Business Value of OpenVMS

Enterprise-Class —Not Just Good Enough

Summary of this presentation given by Gerrit Woertman, VMSConsultancy
VMSUpdate, 30 Nov 2016

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Agenda

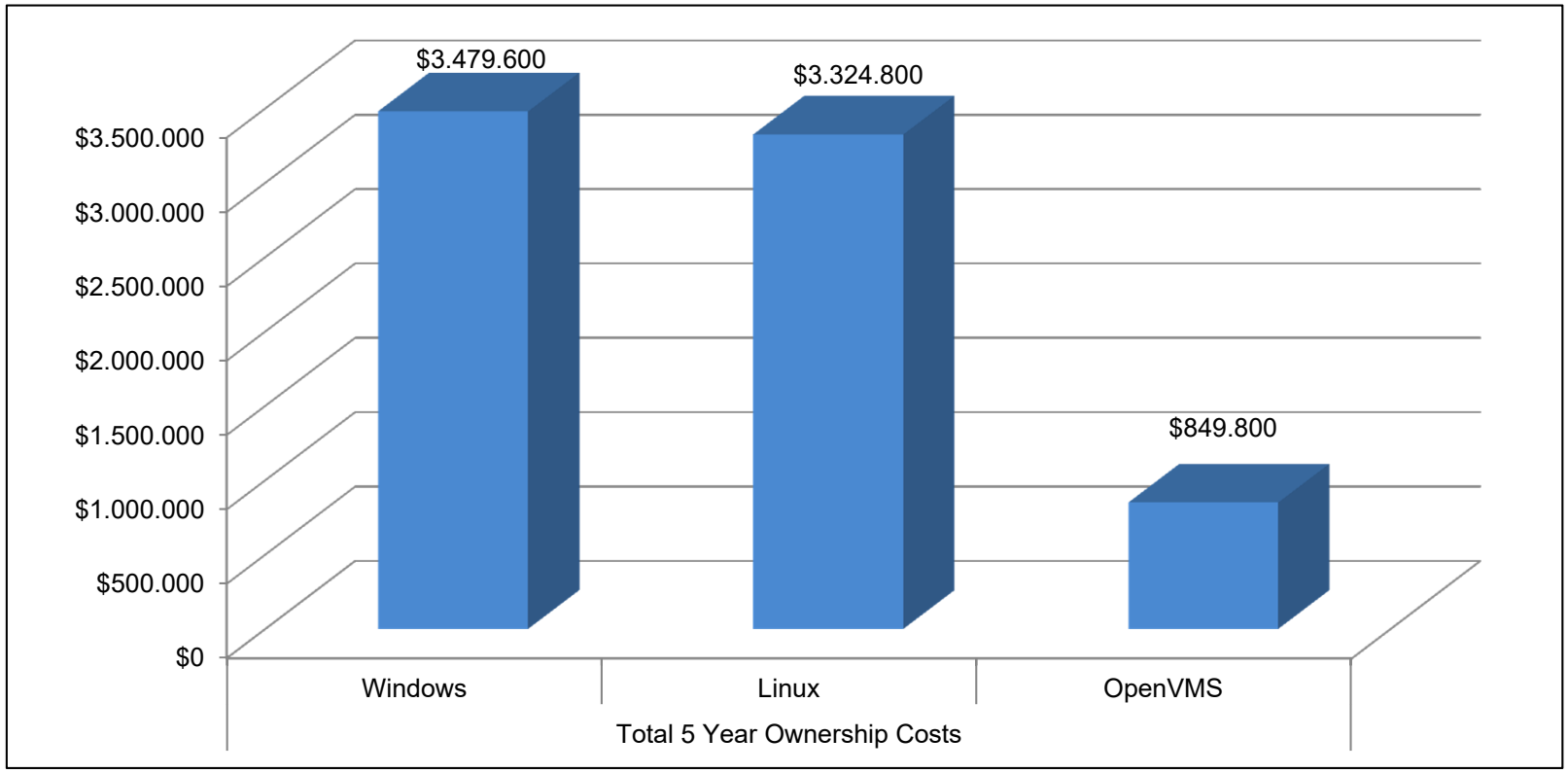
- Security Costs
- Staffing Costs
- Investment Protection Savings
- Unplanned Downtime Costs
- Downtime Analysis
- OpenVMS Features That Enable

Security Costs

5 Year Lifecycle Operational Costs

(Due to Security)

For 40 application servers and 10 DB servers

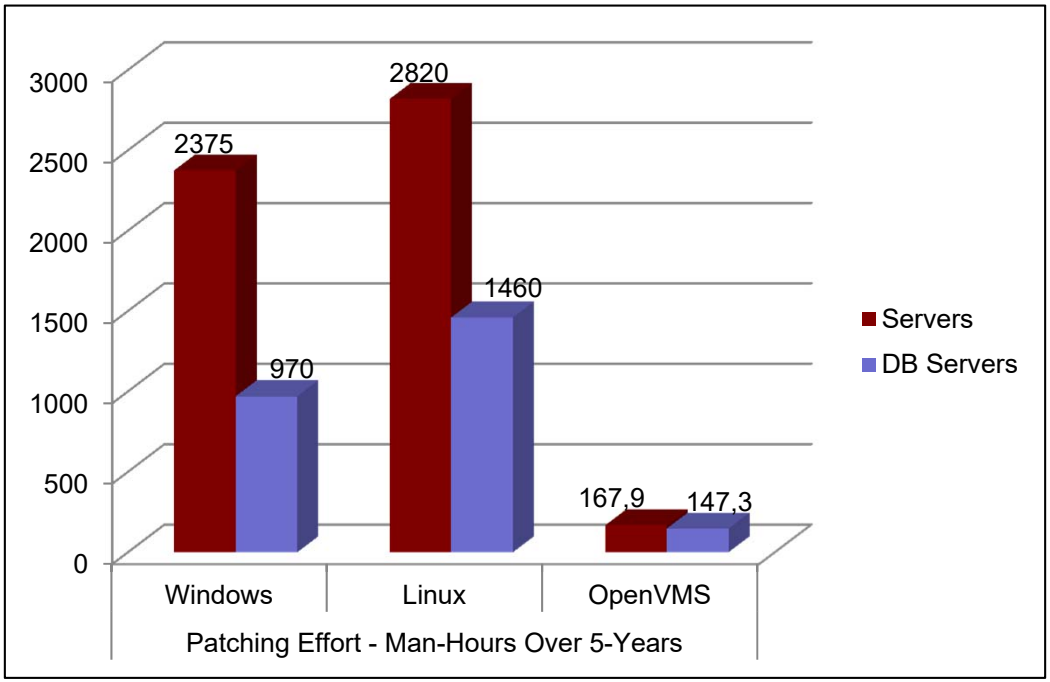


With OpenVMS you can cut $2.47M – $2.62M from the IT budget or provide this amount of business innovation back to your organization over the lifecycle of your system

