



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

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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

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ผลลัพธ์ของ DHCP

IP Configuration

Interface	FastEthernet0
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> 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	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::20C:CFEE:FE40:D884
Default Gateway	
DNS Server	

802.1X

ภาพการ config DNS server

DNS

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCIPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP
- PRP

DNS

DNS Service On off

Resource Records

Name	Address	Type
school.ac.th		A Record
www.school.ac.th		A Record