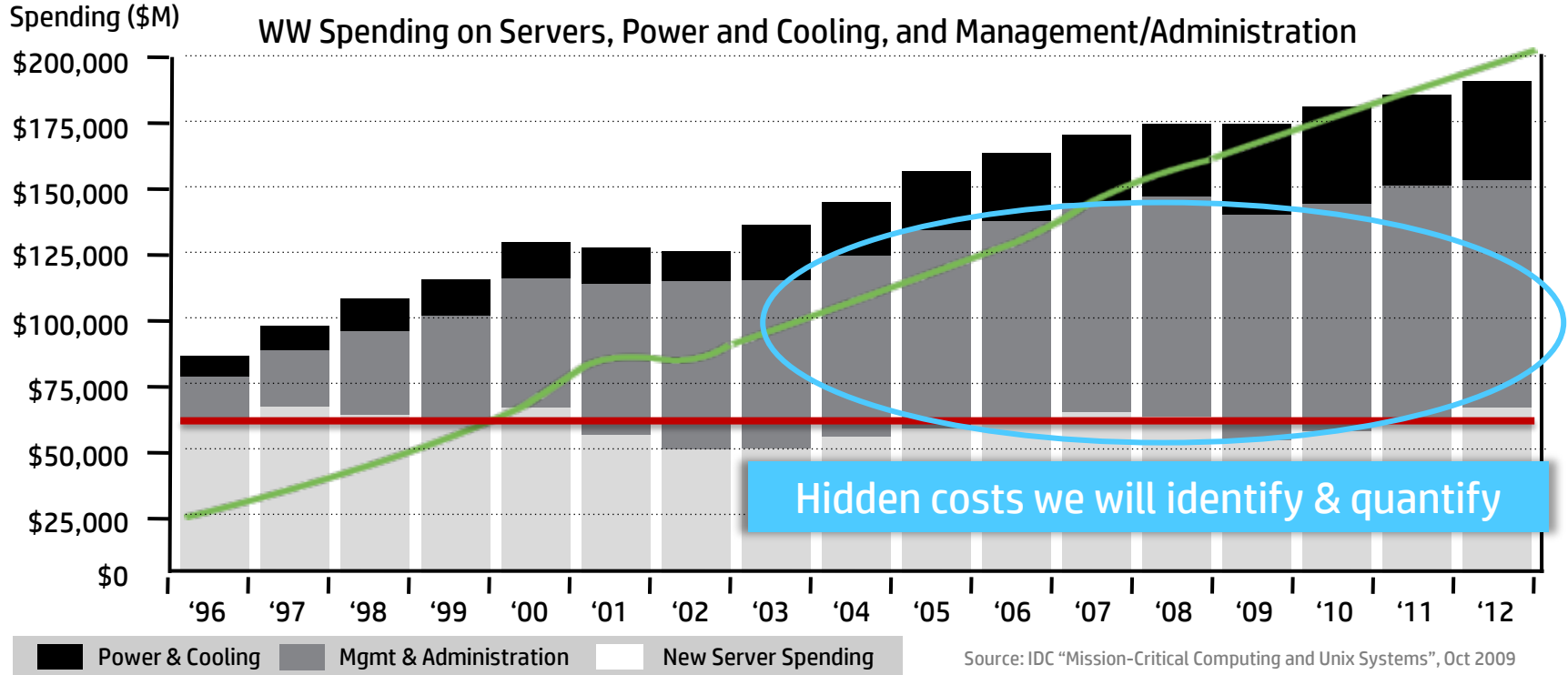| Response	Percentage
Took more time to research and consider solutions	48%
Utilized a wider variety of sources to research options	36%
Did more detailed analysis of costs/ROI of solution before …	34%
More internal team members provided their input into …	30%
Relied more on live customer feedback/recommendations	21%
Fewer internal team members provided their input into …	16%

Match and facilitate buyer's decision process:
1. Deliver content to help buyer's adequately research opportunities and solutions,
2. Provide financial justification and business case tools to prove return on investment (ROI),
3. Provide live customer testimonials and advocate communities to help buyers learn from peers the best way to solve opportunities with the proposed solutions.

Worldwide Server Market (1996-2012)

Operational Costs Rise Dramatically

Spending ($M)

WW Spending on Servers, Power and Cooling, and Management/Administration

Hidden costs we will identify & quantify

| Power & Cooling | Mgmt & Administration | New Server Spending |

TCO

TCO stands for Total Cost of Ownership and is lifecycle cost

For example, on purchase of new servers, both you and your customer may be focused on the BOM price only (which roughly accounts for 15-25% of the overall cost of the solution offered). But there are other hidden costs as well that are important to your customer, like:

- Cost to Install,
- Ongoing support
- Upgrade
- System Management/IT operations and administration
- Power
- Cooling
- Floor space, other facilities cost etc.

