BATCH : BATCH 85

LESSON : **Windows Server**

DATE : 23.07.2022

SUBJECT : **DNS Server**

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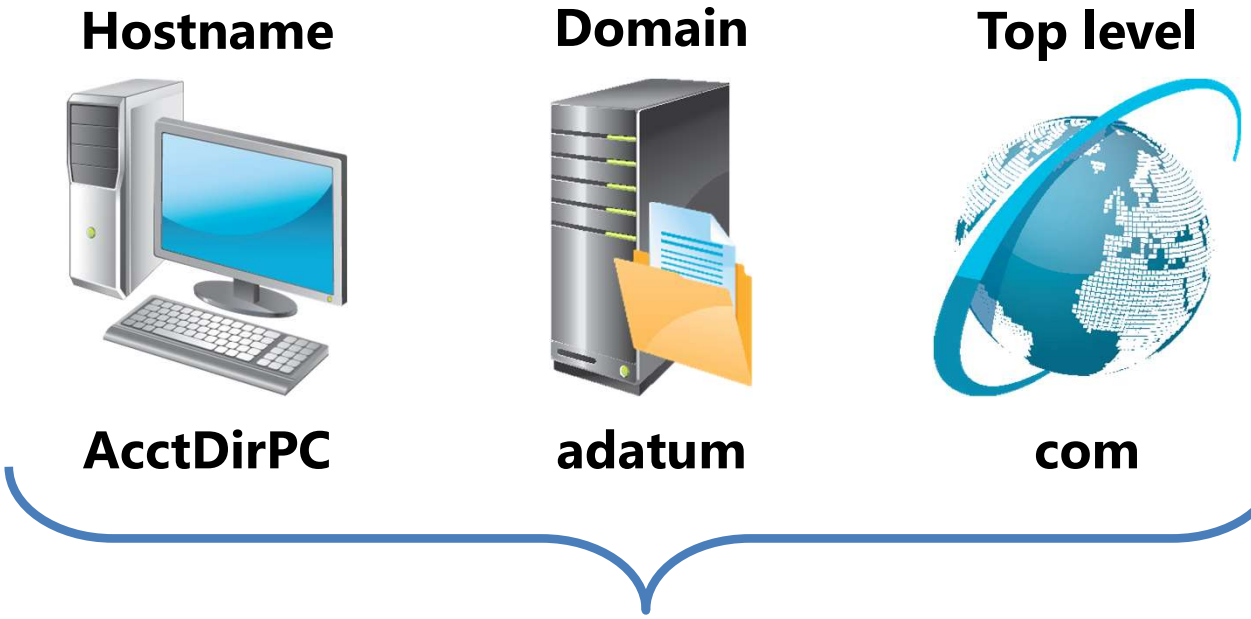
What Are the Computer Names Assigned to Computers?

A *hostname* is a computer name that is added to a domain name and top level domain to make a fully qualified domain name (FQDN)



Fully qualified domain name = AcctDirPC.adatum.com

NetBIOS names are rarely used and are being deprecated in Windows operating systems

What Is DNS?

DNS can be used to:

- Resolve host names to IP addresses
- Locate domain controllers and global catalog servers
- Resolve IP addresses to host names
- Locate mail servers during email delivery

DNS Zones and Records

A DNS zone is a specific portion of DNS namespace that contains DNS records

Zone types:

