

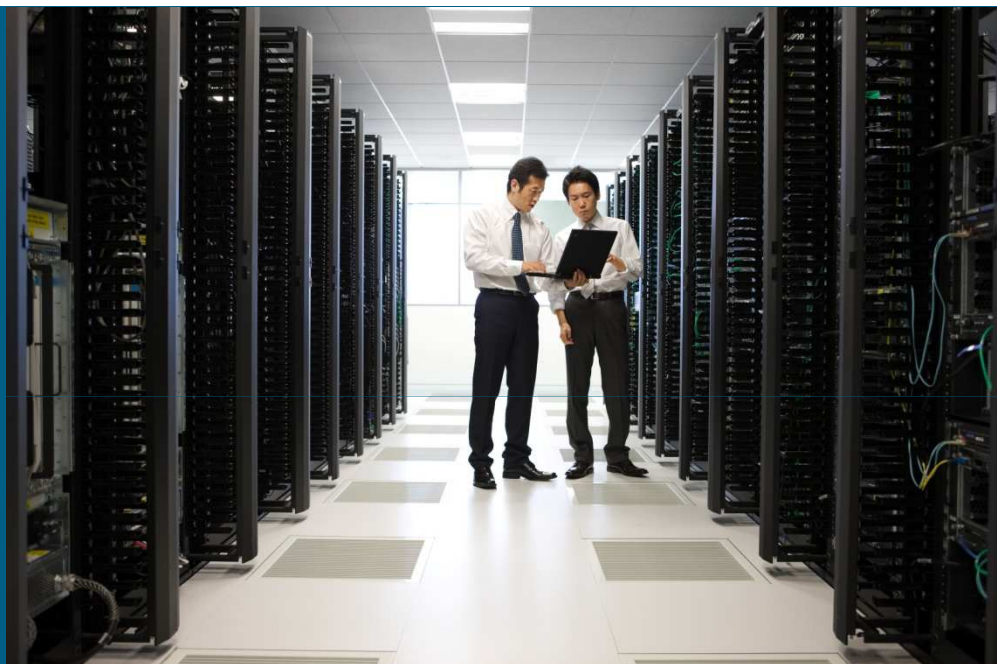


UCS Business Value - TCO

Maciej Bocian, Architecture Sales Manager



Server Virtualization Case Study - TCO



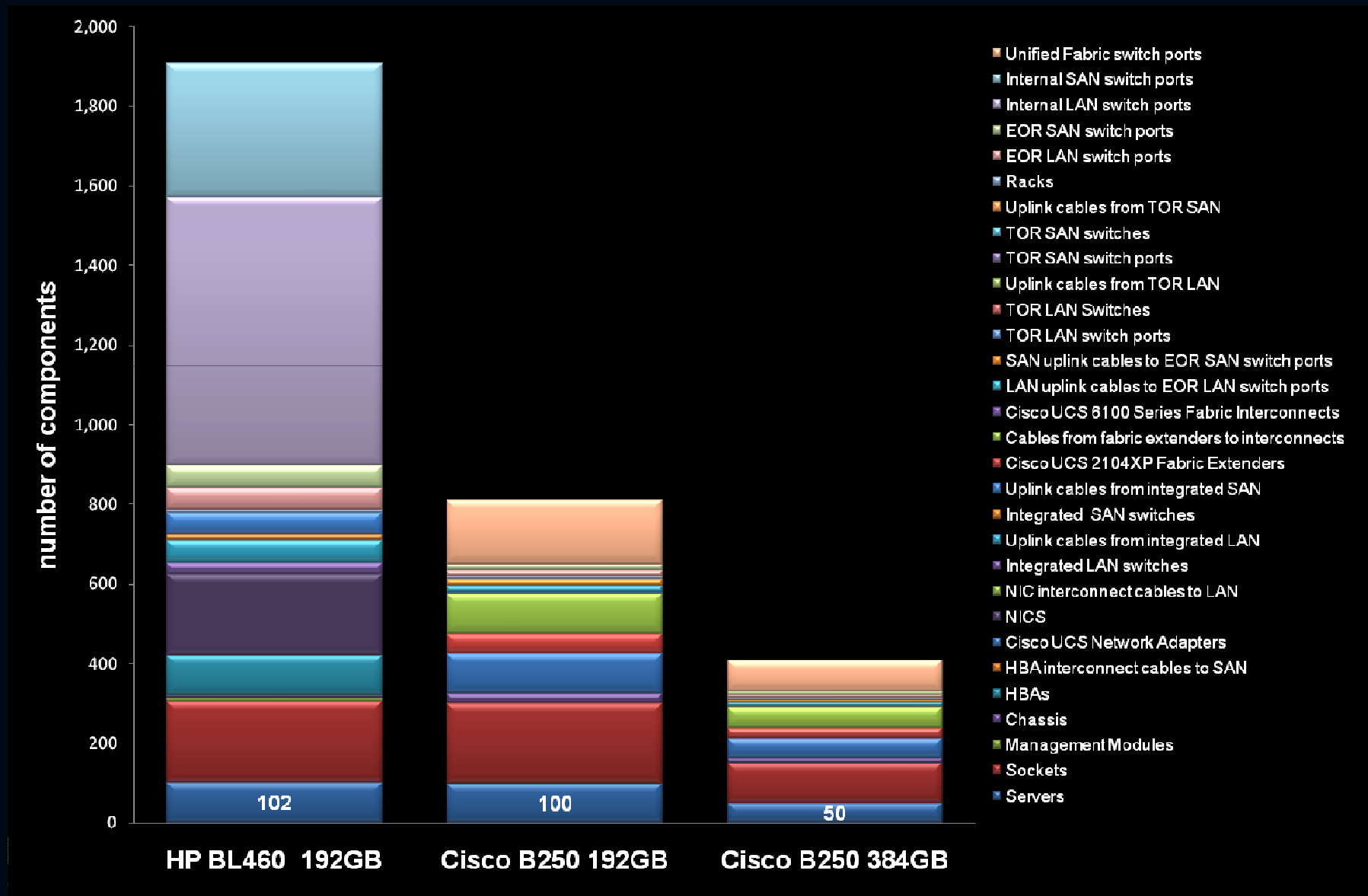
Example – Virtual Server Infrastructure

Use Case and Cost Structures

- **Consolidation of 4,000 Physical Servers**
 - Current virtual machines to physical host ratio 20:1
 - VMware vSphere Enterprise Plus Edition
 - HP Blade Servers – BL460 G6 E5540 96GB
 - HP Virtual Connect – Flex 10 and Fibre Channel

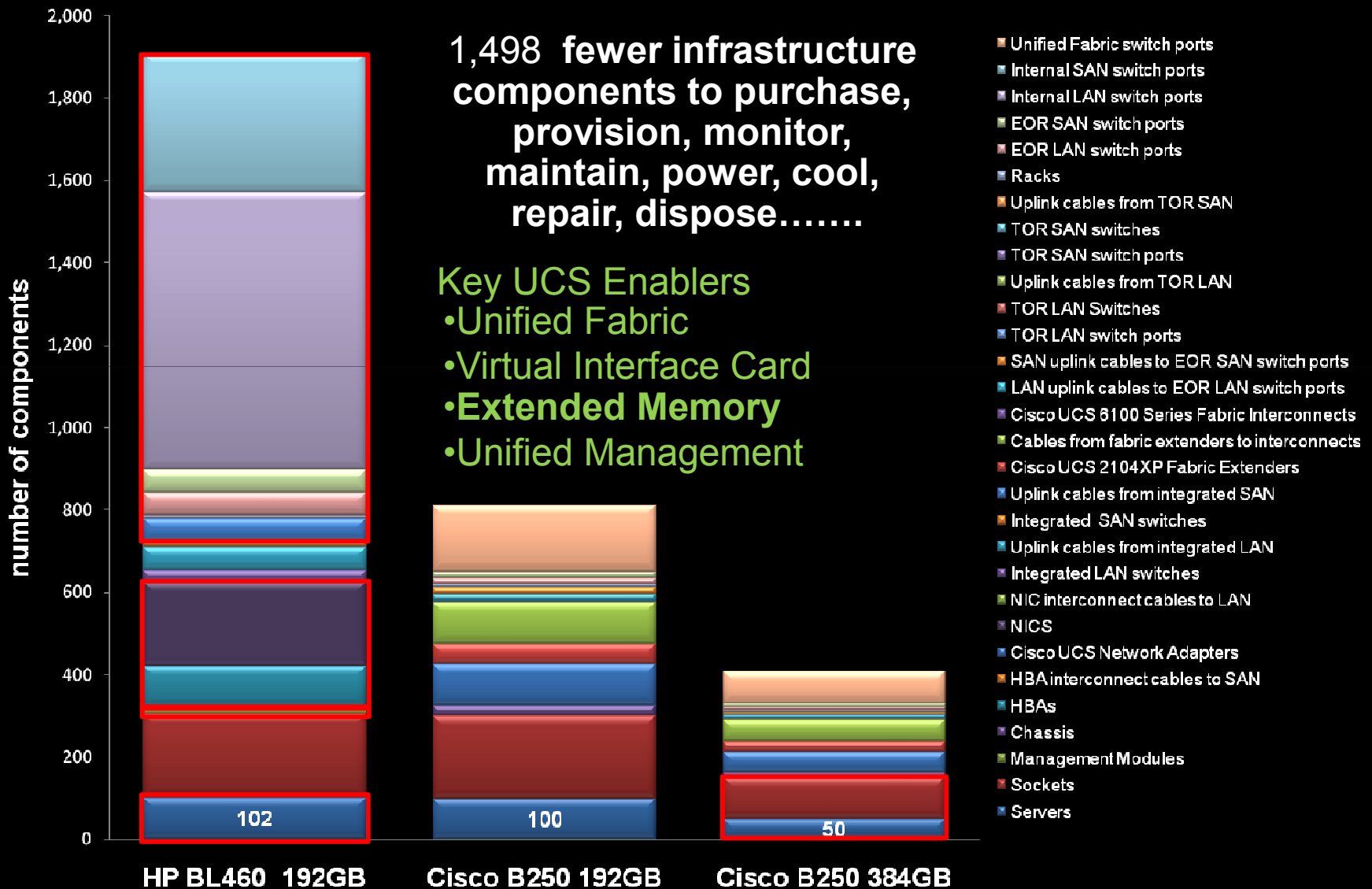
Capital Costs	Operating Costs
Server	Hardware Maintenance
Network Interface Cards	Software Maintenance
Host Bus Adapter's	Administration
Converged Network Adapter's	Power and Cooling
LAN Switch Ports	Space
SAN Switch Ports	
Cables	
Software	

