



Where IT perceptions are reality

TCO Case Study

L2 Ethernet Switches

Featured Products

Cisco Nexus 2960S

Huawei S5700

Introduction

TCO Case Studies

IT professionals know the cost of owning servers, networking and storage equipment is more than the purchase price of the hardware. The total cost of IT equipment also includes installation, software licenses, service, support, training, and other costs related to a specific product or situation.

TCO case studies are designed to provide busy IT Pros with vendor-independent data about the total cost of specific products. This case study examines four pairs of comparably equipped L2 switches from Huawei and Cisco — with a different port configuration or level of support for each similar pair of switches.

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L2

Layer 2 refers to the Data Link layer of the OSI model. Switches redirect data messages at the layer 2 level, using the destination MAC address to determine where to direct the message.

The Cost of Owning an L2 Switch

The Cost of Owning a L2 Switch

Below are the cost components used to calculate the total cost of a owning a L2 switch over a 5 year period.

Hardware Product Cost -The purchase price for a 48 port switches and SFPs for the uplink ports.

Recurring Software License Fees - Annual license fees for software if applicable.

Recurring Annual Service & Support Fees -The cost of a service agreement providing 24 x7 on-site service and spares with 4-hour response time.

Training - The cost of certifying one network engineer for this class of product.

Spare Parts - The cost of on-site spare power supplies and SFPs.

Total Cost of Ownership - The sum of the hardware product cost, software license fees, service and support fees, training, and spare parts over a 5 year period.

Getting the Cost Data

The product pricing (cost) data used in this case study comes from on-line resellers and solution provider quotations which are responding to a request for quote (RFQ) from IT Brand Pulse.

Apples-to-Apples Comparison

The hardware, software and service products from used in this case study were selected because they were comparable to each other. Differences in the products and services are described in the product overviews.

TCO

The total cost of IT equipment including purchase price, installation, annual license fees, annual service fees, support, training, and other costs related to a specific product or situation.

Limited Lifetime Warranty

A Viable Option in Non-Mission Critical Environments

After hundreds of millions of ports have been deployed over many years, fixed-port L2 switches have proven they are extremely reliable. As a result, relying on the support associated with a limited lifetime warranty is a viable option for non-mission-critical environments. Below are terms of the limited lifetime warranties for Cisco 2960S and Huawei S5700 switches.

Terms	Cisco - Source: Cisco	Huawei
Device covered	Applies to Cisco Catalyst 2960-S Series Switches.	Huawei S5700 Series Switches
Warranty duration	As long as the original end user continues to own or use the product, provided that: fan and power supply warranty is limited to five (5) years.	Up to 5 years from EOS
End-of-life policy	In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance.	
Hardware replacement	Cisco or its service center will use commercially reasonable efforts to ship a Catalyst 2960-S replacement part for next business day delivery, where available. Otherwise, a replacement will be shipped within ten (10) working days after the receipt of the RMA request. Actual delivery times may vary depending on customer location.	Advanced Replacement: 9x5x2 Business Days Or 9x5x3 Business Days
Effective date	Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety [90] days after original shipment by Cisco).	From the date of shipment to customer.
TAC support	Cisco will provide during customer's local business hours, 8 hours per day, 5 days per week basic configuration, diagnosis, and troubleshooting of device-level problems for up to 90 days from the date of shipment of the originally purchased Cisco Catalyst 2960-S product. This support does not include solution or network-level support beyond the specific device under consideration.	Remote Service: - 24x7 Help Desk - Online Technical Support Software Updates
Service Portal Access	Warranty allows guest access only to Cisco.com.	Yes

Warranty



When you make a major purchase, the manufacturer or seller makes an important promise to stand behind the product. It's called a warranty.

Switches with all 1GbE Ports

L2 Switches with 48-Port x 1GbE Ports from Cisco and Huawei

For all but the most heavily loaded server, 1GbE is the standard for network connectivity. IT Brand Pulse estimates that over 60% of server networking ports are 1GbE LAN-on-Motherboard or network adapter ports. Due to the pervasive presence of 1GbE ports in servers, the popularity of 48-port 1GbE switches, with 10GbE ports, has soared in Top-of-Rack (ToR) applications. As ToR switches, the 10GbE ports are used to uplink data to End-of-Row (EoR) aggregation switches, or directly to core switches. In smaller enterprises, the 48-port switches are deployed as aggregation or core switches.

