U.K. Government Agency Positions Network and Data Center for Future

EXECUTIVE SUMMARY
MET OFFICE • Industry: Weather Service • Location: Exeter, United Kingdom
CHALLENGE • Upgrade existing network and data center to meet anticipated needs • Support diverse security and risk management goals of multiple user groups • Execute projects quickly by supplementing internal staff resources
SOLUTION • Cisco Design Services • Network Ready for Use Testing and Knowledge Transfer
RESULTS • Successfully upgraded network core and integrated supercomputing resources • Improved internal design, testing, and implementation capabilities • Significantly reduced project risk and delivered project on time

Met Office upgrades core network and data center to support mission-critical operations for commercial and government customers.

Challenge

The Met Office is the U.K.'s national weather service and one of the world's leading providers of weather and climate services. The organization serves a wide range of customers, ranging from government departments to commercial companies. Among its roles, the Met Office is one of two World Aviation Forecast Centres providing weather data for the world's airlines. It also supports the country's military operations.

Supporting these crucial operations is a data center with massive high-performance computing resources focused on weather tracking, analysis, predictions, and reporting. The data center provides connectivity to numerous defense-related locations, government departments, commercial customers, and research partners, each with its own risk management profile. For example, connections to government departments have rigorous security requirements, while links to commercial customers must support Internet connectivity and greater agility in deploying new software. Research partners need the ability to collaborate easily and quickly over the network. Meeting a wide range of risk appetites over the network was becoming a key requirement for the Met Office's network.

Every five to seven years, the Met Office refreshes its data center. As part of the most recent refresh, the Met Office evaluated its network infrastructure's ability to accommodate the organization's future needs. At the same time, the Met Office team decided to enhance the network and data center design to implement design best practices, enable separation of network segments to satisfy multiple risk appetites, and incorporate its supercomputing environment into the overall infrastructure.

Occurring simultaneously was a project, known as WAVE, designed to improve the Met Office's web infrastructure for delivering Internet-based products. The Met Office lacked enough internal network resources to vastly expand its web presence and capacity within a short deadline. With so much to achieve within a limited time, the Met Office began evaluating various network vendors for assistance.

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>
> **– Phil Chamberlain, Networks Manager, Met Office**

Solution

“We could have completed the network and data center projects ourselves, but we wanted to take advantage of industrywide data center best practices,” says Phil Chamberlain, networks manager for the Met Office. “We chose to work with Cisco Services because of its global experience with many mission-critical data centers, and because we felt confident that the project outcomes would meet our requirements.”

Cisco® Services Data Center Practice experts have been actively involved with numerous mission-critical environments where resiliency and uptime are paramount. The Cisco team also included a network architect who has deep familiarity with U.K. defense-related regulatory issues. The team’s extensive experience made it ideal for the Met Office’s unique requirements and for managing the complexities associated with defense, security governance, and accreditation.

The first Cisco Services Data Center Design engagement began with a Data Center Network workshop. Working together, the Cisco and Met Office teams created a High-Level Design. The High-Level Design work took into account the required security accreditation, the domain structure of the network, and the rework required with the existing infrastructure.

“The Cisco team delivered the High-Level Design on schedule, and we were highly impressed with the team’s knowledge and the quality of their work,” says Graham Mallin, Infrastructure Program Manager for the Met Office. “From here, we engaged Cisco Services to take the next step in creating the Low-Level Design for the network core and high-performance computing blocks of our network.”

The Low-Level Design specified network components, configurations, technologies, and products, as well as provided high-level migration planning guidance. During this time Cisco Services also completed key elements of the underlying network required for WAVE, which enabled the Met office to launch its updated Internet-facing web presence on time.

As part of its design best practices approach, Cisco Services helped Met Office configure a new prototyping environment using Cisco Catalyst® Switches, Application Control Engine modules, and security appliances and modules. The prototyping lab enabled the Met Office to work closely with Cisco Services and transfer skills as they conducted Network Ready for Use testing prior to implementation of the new network core and a new supercomputer.

Results

“The engagement with Cisco Services improved our team’s design, testing, and implementation capabilities, and we continue to reap the rewards of that learning,” says Chamberlain. “Cisco helped us refine testing to an entirely new level of detail, which has resulted in more reliable implementations with minimized risk.”

The Cisco Services team also helped deploy technologies that the Met Office would not have undertaken on its own. For example, the new network and data center designs include Multiprotocol Label Switching technology inside the network core, which will enable the company to meet future requirements for multiple risk appetites. The Met Office team also learned how to manage the technology through a Cisco Services Knowledge Transfer workshop. The new network and data center also give the Met Office the flexibility to add capabilities and capacity in the future without having to redesign its infrastructure. This new-found agility will help it meet the evolving needs of its commercial and research customers to maintain a leadership position.

“Having industry-leading network specialists helping us ensured that the solution works and enabled us to meet our aggressive deadlines,” says Mallin. “We worked in much more of a partnership relationship than a vendor relationship, with confidence that any issues we identified would be resolved.”

Next Steps

The Met Office has implemented its network core and supercomputing portions of the network and is aggregating workgroup servers for migration onto the new network. As they look ahead, the Met Office team is confidently implementing the next phases of its network low-level design with their own resources.

For More Information

To find out more about Cisco Services, visit: http://www.cisco.com/go/services/.
To learn more about the Met Office, visit: http://www.metoffice.gov.uk.

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