Virtual Server Infrastructure Example



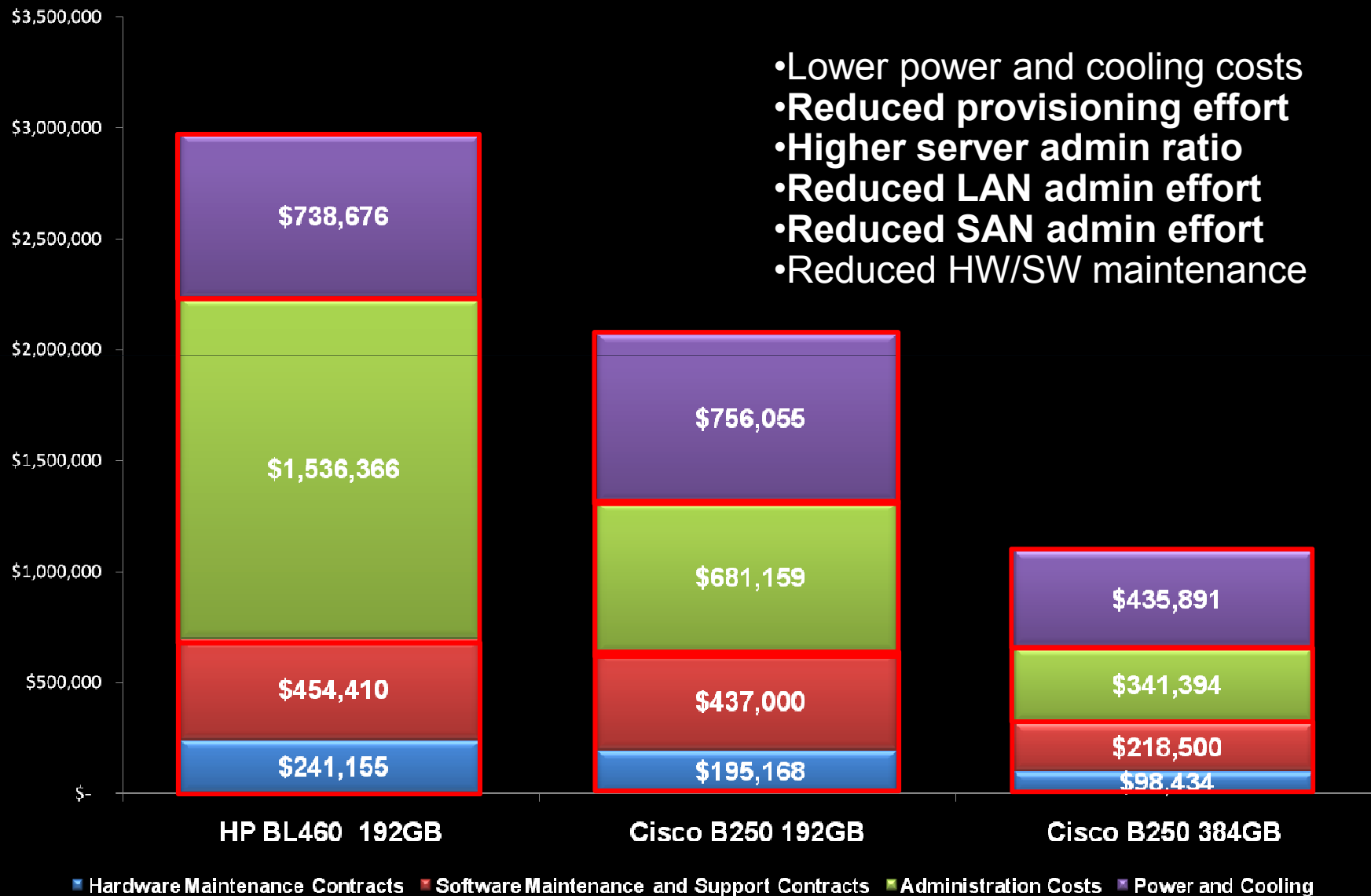
Virtual Server Infrastructure Example

79% Reduction In Components



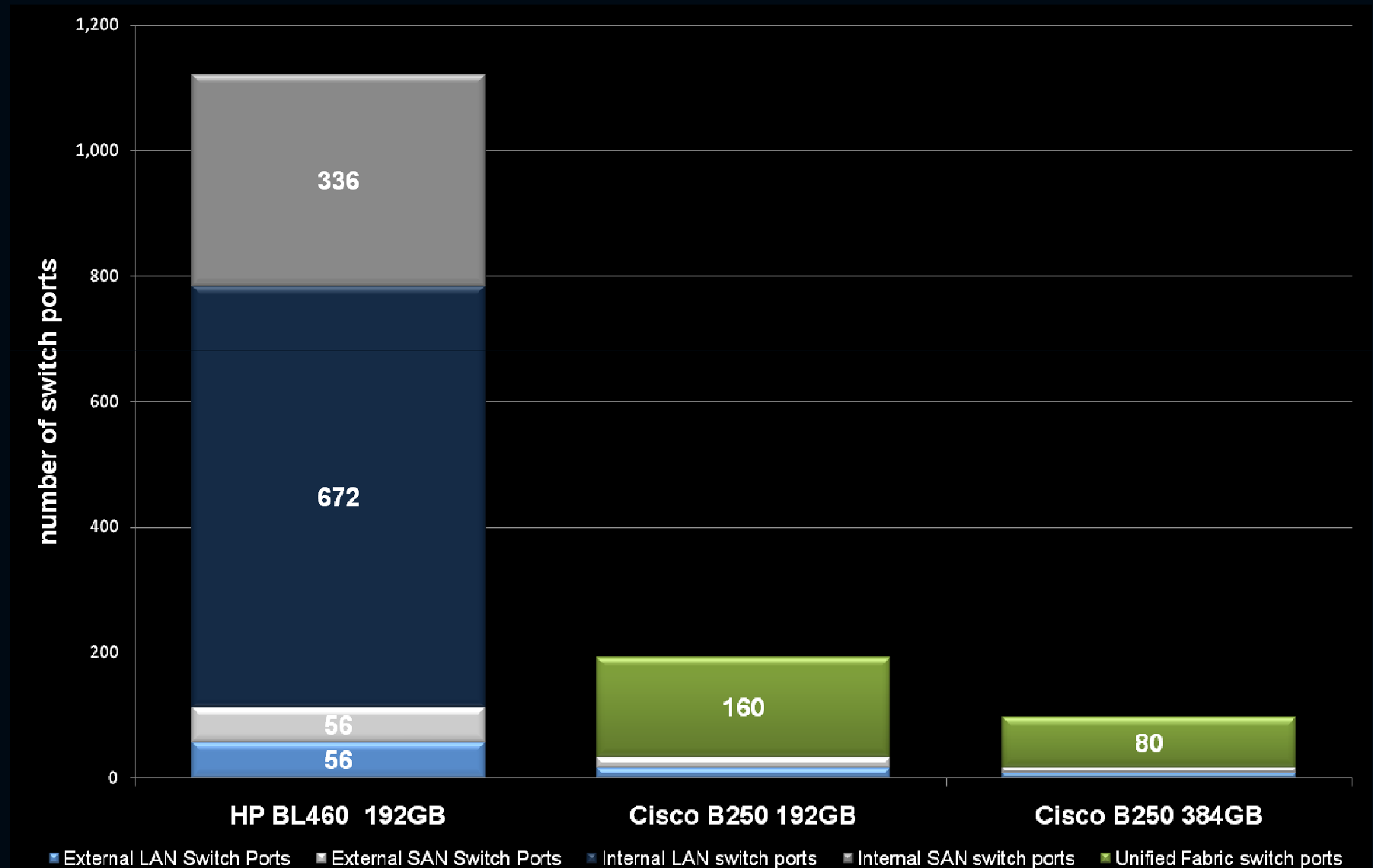
Virtual Server Infrastructure Example

Operating Costs Reduced by 63%



Virtual Server Infrastructure Example

Switching Infrastructure Reduced



Virtual Server Infrastructure Example

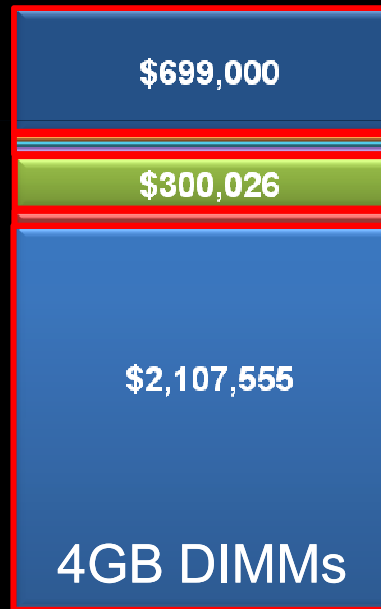
Capital Cost Reduced by 28%

\$5,000,000
 \$4,500,000
 \$4,000,000
 \$3,500,000
 \$3,000,000
 \$2,500,000
 \$2,000,000
 \$1,500,000
 \$1,000,000
 \$500,000
 \$-

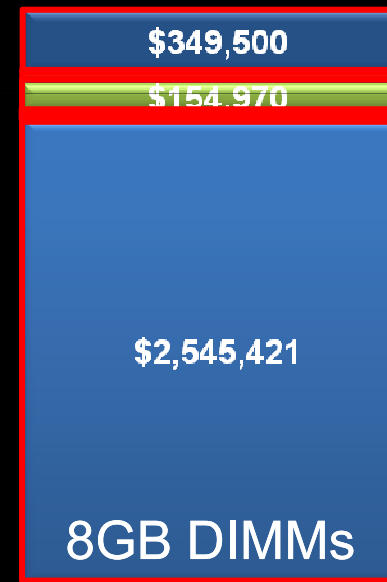


HP BL460 192GB

- Reduced software costs
- Fewer SAN / LAN ports
- Less cabling
- Virtual Connect replaced by Unified Fabric
- NIC's and HBA's replaced by CNA's
- Reduced memory costs 8/16GB vs 4GB



Cisco B250 192GB



Cisco B250 384GB

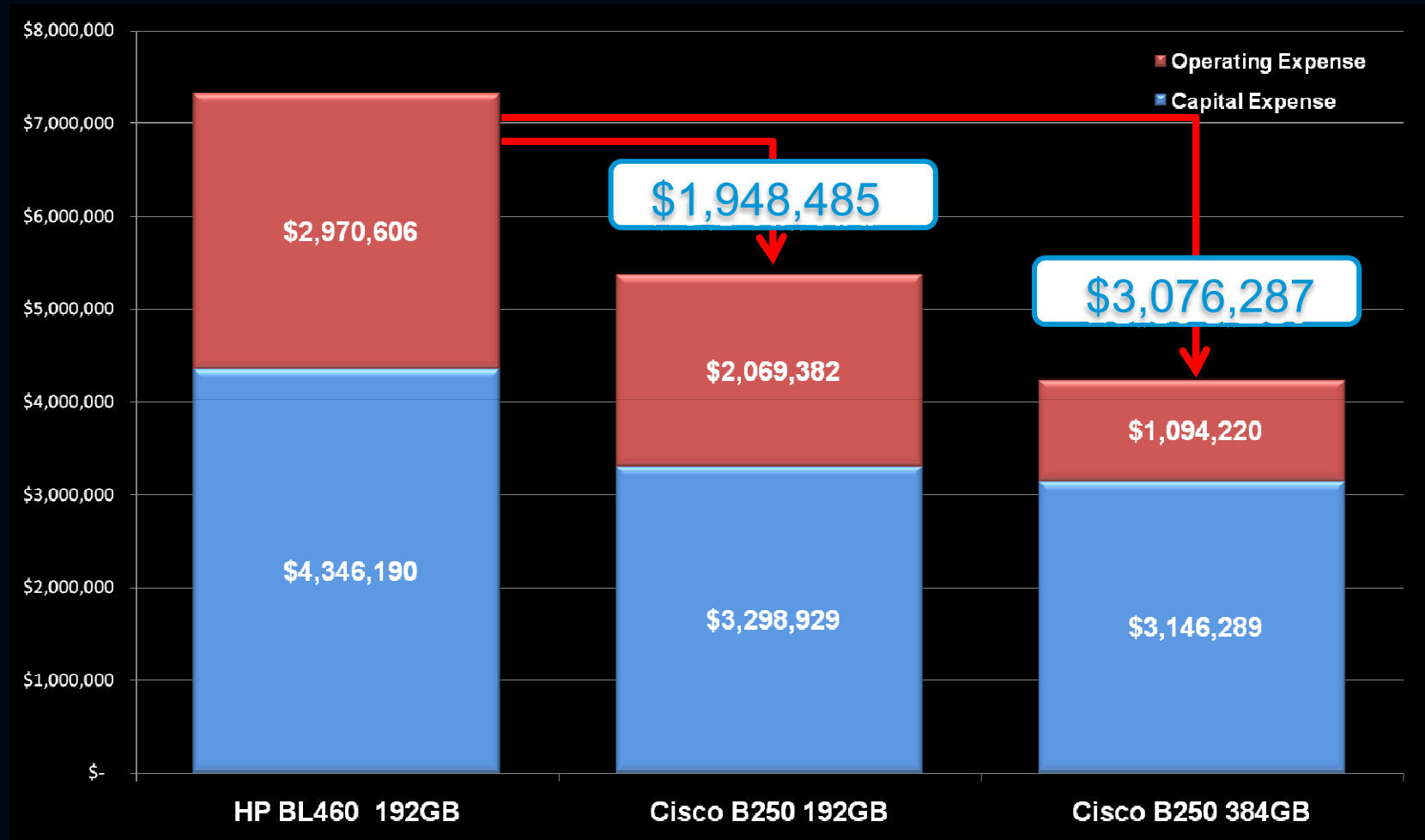
■ Server Infrastructure Capital
 ■ LAN Switch Capital
 ■ Software Licenses

■ NICs/HBAs/CNA Capital
 ■ SAN Switch Capital

■ Integrated Switching Infrastructure Capital
 ■ Cabling Capital

Virtual Server Infrastructure Example

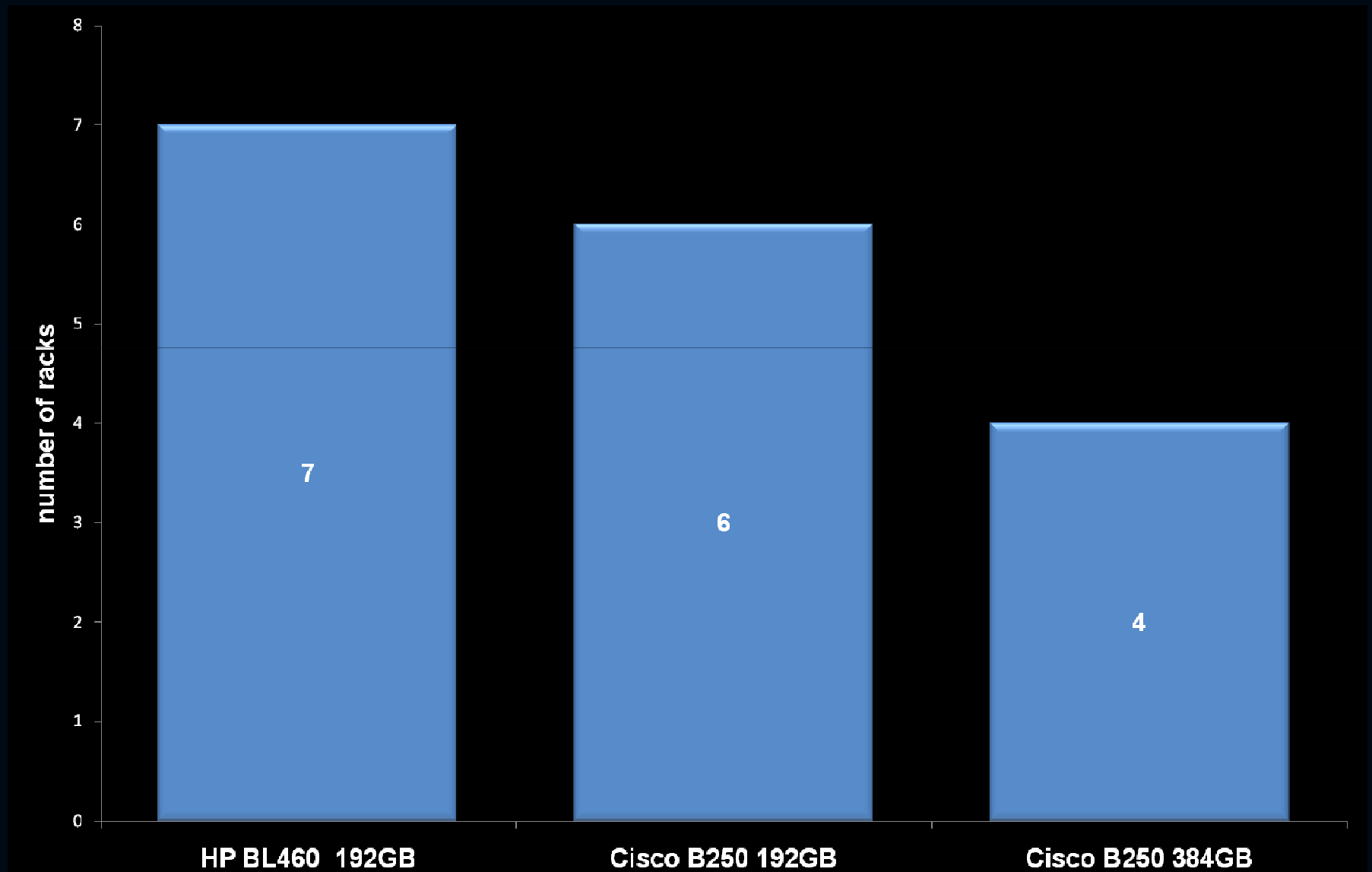
Total Cost Reduction 42%



The high level TCO comparison projects a cost avoidance in the region of **\$3.1 million** over 5 years with Cisco Unified Computing

