

CASE STUDY

4G WAN, Connectivity and Site Setup Services for A14 Joint Venture

A14 joint venture is streets ahead
with FluidOne rapid site deployment
and 4G WAN services

FluidOne

A14 Integrated
Delivery Team

As part of a £1bn+ project to extend and improve the A14 between Cambridge and Huntingdon, the A14 Integrated Delivery Team needed to establish a fixed line and mobile infrastructure along a 31km stretch of greenfield land. A key objective was to deliver secure access to cloud-based applications for 650 users alongside secure access to several corporate networks (Bring Your Own Corporate Device, or BYOCD). FluidOne delivered a secure, agile network that allowed corporate network access, open access for local and cloud services, and roaming between sites.

The A14 Integrated Delivery Team is a joint venture between Costain, Skanska, Balfour Beatty, and Carillion set up explicitly for the purpose of rolling out an extension to the A14. Collectively, these four companies account for 25% of the top UK construction company revenues, with a joint turnover in excess of £15bn*.

Requirements

- Providing connectivity along a 31km stretch of greenfield land
- Installing cable and wireless infrastructures simultaneous with site construction
- Securing a shared network for multiple contractors
- Managing a BYOD and BYOCD strategy for 650 users
- Delivering all voice, video and application services from the cloud
- Responding to stringent time pressures and cost constraints

*Source: The Construction Index: 2016 Latest Turnover

31km highway construction project needs WAN connectivity for 650 users

Purported to be the largest construction project in the UK at the moment, the A14 Improvement scheme will see the roll out of a 31km road extension between Cambridge and Huntingdon. The £1bn+ project, which was commissioned by Highways England, employs the services of the A14 Delivery Team - a joint venture (JV) between Costain, Skanska, Balfour Beatty, and Carillion, created specifically for the task.

Heading up the technology side of the project is consultant, James Morgan, who was brought in to manage the delivery of the IT infrastructure that will support the 650 network users on-site throughout the four-year build.

“The original idea was to look for a fully managed solution but the more I got involved, the more it became clear we could do a lot ourselves if we partnered with the right people. I’m now acting IT manager for the scheme,” says James.

With cloud services and BYOD strategy, network availability becomes mission-critical

James has a history of working with construction companies on joint venture projects and had also worked on a previous Highways Agency project in the South East, so he was an ideal candidate for the A14 project. All the same, this project had a couple of surprises in-store.

“Normally, JVs provide all the kit but the A14 project was different because they wanted it to be Bring Your Own Corporate Device (and BYOD) and have everything cloud-based so there would be no physical tin on-site at all,” says James. **“This and the fact we also want to support voice and video meant we needed a really large connection to the Internet.”**

Since the A14 network provides a complete platform for literally hundreds of end-users, performance and availability is critical.

“650 people get annoyed if it’s not a good service,” says James. **“But seriously, if the network wasn’t available, it would have an impact on the job itself; all of the management systems are online so people need access to go to work.”**

Of course the fall-back could be paper-based but for James, that isn’t a viable solution.

“Our key objective is to have a single source of the truth. We’ve centralised data to get away from people having their own source and variety of data. We want to capture data from every system and provide a centralised view to remove ambiguity,” says James.