The 48-port 10GbE switches evaluated in the TCO case study were the Cisco Nexus 2960S and the Huawei S5700. The TCO for quantity of 10 was used because it approximated the scope of an edge switch refresh for a medium sized data center. Although the Huawei switch support 4 uplink ports, the configurations used were burdened with only 2 SFPs per switch for an apples-to-apples comparison.

Description	Cisco 2960S-48LPS-L	Huawei 5700-52P-PWR-LI
48 Ports x 10Gb L2 Ethernet Switch		
Configuration	48 X 1GbE ports	48 X 1GbE ports
1Gb Uplinks Ports	2	4
Switching Bandwidth	176Gbps	256Gbps
Available PoE Power	370W	370W
Forwarding Performance	88Gbps	88Gbps
Service Agreement (extra)	Telephone support 24x7 on-site service with and 4 hour response time	Telephone support 24x7 on-site service with and 4 hour response time

10GbE

Becoming a standard feature on enterprise servers heavily loaded with virtualized workloads. 48-port 10GbE switches are used in large enterprises as access switches for racks full of these servers.

Huawei S5700 with Warranty Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Huawei 5700-52P-PWR-LI switch with all 1GbE ports and support through a limited lifetime warranty. Hardware, service and support are discounted 40%.

5700-52P-PWR-LI	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 2,564	10	\$ 25,644	\$ 25,644	\$ -	\$ -	\$ -	\$ -	\$ 25,644
SFPs	\$ 149	20	\$ 2,973	\$ 2,973	\$ -	\$ -	\$ -	\$ -	\$ 2,973
Sub-Total				\$ 28,617	\$ -	\$ -	\$ -	\$ -	\$ 28,617
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 144	10	\$ 1,440	\$ 1,440	\$ -	\$ -	\$ -	\$ -	\$ 1,440
Limited Lifetime Warranty	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 90	2	\$ 180	\$ 180	\$ -	\$ -	\$ -	\$ -	\$ 180
Spare SFPs	\$ 149	4	\$ 596	\$ 596	\$ -	\$ -	\$ -	\$ -	\$ 596
Sub-Total				\$ 2,216	\$ -	\$ -	\$ -	\$ -	\$ 2,216
Training									
S5700 Certification				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 30,833	\$ -	\$ -	\$ -	\$ -	\$ 30,833
Cumulative Total				\$ 30,833	\$ 30,833	\$ 30,833	\$ 30,833	\$ 30,833	

Huawei

The world's #1 supplier of telecommunications equipment, #3 supplier of smart phones, and fastest growing tier-1 enterprise IT OEM.

Cisco 2960S with Warranty Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Cisco 2960S-48LPS-L switch with all 1GbE ports and support through a limited lifetime warranty. Hardware, service and support are discounted 40%.

Cisco 2960S-48LPS-L	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 3,170	10	\$ 31,698	\$ 31,698	\$ -	\$ -	\$ -	\$ -	\$ 31,698
SFP	\$ 290	20	\$ 5,800	\$ 5,800	\$ -	\$ -	\$ -	\$ -	\$ 5,800
Sub-Total				\$ 37,498	\$ -	\$ -	\$ -	\$ -	\$ 37,498
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 248	10	\$ 2,480	\$ 2,480	\$ -	\$ -	\$ -	\$ -	\$ 2,480
Limited Lifetime Warranty	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 597	2	\$ 1,194	\$ 1,194	\$ -	\$ -	\$ -	\$ -	\$ 1,194
Spare SFPs	\$ 290	4	\$ 1,160	\$ 1,160	\$ -	\$ -	\$ -	\$ -	\$ 1,160
Sub-Total				\$ 4,834	\$ -	\$ -	\$ -	\$ -	\$ 4,834
Training									
2960 Certification	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 42,332	\$ -	\$ -	\$ -	\$ -	\$ 42,332
Cumulative Total				\$ 42,332	\$ 42,332	\$ 42,332	\$ 42,332	\$ 42,332	

Cisco

The world's #1 supplier of Ethernet switches and #3 supplier of blade servers to the enterprise.

