Case Study

Ensuring a Smooth DMZ Network Rollout

for a Major Financial Regulator

A major financial regulator was in the process of adding a new DMZ network to its data centre. Here's how Spirent helped the regulator test its new networking equipment– and ensured it could upgrade with confidence.

The Background

A major financial regulator was in the middle of a routine upgrade to improve network capacity, while shifting to a new network design architecture.

Responsible for upholding financial standards across thousands of institutions, the regulator knew its new DMZ network would have to meet stringent security requirements—and deliver high performance—from day one.

The Challenge

The regulator needed help evaluating the new network system's security and performance capabilities, and highlighting opportunities for network optimisation.

Its situation presented two main testing challenges:

Testing Both Stateful and Stateless Traffic

To fully understand the security and performance credentials of the proposed DMZ architecture, the networking equipment would need to be tested with both stateful and stateless traffic.

Testing a Dual-Network Environment

The regulator's data centre contained two networks with similar structures, one operating with a total of 20Gbps of throughput, the other operating at 2Gbps. While the new DMZ would theoretically impact both networks similarly, it would be important to test both in parallel to fully understand the effects of the upgrade.

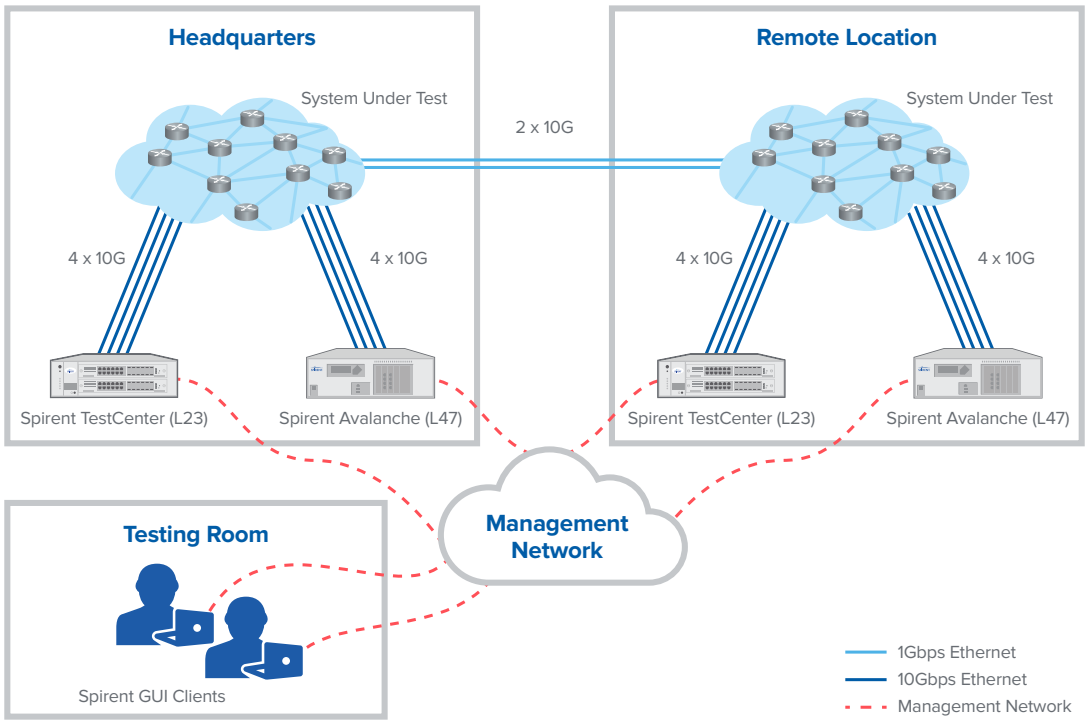
The Solution

The regulator's system integrator engaged Spirent Professional Services to design and execute the required tests, and deliver a thorough performance report–as well as recommendations for optimising system cabling and configurations before deployment.

Test Setup

We established a test setup using a Spirent Test Centre and a Spirent Avalanche system, to generate layer 2/3 and layer 4/7 test traffic respectively.

Both systems were connected to the two networks via four 10Gbps Ethernet testing ports.



The Testing Process

We conducted a range of tests to thoroughly evaluate the security, performance and availability of the network–especially its layer 4/7 devices such as Checkpoint Firewalls, F5 load balancers, and ASA Firewalls:

Baseline test: To establish general throughput and performance of layer 2/3 infrastructure.

RFC3511 benchmarking test: To assess performance of a specific firewall protocol, maximum TCP connections rates, the number of concurrent TCP connections supported, and TCP Goodput (the number of useful information bits delivered by the network to a certain destination per unit of time).

Soak test: Running the RFC 3511 benchmarking test for four-hour periods to assess performance fluctuations over time.

High-availability tests: To verify if the DMZ network was resilient to certain types of network failure, and measure convergence time.

About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks.

We help bring clarity to increasingly complex technological and business challenges.

Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information, visit: www.spirent.com

The Results

Through the testing methodology set out above, we helped the regulator and its system integrator ensure the new DMZ network was fit for purpose. We were also able to suggest several modifications that could help improve network performance.

Improved packet handling. It was clear from our tests that the network hardware wasn't able to adjust packet-handling according to the type of traffic, causing fluctuations in performance. Based on our findings, were recommended the regulator re-configure packet handling to prioritise voice traffic.

Optimised traffic balance. Our soak test revealed that the network could become overloaded in key areas when running for an extended period of time. We were able to suggest alternate configurations and cabling options to address these issues before the network went live.

Next Steps

The testing methodology set out above was designed to help one financial regulator upgrade its network components with confidence—but it's a methodology that can scale and adapt to help any organisation seeking to assure the quality of its network upgrades.

If you have concerns around a network deployment or upgrade of your own, our testing experts are always here to help.

Just get in touch using the contact details below.

Contact Us

For more information, call your Spirent sales representative or visit us on the web at www.spirent.com/ContactSpirent.

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