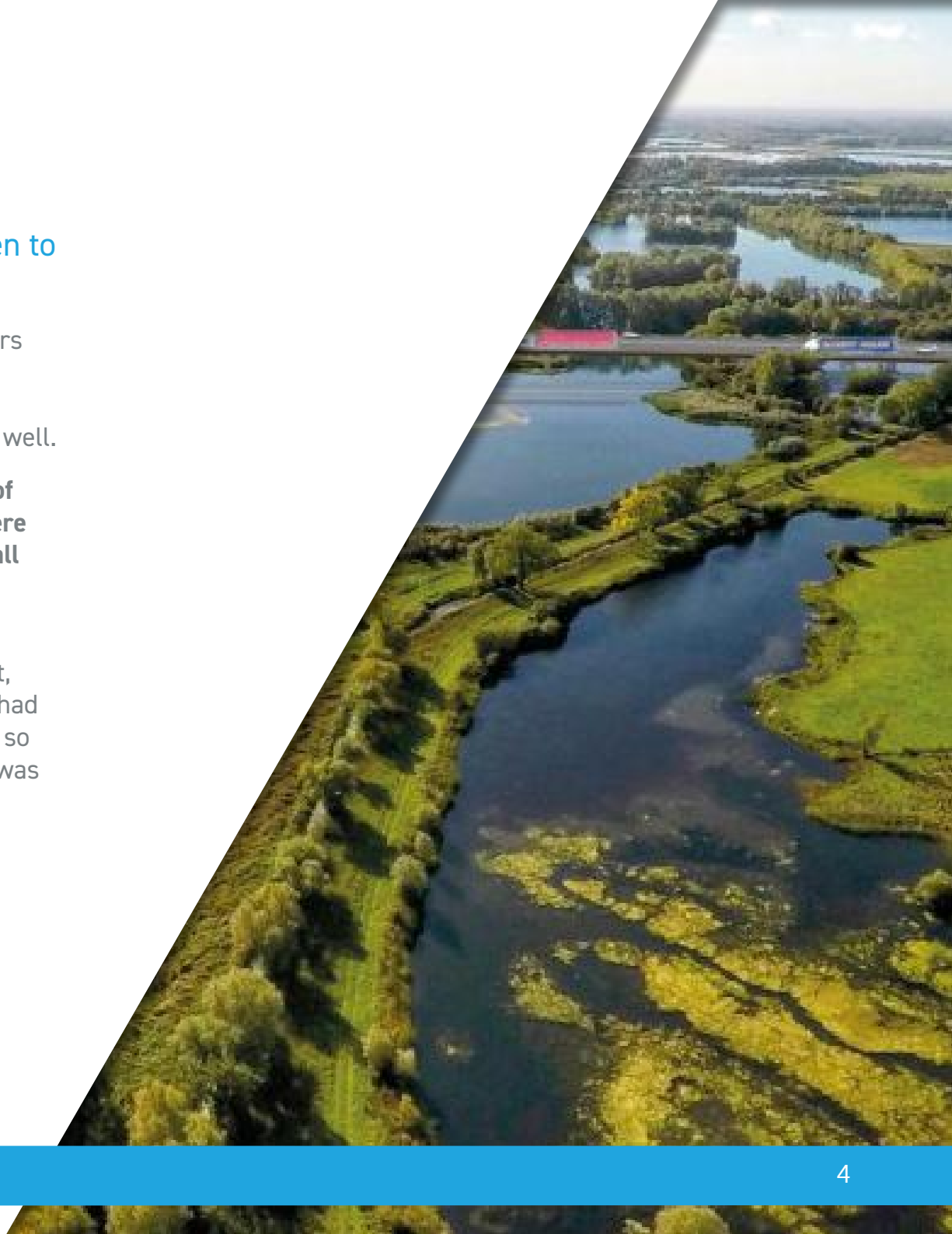
Challenges

Lead times for fibre links to greenfield sites threaten to delay project start

Having no application infrastructure at sites, and asking workers to use their own devices, definitely creates some interesting challenges for IT but when your project also covers 31km of greenfield land, you've got a few other things to think about as well.

“The A14’s construction is divided into six sections and most of the area it covers is literally green field,” says James. “We were building major and minor sites along these sections and they all needed to connect to central resources.”

Bringing traditional fibre connectivity to remote locations is slow and costly, and, whilst fibre was necessary for throughput, performance and longer-term cost containment, the A14 team had some stringent time pressures for delivering the new highway so James realised he was going to need an interim solution, that was probably mobile, if the project was going to start on time.



A14 delivery team has 4G WAN connectivity for all users within days of sign-off

By the time he met FluidOne, James had already identified a carrier for the JV's fibre connectivity but needed to find a partner to provide the comms setup, cabling, LAN and WiFi infrastructure at each site and help with developing a short term mobile network.

"I chose FluidOne because of the level of confidence they instilled in me," says James. **"They understood what we wanted to achieve and they offered guidance in areas where we didn't have expertise in-house."**

"FluidOne was probably the most enthusiastic in their willingness to work with us to achieve the goal. A lot of people just see it as a cost exercise - get the price out to win the business," says James.

In the weeks that followed, FluidOne worked with James and his team to plan and deliver the communications and on-site services. The first phase of delivery was an interim solution providing multi-SIM, multi-carrier 4G WAN connectivity.

"4G was installed within days of the paperwork being signed off," says James. **"As a solution, it's stable and relatively quick. It got a very positive response, users said it was the best connectivity they'd had in a remote location."**

The 4G solution incorporated three bonded Viprinet routers, each with six bonded 4G channels that used multiple carriers for increased resilience. This was in place, supporting approximately 650 users, for three months until the fibre was delivered.

Until recently, some of the smaller sites were still connected with 4G but these have been largely replaced by line-of-site (LoS) connections into the infrastructure. FluidOne used drones to check feasibility and plan for these connections.