5-Year Life Cycle Patching Effort

(Man-Hours Total – Due to Security)

For 40 application servers, 10 DB servers



This is the amount of time System Managers spend over the 5-year lifecycle of the server doing remedial/patching work instead of providing innovation for the organization

Windows - 31% Lost Time
Linux - 41% Lost Time
OpenVMS – 2.6% Lost Time

- Windows – Server + DB Server time is 3345 hours or 19.2 months
- Linux – Server + DB Server time is 4280 hours or 24.6 months
- OpenVMS – Server + DB Server time is 315 hours or 1.81 months

Source: http://download.microsoft.com/download/1/7/b/17b54d06-1550-4011-9253-9484f769fe9f/TCO_SPM_Wipro.pdf for Windows/Linux

Staffing Costs

Staffing

Clients – End Users supported per System Manager

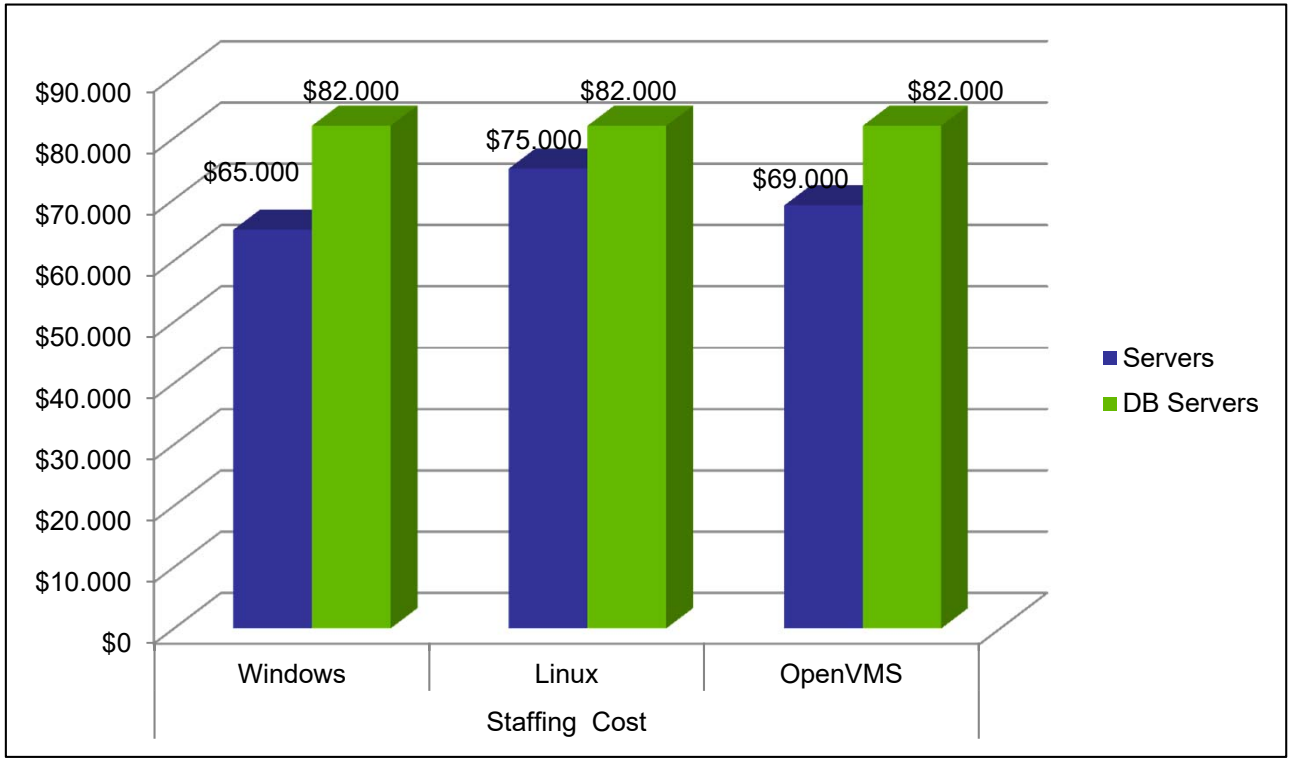
Servers – Servers managed per System Manager

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

(System Manager)



