

哈尔滨工业大学

<<计算机网络>>

实验报告

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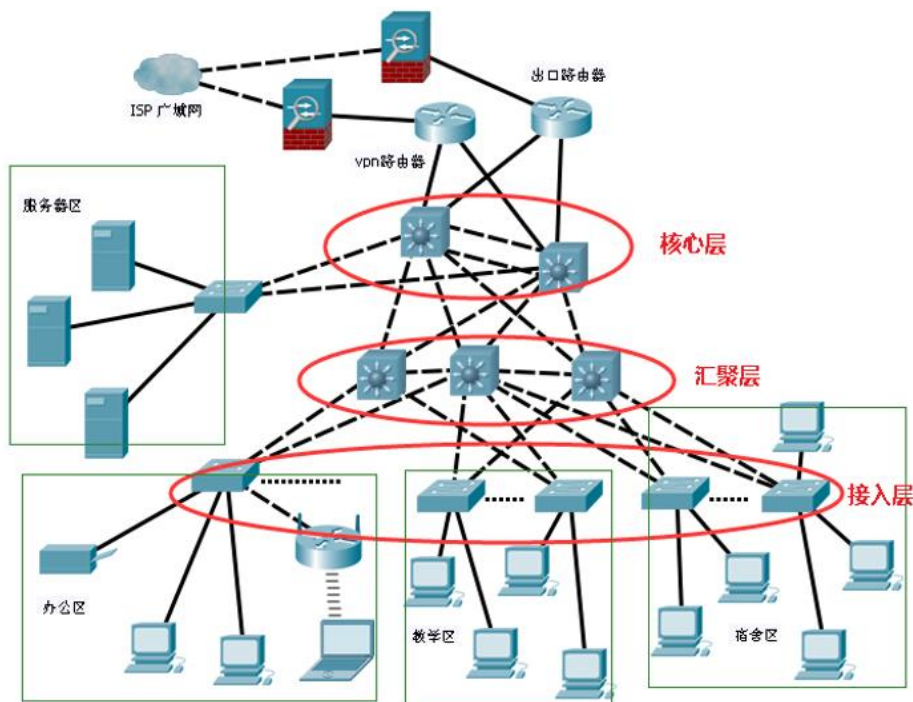
实验三 简单网络组建及配置

一、实验目的

- 1) 了解网络建设的相关过程，通过分析用户需求，结合自己掌握到的网络知识，规划设计网络实施方案。
- 2) 掌握基本的网络设备运行原理和配置技术。
- 3) 独立完成一个简单校园网的基本建设、配置工作，并能发现、分析并解决简单的网络问题。
- 4) 理论结合实践，深刻理解网络运行原理和相关技术，提高动手能力和应用技巧。
- 5) 引导学生对相关知识的探索和研究，促进学生的主动学习热情

二、实验内容

(1) 实验项目某职业技术学校决定新建校园网，网络规划设计师已经完成了该项目的总体规划 and 设计，部分具体项目规划和设计还没有完成；请你根据所学到的网络知识帮助该网络规划设计师完成剩余的工作内容，并承担整个项目的实施建设工作。如图 8-1 所示，该网络拓扑采用通用的三层架构设计，分别为接入层、汇聚层和核心层。汇聚层、核心层均采用了冗余链路设计，防止单点故障影响到系统的核心服务。校园网通过购买的 ISP 服务同 Internet 互联，通过有限的公网 IP 地址，利用地址翻译技术（NAT）提供对 Internet 的访问服务支持；通过端口映射技术提供对学校 WEB、数据等服务器的外部访问支持。校园网出口布置了防火墙和入侵检测系统，同时提供了 VPN 访问支持。



(3) 实验需求如图所示，在不考虑对外服务（即校园网用户访问 Internet 和 Internet 用户访问校园对外服务器）及冗余链路的前提下，请按用户需求 设计出该校园网的局域网部署规划设计，并最终完成各相关区域的各设备连通任务。用户的相关需求如下，请给出具体的规划设计和实施过程：