Huawei S5700 with 24x7 Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Huawei 5700-52P-PWR-LI switch with all 1GbE ports and a service agreement with 24x7 support and 4-hour response time. Hardware, service and support are discounted 40%.

5700-52P-PWR-LI	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 2,564	10	\$ 25,644	\$ 25,644	\$ -	\$ -	\$ -	\$ -	\$ 25,644
SFPs	\$ 149	20	\$ 2,973	\$ 2,973	\$ -	\$ -	\$ -	\$ -	\$ 2,973
Sub-Total				\$ 28,617	\$ -	\$ -	\$ -	\$ -	\$ 28,617
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 144	10	\$ 1,440	\$ 1,440	\$ -	\$ -	\$ -	\$ -	\$ 1,440
24x7 Service Agreement	\$ 504	10	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 25,200
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 90	2	\$ 180	\$ 180	\$ -	\$ -	\$ -	\$ -	\$ 180
Spare SFPs	\$ 149	4	\$ 596	\$ 596	\$ -	\$ -	\$ -	\$ -	\$ 596
Sub-Total				\$ 7,256	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 27,416
Training									
S5700 Certification				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 35,873	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 56,033
Cumulative Total				\$ 35,873	\$ 40,913	\$ 45,953	\$ 50,993	\$ 56,033	

PoE

Power over Ethernet passes electrical power along with data on Ethernet cabling. This allows a single cable to provide both data connection and electrical power to devices such as wireless access points.

Cisco 2960S with 24x7 Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Cisco 2960S-48LPS-L switch with all 1GbE ports and a service agreement with 24x7 support and 4-hour response time. Hardware, service and support are discounted 40%.

Cisco 2960S-48LPS-L	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 3,170	10	\$ 31,698	\$ 31,698	\$ -	\$ -	\$ -	\$ -	\$ 31,698
SFPs	\$ 290	20	\$ 5,800	\$ 5,800	\$ -	\$ -	\$ -	\$ -	\$ 5,800
Sub-Total				\$ 37,498	\$ -	\$ -	\$ -	\$ -	\$ 37,498
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 248	10	\$ 2,480	\$ 2,480	\$ -	\$ -	\$ -	\$ -	\$ 2,480
24x7 Service Agreement	\$ 529	10	\$ 5,290	\$ 5,290	\$ 5,290	\$ 5,290	\$ 5,290	\$ 5,290	\$ 26,450
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 597	2	\$ 1,194	\$ 1,194	\$ -	\$ -	\$ -	\$ -	\$ 1,194
Spare SFPs	\$ 290	4	\$ 1,160	\$ 1,160	\$ -	\$ -	\$ -	\$ -	\$ 1,160
Sub-Total				\$ 10,124	\$ 5,290	\$ 5,290	\$ 5,290	\$ 5,290	\$ 31,283
Training									
2960 Certification	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 47,622	\$ 5,290	\$ 5,290	\$ 5,290	\$ 5,290	\$ 68,781
Cumulative Total				\$ 47,622	\$ 52,912	\$ 58,202	\$ 63,491	\$ 68,781	

Throughput



Network throughput is the rate of message delivery and is measured in bits per second (bps) or packets per second (pps).

Switches with 10GbE Uplink Ports

L2 Switches with 48-Port x 1GbE Ports and 10Gb Uplinks from Cisco and Huawei

As 10GbE connectivity becomes a standard feature in enterprise servers heavily loaded with virtualized workloads, the popularity of 48-port 10GbE switches has soared in Top-of-Rack (ToR) applications. There, the 48-port access switches can uplink data to End-of-Row (EoR) aggregation switches, or directly to core switches. In smaller enterprises, 48-port 10GbE switches commonly used as aggregation or core switches.

