

Police Force Moves to 21st Century Computing



Cisco Unified Data Center roadmap helps Gloucestershire Constabulary achieve extraordinary results and prepare for desktop virtualization

EXECUTIVE SUMMARY

Customer Name: Gloucestershire Constabulary

Industry: Law enforcement

Location: United Kingdom

Number of Employees: 2000

Challenge

- Consolidate and virtualize IT to reduce costs
- Enhance data sharing for mobility
- Support organizational growth

Solution

- Cisco Unified Data Center solution based on Cisco Unified Computing System and Nexus Switches
- Platform also being used to deploy Cisco Desktop Virtualization Solutions

Results

- Hardware reduced 25:1 from 200-plus physical servers to eight blades
- Server deployment time reduced from weeks to minutes
- Power consumption reduced by 91 percent (based on application to server ratio)

Challenge

Dating back to 1839, Gloucestershire Constabulary is one of the oldest police forces in Britain. In charge of law enforcement across the county of Gloucestershire in western England, it comprises some 1200 police officers, 150 police community support officers, and 650 support staff. As the need to share and analyze greater amounts of data grew, its IT infrastructure became increasingly inefficient, while the bandwidth available to smaller police stations failed to keep pace with organizational growth.

“Ten years ago our infrastructure was based on a core network with a file server in each divisional headquarters,” says Mike Crompton, technical services manager at Gloucestershire Constabulary. To refresh it, the force introduced Cisco® Catalyst 6500 and 4500 Series Switches, Cisco® IGX 8400 Series Switches, and Cisco 5900 Series Embedded Services Routers to upgrade its network platform.

However, with the passage of time, the Constabulary realized that a more holistic upgrade would be required to support the growing need for rapid information sharing, while the Constabulary was also interested in updating its data centers. These had grown through the tactical addition of new server racks, with little reference to strategic needs. Hardware from a variety of vendors was used, and data center space was starting to run out. “We were looking closely at how virtualization was developing,” says Crompton.

An equally significant driver for change, though, was the fact that much of the force’s server estate, comprising more than 200 machines, was getting old, and monthly support bills were growing significantly.

Solution

Taking a more architectural approach, Gloucestershire Constabulary approved a data center network upgrade, which led to the installation of Cisco Nexus® 7000 and 2000 Series Switches. The next issue for the Cisco Unified Data Center deployment was to address the issue of computing. “Having a single vendor for networking and computing was a natural progression and would greatly simplify training and administration,” says Crompton.



“I couldn’t have hoped for a better outcome. Cisco technology does what it says on the tin and in some cases much better.”

Mike Crompton
Technical Services Manager
Gloucestershire Constabulary

Gloucestershire Constabulary liked the way the Cisco Unified Computing System™ (UCS®) reduced space requirements through the use of blade computing, while supporting virtualization for further space, power, and equipment savings. Prior to taking a final decision, consultation with Cisco and its chosen virtualization vendors, Microsoft and VMware, probed the suitability of the UCS platform to support other initiatives such as desktop virtualization.

Startlingly, after analyzing the relative costs of maintaining existing machines, buying new physical servers, and investing in UCS, the force found it was able to fund the purchase from budget already set aside for maintenance of its old equipment. “We felt very comfortable and didn’t need to look at other options,” says Crompton.

A mix of UCS B200 M2 and B230 M2 Blade Servers have been installed at a primary data center in Gloucester and secondary facility in Cheltenham. These blade servers connect to the Nexus switching platform via Cisco UCS 6100 Series Fabric Interconnects and Cisco 5900 Series Embedded Services Routers. The B200 M2 uses Intel® Xeon® 5600 series multi-core processors to deliver performance and efficiency, while the B230 M2 relies on the Intel® Xeon® processor E7-2800 product family.

Crompton says: “The Intel processors seemed an obvious choice due to the nature of the services we were going to provide, namely server virtualization. The B200 was a recommended half-blade, which was great for us and fully met our requirements.”

The data centers are set up in an active-active disaster recovery configuration, with the second site taking over following a manual switchover. A Veeam system helps ensure data mirroring between UCS servers at both sites.

The end goal is to migrate around 90 percent of workloads onto UCS. The remainder relates to vendor-designed command, control, and custody software built on custom servers, although the force may also consider migrating this application to UCS at the next possible opportunity. For the time being, however, UCS supports Cisco Unified Communications Manager, a geographic information system, intranet web servers, a Structured Query Language database cluster, and a Symantec Enterprise Vault email system, among others.

The Constabulary also helped enable virtualization through VMware and a Microsoft Hyper-V hypervisor. It is also planning to upgrade existing EMC storage arrays as a part of project to implement one of the Cisco Desktop Virtualization Solutions.

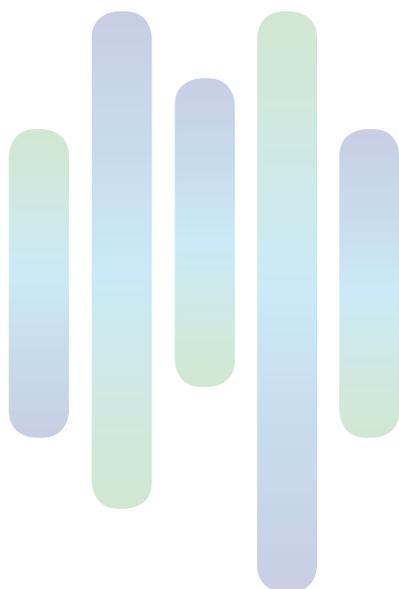
The equipment for the data center upgrade was provided by Computacenter and deployed by the force’s four-strong infrastructure IT team along with Computacenter technicians, with Cisco Services ratifying the resulting architecture.

