



Australian Government

Department of Education, Employment and Workplace Relations

ICTTEN6044A Coordinate fault rectification and restoration of service following network outages

Release: 1

ICTTEN6044A Coordinate fault rectification and restoration of service following network outages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to identify, analyse and resolve service faults by coordinating fault rectification. It describes strategies for dealing with customers, operational staff and associated system restoration. Network faults in service provider Core and Access Networks impact on services provided to customers. 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.
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Application of the Unit

Application of the unit	Network engineering staff who coordinate fault rectification and restoration of service following network outages apply the skills and knowledge in this unit. This unit applies to network engineers, managers or senior operational staff who have high level technical skills and appropriate authority to coordinate the activities of maintenance personnel. It addresses compliance issues associated with service level agreements.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for restoration of client services	1.1. Evaluate relevant data to determine the nature of the fault and the extent of the outage 1.2. Assess impact of the fault on network and clients and establish priority of actions to be taken 1.3. Analyse alarm and other network data and record the details according to contractual agreements and enterprise policy 1.4. Prepare an action plan to manage the fault rectification and restoration to minimise impact on the network and affected customer 1.5. Provide a central point for all rectification and restoration activity and information to coordinate action and progress 1.6. Prioritise service restoration based on assessment of contractual arrangements, including service level agreements with clients 1.7. Negotiate with client's account manager regarding repair arrangements where service level agreements cannot be met
2. Implement action plan for fault rectification and service restoration	2.1. Notify all relevant personnel and departments involved in the outage according to enterprise policy 2.2. Isolate affected alarms and monitor all associated alarms to confirm no additional problems occur 2.3. Locate and rectify fault following action plan backed up by contingency plan according to enterprise policy 2.4. Manage repair activity with appropriate technical support and adjust resource allocations or escalate if required to ensure effective restoration of network services within a specified timeline 2.5. Reset alarms and restore services to normal network configuration 2.6. Test and monitor network activity upon recovery to certify effective fault clearance and service restoration
3. Finalise administrative tasks	3.1. Complete administrative tasks according to enterprise instructions 3.2. Notify customers of fault rectification and service restoration according to service level agreement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- analytical skills to interpret test equipment settings and readings
- communication skills to liaise and negotiate with clients and internal staff to ensure requirements are known and can be met within specified timeframes
- literacy skills to read and interpret technical specifications and related documentation
- PC skills to communicate with network and enterprise database
- planning and organisational skills to ensure timely updates and information are communicated to appropriate parties
- problem solving skills to account for unexpected faults or equipment incompatibilities
- research skills to gain and maintain relevant and current technical product knowledge
- technical skills to operate and configure equipment

Required knowledge

- alarm conditions and the areas of the network or service they impact
- connections to carrier infrastructure or equipment
- customer care policies
- electrical and optical principles
- escalation procedures and appropriate tier level contacts
- legislation and licensing surrounding installation of telecommunications equipment
- network and transmission equipment
- occupational health and safety (OHS) requirements and work practices relevant to fault rectification
- power requirements and electrical safety
- protection switching
- telecommunications applications and related equipment
- test equipment
- transmission hierarchy and switching principles
- typical performance parameters and faults that may be encountered

Evidence Guide

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: • prepare an action plan to manage fault rectification and service restoration • coordinate implementation of action plan and manage repair activities • apply escalation procedures.
Context of and specific resources for assessment	Assessment must ensure: • sites where fault rectification and restoration of service may be conducted • use of testing equipment currently used in industry • manufacturer's and enterprise documentation.
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: • direct observation of the candidate planning and conducting coordination tasks for fault rectification • review of service restoration plans completed by the candidate • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN6045A Implement planned network changes with minimal impact to the customer. Aboriginal people and other people from a non English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally

EVIDENCE GUIDE

	appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.
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Range Statement

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.

Relevant data may include:

- alarm urgency
- client reports
- environmental factors
- historical data
- industry and vendor
- network operations centre (NOC) reports
- service level degradation
- technical reports
- test results from remote interrogation.

Nature of the fault may include:

- distributed denial of service (DDoS) attack
- failure of transmission equipment
- fibre cut
- radio frequency interference
- return path amplifier failure in hybrid fibre coaxial (HFC) network
- satellite transponder failure
- uninterruptible power supply (UPS) failure.

RANGE STATEMENT	
<i>Impact</i> may include:	- customer impact: - disruption of service to residential customers - intermittent performance - loss of service and revenue to an enterprise - network impact: - call drop out - congestion - errors - excessive latency - limited mobile phone coverage - no transmission - poor grade of service (GoS) - poor signal quality - routing problems.
<i>Details</i> may include:	- duration of outage - geographical footprint of service problems - initial time of outage - outcome of automatic switch-over to standby equipment - services impacted.
<i>Action plan</i> may include:	- contingency plan - engage additional services - engage additional technical support - manual switchover to redundant path - monitor and amend procedures - provision of standby equipment.
<i>Central point</i> may include:	- network operations centre - network operations manager - outage coordinator.
<i>Service level agreements</i> may include:	- amount of scheduled maintenance - compensation - guaranteed uptime - levels of availability - performance - technical response to faults.
<i>Relevant personnel and departments</i> may include:	- client - design engineer - NOC

RANGE STATEMENT	
	• on site technical staff • other installations sharing same network traffic • project manager • specialist technical support staff.
Outage may be:	• planned outage in the case of network upgrade • unplanned outage as a result of a network failure or emergency disruption to service.
Escalate may refer to:	• greater involvement from the NOC specialist personnel • requesting vendor specialist technical support.
Test and monitor may include:	• alarm monitoring • congestion activity report • fault incidence report • network management report • traffic flow measurements.
Administrative tasks may include:	• analysing trending data • completing test sheets • logging test instrument usage • recording problems identified during repair process • undertaking cause and effect studies • updating database or system log with repair details.

Unit Sector(s)

Unit sector	Telecommunications
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Co-requisite units

Co-requisite units	

Competency field

Competency field	Telecommunications networks engineering
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