TENEO
OPENING MINDS

Devon & Cornwall Police
Building Safer Communities Together

DEVON & CORNWALL POLICE

Teneo enabled Devon & Cornwall Police to improve network performance and reduce costly network upgrades at police stations with poor local network infrastructure

Devon & Cornwall Police covers the largest geographical area in England. The area has a population of 1.7 million, but this significantly increases due to the influx of around 11 million visitors to the area during the average year. This increases the demand on Devon & Cornwall Police's services and infrastructure.

The Police Force is split into three basic command units (BCUs) - Plymouth, Devon and Cornwall and The Isles of Scilly with each BCU having its own commander. The BCUs are further broken down into sectors and neighbourhood beats.

The Force's headquarters is based in Exeter with around 800 staff. In total, the Constabulary employs 3,500 police officers, more than 2,000 civilian staff and 362 police community support officers.

THE CHALLENGE: TO IMPROVE THE END USER NETWORK EXPERIENCE, ESPECIALLY FOR USERS WORKING IN RURAL AND REMOTE LOCATIONS

Managing the network infrastructure to cover the needs of an organisation as diverse as Devon and Cornwall Police is a challenging task.

The Force operates from around 200 different sites, including its Exeter campus headquarters, three large regional BCU centres, several busy city centre stations and remote rural sites on the edge of the moors. Back in 2010, the central sites were connected to a fibre mesh network, which delivered 100Mbs links for the Exeter HQ

and 10 to 34Mbs links for the Three central BCU regional offices.

The Force worked with telecoms providers to deliver high speed fibre network links to its larger police stations. However, it found that to create a new office it had to initiate a completely new fibre installation, which required the telecoms provider to dig up roads and bring new fibre links into the location. Lead times ranged from 60 to 90 days.

There were also stringent security requirements for any network links used by the Police, which could prevent them capitalising on existing commercial network infrastructure.

Under a national framework agreement, telecom companies usually charged a fixed price for organisations such as the Police for new fibre installations, but this would still have added tens of thousands of pounds for any new site.

The Force has to adhere to the Government Protective Marking Scheme, which classifies information based on different levels of data security, classifications ranging from 'unprotected' to 'top secret'.

Devon and Cornwall's network is certified to carry data up to the level of 'restricted' without any restrictions, with its network tested to ensure it has sufficient levels of encryption and authentication.

INDUSTRY

- Police

CHALLENGE

- Deliver improved network performance to small and remote police stations

- Reduce spend on expensive network bandwidth upgrades

- Guarantee high levels of network security

- Improve central server access and data back up

SOLUTION

- Deploy Riverbed SteelHead appliances

BENEFITS

- Reduced data traffic by 70%

- Improved end-user experience and satisfaction

- An end to user frustration

- Provided a viable alternative to increasing bandwidth, via a new fibre network infrastructure

The network also has to adhere to the government's Code of Connection (CoCo) to enable the Force to link into national data networks such as the Police National Network (PNN) and the Criminal Justice Extranet (CJX).

Whichever police station the officers worked from, they needed fast access to the Force's core 'Command and Control' and 'Crime and Intelligence' applications, which together acted as the main police management system. Officers also frequently accessed the Police National Computer (PNC), the police intranet and mainstream Microsoft applications such as Outlook and SharePoint.

Sharepoint was rolled out in 2009 and each division and department also had its own customised intranet to publish departmental and area specific information. Usage of email and other Microsoft applications was similar to any commercial operation. The network also carried a host of specific applications, which offered human resources, purchasing, car fleet management and other support and administrative services.

Devon and Cornwall, similar to other Police Forces, had responded to the demand for more community policing. Community policing teams worked with other local partners and often set up police stations in a variety of locations such as council offices, shops and libraries.

These sites were sometimes on short leases, with quick turnarounds required on set-up and closure. The Force had around 70 of these smaller community or rural sites which were typically manned by a handful of officers.

It was a challenge to provide a robust IT network to remote rural sites as these sites were typically away from telephone exchanges and these areas had not benefitted from

fibre links being installed. To install new, dedicated fibre links to these sites would be totally cost prohibitive and also logistically challenging. Another issue for the smaller sites was the fact that they did not have their own local servers and relied on slow network links back to the servers based in Exeter.

These 70 sites had to rely on an ADSL-based solution which provided an encrypted network connection back to the nearest local telephone exchange and then, for security purposes, the connection continued via a secure private network.

At no point did the police network cross onto the public internet. This solution did offer the Force some flexibility as it was relatively quick to install and offered good value, but the network performance could be very limited.

The network connections suffered from the same issues as any conventional ADSL connection. It offered a minimum bandwidth of 1Mbs, with performance depending on distance from the exchange and local factors such as the physical quality of the cabling providing the connection.

Network performance was poor. It took several minutes to log on to the network and into the core police applications. File transfers and downloads were also sluggish when using Microsoft applications. With the Force communicating more and more through the use of Microsoft SharePoint for everyday police briefings, download times were becoming a real constraint for busy officers.

As a result, feedback from officers on their personal experience of using the network had not been positive.

93% peak data reduction with 3.3 x capacity increase

THE SOLUTION: DEPLOYMENT OF RIVERBED'S STEELHEAD WAN OPTIMISATION SOLUTION

Jim Goodwin is Network Manager, IT Service Management department for Devon and Cornwall Police. Based at the Exeter HQ, the team is responsible for the strategic development of the Force's data and network infrastructure.

"There were two competing issues for providing a good IT network experience to these more remote locations. On the one hand, trying to give them the best performance that we could, and on the other, making it as cost effective as we could because we couldn't afford to install fibre links at all these locations."

