



## Delivering Faster and More Cost-Effective e-Government

Data center networking solution enables Italian service provider to transform performance and unlock new efficiencies.

### EXECUTIVE SUMMARY

#### Customer Name

Lazio Innovazione  
Tecnologica S.p.A



**Industry:** Service Provider

**Location:** Rome, Italy

**Company size:** 250 employees

#### Challenge

- Eliminate waste and inefficiencies caused by disparate storage islands
- Improve data center agility and management capabilities
- Accelerate time to market for local government services

#### Network Solution

- Cisco assessment of storage area network needs and implementation
- Data center networking infrastructure to consolidate storage devices
- Storage virtualization allowing arrays to share unused disk capacity

#### Business Results

- 50 percent reduction in deployment time for new services and applications
- Productivity gains equivalent to a 40 percent saving in personnel hours
- 75 percent increase in server utilization rate

### Challenge

Lazio Innovazione Tecnologica (LAit) S.p.A. is helping the local government extend and improve the delivery of public services to the Italian region of Lazio, whose capital is Rome. Recent advances include an online booking system to speed up healthcare appointments and Emonet, an application that manages the exchange of human bloodstocks between hospitals.

Behind the scenes, LAit's data center plays a crucial role in supporting this transformational process, which relies heavily on ensuring uninterrupted availability of mission-critical applications. This involves the efficient day-to-day management of some 150 terabytes of data across 250 physical servers, 120 of which are connected directly to LAit's storage area network (SAN).

Regino Brachetti, President of LAit, says, "LAit S.p.A. has always paid attention to efficiency and reliability. The company is fully aware that the quality of the services it supplies depends more and more on public administration technological infrastructures. Therefore, it is very important to invest in these types of foundations in order to ensure excellent results like flexibility and reliability."

Having grown organically over time, LAit's heterogeneous environment included isolated server farms based on a mix of technologies. It was increasingly difficult to harmonize and manage resources across multiple platforms and vendor relationships. The situation was further compounded by the need to purchase dedicated servers, storage, and fiber channel switches for each new project or service.

Claudio Latini, data center manager for LAit, says: "We had reached a crossroads. The limitations of a dedicated box approach were starting to drive up total cost of ownership, and not just on hardware and software spend. There was a lot of time wasted and effort duplicated on basic administration and management tasks. With a lack of visibility of devices, the biggest problem was to find a logical starting point. Where should we invest to gain most benefit?"

## Solution

LAit's first step was to talk to Cisco, its trusted advisor for IP networking. The company had been successfully using Cisco® LAN technologies for several years. In addition to the benefits of a holistic network approach, LAit was also aware of the superior flexibility features provided by the Cisco MDS (Multilayer DataCenter Switch) platform.

Latini says, "Cisco is one of the few companies that truly understands the network end-to-end, from the desktop to the LAN, and the data center to the SAN. Cisco Systems Engineers worked with us to analyze and pinpoint current areas of weakness. They also helped us to gain valuable insights into new techniques, such as virtual SANs (VSANs) and inter-VSAN routing (IVR)."

The first phase of the project involved an assessment of LAit's existing SAN devices and architecture. This included three separate disk array systems and four custom-built SAN designs, comprising in total 12 different switches and 7 different models. The assessment revealed a very low utilization rate: only 40 percent of total server capacity was being used. And there was no means of sharing disk and tape resources across the four separate SAN islands.

"Next, we needed to find a way to reduce the number of switches, while maintaining isolation between the servers hosting the various services. This is where Cisco's networked storage approach really paid off," says Latini.

The new Cisco data center networking solution enabled a move from a housed service/equipment approach by consolidating all ports onto Cisco MDS 9000 Series edge switches. This has significantly improved flexibility and resilience (due to fewer potential points of failure) and simplified IT management. Cisco MDS 9000 Fabric Manager Server provides centralized management, basic switch configuration, and troubleshooting capabilities.

By taking advantage of the VSAN feature of the Cisco MDS switch family, LAit can now securely partition the network into small, flexible VSANs to suit the storage requirements of different applications, such as Microsoft Exchange Server, Oracle, Microsoft SQL server, and MySQL. This makes it easier to manage costs and service levels using different disk technologies, speeds, and configurations.

As well as improving the efficiency of third-party SAN devices, the introduction of IVR has also helped increase utilization by making it easier for storage arrays to cross-communicate and share unused disk capacity.

The new solution significantly improved the way the data center now operates, Latini says: "Our new Cisco structured core-edge design means that disk resources can now be allocated on a quality basis, in terms of performance and availability, instead of using the same storage array for every application, both mission critical and less important. It also provides us with an extra safety net and helps mitigate risk, for example, from misconfiguration."

