

## Verifying Connectivity

Total points 3

1. The protocol used to communicate network errors is known as \_\_\_\_\_.

1 / 1 point

- ☐ TCP
- ☒ ICMP
- ☐ Traceroute
- ☐ UDP

✓ **Correct**

Correct! ICMP is used to communicate errors back to the client.

2. The ping utility sends what message type?

1 / 1 point

- ☐ Echo Reply
- ☒ Echo Request
- ☐ Destination Network Unreachable
- ☐ Destination Network Unknown

✓ **Correct**

Right on! By default, the ping utility sends an Echo Request ICMP message type.

3. On Windows, one of the tools you can use to verify connectivity to a specific port is \_\_\_\_\_.

1 / 1 point

- ☐ ping
- ☐ tracert
- ☒ Test-NetConnection
- ☐ nc (netcat)

✓ **Correct**

You got it! Test-NetConnection lets you test many things, including connectivity to a specific port on a remote host.

1. One of Level 3's public DNS servers is \_\_\_\_\_.

1 / 1 point

- ☒ 4.2.2.3
- ☐ 8.8.8.8
- ☐ 127.0.0.1
- ☐ 192.168.1.1

✓ **Correct**

Great job! Level 3's public DNS servers are 4.2.2.1 through 4.2.2.6

2. A DNS resolver tool available on all major desktop operating systems is \_\_\_\_\_.

1 / 1 point

- ☐ ping
- ☒ nslookup
- ☐ host
- ☐ tracert

✓ **Correct**

Awesome! nslookup is available by default on Windows, macOS, and Linux.

3. The organization responsible for DNS at a global level is \_\_\_\_\_.

1 / 1 point

- ☐ RFC
- ☐ IANA
- ☐ Google
- ☒ ICANN

✓ **Correct**

Nice work! ICANN is responsible for DNS at a global level.

## The Cloud

Total points 3

1. A piece of software that runs and manages virtual machines is known as a \_\_\_\_\_.

1 / 1 point

- ☐ cloud storage device
- ☒ hypervisor
- ☐ virtual instance
- ☐ cloud computing device

✓ **Correct**

Correct! A hypervisor manages many virtual instances running on a single host.

2. Office 365 Outlook is an example of \_\_\_\_\_.

1 / 1 point

- ☐ PaaS
- ☐ IaaS
- ☒ SaaS
- ☐ FttH

✓ **Correct**

You nailed it! Office 365 Outlook is an example of Software as a Service (SaaS).

3. A hybrid cloud is \_\_\_\_\_.

1 / 1 point

- ☐ a combination of virtual hosts and virtual guests
- ☒ a combination of a public cloud and a private cloud
- ☐ a combination of a public cloud and hardware virtualization
- ☐ a combination of a private cloud and a mesh network

✓ **Correct**

Wohoo! A hybrid cloud runs some services on a cloud provider and some services in-house.

## IPv6

Total points 3

1. An IPv6 address is how many bits long?

1 / 1 point

- ☐ 16
- ☐ 32
- ☐ 64
- ☒ 128

✓ **Correct**

Great job! An IPv6 address is 128 bits long

2. The very first field in an IPv6 header is the \_\_\_\_\_.

1 / 1 point

- ☐ traffic class field
- ☒ version field
- ☐ source address field
- ☐ data payload field

✓ **Correct**

Nice work! This field is used to indicate what version of IP is being used.

3. The IPv6 header field that indicates how many routers can forward a packet before it's discarded is called the \_\_\_\_\_.

1 / 1 point

- ☐ TTL
- ☐ next header field
- ☐ router forward field
- ☒ hop limit field

✓ **Correct**

Right on! The hop limit field configures how many routers can try to forward a packet before it's discarded.

## IPv6 Compression Rules

Keyboard Usage

Using the two rules of IPv6 compression, edit each IPv6 address until it is in the shortest form possible, then click 'Check'. You have 10 addresses to compress.

Correct

Good job! The IP Address has been compressed correctly.

Original IPv6 Address
7d2b:00a9:a0c4:0000:a772:00fd:a523:0358
7d2b:a9:a0c4:0:a772:fd:a523:358

Question 3 of 10

Check



Correct

Good job! The IP Address has been compressed correctly.

Original IPv6 Address
00eb:0000:0000:0000:d8c1:0946:0272:0879
eb::d8c1:946:272:879

Original IPv6 Address
2b06:0000:0000:1f2b:d77f:0000:0000:89ce
2b06::1f2b:d77f:0:0:89ce

1. Question

1 / 1 point

When you send an echo request message with the ping program, a successful attempt will return a(n) \_\_\_\_ message.

- ☐ pong
- ☒ echo reply
- ☐ blank
- ☐ error

Expand

Correct

Yep! A successful echo request will return an echo reply.

2. Question

1 / 1 point

While in an interactive nslookup session, you'd use the \_\_\_\_ keyword to change the DNS server you're using.

- ☒ server
- ☐ client
- ☐ FQDN
- ☐ DNS

 Expand

 **Correct**

Nice job! Issuing a server keyword, followed by a DNS server, will change what server you're using for resolution attempts.

3. Question

1 / 1 point

An organization responsible for assigning individual domain names to other organizations or individuals is known as a(n) \_\_\_\_.

- ☒ DNS registrar
- ☐ internet authority
- ☐ autonomous system
- ☐ government

 Expand

 **Correct**

Wohoo! You can use a registrar to register a domain name!

