



CASE STUDY

Sun and Bell Microsystems help Transport for London to beat traffic congestion

Transport for London (TfL) is the integrated body responsible for London's transport system and is accountable for both the planning and delivery of transport facilities – managing London's buses, the Underground, the Docklands Light Railway, London Trams, a 580km network of main roads and all of London's 4600 traffic lights. TfL's Surface Division is currently implementing a number of initiatives to help reduce traffic congestion on London's streets – including the LondonWorks programme, which aims to improve the coordination of street works within Greater London.

The systems infrastructure for the LondonWorks project has been designed, configured and installed by Bell Microsystems – an independent IT specialist that delivers enterprise-level, open technology IT solutions. As part of the project, Bell Microsystems has delivered an 'end-to-end' Sun Microsystems solution that includes high performance Sun server platforms and a Sun StorEdge 6920 storage system.

Throughout the project, Bell Microsystems worked in accordance with IT Infrastructure Library (ITIL) – which defines a widely accepted set of best practices for excellence in IT service management – and PRINCE2 (PProjects IN Controlled Environments) which offers a structured method for effective project management.

Eddy Black, IT Workstream Project Manager for the LondonWorks Programme at TfL, explains the need for the new project: "Day-to-day traffic congestion on London's roads is a major problem. With 33 London Boroughs and over 140 utility companies needing to work on London roads, there are over one million street works undertaken each year in Greater London. One of TfL's aims is to improve the coordination of these works in order to reduce congestion.

“The LondonWorks programme comprises a number of modules, and includes the creation of a ‘Central Register’ that will collate information from each London Borough’s own ‘local register’ of proposed street works, together with information on other activities on the streets that could affect traffic flow. This Central Register will help all of the utilities and London Boroughs to communicate much more effectively in order to plan street works such that they minimise disruption – and with the announcement that London is to host the 2012 Olympic Games, the LondonWorks project has become even more important.

“As the LondonWorks project requires us to process and store a large, rapidly growing volume of data that is critical to our operations, we needed a system that offered high performance and would also deliver very high availability over an extended working day. We investigated a number of different IT vendors’ offerings – including HP and EMC. However, we chose Bell Microsystems to design and implement a solution based on Sun Microsystems’ high performance servers and Sun’s latest SAN (Storage Area Network) technologies. Our requirements were extremely complex, so Bell Microsystems’ team of storage experts held a series of workshops to help us to analyse our requirements in detail and to discuss technology and systems architecture options. In addition to the detailed technical analysis, the Bell Microsystems team also focused on how the system would help us to meet specific business objectives and helped us to weigh up potential technical and business benefits of various different architectures.

“Owing to a number of factors – including our very stringent security requirements, the complexities of the application software that we’re developing for the project, the need for high availability and the integration of our Oracle database – the architecture is extremely complex. The need for high availability also demanded an architecture with no single point of failure, so Bell Microsystems designed a highly resilient system using clustering and duplicating system components.”

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Eddy Black
Transport for London



Tailored storage solution

During the initial discussions, Bell Microsystems invested time in liaising with a number of different departments within TfL, in order to help ensure that the solution would meet the needs of every user group. Bell Microsystems then worked closely with Sun's storage team and Sun's distributor, Access Distribution, to design the optimum configuration and ensure that all of the necessary equipment would be available to meet the required delivery schedule.

The IT infrastructure for TfL's LondonWorks programme includes test and production environments, and the 'end-to-end' Sun solution recommended by Bell Microsystems provides an integrated, easily supportable architecture with a resilient SAN. Bell Microsystems took care to ensure that each layer of the architecture matched every element of the system infrastructure requirement. The new infrastructure comprises a number of Sun Fire V240 servers, Sun Fire V440 servers and Sun Fire V490 servers; clustered Sun Fire E2900 servers – running Sun Cluster – as the database servers; a Sun StorEdge 6920 SAN; and a Sun StorEdge L500 tape library, running under Symantec's VERITAS NetBackup, providing the backup facilities.

In addition to providing a massively scalable storage solution, Sun's StorEdge 6920 system is also able to 'virtualise' an organisation's existing storage devices into one easily managed entity – reducing systems management costs, whilst also extending the working life of existing data storage systems. Furthermore, it's compatible with a variety of different manufacturers' storage systems – so it's able to 'virtualise' currently installed storage systems whilst also leaving customers free to add third-party storage devices to their 'virtualised' storage network in the future – so there's no 'lock-in' to a single vendor.

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Sun delivers massive scalability

Eddy Black takes up the story: “Given the importance of this project and the fact that the system will be providing a totally new service – so it’s almost impossible to forecast exactly how much capacity we’ll require in the future – it’s vital that we can easily and cost-effectively scale up the system to accommodate future changes in requirements. We have to store a massive amount of reference data for the Central Register – including aerial photographs and several different scales of street maps, and these items, alone, currently total nearly 1GB of data. In addition, we need to store information relating to each individual street work. With over one million sets of street works occurring each year, if each set of street works creates, say, 10 pieces of information, we could need to store data on up to 50 million pieces of information each year. We have a target of storing six years’ worth of data, so we need a massively scalable SAN – but we’re confident that the Sun architecture has the performance we require now, plus the flexibility and scalability to meet our future needs as and when we require extra capacity and performance.

