

**Aces Centre** ICAAS145B  
**Identify best-fit topology for a wide area network**

- Elements
  - Identify WAN needs
  - Create WAN specification

**Aces Centre** **Element 1: Identify WAN needs**

- Performance Criteria
  - Identify the different local area network (LAN)/wireless local area network (WLAN) or virtual private network (VPN) segments of the proposed wide area network (WAN)
  - Determine segment needs using functional analysis
  - Estimate *traffic* content and volumes according to expected organisational usage, by examining *telecommunications infrastructure*
  - Develop an organisational WAN functional matrix

**Aces Centre** **Element 2: Create WAN specification**

- Performance Criteria
  - Determine *resource requirements* for each LAN/WLAN or VPN segment on the basis of functional analysis
  - Consider and report how features of the physical environment affect WAN design
  - Choose a *WAN service* appropriate to the amount and type of *traffic* expected to access the WAN
  - Include redundant links in the proposed WAN connectivity for link back-up purposes, in case the main link is disrupted

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- Knowledge
  - Telecommunications infrastructure, including the difference between digital and analogue networks
  - Modems: concepts and types
  - Asynchronous and synchronous communication
  - Use of microwave and satellite communication in networking
  - Packet switching
  - Router operations (e.g. DDR)

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- Knowledge
  - TCP/IP protocols
  - IP addressing
  - Routing protocols (e.g. RIP, EIGRP, OSPF)
  - Routed (routable) protocols (e.g. IP, IPX, AppleTalk)

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- Knowledge
  - General knowledge so that the learner can define the requirements covering areas such as:
    - Scope of operation, redundancy paths, high/low-speed links, protocols, security, traffic flow patterns, traffic load, response time and reliability requirements, types of users/applications, growth projections and capacity planning, constraints and costs

● Skills

- Use of functional matrices
- Use of LAN functional matrices
- Use of traffic simulation tools
- Basic traffic analysis
- Use of network protocols