Initial purchase price is just the tip of the iceberg

Security Attacks are growing enormously

Growth of mobile malware
2.5X

Worldwide malware costs
$1 Billion

Security

IDC
Analyze the Future

70% of Respondents Saying Security is Top Concern In Moving to Public Cloud[1]

PC MAGAZINE
WikiLeaks Suffers Cyber Attack
August 31, 2011

THE HUFFINGTON POST
Security Flaw Could Let Hackers Help Inmates Break Out Of Prison
August 9, 2011

Modern Computer Systems Make Cars a Prime Target for Hackers
DAILY NEWS
September 8, 2011

+MASS DEVICE
Diabetes: Computer security experts uncover vulnerability in insulin pumps
August 4, 2011

PC WORLD
Mobile Apps Fail Big Time at Security, Study Says
August 10, 2011

INTERNATIONAL BUSINESS TIMES
Bart Network Hacked by Anonymous, Passenger Data Leaked
August 15, 2011

MAXIMUMPC
Hackers Expose 75000 Social Security Numbers from University of Wisconsin
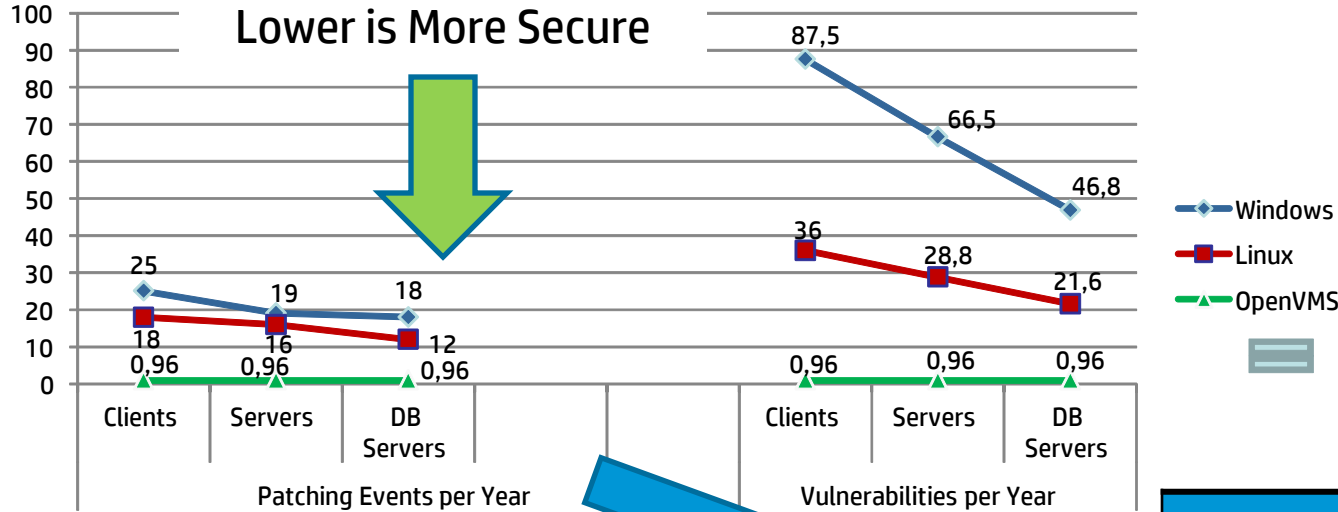August 11, 2011

1. IDC Market Analysis, January 2010
Source: Juniper, McAfee

Security Threats and Associated Costs
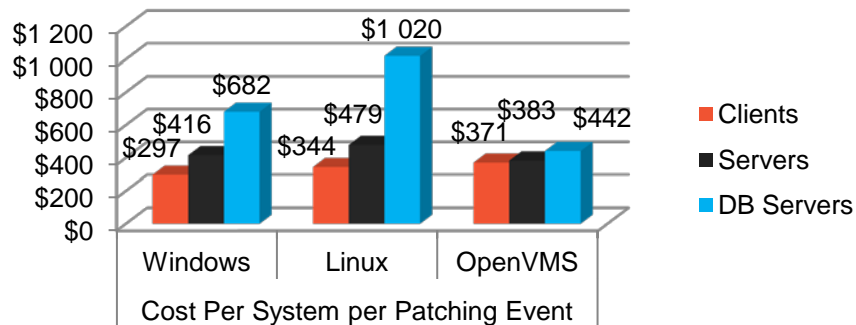
Security Patches Per Year

Lower is More Secure

Patching Events per Year

Clients: Windows 25, Linux 18, OpenVMS 0,96
Servers: Windows 19, Linux 16, OpenVMS 0,96
DB Servers: Windows 18, Linux 12, OpenVMS 0,96

Vulnerabilities per Year

Clients: Windows 87,5, Linux 36, OpenVMS 0,96
Servers: Windows 66,5, Linux 28,8, OpenVMS 0,96
DB Servers: Windows 46,8, Linux 21,6, OpenVMS 0,96

Windows
Linux
OpenVMS

OpenVMS is more than an order of magnitude (>10X) more secure than competitor OSes

Average Number of Vulnerabilities per Patching Event			
	Windows	Linux	OpenVMS
Clients	3.5	2.0	1.0
Servers	3.5	1.8	1.0
DB Servers	2.6	1.8	1.0