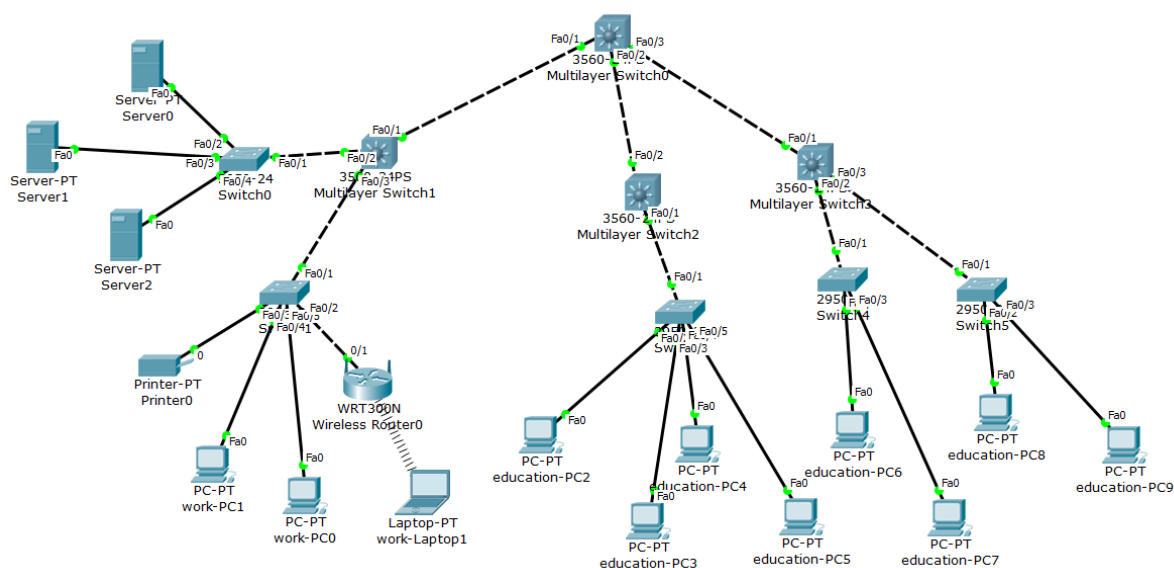
① 校园中心机房存放网络核心设备、WEB 服务器、数据库服务器、流媒体服务器等相关服务器，服务器数量在 10 台以内，未来可扩展到 20 台。对全部校园网用户开放，提供 7*24 小时不间断服务支持。

② 办公区 教师和校领导办公区，存放日常办公设备和相关耗材；目前用户数量 80 左右，未来可以扩展到 200；提供无线接入服务，禁止宿舍区用户访问该区资源，允许教学区用户访问该区资源。

③ 教学区提供各教学设备网络连接支持。目前，需联网的有线设备数为 120，未来可扩展到 240。④ 宿舍区提供学生上网服务。目前，用户共计 700 人，未来可扩展到 1000 人。