For 10 years the bulk of the IT service's work had been outsourced to a third party provider; Its 2010 IT services partner was SunGard Public Sector. Devon and Cornwall owned its entire IT infrastructure, while SunGard maintained and supported the equipment and its users.

Jim's particular focus was to deliver improved network performance to the 70 smaller sites that were either based in rural locations or were based in communities often using shared buildings

To help these sites, Jim started to investigate WAN Optimisation technology to see if it could use the existing bandwidth more efficiently. He began exploring solutions from Cisco, Silver Peak and Riverbed Technology.

One early advantage for the Riverbed SteelHead solution was that, in contrast to other vendors, the physical appliance did not need to rely on the router. This was an early concern the third party network providers also provided and remotely managed the routers on behalf of the Force. The

Riverbed SteelHead appliances could be located on secured police property.

Jim read about the exceptional data reduction claims made by Riverbed and got in contact with Teneo, the UK's leading WAN Optimisation specialist, to ask for a demonstration. Jim saw the appliances in action and witnessed data reduction levels as high as 80%, but imagined that these reductions were not possible in his own network.

Jim wanted to pilot the Riverbed SteelHead appliances for himself and he chose a police station in Torquay, Devon that linked back to the Exeter HQ. The officers at that station had raised complaints about the speed of the network, reporting that performance was poor. The station was timetabled for a network upgrade, and this upgrade was set to take three months and cost tens of thousands of pounds.

During December 2009, Teneo worked with the Jim to plan and carry out the install, providing full pre-configuration with Teneo engineers on site to install one SteelHead appliance at Torquay and a larger Steelhead appliance at the Exeter HQ.

"The Riverbed SteelHead pilot went exactly to plan - it reduced the traffic on our link from Torquay and made performance better. It actually delivered 70% data reduction, which was very impressive."

"Using Riverbed's SteelCentral Controller for SteelHead I could see the flow of traffic between sites, traffic load, traffic type, top talkers – which is a really useful additional benefit alongside all the acceleration and compression benefits."

Best, most cost-effective performance

Convinced by the pilot, Jim had to started the procurement process to roll out the Riverbed SteelHeads. Many companies responded to the tender request but Teneo was the overall winner. Teneo's bid gave strong evidence of extensive knowledge of Riverbed's WAN Optimisation technology from countless implementations and the reassurance of Riverbed Elite Partner status.

Soon afterwards, the Force decided to roll out Riverbed SteelHeads further. It upgraded the SteelHead based at the Exeter HQ to a unit with a greater capacity and re-located the existing unit to a rural police station in Ashburton.

Jim then conducted the second pilot, working with Teneo to integrate additional Riverbed SteelHeads at three of the smaller sites – one in each of the BCU areas.

"It was all very well for the statistics to say that it was doing this or that level of compression. What I wanted to do was to make sure we had the engagement of the users to do some objective measurement, while also collecting individual user experience comments."

Tasks such as such as logging on, downloading a typical file such as a flexitime sheet and a standard large Microsoft Word document were all recorded. He also asked for subjective feedback to find out whether the appliances had made a difference to users' working days. The feedback was very positive with the officers reporting back that it had made a real step change in network performance. Devon and Cornwall Police went on to purchase 26 Riverbed SteelHead appliances from Teneo at this time.

For all the installations, Teneo provided support and advice with each box being pre-configured off site so it was ready for installation once at the new site. Teneo also worked with the Force's outsourced IT services provider SunGard to train its staff to understand how the Riverbed SteelHeads work and how they fit in with the network that they support. The Force also had a 24/7 maintenance agreement with Teneo to ensure around-the-clock support.

THE BENEFITS: REDUCED DATA TRAFFIC, IMPROVED END USER EXPERIENCE, AVOIDANCE OF COSTLY BANDWIDTH UPGRADES

Teneo was able to configure the SteelHeads to deliver promised data reduction of 70% and massive reductions in data traffic.

"The Riverbed SteelHeads have improved the performance of everything on our network: our established applications such as Command and Control, Microsoft applications, as well as for all uploading and file transfers."

Jim was hoping to further the Riverbed SteelHead rollout to help with backup resiliency through centralisation. The SteelHeads also helped enhance data security as the appliances only sent the changes on a data file resulting in a minimal amount of data being sent across the network, and the data that was being sent was compressed and encrypted, making the data exceptionally hard to intercept and read. Any cached copy of data or files held on the appliances was also fully encrypted, which met with the approval of the Force's Information Assurance teams.

"We could now redeploy a Riverbed SteelHead for a major incident to cope with large jumps in bandwidth usage. If we had 20 or 30 officers at a major incident unit, we could use an appliance as an instant fix to help get around any predicted bandwidth constraints."

For the future, Jim intended to investigate Riverbed SteelHead's ability to be used as a virtual file server which would eliminate some of the smaller file servers across the Force's IT estate.

"With Riverbed SteelHead appliances we could easily re-deploy them to different sites. Should a site close or be relocated, we could unplug the SteelHead and take it to the new site, whereas if we had invested in a physical network link we would lose the money."

Jim recommended that other police forces try Riverbed SteelHead appliances for themselves, as many police forces have a real mix of areas to cover from cities and towns that are well served with high speed fibre links, through to rural sites and also the challenge of establishing shorttenure sites.

SteelHeads also provide many other benefits in addition to reducing bandwidth usage, to help with security, backup and giving the flexibility to remove and redeploy the units where they are needed. He considered Riverbed SteelHeads as one of the best investment decisions he had made for the Force.