Annual Cost of Security Patching

(Per System – per Event & per Year)

Cost Per System per Patching Event chart:
- Windows: Clients $297, Servers $416, DB Servers $682
- Linux: Clients $344, Servers $479, DB Servers $1 020
- OpenVMS: Clients $371, Servers $383, DB Servers $442

Legend: Clients, Servers, DB Servers

System	Average Number of Patching Events		
	Windows	Linux	OpenVMS
Clients	25	18	0.96
Servers	19	16	0.96
DB Servers	18	12	0.96

Total Patching Costs per Year per System chart:
- Windows: Clients $7 425, Servers $7 904, DB Servers $12 276
- Linux: Clients $6 192, Servers $7 764, DB Servers $12 240
- OpenVMS: Clients $356, Servers $368, DB Servers $424

Legend: Clients, Servers, DB Servers

As a more secure OS (significantly fewer patches to apply), OpenVMS is less expensive to patch than Windows and Linux ($7,396 - $11,852 less)
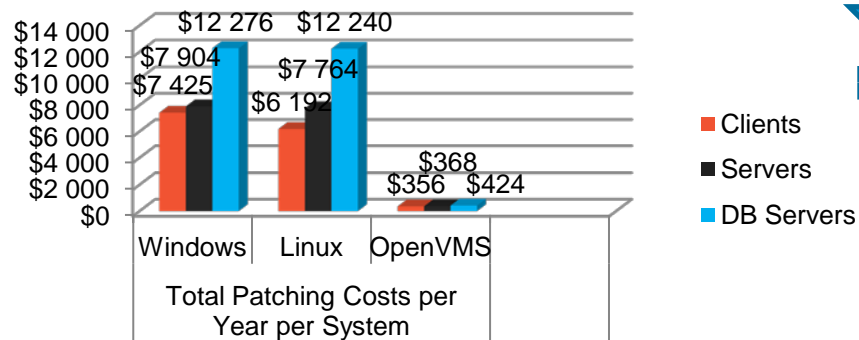
Source: http://download.microsoft.com/download/1/7/b/17b54d06-1550-4011-9253-9484f769fe9f/TCO_SPM_Wipro.pdf for Windows/Linux
OpenVMS Cost Per system = R(C + P)
http://www.absolute.com/Shared/Whitepapers/ABT-AM-PPM-WP-E.sflb.ashx

Staffing Cost

Staffing

Clients – End Users supported per System Manager

Servers – Servers managed per System Manager

System	Windows	Linux	OpenVMS
Clients	75:1 – 100:1	30:1 - 40:1	50:1 – 60:1
Servers	10:1 – 20:1	30:1 – 40:1	50:1 – 60:1
DB Servers	10:1 – 20:1	30:1 – 40:1	50:1 – 60:1

http://techupdate.zdnet.com/techupdate/stories/main/0,14179,2846915-2,00.html
Yankee group Report - 2005 North American Linux and Windows TCO Comparison, Part 1 – Windows/Linux
Computer World - http://itbenchmark.wordpress.com/2011/03/18/virtualization-and-adminserver-ratio/   7-2010 OpenVMS -
Source: NASA, MSFC – Huntsville Operations Support Center
http://www.lesscher.nl/Portals/0/ITems08/TCO%20ROI%20Overview.pdf

Staffing Costs

Example

Staffing Cost (Example - 40 Servers, 10 DB Servers)

Chart bars:
- Windows: DB Servers $73 000, Servers $116 000
- Linux: DB Servers $87 000, Servers $75 000
- OpenVMS: DB Servers $0, Servers $69 000

Legend: DB Servers, Servers
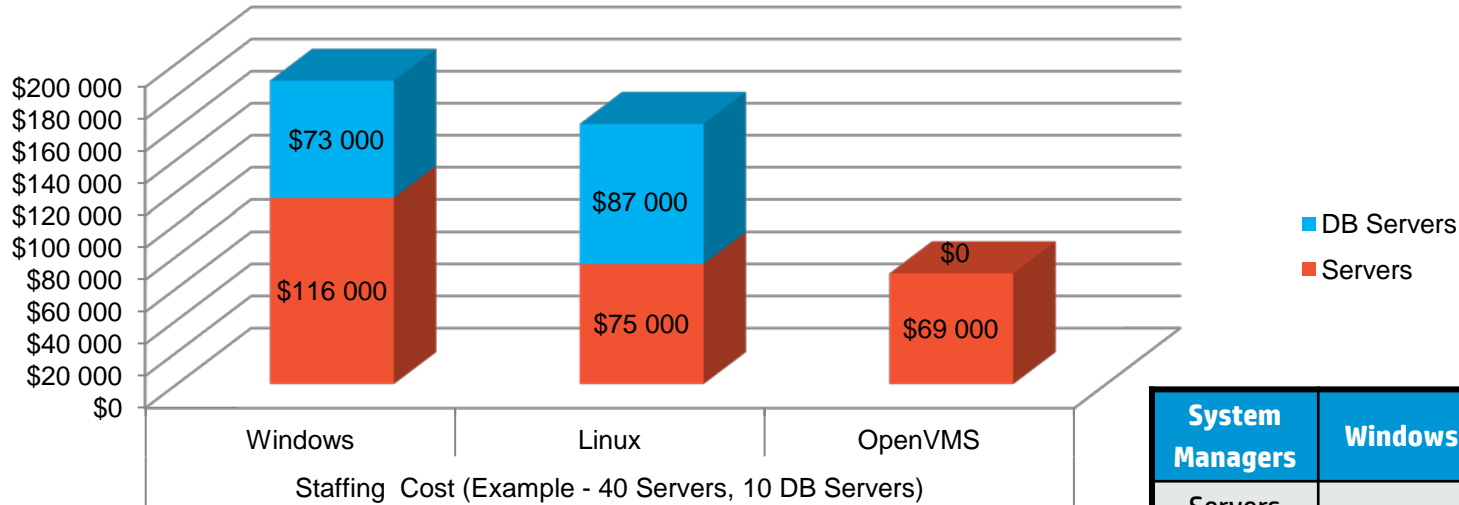
Number of System Managers and their costs to manage 40 Application servers and 10 DB servers

