

# Catalan Capital Boosts Citizen Services and Staff Productivity

Customer Case Study



## Barcelona moves to cloud-based application delivery and improves login times by 99 percent with Cisco Desktop Virtualization Solutions

### EXECUTIVE SUMMARY

**Customer Name:** Barcelona City Council

**Industry:** Public sector

**Location:** Spain

**Number of Employees:** 8000

#### Challenge

- Enhance delivery of citizen services
- Improve staff productivity
- Increase organizational flexibility

#### Solution

- Cisco Desktop Virtualization Solutions based on Cisco Unified Computing System with Intel® Xeon® Processors

#### Results

- Faster and more efficient delivery of citizen services
- Login times reduced by up to 99 percent on current desktops and workstations, with 15 percent improvement in application response times
- Improved ability to support diverse endpoints and bring-your-own-device policies
- Simplified integration and interoperation

### Challenge

Barcelona, capital of the Catalunya region of Spain, prides itself on innovation. Towers by leading architects such as Jean Nouvel and Toyo Ito vie for attention on the city's skyline with Antoni Gaudí's iconic constructions. And Barcelona has positioned itself as a future-oriented smart city by signing a Cisco Smart+Connected Community™ agreement and leading an urban transformation called the City Protocol.

However, the technological reality for the 8000 or so council workers tasked with providing front-line citizen services lagged behind the city's futuristic aspirations. Their workstations were delivered over an infrastructure so outdated that login times had ballooned to an average of 15 minutes, and up to 40 minutes in extreme cases.

"People would switch on their computer and then head off for a meeting while it was booting up," says Eduard Martín Lineros, director of innovation and ICT architectures at the city's Institut Municipal d'Informàtica Habitat Urbà (IMI). "They would then leave the device switched on all week so they wouldn't have to log in again. We had reached a level of total inefficiency."

Conscious that that would increasingly hamper the city's ability to deliver effective citizen services, IMI launched a project NEMIC (noves estacions de micro-informàtica). Its aim was to enable the delivery of a fast and efficient virtual desktop infrastructure (VDI).

In addition to the NEMIC project, the city is embracing a transition to a cloud-based IT model to deliver new citizen services in a more efficient and faster way.

### Solution

Deciding to build on the recently signed Barcelona smart city agreement, IMI introduced Cisco Unified Computing System™ (UCS®) servers, based on the Intel® Xeon® processor E7-2800 and Intel® Xeon® processor 5600 series. These Cisco solutions ultimately became the NEMIC



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 Barcelona City Council

computing hardware platform of choice and, in addition, the computing environment for supporting the Smart+Connected City Solutions and the transition of the city to a cloud-based IT delivery model.

IMI settled on the Microsoft Windows operating systems, deploying Windows Server 2012 and Windows Server 2008 R2 running Microsoft Windows 8, Microsoft Office, Microsoft SharePoint, and council business applications.

This end-to-end approach creates unified workspaces using the best technologies in their categories. Specifically, IMI has acquired several Cisco UCS B200 M2 and 16 B230 M2 blade servers, which use Intel Xeon processors E7-2800 and the Intel Xeon processor 5600 series to adjust server performance according to application needs.

The servers, controlled by Cisco UCS Manager integrated with Microsoft, are part of a new installation in one of the two IMI data centers. Located at opposite ends of the city, the data centers are equipped with Cisco Nexus® 7000 and Nexus 5000 switches, with a Nexus 2000 switch per rack, monitored and controlled through Cisco Prime Data Center Network Manager.

The storage area networks, meanwhile, are based on Cisco MDS 9000 Series Multilayer Switches. The NEMIC infrastructure also features network-attached storage (NAS) from NetApp. NAS allows the application data to be kept separate from the Windows OS, which could facilitate the migration to a new operating system or to a cloud-based delivery model if needed in future.

Intel supports the goals of the Barcelona Council with the new features of the Intel Xeon processor E7 family, including Intel® Virtualization Technology (Intel® VT) and Intel® Trusted Execution Technology (Intel® TXT), which in addition to their performance leadership, “provides response to the highest user demands of services without compromising the response times nor the user experience”, according to Eduard Martin Lineros.