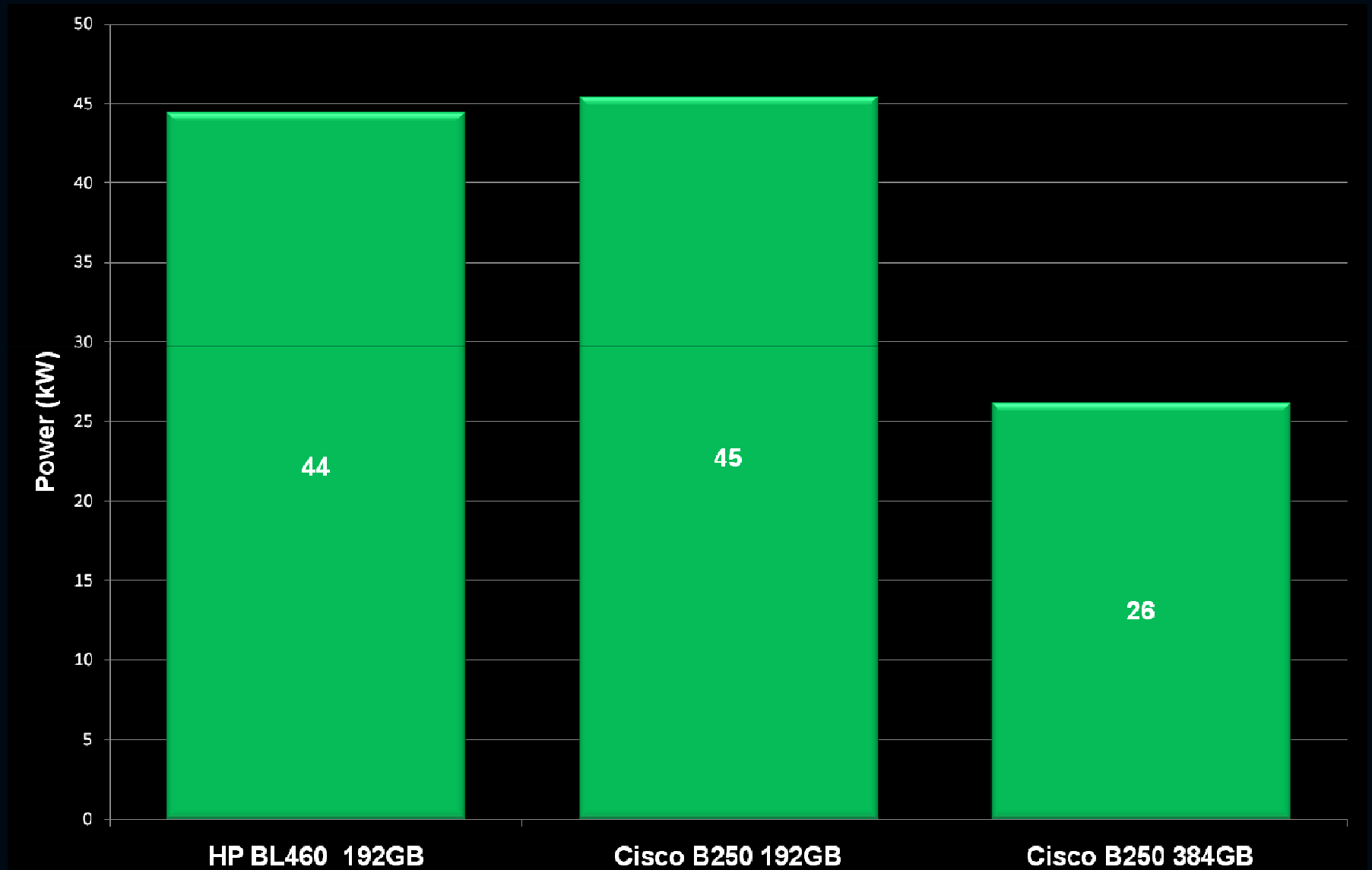
Virtual Server Infrastructure Example

Space Reduced by 3 Racks



Virtual Server Infrastructure Example

Power Reduced by 18kW



Virtual Server Infrastructure Example

Cost per Virtual Server Reduced by \$769


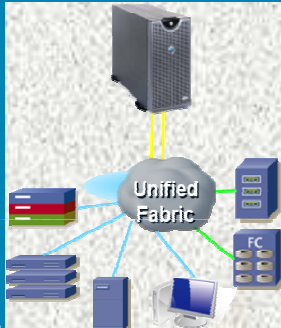

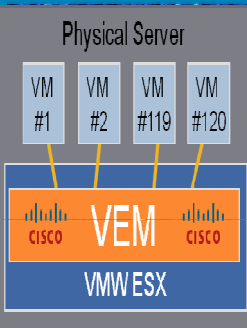


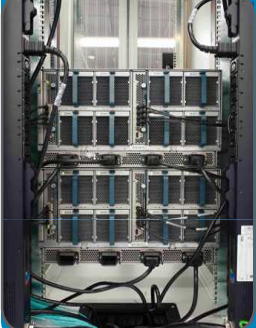









VXI – Case Study for Virtual Desktop Infrastructure - TCO



Cisco UCS benefits for VDI vs HP C7000

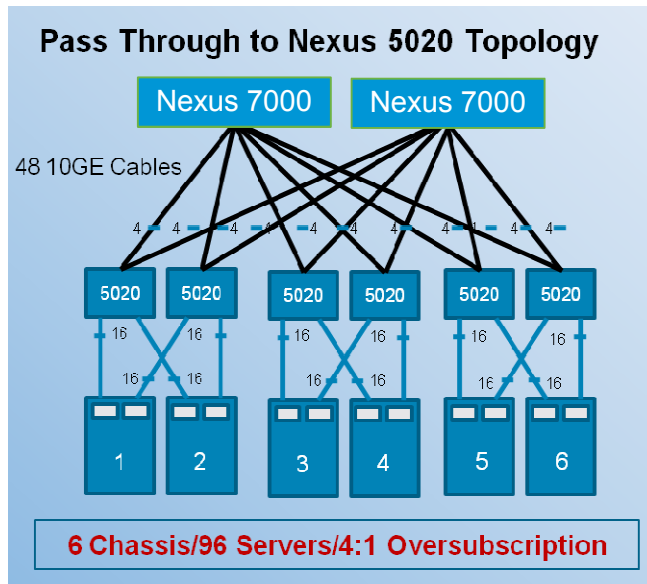
How do you achieve a 30% savings

x86 Servers	Infrastructure Elements	Power Consumption	VDI Instances per Server	Rack Space	Distribution Layer Ports	In Rack Cabling
						
50%	50%	24+%	100%	30%	30%	75%
						

Configuration Comparison

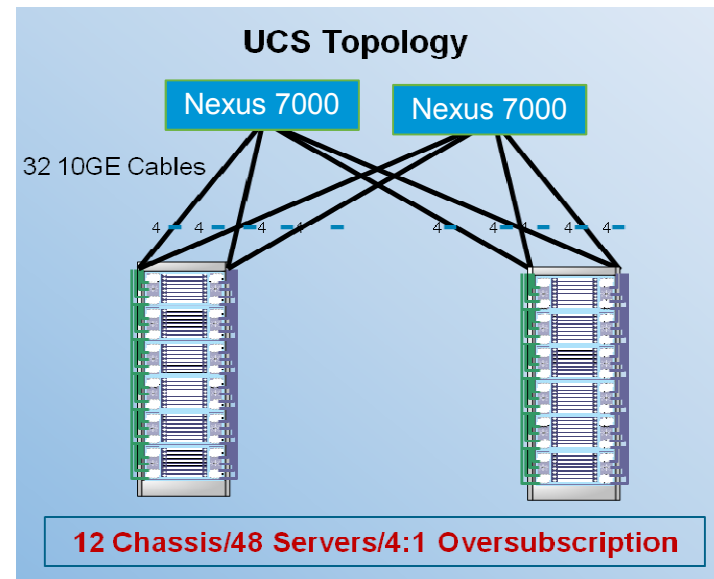
- HP Configuration

- 60 virtual desktops / blade
- 96 BL460 G7 Servers 96 GB Memory
- 2 10GE Ethernet Interfaces per Server
- 6 C7000 Chassis
- 12 Pass Through Ethernet Modules
- 6 Cisco Nexus 5K
- Consumes 3 42U Racks



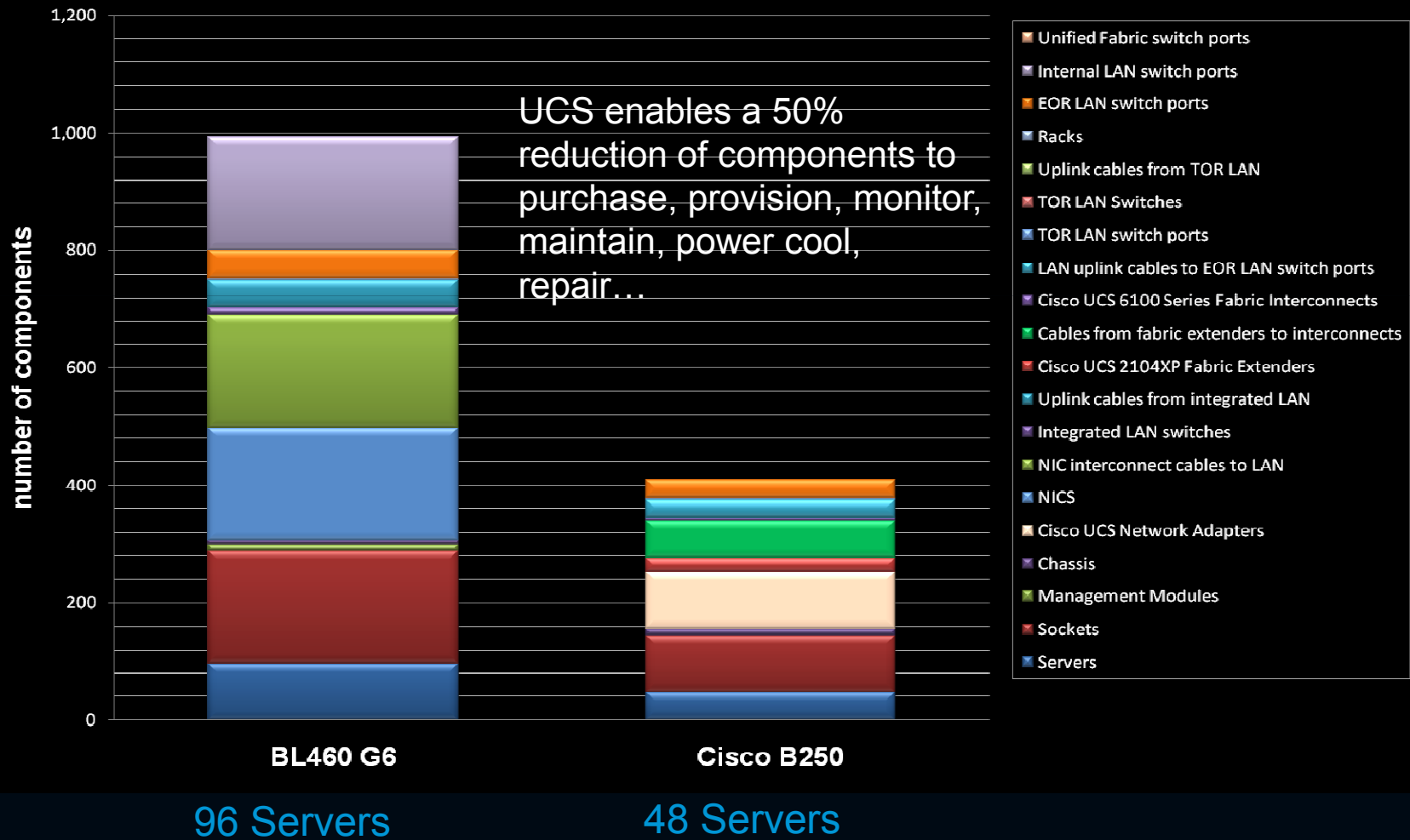
- UCS Configuration

- 120 virtual desktops / blade
- 48 B250M2 Servers 192GB Memory
- 4 10GE Ethernet Interfaces per Server
- 12 5108 Chassis
- 24 Fabric Extenders
- 4 Fabric Interconnects
- Consumes 2 42U Racks