OpenVMS ($69,000) is less expensive to manage than Windows ($189,000) and Linux ($162,000)

System Managers	Windows	Linux	OpenVMS
Servers (40)	2	1	1
DB Servers (10)	1	1	0

System Operational Costs

Yearly Operational Costs

(From Previous Example)

DB Servers
Servers

$122 760
$122 400
$361 160
$310 560
$4 240
$14 720

$500 000
$400 000
$300 000
$200 000
$100 000
$0

Windows   Linux   OpenVMS

Total Patching Costs per Year
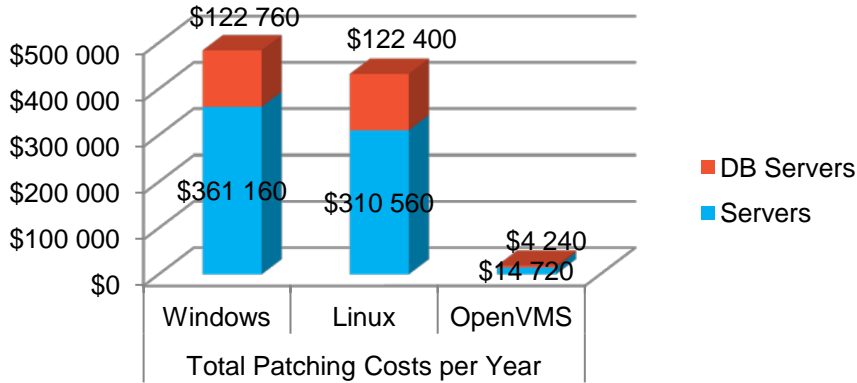
For 40 application servers and 10 DB servers

With the highest server to system Manager ratio, VMS requires fewer System Managers which reduces personnel costs significantly –
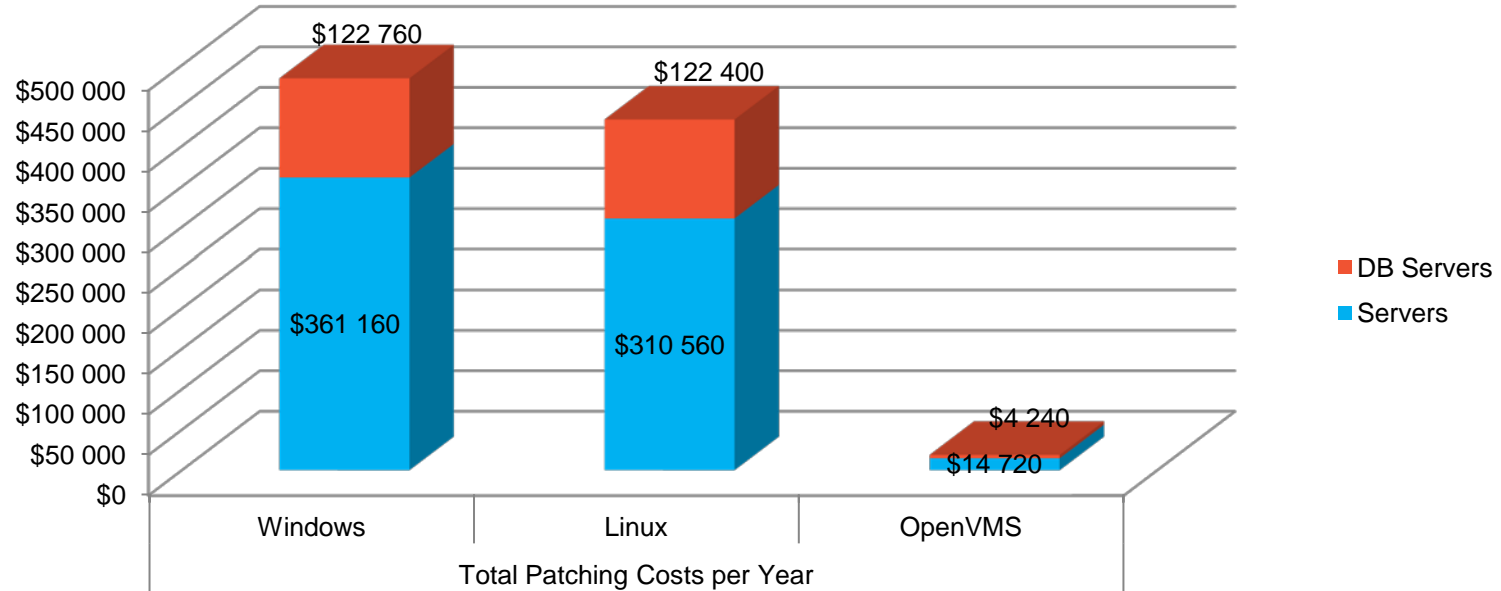**($93,000 - $120,000 less)**