- Forward lookup zone
- Reverse lookup zone

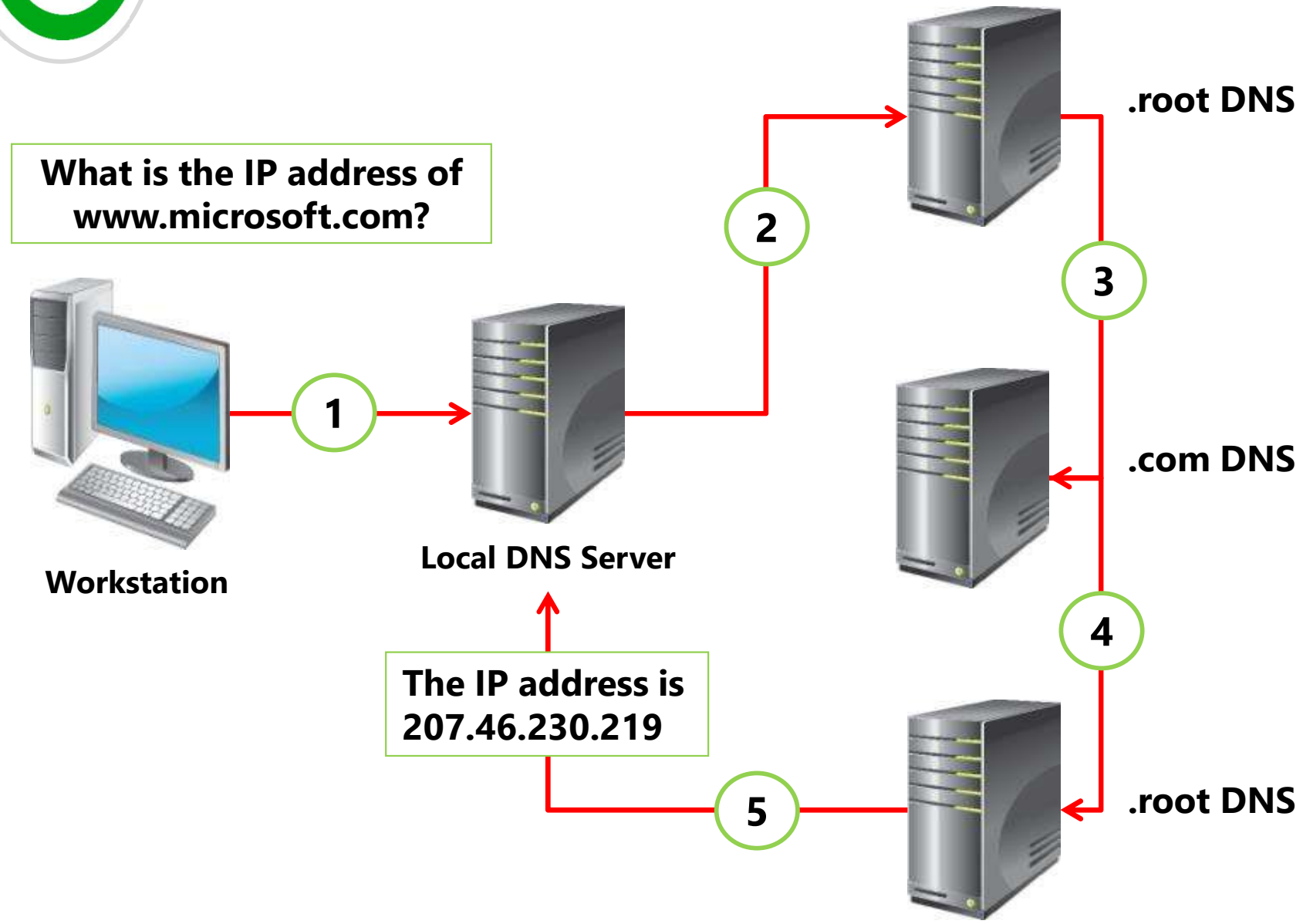
Resource records in forward lookup zones include:

- A, MX, SRV, NS, SOA, and CNAME,TXT

Resource records in reverse lookup zones include:

- PTR

How Internet DNS Names Are Resolved



What Is Link-local Multicast Name Resolution?

