Revised Network+ Examination Objectives

Version 6-01

Introduction

The skills and knowledge measured by this examination are derived from an industry-wide job task analysis (JTA) and validated through an industry wide survey of which over 2,500 responses were received in April 2001. The results of this survey were used in weighing the domains and ensuring that the weighting is representative of the relative importance of the content.

The Network+ certification covering the 2002 objectives, certifies that the successful candidates knows the layers of the OSI model, can describe the features and functions of network components and has the skills needed to install, configure, and troubleshoot basic networking hardware peripherals and protocols. A typical candidate should have A+ certification or equivalent knowledge, but A+ certification is not required. In addition to A+ certification level knowledge, candidates are encouraged to have at least 9 months of experience in network support or administration.

The 2002 objectives update the Network+ certification exam on new technologies such as wireless networking and gigabit Ethernet. The scope of networking systems are broadened somewhat placing an increased emphasis on Linux/Unix, Windows 9x, Windows NT, Windows 2000 and including AppleTalk as a network protocol. There is also more of an emphasis on hands-on experience knowledge needed in the areas of network implementation and network support including troubleshooting scenarios.

This examination includes blueprint weighting, test objectives and example content. Example concepts are included to clarify the test objectives and should not be construed as a comprehensive listing of the content of the examination.

The table below lists the domains measured by this examination and the extent to which they are represented in the examination.

Network+ Certification Domain Areas	% of Examination
1.0 Media & Topologies	20%
2.0 Protocols & Standards	25%
3.0 Network Implementation	23%
4.0 Network Support	32%
Total	100%

Note: All percentages are approximate and are subject to change.

Revised Network+ Examination Objectives

Domain 1.0 - Media and Topologies – 20%

1.1 Recognize the following logical or physical network topologies given a schematic diagram or description

- o Star/hierarchical
- o bus
- o mesh
- o ring
- o wireless

1.2 Specify the main features of 802.2 (LLC), 802.3 (Ethernet), 802.5 (token ring), 802.11b (wireless) and FDDI networking technologies, including

- o Speed
- o Access
- o Method
- o Topology
- o Media

1.3 Specify the characteristics (e.g., speed, length, topology, cable type, etc.) of the following

- o 802.3 (Ethernet) standards
- o 10BASE-T
- o 100BASE-TX
- o 10BASE2
- o 10BASE5
- o 100BASE-FX
- o Gigabit Ethernet

1.4 Recognize the following media connectors and/or describe their uses

- o RJ-11
- o RJ-45
- o AUI
- o BNC
- o ST
- o SC

1.5 Choose the appropriate media type and connectors to add a client to an existing network.

1.6 Identify the purpose, features, and functions of the following network components

- o Hubs
- o Switches
- o Bridges
- o Routers
- o Gateways
- o CSU/DSU
- o Network Interface Cards/ISDN adapters/system area network cards
- o Wireless access points
- o Modems

Revised Network+ Examination Objectives

Domain 2.0 – Protocols and Standards – 25%

2.1 Given an example identify a MAC address
2.2 Identify the seven layers of the OSI model and their functions

2.3 Differentiate between the following network protocols in terms of routing, addressing schemes, interoperability, and naming conventions

- o   TCP/IP
- o   IPX/SPX
- o   NetBEUI
- o   AppleTalk

2.4 Identify the OSI layers at which the following network components operate

- o   Hubs
- o   Switches
- o   Bridges
- o   Routers
- o   Network Interface Cards

2.5 Define the purpose, function and/or use of the following protocols within TCP/IP

- o   IP
- o   TCP
- o   UDP
- o   FTP
- o   TFTP
- o   SMTP
- o   HTTP
- o   HTTPS
- o   POP3/IMAP4
- o   TELNET
- o   ICMP
- o   ARP
- o   NTP

