



IP-based communications for DLR

London's metropolitan rail services are amongst the most intensive, high volume transport systems in Europe. Supporting millions of journeys daily requires an integrated, holistic approach to highly complex logistics and communications challenges.

Underground and light rail operators like Docklands Light Railway (DLR) are looking to increase capacity over existing infrastructure and need solutions that increase efficiency without compromising passenger comfort or security.

Passengers need clear information to guide them through their journey and help when things aren't going to plan. To cater for passenger requirements, metro stations contain a complex mix of communication assets that must be integrated to deliver clear, consistent and useful information to travellers and station managers alike.

Operators utilise assets from PA systems to message boards and help points to communicate with passengers; the network that connects and facilitates control of these is mission-critical. Our expertise in designing, deploying and maintaining secure, highly dependable networks in transport, emergency services and telecommunications as well as specialised rail and metro capabilities make us a preferred network partner in these markets.

IP station management for DLR

We were selected by Serco Docklands, the franchise operator of the DLR, as its systems integration partner on a new network upgrade project in 2009. We are designing and installing a high performance LAN infrastructure to underpin the railway's planned deployment of new IP-based

applications, the first of which uses ASL iPAM equipment to provide an innovative IP-based public address (PA) system serving some 32 DLR stations.

Serco Dockland's two key requirements are an improved PA system and a network that can cope with the pace of change facing the DLR. Michael Evans, Serco Docklands' Communications Engineer, explains DLR's rationale for IP: "Clearly the trend is to shift from a conventional multiplexed communications medium to a converged IP network and the goal of the project is to put in place an infrastructure which will last for the next 10 years.

telent was chosen given their excellent response to our tender, and a competitively priced solution which can scale and change to meet our needs, all backed up by support staff who are close by."

We've designed a LAN utilising gigabit Ethernet Cisco Systems switches throughout the network, with stackable gigabit Ethernet switches at the edge to provide for future growth. Dual linked for resilience, the LAN will interoperate with existing TDM-based network infrastructure and is easily upgradeable as more bandwidth is required over time. The network rollout will be completed in 2009.

We're working closely on the project with PA supplier, Application Solutions Limited (ASL), to deploy its new high quality, fully featured IP-based distributed PA system called iPAM. Our working relationship with ASL has a good track record, following the implementation of their PA system on 76 London Underground stations, as part of the Whole-Life Communications Contract that **telent** is currently delivering to Tube Lines.

The public address system will be controlled from Linux PC workstations at the Control Centre, and **telent** is also integrating it with the DLR customer information display system. This integration will guarantee consistency when providing passengers with audio/visual updates about train arrivals and departures.

iPAM has been designed to integrate easily with all operational and maintenance control systems and allows full monitoring of the PA system and of other station equipment, with faults flagged directly on screen so that prompt action can be taken.