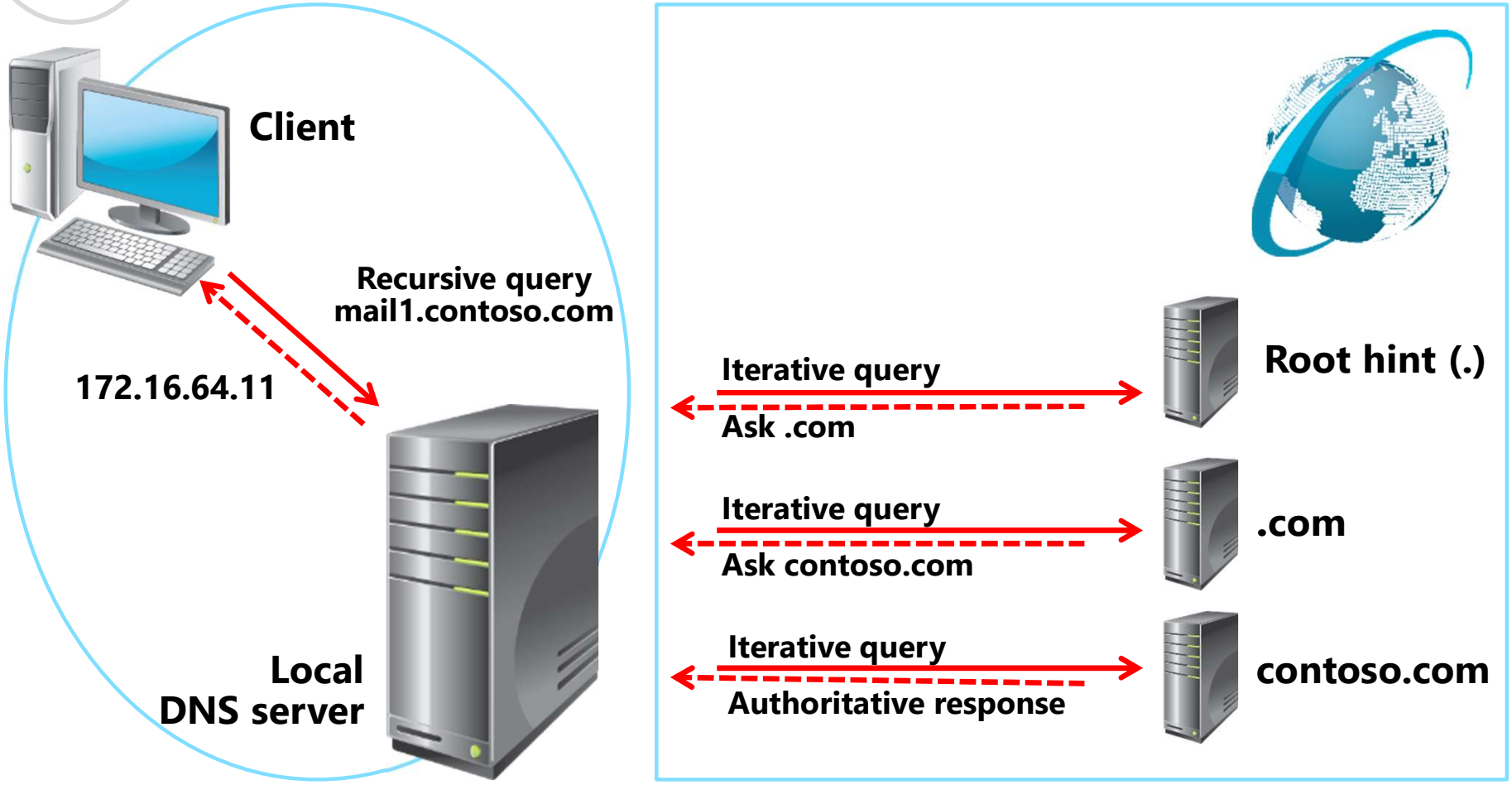
LLMNR is an additional method for name resolution that does not use DNS or WINS

- LLMNR is designed for IPv6
- Works only on Windows Vista, Windows Server 2008, and all newer Windows operating systems
- Network Discovery must be enabled
- Can be controlled via Group Policy

What Are DNS Queries?

A *recursive query* is sent to a DNS server and requires a complete answer

What Are DNS Queries?



How to Install the DNS Server Role

DNS server installation methods:

- Server Manager
- Active Directory Domain Services Installation Wizard

Tools available to manage DNS Server:

- DNS Manager snap-in
  - Server Manager
  - DNS Manager console (dnsmgmt.msc)
- DNSCmd command-line tool
- Windows Powershell
- Remote Server Administrative Tools

