



Australian Government

ICTNWK555 Determine best-fit topologies for local networks

Release: 1

ICTNWK555 Determine best-fit topologies for local networks

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

Application

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

It applies to individuals in networking roles who are required to plan network topology options for local networks.

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 needs of local network users	1.1 Obtain work details and scope from relevant personnel and arrange for site access in compliance with security arrangements, legislation, work health and safety (WHS) requirements, codes, regulations and standards 1.2 Identify mobile and static network users, network business processes and requirements, according to organisational requirements 1.3 Determine organisational budget limitations and approval processes 1.4 Perform network functional analysis and identify the needs of segments and network users 1.5 Estimate traffic content and volumes 1.6 Create prioritised organisational network functional matrix,

ELEMENT	PERFORMANCE CRITERIA
	according to organisational requirements
2. Assess local network specifications	2.1 Perform a functional analysis and determine the resource requirements for each network segment 2.2 Analyse functions and features of the physical environment and identify effects on the network design 2.3 Conduct a cost-benefit analysis and identify viable topology options 2.4 Evaluate topology options in consideration of available resources and network functional matrices 2.5 Nominate the most viable network topology options 2.6 Select and document identified viable network topologies in required reporting format
3. Report best-fit topology options	3.1 Report identified viable network topology to relevant personnel according to organisational procedures 3.2 Obtain task sign-off from relevant personnel

Foundation Skills

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

SKILL	DESCRIPTION
Numeracy	• Interprets numerical information and applies mathematical calculations to determine resource expenditure within predetermined constraints • Interprets numerical data to estimate network traffic needs
Reading	• Interprets textual information obtained from a range of sources and determines how content may be applied to organisational requirements
Writing	• Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations
Planning and organising	• Operates from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues
Oral communication	• Presents and discusses ideas with relevant personnel • Engages with and understands customer needs and requirements

Unit Mapping Information

No equivalent unit. Supersedes and is not equivalent to ICTNWK516 Determine best-fit topology for a local network.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for ICTNWK555 Determine best-fit topologies for local networks

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- determine at least three best-fit topologies for local networks.

In the course of the above, the candidate must:

- analyse business and organisational needs
- identify the most viable local area network (LAN), virtual private network (VPN) and wireless local area network (WLAN) topology
- document recommendations and communicate findings to relevant personnel.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

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

- transmission control and internet protocols (TCP/IP)
- business considerations for establishing local networks, 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
- requirements for installing:
 - unshielded twisted pair (UTP)
 - installing shielded twisted pair (STP)
 - optic fibre
 - cables
 - Wi-Fi access points
- features and capabilities of industry-accepted hardware and software products
- functions and features of cost-benefit analyses
- features of line-sharing protocols
- characteristics and relative strengths and weaknesses of LAN network topologies
- organisational requirements regarding:
 - identification of different segments in networks
 - creation of prioritised organisational network functional matrices
 - reporting identified best-fit topologies with personnel
- required legislation, codes, company work practices, regulations and standards, work health and safety (WHS) requirements for scoped work.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

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

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

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