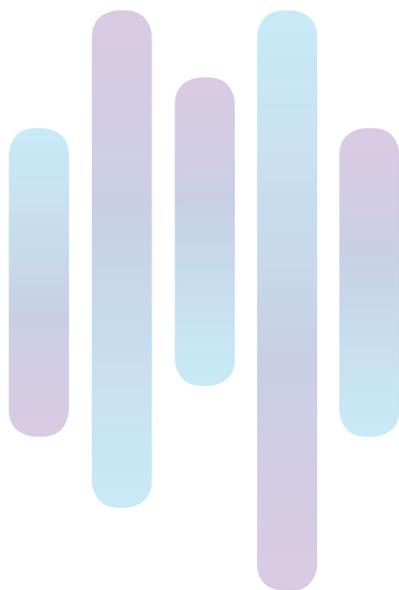
Top-of-the-line, scalable performance with advanced reliability for most business-critical applications, the Intel Xeon processor E7-2800 increases business productivity allowing the Barcelona City Council to confidently run business-class applications as it was demanded in this case.

## Results

The NEMIC project has brought a drastic reduction in login times. The average is now two minutes with a maximum of around five minutes, which represents roughly 82 percent and 88 percent improvements, respectively, on the previous average and maximum. For desktops delivered leveraging the Cisco Destop Virtualization Solutions portfolio, however, the improvement is even greater with login typically taking less than 30 seconds, up to a 99 percent reduction on the previous times.

These performance advances have contributed towards an estimated 30 percent improvement in staff productivity and will have a significant impact on their ability to deliver front-line citizen services. “The server response times are very good,” says Martín, “but anything new would have been an improvement.” Application response time have typically improved by 15 percent.

Another area where IMI is expecting to see benefits, even though these parameters are not being tracked at present, is in power consumption and carbon emissions. These quantities will be reduced through the greater energy efficiency offered by the technologies installed under NEMIC, but it is also intended that savings will be made by implementing policies to remotely monitor and power-down unused desktops.



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More broadly, NEMIC has helped IMI make significant progress towards two strategic goals. The first is to improve the openness and modularity of its systems, so the city can change technologies or vendors without affecting the rest of its infrastructure, and thus adopt more flexible procurement policies. “The use of NAS is a good example of this,” says Martín. “One of the benefits of NEMIC is that it helps support bring-your-own-device. Now one can have a Linux or Mac workstation that will connect to the network without problems. That wasn’t possible before.”

The second is to move toward a cloud-based IT delivery model to reduce hardware costs. Martín explains: “Technologies such as UCS give us a standard building block for the creation of private cloud infrastructures by combining compute, network, and storage concept.”

So far IMI has delivered VDI to 200 users, using Windows Server Hyper-V to drive up to 49 Windows 8 desktops per UCS blade. The intention is to deploy to 4000 users within two years with, ultimately, everyone on VDI. “Our hardware requirements have to cater for peak workloads, but there are many periods when we don’t need to run at full capacity,” says Martín. “Cloud allows us to optimize many things.” Finally, IMI is happy to standardize on one of the Cisco Desktop Virtualization Solutions architectures because of its ease of interoperability. “We have integrated Cisco with everything, without problems,” Martín concludes.

### For More Information

To learn more about the Cisco Desktop Virtualization Solutions featured in this case study, please go to: [www.cisco.com/go/vdi](http://www.cisco.com/go/vdi)

For further information on Intel Xeon processors please go to: [www.intel.com/en\\_uk/business/itcenter/products/xeon/index.htm](http://www.intel.com/en_uk/business/itcenter/products/xeon/index.htm)

### Product List

#### Data Center Solutions

- Cisco Unified Computing System (UCS)
  - Cisco UCS B200 M2 Blade Servers with Intel® Xeon® Processor 5600 Series
  - Cisco UCS B230 M2 Blade Servers with Intel® Xeon® Processor E7-2800

#### Routing and Switching

- Cisco Nexus 7000 Series Switches
- Cisco Nexus 5000 Series Switches
- Cisco Nexus 2000 Series Switches

#### Network Management

- Cisco Unified Computing System Manager
- Cisco Prime Data Center Network Manager

#### Applications

- Microsoft Hyper-V
- Microsoft Windows Server 2012
- Microsoft Windows Server 2008 R2
- Microsoft Windows 8
- Microsoft Office
- Microsoft SharePoint
- Microsoft System Center 2012 Configuration Manager
- Microsoft RemoteFX
- BitLocker
- Council business applications

#### Storage

- NetApp FAS-3240



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