BATCH : BATCH 47/48

LESSON : **Windows Server**

DATE : 29.01.2022

SUBJECT : **DHCP Server**

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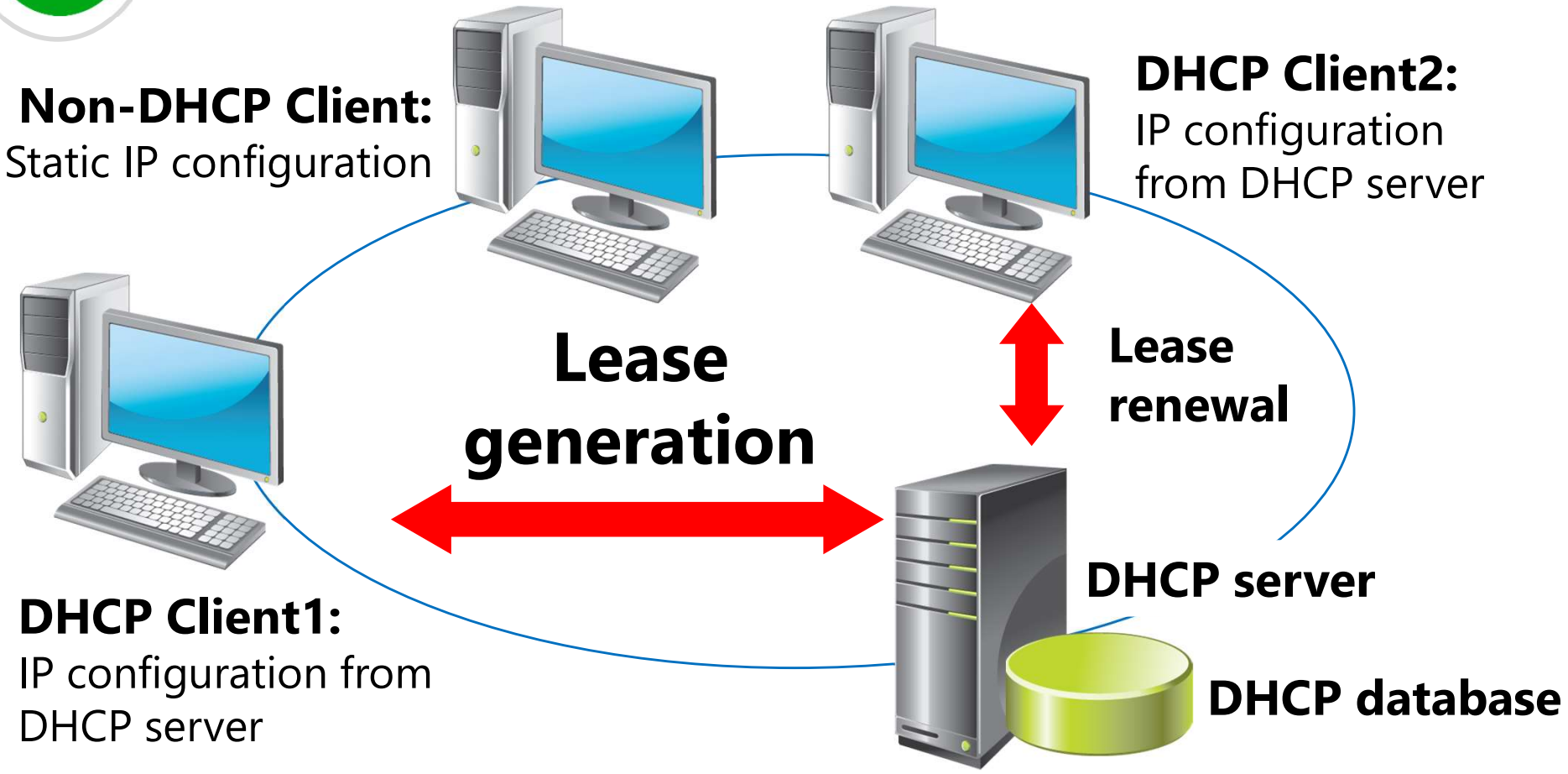
Benefits of Using DHCP

DHCP reduces the complexity and amount of administrative work by using automatic IP configuration

Automatic IP Configuration	Manual IP Configuration
IP addresses are supplied automatically	IP addresses are entered manually
Correct configuration information is ensured	IP address could be entered incorrectly
Client configuration is updated automatically	Communication and network issues can result
A common source of network problems is eliminated	Frequent computer moves increase administrative effort