二、实验过程及结果

设计图如下



3.1 核心设备配置

3.1.1 终端配置 IP 地址

PC 主机：办公区 192.168.17.1

192.168.18.1

教学区 192.168.19.1

192.168.19.2

192.168.19.3

192.168.19.4

宿舍区 192.168.24.1

192.168.25.1

192.168.26.1

192.168.27.1

服务器: 192.168.16.1

192.168.16.2

192.168.16.3

打印机:192.168.17.17

3.1.2 接入层配置

服务器接入层

```
interface Vlan1
 ip address 192.168.16.29 255.255.255.224
```

办公区接入层

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	3	--	00E0.F926.BC01
FastEthernet0/2	Up	3	--	00E0.F926.BC02
FastEthernet0/3	Up	2	--	00E0.F926.BC03
FastEthernet0/4	Up	2	--	00E0.F926.BC04
FastEthernet0/5	Up	3	--	00E0.F926.BC05
FastEthernet0/6	Down	1	--	00E0.F926.BC06
FastEthernet0/7	Down	1	--	00E0.F926.BC07
FastEthernet0/8	Down	1	--	00E0.F926.BC08
FastEthernet0/9	Down	1	--	00E0.F926.BC09
FastEthernet0/10	Down	1	--	00E0.F926.BC0A
FastEthernet0/11	Down	1	--	00E0.F926.BC0B
FastEthernet0/12	Down	1	--	00E0.F926.BC0C
FastEthernet0/13	Down	1	--	00E0.F926.BC0D
FastEthernet0/14	Down	1	--	00E0.F926.BC0E
FastEthernet0/15	Down	1	--	00E0.F926.BC0F
FastEthernet0/16	Down	1	--	00E0.F926.BC10
FastEthernet0/17	Down	1	--	00E0.F926.BC11
FastEthernet0/18	Down	1	--	00E0.F926.BC12
FastEthernet0/19	Down	1	--	00E0.F926.BC13
FastEthernet0/20	Down	1	--	00E0.F926.BC14
FastEthernet0/21	Down	1	--	00E0.F926.BC15
FastEthernet0/22	Down	1	--	00E0.F926.BC16
FastEthernet0/23	Down	1	--	00E0.F926.BC17
FastEthernet0/24	Down	1	--	00E0.F926.BC18
Vlan1	Down	1	<not set>	0060.4700.B626
Vlan2	Up	2	192.168.17.253/24	0060.4700.B626
Vlan3	Up	3	192.168.18.253/24	0060.4700.B626

Hostname: Switch

Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet

教学区接入层: 全部设为 vlan 4

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	4	--	000C.CFD0.8501
FastEthernet0/2	Up	4	--	000C.CFD0.8502
FastEthernet0/3	Up	4	--	000C.CFD0.8503

宿舍区接入层:

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	--	--	0001.6484.0101
FastEthernet0/2	Up	11	--	0001.6484.0102
FastEthernet0/3	Up	12	--	0001.6484.0103
FastEthernet0/4	Down	1	--	0001.6484.0104
FastEthernet0/5	Down	1	--	0001.6484.0105
FastEthernet0/6	Down	1	--	0001.6484.0106
FastEthernet0/7	Down	1	--	0001.6484.0107
FastEthernet0/8	Down	1	--	0001.6484.0108
FastEthernet0/9	Down	1	--	0001.6484.0109
FastEthernet0/10	Down	1	--	0001.6484.010A
FastEthernet0/11	Down	1	--	0001.6484.010B
FastEthernet0/12	Down	1	--	0001.6484.010C
FastEthernet0/13	Down	1	--	0001.6484.010D
FastEthernet0/14	Down	1	--	0001.6484.010E
FastEthernet0/15	Down	1	--	0001.6484.010F
FastEthernet0/16	Down	1	--	0001.6484.0110
FastEthernet0/17	Down	1	--	0001.6484.0111
FastEthernet0/18	Down	1	--	0001.6484.0112
FastEthernet0/19	Down	1	--	0001.6484.0113
FastEthernet0/20	Down	1	--	0001.6484.0114
FastEthernet0/21	Down	1	--	0001.6484.0115
FastEthernet0/22	Down	1	--	0001.6484.0116
FastEthernet0/23	Down	1	--	0001.6484.0117
FastEthernet0/24	Down	1	--	0001.6484.0118
Vlan1	Down	1	<not set>	0007.EC1B.99C6
Vlan11	Up	11	192.168.24.253/24	0007.EC1B.99C6
Vlan12	Up	12	192.168.25.253/24	0007.EC1B.99C6