2.6 Define the function of TCP/UDP ports.   Identify well-known ports.

2.7 Identify the purpose of the following network services (e.g. DHCP/bootp, DNS, NAT/ICS, WINS, and SNMP)

2.8 Identify IP addresses (Ipv4, Ipv6) and their default subnet masks.

2.9 Identify the purpose of subnetting and default gateways.

2.10 Identify the differences between public vs. private networks

2.11 Identify the basic characteristics (e.g., speed, capacity, media) of the following WAN technologies

- o   Packet switching vs. circuit switching
- o   ISDN
- o   FDDI
- o   ATM
- o   Frame Relay
- o   Sonet/SDH
- o   T1/E1
- o   T3/E3
- o   OCx

Revised Network+ Examination Objectives

Version 6-01

2.12 Define the function of the following remote access protocols and services

- o RAS
- o PPP
- o PPTP
- o ICA

2.13 Identify the following security protocols and describe their purpose and function

- o IPsec
- o L2TP
- o SSL
- o Kerberos

Domain 3.0 Network Implementation – 23%

3.1 Identify the basic capabilities (i.e. client support, interoperability, authentication, file and print services, application support, and security) of the following server operating systems

- o UNIX/Linux
- o Netware
- o Windows
- o Macintosh

3.2 Identify the basic capabilities of client workstations (i.e., client connectivity, local security mechanisms, and authentication)

3.3 Identify the main characteristics of VLANs

3.4 Identify the main characteristics of network attached storage

3.5 Identify the purpose and characteristics of fault tolerance

3.6 Identify the purpose and characteristics of disaster recovery

3.7 Given a remote connectivity scenario (e.g., IP, IPX, dial-up, PPPoE, authentication, physical connectivity etc.), configure the connection.

3.8 Identify the purpose, benefits and characteristics of using a firewall.

3.9 Identify the purpose, benefits and characteristics of using a proxy.

3.10 Given a scenario, predict the impact of a particular security implementation on network functionality (e.g. blocking port numbers, encryption, etc.)

3.11 Given a network configuration, select the appropriate NIC and network configuration settings (DHCP, DNS, WINS, protocols, NETBIOS/host name, etc.).

Revised Network+ Examination Objectives

Version 6-01

Domain 4.0 Network Support – 32%

4.1 Given a troubleshooting scenario, select the appropriate TCP/IP utility from among the following

- o Tracert
- o Ping
- o Arp
- o Netstat
- o Nbtstat
- o Ipconfig/Ifconfig
- o Winipcfg
- o Nslookup

4.2 Given a troubleshooting scenario involving a small office/home office network failure (e.g., xDSL, cable, home satellite, wireless, POTS), identify the cause of the failure.

4.3 Given a troubleshooting scenario involving a remote connectivity problem (e.g., authentication failure, protocol configuration, physical connectivity) identify the cause of the problem.

4.4 Given specific parameters, configure a client to connect to the following servers

- o UNIX/Linux
- o Netware
- o Windows
- o Macintosh

4.5 Given a wiring task, select the appropriate tool (e.g., wire crimper, media tester/certifier, punch down tool, tone generator, optical tester, etc.).

4.6 Given a network scenario interpret visual indicators (e.g., link lights, collision lights, etc.) to determine the nature of the problem.

4.7 Given output from a diagnostic utility (e.g. tracert, ping, ipconfig, etc.), identify the utility and interpret the output.

4.8 Given a scenario, predict the impact of modifying, adding, or removing network services (e.g., DHCP, DNS, WINS, etc.) on network resources and users.

4.9 Given a network problem scenario, select an appropriate course of action based on a general troubleshooting strategy. This strategy includes the following steps

1. Establish the symptoms
2. Identify the affected area
3. Establish what has changed
4. Select the most probable cause
5. Implement a solution
6. Test the result
7. Recognize the potential effects of the solution
8. Document the solution

4.10 Given a troubleshooting scenario involving a network with a particular physical topology (i.e., bus, star/hierarchical, mesh, ring, and wireless) and including a network diagram, identify the network area effected and the cause of the problem.

4.11 Given a network troubleshooting scenario involving a client connectivity problem (e.g., incorrect protocol/client software/authentication configuration, or insufficient rights/permission), identify the cause of the problem.

Revised Network+ Examination Objectives

4.12 Given a network troubleshooting scenario involving a wiring/infrastructure problem, identify the cause of the problem (e.g., bad media, interference, network hardware).