Case Study
Guaotai Junan Securities Co. Ltd

PROPHETSTOR

"Virtualization technology –OpenStack and software-defined storage– enables greater control of the IT infrastructure to match the needs of our equity security business in real-time, which translates into faster time to market and ultimately impacts the bottom line. In this case, Guaotai Junan Securities conducted an extensive evaluation of SDS vendors and missioned ProphetStor due to the quality of the solution and ease of implementation."

Guaotai Junan Securities IT Department

Federator SDS dynamically allocates storage services and resources to improve productivity and performance levels across the enterprise, and forms the backbone of Guaotai Junan's private cloud platform. Federator SDS also separates the mobile, data service and internal data exchange portal from the networking layer to reduce any storage overlap, and makes the whole storage system more stable and reliable.

Background

Guotai Junan Securities brings people, capital and ideas together to help clients by providing a wide range of financial services to a diversified client base including corporations, financial institutions, and governments. With a huge base of customers, an extensive network of business, and strong cross-selling capabilities, the ever growing system of products and services, as well as good risk management and control capability, Guotai Junan has become a domestic securities company with leading comprehensive strength in the industry.

Challenge

Guaotai Junan had been running all their applications on physical computers and servers, with storage servers from EMC and Huawei on the back end.
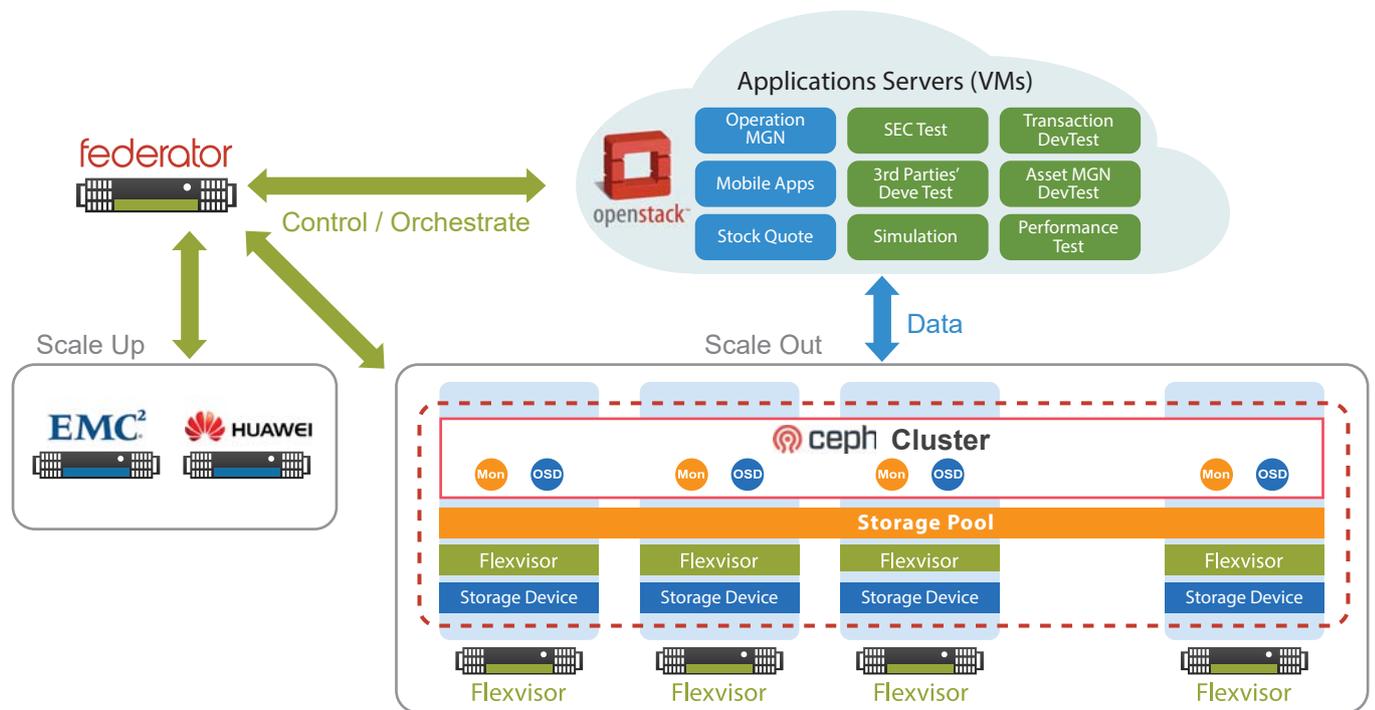
With a constant evolution of China's securities market and financial innovations, Guaotai Junan increased the development and creation of financial applications, with rapid product lifecycles. IT resources were needed for a series of thorough tests and simulations for application reliability of before going live. The development team needed more IT resources to process the development and validation of financial commodities.

Guaotai Junan's development team realized that the existing platform of older servers and storage systems was not going to meet the needs of the demanding financial application lifecycle. The development team wanted to transform and optimized their IT infrastructure and looked to virtualization to migrate their physical servers to virtual machines.