How DHCP Allocates IP Addresses

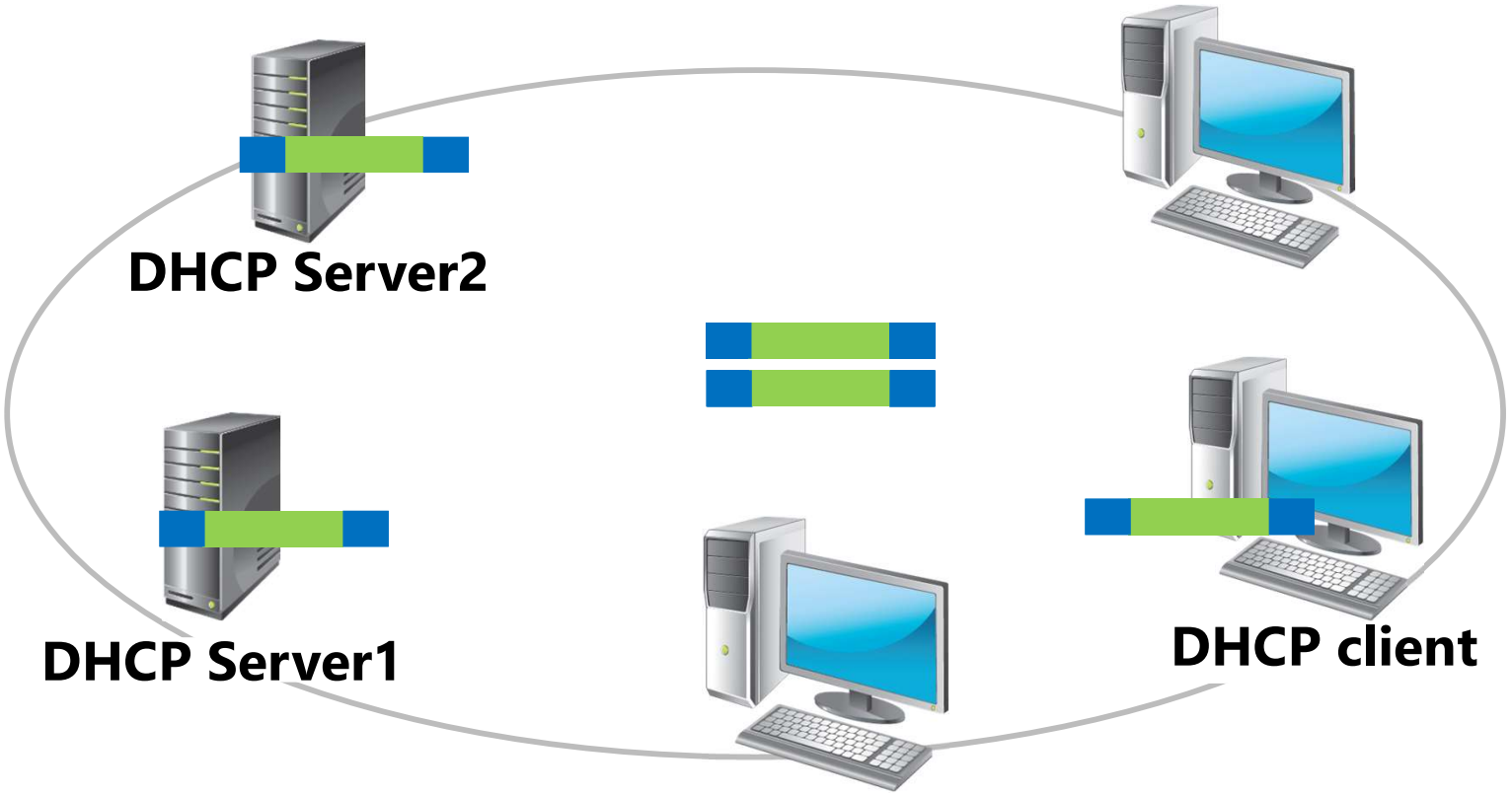


IP Address1: Leased to DHCP Client1

IP Address2: Leased to DHCP Client2

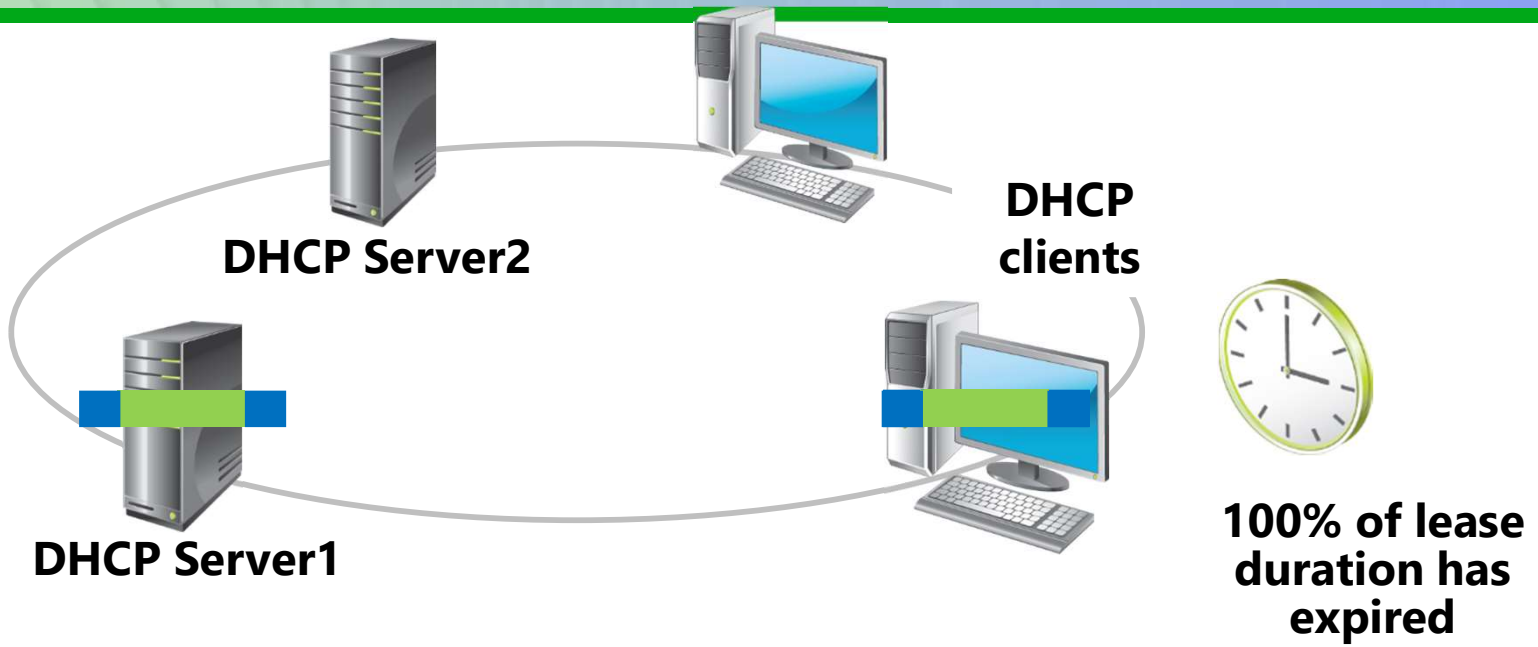
IP Address3: Available for lease

How DHCP Lease Generation Works



1. DHCP client broadcasts a DHCPDISCOVER packet
2. DHCP servers broadcast a DHCPOFFER packet
3. DHCP client broadcasts a DHCPREQUEST packet
4. DHCP Server1 broadcasts a DHCPACK packet

