CUSTOMER CASE STUDY
FINANCIAL INSTITUTION

DATA CENTER CONSOLIDATION – HOW ONE MAJOR BANK MADE SURE OF ROCK SOLID SERVICE FROM DAY ONE

Server consolidation is a hot topic, driven by the need to cut costs while delivering even better business benefits in an increasingly competitive global arena. The ability to virtualize processing power and storage capacity makes for greater efficiency and helps to de-couple software upgrades from hardware buying decisions, allowing a more considered purchase strategy.

In today's economic climate, however, many enterprises are reluctant to commit to such a major change in their IT infrastructure. There are too many uncertainties already, without risking the possible impact on business from re-structuring the very foundations of their enterprise network.

Those who recognise the vital importance of upgrading their data centers know that there is only one way to minimise these problems and ensure full service availabilty on the new system, and that is by a comprehensive programme of pre and post production testing. However well designed, the sheer complexity of most multi-vendor IT systems means that you cannot eliminate the unexpected.

It is only by imposing realistic and extreme traffic conditions that you can be sure the system will handle normal traffic. This requires specialist equipment to generate such traffic, as well as the experience to know the sort of liabilities that can arise and the patterns of traffic most likely to upset performance.

One major high street bank knew exactly where to find these skills. From previous experience, they enlisted the help of Spirent Communications to play a vital role in the development and commissioning of their new leading edge data center. The resulting smooth transition and superb performance confirmed the wisdom of their decision.

CREATING A NEW DATA CENTER

In the boom years companies tended to add new servers each time they bought new business applications, rather than risk compromising the performance of the already installed system. As a result of this proliferation, most servers in a typical data center run at just 5-10% of capacity. Given the power of today's servers that doesn't make sense. Virtualization makes it possible to unite that processing power into one massive server, which then gets broken down by virtualization software into many smaller virtual servers working at a healthier 60-70% capacity, and the remaining processing power can be switched off and power saved. Even though the virtual servers run on shared hardware, virtualization software preserves their independence so they retain all the safety features of running applications on separate servers.

Another major saving is in staffing costs, concentrating your highly skilled team into one central data center instead of scattering them across the enterprise. This was an important consideration for the bank, plus the fact that they were simply running out of processing capacity in their existing network.

Financial institutions take no chances. Planning the bank's new data center was itself an 18 month project, with Cisco chosen for its products and for the role of systems integration, BT responsible for running the operation and Spirent managing the test programme. Just as Cisco and BT are world leaders in their fields, so also is Spirent Communications a world leader in the rather more esoteric field of network testing.

THE TESTING PROCESS

Spirent's role would be to run a stringent six week programme of tests – a programme that was integrated into the commissioning process, providing feedback and guidance as the data center approached completion. Each set of tests provided data that allowed the system to be optimised at every step in a realistic production environment. Two factors were critical in these tests: the experience and skills of the Spirent test team, and the Spirent Avalanche unit used to generate realistic traffic conditions with easily adjustable parameters and precise reporting of results both in real time and as finished reports.

The most important thing was to be sure that the bank's mission critical appplications would run reliably across the new network from day one, and not be vulnerable to extreme or unexpected traffic or operating conditions. Another critical issue is the difference between ideal equipment performance figures and what is actually available under real world conditions. Major buying decisions must be informed by thorough pre-testing to make sure money is being wisely spent.

Spending wisely need not mean spending more – Spirent's customers often find they get better results by reconfiguring existing equipment, or fine tuning less costly systems, than by splashing out on top of the range equipment. In this case, testing was able to identify potential system bottlenecks and allow the designers to optimise the blend of applications running in the context of the hardware installed.

According to Daryl Cornelius, Spirent's Director for Enterprise, Europe: "One of Spirent's unique selling propositions is that we are one of the very few companies able to test applications in the context of a network. That's the nub of it: it doesn't matter how well an application performs on one PC, what matters is how well it works across a network with many other users plus complex protocols hogging the bandwidth. Enterprises are beginning to discover that this is what really matters."

In particular, the bank was interested in comparing how well applications ran in a virtual server environment compared with a stand-alone server. Further issues to be explored in the live network included Address Resolution Protocol (ARP) performance and traffic distribution under different Quality of Service (QoS) configurations.

Another key issue for a bank needing to preserve its reputation for service, is to know how various types of network or server failure might impact customer facing applications – not to mention internal applications. Exhaustive testing was needed to ensure seamless failover – so the outside world need never know there had been a problem.

THE RESULTS

The first thing the tests revealed was certain limitations in the network architecture that were able to be addressed early on. So the process of testing led to ongoing enhancement of the initial design in a way that would not have been easy to forsee on paper – a common difficult with complex systems and a very sound reason for always putting them to the test.

"In truth, any complex enterprise network requires many compromises" explains Daryl Cornelius. "You want performance, but you need to balance that with reliability. You want security, but you also want user-friendliness, and so on. Finding that balance is more of a pragmatic exercise than some network architects might choose to believe. When you test rigorously under realistic simulated traffic conditions you enable the customer to make decisions in the context of actual business needs. They can satisfy themselves that the configuration really matches what their users and customers want, and delivers quality of experience in a way that would be hard to define purely in terms of performance figures."

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