As a more secure OS, VMS is significantly less expensive to patch than Windows and Linux –
($414,000 - $464,960 less)

DB Servers
**Servers**

$73 000
$87 000
$116 000
$75 000
$69 000
$0

$200 000
$150 000
$100 000
$50 000
$0

Windows   Linux   OpenVMS

System Management Costs per Year

Yearly Operational Costs

(From Previous Example)

For 40 application servers and 10 DB servers

Chart showing Total Patching Costs per Year for Windows, Linux, and OpenVMS:
- Windows: Servers $361 160, DB Servers $122 760
- Linux: Servers $310 560, DB Servers $122 400
- OpenVMS: Servers $14 720, DB Servers $4 240

Legend: DB Servers, Servers
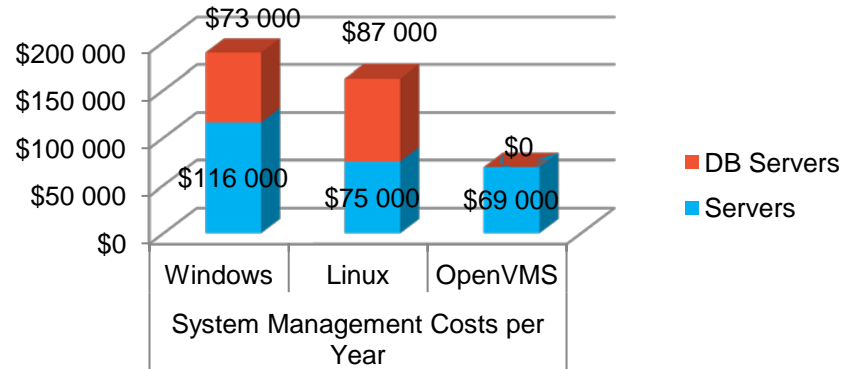
As a more secure OS, VMS is significantly less expensive to patch than Windows and Linux - ($414,000 - $464,960 less)

Total Yearly Operational Costs

(From Previous Example)

For 40 application servers and 10 DB servers
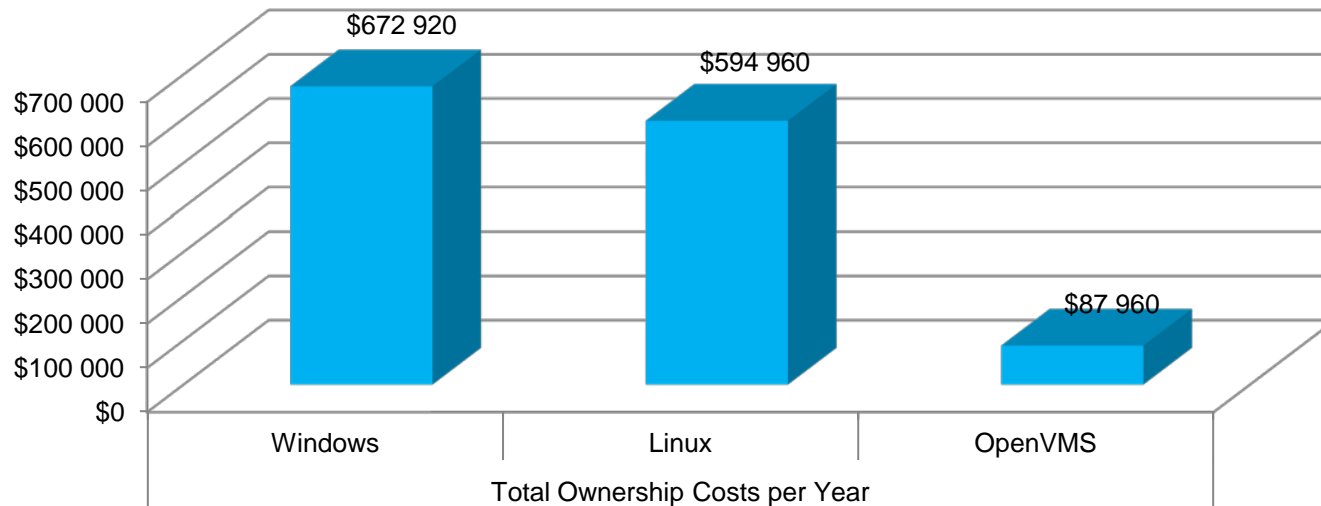
OpenVMS is 6.7X more cost effective to operate than Linux and 7.6X more cost effective to operate than Windows

