Taobao.com Chooses Cisco to Support Growing Database of Users

Taobao.com relies on Cisco Catalyst 6500 Virtual Switching System (VSS) solution to support their growing database of users and simplify their data center solutions, thereby providing higher availability and cost savings.

EXECUTIVE SUMMARY

Taobao.com
- Online C2C Trading, China
- 100 million registered users

Challenge
- Increase network bandwidth and capacity in data center to support growing user base
- Increasing speed of application roll-outs
- Protecting and securing their data centers and applications

Solution
Cisco Catalyst 6509-E in VSS mode

Expected Results
- Increased availability and reliability of local data center to support growing database
- Improved scalability on 10GE capacity
- Simplified server management and streamlined application roll outs resulting in cost savings

Introduction

Taobao.com is owned by Alibaba Group Holding Ltd, a Hangzhou based e-commerce / e-auction company which houses a family of Internet based businesses that include trade, retail, payment, business management software and classified listings.

Taobao.com was launched in 2003 and quickly became the largest Internet retail and trading website in China, servicing more than 75 percent of the Chinese-domestic online consumer market. It serves nearly 100 million registered users, and more than 1.5 million sellers have opened up stores on Taobao.com. Users can find the most comprehensive product offerings ranging from collectibles, hard-to-find items to mainstream retail products across categories such as consumer electronics, clothing and accessories, sporting goods and household products. Annual transaction volume on Taobao.com reached nearly US$15 billion in 2008, and this equaled approximately one percent of China's total retail trade in 2008. In the next five years, Alibaba Group will be investing more than US$700 million in Taobao.com to support its strong growth.

Today, Taobao.com is the primary online shopping destination for the largest online population in the world. Taobao.com's headquarters is situated in Hangzhou, China, and they have three branch offices in Beijing, Shanghai and Guangzhou, housing about 2000 employees.

Business Challenge

Taobao.com's operations are supported by 6000 servers located in three data centers in Hangzhou, and eleven content delivery network (CDN) sites in other major cities in China. These data centers support the millions of Taobao.com users, whose main activities are web page browsing and e-commerce transactions. With over 100 million registered users, traffic on the data centers can be taxing on the network and application servers.

"Taobao.com is expanding very rapidly, and our customer base of over 100 million registered users is growing fast," said Cao Yi Feng, Director of Operating Maintenance of Taobao.com. "With our parent company looking to invest even more heavily in our wide range of offerings over the next five years, we're planning to boost data center capacity to cater to the expected increase in users."

One of Taobao.com's main concerns was to enhance the speed of their application roll outs. "We are always updating our products and service offerings to clients to ensure that we stay competitive and remain the top choice for users. This means constantly rolling out new and innovative applications, and having the ability to deploy new features quickly with minimal disruptions to the web site. This is a challenge, especially when our teams are creating applications for over 100 million users at a time," said Cao.

"We also need to ensure that our internal infrastructure will support this growth. Having adequate network bandwidth for local and remote users ensures fewer incidents of downtime and network congestions, making it a better usage experience for our users. It also helps us maintain our productivity. This also extents to application availability for our users, which is an area we needed to improve." The traditional technology of the data centers resulted in some network instability or lack of uplink bandwidth due to spanning tree protocol (STP).

"To overcome these challenges, we decided that a 10 Gigabit Ethernet (GE) uplink from the data center, with a high density GE port to the access switch and application servers, would serve our purpose, now and in the near future. At the heart of this infrastructure, we needed a switching platform that would provide high performance and reliability," he added.

Solution

To meet Taobao.com's requirements for a more robust data center, Cisco proposed a solution consisting of Cisco Catalyst 6509 switches, virtualized into a single switch using the Cisco Virtual Switching System (VSS). The Cisco Catalyst 6500 Virtual Switching System takes the flagship Catalyst 6500 switching platform to the next level with network system virtualization. By using Catalyst 6500 Switches, Taobao.com would improve network scalability, availability, as well as network management.

"We were impressed with the capabilities of the Cisco Catalyst 6500 VSS. Having had a prior working relationship with Cisco, we were also confident of their ability to deliver, as well as the technological leadership of their products," said Cao.