The 48-port 10GbE switches evaluated in the TCO case study were the Cisco Nexus Cisco 2960S-48LPD-L and Huawei S5700-52X-PWR-LI-AC. The TCO for quantity of 10 was used because it approximated the scope of an edge switch refresh for a medium sized data center. Although the Huawei switch support 4 uplink ports, the configurations used were burdened with only 2 SFPs per switch for an apples-to-apples comparison.

Description	Cisco 2960S-48LPD-L	Huawei S5700-52X-PWR-LI-AC
48 Ports x 10Gb L2 Ethernet Switch		
Configuration	48 X 1GbE ports	48 X 1GbE ports
10Gb Uplinks Ports	2	4
Switching Bandwidth	176Gbps	256Gbps
Available PoE Power	370W	370W
Forwarding Performance	88Gbps	88Gbps
Service Agreement (extra)	Telephone support 24x7 on-site service with and 4 hour response time	Telephone support 24x7 on-site service with and 4 hour response time

Forwarding

LAN switches store some or all of frames, check for errors, and discard or forward.

Huawei S5700 with Warranty Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Huawei S5700-52X-PWR-LI-AC switch with 48 1GbE ports and 10GbE uplinks, plus support through a limited lifetime warranty. Hardware, service and support are discounted 40%.

Huawei S5700-52X-PWR-LI-AC	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 3,205	10	\$ 32,054	\$ 32,054	\$ -	\$ -	\$ -	\$ -	\$ 32,054
SFPs	\$ 591	20	\$ 11,820	\$ 11,820	\$ -	\$ -	\$ -	\$ -	\$ 11,820
Sub-Total				\$ 43,874	\$ -	\$ -	\$ -	\$ -	\$ 43,874
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 144	10	\$ 1,440	\$ 1,440	\$ -	\$ -	\$ -	\$ -	\$ 1,440
Limited Lifetime Warranty	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 90	2	\$ 180	\$ 180	\$ -	\$ -	\$ -	\$ -	\$ 180
Spare SFPs	\$ 591	4	\$ 2,364	\$ 2,364	\$ -	\$ -	\$ -	\$ -	\$ 2,364
Sub-Total				\$ 3,984	\$ -	\$ -	\$ -	\$ -	\$ 3,984
Training									
S5700 Certification				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 47,858	\$ -	\$ -	\$ -	\$ -	\$ 47,858
Cumulative Total				\$ 47,858	\$ 47,858	\$ 47,858	\$ 47,858	\$ 47,858	

SFP

The small form-factor pluggable (SFP) is a compact, hot-pluggable transceiver sometimes referred to as a Mini-GBIC, although no device with this name has ever been defined.

Cisco 2960S with Warranty Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Cisco 2960S-48LPD-L switch with 48 1GbE ports and 10GbE uplinks, plus support through a limited lifetime warranty. Hardware, service and support are discounted 40%.

Cisco 2960S-48LPD-L	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 3,950	10	\$ 39,498	\$ 39,498	\$ -	\$ -	\$ -	\$ -	\$ 39,498
SFPs	\$ 597	20	\$ 11,937	\$ 11,937	\$ -	\$ -	\$ -	\$ -	\$ 11,937
Sub-Total				\$ 51,435	\$ -	\$ -	\$ -	\$ -	\$ 51,435
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 248	10	\$ 2,480	\$ 2,480	\$ -	\$ -	\$ -	\$ -	\$ 2,480
Limited Lifetime Warranty	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 597	2	\$ 1,194	\$ 1,194	\$ -	\$ -	\$ -	\$ -	\$ 1,194
Spare SFPs	\$ 290	4	\$ 1,160	\$ 1,160	\$ -	\$ -	\$ -	\$ -	\$ 1,160
Sub-Total				\$ 4,834	\$ -	\$ -	\$ -	\$ -	\$ 4,834
Training									
2960 Certification	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 56,269	\$ -	\$ -	\$ -	\$ -	\$ 56,269
Cumulative Total				\$ 56,269	\$ 56,269	\$ 56,269	\$ 56,269	\$ 56,269	

ToR

As servers shrink to 1U and 2U sizes, network managers are moving switching infrastructure directly into server racks. These Top-of-Rack switches dramatically reduce cabling.

