Italian Bank Approaches Cloud with Unified Data Center

Customer Case Study

Cisco data center vision helps Credito Valtellinese boost performance, reduce costs, and introduce cloud-ready technologies.

EXECUTIVE SUMMARY

Customer Name: Bankadati Servizi Informatici (a Credito Valtellinese Group company)

Industry: Financial Services

Location: Italy

Number of Employees: more than 4400 (in the Credito Valtellinese Group)

Challenge

- Improve customer satisfaction
- Adapt IT service delivery model for cloud
- Reduce operating costs

Solution

- Cisco Unified Data Center architecture, with Fibre Channel over Ethernet, to support full virtualization and migration to cloud service delivery

Results

- Up to 50 percent improvement in application performance enables the delivery of new applications that boost productivity and customer satisfaction
- Cloud-ready platform created by unified, flexible, and easy-to-manage data center environment
- Ability to manage more workloads at lower cost: New solution delivers higher compute processing at 25 percent lower cost, and 60 percent savings on cabling

Challenge

As an all-service retail bank with about 900,000 commercial and private customers, Credito Valtellinese (Creval) relies on IT to run its business. A series of mergers and acquisitions has given the bank a national presence through 543 branch offices, although the company's headquarters remain in its regional heartland of northern Italy.

The bank's highest priorities are to improve customer satisfaction and lower costs, while increasing competitiveness and integrating newly acquired companies, faster and more cost effectively. Creval planned to achieve these objectives by improving process efficiency and IT agility, and focusing strongly on innovation.

Creval's primary data center is at its headquarters in Sondrio, and a disaster recovery site is located in Milan nearly 150 kilometers away. The bank's internal IT services provider, Bankadati Servizi, had already virtualized many services, including infrastructure, development, and testing, and standard practice was to deploy new applications on virtual servers. However, the bank's web server and mission-critical systems were still hosted on physical machines.

As the data center environment was virtualized, the management of that environment increasingly needed to be simplified. Creval also needed to strengthen its business continuity, expand its server infrastructure to support new applications with larger resource needs, and upgrade its networking capacity to support 10 GE traffic.

Bankadati had to fulfill all these requirements cost effectively, by selecting ultra-reliable platforms that were, nonetheless, flexible enough for the cloud and scalable enough to sustain future growth. Reviewing the structure of the network to address routing and security in a virtualized, rapidly evolving environment was particularly urgent.

"Business continuity and flexibility have become interrelated in data center operations," says Enrico Mazzoletti, head of enterprise architecture at Bankadati. "We wanted to update our virtualization infrastructure so that we could leverage cloud-oriented technology and design a more flexible data center. Our vision was for a private and hybrid cloud where services can be easily mirrored and moved between two locations."

"With FCoE, we are less constrained than previously and are free to use the preferred protocol to access data or services in any situation. This helps eliminate the bottlenecks in provisioning that emerge on a regular basis in an expanding infrastructure."

Bruno Franchetti
Networking and Communication Service
Bankadati

Solution

Bankadati requested proposals from several manufacturers, including the incumbent server vendor and Cisco, its preferred networking vendor.

Cisco proposed the following solution for the two data centers:

- Two Cisco Nexus® 5548UP Switches for Ethernet, Fibre Channel, or Fibre Channel over Ethernet (FCoE) connectivity
- Several Cisco® Nexus 2232 Fabric Extenders, providing additional ports and a top-of-rack cabling approach
- Cisco Nexus 1000V Switches, giving enhanced control of the virtualized environment
- Cisco Data Center Network Manager as an easy and intuitive graphical user interface for holistic management of the data center network
- Nine Cisco Unified Computing System™ C250 M2 Rack-Mount Servers with dual Intel Xeon Processors X5690, Cisco Extended Memory technology, and Cisco Virtual Interface Cards.

