



Australian Government

ICTNWK625 Plan and configure advanced internetwork switching solutions

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with the Information and Communications Technology Training Package Version 8.0. Supersedes and is equivalent to ICTNWK604 Plan and configure advanced internetwork switching solutions.

Application

This unit describes the skills and knowledge required to plan and configure advanced internetwork switching and layer-based routing solutions for enterprises. It includes the secure integration of multilayer switches, virtual local area networks (VLANs), wireless local area networks (WLANs), and video voice features into high-availability networks.

The unit applies to individuals who may work in roles such as network specialists, network engineers, network infrastructure engineers, senior network administrators, network and systems managers, information and communications technology (ICT) security specialists and engineers, and communications managers.

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. Test VLAN-based solutions	1.1 Confirm work brief and tasks according to organisational policies and procedures 1.2 Analyse and select VLAN-based solution and network design option according to work brief 1.3 Create implementation and verification plan for VLAN-based network solution

ELEMENT	PERFORMANCE CRITERIA
	1.4 Verify switch-to-switch connectivity, loop prevention and access ports for VLAN-based solution 1.5 Configure and verify private VLAN-based solution 1.6 Document implementation and verification results according to work brief
2. Secure multilayer switch-based solutions	2.1 Analyse and select layer 2 and switch-based layer 3 network solution according to work brief 2.2 Create implementation and verification plan for each network solution 2.3 Configure and verify layer 2 network solution 2.4 Configure and verify routing interfaces and switch-based layer 3 network solution 2.5 Document implementation and verification results according to work brief
3. Prepare wireless support infrastructure	3.1 Analyse and select wireless extensions according to work brief 3.2 Configure and verify wireless extensions 3.3 Implement voice over internet protocol (VoIP) and video application support solutions according to work brief 3.4 Test multilayer wireless extension functionality and rectify any issues
4. Develop high-availability multilayer switches	4.1 Identify high-availability multilayer switching solutions 4.2 Create implementation and verification plan for high-availability network 4.3 Configure and verify first hop redundancy protocols (FHRP) according to work brief 4.4 Implement switch supervisor redundancy and verify high-availability network solution 4.5 Test multilayer switches and rectify any issues according to work brief and organisational policies and procedures 4.6 Develop and securely file documentation on completed work tasks according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	• Interprets complex technical information to confirm requirements
Writing	• Develops a broad range of plans and documentation for work tasks • Conveys explicit information, requirements and recommendations using concise and detailed language
Initiative and enterprise	• Responds to protocols in complex work contexts and follows protocols in changing situations
Planning and organising	• Uses a broad range of strategies to store, access and organise virtual information, identifying how information is retrieved and how it may be interpreted and used
Problem solving	• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies
Technology	• Operates from a broad conceptual plan to identify functional, performance and management features associated with the operation of complex switched networks • Implements measures to monitor and control access to digitally stored and transmitted information

Unit Mapping Information

Supersedes and is equivalent to ICTNWK604 Plan and configure advanced internetwork switching solutions.

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 ICTNWK625 Plan and configure advanced internetwork switching solutions

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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:

- plan and configure at least two different advanced internetwork switching solutions.

In the course of the above, the candidate must:

- configure one private virtual local area network (VLAN)-based solution
- configure one multilayer switch-based solution
- configure one wireless extension with multi-layered (layer 3) switches
- apply required organisational policies and procedures.

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:

- functions and features of formal and structured network management, including:
 - integrated and unified enterprise networks
 - wireless standards and certifications
 - external factors on switched enterprise networks
 - maintenance tools and practices
 - types of network topologies
- methods to configure network components using technical guidelines
- functions and features of advanced internetworking switching solutions, including:
 - local area networks (LANs)
 - VLANs
 - wide area networks (WANs)

- virtual private networks (VPN)
- implementation and verification plans
- switching and routing technologies
- multilayer switches
- high availability network solutions and switching solutions
- first hop redundancy protocols (FHRPs)
- voice over internet protocol (VoIP)
- wireless extensions
- layer 3 networks
- layer 2 networks
- switch-to-switch connectivity
- video application support solutions
- key risk management strategies and practices for complex networks, including:
 - protocols and operational processes
 - operating security technologies
 - formal and structured approaches to network management
 - internetwork testing procedures
- security features of networks
- organisational formats for documentation
- organisational policies and procedures and legislative requirements relating to work tasks.

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:

- technical network requirements, including access to different operating systems on different devices
- network infrastructure, including servers, tools, hardware and software
- LAN and WAN systems required to demonstrate the performance evidence
- organisational policies and procedures required to demonstrate the performance evidence.

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>