US national average per year

Salary in some US cities may be higher

http://www.simplyhired.com/a/salaries-k-windows+system+manager-jobs.html

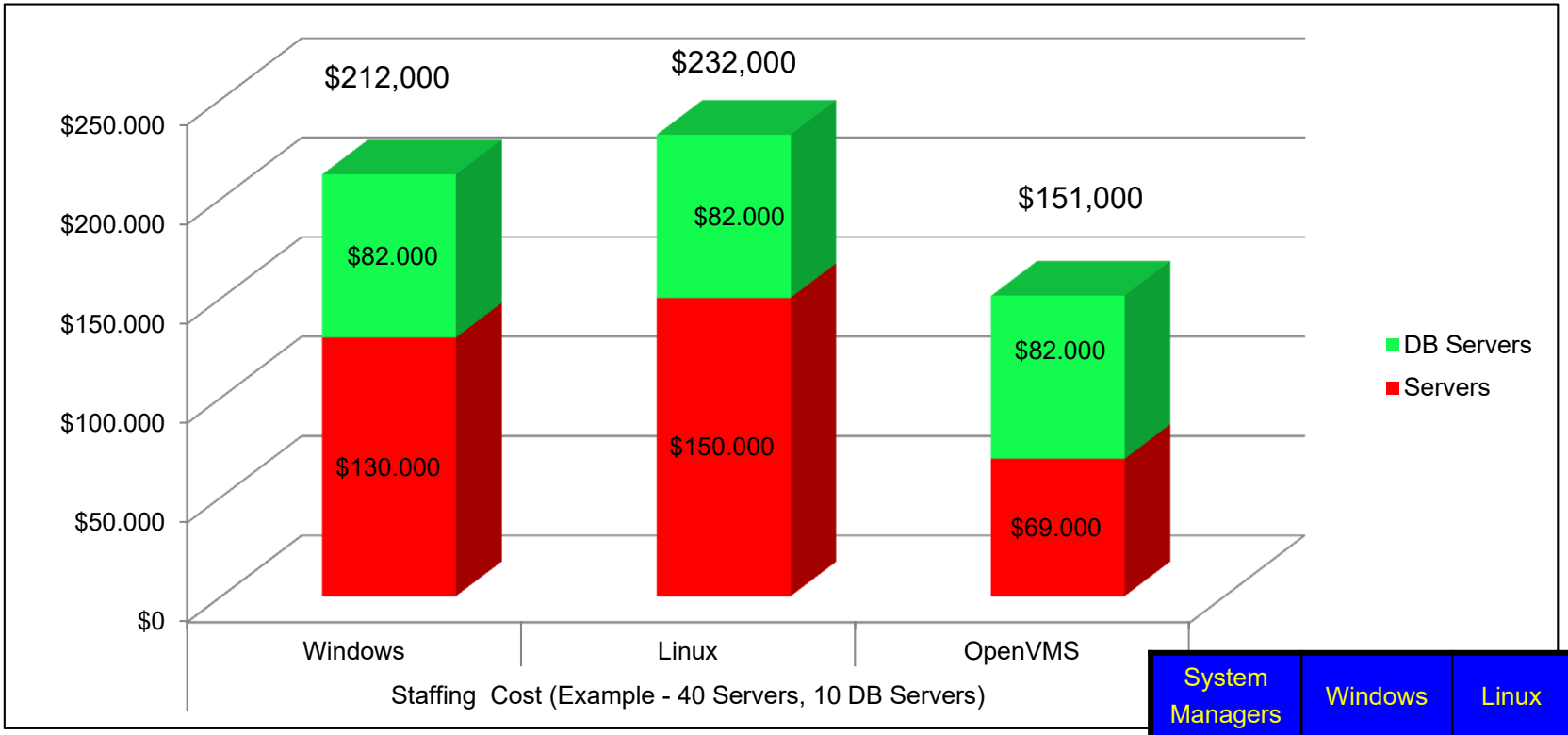
http://www.simplyhired.com/a/salaryies-k-Oracle+db-jobs.html

http://www.simplyhired.com/a/salaries-k-linux+db+system+manager-jobs.html

http://www.simplyhired.com/a/salaries-k-OpenVMS+system+manager-jobs.html

Staffing Costs

Example



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

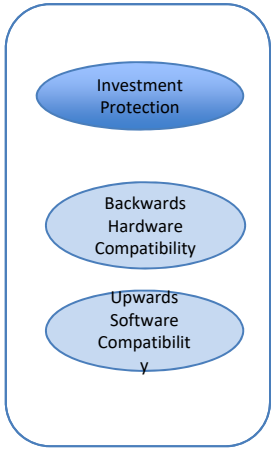
Number of System Managers and their costs to manage 40 Application servers and 10 DB servers

OpenVMS ($151,000) is less expensive to manage than Windows ($212,000) and Linux ($232,000)

Investment Protection - Savings

Business Value

(Investment Protection)

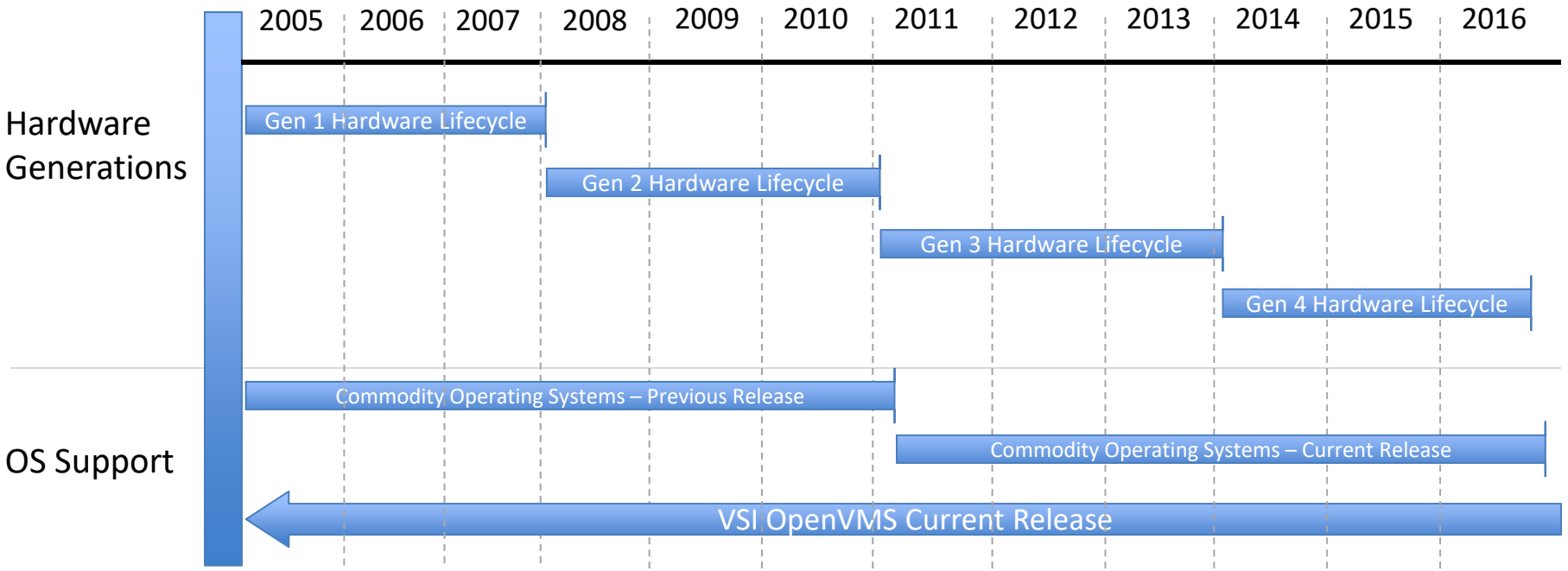


OpenVMS provides both backwards hardware compatibility and upwards software compatibility. This means that customers can retain hardware platforms longer and enjoy even greater ROI than with other operating systems. For instance, if an rx1600 (introduced in 2004) meets business needs, a customer can run VSI OpenVMS Version 8.4-2 on it. This configuration is supported by VSI.