Guotai Junan needed their IT environment to dynamically allocate storage resources to improve productivity and performance levels across the enterprise. The need to quickly and easily maximize its resources without major investment in new hardware or expansion of its existing data centers was a big consideration. The new platform needed to take into consideration existing physical devices and VMware virtual systems, while providing scalable clustered storage systems with no single point of failure. The platform needed to meet both current and future needs.

Guaotai Junan determined that a combination of OpenStack with an advanced software-defined storage (SDS) system would upgrade and expand its IT resources to produce performance to meet the demands of the business.

"Virtualization technology –OpenStack and software-defined storage– enables greater control of the IT infrastructure to match the needs of our equity security business in real-time, which translates into faster time to market and ultimately impacts the bottom line. In this case, Guaotai Junan Securities conducted an extensive evaluation of SDS vendors and selected ProphetStor due to the quality of the solution and ease of implementation."

Industry
Financial Services, Securities

Company Profile
Guaotai Junan Securities Co. Ltd., founded after the merger of Guaotai Securities Co. Ltd. and Junan Securities Co. Ltd. in 1999, is one of the largest comprehensive securities companies in China. Its operating performance ranks in the top 3 China Securities with the most extensive business coverage, the most widely distributed agencies, and the most customers served. Guaotai Junan is listed in China Mainland A-share in 2015. It has financing amount up to approx US$4.56 billion and market cap over US$4.26 billion.

IT Environment
- CloudStack
- EMC and Huawei storage servers
- VMware virtual systems

Challenges
- Strained IT environment due to:
  - Increased development and creation of financial applications, with rapid product lifecycles
  - Thorough tests and simulations for application reliability before public use
- Traditional IT allocation procedure were complex and required lengthy preparation
- Current IT environment of servers and storage systems was not going to meet the needs of the demanding financial application lifecycle.

ProphetStor Solution
ProphetStor Federator SDS
- Out-of-band storage management system
- Scalable capacity to meet future needs
- A suite of rich data services

Benefits
- Turnkey solution creates a complete cloud environment in a rack
- Automated, integrated system using commodity hardware over PXE
- Self-service provisioning for both virtual machines and storage through GUI dashboards
- Autonomous storage orchestration supporting both legacy and commodity storage systems
- Cost efficient in the following areas:
  - Initial hardware and software acquisition
  - Deployment
  - Management and maintenance

ProphetStor Solution

ProphetStor Federator SDS provides the IT department with centralized control of their various storage systems, with automated discovery, abstraction and delivery for OpenStack and cloud computing. This solution architecture upgrades and enables a private cloud platform for Guaotai Junan.

Federator Scale-Out provides an auto deployment tool for easy insertion into Guotai Junan's existing environment, as well as a low-latency, high-performance, scalable and auto-healing cluster solution. Federator Scale-Out also enables Ceph to deliver enterprise-grade features such as OSD selection, RAID and snapshots, assigning flash drives as journal devices, as well as to turn on RDMA and iSER to shorten the latency of IO.

With the separation of control and data paths, Federator SDS makes it possible to manage storage resources from different vendors with a single pane of glass, and classify and abstract them into virtual pools that can be provisioned automatically. The team has the ability to manage legacy storage systems and add commodity storage with enterprise-grade features and performance.

Packaged as a "cloud in a rack" solution, Federator SDS offers offer financial organizations a complete package of software-defined datacenter in a very cost-effective solution.

Deployment Details

ProphetStor Federator SDS consists of storage orchestration and storage hypervisor core components. The orchestration functions allow different storage to offer storage services based on performance service-level, along with other storage service offerings.

There will be at least two phases of migration – the first phase includes mobile apps, stock quotes, simulation and DevTest; the other phase includes transactions and major businesses. As long as the physical server's BIOS and NIC support the Pre-Boot Execution Environment (PXE), Builder is able to deploy either Federator SDS controller, Flexvisor storage hypervisor, and all essential OpenStack components on any Intel-powered bare metal servers.

The auto-healing of Federator Scale-Out is a multi-copies storage solution. Every write is saved in at least 3 storage nodes. In case of any one of them failing, clients can always access the others. Another safeguard is that the system will auto rebuild one more copy in another spare node.

Guotai Junan has finished the deployment of phase one with 10 storage servers.

Benefits

ProphetStor Federator SDS allows the development team to manage its storage infrastructure programmatically through a single open HTTP REST API. Federator SDS also provides all the necessary tools to enable seamless data migration from legacy storage systems to a new software-defined cloud environment.

Federator provides a turnkey solution to create a complete cloud environment in a rack, utilizing OpenStack over commodity hardware. It enables self-service provisioning for both virtual machines and storage through GUI dashboards, with autonomous storage orchestration.

This architecture allows the IT organization to first create a proof-of-concept sandbox and move less mission-critical applications over to the cloud first. As the confidence level increases in the cloud, racks can be added to accommodate more applications and workloads, which can be migrated to the cloud with minimum impact on the production servers.

Federator SDS deployment structure and method fully considers the enterprise production environment – particularly the financial organization's deployment and maintenance requirements. Federator SDS provides the automation deployment to reduce the human error during deployment procedures and reduces the deployment time. Federator SDS separates mobile, data service and internal data exchange portals from the networking layer to reduce overlap and interference to make the whole storage system more stable and reliable.