Patching Effort – Man-Hours per Year

(From Previous Example)

For 40 application servers, 10 DB servers
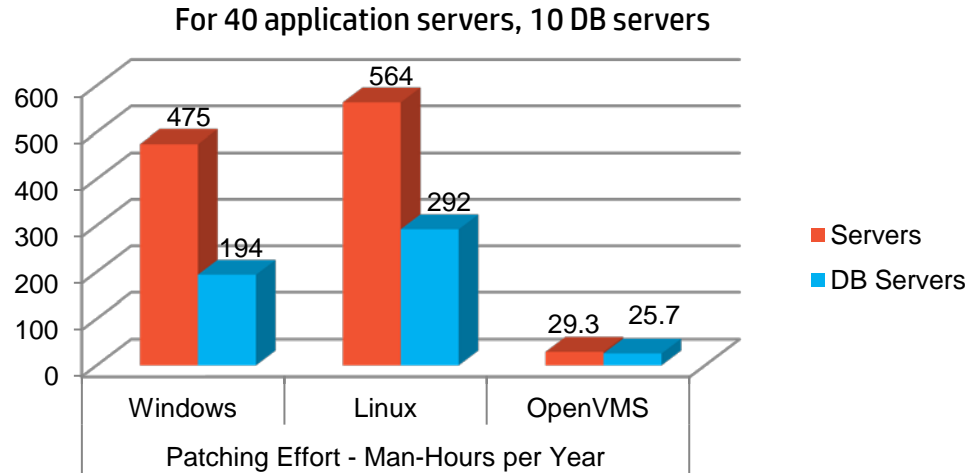
This is the amount of time System Managers spend annually doing remedial/patching work instead of providing innovation for the organization

OpenVMS System Managers can spend 12X – 15X more time on innovation (less time on patching)

- Windows – Server + DB Server time is 669 hours or 3.8 months
- Linux – Server + DB Server time is 856 hours or 4.9 months
- OpenVMS – Server + DB Server time is 55 hours or 0.31 months

OpenVMS – Patch Set up time + (Number of Systems x patch time) * patches per year

TCO Analysis

Windows – Linux - OpenVMS

5-Year TCO Server Configuration

Prices are US list	Windows	Linux*	OpenVMS
10 DB Servers	BL620 with 8-cores 32 GB Memory 2 – 146GB Internal Disks RAID 1 Dual Port FC HBA Windows 2008 R2	BL620 with 8-cores 32 GB Memory 2 – 146GB Internal Disks RAID 1 Dual Port FC HBA RHEL 5	BL860i2 with 8-cores 32 GB Memory 2 – 146GB Internal Disks RAID 1 Dual Port FC HBA OpenVMS BOE
	$398,965	$328,635	$448,809
40 Application Servers	BL460 with 4-cores 16 GB Memory 2 – 146GB Internal Disks RAID 1 Dual Port FC HBA Windows 2008 R2	BL460 with 4-cores CPU 16 GB Memory 2 – 146GB Internal Disks RAID 1 Dual Port FC HBA RHEL 5	BL860i2 with 4-cores 16 GB Memory 2 – 146GB Internal Disks RAID 1 Dual Port FC HBA OpenVMS BOE
	$874,365	$592,085	$1,077,644
List Price	**$1,273,330**	**$920,720**	**$1,526,453**

* Linux SW Warranty only 3-year 24x7   All configurations used 42U Racks, Rack PDUs, C7000 Blade Enclosures, ProCurve 6120 Ethernet Blade Switches and B-Series 8/12 FC Switches and 5-Year 24x7 Warranty on HW & SW

5-Year TCO Comparison

(From Previous Example)