Hostname: Switch

Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	--	--	0005.5ED9.6801
FastEthernet0/2	Up	13	--	0005.5ED9.6802
FastEthernet0/3	Up	14	--	0005.5ED9.6803
FastEthernet0/4	Down	1	--	0005.5ED9.6804
FastEthernet0/5	Down	1	--	0005.5ED9.6805
FastEthernet0/6	Down	1	--	0005.5ED9.6806
FastEthernet0/7	Down	1	--	0005.5ED9.6807
FastEthernet0/8	Down	1	--	0005.5ED9.6808
FastEthernet0/9	Down	1	--	0005.5ED9.6809
FastEthernet0/10	Down	1	--	0005.5ED9.680A
FastEthernet0/11	Down	1	--	0005.5ED9.680B
FastEthernet0/12	Down	1	--	0005.5ED9.680C
FastEthernet0/13	Down	1	--	0005.5ED9.680D
FastEthernet0/14	Down	1	--	0005.5ED9.680E
FastEthernet0/15	Down	1	--	0005.5ED9.680F
FastEthernet0/16	Down	1	--	0005.5ED9.6810
FastEthernet0/17	Down	1	--	0005.5ED9.6811
FastEthernet0/18	Down	1	--	0005.5ED9.6812
FastEthernet0/19	Down	1	--	0005.5ED9.6813
FastEthernet0/20	Down	1	--	0005.5ED9.6814
FastEthernet0/21	Down	1	--	0005.5ED9.6815
FastEthernet0/22	Down	1	--	0005.5ED9.6816
FastEthernet0/23	Down	1	--	0005.5ED9.6817
FastEthernet0/24	Down	1	--	0005.5ED9.6818
Vlan1	Down	1	<not set>	000C.859D.6D16
Vlan13	Up	13	192.168.26.253/24	000C.859D.6D16
Vlan14	Up	14	192.168.27.253/24	000C.859D.6D16

Hostname: Switch

Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet

3.1.3 汇聚层配置

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
FastEthernet0/1	Up	6	<not set>	<not set>	000A.41D3.B101
FastEthernet0/2	Up	1	<not set>	<not set>	000A.41D3.B102
FastEthernet0/3	Up	--	<not set>	<not set>	000A.41D3.B103
FastEthernet0/4	Down	1	<not set>	<not set>	000A.41D3.B104
FastEthernet0/5	Down	1	<not set>	<not set>	000A.41D3.B105
FastEthernet0/6	Down	1	<not set>	<not set>	000A.41D3.B106
FastEthernet0/7	Down	1	<not set>	<not set>	000A.41D3.B107
FastEthernet0/8	Down	1	<not set>	<not set>	000A.41D3.B108
FastEthernet0/9	Down	1	<not set>	<not set>	000A.41D3.B109
FastEthernet0/10	Down	1	<not set>	<not set>	000A.41D3.B10A
FastEthernet0/11	Down	1	<not set>	<not set>	000A.41D3.B10B
FastEthernet0/12	Down	1	<not set>	<not set>	000A.41D3.B10C
FastEthernet0/13	Down	1	<not set>	<not set>	000A.41D3.B10D
FastEthernet0/14	Down	1	<not set>	<not set>	000A.41D3.B10E
FastEthernet0/15	Down	1	<not set>	<not set>	000A.41D3.B10F
FastEthernet0/16	Down	1	<not set>	<not set>	000A.41D3.B110
FastEthernet0/17	Down	1	<not set>	<not set>	000A.41D3.B111
FastEthernet0/18	Down	1	<not set>	<not set>	000A.41D3.B112
FastEthernet0/19	Down	1	<not set>	<not set>	000A.41D3.B113
FastEthernet0/20	Down	1	<not set>	<not set>	000A.41D3.B114
FastEthernet0/21	Down	1	<not set>	<not set>	000A.41D3.B115
FastEthernet0/22	Down	1	<not set>	<not set>	000A.41D3.B116
FastEthernet0/23	Down	1	<not set>	<not set>	000A.41D3.B117
FastEthernet0/24	Down	1	<not set>	<not set>	000A.41D3.B118
GigabitEthernet0/1	Down	1	<not set>	<not set>	000A.41D3.B119
GigabitEthernet0/2	Down	1	<not set>	<not set>	000A.41D3.B11A
Vlan1	Up	1	192.168.16.30/27	<not set>	0001.636D.C867
Vlan2	Up	2	192.168.17.254/24	<not set>	0001.636D.C867
Vlan3	Up	3	192.168.18.254/24	<not set>	0001.636D.C867
Vlan6	Up	6	192.168.21.1/30	<not set>	0001.636D.C867
Hostname: Switch					
Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet					

