



Australian Government

ICTNWK516 Determine best-fit topology for a local network

Release: 1

ICTNWK516 Determine best-fit topology for a local network

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to determine the most appropriate way of networking computers to meet user needs and business requirements.

It applies to individuals in senior networking roles who are required to plan the most appropriate topology for a proposed network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Networking

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine user needs	1.1 Identify the different segments of the proposed network based on business requirements 1.2 Determine segment needs, using network functional analysis 1.3 Estimate traffic content and volumes based on business requirements 1.4 Develop a prioritised organisational network functional matrix
2. Develop local area network specification	2.1 Determine the resource requirements for each network segment on the basis of functional analysis 2.2 Analyse features of the physical environment for the effect

ELEMENT	PERFORMANCE CRITERIA
	on network design 2.3 Conduct a costing process for possible topology options 2.4 Consider topology options with reference to available resources and network functional matrix 2.5 Select and document appropriate network topology based on business requirements and functional analysis

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.3, 2.5	Interprets textual information obtained from a range of sources and determines how content may be applied to organisational requirements
Writing	2.5	Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations
Numeracy	1.3, 2.1, 2.3, 2.4	- Interprets numerical information and applies mathematical calculations to determine resource expenditure within predetermined constraints - Interprets numerical data to estimate traffic needs
Get the work done	1.1, 1.2, 1.4, 2.1, 2.2, 2.4, 2.5	- Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world - Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes - May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK516 Determine best-fit topology for a local network	ICANWK516A Determine best-fit topology for a local network	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTNWK516 Determine best-fit topology for a local network

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- analyse business or organisational needs
- identify the most appropriate local area network (LAN), virtual private network (VPN) or wireless local area network (WLAN) topology
- document recommendations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the typical network topologies for the following:
 - large and small LANs
 - wide area networks (WANs)
 - VPNs
 - virtual local area networks (VLANs)
 - WLANs
- identify and describe the typical components of a local network, including:
 - adaptor cards
 - bridges
 - Ethernet hardware
 - gateways
 - hubs
 - routers
- describe the software and programming requirements of a local network, including:
 - security protocols

- transmission control protocol or internet protocol (TCP/IP)
- describe the business consideration for establishing a local network including:
 - growth projections and capacity planning
 - costs and queuing constraints
 - high and low speed links
 - redundancy paths
 - response time and reliability requirements
 - scope of operation
 - traffic flow patterns
 - traffic load
 - application requirements of users
- outline of installation requirements for local area networks:
 - cabling, particularly unshielded twisted pair (UTP), shielded twisted pair (STP) or optic fibre
 - characteristics and relative strengths and weaknesses of LAN network topologies
 - features and capabilities of current industry accepted hardware and software products
 - features of line sharing protocols.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- business requirements
- equipment specifications
- organisational and industry costing.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>