



Spanish global bank manages rapid storage growth with help of Cisco Services

EXECUTIVE SUMMARY

Customer Name: BBVA

Industry: Financial Services

Location: Spain

Number of Employees: 104,000 worldwide

Challenge

- Better support mergers and acquisitions (M&A) strategy
- Meet unpredictable demands for data storage
- Reduce storage area network cost and complexity

Solution

- Cisco MDS 9513 Series Multilayer Director Switches
- Core and edge architecture
- Cisco Design, Implementation, and Optimization Services

Results

- 5:1 consolidation of storage switches
- Increased agility to meet changing business needs
- Reduced operational costs while catering for data explosion from 0.4 to 2.1 petabytes in four years

Challenge

Since it was set up by the Spanish Board of Trade in 1857, BBVA has grown to become a major financial group, with over €5.5BN assets, and some 100,000 employees at 7300 branches in over 30 countries. In recent years, much of that growth has come from a successful strategy for mergers and acquisitions (M&A) aimed at serving the Spanish-speaking Hispanic populations of South America and, more recently, some southern states in the United States.

Managing growth brings its own challenges. This was particularly true for the corporate headquarters' data storage team. By 2007, the team was managing eight discrete storage area networks (SANs), each dedicated to discrete applications, so that any problems in one area did not affect another. For example, the SAN delivering Exchange services comprised 25 servers and 48 storage ports; while the Spanish Internet banking services were delivered via 28 servers and 128 storage ports. However, piecemeal growth had created a management nightmare.

"We had storage arrays from three vendors and switches from another two," says Luis Sanchez, senior engineer, storage management, BBVA in Spain. "We had lots of storage islands, each growing at different rates and physically separate. There were spare ports in some islands, but too few in others, and the problem was we couldn't easily reassign resources to meet business needs. It was inefficient and needed a lot of attention in terms of day-to-day operations."

Short-term measures to meet the rapidly changing needs of the bank's various business units included purchasing small, 24- and 48-port switches to link servers to free storage arrays. "We were buying lots of small switches, but it was only a short-term solution that added cost and a lot of management complexity to the infrastructure," says Sanchez.

As well consolidating storage infrastructure, BBVA wanted to move to a simpler vendor management model.



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Luis Sanchez
Senior Engineer, Storage Management
BBVA, Spain

Solution

BBVA’s first thought was to expand its existing infrastructure, but after explaining its requirements to Cisco, the company chose instead to migrate to a new “collapsed core” architecture with servers and storage arrays connected directly to Cisco® MDS 9513 Series Multilayer Director Switches. The new infrastructure comprised two fabrics, each made up of two switches in the primary data center, connected to a third at a business continuity data center.

The decision to move to a Cisco solution was based on a number of factors. First and foremost was the switch’s ability to support virtual SANS (VSANs), without any customization of the switch, by logically segmenting the storage networks on the Cisco switches. Using VSANs in this way allowed BBVA to consolidate eight different SAN islands into a single director-based infrastructure, while still retaining independent logical SANs. Cisco Inter-VSAN Routing, built into the switches, took the concept further, enabling services to be extended across resources, instead of the expensive, specialized routers that had previously been needed to interconnect resources based on different SANs.

Minimizing risk was also critically important to BBVA, because the new solution demanded migrating the bank’s entire operations without a single second of downtime or losing a single byte of data. With a total of about 256 servers and 140 storage ports, 0.4 petabytes of data, and the time available for maintenance limited to a few hours each weekend, the bank turned to Cisco Services for help.

Cisco Services worked with BBVA’s storage team to audit the entire infrastructure (down to software version levels) and to create not only the high- and low-level designs but also detailed test and implementation plans that meticulously set out every detail, including device configurations. Following best practice, migration took place VSAN by VSAN, server by server, with services on the old and new fabrics running in tandem before cutting over.

“It was a complex migration that took about one year to complete,” says Sanchez. “Working directly with Cisco Services in mission-critical project design and implementation reduces the total risk of the project.” BBVA also took advantage of a Data Center Optimization Service (DCOS) contract to help ensure that Cisco was proactively helping to manage the first six months of the migration.

But such is the nature of growth that, by the end of the migration, BBVA realized that it needed to think again about expanding the infrastructure once more because switch utilization had grown and now ranged from 52 to 76 percent. “The very nature of the business means that it is impossible to accurately predict storage demands,” Sanchez says. Before the project, storage had been growing by 10 percent annually, but then spiked at 100 percent during design and implementation, before settling down to between 10 and 15 percent.

Cisco Services’ expertise was again sought, and, given the dynamic nature of the environment, they recommended that, rather than simply adding more MDS director switches to the network, the architecture should migrate to a “core-edge” design. A total of six additional MDS 9513 Series switches were purchased to form a new core, with each fabric comprising four switches in the main data center and two in the business continuity data center.



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Results

The expansion project saw a total of about 558 servers directly connected to “edge” switches, which linked to the core switches and 650 storage array ports. The team used the same migration methodology, but careful planning and the team’s familiarity with the technology cut the total migration time in half, down to just six months, including installing two additional switches to cater for two new VSANs.

The smooth implementation not only proved the flexibility of the new architecture and its ability to easily scale, it also protected BBVA’s investment in its original MDS director switches.

“Cisco’s technologies and expertise have helped us transform our storage capabilities without any disruption to the business, and that is a significant achievement,” says Sanchez. “The new architecture has helped us to meet the changing needs of our internal customers, improving overall business agility without missing a step. It also means that we are in a much stronger position to accelerate future mergers and acquisitions.”

The solution has also reduced costs and removed complexity. For example, the original installation consolidated the number of switches required from about 24 to 6, at the same time catering from a massive growth in storage from 0.4 to 2.1 petabytes in about three years. The MDS directors provide BBVA with a high concentration of ports in each chassis, enabling blades to be cost-effectively installed when needed to meet demand, and support for 4 Gbps and even 8 Gbps port speeds, which will enable the company to take advantage of ever-increasing server port speeds.

Day-to-day operations are easier to manage, with tools such as Cisco Fabric Manager providing a single, holistic view of what is happening across the entire storage environment. “It is a very powerful tool, and I find the ability to have a historical view of traffic on ports and switches very useful in both in managing the environment and in producing graphical reports for senior managers,” says Sanchez. The purchase of two port analyzers has also helped issues to be resolved more quickly on a couple of occasions.

Next Steps

BBVA is currently working with Cisco Services on migrating and expanding the storage environment once again in a move to a new greenfield data center. BBVA has again decided to place Cisco MDS director switches at the heart of its mission-critical business processes, and is going a step further by migrating server and storage environments from other vendors to the platform. Sanchez and his team expect the entire process will be made easier by using Cisco Data Mobility Manager, a software application running on a line card in the MDS chassis, which supports the movement of blocks of data across heterogeneous devices.

For More Information

To discover how Cisco can help you to transform your data center, please go to: www.cisco.com/go/datacenter

To learn more about Cisco Services, please go to: www.cisco.com/go/services





SOLUTION LIST

Data Center

- Cisco MDS 9513 Series Multilayer Director Switches
- Cisco Data Mobility Manager
- Cisco Port Analyzer

Cisco Services

- Planning, Design, and Implementation Services
- Data Center Optimization Service



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