In just two weeks, the Cisco Catalyst 6500 VSS was installed in the data center of headquarter city Hangzhou, which is also the biggest data center in Taobao.com. Taobao.com's application servers are connected via 1Gigabit Ethernet links to access layer switches. These switches are then connected to the virtualized Cisco Catalyst 6509 Series Switches running in VSS mode.

Cisco recommended the Catalyst 6509-E Switch that provides high port densities. The Cisco Catalyst 6500 Virtual Switching System provided the maximum uptime with sub-200ms failover support using inter-chassis NSF/SSO. With this implementation, Taobao.com could enjoy the benefits of a single point of management and stateful failovers, ensuring high availability at all times.

"Immediately after the implementation of the Cisco Virtual Switching System, Taobao.com's data center engineers reported a noticeable improvement to daily operations, resulting from a single point of management."

- Cao Yi Feng, Director of Operating Maintenance of Taobao.com
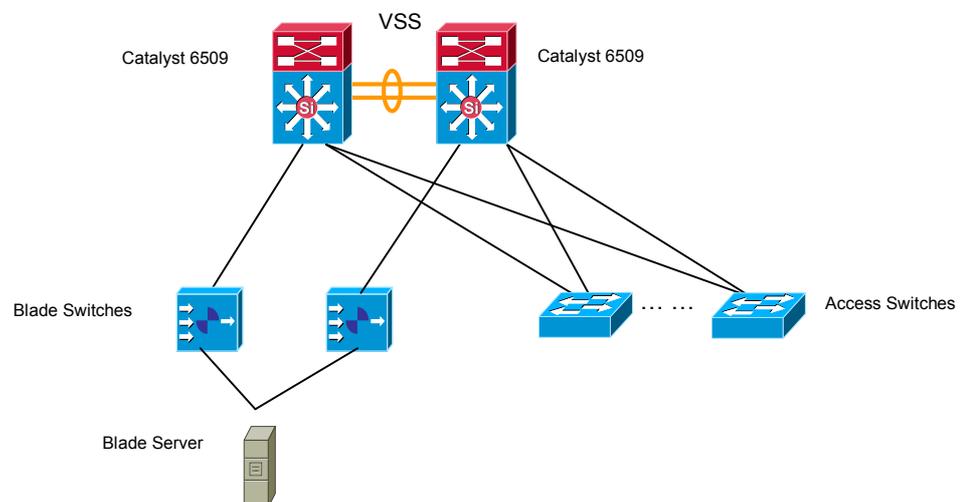
Figure 1: Network Diagram for Taobao.com data center

Results

After the implementation, first impressions from the client's internal users have been very encouraging. "Immediately after the implementation of the Cisco Virtual Switching System, our data center engineers reported a noticeable improvement to daily operations, resulting from a single point of management," said Cao.

PRODUCT LIST
• Cisco Catalyst 6509-E with Virtual Switching System 1440

Users also reported higher reliability and availability in the data center, as well as a general increase in performance. The dual-uplink throughput on the servers allowed for better performance. VSS provides active-active multi-link redundancy, instead of the traditional active-standby STP mode. By using VSS, Taobao.com eliminates the resource wastage associated with standby ports, and allows all ports to function as active links, doubling the usable bandwidth with the same number of hardware ports and increasing network capacity. Taobao.com is able to now accommodate more users without performance degradation as the VSS system bandwidth capacity scales up to 1.4 Tbps.

Another benefit that Taobao.com has experienced from the upgrade is savings in network maintenance. "Switch virtualization has made our data centers more efficient, requiring less time for routine maintenance tasks" commented Sun Lei, System Engineer of Taobao.com. "VSS increases operational efficiency by simplifying the network and reducing switch management overhead. This results in a single point of management, single IP address and routing instance for the Cisco Catalyst 6500 virtual switch," he added. In addition, VSS also simplifies topology network and doubles the uplink bandwidth of the access switch.

Next Steps

The successful deployment of Cisco Catalyst 6500 VSS technology is just the beginning for Taobao.com. The company next plans to use Cisco technology to improve network security, application load balancing, as well as network capacity in their high-performance computing environments. On the Catalyst 6509 Switches, such improvements will simply require the installation of a network services module to the switch chassis. "We're looking forward to an easier job as we continue to build our network in the near future," said Cao.

For more information:

For more information on the Cisco Virtual Switching System, visit: www.cisco.com/go/vss
For more information on Taobao.com, visit: http://www.taobao.com/