



2. การออกแบบระบบเครือข่าย (Network Design)

2.1 แผนผังการจัดสรร IP Address (IP Addressing Plan)

ระบบเครือข่ายใช้ Network Address หลักคือ 172.16.0.0/16 โดยมีการแบ่ง Subnet ดังนี้:

VLAN ID	ชื่อเครือข่าย (Name)	Subnet Mask (CIDR)	Network Address	Gateway IP	จำนวน IP ที่รองรับ
10	Teacher	255.255.255.0 (/24)	172.16.10.0	172.16.10.1	254 Hosts
20	Computer Lab	255.255.255.0 (/24)	172.16.20.0	172.16.20.1	254 Hosts
30	Admin/Finance	255.255.255.0 (/24)	172.16.30.0	172.16.30.1	254 Hosts

40	Management	255.255.255.0 (/24)	172.16.40.0	172.16.40.1	254 Hosts
50	Server	255.255.255.0 (/24)	172.16.50.0	172.16.50.1	254 Hosts
60	Student Wi-Fi	255.255.254.0 (/23)	172.16.60.0	172.16.60.1	510 Hosts

ภาพผลการ config dhcp pool บน Layer 3 Switch

```

Physical  Config  CLI  Attributes

L3SW#conf t
Enter configuration commands, one per line. End with CNTL/Z.
L3SW(config)#do sh ip dhcp pool

Pool VLAN10_TEACHER :
  Utilization mark (high/low) : 100 / 0
  Subnet size (first/next) : 0 / 0
  Total addresses : 254
  Leased addresses : 3
  Excluded addresses : 6
  Pending event : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
172.16.10.1        172.16.10.1 - 172.16.10.254  3 / 6 / 254

Pool VLAN20_COMPUTERLAB :
  Utilization mark (high/low) : 100 / 0
  Subnet size (first/next) : 0 / 0
  Total addresses : 254
  Leased addresses : 2
  Excluded addresses : 6
  Pending event : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
172.16.20.1        172.16.20.1 - 172.16.20.254  2 / 6 / 254

Pool VLAN30_ADMIN :
  Utilization mark (high/low) : 100 / 0
  Subnet size (first/next) : 0 / 0
  Total addresses : 254
  Leased addresses : 0
  Excluded addresses : 6
  Pending event : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
172.16.30.1        172.16.30.1 - 172.16.30.254  0 / 6 / 254

Pool VLAN40_MANAGEMENT :
  Utilization mark (high/low) : 100 / 0
  Subnet size (first/next) : 0 / 0
  Total addresses : 254
  Leased addresses : 1
  Excluded addresses : 6
  Pending event : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total
172.16.40.1        172.16.40.1 - 172.16.40.254  1 / 6 / 254

Pool VLAN50_SERVERFARM :
  Utilization mark (high/low) : 100 / 0
  Subnet size (first/next) : 0 / 0
  Total addresses : 254
  Leased addresses : 1
  Excluded addresses : 6
  Pending event : none

1 subnet is currently in the pool
Current index      IP address range      Leased/Excluded/Total

```

ผลลัพธ์ของ DHCP

IP Configuration

Interface: FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address: 172.16.10.11

Subnet Mask: 255.255.255.0

Default Gateway: 172.16.10.1

DNS Server: 172.16.50.100

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address:

Link Local Address: FE80::20C:CFFF:FE40:D884

Default Gateway:

DNS Server:

802.1X

ภาพการ config DNS server

DNS

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP
- PRP

DNS Service: ☒ On ☐ Off

Resource Records

Name: Type: A Record

Address:

Add Save

No.	Name	Type	
0	school.ac.th	A Record	172.16.50.100
1	www.school.ac.th	A Record	172.16.50.11