4. Question

1 / 1 point

PaaS stands for \_\_\_\_.

- ☒ Platform as a Service
- ☐ Packets as a Service
- ☐ Preamble as a Service
- ☐ Platform as a Schedule

 Expand

 **Correct**

Great job! PaaS enables you to run applications without requiring an entire server to do so.


5. Question

0 / 1 point

The IPV4 mapped address space within IPv6 always starts with \_\_\_\_\_ zeroes.

- ☒ 32
- ☐ 64
- ☐ 80
- ☐ 128

 Expand

 **Incorrect**

Not quite. Please refer back to Lesson 5 for a refresher.

6. Question

1 / 1 point

A support technician uses the ping utility on a system that is online, yet no response is received. What should be allowed through a firewall, for ping to operate correctly?

- ☒ ICMP
- ☐ TTL
- ☐ Echo request
- ☐ Echo reply

 Expand

 **Correct**

You got it! The ping utility uses the Internet Control Message Protocol (ICMP).

7. Question

1 / 1 point

A tech uses the netcat tool on a Linux system. Of the choices, which has proper syntax?

- ☐ nc google.com
- ☒ nc google.com 80
- ☐ nc google.com -z
- ☐ nc -v 80

 Expand

 **Correct**

You nailed it! The nc command requires that a host and a port are included.

8. Question

1 / 1 point

**What is the name of the provision of services based around hardware virtualization?**

- ☐ Domain Name System (DNS) service model
- ☐ Subnetting
- ☐ Network Address Translation (NAT)
- ☒ Cloud computing

 Expand

 **Correct**

Great work! Hardware virtualization is a core concept of how cloud computing technologies work.

9. Question

1 / 1 point

**As an IT decision maker, you plan to satisfy business needs by using software as a service.**

**Which option do you deploy?**

- ☐ Virtual firewall
- ☐ Linux workstation
- ☒ Office 365
- ☐ Windows Server 2019

 Expand

 **Correct**

You nailed it! Software as a Service (SaaS) is a model that uses cloud-based software, rather than locally installed software.

10. Question

1 / 1 point

**Which Internet Protocol (IP) v6 header field is used to determine the quality of service level for a datagram?**

- ☒ Flow label
- ☐ Payload length
- ☐ Version
- ☐ Next header

 Expand

 **Correct**

Nice job! The flow label field is used in conjunction with the traffic class field for routers, to make decisions about the quality of service level for a specific datagram.

11. Question

1 / 1 point

The first field of an Internet Control Message Protocol (ICMP) packet specifies the message type. Which choices represent message type examples? Check all that apply.

- ☐ Destination network unreachable
- ☐ Destination port unreachable
- ☒ Destination unreachable

✓ Correct

Great work! The type field specifies the message type. A code field further breaks down the message type to be more specific.

- ☒ Time exceeded

✓ Correct

You nailed it! The type field specifies the message type. A code field further breaks down the message type to be more specific.

↗ Expand

✓ Correct

Great, you got all the right answers.

12. Question

1 / 1 point

When troubleshooting Domain Name System (DNS) problems, which helpful feature do public servers usually support?

- ☐ Port connectivity
- ☐ Virtualization services
- ☒ ICMP echo requests
- ☐ Paths between nodes

↗ Expand

✓ Correct

Woohoo! Public DNS servers usually support Internet Control Message Protocol (ICMP) echo requests. This is helpful when troubleshooting, while using the ping command.



13. Question

1 / 1 point

Which addresses represent valid local loopback addresses? Check all that apply.

☒ 127.0.0.1

✓ **Correct**

Right on! The Internet Protocol address 127.0.0.1 is known as a v4 local loopback address.

☐ 255.255.255.255

☒ ::1

✓ **Correct**

Nice job! The Internet Protocol address ::1 is known as a v6 local loopback address.

☐ ::0

[↗ Expand](#)

✓ **Correct**

Great, you got all the right answers.

14. Question

1 / 1 point

Which Internet Protocol (IP) v6 field is identical in purpose to the TTL field in an IPv4 header?

- ☐ Flow label
- ☐ Next header
- ☐ Traffic class
- ☒ Hop limit

[↗ Expand](#)

✓ **Correct**

Nice job! The hop limit field is an 8-bit field that's identical in purpose to the Time To Live (TTL) field in an IPv4 header.

15. Question

1 / 1 point

For Internet Protocol (IP) v6 traffic to travel on an IP v4 network, which two technologies are used? Check all that apply.

☒ Datagrams

✓ **Correct**

Woohoo! IPv6 tunnel servers take incoming IPv6 traffic and encapsulate it within traditional IPv4 datagrams.

☐ IPv4 Tunnels

☒ IPv6 tunnels

✓ **Correct**

Awesome! An IPv6 tunnel is used to encapsulate data between IPv6 tunnel servers.

☐ Packets

 Expand

✓ **Correct**

Great, you got all the right answers.

16. Question

1 / 1 point

When shortening an Internet Protocol (IP) v6 address, which two rules are used? Check all that apply.

☐ Removing all leading ones.

☒ Removing all leading zeros.

✓ **Correct**

Nice job! When shortening an IPv6 address, you can remove any leading zeros from a group.

☐ Replace groups of ones with semicolons.

☒ Replace groups of zeros with colons.

✓ **Correct**

Woohoo! Any number of consecutive groups composed of just zeroes can be replaced with two colons.

 Expand

✓ **Correct**

Great, you got all the right answers.