

BCS Level 4 Network Engineer Synoptic Project Scenarios

Example Scenario

Scenario A – Library Network

You can choose to focus your project on addressing the following scenario if you are unable to base your project on a real-world situation.

The problem

You are working as a network engineer. You have been tasked with designing and building the new network for your multi-storey local library. The library is expected to be between 50m and 60m long and 30m to 40m wide. The site occupies two floors. This new library will provide local Internet and BYOD facilities for local residents.

Requirements

The solution should:

- Provide the council with a new network (or proof of concept elements where implementation is difficult).
- Contain appropriate network services and software to enable safe and reliable provision.
- Consider requirements such as device management, wireless, server and network hardware, kiosk or customer workstations and loan management technology.
- Consider future expansion and scalability along with appropriate transmission medium.
- Recommend appropriate ISP/provider connectivity.
- Provide detailed IP addressing and other standard documentation.

You can choose how you implement your network. Whether you have access to physical equipment or choose to utilise technology, such as Microsoft Azure or Amazon AWS, either is fine. For the elements that you do not have access to, provide proof of concept and suitable substitutes. Cisco Packet Tracer should not be used.

As this is the first task that you have been asked to undertake for the organisation, you are keen to use this as an opportunity to evaluate your own skills and identify areas for personal improvement.

Additional Suggested Scenarios

Scenario B – Warehouse Network

Design and build a network for a new warehouse being built locally. The warehouse is roughly 200m by 200m and consists of a mezzanine level for offices. The design should include consideration of wireless access, cabinet placements, physical and logical security, and cabling choice. Suggestions on logistics technology and inventory management should be incorporated.

Scenario C – Primary School Network

Design and implement a new network for the aging one currently installed that runs on Cat5 cable. The school has 6 year groups, a reception class, interactive learning zone and hall. They are looking for a new network that includes wireless provision and are interested in interactive technology for student learning. Staff are due to be issued individual tablets in the coming months and would welcome suggestions on device choice, security and management. They do not have a website or Intranet and are looking for advice on its implementation. The building is approximately 70m x 40m, not including the outside play areas and would require site access control for pupil safety and outdoor wireless access.

Scenario D – Doctor's or Dentist's Surgery

Create a design for a medical facility such as a doctor's surgery or dental practice, which is then implemented. There are 8 consulting rooms, an x-ray area, reception, waiting area and staff rest space. You should consider technology for patient sign-in and bookings, taking payments, connections for medical devices and nurse workstations. Other aspects include website infrastructure and mobile device management for staff only. Thought should be given to physical and logical security. The practice is over 3 floors.