

Advance7 ensures the stability and capability of British Nuclear Group's network

At Sellafield, and other UK reactor sites, state-owned British Nuclear Fuels PLC (BNFL) is carrying out clear-up activities to help safeguard the environment for future generations. Originally the owner operator of these sites, BNFL transferred tenure to a new government body, The Nuclear Decommissioning Authority (NDA,) in early 2005. Its aim was to continue clean-up work in a contractual capacity – whilst freeing up resources to grow and be more competitive in the global power market.

To ensure future competitiveness, and deliver on the challenges that The Nuclear Decommissioning Authority (NDA) will bring, BNFL underwent a major restructuring exercise – reorganising its business into dedicated subsidiaries. One of these groups is the British Nuclear Group (BNG) - formed to provide specialist focus to clean-up and management services to the NDA.

The Challenge

BNG had embarked on a programme of activities to prepare them for becoming the managing agent of the government's NDA assets. Critically, they needed to prove their business systems were capable of meeting the strict safety and operational requirements of the NDA to start the contract. To take on this new role as commercial contractor BNG needed to introduce a common set of processes and procedures that were aligned with the NDA's specific demands.

In particular, the company needed to locate three business-critical applications into a common data centre and make them available across every nuclear site and reactor station. The applications were key to allowing BNG to meet the NDA's requirements, but also to improving the smooth running of its own existing operations to increase productivity and enhance efficiency.

Before introducing these new IT systems and applications BNG needed to be sure that they would perform successfully from the outset,

and that existing IT services would continue to meet their Service Level Agreements (SLAs), all within the specified NDA deadlines. Mr Ian Lewis, a Programme Manager at BNG, explained,

“Performance is directly linked to our success as a business. Failing to deliver outstanding operational or project performance can lead to a contract being awarded elsewhere, so retaining loyalty and ensuring BNG remain the first choice is critical. Introducing new IT systems to help that process is a crucial part of our restructuring exercise. As well as bringing consistency to our managed sites, and meeting the NDA's requirements, it will also help people to do their jobs more efficiently and effectively.”

BNG turned to Advance7 to ensure the performance of the new applications and to determine the impact the new IT systems would have on the corporate infrastructure.

Mr Lewis said, “We began to consider the wider implications of, for example, 3,000 users trying to log their time at once on a Friday afternoon. Would the servers withstand the launch of three new applications, and if they overloaded how would it affect the performance of existing systems?”

He continued, “On deciding to stress test our IT environment we called Advance7. We'd worked with them previously at one of the reactor sites, and had every confidence in their ability to deliver what we needed. As the experts Advance7's analysis of any situation gives us total clarification – which is a great comfort factor.”

The Solution

To guarantee the performance and stability of the new business applications and existing systems, BNG decided to use two different approaches offered by Advance7's **IMPACT** Service to project network load and optimise performance.

First of all, Advance7 baselined BNG's existing systems to establish the network load prior to

the implementation of the new systems. Stress-testing programmes using load generation tools were then run across BNG's sites in synchronisation, with Advance7 closely monitoring these tests to see how the network would cope.

By then studying the new applications at use in a pre-production environment Advance7 were able to model how much network traffic would be generated by each application. Both sets of results – from the stress-testing and modelling – were then used to project the expected network loads per application at each site.

Throughout the process Advance7 collected over three-quarters of a Terabyte of data from the baselining and stress-testing stages of the project. The results of the analysis were presented to BNG using, amongst other techniques, *Performance-at-a-Glance (PaaG)* diagrams to clearly illustrate any performance bottlenecks in the new applications.

The combination of Advance7's *PaaG* diagrams and stress-testing results not only accurately identified the exact location of any end-to-end response-time bottlenecks, but also enabled BNG to exercise more control over network issues, and identify ways to optimise the performance of the applications. This has further enabled BNG to manage more effectively any subsequent risks to its business environment.

Mr Lewis said, "Advance7 completely appreciated our time restraints and really helped us to pin down testing times. They also provided the flexibility to work around our tight security controls, and showed a complete appreciation of our business and its needs."

The Benefit

Using the two approaches to projecting network load provided BNG with clear, unequivocal confidence that all three business-critical applications would perform correctly from the outset, and present minimal risk to the IT infrastructure. Advance7's analysis also identified two sites with potentially insufficient bandwidth capacity, and delivered recommendations to fix the issue to maintain and maximise network performance.

But, most crucially, the work undertaken by Advance7 enabled the British Nuclear Group to meet its NDA commitments to successfully begin its new nuclear decommissioning commercial contract.

Mr Lewis concluded, "The most valuable element of this project, for us, was giving the network a clean bill of health – it's so valuable in terms of peace of mind, accountability to our users and in providing the scope for future network enhancements as the business grows. We very much look forward to working with Advance7 again, and will continue to look to them for their first-class approach to all our IT issues."

Challenge

To prove that the British Nuclear Group's (BNG) new IT systems were capable of meeting strict requirements laid down by the Nuclear Decommissioning Authority (NDA), and deliver round-the-clock availability to users without impacting the network's continued performance and stability.

Solution

Advance7's **IMPACT** Service forecasted the impact of the new applications onto the existing infrastructure, to ensure existing business applications and services continued to meet their Service Level Agreements (SLAs). It also determined the impact of the existing infrastructure on the performance of the new applications, recommending changes to deliver agreed performance levels.

Business Benefits

The solution provided BNG with the level of assurance required to proceed with the implementation of new applications - and meet the safety and operational commitments of the NDA.

- ✓ Minimised the risks commonly posed by introducing new systems with clear, unequivocal evidence of any problems before going live
- ✓ Recommended changes to avoid performance or stability issues with the new applications and existing IT environment
- ✓ Ensured the new IT solutions met both business and IT expectations.