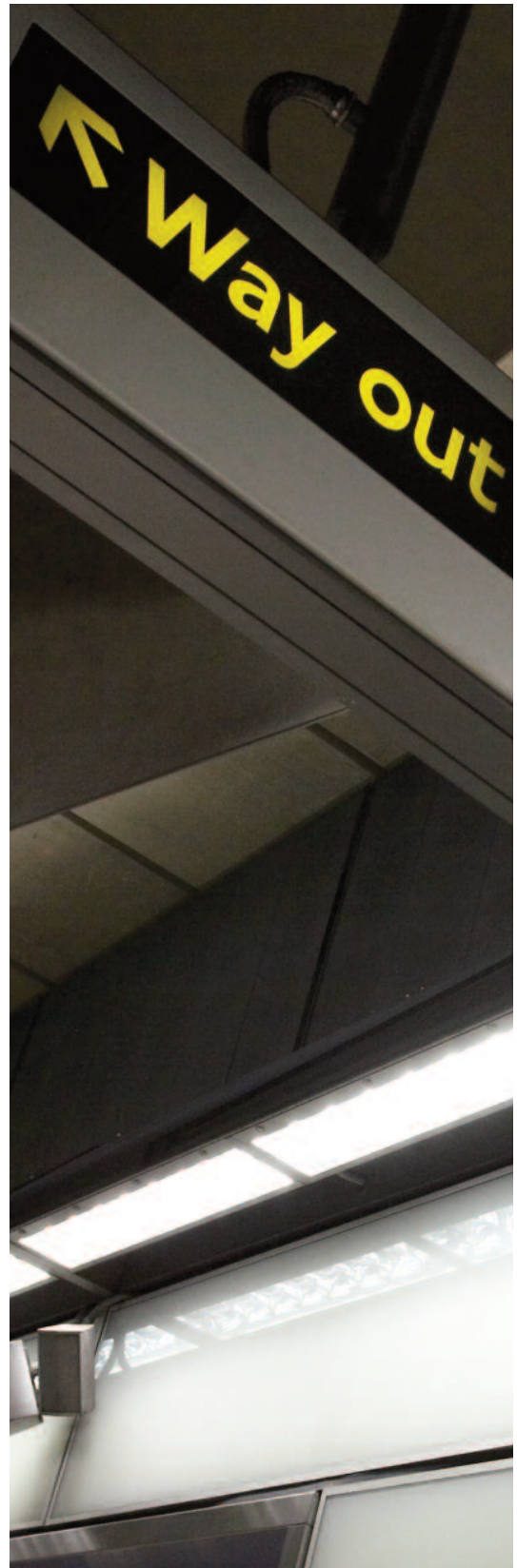
In terms of network architecture, each main service on the network will have its own virtual private network (VPN) and as part of the overall solution, **telent** will also install a firewall and a new network management system.

Guaranteeing continued network performance, **telent** will also provide maintenance support with monitoring and management of the network from its 24/7/365 Service Centre based near Canary Wharf.

Future proof network strategy

Over time, other key systems will be brought across to run over the new network, such as passenger information displays on station concourses, and a train management computer system. Serco Docklands is also looking to deploy IP-based control systems for its numerous video recorders and CCTV cameras, which are expected to total nearly 1,000 by 2012.

Adrian Groves, **telent's** General Manager Metro, commenting on the company's solution said: "In order to provide a truly effective solution, we listened very carefully to Serco Docklands and took on-board all their needs. Our engineers then worked with ASL to set about designing a solution which not only met those needs but also achieved them in the most efficient way. We are delighted that our solution not only addresses Serco Dockland's two key issues, namely to deliver an improved PA system and a network that can cope



with the pace of change facing the DLR, but also does so with one overall IP based solution which is designed with expansion in mind.”

Michael Evans concludes, “Networks underpin everything from an IT perspective so it was important we chose a family of infrastructure switch products which offered flexibility and a well respected and trusted systems integration partner in **telent** to deploy them along with the ASL iPAM PA system. Operationally we now have the latest network technology to support the DLR’s well publicised growth, which puts us ahead of many other transport providers in this country.”

DLR at a glance

Serco signed a franchise agreement with Docklands Light Railway Ltd (DLRL), part of Transport for London (TfL), in March 2006 to continue to operate, maintain and support the DLR for the next seven to nine years. This extended its contract, first awarded to the company back in 1997.

DLR is one of Britain’s great transport success stories, built to aid in the economic and social regeneration of the community surrounding East London. Now carrying over 67 million passengers annually, it was one of the first light rail systems in Britain, with one of the world’s most advanced automatic train control systems. DLR has recently opened its newest extension to Woolwich Arsenal, and 2010 sees the next extension to Stratford International.

The DLR is a self-contained system with direct links to London’s underground and overground rail networks operating in a dense urban environment. It serves large commercial developments, a growing residential population and many of London tourist attractions.

DLR in numbers

34 – Stations (three underground)

27 – Kilometres of rail

70 – Average seconds separation between trains



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