



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 IP 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've designed and installed 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 key requirement was 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 an IP-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. Our status as a Cisco Emerging Markets Partner allowed us to offer the customer a cost effective solution and the assurance that our engineering teams have the skills and expertise needed to extract maximum value from their investment in equipment.

"Cisco have worked closely with telent over the past year on a number of key initiatives." says Chris Fox, Cisco Channel Account Manager "telent have now become one of a small number of ATP partners for Physical Security and we are actively engaged on opportunities in the Transport sector for these types of solution. As a Cisco Partner specialising in emerging technologies, telent are ideally positioned to represent and position Cisco solutions across a number of markets based on their telco and engineering background and their significant investment in Cisco skills"

In terms of network architecture, each type of service on the network will have its own local Virtual Local Area Network (VLAN) affording greater scalability and a compartmentalised approach to security. telent will also install a firewall and a new network management system.

Future proof network strategy

In addition to Public Address, 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 for its Physical Security system, which will include nearly 1,000 cameras 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 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."



By replacing multiple disparate networks with a secure, unified, energy efficient IP-based communications infrastructure, transport operators like DLR benefit from operational enhancements and can rapidly introduce emerging security and content delivery applications.

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 was an extension to Serco's original 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 over-ground 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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