



Australian Government

ICANWK535A Install an enterprise virtual computing environment

Release 1

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Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop and implement virtualisation technologies with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for increasing the sustainability of an enterprise by using virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</i>

Elements and Performance Criteria

1. Analyse client needs	1.1. Assess <i>client</i> requirements 1.2. Assess existing client or server <i>systems</i> that may be suitable to be virtualised
2. Analyse virtualisation host software	2.1. Assess and compare suitable virtualisation <i>host software</i> according to <i>enterprise requirements</i> 2.2. Document recommendations and provide to <i>appropriate person</i>
3. Evaluate system requirements	3.1. Obtain and document technical specifications, licensing and system requirements from <i>virtualisation software vendors</i> 3.2. Evaluate and compare <i>system requirements</i> needed to implement virtualisation 3.3. Document recommendations and provide them to appropriate person
4. Plan and install virtualisation host software	4.1. Plan and prepare for host software installation 4.2. Obtain and install virtualisation host platform 4.3. Test and validate <i>functionality</i> of the virtualisation host platform according to enterprise requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

communication skills to:

- liaise with clients
- convey and clarify information
- initiative and enterprise skills to proactively minimise, control or eliminate hazards that may exist during work activities
- literacy skills to:
 - record researched information
 - develop and document virtualisation configurations and processes
- planning skills to plan methods for integrating and maintaining a virtualised machine environment
- problem-solving skills to:
 - apply solutions in networks, including virtualised machine environments
 - deploy rapid solutions to problems involving virtualised machine environment
- technical skills to apply current best practice to implementing sustainability options through virtualisation methodologies and technologies

Required knowledge

- overview knowledge of:
 - current government and industry policies and guidelines relating to developing efficient and reliable ICT environments
 - current technologies and processes designed to produce an efficient and reliable ICT environment
 - current recommendations on sustainability options in ICT design
 - benefits of virtualisation
 - processes and procedures for installing and configuring virtualisation software and virtual machines
 - processes and procedures for configuring virtual machines into network design
- structure, function and business organisation of client
- available tools and software applications required to manage virtual machines
- configuration of software applications required to manage virtual machines
- configuration required to integrate virtual machines into existing network design

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify suitable tools and software applications required to manage virtual machines • configure software applications to manage virtual machines • integrate virtual machines into existing network design.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where virtual machine environments may be implemented • network technical requirements • industry-relevant virtualisation software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge • direct observation of candidate: • installing and configuring virtualisation software and virtual machines • configuring virtual machines into network design • review of documentation prepared by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

	knowledge.
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Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<i>Client</i> may include:	- external organisation - individual - internal department - internal employee.
<i>Systems</i> may include:	- servers - thin client terminals - workstations.
<i>Host software</i> may include:	- Citrix XenServer - KVM - Microsoft Hyper-V Server - Microsoft Virtual PC - Microsoft Virtual Server - Oracle VM VirtualBox - Parallels Desktop for Mac - Parallels Server for Mac - VMware ESX Server - VMware ESXi Server - VMware Player - VMware Server - VMware VSphere - VMware Workstation - Windows Virtual PC.
<i>Enterprise requirements</i> may include:	- how and what the enterprise wants regarding the work environment - preventative maintenance and diagnostic policy - problem-solving processes - roles and technical responsibilities in network management - vendor and product service level support agreements.
<i>Appropriate person</i> may include:	- authorised business representative - client

	• supervisor.
Virtualisation software vendors may include:	• Citrix • KVM • Microsoft • Oracle • Parallels • VMware.
System requirements may include:	• hard disk capacity and speed • minimum random access memory (RAM) • motherboard architecture • number of cores in central processing unit (CPU) • number of network interface cards • number of physical CPUs • speed of CPU • storage and hard disk interface requirements: • internet small computer systems interface (iSCSI) • redundant array of inexpensive or independent disks (RAID) • statistical analysis system (SAS) • small computer system interface (SCSI) • serial advanced technology attachment (SATA) • virtualisation technology at the central processing unit level (VT(x)) support.
Functionality may include:	• availability of services • virtualised services performing the same as a service running on physical hardware.

Unit Sector(s)

Networking