Although the Cisco proposal was not the cheapest in terms of capital expenditure, Bankadati selected the Cisco solution because it provided two capabilities that competitors could not match. The most important of these capabilities is the Unified Port feature, which makes it possible to configure any port on the Cisco Nexus 5548UP switch either for Ethernet, Fibre Channel, or Fibre Channel over Ethernet.

The second unique capability is Extended Memory Technology on the Cisco Unified Computing System (UCS™), which cost-effectively supports more virtual machines by increasing memory instead of processing power. "Thanks to the Intel Xeon X5690 Processors, we were able to obtain the amount of memory we required, without compromising on server performance or affordability," says Mazzoletti.

FCoE allowed Bankadati to combine the Ethernet LAN protocol and the Fibre Channel SAN protocol on the "unified fabric" of the Cisco Nexus 5548UP switch. This approach simplified the infrastructure by reducing the number of switches and cables required to connect the LAN and the SAN, and solved the problem of exhausting ports available on the SAN.

Bankadati was already using both iSCSI and Fibre Channel, but FCoE offered the attractive prospect of migrating smoothly to one protocol on a single infrastructure. Cisco organized workshops on FCoE, so that Bankadati could fully determine its suitability for a mission-critical production environment. Having investigated other options such as iSCSI and NFS, Bankadati selected FCoE as its preferred data access protocol and enabled its existing disk arrays for FCoE.

"Cisco people gave us a lot of support and help in exploring FCoE, a technology that was new to us," says Mazzoletti. "The workshops we attended were invaluable."

To obtain 10 GE networking speeds, Bankadati had to decide whether to upgrade the bank's Cisco Catalyst® 6500 switches, replace them with Cisco Nexus 7000 Switches, or purchase Cisco Nexus 5000 switches and retain the Cisco Catalyst 6500s. Bankadati chose the third option, which protected the earlier investment and provided enough 10 GE ports for any new servers that were deployed.

The Cisco proposal was based on the Cisco Unified Data Center architecture, which provides a framework for better aligning the IT infrastructure to an organization's business goals, by bringing together all the main elements of a data center: servers, storage, networking, and virtualization.

"The Cisco architecture gives us a means of simplifying the physical layers and the number of physical connections between systems, so that we can organize networks and services at the virtual level with business continuity in mind."

Christian Manzia
Technology and Security Architecture Service
Bankadati

Bankadati shared the Cisco vision of data center evolution from consolidation and virtualization through to automation, because it offered an approach that aligned with Creval's business requirements. Elements such as storage and VMware virtualization solutions were integrated from day one, for example, saving time and reducing complexity. "Cisco gave us a coherent and integrated solution incorporating the SAN, LAN, servers, and VMware infrastructure," says Mazzoletti.

Bankadati's adoption of Nexus 2232 Fabric Extenders is an example of how Cisco technology enables scalability and simplification. The devices support FCoE, do not need to be individually managed, and allow for port scalability, while their top-of-rack positioning further simplifies data center cabling.

Results

Bankadati has used the Cisco architecture to create a new foundation for Creval's future, based on enhanced performance, reliability, and ease of management. The unified design and enablement of FCoE have greatly simplified the infrastructure and reduced the number of points of management. "The Cisco architecture has helped make our data centers not only much simpler, but also more manageable, scalable, reliable, and cost effective," says Mazzoletti.

These improvements have enabled Bankadati to virtualize all the servers hosting mission-critical applications, including a new teller application that was recently deployed to all the branches. The company has also started using desktop virtualization for the first time, to improve service delivery to any desktop or mobile devices that Bankadati no longer directly manages.

The fact that Cisco data center solutions are designed for virtualized environments has enabled Bankadati to enter into a second phase of virtualization and move closer to a cloud model of service delivery. "We're working towards a more mature solution that addresses flexibility in a private and hybrid cloud vision, where we can take advantage of new technologies in the future using an appropriate balance of on-premises and public cloud," says Bruno Franchetti, in the Networking and Communication Service at Bankadati.