For 40 application servers, 10 DB servers

Totals Bolded
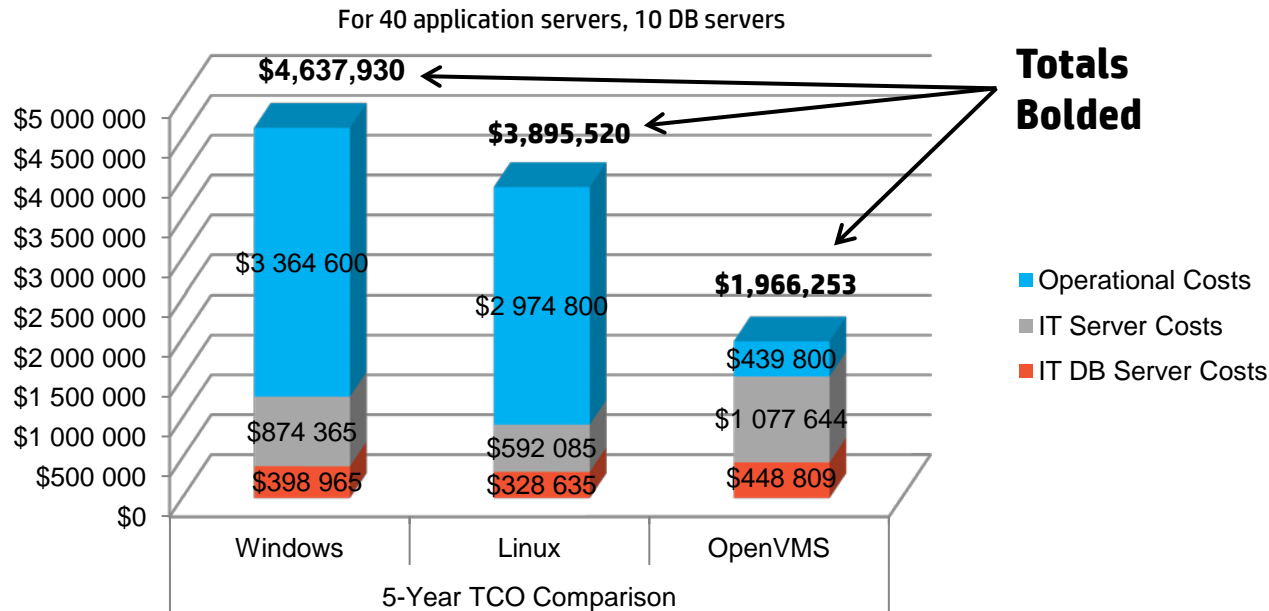
OpenVMS is:

49% less than Linux

57% less than Windows

OpenVMS is $1.92M less expensive than Linux and $2.67M less than Windows over a 5 year lifecycle period
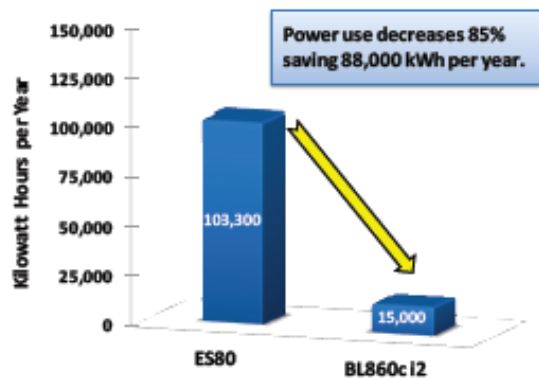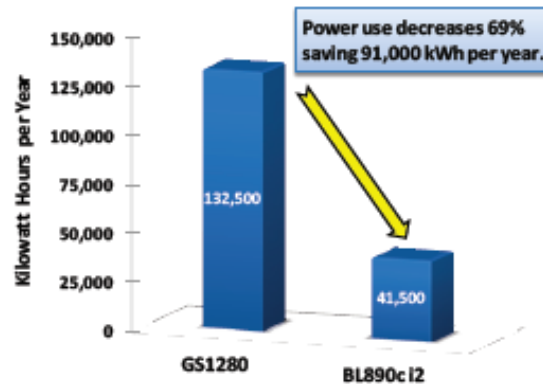
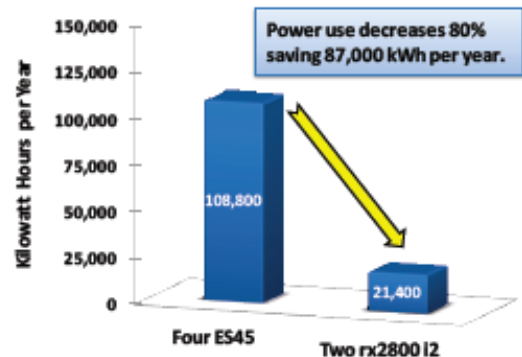# Alpha to Integrity – TCO comparison
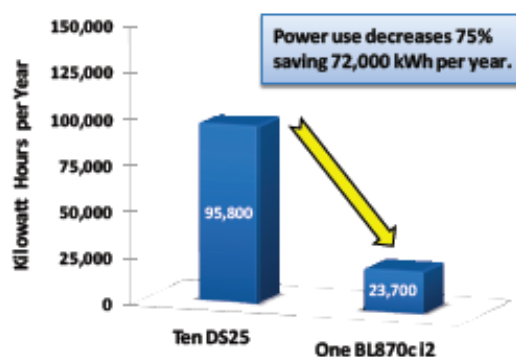
Integrity goes green

ES80 to BL860c i2

Power use decreases 85% saving 88,000 kWh per year.

- ES80: 103,300
- BL860c i2: 15,000

(Kilowatt Hours per Year)

GS1280 to BL890c i2

Power use decreases 69% saving 91,000 kWh per year.

- GS1280: 132,500
- BL890c i2: 41,500

(Kilowatt Hours per Year)

Four ES45 to Two rx2800 i2

Power use decreases 80% saving 87,000 kWh per year.

