



Australian Government

ICTNWK604 Plan and configure advanced internetwork switching solutions

Release: 1

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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 plan, configure and support advanced enterprise switching. The unit also covers secure integration of virtual local area networks (VLANs), wireless local area networks (WLANs), voice and video into campus networks.

It applies to individuals with advanced information and communications technology (ICT) skills who are working in a variety of roles, including network specialists, network engineers, network infrastructure engineers, senior network administrators, network and systems managers, ICT security specialists, security engineers, communications 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. Plan, configure and test a VLAN-based solution	1.1 Determine network resources required for implementing a VLAN-based solution for a given network design and requirements 1.2 Produce an implementation plan and a verification plan for the VLAN-based network solution 1.3 Configure and verify switch-to-switch connectivity, loop prevention and access ports for the VLAN-based solution

ELEMENT	PERFORMANCE CRITERIA
	using network tools 1.4 Document results of the VLAN implementation and verification plans
2. Plan, configure and test a secure layer 2 network solution and a switch-based layer 3 services solution	2.1 Determine network resources required for implementing a secure layer 2 network solution and a switch-based layer 3 solution against vulnerabilities with organisational security policies 2.2 Produce an implementation plan and a verification plan for each of the layer 2 and layer 3 network solution 2.3 Configure and verify a private VLAN and features for port security and general switch security for the layer 2 network solution, using network tools 2.4 Configure and verify routing interfaces and layer 3 security for the switch-based layer 3 network solution, using network tools 2.5 Document results of security implementation and verification plans for each of the layer 2 and the layer 3 network solution
3. Prepare infrastructure to support advanced services	3.1 Implement a wireless extension of a layer 2 solution 3.2 Implement a support solution for a voice over internet protocol (VoIP) and a video application
4. Plan, configure and test high-availability networks using multilayer switches solution	4.1 Determine network resources needed for implementing high-availability solution for a given network design and requirements 4.2 Produce an implementation plan and a verification plan for the high-availability network, using multilayer switches 4.3 Configure, verify and manage first hop redundancy protocols (FHRP) 4.4 Implement switch supervisor redundancy and use network tools to verify the high-availability solution 4.5 Document results of high-availability implementation and verification plans

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	2.1, 4.1	Recognises and interprets complex technical design information to determine and confirm job requirements
Writing	1.2, 1.4, 2.2, 2.5, 4.1, 4.2, 4.5	Develops a broad range of material, including operational, technical, procedural and project management documentation for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations
Navigate the world of work	2.1	Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations
Interact with others	1.1, 2.1, 4.1	- Collaborates with others, sharing information - Elicits feedback and provides feedback to others in order to improve
Get the work done	1.1, 1.3, 2.1, 2.3, 2.4, 3.1, 3.2, 4.1, 4.3, 4.4	- Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology - Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used - Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information - May operate from a broad conceptual plan to identify functional, performance and management features associated with the operation of complex switched networks - Uses nuanced understanding of context to solve problems in complex and dynamic environments with demanding service levels

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK604 Plan and configure advanced	ICANWK604A Plan and configure advanced	Updated to meet Standards for	Equivalent unit

Code and title current version	Code and title previous version	Comments	Equivalence status
internetwork switching solutions	internetwork switching solutions	Training Packages	

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 ICTNWK604 Plan and configure advanced internetwork switching solutions

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Performance Evidence

Evidence of the ability to:

- design, configure and support advanced switched network infrastructure
- implement wireless extension solution with multi-layered (layer 3) switches
- prepare infrastructure to support advanced services
- use network tools.

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:

- explain the benefits of formal or structured approach to network management
- summarise business justifications for having integrated and unified enterprise networks
- outline current wireless regulations, standards and certifications
- clarify emerging viable business and social technologies
- explain external developments or factors that affect switched network design
- summarise maintenance and management tools and practices suitable for complex networks to achieve availability and resilience
- outline network topologies
- explain organisational policies for internetworking
- summarise risk management strategies and practices suitable for a complex switched network environment
- outline security for an enterprise-switched environment
- explain security standards and technologies for switched network environments
- summarise switching and routing technologies for an enterprise-switched environment.

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 networking industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- local area network (LAN) and wide area network (WAN) systems, including voice and video (hardware or software).

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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