Thanks to FCoE, Bankadati now uses 60 percent less cabling than previously, which represents a relatively small capital saving but an ongoing reduction in operating costs. That reduction is enhanced by an overall increase in productivity, with an estimated 20 percent fewer highly skilled full-time equivalents (FTEs) required to manage the data centers. In addition, the Unified Port and FCoE capabilities on the Cisco Nexus 5548UP have created a more flexible environment that can be adapted quickly and easily to changing needs, an ability that is especially useful during periods of business growth.

"With FCoE, we are less constrained than previously and are free to use the preferred protocol to access data or services in any situation," says Franchetti. "This helps eliminate the bottlenecks in provisioning that emerge on a regular basis in an expanding infrastructure."

Bankadati has adopted the Cisco Nexus 1000V as the standard virtualization switch, both for the new Cisco servers and other vendors' devices. This practice has enhanced the control of the network in a virtualized environment, with a clearer separation of roles and responsibilities between the network and server teams in the data center.

Because Bankadati can also configure quality of service for the first time on the Cisco Nexus 1000V virtual switch, the company can now limit the bandwidth for VMware vMotion traffic, when moving virtual machines to another host, and thereby

protect mission-critical applications. The IT team implemented this capability without any training, using the same tools that are provided for the Nexus 5548UP. Another advantage is that the Nexus 1000V gives better visibility of virtual machines as they move around the data center, which further simplifies the job of managing a virtualized environment.

In general terms, management is now much easier: the bank's IT team can manage all Cisco switches, both the Nexus and Catalyst models, with Cisco Data Center Network Manager, a graphical tool that is more intuitive than traditional command line interfaces.

The Cisco Extended Memory Technology has given Bankadati its desired combination of generous memory allocation, top-level performance, and affordability. This combination is unique to Cisco UCS, and is enabling the bank to host more applications without expanding the infrastructure, put more applications on to each server, and get up to 50 percent improved performance from those applications. Moreover, the data center is able to cope with an increasing workload. It has 60 percent more processing power at a cost that is 25 percent lower than previously, and there is much more capacity available for the larger applications.

Business benefits started to appear just six months after the Cisco platform was deployed, as the improved performance of applications and web front-ends increased the productivity of the bank's employees, which, in turn, helped enhance customer service.

Next Steps

A longer-term goal is to retire all the remaining physical servers in the data centers, and possibly to migrate the IP telephony service, based on Cisco Unified Communications Manager, over to Cisco UCS.

Bankadati plans to improve business continuity by leveraging the integration between the Cisco UCS and VMware vSphere 5, which will make it easier to move services between data centers, or towards the cloud, for maintenance and other reasons. "The Cisco architecture gives us a means of simplifying the physical layers and the number of physical connections between systems, so that we can organize networks and services at the virtual level with business continuity in mind," says Christian Manzia, in the Technology and Security Architecture Service at Bankadati.

The bank is also considering Cisco Adapter-FEX technology as a means to virtualize network adapters inside Cisco UCS servers, enabling support for legacy mainframe applications based on 802.2 LLC protocol.

For More Information

More information about the Cisco Unified Data Center architecture is available at: www.cisco/go/datacenter

For more information about the Cisco Nexus family of switches, please visit: www.cisco/go/nexus

For information about the Cisco Unified Computing System, please visit: www.cisco/go/ucs

Product List

Data Center

- Cisco Nexus 5548UP Switches
- Cisco Nexus 2232 Fabric Extenders
- Cisco Nexus 1000V Switches
- Cisco Data Center Network Manager
- Cisco Unified Computing System C250 M2 Rack-Mount Servers with Extended Memory, Cisco Virtual Interface Cards, and dual Intel Xeon Processors X5690

Applications List

- VMware
- Microsoft Exchange
- Microsoft SharePoint
- Microsoft SQL Server
- Custom financial application
- Web front-ends to teller application, loans, insurance, Internet banking, ordering and logistics, and accounting.

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