"With 650 users our 4G costs started to rise as our data usage reached about 2.4 Tb per month," says James. **"We installed line-of-sight instead of 4G to save money, and we are now using 4G for backup on a new, cheaper tariff."**

Solution

Secure network design helps to allay JV fears over BYOD vulnerabilities and users show support for wireless working

One of the biggest challenges of BYOD and BYOCD strategies has always been security – securing personal devices and securing the network for devices connecting to it. This situation is further compounded when there are multiple contracting organisations involved, each of which needs its own secure corporate networking to run over a shared infrastructure.

“The challenge of BYOD from a security aspect is that we don’t have the same level of control; policies are guided by what the parent organisation has in place,” says James.

To help overcome this problem, FluidOne installed a secure, agile BYOCD network design, allowing corporate network access for each major partner, while allowing open access for local and cloud services and for roaming between sites.

In addition to adopting a BYOD strategy, the A14 project was the first joint venture James had been involved with that wanted to use WiFi technology.

“People think it’s better to plug in cables, so making sure people are comfortable that the WiFi works well was important,” says James. **“FluidOne has impressive knowledge of wireless technologies, including cloud controlled technology. What they deliver, I can’t fault and user feedback on the WiFi and the speed has all been positive as well.”**



What FluidOne delivered

- Secure, agile BYOCD network design, allowing corporate network access for each major partner, plus open access for local and cloud services and roaming between sites
- Internet connectivity for A14 user-base and access into a backbone network
- Cloud-based perimeter security for network and users
- FluidOne Network In Advance: collaborative provisioning, costing and delivery planning using their Infrastructure Readiness services.
- Bonded, multi-carrier 4G WAN connectivity with high gain external antennae for increased reliability and performance
- Line of sight connections (between main sites and smaller units)
- Gigabit BT fibre links (for main sites)
- On-site cabinets, cabling, LAN and WiFi infrastructure
- Project and provisioning management, engineering and installation services
- 24/7 monitoring through the FluidOne UK-based NOC

A14's IT team is better positioned to prevent business interruptions with FluidOne 24/7 monitoring

The A14 extension is not due for completion until spring 2020 but the JV's network has been up and running more-or-less from day one and is now monitored on a 24/7 basis by the FluidOne network operations centre (NOC).

"Monitoring is critical as we're all cloud based so we need a fast resolution to any problems," says James. "There have been a few power issues and odd damage to cables – all of these events were picked up via FluidOne's monitoring."

"Having monitoring, has led to us to look at backup solutions because it highlighted a shortfall in the resilience of our connectivity; over the coming months, we'll be installing ADSL to give us that extra resilience," says James.

One benefit that James feels his team is getting from FluidOne's monitoring is the ability to stay ahead of the business, he explains, **"The training centre went down at the weekend and FluidOne alerted me immediately so I was able to get an engineer in to fix the problem before training started at 8am on Monday morning. Without the monitoring, I wouldn't have known about the problem until 8am when training was due to start."**

By partnering with FluidOne, the A14 JV has been able to meet its project deadline and deliver a robust network at the lowest cost, without compromising quality or control

"We're in an environment that's changing fairly frequently so speed of mobilisation is key," says James. "Without FluidOne's 4G WAN solution, we wouldn't have been operational in the time frame; with delays on the fibre installation affecting every site, the whole project would have been at least three months late in starting."

Commenting on the project, as a whole, James feels that FluidOne's knowledge of new technology and its agility as a service provider is what made it possible to deliver the project without having a fully managed solution.

"We don't have a conventional way of working but FluidOne picked up on it quickly and offered us robust solutions," says James. "FluidOne filled a gap in our knowledge and resource; there are only five people in our team, and only three of those are engineers, so we couldn't have run this project without FluidOne."

FluidOne

We design, deploy and manage the networks on which our customers run their businesses in an increasingly digital world. Our hybrid networks will help customers digitalise their businesses

The best price possible

Our hybrid networks, enhanced by SD-WAN, blend carriers and technologies to optimise the price of every site, and minimise installation cost with zero touch deployment. We offer transparent pricing for peace of mind.

The fastest deployment

Our hybrid networks let you choose circuits that deliver fastest for each site, and our 4G WAN circuits offer 2 day delivery with seamless transition to permanent circuits.

The easiest migration

We can phase your migrations to suit you, minimising cost and hassle.

The best performance and uptime

Our advanced monitoring shows the whole application path, raise 95% of key issues proactively and allows detailed reporting and drill-down to show issues and long-term trends.

The most enjoyable and pain free experience

Our end to end digital systems and processes deliver Right first time with clear, accurate bills.