It also means that customers can run programs written on a previous version (on the same hardware platform family) of OpenVMS unmodified – no recompiling or relinking necessary – on newer versions of OpenVMS. This allows customers to realize a larger return on software investment. For instance, an application built for OpenVMS 8.2 Integrity will still run, unmodified, on OpenVMS 8.4-2 Integrity.

Business Value

(Investment Protection)



Unplanned Downtime Costs

Downtime

1. **Server hardware failure during normal cluster operation:** These are crashes caused when one or more servers failed, when no maintenance was being performed on any of the servers.

1. **Server hardware failure during planned server maintenance:** This type of crash occurs when one server failed while planned maintenance is being performed on the other server in the cluster. In these cases, the cluster crashes despite its automated failover configuration.

1. **Operating system or cluster software problems:** These are any crashes caused by the operating system or clustering software.

1. **Software virus or worm:** Hackers and malware can and do cause clusters to crash. TechWise Research measured how much downtime, if any, was caused by software viruses and worms.

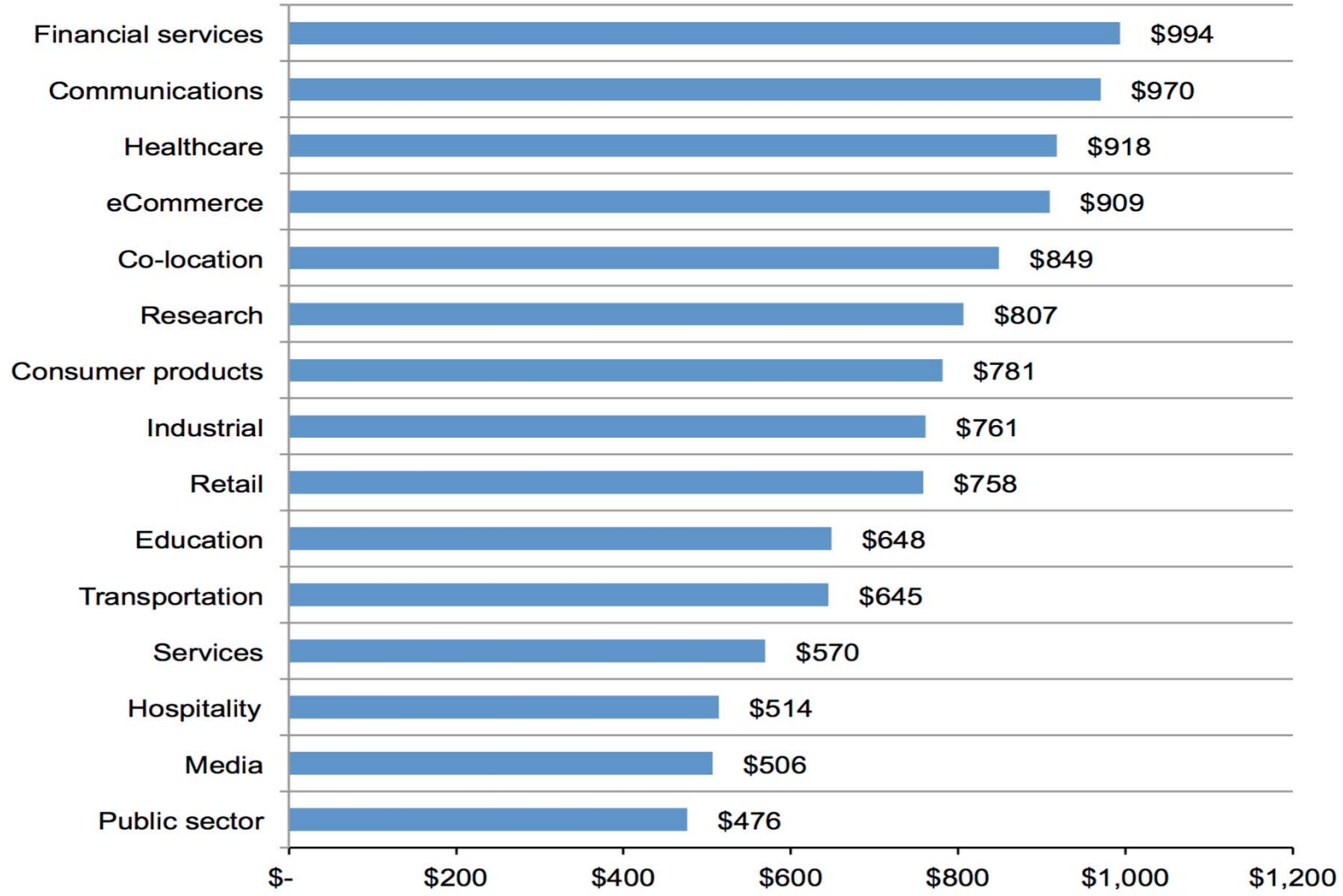
1. **System management application problem:** This includes any crash caused by a problem with any of the system management application(s) running on this cluster.

Source: http://h20565.www2.hpe.com/hpsc/doc/public/display?docId=emr_na-c04618656

Downtime Cost per Industry Segment

(Total Per Year)

