Australian Government

ICTCLD502 Design and implement highly-available cloud infrastructure

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 6.0.

Application

This unit describes the skills and knowledge required to design and implement fault tolerant and scalable workloads to achieve high availability in a cloud environment.

The unit applies to cloud computing architects, cloud developers, cloud engineers and those engaged in designing and implementing cloud computing solutions for a business. It applies to individuals in Information Communications Technology (ICT) professions involved in systems design and systems architecture.

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

Unit Sector

Cloud computing

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Identify high-availability requirements	1.1 Determine reliability, recoverability and service levels required for application 1.2 Determine cloud infrastructure according to business needs 1.3 Identify level of shared security responsibility models according to business needs
2. Evaluate architecture availability	2.1 Review architecture of traditional multi-tier web application in non-cloud environment and identify high availability requirements 2.2 Identify any single points of failure 2.3 Estimate recovery objectives for multi-tier web components

ELEMENTS	PERFORMANCE CRITERIA
	and for overall architecture 2.4 Determine components that must scale vertically and the potential impact on system availability 2.5 Document architecture review findings according to business needs
3. Design cloud-based architecture for high availability	3.1 Design equivalent architecture for high availability using cloud services 3.2 Identify and remove single points of failure as required 3.3 Estimate recovery objectives for each component and overall architecture 3.4 Determine components that must scale vertically and the potential impact on system availability 3.5 Document architecture design according to business needs
4. Implement cloud-based architecture for high availability	4.1 Implement architecture design in cloud environment 4.2 Demonstrate connectivity between resources at all tiers 4.3 Monitor and measure availability of resources 4.4 Simulate failures of component and confirm that infrastructure is fault tolerant 4.5 Simulate resizing components likely to impact performance and measure availability impact 4.6 Compare and document simulation findings according to documented design
5. Finalise cloud infrastructure	5.1 Adjust and improve availability of architecture according to simulations as required 5.2 Confirm, seek and respond to feedback with required personnel 5.3 Obtain final sign off from required personnel

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
Oral communication	• Uses listening and questioning techniques to articulate complex concepts and requirements using industry language for intended audience
Reading	• Interprets complex technical and operational documentation to determine and confirm job requirements

SKILL	DESCRIPTION
Problem solving	• Uses a mix of intuitive and formal processes to identify key information and issues, evaluates alternative strategies, anticipates consequences and considers implementation issues and contingencies • Uses knowledge of context to address common problems in cloud computing applications and cloud-based environments
Self-management	• Demonstrates a sophisticated knowledge of principles, concepts, language and practices associated with cloud computing and the digital world and uses them to troubleshoot and understand the uses and potential of new technology

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2