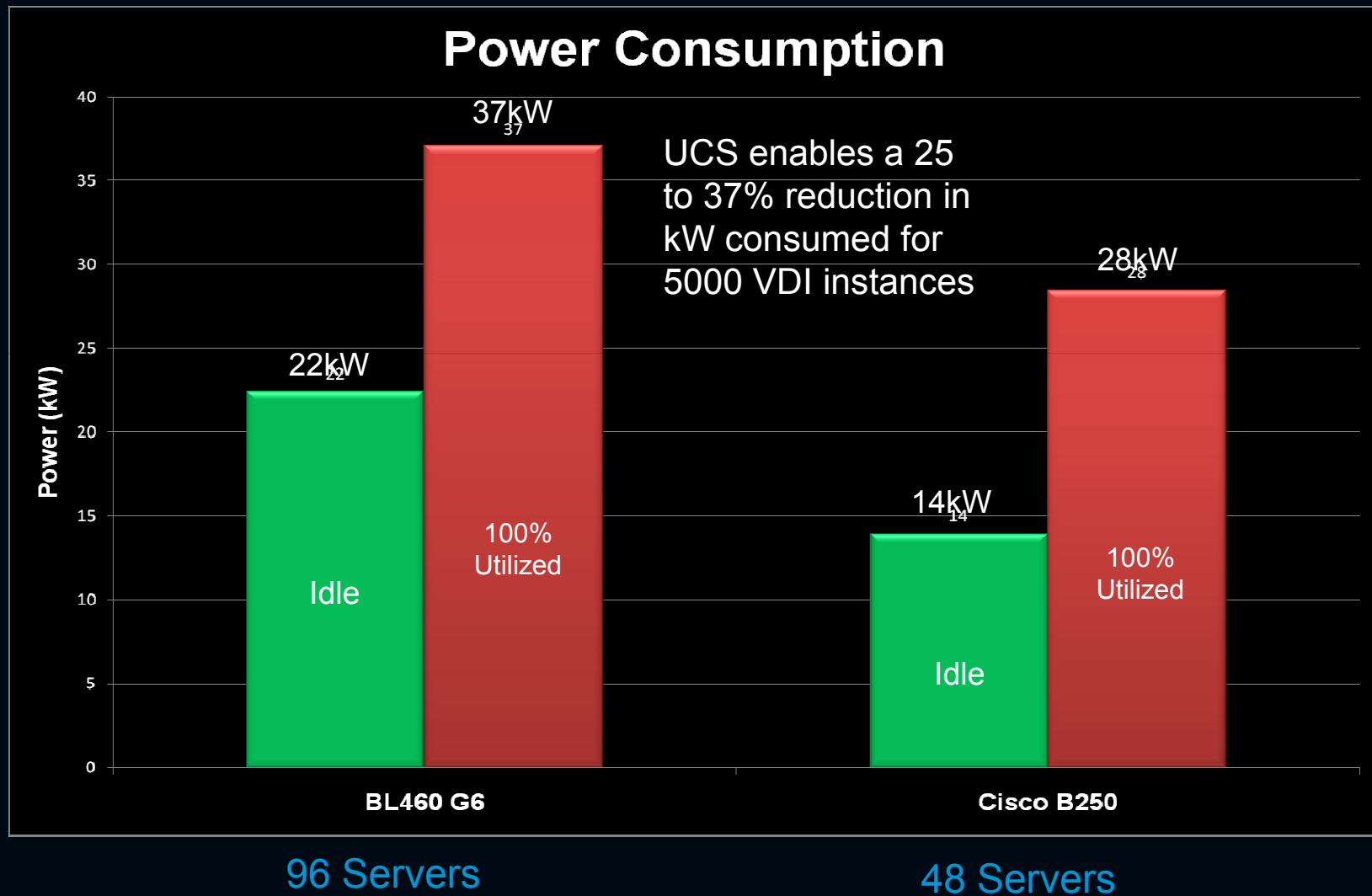


Component Analysis for 5000 Virtual Desktops

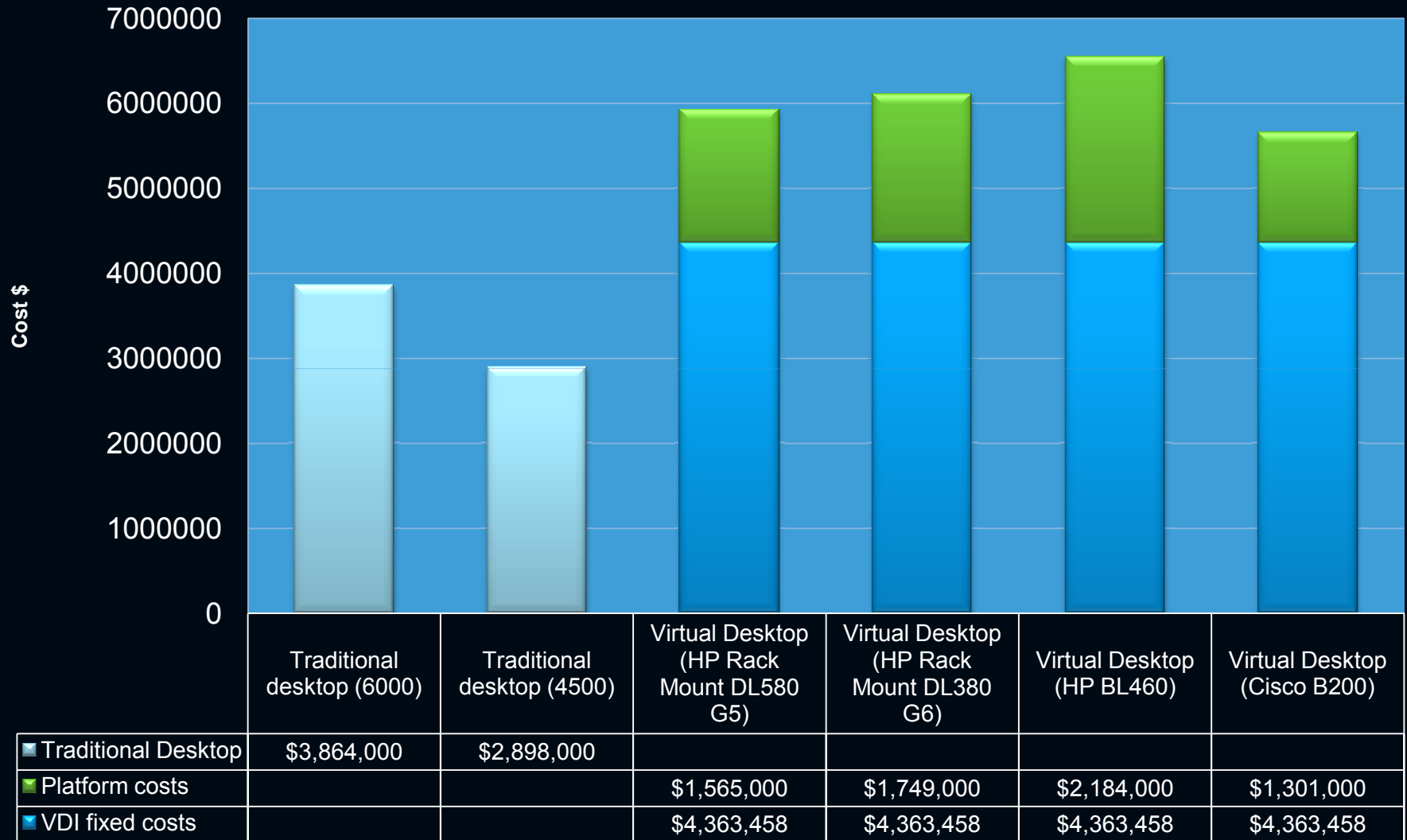
Datacenter Components



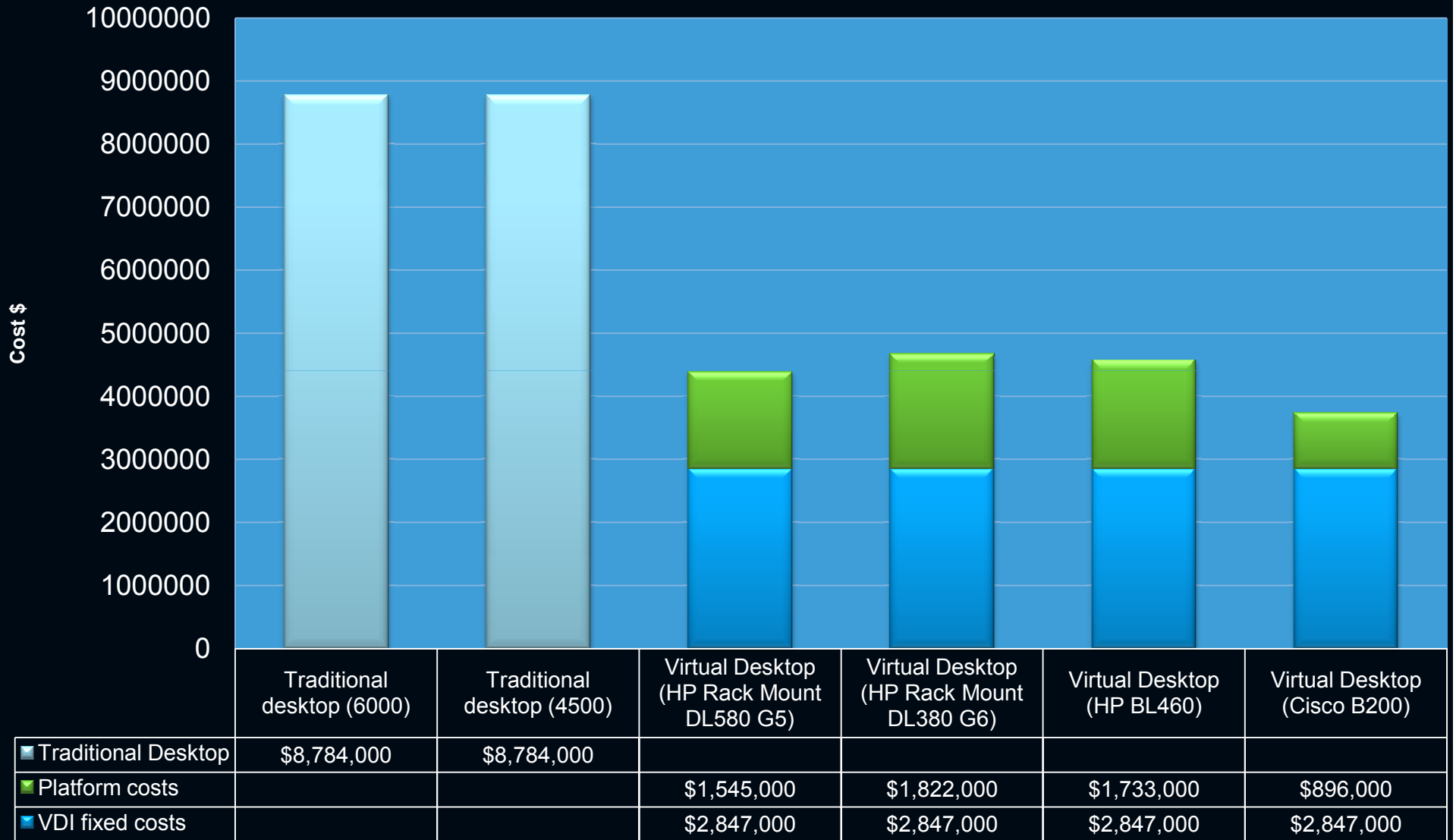
Supporting Green Initiatives



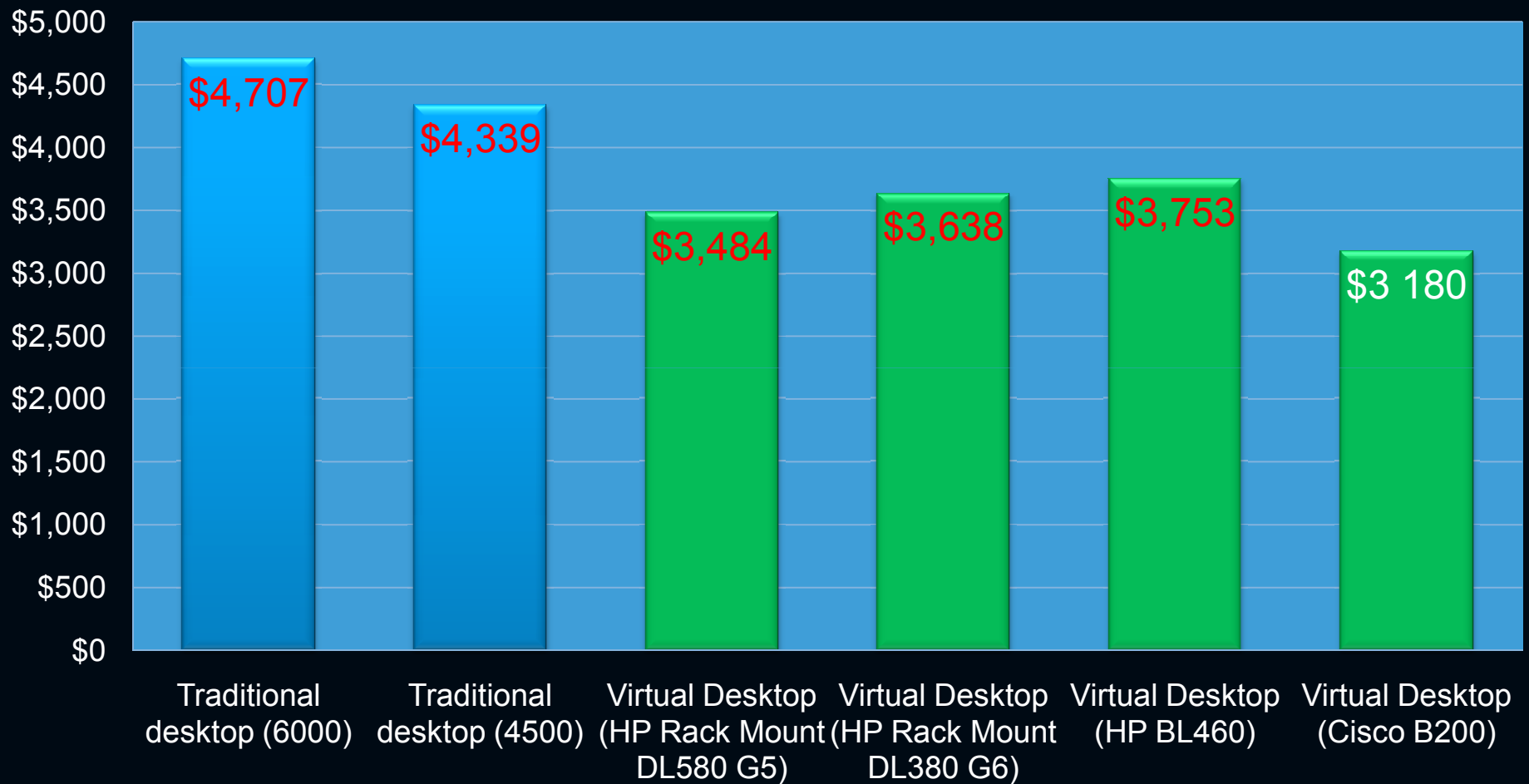
Capital cost comparison - VDI vs traditional desktop (3000 desktops)



Operational cost comparison - VDI vs traditional desktop (3000 desktops)



Cost per user for 3000 users over a 6 year term



Business Track Tools to Win Cisco & Intel TCO/ROI Tool

Unified Computing ROI Tool



Unified Computing ROI Tool - Windows Internet Explorer

Unified Computing ROI Tool

Powered by the latest generation of Intel® Xeon™ processors, the Cisco Unified Computing System™ unites compute, network, and virtualization resources into a seamless system that delivers IT, increased business agility and reduced TCO.

Relinquishing aging server patterns with the Cisco Unified Computing System increases the usability of server real estate, improves performance and agility and supports new applications. A unified computing architecture breaks down data center capital and operating expenses by reducing the overall number of infrastructure components and associated hardware, software and administration costs.

We welcome you to use this tool to evaluate the impact of unified computing on your data center and encourage you to contact your Cisco representative for further information.

To configure an analysis enter the required information and click Continue.

Server Architecture

Choose the server architecture that best describes your existing environment:

- Existing Rack Optimized Server Environment
- Existing Blade Server Environment

Continue Cancel

Version: 01-02-09
Technical Support: 1 Year Feedback

Unified Computing ROI Tool Analysis

Submit Changes Register and Download

Number of existing rack optimized servers: 100

Average annual growth rate of server workloads: 20%

Processor type: 1P Intel based Server - Pentium 4 3.80 GHz

Percentage of network connected to SAN over Fibre Channel: 100%

Number of vCPU per server: 1

Number of applications per server: 2

Number of VMs per server: 2

Average number of OS instances or virtual machines per physical server: 2

What type of server architecture do you want to consider to replace the existing environment? [Blank]

Figure 1. TCO Comparison: Current vs. Unified Computing w/ Intel Xeon

Category	Current Environment	Unified Computing
Capital Costs	~7,000,000	~4,500,000
Operating Costs	~1,000,000	~1,000,000
Total TCO	~8,000,000	~5,500,000

Financial Metrics

Metric	Value
Total Savings	(\$2,500,000)
Return on Investment (ROI)	100%
Internal Rate of Return (IRR)	23%
Net Present Value (NPV)	\$1,025,000
Payback Period (Months)	30

<https://express.salire.com/go/cisco/unified-computing-roi-tool.aspx>

UCS TCO/ROI Tool Portfolio

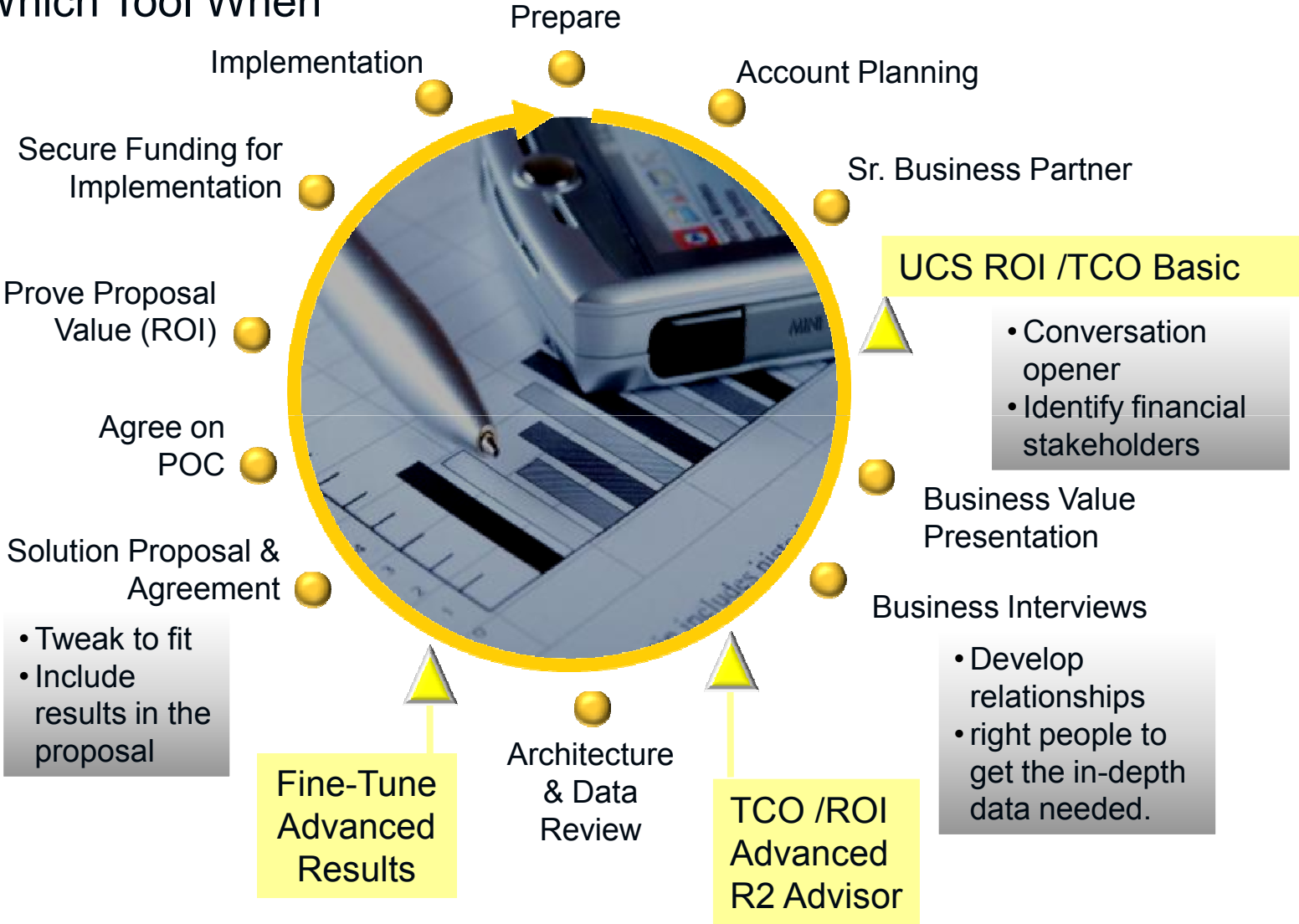
- **Basic** – models the transition of an existing data center (rack &/or blade servers) to Cisco UCS rack **or** blade servers. UCS servers configurable with automated pricing
- **Advanced** – compares a UCS system to other common data center environments – NOW CLOSED TO NEW ANALYSIS – EOL ON MAY 1ST
- **Advanced R2** - automates Cisco and non-Cisco server configuration & pricing
 - Monthly updated server models, processors and memory pricing
 - Three different server (workload) types
 - Can model both blade and rack servers simultaneously
 - Virtualization characterized as a function of memory
 - Granular network modeling: existing, new competitive & UCS
 - More on way:
 - Processor Cycle limiter, Rack RU and Rack Power limiters

UCS TCO/ROI Tool Capability Matrix

Description	Tool		
	Public	Basic	Advanced R2