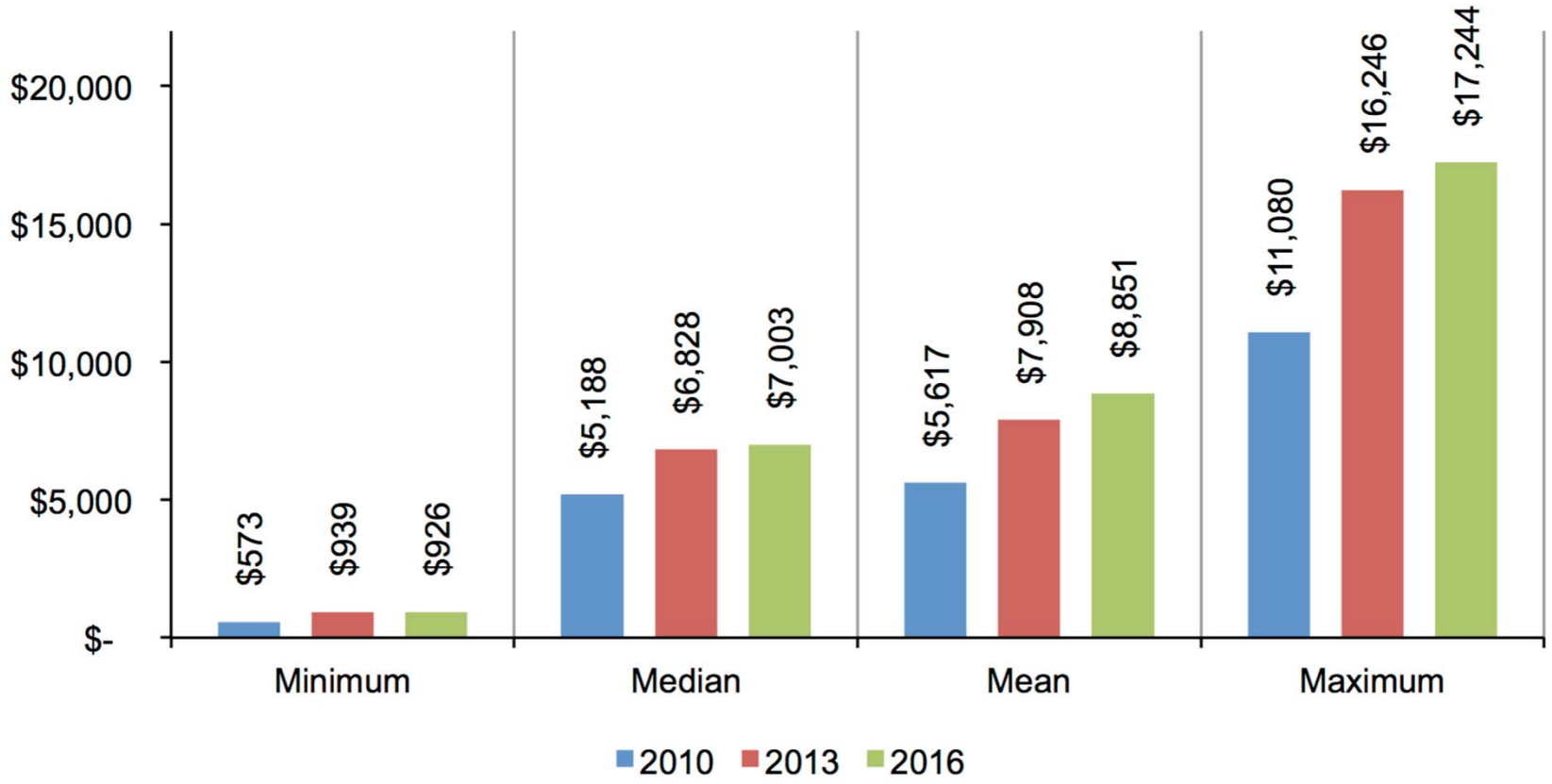
(In Thousands $)



Source: http://www.emersonnetworkpower.com/en-US/Resources/Market/Data-Center/Latest-Thinking/Ponemon/Documents/2016-Cost-of-Data-Center-Outages-FINAL-2.pdf

Downtime Costs per Minute

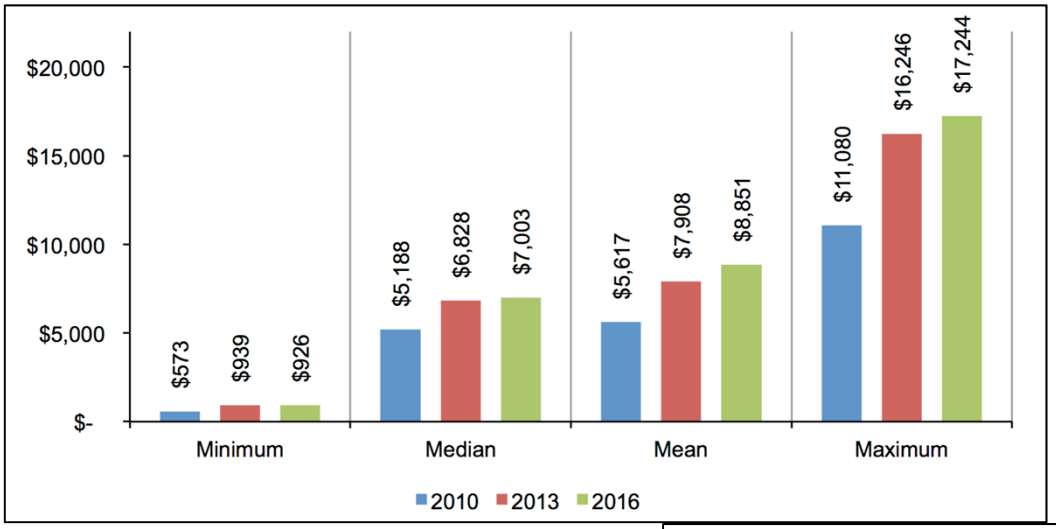
Industry costs



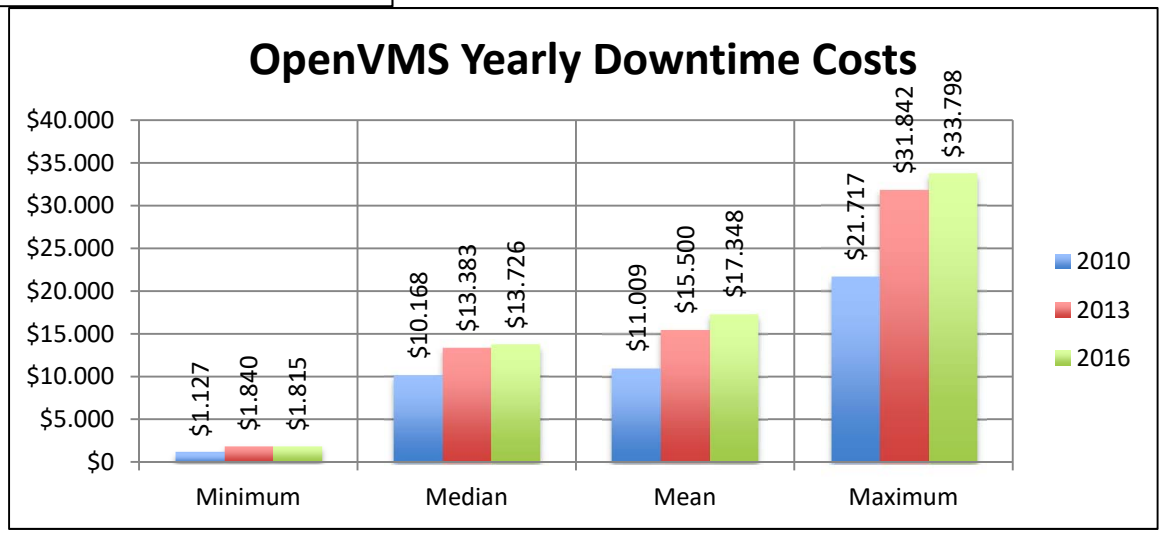
Source: http://www.emersonnetworkpower.com/en-US/Resources/Market/Data-Center/Latest-Thinking/Ponemon/Documents/2016-Cost-of-Data-Center-Outages-FINAL-2.pdf