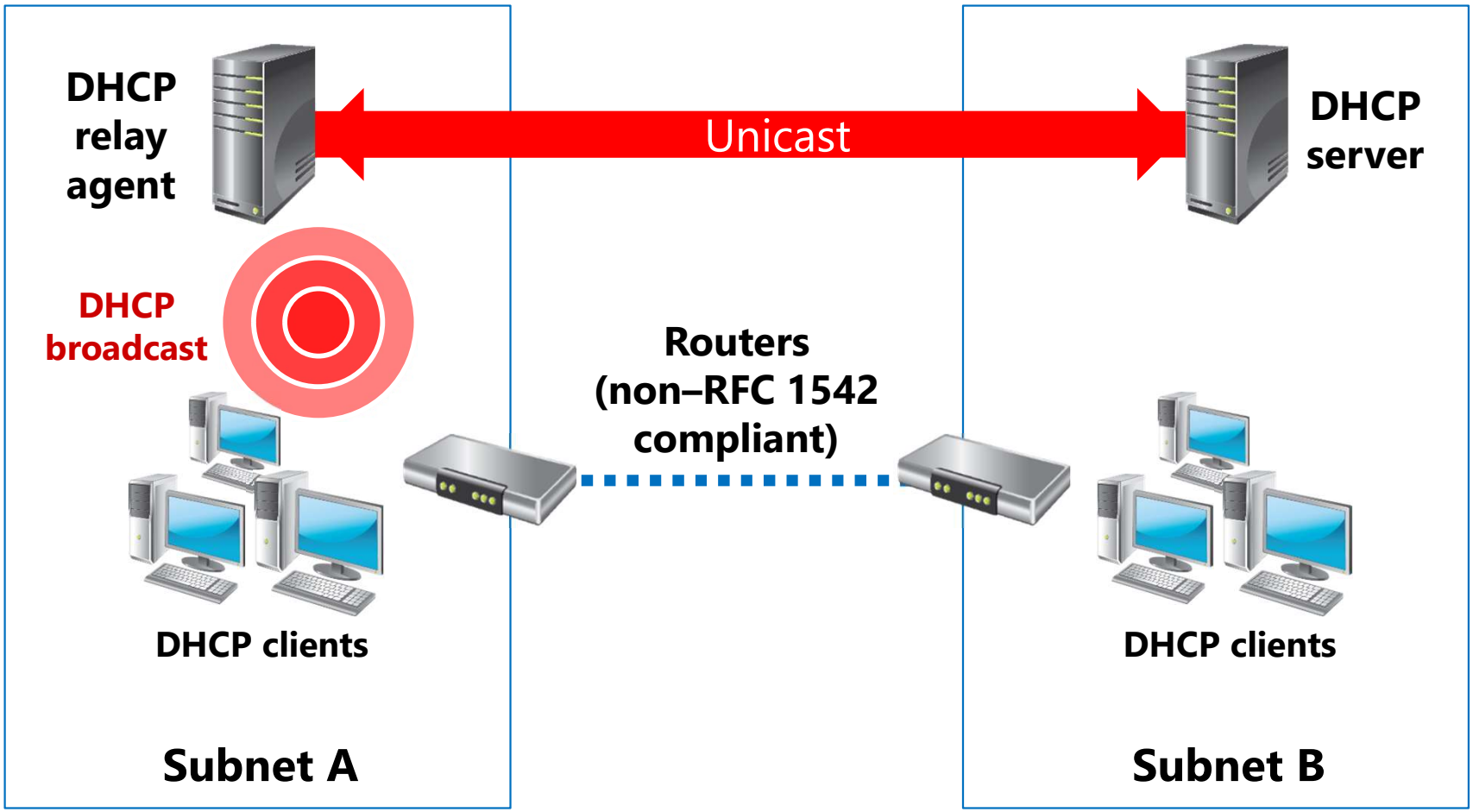
How DHCP Lease Renewal Works



1. DHCP client sends a DHCPREQUEST packet
2. DHCP Server1 sends a DHCPACK packet
3. If the client fails to renew its lease after 50% of the lease duration has expired, the DHCP lease renewal process begins again after 87.5% of the lease duration has expired
4. If the client fails to renew its lease after 87.5% of the lease has expired, the DHCP lease generation process starts over again with a DHCP client broadcasting a DHCPDISCOVER

