CASE STUDY

Like companies, countries depend on IT to help facilitate the flow of information between citizens and the government. One country in Europe has an agency that is dedicated to putting government policies into action. The agency, which processes millions of government transactions each year, shares data about critical operations with more than 45,000 employees in government departments, including the police.

Challenges

In 2008, a European government agency needed a more powerful and innovative IT solution to support increasing transaction volumes and process complexity. In addition, the agency wanted to boost data sharing with other government departments to improve overall efficiency and service levels. To address its challenges, the agency decided to rebuild its IT infrastructure to take advantage of server virtualization and emerging technologies for network security.

The existing security solution used stateless firewalls and access control lists to protect against external and internal threats. However, to expand data sharing, IT personnel needed greater insight into network traffic. They also wanted to segment resources into security zones and create granular security policies that delivered the appropriate level of protection for each system resource.

Boosting performance was another overall IT goal of the agency. With millions of users, the existing firewalls could not always manage the peaks in traffic and this sometimes hindered the availability of mission critical systems. “We have a service-level agreement with our customers that requires 24-hour connectivity,” says a project architect at the agency. “To achieve this, we wanted a network that could scale up with demand and be flexible to provide the type of connectivity and security we needed.”

Selection Criteria

To address its challenges, the agency sought a highly flexible network and security solution that included 120 Gbps firewalls and centralized tools to manage the network, including clusters and virtualized environments. In addition, the agency wanted to implement stateful firewalls that continually monitor networks for internal and external threats. “One of the most important requirements for our new solution was intrusion detection and protection, but we also sought a tool that would make it possible to gain a deep level of insight into network traffic,” the project architect explains.

Summary

Company: European Government Agency

Industry: Government

Challenges:

• Increase network insight and control
• Boost network flexibility, availability, and performance

Selection Criteria: European government agency sought a scalable network security solution that supported security zones, facilitated virtualization, and included 120 Gbps firewalls.

Solution:

• Juniper Networks SRX5800 Services Gateway
• Juniper Networks NSM3000 appliances
• Juniper Networks Junos Space network application platform and Junos Space Virtual Control

Results:

• Provides consistently fast performance
• Delivers high availability and modular scalability
• Provides real-time information about network traffic
• Simplifies network operations, enables granular security policies, and provides unified management of virtual and physical networks
In 2010, the agency decided to implement a consolidated IT infrastructure that uses security technologies from Juniper Networks as well as Cisco Nexus 7000 switches for routing and switching. “Juniper Networks is one of the few vendors that provides network equipment that can support 120 Gbps,” notes the project architect.

To achieve the right mix of security, availability, and performance, IT personnel from the agency worked closely with consultants from Juniper Professional Services and Cisco Advantage Services to design the solution. The agency then engaged Burton Group to review and validate it. Commenting on the process, the project architect says, “Representatives from Juniper Networks helped us to think outside the box to create a design that achieved our goals.”

The solution includes two mirrored network environments that provide failover capabilities. Four Juniper Networks SRX5800 Services Gateway appliances support two clusters that span two data centers. Each SRX5800 gateway provides an integrated high-speed firewall, an intrusion detection system, and Juniper Networks AppSecure services that include application identification. IT personnel also use an additional SRX5800 gateway cluster for development and a separate SRX5800 gateway for testing.

To manage the SRX5800 gateways, IT personnel use four Juniper Networks NSM3000 appliances. These provide easy-to-use tools for setting up security policies, configuring networks, analyzing real-time network information, and troubleshooting issues. For example, to boost network performance, IT personnel used these appliances to implement reverse path forwarding (RPF) on the SRX5800 gateways. By doing so, verified applications can multicast (transmit data to multiple destinations simultaneously) on the network, rather than establishing a point-to-point connection for each transmission.

To further streamline network management and facilitate the creation of new network services, the agency deployed the Juniper Networks Junos® Space network application platform. This includes the Junos Space Virtual Control application that IT personnel use to automate the management of virtual machines.

The Junos Space Platform is an open, comprehensive software platform that allows organizations to develop and deploy simple, smart network applications for collaboration, productivity, network infrastructure and operations management. Coupled with Junos Space Virtual Control, it allows users to monitor, manage, and control the virtual network environments that run within virtualized servers.

Figure 1: The mirrored network configuration includes four clustered SRX5800 gateways that provide high-speed security solutions and protect against internal and external threats.
Results

Today, the government agency has the flexible security and network infrastructure it needs to provide fast, reliable, and secure services to citizens and employees. “We have millions of people who connect to our systems from the Internet,” says an IT project manager at the agency. “Our new solution, which includes SRX Series Services Gateways, gives us more granular control over that traffic. We can also deliver system access 24 hours a day, seven days a week.”

Designed to meet future requirements, each SRX5800 Services Gateway can also facilitate more traffic than the previous firewalls—and can support 10 million concurrent user sessions and 350,000 connections per second. The geographically dispersed clusters also help deliver consistently high levels of availability. “If an outage occurs at one data center, the other cluster can take over in just seconds,” says the project architect.

In addition, IT personnel have the tools they need to manage changing requirements. “Our infrastructure can scale to support increasing demands for performance and virtualization,” the project architect explains. “We recommend Juniper Networks to other organizations. It is a leader in the security quadrant, and the company delivers good support and lifecycle management for its products.”

Next Steps and Lessons Learned

The government agency plans to implement several new services over the next year. The project architect explains, “As the world changes, end users want certain functionality—such as mobile phones and wireless networks—that they enjoy at home. With our new solution, it is definitely possible now to provide that type of functionality to our users on a secure level.”

For More Information

To find out more about Juniper Networks products and solutions, visit www.juniper.net and www.juniper.net/security.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.