OpenVMS Unplanned Downtime Costs

Downtime Costs per Minute



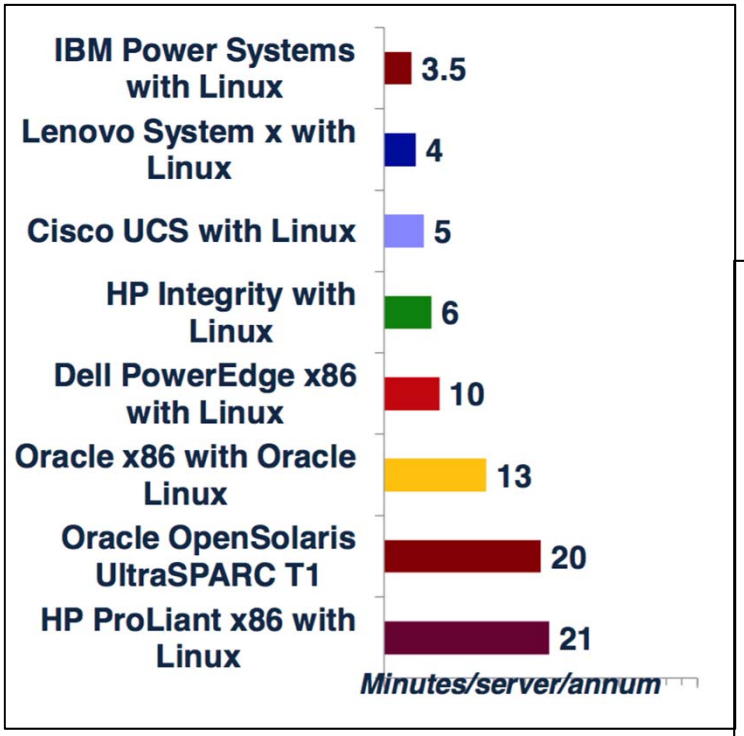
x 1.96 (minutes per year)



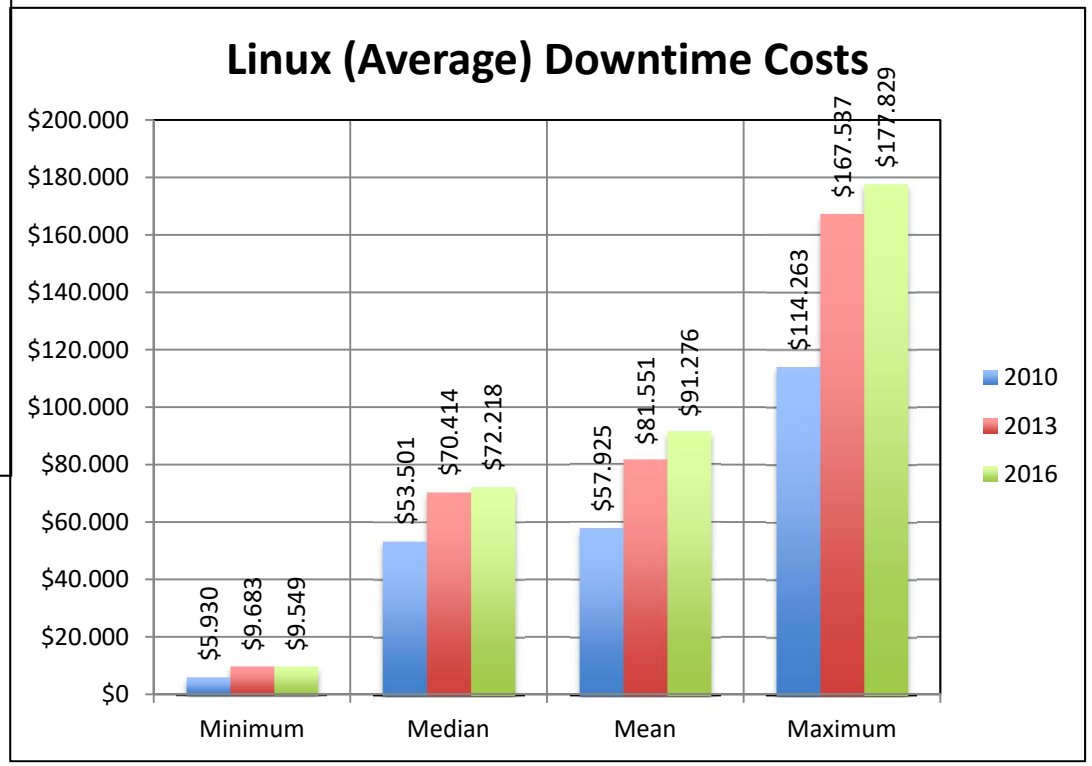
Source: http://h20565.www2.hpe.com/hpsc/doc/public/display?docId=emr_na-c04618656

