



Cisco helps Guangdong Mobile conquer virtual data center challenges with Cisco virtual cloud computing solutions

CASE STUDY



中国移动通信
CHINA MOBILE

Case summary

Location:

Guangdong, China

Solutions and Products:

- Cisco virtual computing solutions
- Nexus7018 switches
- Nexus2000 switches
- UCS blade servers
- catalyst 6500 switches with load balancing and firewall module
- Nexus1000V virtual switches
- VSG cloud firewall

Value-selling components:

- By using of service file, Cisco UCS Manager configures Cisco UCS B series blade servers and their I/O properties. It simplifies the manual deployment and reduces human error; shortens the time of servers and network deployment
- 7018 switch which can help realize the Layer 2 interworking across data centers.
- The Unified Fabric technology is used to unify all kinds of different flows like network flow and storage flow, through a single, high-speed and high availability network.
- Working with VSG firewall, Nexus 1000v virtual switch offers fine management with more flexibility and improves virtual network management, which also reduces the complexity of the firewall configuration, and improves

Guangdong Mobile applies effective virtual computing solutions to construct a highly reliable and flexible data center with simplified deployment and comprehensive management.

Guangdong Mobile

Guangdong Mobile provides cloud computing to China Mobile, who builds national-level Cloud Computing Application System. It also offers services to enterprise customers of Southern China.

The Challenges

Guangdong Mobile planned to build the public virtual data center (VDC) platform to provide customized and isolated data center services to enterprise and commercial customers, and traditional shared multi-tenant internet data center services as well.

Guangdong Mobile requested the VDC platform to be able to provide large number of x86 based virtual machines with flexible and intelligent provisioning and management capability. Meanwhile, the security and reliability of each virtual machine are also required.

Solutions

The VDC platform provided by Cisco has successfully solved all concerns of Guangdong Mobile; The new platform consists mainly of Nexus core switches and Cisco UCS B series blade servers. In the project, Two Nexus 7018 are deployed as the core of the data center and 2 Nexus 5548 switches in the convergence layer connect with Cisco UCS servers through Cisco UCS 6120 Series Fabric Interconnects. Nexus 5548 connects directly with IBM X series 3850 servers, and also connect with EMC storage system through Nexus 2248 switches. Guangdong Mobile deploys 72 UCS B200 blade servers as data resources of X86, which are virtualized as about 700 virtual machines. Three C200 rack servers are deployed as virtual management and cloud management platform.

Guangdong Mobile deploys Nexus 1000V virtual switch and VSG firewall on servers for more sophisticated and flexible virtual machine management. Nexus 1000V virtual switch can achieve traditional functions such as QoS and ACL. It can also measure virtual machine flows and Improve the manageability of virtual network. VSG firewall enables the operations like virtual machine network isolation and port mapping, which reduces firewall configuration complexity and improves business support flexibility.

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Affects:

- The time for Server deployment is shortened and less time is needed to finish complicated parameter configuration. Operations can be completed fast through network.
- Data center structure is much simpler and the cost is reduced greatly.

Value-Selling Components:

In this project, some competitors have long-term cooperation with its customer, and some are well-known producers in virtual servers. Cisco won over all competitors because of the following reasons:

Realization of fast management and configuration deployment by Stateless computing:

It is a challenge for VDC to deploy and manage the ever increasing large number of servers effectively and efficiently. For each server, besides its own parameter configuration, it must be configured with the parameters of its neutral IP network and storage networks. It usually takes quite long time to be done. This problem is solved by stateless computing driven by UCS Manager, which can configure Cisco UCS B series blade servers and their I/O properties by composing and delivering service profiles in a batch. It simplifies the deployment procedure and minimized the artificial mistakes.

Virtual machines across data centers by Layer 2 interworking: in order to improve the usability and reliability of outgoing services of VDC, Guangdong Mobile expects the solution to support the Layer 2 network access technology for data centers and virtual server dynamic migration across data centers. The OTV technology is supported on Nexus 7018 switches, which can help realize Layer 2 interworking across data centers to satisfy the need of Guangdong Mobile.

Simplification of VDC structure by Unified Fabric: Guangdong Mobile had applied blade servers of other vendors which require connecting IP data network and storage network at the same time. It makes the wiring very complicated ---- at the back of each chassis there are over 30 cables which brings customers a lot of trouble. This time the Unified Fabric technology is used to unify all kinds of different flows, such as network flow and

storage flow, through a single, high-speed and high availability network. By this means, the data center structure is highly simplified and the cost is cut sharply.

Customer Benefits:

Convenient Deployment: with stateless computing technology, the deployment of servers is sped up. Less time is needed for complicated parameter configuration. All configurations can be created and delivered quickly through management system. For example, when blade servers are set online, the maintenance engineer just composes and delivers the configuration parameters to the servers remotely and they will come online in a short time. It normally takes the maintenance personnel one day for installing and setting up new servers before while it only takes a few minutes now.

Higher VDC reliability: Nexus 7018 switches especially support Overlay Transport Virtualization (OTV) technology which can help realize Layer 2 interworking across data centers to support layer 2 network access for server cluster or virtual server dynamic migration.

Simplification of VDC structure and better support for future large-scaled virtualization: By applying Unified Fabric technology, the storage network and IP network are combined so as to improve the efficiency of network operation. Compared with other brands, there are only 2 cables attached to superior fabric interconnects. Offered with a unified management interface for network and storage, Guangdong Mobile owns a much simple-structured VDC now. It has less cables and better support for future large-scaled virtualization.

In the future, Guangdong Mobile is going to deploy VSG and VMDC in phase 2 to provide its customers cloud computing services with different service levels and security strategies. Guangdong Mobile is going to be more preeminent in cloud servicing among operators and will keep its leading position as well.

