

Title	Demonstrate and apply knowledge of the principles of computer networks		
Level	3	Credits	5

Purpose	People credited with this unit standard are able to demonstrate and apply knowledge of the principles of computer networks.
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Classification	Computing > Generic Computing
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Available grade	Achieved
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Guidance Information

1 Definitions

Data storage refers to a local network attached server, or cloud facility where information is stored or retrieved from.

Host devices refers to hardware devices that are connected to a network and may also be referred to as ‘end user’ devices or ‘end’ devices. Devices will have both a user interface and specialised software. Examples include but are not limited to personal computers, laptops, tablets, phones, Internet of things (IoT) devices and microcontrollers.

Intermediary devices refer to hardware devices that interconnect host devices and move information around the network such as switches, routers, modems and wireless access points.

LANs (local area networks) refer to a network of computers and associated devices within a small geographical area (such as an office or building). LANs can be wireless-based, wired, optical or a combination.

Network media refers to cables used in wired networks and radio waves used in wireless networks.

Wireless technologies refer to any technology using radio waves to move data in a network. Examples include but are not limited to technologies such as Wifi, Bluetooth, Near-Field Communication (NFC), Radio-frequency identification (RFID), wireless broadband, cellular, Zigbee, infrared, satellite, radio, broadcast television, microwave, low-power wide-area network (LPWAN).

WLANs (wireless local area networks) refer to a wireless network that links two or more devices using wireless communication to form a local area network (LAN) within a small geographical area (e.g. home, office).

- 2 Legislation relevant to this unit standard includes but is not limited to the:
Copyright Act 1994
Copyright (New Technologies) Amendment Act 2008
Harmful Digital Communications Act 2015
Health and Safety at Work Act 2015
Privacy Act 2020
Unsolicited Electronic Messages Act 2007
and any subsequent amendments.
Current legislation and regulations can be accessed at <http://legislation.govt.nz>.
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Outcomes and performance criteria

Outcome 1

Demonstrate and apply knowledge of the principles of computer networks.

Performance criteria

- 1.1 The components of LANs and WLANs are identified and described.
- Range components include – host devices, intermediary devices, network media;
three examples for each component type.
- 1.2 Networking concepts and network services are identified and described.
- Range includes but is not limited to – DHCP (Dynamic Host Configuration Protocol); IPv4, MAC (Media Access Control) addresses; public and private IP addresses; default gateway; DNS (Domain Name System); network and host addressing schemes; troubleshooting with ping and traceroute;
may include but is not limited to – IPv6; virtual private networks (VPNs); security; data storage.
- 1.3 Functions and features of intermediary devices and network media are identified and described.
- Range must include – switch; router; wireless access point (WAP); Ethernet; optical and wireless technologies; bandwidth; speed.
may include but is not limited to – modem, firewall, integrated router.
- 1.4 Technologies for connecting to the Internet are described and compared.
- Range includes but is not limited to at least three of – ADSL, Fibre, wireless broadband, cellular, satellite;
description and comparison must include but is not limited to – bandwidth; speed.

- 1.5 Knowledge of the principles of computer networks are applied to build, configure and test to ensure the network works as intended.

Range includes but is not limited to – connection of at least two different host devices, two different intermediary devices, two different network media; creating a single network that is connected to the internet; use of network services including storage facilities, printing services, network applications; configuring static and dynamic device addresses; testing; troubleshooting.

Replacement information	This unit standard replaced unit standard 2797.
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Planned review date	31 December 2026
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 April 2022	N/A

Consent and Moderation Requirements (CMR) reference	0099
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Toi Mai Workforce Development Council qualifications@toimai.nz if you wish to suggest changes to the content of this unit standard.