**"Our collaboration has helped to reduce provisioning time for new services by 50 percent. We can pass these benefits directly on to our customers, who in turn can accelerate the rollout of e-government to the local community."**

—Claudio Latini, Data Center Manager, LAit

## Results

By deploying a Cisco data center networking solution and consolidating a complex and fragmented storage environment, LAit has significantly improved IT management, service levels, and efficiency of operations. Alessandro Cimalacqua, network administrator for LAit, says, "The network is much more resilient and easier to manage, thanks to a fully redundant Layer 2 and Layer 3 multiple tier design topology."

Cisco SAN technology allows storage resources to be shared more effectively, making it easier and faster to complete activities such as data backups while keeping a high level of security. These tasks can now be carried out all at once, over a central platform that runs twice as fast as before (4 Gbps instead of 2 Gbps), rather than as separate operations in four disparate SAN islands. In addition to improved SAN performance, LAit now enjoys server utilization rates of up to 70 percent (a 75 percent improvement). Resilience has also been fortified with a network design that ensures dual redundancy throughout.

In addition to providing productivity gains, the data center estimates a 40 percent savings in personnel hours. Also, the Cisco solution will make it easier to train staff in the future.

With fewer devices to manage and reduced capital and operating costs, through greater ability to provision ports instead of having to purchase more dedicated equipment, LAit will also benefit from a lower total cost of ownership. Money can be freed to reinvest in other innovation-led IT projects. The added value of this approach has also earned wider recognition. LAit's data center team is now involved much earlier in the design and procurement process of new equipment for Regione Lazio's new IT services.

In many ways, the most important benefits of Cisco's advice and technology are still to come. Latini says: "Together with a parallel initiative to rationalize cabling, our collaboration has helped to reduce provisioning time for new services by 50 percent. We can pass these benefits directly onto our customers, who in turn can accelerate the rollout of e-government solutions to the local community."

LAit is also considering the next phase of its data center strategy. SAN consolidation has opened up new possibilities and made it easier to adopt cutting-edge technologies, such as storage virtualization and Unified Fabric.

### Technology Blueprint

LAit has used its existing technology foundation of Cisco Catalyst® 6500 Series Switches to support core and server farm aggregation switching, while also ensuring a comprehensive, end-to-end approach to security across the network. LAit also benefits from 10 Gbps high-speed performance, incorporated within a fully redundant network design.

Two core switches interconnect the logical zones (Campus LAN, Intranet WAN, Server Farm, and Internet), and two levels of firewalls provide the security to the interzone traffic. Network management is provided by Cisco Network Analysis Module (NAM) units installed on the core and aggregation layer switches.

Between the Internet edge and data center, two Cisco ASA 5500 Series Adaptive Security Appliances protect LAit's frontend servers and enable remote access, using Secure Sockets Layer Virtual Private Network (SSLVPN) technology. The appliances deliver advanced application-aware firewall services with identity-based access control and denial of service attack protection, all built upon Cisco PIX® Security Appliance technology. Installed inside the Catalyst switches, the Cisco Firewall Services Module (FWSM) allows any port on the device to operate as a firewall port and integrates firewall security inside the network infrastructure to protect backend servers.

Inside the data center, Cisco Catalyst 3750G and 4948 Series Switches provide top-of-rack switching access layer services. The data center architecture also incorporates a pair of Cisco CSS 11500 Series Content Services Switches for improved utilization, responsiveness, availability, scalability, and security of websites, server farms, cache clusters, and firewall systems.

LAit's storage area network relies on Cisco MDS 9000 Series Multilayer SAN Switches, which combine to create a robust and flexible hardware architecture with multiple layers of network and storage-management intelligence, advanced security, and unified management.

Cisco Fabric Manager Server software helps to optimize data center management by providing historical performance monitoring for network traffic hotspot analysis, centralized management services, and advanced application integration.

## PRODUCT LIST

### Routing and Switching

- Cisco Catalyst 6504 and 6509 Series Switches
- Cisco Catalyst 3750G and 4948 Series Switches
- Cisco CSS 11503 Content Service Switches

### Network Management

- Cisco Fabric Manager Server software
- Cisco Network Analysis Module (NAM-2)

### Data Center Security

- Cisco ASA 5520 and 5550 Adaptive Security Appliances
- Cisco Firewall Services Module (FWSM)

### Storage Networking

- Cisco MDS 9506, 9509, 9120, 9124, and 9134 Series Switches

## For More Information

To find out more about Cisco Data Center 3.0 visit:

<http://www.cisco.com/en/US/netsol/ns340/ns394/ns224/index.html>



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