- Four ES45: 108,800
- Two rx2800 i2: 21,400

(Kilowatt Hours per Year)

Ten DS25 to One BL870c i2

Power use decreases 75% saving 72,000 kWh per year.

- Ten DS25: 95,800
- One BL870c i2: 23,700

(Kilowatt Hours per Year)

Source: TechWise Research Inc, August 2012

Payback below 12 months

Upgrade #1 Cash Flow Analysis
AlphaServer ES80 to Integrity BL860c i2

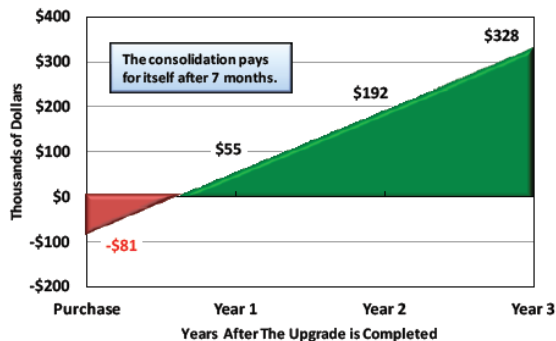The upgrade pays for itself after 8 months.
$162
$93
$24
-$44
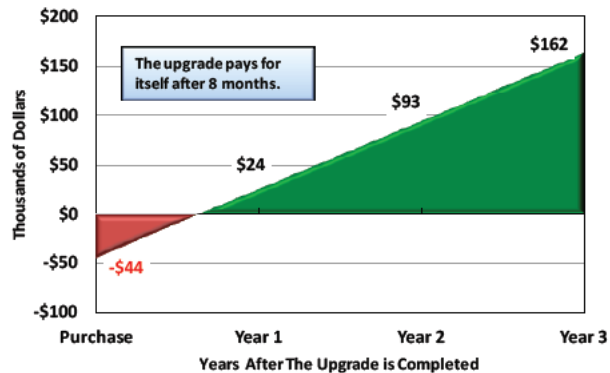
Upgrade #2 Cash Flow Analysis
AlphaServer GS1280 to Integrity BL890c i2

The upgrade pays for itself after 6 months.
$759
$460
$161
-$138
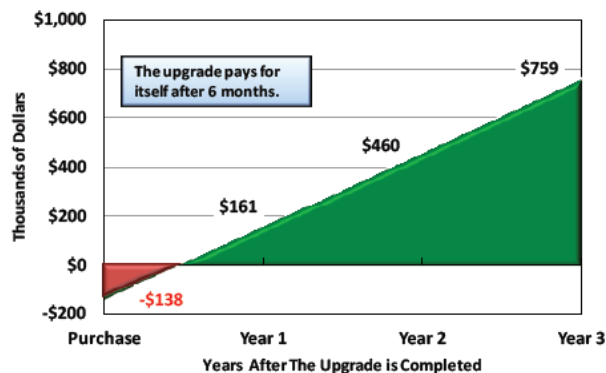
Consolidation #1 Cash Flow Analysis
Four AlphaServer ES45 to Two Integrity rx2800 i2

The consolidation pays for itself after 7 months.
$328
$192
$55
-$81

Consolidation #2 Cash Flow Analysis
Ten AlphaServer DS25 to One Integrity BL870c i2

The consolidation pays for itself after 6 months.
$412
$247
$81
-$85

    Source: TechWise Research Inc, August 2012
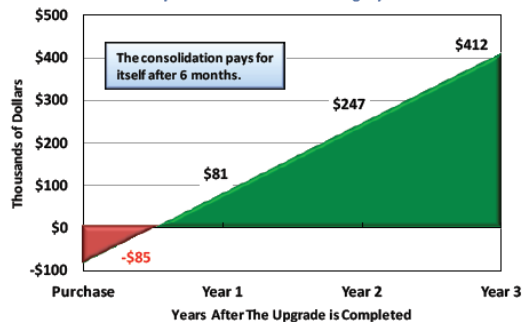
Value-Based Sales and Marketing Tools

PROFILE

- Founded in 2001
- Over 30+ full time ex-Gartner business value / ROI experts
- IT content experts from top IT vendors including IBM, HP, Sun, SAS, Oracle, Siemens, CSC

HISTORY

- Original pioneers (1994) of B2B Value Selling Tools
- Sold first TCO/ROI software company to Gartner in 1998
- 1st scalable business value platform – XcelLive™

PEDIGREE

- Over 70 customers and 600 B2B sales / marketing tools across an array of B2B disciplines
- Endorsed as best practice by many leading vendors including Microsoft, HP, IBM, EMC, NetApp, Siemens Healthcare.
- Partnerships with IDC, Morningstar, Rosetta, and ZDE

Powered by Alinean...

CUSTOMERS

PARTNERS

www.hp.com/go/tco

Available Calculators

IBM POWER TCO Challenge

Oracle SUN TCO Challenge

HP9000 and Alpha TCO Challenge

HP ProLiant Gen8 Benefits and Savings Calculator

IBM Mainframe TCO Challenge

HP 3PAR Benefits and Savings Calculator

P6000 Benefits and Savings Calculator

Thank you