



Australian Government

ICTTEN825 Investigate applications of cloud networks in network switching

Release: 1

ICTTEN825 Investigate applications of cloud networks in network switching

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 develop strategies to accommodate shortfalls in capacity and functionality for a switching network. It also covers how to develop solutions for network growth using emerging technologies, including cloud computing.

It applies to individuals with excellent technical and strategic management skills working as telecommunications planning engineers and senior technical staff.

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

Unit Sector

Telecommunications Networks Engineering

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. Evaluate existing physical network infrastructure	1.1 Analyse scalability, functionality, cost, security and energy consumption of existing physical network infrastructure 1.2 Report on shortfalls and risks of existing physical infrastructure in accommodating network growth and increased functionality 1.3 Investigate capacity and functionality shortfalls of existing physical infrastructure to highlight limitations of the existing switching network 1.4 Document estimated costs and issues associated with meeting capacity and functionality shortfalls using existing physical infrastructure
2. Investigate the	2.1 Analyse trends in cloud networks (infrastructure-as-a-service),

ELEMENT	PERFORMANCE CRITERIA
application of cloud networks	technologies and multiprotocol label switching (MPLS) architectures against rapid changes in the landscape 2.2 Determine applicability of cloud networks (infrastructure-as-a-service) to meet capacity and functionality requirements of the network 2.3 Assess risks in using cloud networks to meet capacity and functionality requirements of the network 2.4 Evaluate a range of cloud network solutions and justify selection of an optimum network switching solution 2.5 Develop solution elements using a series of small project elements 2.6 Produce a cloud network alternative solution to emulate the existing core network of a service provider
3. Analyse the impact of the cloud network solution for system integration and across business domains	3.1 Prepare a plan for organisational change control processes and integration of cloud network solutions within a complete network infrastructure 3.2 Prepare a test scenario and produce a test management schedule for the testing process of system elements and interfaces using simulation 3.3 Use integration document software to replicate issues exhibited in test environment 3.4 Certify cloud network solution compatibility and compliance to requirements using the web-based test management tool (quality centre) to conduct performance evaluation tests 3.5 Analyse test reports to evaluate load balancing and network security issues in test environment 3.6 Document and resolve conflicts detected in simulation testing
4. Develop a business case for implementation of a cloud network	4.1 Prepare a cost-benefit analysis of the cloud network solution as a business case to evaluate the return on investment (RoI) 4.2 Investigate staging of the solution and timing implementation of project elements as a scenario for real life implementation 4.3 Research and report on key features of cloud network implementation in a business case study

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
-------	-------------

SKILL	DESCRIPTION
Numeracy	• Uses numerical information to interpret results, evaluate different types of technical data, take measurements and determine cost-effective outcomes for RoI
Reading	• Researches, evaluates and interprets complex technical documentation, such as software and hardware manuals and design specifications
Writing	• Prepares workplace documentation, including reports and recommendations incorporating technical language, to communicate complex information
Planning and organising	• Uses a combination of formal, logical planning processes to identify required information, test strategies and resources • Uses formal, analytical and lateral thinking techniques to resolve problems or to generate ideas
Technology	• Actively identifies digital systems, devices and applications with potential to meet current and/or future needs • Actively identifies digital systems, devices and applications with potential to meet current and/or future needs • Uses main features and functions of digital tools to complete work tasks

Unit Mapping Information

Supersedes and is equivalent to ICTTEN810 Investigate the application of cloud networks in telecommunications switching.

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 ICTTEN825 Investigate applications of cloud networks in network switching

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:

- investigate applications of at least two cloud networks in network switching.

In the course of the above, the candidate must:

- evaluate physical network capacity and functionality shortfalls
- investigate application of cloud networks and plan at least two architectural designs
- develop components of cloud networking solution for meeting capacity and functionality requirements of the network
- assess network risks
- analyse impact of integration of cloud network solution on network
- prepare test plans with test scenario and produce test management schedules
- use integration document and software test management tools to replicate issues exhibited in test environment
- certify cloud network solution compatibility and compliance
- prepare cost-benefit analyses of cloud network solutions
- develop business cases for implementation of cloud networks.

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:

- required legislation, codes, company work practices, regulations and standards, workplace health and safety (WHS) requirements for scoped work
- components of infrastructure-as-a-service solutions
- existing digital switching technology in service provider's core network
- information required to develop architectural solutions
- functions and features of:

- test plans, test scenarios and test management schedules
- business cases
- cost-benefit analysis
- return on investment
- cloud network solutions
- integration document software
- new cloud network technologies
- detailed summary of cloud networking transmission, transmitter and receiver architecture and their associated infrastructure
- performance and integration requirements
- technical documentation
- protocols as used on multiprotocol label switching (MPLS) and infrastructure-as-a-service
- detailed explanation of network components and their functions
- specific organisational requirements relating to computer systems
- typical issues and challenges that occur with system changes.

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:

- a site where the application of cloud networks in network switching may be investigated
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

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>