Huawei S5700 with 24x7 Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Huawei S5700-52X-PWR-LI-AC switch with 48 1GbE ports and 10GbE uplinks, plus a service agreement with 24x7 support and 4-hour response time. Hardware, service and support are discounted 40%.

Huawei S5700-52X-PWR-LI-AC	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 3,205	10	\$ 32,054	\$ 32,054	\$ -	\$ -	\$ -	\$ -	\$ 32,054
SFPs	\$ 591	20	\$ 11,820	\$ 11,820	\$ -	\$ -	\$ -	\$ -	\$ 11,820
Sub-Total				\$ 43,874	\$ -	\$ -	\$ -	\$ -	\$ 43,874
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 144	10	\$ 1,440	\$ 1,440	\$ -	\$ -	\$ -	\$ -	\$ 1,440
24x7 Service Agreement	\$ 504	10	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 25,200
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 90	2	\$ 180	\$ 180	\$ -	\$ -	\$ -	\$ -	\$ 180
Spare SFPs	\$ 591	4	\$ 2,364	\$ 2,364	\$ -	\$ -	\$ -	\$ -	\$ 2,364
Sub-Total				\$ 9,024	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 29,184
Training									
S5700 Certification				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 52,898	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 73,058
Cumulative Total				\$ 52,898	\$ 57,938	\$ 62,978	\$ 68,018	\$ 73,058	

NOS

A suite of routing, switching, internetworking and telecommunications functions integrated into a multitasking network operating system.

Cisco 2960S with 24x7 Support

5-Year Cost of Ownership

The following table shows the total cost of ownership for a Cisco 2960S-48LPD-L switch with 48 1GbE ports and 10GbE uplinks, plus a service agreement with 24x7 support and 4-hour response time. Hardware, service and support are discounted 40%.

Cisco 2960S-48LPD-L	Unit Price	Qty	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Hardware									
Switch	\$ 3,950	10	\$ 39,498	\$ 39,498	\$ -	\$ -	\$ -	\$ -	\$ 39,498
SFPs	\$ 597	20	\$ 11,937	\$ 11,937	\$ -	\$ -	\$ -	\$ -	\$ 11,937
Sub-Total				\$ 51,435	\$ -	\$ -	\$ -	\$ -	\$ 51,435
Software									
NOS (included)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Optional Software (n/a)	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Service & Support									
Installation	\$ 248	10	\$ 2,480	\$ 2,480	\$ -	\$ -	\$ -	\$ -	\$ 2,480
24x7 Service Agreement	\$ 672	10	\$ 6,720	\$ 6,720	\$ 6,720	\$ 6,720	\$ 6,720	\$ 6,720	\$ 33,600
SW License Fees	\$ -	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spare Power Supply	\$ 597	2	\$ 1,194	\$ 1,194	\$ -	\$ -	\$ -	\$ -	\$ 1,194
Spare SFPs	\$ 597	4	\$ 2,387	\$ 2,387	\$ -	\$ -	\$ -	\$ -	\$ 2,387
Sub-Total				\$ 12,781	\$ 6,720	\$ 6,720	\$ 6,720	\$ 6,720	\$ 39,661
Training									
2960 Certification	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total				\$ 64,216	\$ 6,720	\$ 6,720	\$ 6,720	\$ 6,720	\$ 91,096
Cumulative Total				\$ 64,216	\$ 70,936	\$ 77,656	\$ 84,376	\$ 91,096	

1000BASE-T

1000BASE-T is Gigabit Ethernet on copper cables using four pairs of Cat 5 unshielded twisted pairs.

Side-by-Side Comparison

The purchase price of the switches are only part of the TCO story

The following table shows a side-by-side comparison of the 5-year TCO for Huawei and Cisco switches.