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
FastEthernet0/1	Up	4	<not set>	<not set>	0060.2F71.2001
FastEthernet0/2	Up	7	<not set>	<not set>	0060.2F71.2002
FastEthernet0/3	Down	1	<not set>	<not set>	0060.2F71.2003
FastEthernet0/4	Down	1	<not set>	<not set>	0060.2F71.2004
FastEthernet0/5	Down	1	<not set>	<not set>	0060.2F71.2005
FastEthernet0/6	Down	1	<not set>	<not set>	0060.2F71.2006
FastEthernet0/7	Down	1	<not set>	<not set>	0060.2F71.2007
FastEthernet0/8	Down	1	<not set>	<not set>	0060.2F71.2008
FastEthernet0/9	Down	1	<not set>	<not set>	0060.2F71.2009
FastEthernet0/10	Down	1	<not set>	<not set>	0060.2F71.200A
FastEthernet0/11	Down	1	<not set>	<not set>	0060.2F71.200B
FastEthernet0/12	Down	1	<not set>	<not set>	0060.2F71.200C
FastEthernet0/13	Down	1	<not set>	<not set>	0060.2F71.200D
FastEthernet0/14	Down	1	<not set>	<not set>	0060.2F71.200E
FastEthernet0/15	Down	1	<not set>	<not set>	0060.2F71.200F
FastEthernet0/16	Down	1	<not set>	<not set>	0060.2F71.2010
FastEthernet0/17	Down	1	<not set>	<not set>	0060.2F71.2011
FastEthernet0/18	Down	1	<not set>	<not set>	0060.2F71.2012
FastEthernet0/19	Down	1	<not set>	<not set>	0060.2F71.2013
FastEthernet0/20	Down	1	<not set>	<not set>	0060.2F71.2014
FastEthernet0/21	Down	1	<not set>	<not set>	0060.2F71.2015
FastEthernet0/22	Down	1	<not set>	<not set>	0060.2F71.2016
FastEthernet0/23	Down	1	<not set>	<not set>	0060.2F71.2017
FastEthernet0/24	Down	1	<not set>	<not set>	0060.2F71.2018
GigabitEthernet0/1	Down	1	<not set>	<not set>	0060.2F71.2019
GigabitEthernet0/2	Down	1	<not set>	<not set>	0060.2F71.201A
Vlan1	Down	1	<not set>	<not set>	00E0.F95B.77D7
Vlan4	Up	4	192.168.19.254/24	<not set>	00E0.F95B.77D7
Vlan7	Up	7	192.168.22.1/30	<not set>	00E0.F95B.77D7
Hostname: Switch					
Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet					