Target Audience	Public	Account Mgr & PSS, Partners	PSS, CSE & Partners
Server Types Modeled	1	1	up to 3
Legacy Servers pre-defined cost for growth	√	√	√
New Competitive Servers – Detailed Config / auto pricing	N/A	N/A	Configurable w/ Auto Pricing
UCS Servers – choose by model	April	Configurable w/ Auto Pricing	
Basic Assumptions	√	√	√
Network Modeling - Preset or Configurable	Preset	Preset	Configure
UCS – Detailed Config		√	√
GB mem / VM, V2V – P2V – P2P Modeling		√	√
Rack RU as limiters		April	√
Reuse Existing Networking for New UCS Servers			mid-April
Processor Cycles / VM & Monolithic & Power to Rack as limiters			late-April
Model multiple User/Customer Defined savings/benefits			April/May
Model reduction in down time (lower SLA) savings/benefits as defined by customer			April/May

Using TCO/ROI In The Sales Cycle

- Which Tool When



Why Cisco UCS Advisors

Cisco Advisors – Advanced R2 for in-depth

NO GAME PLAYING

- Advanced R2 uses customer data.
- Competitive pricing is from online with ‘date sourced’ noted in each section. UCS is GPL.
- No “Smoke & Mirrors” – 100% driven by customer specifications for servers & connectivity.
- All calculations are standard Excel functions. NO special tweaks to formulas.
- 3 yr, NBD support is included in ALL servers to make the playing field level.

Accessing the Advisors

Cisco UCS Basic TCO/ROI Advisor Partner Training

<http://tools.cisco.com/pecx/login?URL=searchOffering%3FcourseId%3D00032462>

Cisco UCS Advanced TCO/ROI Advisor R2 Partner Training

<http://tools.cisco.com/pecx/login?URL=searchOffering%3FcourseId%3D00032463>

Register for Access

<https://express.salire.com/usermgmt/register/default.aspx?AnalysisTypeId=d266f44f-35d2-4105-a45b-d13a8b196275>

Access Tool

<http://express.salire.com>

Landing Page



My Tools & Services

My Tools & Analyses

All Tools

Cisco UCS TCO/ROI Basic Advisor (formerly Express)
[Learn More](#) | [Launch the Tool](#)

No Saved Analyses

Cisco Hosted Collaboration Solution ROI Tool
[Learn More](#) | [Launch the Tool](#)

No Saved Analyses

Cisco UCS TCO/ROI Advanced Advisor
[Learn More](#) | [Launch the Tool](#)

No Saved Analyses

Cisco Unified Computing TCO Comparison Tool
[Learn More](#) | [Launch the Tool](#)

No Saved Analyses

Application Control Engine (ACE) ROI Tool
[Learn More](#) | [Launch the Tool](#)

No Saved Analyses

Education

ARTICLE

TCO and ROI Explained

What these metrics mean and why they are important

TCO and ROI are two important metrics that IT buyers and C-level executives look for to justify an investment. Which metric you should supply depends on the question the customer is asking.

Success Stories:

Have you used a ValuePath tool to help close business? We want to hear from you!

Send your success stories to feedback@salire.com.

Dashboard – Selecting a Tool

The screenshot displays a web interface for selecting tools. On the left, a sidebar contains a 'My Tools & Services' menu with sub-items: 'My Tools & Analyses', 'UCS Tools', 'Cisco UCS Basic TCO/ROI Advisor', 'Cisco UCS Advanced TCO/ROI Advisor R2', and 'Cisco UCS Advanced TCO/ROI Advisor'. The main content area is titled 'My Tools & Services' and features a 'My Tools & Analyses' tab. Below the tab is a 'UCS Tools' dropdown menu. A list of tools is shown, each with a 'Learn More' link and a 'Launch the Tool' link. To the right of each tool is a 'Saved Analyses' dropdown menu. A blue arrow points to the 'UCS Tools' dropdown. Another blue arrow points to the 'Cisco UCS Advanced TCO/ROI Advisor R2' tool. A third blue arrow points to the 'Saved Analyses (1)' dropdown menu for the 'Cisco UCS Advanced TCO/ROI Advisor R2' tool, which is currently open and shows a list of saved analyses: 'Saved Analyses (1)', 'R2 Training', and 'No Saved Analyses'.