	Huawei		Cisco		Huawei		Cisco		Cisco		Huawei		Huawei		Cisco	
48-Port L2 Switch	1G w/Warr		1G w/Warr		10G w/Warr		10G w/Warr		1G w/Serv		1G w/Serv		10G w/Serv		10G w/Serv	
Hardware																
Switch	\$	25,644	\$	31,698	\$	32,054	\$	39,498	\$	31,698	\$	25,644	\$	32,054	\$	39,498
SFPs	\$	2,973	\$	5,800	\$	11,820	\$	11,937	\$	5,800	\$	2,973	\$	11,820	\$	11,937
Sub-Total	\$	28,617	\$	37,498	\$	43,874	\$	51,435	\$	37,498	\$	28,617	\$	43,874	\$	51,435
Software																
NOS	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Optional Software	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Sub-Total	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Service & Support																
Installation	\$	1,440	\$	2,480	\$	1,440	\$	2,480	\$	2,480	\$	1,440	\$	1,440	\$	2,480
24x7 Service	\$	-	\$	-	\$	-	\$	-	\$	26,450	\$	25,200	\$	25,200	\$	33,600
SW License Fees	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Spare P/S	\$	180	\$	1,194	\$	180	\$	1,194	\$	1,194	\$	180	\$	180	\$	1,194
Spare SFPs	\$	596	\$	1,160	\$	2,364	\$	1,160	\$	1,160	\$	596	\$	2,364	\$	2,387
Sub-Total	\$	2,216	\$	4,834	\$	3,984	\$	4,834	\$	31,283	\$	27,416	\$	29,184	\$	39,661
Training																
S5700 Certification	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Sub-Total	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Total	\$	30,833	\$	42,332	\$	47,858	\$	56,269	\$	68,781	\$	56,033	\$	73,058	\$	91,096
Difference		37.29%			17.57%			22.75%			24.69%					

37%

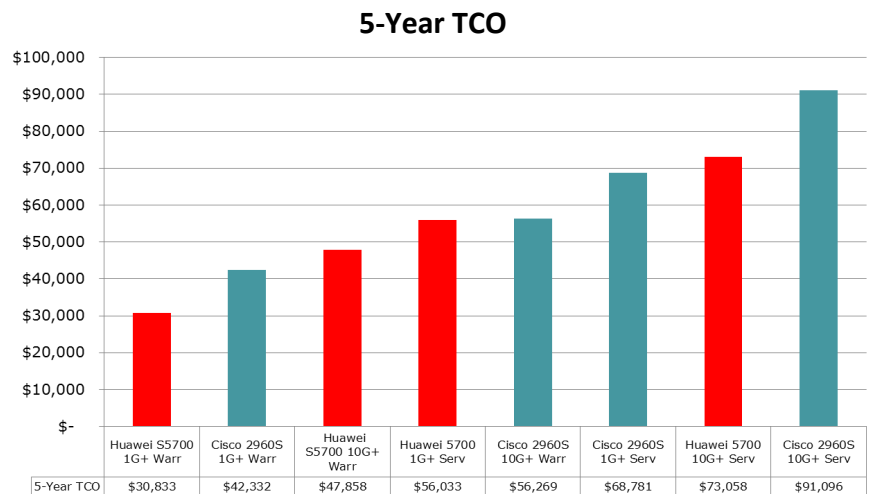
There is a 24.69% difference in for comparably configured switches with 10Gb uplinks and service, and a 37% difference in the 5-year total cost of ownership for configurations with all 1Gb ports and lifetime warranty.

Resources

The Bottom Line

The data in this TCO case study highlights the savings that can be achieved in three ways: 1) Using support through a limited lifetime warranty if the application is not business-critical, 2) purchasing other popular brands, and 3) using 1Gb uplinks when possible.

The bottom line is if you buy ten 48-port switches while taking advantage of all three opportunities, the 5-year TCO for your switches will be cut by two thirds and \$91K.



Related Links

[Total Cost of Ownership Wiki](#)

[Cisco 2960S Product Info](#)

[Huawei S5700 Product Info](#)

[IT Brand Pulse](#)

About the Author



Joe Kimpler is a senior analyst responsible for IT Brand Pulse Labs. Joe's team manages the delivery of technical services including hands-on testing, product reviews, total cost of ownership studies and product launch collateral. He has over 30 years of experience in information technology and has held senior engineering and marketing positions at Fujitsu, Rockwell Semiconductors, Quantum and QLogic. Joe holds an engineering degree from the University of Illinois and a MBA in marketing.