Linux Unplanned Downtime Costs

Minutes per year



Average =10.3125 Minutes per year

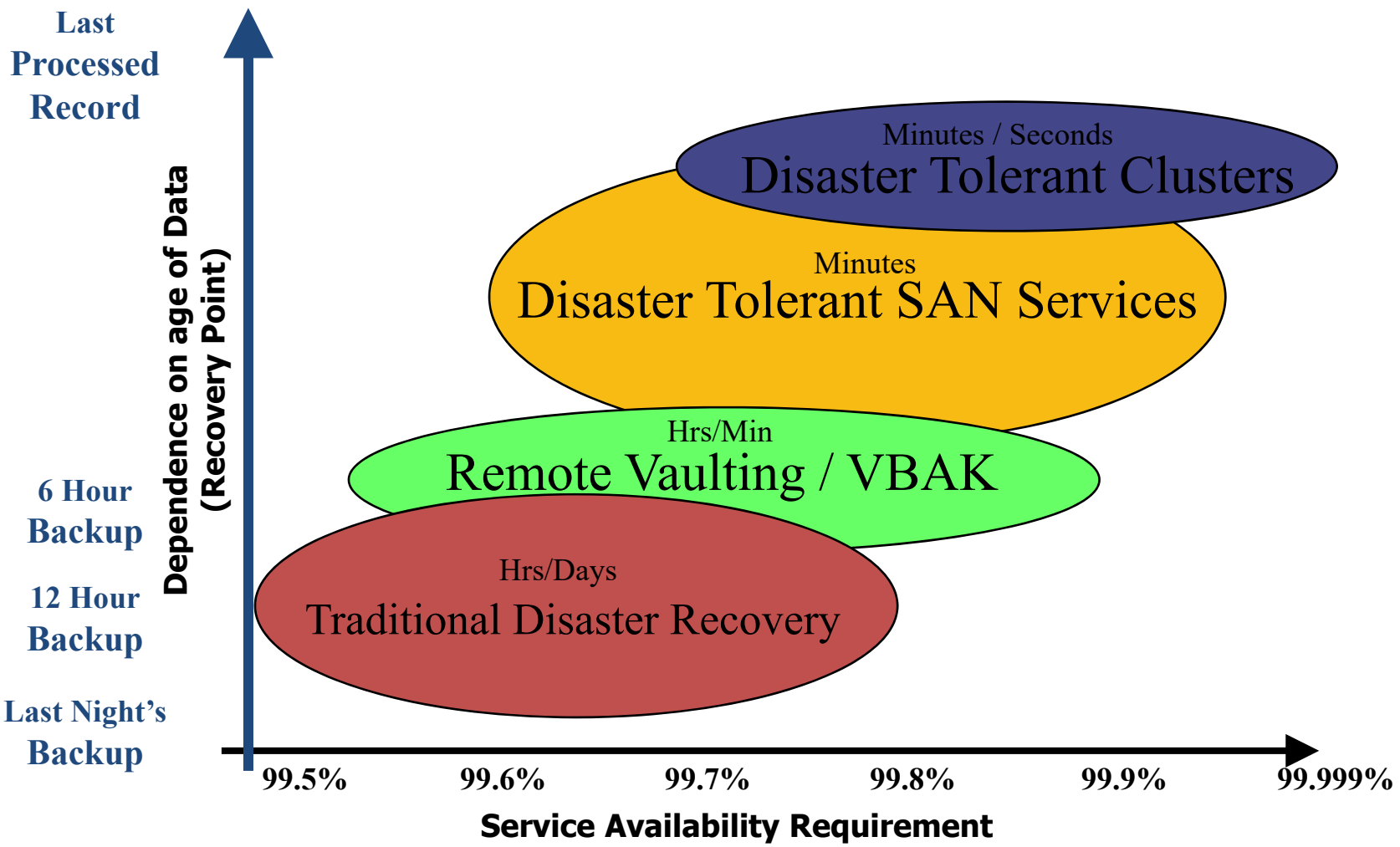


Linux costs on average 5.3X OpenVMS in unplanned downtime costs.

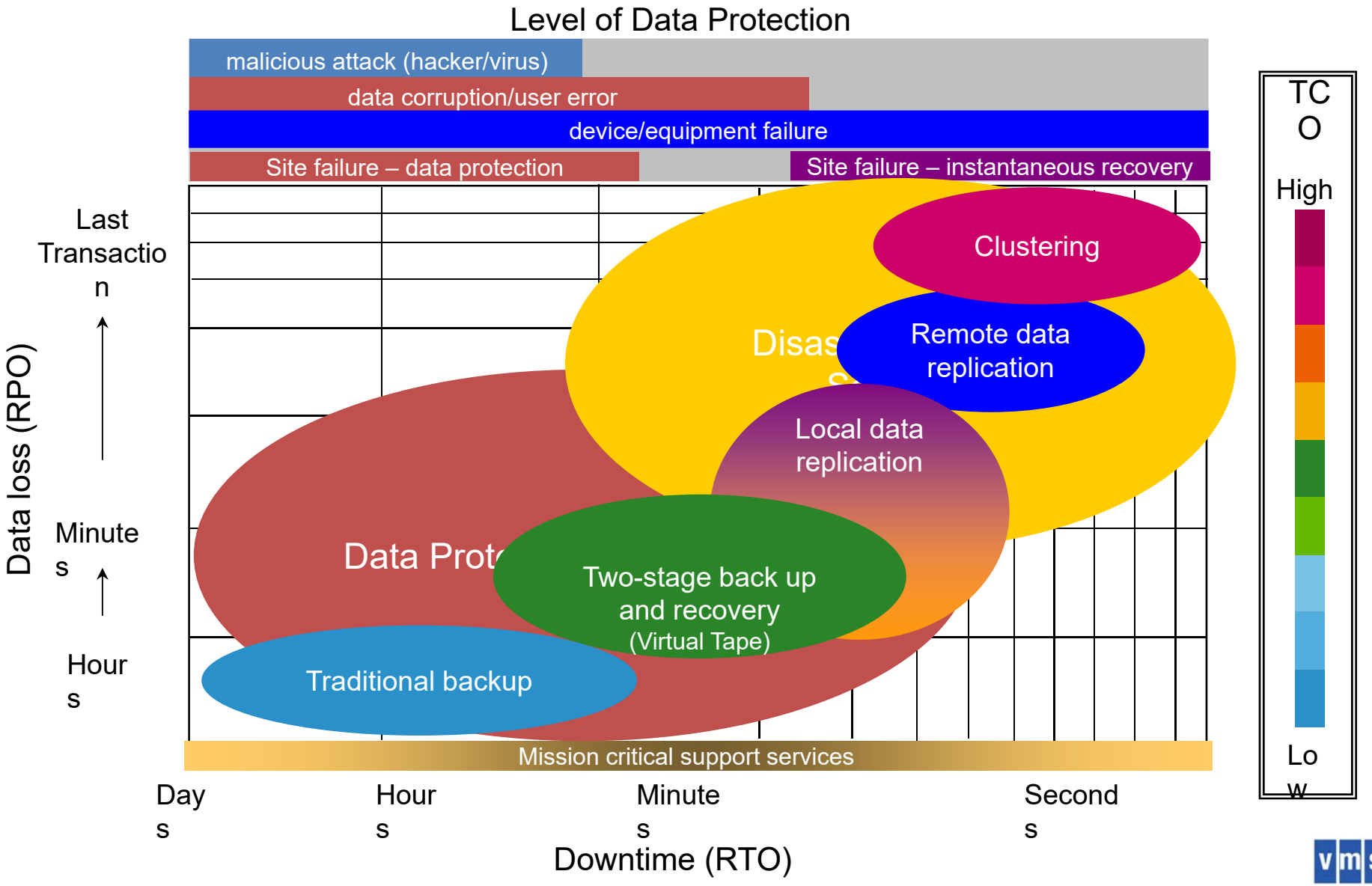
http://www.lenovo.com/images/products/system-x/pdfs/white-papers/itic_2015_reliability_wp.pdf