EASY SERVER CONFIGURATION



Analysis Configuration – Servers

Existing & Greenfield scenarios

STEP ONE: <u>Existing Server</u> and Network Environment	STEP TWO: <u>New Competitive Server</u> Environment	STEP FOUR: <u>Cisco UCS Environment</u>
<p>Decide if this analysis will include a comparison of this environment.</p> <p>If you only want to create a greenfield competitive environment, uncheck this environment.</p> <p><input checked="" type="checkbox"/> Existing Server Environment</p> <p>Server Type 1 Form Factor</p> <p>Choose a form factor for server type 1.</p> <p><input type="radio"/> Server Type 1 - Blade</p> <p><input checked="" type="radio"/> Server Type 1 - Rack</p> <p>Server Type 2 Form Factor</p> <p>Choose a form factor for Server Type 2 for three server types.</p> <p><input type="radio"/> Server Type 2 - Blade</p> <p><input checked="" type="radio"/> Server Type 2 - Rack</p> <p><input type="radio"/> Not Applicable</p> <p>Server Type 3 Form Factor</p> <p>Choose a form factor for Server Type 3 for three different server types.</p> <p><input type="radio"/> Server Type 3 - Blade</p> <p><input checked="" type="radio"/> Server Type 3 - Rack</p> <p><input type="radio"/> Not Applicable</p>	<p>You may choose to include a new, non-Cisco environment defined server vendors or define your own.</p> <p>If you do not wish to include a competitive greenfield environment, uncheck this environment.</p> <p><input type="radio"/> New Dell Servers - Competitive</p> <p><input checked="" type="radio"/> New HP Servers - Competitive</p> <p>Server Type 1 Form Factor</p> <p>Choose a form factor for this server type factor specific to this environment.</p> <p><input type="radio"/> HP Server Type 1 - Blade</p> <p><input type="radio"/> HP Server Type 1 - Rack</p> <p>Server Type 2 Form Factor</p> <p>Choose a form factor for this server type factor specific to this environment.</p> <p><input type="radio"/> HP Server Type 2 - Blade</p> <p><input type="radio"/> HP Server Type 2 - Rack</p> <p><input checked="" type="radio"/> Not Applicable</p> <p>Server Type 3 Form Factor</p> <p>Choose a form factor for this server type factor specific to this environment.</p> <p><input type="radio"/> HP Server Type 3 - Blade</p> <p><input type="radio"/> HP Server Type 3 - Rack</p> <p><input checked="" type="radio"/> Not Applicable</p>	<p>Choose the form factor for each server type included in the Cisco UCS environment.</p> <p>UCS unites computing, networking, storage access, and virtualization into a cohesive environment. Choose the server form factors you choose for each server type.</p> <p><input checked="" type="radio"/> Cisco UCS Server and Networking Environment</p> <p>Server Type 1 Form Factor</p> <p>Choose a form factor for this server type. You must include the same server form factor specific to this environment.</p> <p><input checked="" type="radio"/> Server Type 1 - Blade</p> <p><input type="radio"/> Server Type 1 - Rack</p> <p>Server Type 2 Form Factor</p> <p>Choose a form factor for this server type. You must include the same server form factor specific to this environment.</p> <p><input type="radio"/> Server Type 2 - Blade</p> <p><input type="radio"/> Server Type 2 - Rack</p> <p><input checked="" type="radio"/> Not Applicable</p> <p>Server Type 3 Form Factor</p> <p>Choose a form factor for this server type. You must include the same server form factor specific to this environment.</p> <p><input type="radio"/> Server Type 3 - Blade</p> <p><input type="radio"/> Server Type 3 - Rack</p> <p><input checked="" type="radio"/> Not Applicable</p>

Analysis Configuration - Networking

Existing Network Architecture

Choose the appropriate network architecture from the list below.

- Chassis-Integrated Switching
 - Chassis-Integrated Switches**
 - If any of the include server profiles are blade server profiles, you must select Chassis-Integrated Switching.
 - 1 GbE Chassis-Integrated LAN Switch
 - 10 GbE Chassis-Integrated LAN Switch
 - Fibre Channel Chassis-Integrated SAN Switch
 - Converged (10 GbE/FCoE) Chassis-Integrated SAN Switch
 - Access Layer LAN
 - Access LAN**
 - Choose the types switches that comprise the access layer.
 - 1 GbE Access Layer LAN Switch
 - 10 GbE Access Layer LAN Switch
 - Converged (10 GbE/FCoE) Access Layer LAN Switch
 - Aggregation Layer LAN
 - Aggregation Layer LAN Switches**
 - Choose the switch types that comprise the aggregation layer.
 - 1 GbE Aggregation Layer LAN Switch
 - 10 GbE Aggregation Layer LAN Switch
 - Converged (10 GbE/FCoE) Aggregation Layer LAN Switch
 - Fibre Channel SAN
 - Fibre Channel SAN Switches**
 - Choose which layers of SAN switching will be used.
 - Fibre Channel Edge SAN Switch
 - Fibre Channel Core SAN Switch
 - OOB Management
 - Out-of-Band Management Switches**
 - Include an out-of-band server management switch.
 - 1 GbE Out-of-Band Management Switch

STEP THREE: New Competitive Network Environment

If you are including a competitive, non-Cisco server environment in this architecture, you must select New Competitive Networking Environment. In this section, you can define what types of network architecture non-Cisco server and network architectures will be compared against the Cisco Network Environment.

- New Competitive Networking Environment
 - New non-Cisco Network Architecture**
 - Chassis-Integrated Switching
 - Chassis-Integrated Switches**
 - 1 GbE Chassis-Integrated LAN Switch
 - 10 GbE Chassis-Integrated LAN Switch
 - Fibre Channel Chassis-Integrated SAN Switch
 - Aggregation Layer
 - Aggregation Layer LAN Switches**
 - 1 GbE Aggregation Layer LAN Switch
 - 10 GbE Aggregation Layer LAN Switch
 - Converged (10 GbE/FCoE) Aggregation Layer LAN Switch
 - Fibre Channel SAN
 - Fibre Channel SAN Switches**
 - Fibre Channel Edge SAN Switch
 - Fibre Channel Core SAN Switch
 - OOB Management
 - Out-of-Band Management Switches**
 - 1 GbE Out-of-Band Management Switch

STEP FIVE: Cisco Network Environment

Cisco Network Environment

- Cisco Network Architecture
 - Access Layer**
 - Access Layer Switches
 - 1 GbE Access Layer LAN Switch
 - 10 GbE Access Layer LAN Switch
 - Converged (10 GbE/FCoE) Access Layer LAN Switch
 - Fibre Channel SAN
 - Fibre Channel SAN Switches**
 - Fibre Channel Edge SAN Switch
 - Fibre Channel Core SAN Switch
 - OOB Management
 - Out-of-Band Management Switches**
 - 1 GbE Out-of-Band Management Switch

Create The UCS TCO Analysis with NetApp Storage Analysis Module

New Advanced R2 Tool

- No change to interface or functionality with NetApp.
- At bottom of “Configuration” screen
- Select NetApp Storage Analysis.

More on this after the Networking Section

Cisco Network Environment

Cisco Network Architecture

Choose the network architectures that apply to the proposed Cisco solution.
All B-series blade systems connect to these architectures via the UCS 6100 series Fabric Interconnect.

You may choose later in the tool whether to connect UCS C-series rack mount servers to Fabric interconnects to take advantage of UCS Manager, or to connect them directly the network and manage these servers via a tradition out-of band management network. If you are planning on modeling integration of C-series servers with UCS Manager, exclude the OOB Management switch below.

Access Layer

Access Layer Switches

1 GbE Access Layer LAN Switch

10 GbE Access Layer LAN Switch

Converged (10 GbE/FCoE) Access Layer Switch

Aggregation Layer

Aggregation Layer Switches

1 GbE Aggregation Layer LAN Switch

10 GbE Aggregation Layer LAN Switch

Converged (10 GbE/FCoE) Aggregation Layer Switch

Fibre Channel SAN

Fibre Channel SAN Switches

Fibre Channel Edge SAN Switch

Fibre Channel Core SAN Switch

OOB Management

Out-of-Band Management Switches

1 GbE Out-of-Band Management Switch

STEP SIX (Optional): NetApp Storage Analysis

You may optionally prepare the deliverables form this tool to be used in partnership with a NetApp sales team to create a broader value proposition for a UCS server and networking environment that is coupled with NetApp storage solutions. Participation in this section of the tool has no effect on the results of this analysis.

NetApp Storage Analysis

Home Continue

Customer and Server Baseline Info

The screenshot displays a software interface for configuring server baseline information. It features two main tabs: 'Customer Information' and 'Baseline Workload Details'. The 'Baseline Workload Details' tab is active, showing two server types, 'Server Type 1' and 'Server Type 2', each with a list of seven configuration parameters. A red box highlights the 'Server Type 1' section, and a blue box highlights the 'Server Type 2' section. A red bracket on the left side groups the two server type sections. At the bottom, there are sections for 'Existing Equipment Discounting', 'New Competitive Equipment Discounting', and 'Cisco Equipment Discounting'. A red box highlights the 'Cost per converged 10 GbE/FCoE cable' field with a value of 250.

Server Type	Parameter	Value
Server Type 1	1. Number of servers:	500
	2. Percentage of servers that are hosts to virtualized servers:	50%
	3. Average number of virtual machines per physical host:	10
	4. Annual growth rate of virtual machine OS instances:	10%
	5. Annual growth rate of single OS bare metal server OS instances:	10%
	6. Percentage of servers connected to fibre channel SAN:	80%
	7. Server refresh lifecycle (years):	3
Server Type 2	1. Number of servers:	500
	2. Percentage of servers that are hosts to virtualized servers:	80%
	3. Average number of virtual machines per physical host:	10
	4. Annual growth rate of virtual machine OS instances:	10%
	5. Annual growth rate of single OS bare metal server OS instances:	10%
	6. Percentage of servers connected to fibre channel SAN:	80%
	7. Server refresh lifecycle (years):	3

Cost per converged 10 GbE/FCoE cable: 250

Existing Equipment Discounting

New Competitive Equipment Discounting

Cisco Equipment Discounting

UCS Server Configuration & Pricing – Automated in both Basic & Advanced R2

Cisco UCS Server Environment

Server Type 1 - Rack

Server Type 2 - Blade

UCS C-Series Server Type 1 - Server Hardware

The following inputs relate to the proposed Cisco UCS environment.

1. Cisco UCS C-series model:
2. Cisco UCS C-series server processor type:
3. Cisco UCS C-series server memory configuration:
4. Number of internal hard drives per server:
5. Price per internal hard drive:

C250 M2 2-socket serv

X5670 Six-Core Proces

256 (16 x 2x4GB Kit &

0

\$0

C200 M1 2-socket serve

C250 M1 2-socket ser

E5540 Four-Core Proc

16 (2 x 8GB)

16 (2 x 8GB)

32 (4 x 8GB)

48 (6 x 8GB)

64 (8 x 8GB)

80 (10 x 8GB)

128 (8 x 16 GB)

96 (12 x 8GB)

144 (18 x 8GB)

128 (16 x 8GB)

160 (20 x 8GB)

192 (24 x 8GB)

192 (12 x 16 GB)

256 (16 x 8GB & 8 x 16 G

320 (8 x 8GB & 16 x 16 G

384 (24 x 16 GB)

- UCS C-Series Server Type 1 - Server I/O Detail
- UCS C-Series Server Type 1 - Virtual to Virtual (V2V) OS Instance
- UCS C-Series Server Type 1 - Physical to Virtual (P2V) OS Instance
- UCS C-Series Server Type 1 - Virtualization Software
- UCS C-Series Server Type 1 - Operating System Software
- UCS C-Series Server Type 1 - Operations Management Software
- UCS C-Series Server Type 1 - Hardware Management Software
- UCS C-Series Server Type 1 - Server Administration

Advanced R2 includes new HP and Dell config driven pricing

Characterizing Software & Management SW – UCS ROI Basic and Advanced R2

New HP Servers - Competitive

HP Blade Chassis | HP Server Type 1 - Blade | HP Server Type 2 - Rack

HP Blade Server Type 1 - Server Hardware

HP Blade Server Type 1 - Virtual to Virtual (V2V) OS Instances

HP Blade Server Type 1 - Physical to Virtual (P2V) OS Instances

HP Blade Server Type 1 - Virtualization Software

The following inputs allow you to characterize the cost of different types of software running on HP blade servers

1. Application name:
2. License cost:
3. Licensing unit:
4. Annual software maintenance:

HP Blade Server Type 1 - Operating System Software

1. Application name:
2. License cost:
3. Licensing unit:
4. Annual software maintenance:

Socket

Core

Operating System

Physical Server

Chassis

Operating System

This characterization is the same for all servers in both tools.

Characterizing Software & Management SW – UCS ROI Basic and Advanced R2

New HP Servers - Competitive

HP Blade Chassis | HP Server Type 1 - Blade | HP Server Type 2 - Rack

- HP Blade Server Type 1 - Server Hardware
- HP Blade Server Type 1 - Virtual to Virtual (V2V) OS Instances
- HP Blade Server Type 1 - Physical to Virtual (P2V) OS Instances
- HP Blade Server Type 1 - Virtualization Software
- HP Blade Server Type 1 - Operating System Software
- HP Blade Server Type 1 - Server Operations Management Software
- HP Blade Server Type 1 - Server Hardware Management Software
- HP Blade Server Type 2 - Server Administration
 - 1. Time to physically deploy one bare metal server (hours): .5
 - 2. Time to connect one physical server to the network (hours): 2
 - 3. Wait time between racking server and connecting to network: 4
 - 4. Time to load OS image onto server and layer applications (hours): 4
 - 5. Wait time between networking and release to production: 4

“Wait Times” are not additive to the Analysis. They are accrued separately for reporting.

Admin treatment is handled the same on all servers & scenarios.



EASY NETWORK CONFIGURATION



Networking Detail

New HP Servers - Competitive

HP Blade Chassis | HP Server Type 1 - Blade

This model assumes that all included blade server types will be consolidated into a common chassis infrastructure. The inputs in this section apply to all included blade servers.