What Is a DHCP Relay Agent?

A DHCP relay agent listens for DHCP broadcasts from DHCP clients and then relays them to DHCP servers in different subnets



Lesson 2: Configuring DHCP Scopes

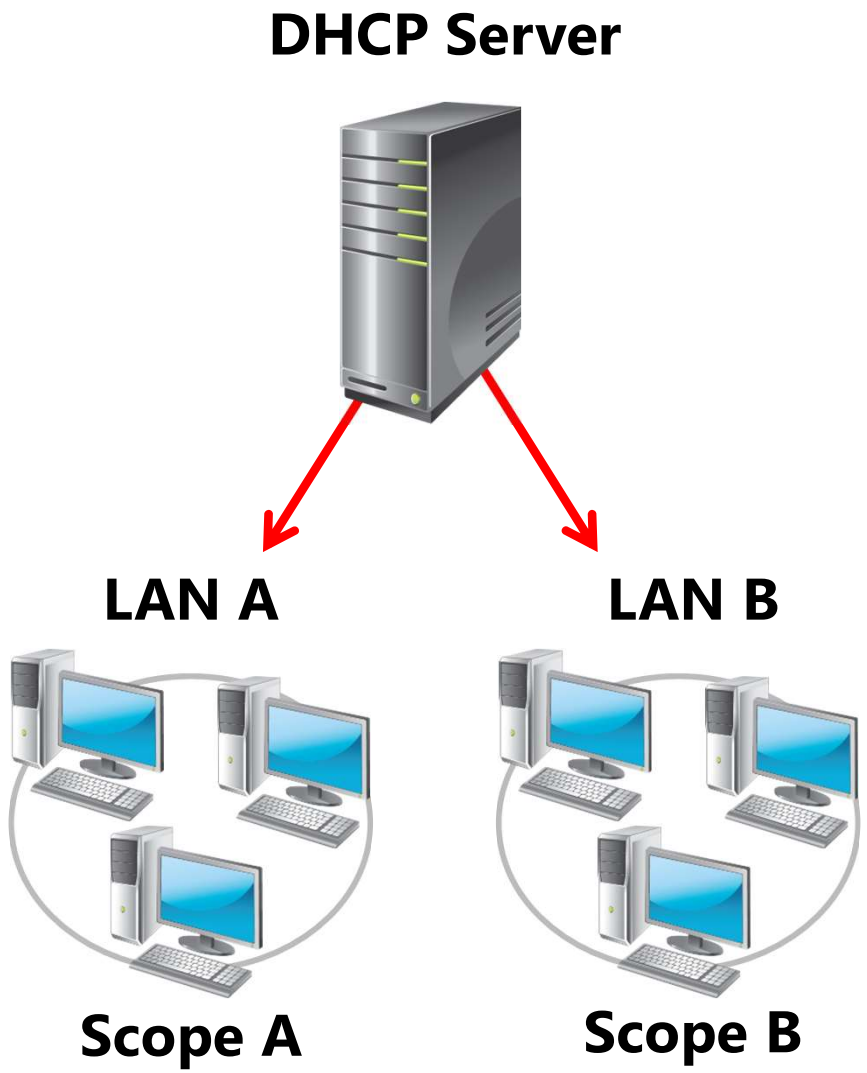
- What Are DHCP Scopes?
- What Is a DHCP Reservation?
- What Are DHCP Options?
- How DHCP Applies Options
- Demonstration: Creating and Configuring a DHCP Scope