Downtime Analysis

The Disaster Recovery Continuum



BC&A….It's a continuum



Recovery Point Objective (RPO)

RPO examples, and technologies to meet them:

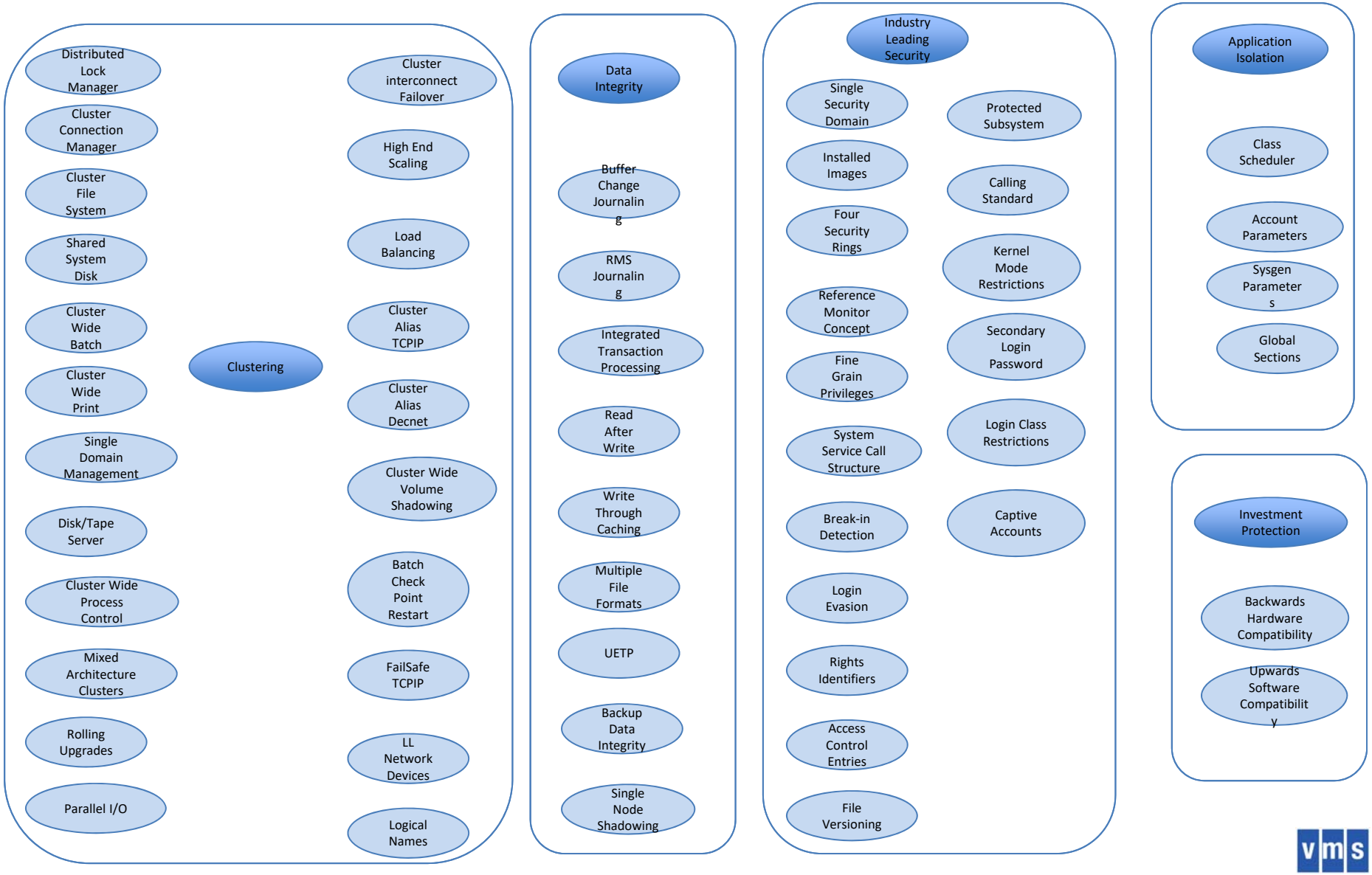
- RPO of 24 hours:
  - Backups at midnight every night to off-site tape drive, and recovery is to restore data from set of last backup tapes
- RPO of 1 hour:
  - Ship database logs hourly to remote site; recover database to point of last log shipment
- RPO of a few minutes:
  - Mirror data asynchronously to remote site
- RPO of zero:
  - Mirror data strictly synchronously to remote site

Recovery Time Objectives (RTO)

- RTO of 10 seconds:
  - Disaster-tolerant cluster with:
    - Redundant inter-site links, carefully configured
      - To avoid bridge Spanning Tree Reconfiguration delay
    - Host-based software mirroring for data replication
      - To avoid time-consuming manual failover process with controller-based mirroring
    - Tie-breaking vote at a 3rd site
      - To avoid loss of quorum after site failure
    - Distributed Lock Manager and Cluster-Wide File System (or the equivalent in database software), allowing applications to run at both sites simultaneously
      - To avoid having to start applications at failover site after the failure

OpenVMS Features That Enable

What are OpenVMS' Competitive Advantages



Business Value

There is a companion VSI presentation that details 54 different technical features of OpenVMS that provides a competitive advantage over our competition. These 54+ advantages are grouped into 5 major categories.

- Clustering
- Data Integrity
- Industry Leading Security
- Application Isolation
- Investment Protection


vms
Software

Questions?