▼ Blade Chassis and Server I/O

The following inputs apply to the I/O for all blade servers.

1. Existing blade server chassis fabric 1:	Converged
2. Existing blade server chassis fabric 2:	Not Used
3. Cost per fabric 2 blade server mezzanine card:	
4. Existing blade server chassis fabric 3:	Not Used
5. Cost per fabric 3 blade server mezzanine card:	

▼ Blade Chassis Hardware Management Software

1. Application name:	HP VC Enterprise Mgr
2. License cost:	4999
3. Licensing unit:	Chassis
4. Annual software maintenance:	311

Home Continue View Results Collaborate

This methodology applies to both Existing and New Competitive blade chassis

Networking Inputs

Existing and Competitive Chassis Integrated Switching

Chassis-Integrated Switching

Access Layer

Fibre Channel SAN

Aggregation Layer

OOB Management

The following inputs allow you to define the chassis integrated switching architecture housed in the blade server chassis that also house all of the blade servers in this environment.

▶ 1 GbE Chassis-Integrated LAN Switch

▶ 10 GbE Chassis-Integrated LAN Switch

The following inputs define the 10 GbE chassis-integrated LAN switch infrastructure for all new competitive servers.

1. Switch name:
2. Base capital cost per switch:
3. Number of northbound ports per switch:
4. Incremental capital cost per northbound port:

- ★ 5. Northbound connections connect to:
6. Annual maintenance cost per switch:

▶ Fibre Channel Chassis-Integrated SAN Switch

▶ Converged (10 GbE/FCoE) Chassis-Integrated Switch

Networking Layers
only show up if you selected them
on the Configuration screen.

Networking Inputs

Existing and Competitive Chassis Integrated Switching

Chassis-Integrated Switching | Access Layer LAN | Aggregation Layer LAN | Fibre Channel SAN | OOB Management

The following inputs allow you to define the chassis integrated switching architecture housed in the blade server chassis that also house all of the blade servers in this environment.

- ▶ 1 GbE Chassis-Integrated LAN Switch
- ▶ 10 GbE Chassis-Integrated LAN Switch
- ▶ Fibre Channel Chassis-Integrated SAN Switch
- ▶ **Converged (10 GbE/FCoE) Chassis-Integrated Switch**

The following inputs define the Converged (10 GbE/FCoE) chassis-integrated switch infrastructure for all new competitive servers.

1. Switch name:	VC FlexFabric
2. Base capital cost per switch:	\$18499
3. Module 1 - Number of northbound ports per switch:	4
4. Module 1 - Incremental capital cost per northbound port:	\$0
5. Module 1 - Connection type:	10 GbE
6. Module 1 - Northbound connections connect to:	Aggregation
7. Module 2 - Number of northbound ports per switch:	4
8. Module 2 - Incremental capital cost per northbound port:	\$0
9. Module 2 - Connection type:	Fibre Channel
10. Module 2 - Northbound connections connect to:	1 Core
11. Annual maintenance cost per switch:	

Home

Continue

View Results

Collaborate



NETAPP STORAGE ROI COLLABORATION AND INTEGRATION



Using NetApp Collaboration with The UCS TCO Advanced R2 Tool

- The Cisco Tool can add NetApp inputs via “collaboration” feature.
- Click the “collaborate symbol on all inputs and then the “Collaborate” button at the bottom of the screen.
- Email to your NetApp partner.
- The NetApp partner will receive access to the specific fields and add the storage information
- NetApp inputs are identical to the inputs used in NetApp RISE tool
- **RISE is Available and Supported for this project**

The screenshot displays the Cisco UCS TCO/ROI Advanced Advisor interface. At the top, the Cisco logo and the title "Cisco UCS TCO/ROI Advanced Advisor" are visible. Below the title, there is a navigation menu with options: Setup, Configuration, Analysis Parameters, Existing Server Environment, Existing Network Infrastructure, and Cisco UCS Server Environment. A "Better Together Training - Cisco/NetApp Joint Template" section is also present, with a "Collaborate" button next to the "NetApp Storage Analysis" option.

The main content area is titled "Analysis inputs" and "NetApp Storage Analysis". A red box highlights the "NetApp Storage Analysis Inputs" section. A blue oval with the word "Collaborate" and a right-pointing arrow is positioned over the "Collaborate" button in the navigation menu. A green arrow points from this button to the "Collaborate" button at the bottom of the page.

The "NetApp Storage Analysis" section contains several input fields:

- Basic inputs:
 - 1. Purpose of Evaluation: Existing
 - 2. Available Storage Capacity - Tier 1 Applications (TB): 350
 - 3. Available Storage Capacity - Tier 2 Applications (TB): 150
 - 4. Drive Type Used With Tier Two Applications: Fibre Channel
 - 5. Used Storage Capacity - Tier 1 Applications (%): 80%
- 17. Data Center Floor Space Cost per sq foot per month: \$17
- 18. Annual 7x24 Hardware/Software Maintenance Rate (%): 12%
- 19. Storage Admin annual salary and benefits: \$100,000
- 20. Total Storage Capacity Managed per Storage Admin (TB): 100

At the bottom of the page, there are three buttons: "Home", "View Results", and "Collaborate".

Enter UCS Data Into NetApp Tool

Download the UCS TCO/ROI spreadsheet,
Save to folder or send to NetApp specialist

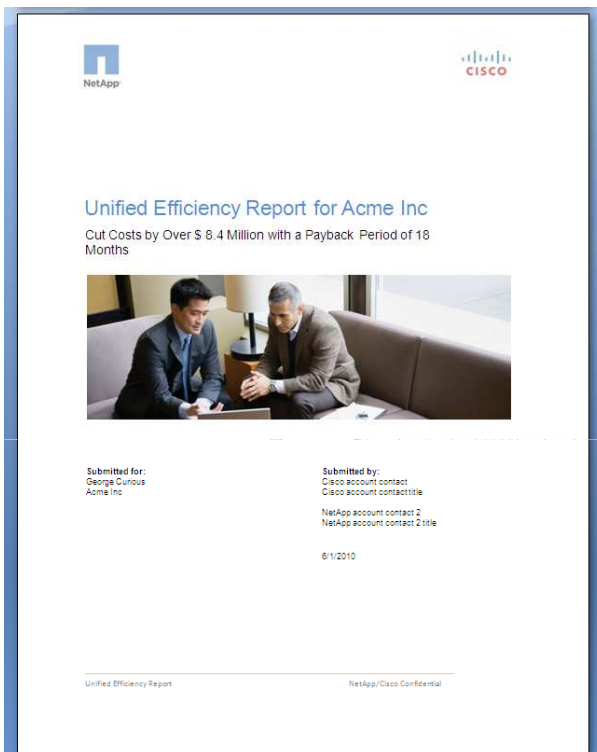
1. The Output from the UCS tool is a spreadsheet that contains the Cisco Outputs and NetApp Inputs
2. This data is imported into the NetApp SSNEC (Server, Storage and Networking Efficiency Calculator) tool.
3. The results are merged and storage calculations are made and combined with the Cisco results

IMPORT DATA AND GENERATE REPORT

Customer data		Report parameters	
Customer Name	NetApp-Cisco Customer	Currency	
Date	6/1/2010	Exchange rate (USD)	1
Prepared By		Currency Symbol	\$
Account Contact 1	William Smart	Report Template Name	C:\Documents and Settings\saika
Title	Sales Rep	English/Metric Selection	English/ Metric
Account Contact 2	John Rocket	Unit	Feet
Title	Sales Engineer	<i>Use the buttons to make your selection. Do not enter data manually into the blue cells.</i>	
Customer Address		Import Cisco Data	
First Name	George	Cisco UCS calculator location	Select Cisco UCS file
Full Name	George Curious		Import Data
Company Name	Acme Inc	<i>Select the Cisco calculator above and import the data into SSNEC</i>	
Company Nickname	Acme	Generate Report	
Address Line 1	100 Disk Drive		
Address Line 2	Louisville CO 80503		

The SSNEC Spreadsheet


Present The Unified Report



NetApp Cisco

Unified Efficiency Report for Acme Inc

Cut Costs by Over \$ 8.4 Million with a Payback Period of 18 Months



Submitted for:
George Curious
Acme Inc

Submitted by:
Cisco account contact
Cisco account contact10

NetApp account contact 2
NetApp account contact 2 role

6/1/2010

Unified Efficiency Report NetApp/Cisco Confidential

Analysis Includes:

- Server Reduction
- Storage Reduction
- Port Reduction
- Labor Reduction
- Power/Cooling Reduction
- Space Reduction
- 3-Year TCO analysis
- Payback Period



CISCO

KEY FINDINGS

a three-year period. Most years, and three years is the period also allows trending which influences factors and maintenance.

I cost into three scenarios: systems and network and factors to accommodate growth.

Unified Computing System and deploy NetApp V-Series NetApp storage efficiency.

Computing System and S systems and take advantage

two main sections: capital

To meet the requirements of Acme's IT environment, certain expenditures will be needed at the start of the project and then to meet the existing needs of the environment over three years.

Three Year Capital Costs



Scenario	Capital Cost
Existing	\$4,053,352
Server+UDC	\$4,713,316
Full+UDC	\$6,937,181

Figure 2) Total 3 year costs for the three scenarios.

Unified Efficiency Report NetApp/Cisco Confidential

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Cisco / NetApp Joint ROI Resources

Questions? Ask the NetApp/Cisco core team:

xdl-projectmarin@netapp.com

Cisco UCS TCO/ROI Advisor Access:

<https://express.salire.com>

(Requires User ID and password)

Questions / Help: dctco_tools_support@external.cisco.com

NetApp SSNEC, Joint Collateral, Instructions:

<https://fieldportal.netapp.com>

(Search “Cisco TCO” and look in Tools folder)

Alliance Portal:

www.netappcisco.com

www.cisconetapp.com



QUICK TIPS



Virtualization – Existing to New UCS (& new competitive)

Customer Information | **Baseline Workload Details**

▼ Server Type 1

1. Number of servers:	500
2. Percentage of servers that are hosts to virtualized servers:	50%
3. Average number of virtual machines per physical host:	10
4. Annual growth rate of virtual machine OS instances:	10%
5. Annual growth rate of single OS bare metal server OS instances:	10%
6. Percentage of servers connected to fibre channel SAN:	80%
7. Server refresh lifecycle (years):	3

▼ Server Type 2

1. Number of servers:	500
2. Percentage of servers that are hosts to virtualized servers:	80%
3. Average number of virtual machines per physical host:	10
4. Annual growth rate of virtual machine OS instances:	10%
5. Annual growth rate of single OS bare metal server OS instances:	10%
6. Percentage of servers connected to fibre channel SAN:	80%
7. Server refresh lifecycle (years):	3

500 Servers
x 50% Virtual Host
250 Virtual Hosts

x 10 VMs / host
2500 Total VMs

500 Total Servers
- 250 Virtual Hosts
250 Monolithic

Virtualization –

Existing to New UCS (& new HP/Dell)

▼ UCS C-Series Server Type 1 - Server Hardware

The following inputs relate to the proposed Cisco UCS environment.

1. Cisco UCS C-series model: C250 M2 2-socket servi
2. Cisco UCS C-series server processor type: X5670 Six-Core Proces
3. Cisco UCS C-series server memory configuration: 256 (16 x 2x4GB Kit &
4. Number of internal hard drives per server: 0
5. Price per internal hard drive: \$0

▶ UCS C-Series Server Type 1 - Server I/O Detail

▼ UCS C-Series Server Type 1 - Virtual to Virtual (V2V) OS Instance

For OS instances that are virtualized in the Existing environment and will be virtualized in the proposed Cisco UCS environment.

1. Average RAM (GB) per virtualized OS instance: 4
2. Policy-defined maximum number of VMs per physical host (Optional):

▼ UCS C-Series Server Type 1 - Physical to Virtual (P2V) OS Instance

For OS instances that were single OS bare metal in the Existing environment, but will be virtualized in the proposed Cisco UCS environment.

2500 VMs for Type 1 from Baseline, previous slide
256 GB in UCS Server ÷ div 4 GB / VM = 64 VMs / server.
2500 VMs ÷ 64 VMs / server = 39.06 = 40 servers required.

**Same math for New Competitive.
The Tool Does This For You.**

Virtualization – New Head 2 Head

Customer Information | **Baseline Workload Details**

▼ Server Type 1

- Number of servers: 500
- Percentage of servers that are hosts to virtualized servers: 50%
- Average number of virtual machines per physical host: 20
- Annual growth rate of virtual machine OS instances: 0%
- Annual growth rate of single OS base metal server OS instances: 0%

▼ HP Rack Server Type 2 - Server Hardware

Define a server hardware configuration for this server type

- HP server model: DL385 G7 2-socket ser
- HP server processor type: AMD 6174 4-core proce
- HP server memory configuration: 96 (24 x 4 GB)
- Server power draw (watts): 0
- Number of internal hard drives per server: 0
- Price per internal hard drive: \$0

▼ UCS C-Series Server Type 2 - Server Hardware

The following inputs relate to the proposed Cisco UCS environment.

- Cisco UCS C-series model: C250 M2 2-socket ser
- Cisco UCS C-series server processor type: X5670 Six-Core Proces
- Cisco UCS C-series server memory configuration: 256 (16 x 2x4GB Kit &
- Number of internal hard drives per server: 0
- Price per internal hard drive: \$0

Calculations are Fully Automated

500 Servers

x 50% Virtual Host

250 Virtual Hosts

x 20 VMs / host

5000 Total VMs

HP:

$96\text{GB} \div 20 \text{ VMs/svr} =$

4.8 GB / VM

5000 VMs x

4.8 GB / VM =

24,000 GB required

UCS:

$24,000 \text{ GB required} \div$

256GB per Server =

53 VM / server host

$5000 \text{ VMs} \div 53 \text{ VM / svr} =$

100 UCS virtual hosts

vs.