“Business continuity is another very important element, and Bell Microsystems explained the benefits of the business continuity features offered by the StorEdge 6920 system, which help to reduce downtime should a problem occur. The Data Snapshot software is particularly beneficial, as it will also enable us to clone copies of data for use ‘off-line’ or for backup – without disrupting production. As Data Snapshot allows us to take snapshots of live data and load them into our pre-production environment, it will provide value to our development team throughout the lifetime of the system. In the future, whenever our developers need to make any enhancements or changes to the applications software, Data Snapshot will enable them to base their developments on ‘real world’ data.

“Bell Microsystems’ approach to the whole project has been very professional and I’ve been impressed with their attitude and attention to detail. The quality of their service has been excellent and, by using proven project management methodologies, they’ve helped us to minimise risk throughout the project, reduce the complexity of the infrastructure and meet our financial targets. The Bell Microsystems team has a high level of technical knowledge relating to systems, storage and SAN solutions. They’ve been very responsive to any requests we’ve made and they’ve helped us to ensure that we meet TfL’s corporate standards – even adapting the architecture part way through the project in order to comply with a new set of standards which had just been introduced.

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Sun support – a deciding factor

“Although this is the first Sun SAN to be installed within TfL, virtually all of TfL’s UNIX servers are Sun servers and our past experience of Sun’s products and support has been very positive. We investigated alternative SAN vendors, but the technical and commercial arguments in favour of Sun were very strong – especially the scalability, the compatibility with our existing architecture and the total cost of ownership. The quality of Sun’s products is unquestionable and Sun’s attitude to supporting customers is excellent.

“Investing in an ‘end-to-end’ Sun solution reduces risk both during the implementation phase and throughout the working life of the system. Support is simplified as we have a fully supported, integrated stack of Sun products – with only one point of contact to resolve any issues. In addition, choosing Sun for the entire system also simplified the whole procurement process.

“The LondonWorks programme is currently being rolled out. The first module went live in July 2005 and the final module is scheduled to go live in January 2007. The full benefits of the LondonWorks programme will start to accrue after the project is completed. We expect significant efficiency increases and easing of traffic congestion through greater coordination of street works.”

Mark Prior, Head of Storage Services, Bell Microsystems, comments:

“The LondonWorks project could benefit every person who lives, works or travels within London and every business that operates in London – because, with less congestion, everything can run much more smoothly and businesses are less likely to suffer lost revenues as a result of delays. TfL also aims to help increase the predictability of journey times throughout London – again this will benefit individuals and businesses.

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Translating technology into real business benefits

“Sun’s storage specialists and Access Distribution’s technical and account management teams worked closely with Bell Microsystems to help us to translate Sun’s latest technologies into tangible benefits for TfL. Sun has been placing great emphasis on developing a wider range of innovative storage products and its recent acquisition of StorageTek is proof of Sun’s commitment to delivering world-class storage solutions.”

Eddy Black concludes: “Bell Microsystems has a proven track record within TfL (Surface), and I wouldn’t hesitate to use Bell Microsystems to design and supply the infrastructure for my next project. Their advice and guidance has been invaluable – as has their ability to get the logistics right and deliver everything on time.”

“Throughout the project, Bell Microsystems devoted effort to gaining a thorough understanding of TfL’s business aims for this project. I’ve been able to trust Bell Microsystems’ team to liaise with all of the relevant personnel within TfL, including keeping our corporate IT architects informed about the project. This has been of enormous benefit as it’s helped to reduce the pressure and the workload on my team – I could simply say to Bell Microsystems ‘go ahead and do it’ and they did it...and it’s been a resounding success.”

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Whether you're a FTSE 100 listed company, a medium-sized enterprise or a public sector organisation, the Bell Microsystems team will work closely with you... to gain an understanding of the issues that affect your day-to-day operations... and then design & implement a storage solution that's tailored to your specific requirements and helps to generate measurable operational benefits.

By combining technical skills and an understanding of each customer's operational issues, Bell Microsystems helps its customers to harness the power of the very latest technologies – to boost performance and improve security, whilst reducing IT costs.

Bell Microsystems is a member of the Bell Group – an ISO 9001 registered company.

www.bell-micros.com

info@bell-group.net

Tel: +44 (0) 23 9282 5925



Head Office:

New Hampshire Court
St Pauls Road
Portsmouth
Hants
PO5 4AQ

Tel: +44 (0) 23 9282 5925
Fax: +44 (0) 23 9282 5928

London Office:

78 Cannon Street
London
EC4N 6NQ

Tel: +44 (0) 207 618 6458
Fax: +44 (0) 207 618 8145



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