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
FastEthernet0/1	Up	--	<not set>	<not set>	0001.42B7.C801
FastEthernet0/2	Up	--	<not set>	<not set>	0001.42B7.C802
FastEthernet0/3	Up	--	<not set>	<not set>	0001.42B7.C803
FastEthernet0/4	Down	1	<not set>	<not set>	0001.42B7.C804
FastEthernet0/5	Down	1	<not set>	<not set>	0001.42B7.C805
FastEthernet0/6	Down	1	<not set>	<not set>	0001.42B7.C806
FastEthernet0/7	Down	1	<not set>	<not set>	0001.42B7.C807
FastEthernet0/8	Down	1	<not set>	<not set>	0001.42B7.C808
FastEthernet0/9	Down	1	<not set>	<not set>	0001.42B7.C809
FastEthernet0/10	Down	1	<not set>	<not set>	0001.42B7.C80A
FastEthernet0/11	Down	1	<not set>	<not set>	0001.42B7.C80B
FastEthernet0/12	Down	1	<not set>	<not set>	0001.42B7.C80C
FastEthernet0/13	Down	1	<not set>	<not set>	0001.42B7.C80D
FastEthernet0/14	Down	1	<not set>	<not set>	0001.42B7.C80E
FastEthernet0/15	Down	1	<not set>	<not set>	0001.42B7.C80F
FastEthernet0/16	Down	1	<not set>	<not set>	0001.42B7.C810
FastEthernet0/17	Down	1	<not set>	<not set>	0001.42B7.C811
FastEthernet0/18	Down	1	<not set>	<not set>	0001.42B7.C812
FastEthernet0/19	Down	1	<not set>	<not set>	0001.42B7.C813
FastEthernet0/20	Down	1	<not set>	<not set>	0001.42B7.C814
FastEthernet0/21	Down	1	<not set>	<not set>	0001.42B7.C815
FastEthernet0/22	Down	1	<not set>	<not set>	0001.42B7.C816
FastEthernet0/23	Down	1	<not set>	<not set>	0001.42B7.C817
FastEthernet0/24	Down	1	<not set>	<not set>	0001.42B7.C818
GigabitEthernet0/1	Down	1	<not set>	<not set>	0001.42B7.C819
GigabitEthernet0/2	Down	1	<not set>	<not set>	0001.42B7.C81A
Vlan1	Down	1	<not set>	<not set>	0002.4A00.274B
Vlan8	Up	8	192.168.23.1/30	<not set>	0002.4A00.274B
Vlan11	Up	11	192.168.24.254/24	<not set>	0002.4A00.274B
Vlan12	Up	12	192.168.25.254/24	<not set>	0002.4A00.274B
Vlan13	Up	13	192.168.26.254/24	<not set>	0002.4A00.274B
Vlan14	Up	14	192.168.27.254/24	<not set>	0002.4A00.274B
Hostname: Switch					
Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet					

3.1.4 核心层配置

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
FastEthernet0/1	Up	6	<not set>	<not set>	0005.5E4D.E201
FastEthernet0/2	Up	7	<not set>	<not set>	0005.5E4D.E202
FastEthernet0/3	Up	--	<not set>	<not set>	0005.5E4D.E203
FastEthernet0/4	Down	1	<not set>	<not set>	0005.5E4D.E204
FastEthernet0/5	Down	1	<not set>	<not set>	0005.5E4D.E205
FastEthernet0/6	Down	1	<not set>	<not set>	0005.5E4D.E206
FastEthernet0/7	Down	1	<not set>	<not set>	0005.5E4D.E207
FastEthernet0/8	Down	1	<not set>	<not set>	0005.5E4D.E208
FastEthernet0/9	Down	1	<not set>	<not set>	0005.5E4D.E209
FastEthernet0/10	Down	1	<not set>	<not set>	0005.5E4D.E20A
FastEthernet0/11	Down	1	<not set>	<not set>	0005.5E4D.E20B
FastEthernet0/12	Down	1	<not set>	<not set>	0005.5E4D.E20C
FastEthernet0/13	Down	1	<not set>	<not set>	0005.5E4D.E20D
FastEthernet0/14	Down	1	<not set>	<not set>	0005.5E4D.E20E
FastEthernet0/15	Down	1	<not set>	<not set>	0005.5E4D.E20F
FastEthernet0/16	Down	1	<not set>	<not set>	0005.5E4D.E210
FastEthernet0/17	Down	1	<not set>	<not set>	0005.5E4D.E211
FastEthernet0/18	Down	1	<not set>	<not set>	0005.5E4D.E212
FastEthernet0/19	Down	1	<not set>	<not set>	0005.5E4D.E213
FastEthernet0/20	Down	1	<not set>	<not set>	0005.5E4D.E214
FastEthernet0/21	Down	1	<not set>	<not set>	0005.5E4D.E215
FastEthernet0/22	Down	1	<not set>	<not set>	0005.5E4D.E216
FastEthernet0/23	Down	1	<not set>	<not set>	0005.5E4D.E217
FastEthernet0/24	Down	1	<not set>	<not set>	0005.5E4D.E218
GigabitEthernet0/1	Down	1	<not set>	<not set>	0005.5E4D.E219
GigabitEthernet0/2	Down	1	<not set>	<not set>	0005.5E4D.E21A
Vlan1	Down	1	<not set>	<not set>	00D0.D340.E72C
Vlan6	Up	6	192.168.21.2/30	<not set>	00D0.D340.E72C
Vlan7	Up	7	192.168.22.2/30	<not set>	00D0.D340.E72C
Vlan8	Up	8	192.168.23.2/30	<not set>	00D0.D340.E72C
Hostname: Switch					
Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet					