250 HP virtual hosts

“How To” – Work Arounds

How to allow for memory headroom

- If you have 4GB memory / VM and want 20% headroom
Multiply 4 divide by 80% (1 minus .20) = 5.0
Enter 5.0 in the GB Memory / VM.

How to do VDI modeling & with memory allocation / VDI

- Determine number of VDI / server
- Treat VM data entry points as VDI entries.
- Use Optional Policy Defined Limit as needed

How to use Processor Cycle Requirement / VM

- Processor cycles per VM in Mhz. Tables are already in tool.
- For burst capacity, do math the same as for memory overhead.

How does limiter hierarchy work – in order:

1. Memory / VM (or VDI if you wish, but nomenclature does not change)
2. Optional policy max VM / host (or VDI / host)
3. Processor limiter (coming in April).

Partner Access & Training

Cisco UCS Basic TCO-ROI Advisor Partner Training

- <http://tools.cisco.com/pecx/login?URL=searchOffering%3FcourseId%3D00032462>

Cisco UCS Advanced TCO-ROI Advisor R2 Partner Training

- <http://tools.cisco.com/pecx/login?URL=searchOffering%3FcourseId%3D00032463>

Register for Access

<https://express.salire.com/usermgmt/register/default.aspx?AnalysisTypeId=d266f44f-35d2-4105-a45b-d13a8b196275>

Access Tool

<http://express.salire.com>



RESULTS



Excel – Open

Security Warning Macros have been disabled. Options...

analysisID 096699c3-4ad4-4a7c-9fd3-7097d1419703

Cisco UCS TCO/ROI Basic Advisor

Basic Training

Home Results Cost Structures Infrastructure Inputs Help

Cisco UCS TCO/ROI Advanced Advisor R2

NOTE: You must enable macros to use this model. [How do I do this?](#)

Collect **Analyze** **Communicate**

Inputs Results Cost Structures Infrastructure Executive Summary Presentation Cisco UCS Business Case



Version: 2.00.000

CISCO CONFIDENTIAL

Cisco UCS TCO/ROI Basic Advisor Financial Information Disclaimer

By using the Tool, you acknowledge and agree as follows:

All non-Cisco pricing data is based on publicly available information. All Cisco pricing data is based on the Cisco Global Price List. Pricing last updated November 1, 2010. Any Tool output is intended to provide information to customers considering the purchase, license, lease or other acquisition of Cisco products and services (a "Customer"). The Tool, including without limitation its design, structure, data and formulae, any updates or modifications thereto, and all intellectual property rights in any of the foregoing, shall remain vested solely with Cisco. User specifically agrees not to:

- (i) make error corrections to or otherwise modify or adapt the Tool or create derivative works based upon the Tool, or permit third parties to do the same;
- (ii) reverse engineer or decompile, decrypt or disassemble the Tool.

Excel – Navigating the Deliverable

CISCO CSAA Cisco UCS TCO/ROI Advanced Advisor R2

Home Results Structures Infrastructure Inputs Help

Welcome

Welcome to the UCS TCO/ROI Advanced Advisor. This tool is designed to help communicate the financial benefits of replacing your existing server and network infrastructure with a unified computing solution from Cisco. You may examine and edit all of the values and assumptions used to create this analysis on the **Inputs** sheet, giving you complete control of the results.

The **Results** sheet presents a graphical overview of the financial results of this analysis and reports high-level financial metrics including the TCO savings your organization can realize with an investment in Cisco UCS.

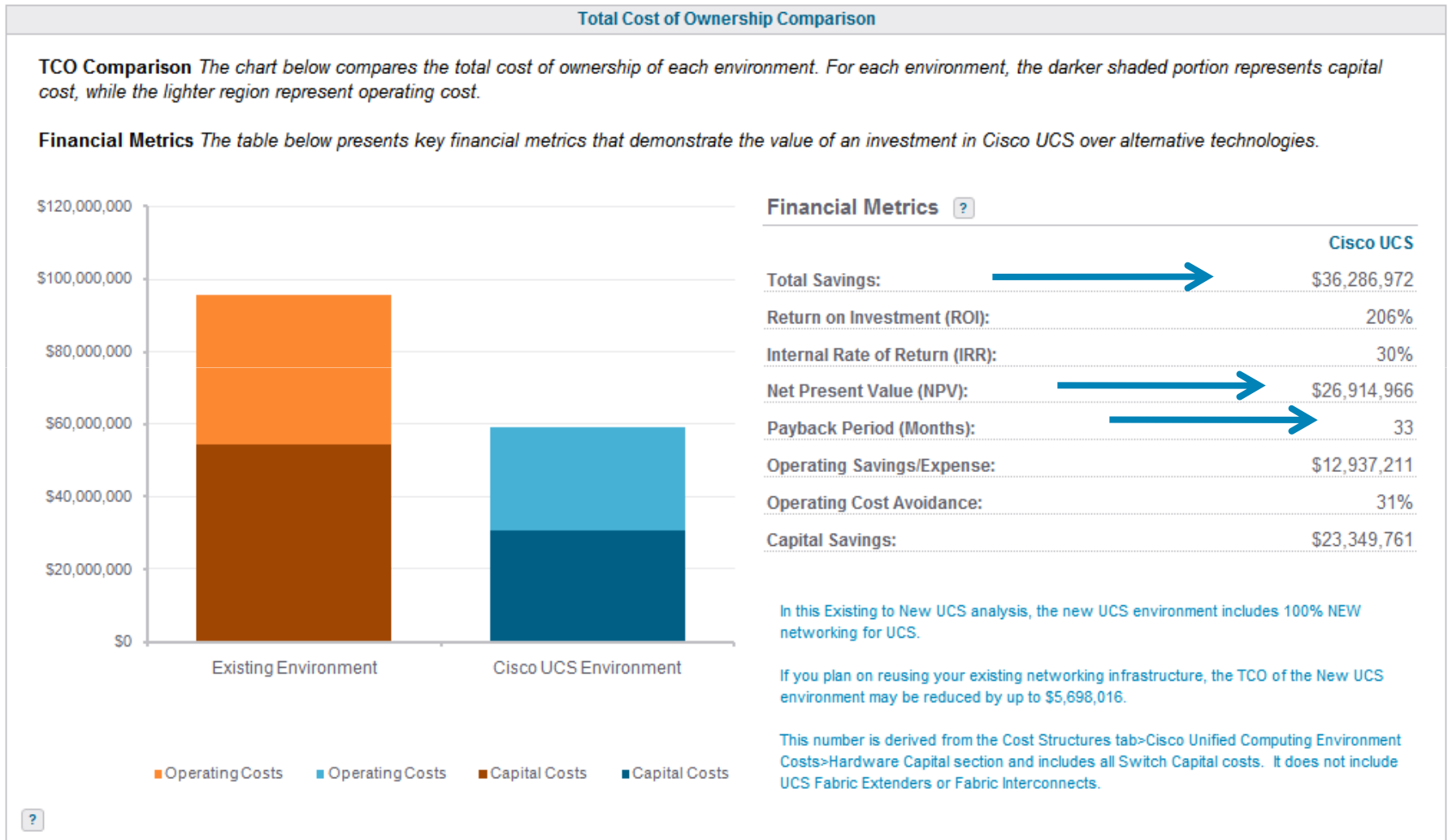
The **Cost Structures** page contains the detailed, year-by-year cost structures calculated from the data entered on the **Inputs** page.

NOTE: You must enable macros to use this model. [How do I do this?](#)

Collect	Analyze	Communicate
Inputs	Results Cost Structures Infrastructure	Launch Executive Summary Presentation Cisco UCS TCO/ROI Analysis Business Case Cisco UCS Design, Features & Benefits Overview


Excel – Results

- Total Cost of Ownership Comparison



Launching the Executive Summary Presentation

Home	Results	Cost Structures	Infrastructure	Inputs	Help
------	---------	-----------------	----------------	--------	------



Welcome

Welcome to the UCS TCO/ROI Advanced Advisor. This tool is designed to help communicate the financial benefits of replacing your existing server and network infrastructure with a unified computing solution from Cisco. You may examine and edit all of the values and assumptions used to create this analysis on the **Inputs** sheet, giving you complete control of the results.

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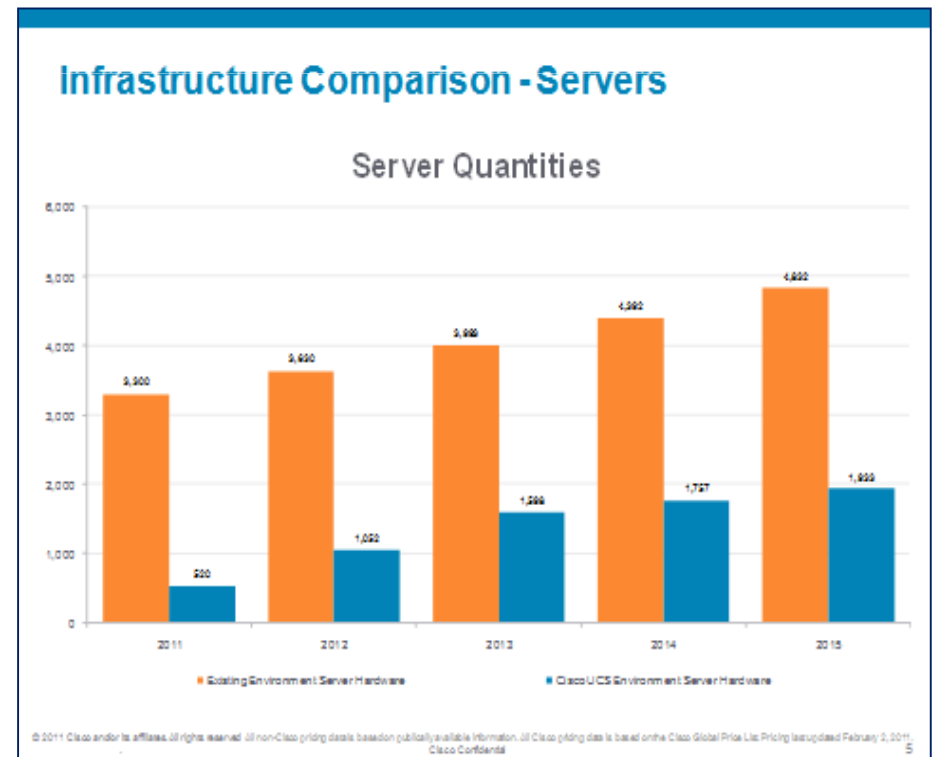
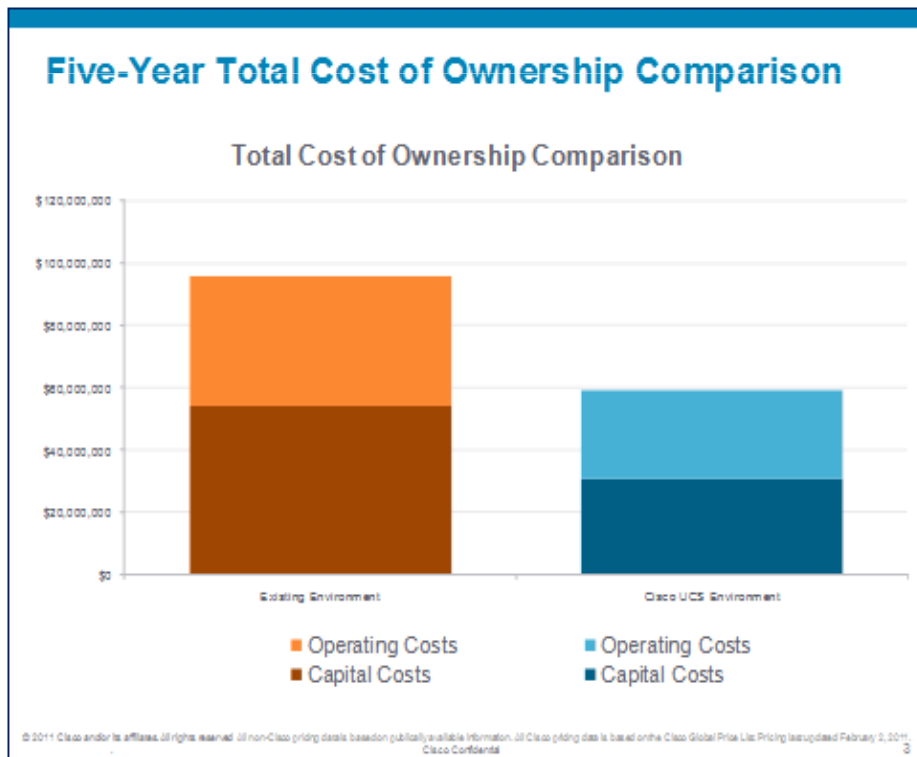
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Collect	Analyze	Communicate
Inputs	Results Cost Structures Infrastructure	Launch Executive Summary Presentation Cisco UCS TCO/ROI Analysis Business Case Cisco UCS Design, Features & Benefits Overview

Cisco UCS ROI Analysis Executive Summary Presentation

- MUST open from the Home tab in Excel
- 7 data slides - more coming
 - 6 graphs, 1 table
- All data embedded from Excel, not editable
 - Edit in Excel and update





QUESTIONS?



Thank you.