What Are DHCP Scopes?

A *DHCP scope* is a range of IP addresses that are available to be leased

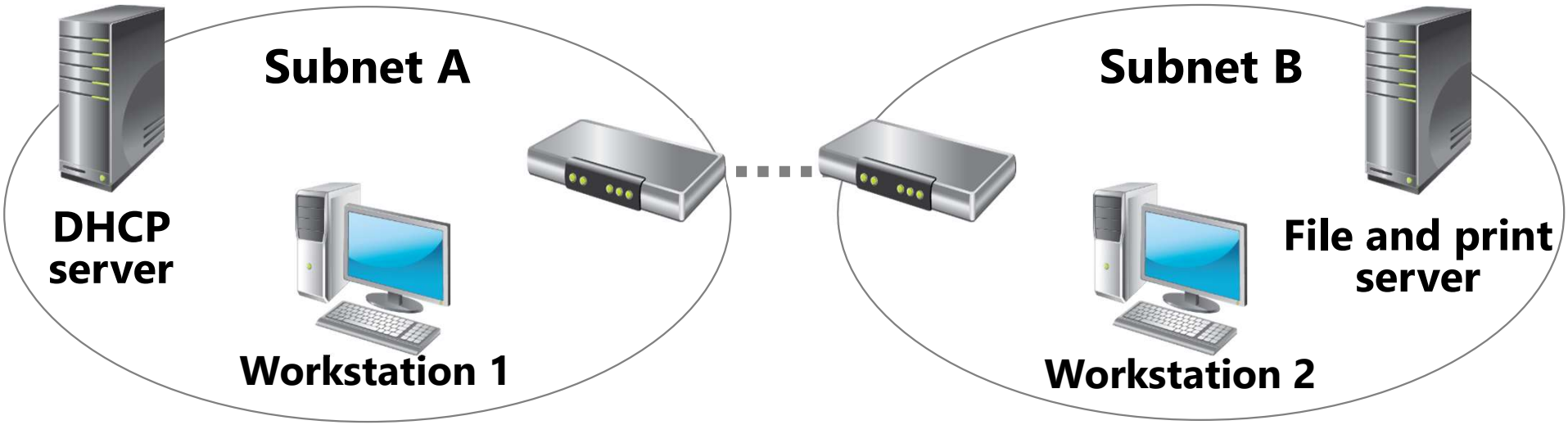
DHCP scope properties include:

- Network ID
- Lease duration
- Scope name
- Subnet mask
- Network IP address range
- Exclusion range



What Is a DHCP Reservation?

A DHCP reservation occurs when an IP address within a scope is set aside for use with a specific DHCP client



IP Address1: Leased to Workstation 1

IP Address2: Leased to Workstation 2

IP Address3: Reserved for file and print server

What Are DHCP Options?

DHCP options:

- Are values for common configuration data
- Apply to the server, scopes, reservations, and class options

Common scope options are:

- Router (Default Gateway)
- DNS Name
- DNS Servers
- WINS Servers

How DHCP Applies Options

You can apply DHCP options at various levels:

- Server
- Scope
- Class
- Reserved client

Typically, you do not apply the class or reserved client options