

## Case study

# Greater Birmingham & Solihull Institute of Technology network security

Read about how Trustmarque created a fully connected STEM facility for the Greater Birmingham and Solihull Institute of Technology.



## Background

The GBSIoT Hub was officially opened in December 2022, GBSIoT is one of 21 Institutes of Technology (IoTs) currently established across England as unique collaborations between further education colleges, universities, and employers to offer technical education and training at higher skill levels in key STEM sectors.

Engineers play a vital role in today's society. They contribute to the design, development, and manufacture of products that allow us to do things on a daily basis that we take for granted, from talking on our mobile phones to flying on holiday on a commercial aircraft.

“With our multiple users, from different education providers, each with their individual devices, an off-the-shelf product would not have worked at GBSIoT. Removing as many limitations as possible, including security and bandwidth issues was key. We'd heard about the work Trustmarque had done with Aston University, and were excited at the prospect of launching a cutting-edge networking solution.”

Michael Burke,  
Operations Director, Greater Birmingham  
and Solihull Institute of Technology

# Challenge

GBSIoT's mission is to create a 'powerhouse' for advanced manufacturing and engineering and is a collaboration between further education providers, universities, and employers in the Greater Birmingham and Solihull region. But to achieve this, they knew they wouldn't be able to reach these goals without the right IT infrastructure, and a project in partnership with Aston University was initiated to define their network deliverables.

GBSIoT sought a networking and cyber security solution to future-proof their education provision, and cater to both their students and lecturers across technical education in engineering and advanced manufacturing, as Michael Burke explains:

## The solution

After consulting with the team at GBSIoT, Trustmarque presented a new networking solution offering the latest advanced features and functionality in network - routing, switching and wireless to deliver high-speed wired and wireless networks.

GBSIoT, decided that a Cisco-based infrastructure should be deployed and that it should offer both access for students, staff and visitors.

At the heart of the network are a resilient pair of high-performing Cisco Catalyst C9300 switches that are set up as a Cisco Stackwise pair.

The C9300 switches provide a dual network function acting as both the collapsed Core and Edge of the network. The solution provides downlink connectivity for up to 46 data points and 10 wireless access points.

To provide full visibility and control of 'who, what, where, when and how' devices connect to the network, a Cisco ISE Network Access Control solution has been deployed to control end user access to the wired and wireless networks using 802.1x access control and also provides Guest Portal access.



The Cisco ISE solution runs on dedicated ISE appliances set up in a high availability deployment comprising of active policy services nodes and active/standby administration and monitoring nodes.



A Cisco Prime Infrastructure Management server gives complete visibility of the new network solution by providing Single Pane of Glass Management and Monitoring of all elements that make up the solution.



This includes hardware management and monitoring, software management, application visibility and wireless floor plans as well as radio frequency (RF) coverage visibility.



Securing the perimeter of the new network solution are a high availability pair of Fortinet FortiGate Next Generation Firewalls.

The FortiGate Firewalls are set up as an active/standby pair and deliver up to 3Gbps of secure throughput. The firewalls are configured with the full suite of advanced protection features including a next-generation firewall (NGFW), Intrusion Prevention, Threat Protection and Malware Protection to ensure a safe and robust secure environment for the Institute.

# Outcome

GBSIoT now has a fast and agile network, with web filtering enabled with long term logging to add further user protection. Built with Cisco technology, with Fortinet overlay, the modular and scalable design means that there is seamless support for future expansions and is also future-proofed in terms of both hardware and software to enable the evolution into software-defined networking, thereby offering optimal investment protection.

GBSIoT can now facilitate innovation and support young people in improving their employability and progression opportunities. Staff can hold video conferences with students and employers, aiding online induction programmes and recruitment. The new network is upholding the stringent demands of GBSIoT's students, as they have also been able to increase the online STEM CPD and masterclasses and associated content they offer.



“---, the Cisco network gives our staff and students new ways of working, from the cloud to the Internet of Things, helping us offer a world-class learning experience at Greater Birmingham and Solihull Institute of Technology. It has been a real pleasure to work with Trustmarque, and I shall continue to sing their praises whenever given the opportunity to do so.”

Michael Burke, Operations Director, Greater Birmingham and Solihull Institute of Technology

## Trustmarque and Cisco

Reliable and powerful infrastructure technology is the backbone of your organisation. Outages and technology disruptions can result in downtime, loss of revenue, security risks, and frustrated colleagues. When things go wrong, it's vital you have access to expert support.

Spanning two decades, our relationship with Cisco has solved the most complex customer connectivity challenges. We'll lay solid digital foundations with local and wide-area networking for your workplace, datacentre, and the cloud.