Results

The Nexus-enabled improvements mean the Constabulary enjoys greater control over an intelligent network that is cloud optimized. Crompton says: “This helps ensure police officers can access data-hungry command and control systems and other applications.” Besides enhancing mobile data applications delivery, improved network performance means the force can now afford to instal new desktops at smaller police stations that previously lacked the necessary bandwidth, in turn providing greater access to core systems and applications.

Within the data center, the force has reduced computing infrastructure from more than 200 physical servers to little more than eight blades. These blades support 126 services, each of which would previously have required a server each.

The power required to run these services has been reduced substantially, too. Before,



“When our IT Service Desk Application had to be shut down, we restored service in just 10 minutes after totally stopping what is a very big application.”

Mike Crompton
Technical Services Manager
Gloucestershire Constabulary

each application would have drawn around an ampere (A) each, equating to a total of around 126A. Now they run off a single chassis, which draws 11A giving a per-application consumption of just 0.09A leading to a 91 percent reduction in energy usage. “That is a good return on investment as far as power is concerned,” says Crompton, “and it also makes us a more sustainable organization.”

Development work has been enhanced, because it’s much quicker to deploy virtual servers than the physical machines used previously. It used to take up to two weeks to obtain the necessary hardware, then another week to install it, even before the test environment could be set up. Now a test environment can be created as a template in a matter of days, and new servers can be deployed and configured in minutes. A benefit of this faster pace is that developers have embraced UCS and no longer keep private servers on hand for development work, which has helped with compliance and reduced licensing costs.

Overall, expenses have also fallen thanks to the greater simplicity and lower administration costs of the UCS environment. At the time the upgrade project was initiated, an annual spend of up to US\$153,000 on warranties was anticipated. The force is now considering Cisco SMARTnet® Service for its data center equipment, which would greatly reduce these costs.

With the move to Cisco UCS, Gloucestershire Constabulary has experienced an improvement in computing power that has drawn attention to needs in other parts of its data center. “With the faster computing with UCS, our current bottleneck is the SAN,” says Crompton. “We haven’t got enough spindle speed. Our server applications are so rapid they can’t get at the data fast enough.” The Constabulary hopes to resolve this issue by reviewing storage arrays. This initiative will also help the organization achieve even greater virtualization of server assets, further reducing data center costs.

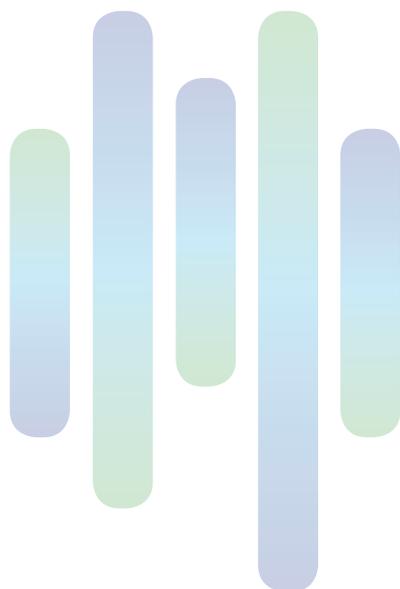
Disaster recovery restoration times have also improved thanks to the high performance and availability of the UCS blades. “An example is when our IT Service Desk application had to be shut down,” says Crompton. “We restored service in just 10 minutes after totally stopping what is a very big application.” Last but not least, the ease of administration of UCS means IT team members are able to spend more of their time adding value to the force. “I’ve got people in more highly skilled roles now,” Crompton says.

Next Steps

Gloucestershire Constabulary is currently upgrading its LAN to help enable Cisco Unified Communications to support emergency calls. Elsewhere, the force is looking to improve disaster preparedness by implementing an automatic switchover between its primary and secondary data centers.

The biggest upcoming IT project for the force, however, is the implementation of virtual workspace on Cisco UCS. The Constabulary has discovered that it can make significant savings by changing the way desktops are deployed. Although more than 2000 registered desktop users are active across the organization, the average number of users per day is only around 600 and rarely gets above 1000. Within this number, around 30 percent may be switched on but not logged onto the network. Hence the force has put together a business plan that envisages deploying 1200 virtual desktops to serve the entire organization, a 40 percent reduction in infrastructure requirements.

Moreover, desktop virtualization will help enable officers to complete administrative tasks from any work station, at any location. “Currently this is not possible,” says Crompton. “The project will vastly improve officer mobility while reducing travel time.”



High-level design has already been carried out based on the Cisco Desktop Virtualization Solutions portfolio, and a proof of concept is planned, using 30 secure thin desktops. Moving forward, the Constabulary is confident that it has made the right choice in selecting UCS. "I couldn't have hoped for a better outcome," says Crompton. "Cisco technology does what it says on the tin and in some cases much better."

For More Information

To learn more about the Cisco architectures and solutions featured in this case study please go to:

www.cisco.com/go/datacenter

www.cisco.com/go/vdi

Product List

Data Center Solutions

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

Routing and Switching

- Cisco Nexus 7000 Series Switches
- Cisco Nexus 2000 Series Switches
- Cisco Catalyst 6500 Series Switches
- Cisco Catalyst 4500 Series Switches
- Cisco IGX 8400 Series Switches
- Cisco 5900 Series Embedded Services Routers

Fabric Interconnects

- Cisco UCS 6100 Series Fabric Interconnects

Virtual Desktop Infrastructure

- Cisco Desktop Virtualization Solutions

Cisco Services

- Cisco SMARTnet Service

Applications

- Cisco Unified Communications Manager
- Symantec Enterprise Vault
- LANDesk

Storage

- EMC

Virtualization

- VMware
- Microsoft Hyper-V



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)