3.2 网络模拟

3.2.1 服务器 ping:

Ping 服务器

```
SERVER>ping 192.168.16.1

Pinging 192.168.16.1 with 32 bytes of data:

Reply from 192.168.16.1: bytes=32 time=3ms TTL=128
Reply from 192.168.16.1: bytes=32 time=3ms TTL=128
Reply from 192.168.16.1: bytes=32 time=1ms TTL=128
Reply from 192.168.16.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.16.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 2ms
```

Ping 办公区

```
SERVER>ping 192.168.17.1

Pinging 192.168.17.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.17.1: bytes=32 time=0ms TTL=127
Reply from 192.168.17.1: bytes=32 time=0ms TTL=127
Reply from 192.168.17.1: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.17.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping 教学区

```
SERVER>ping 192.168.19.1

Pinging 192.168.19.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Reply from 192.168.19.1: bytes=32 time=0ms TTL=125

Ping statistics for 192.168.19.1:
    Packets: Sent = 4, Received = 1, Lost = 3 (75% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping 宿舍区

```
SERVER>ping 192.168.24.1

Pinging 192.168.24.1 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.24.1: bytes=32 time=0ms TTL=125
Reply from 192.168.24.1: bytes=32 time=0ms TTL=125

Ping statistics for 192.168.24.1:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

3.2.2 办公区 ping

办公区 ping 教学区


```
PC>ping 192.168.19.1

Pinging 192.168.19.1 with 32 bytes of data:

Reply from 192.168.19.1: bytes=32 time=12ms TTL=125
Reply from 192.168.19.1: bytes=32 time=0ms TTL=125
Reply from 192.168.19.1: bytes=32 time=2ms TTL=125
Reply from 192.168.19.1: bytes=32 time=0ms TTL=125

Ping statistics for 192.168.19.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms
```

3.2.3 教学区 Ping

教学区 ping 办公区

```
PC>ping 192.168.17.1

Pinging 192.168.17.1 with 32 bytes of data:

Reply from 192.168.17.1: bytes=32 time=12ms TTL=125
Reply from 192.168.17.1: bytes=32 time=1ms TTL=125
Reply from 192.168.17.1: bytes=32 time=0ms TTL=125
Reply from 192.168.17.1: bytes=32 time=13ms TTL=125

Ping statistics for 192.168.17.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 6ms
```

3.2.4 宿舍区 Ping

宿舍区 ping 教学区

```
PC>ping 192.168.19.1

Pinging 192.168.19.1 with 32 bytes of data:

Reply from 192.168.25.254: Destination host unreachable.
Reply from 192.168.25.254: Destination host unreachable.
Reply from 192.168.25.254: Destination host unreachable.
Reply from 192.168.25.254: Destination host unreachable.

Ping statistics for 192.168.19.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

宿舍区 ping 办公区

```
PC>ping 192.168.17.1

Pinging 192.168.17.1 with 32 bytes of data:

Reply from 192.168.25.254: Destination host unreachable.
Request timed out.
Reply from 192.168.25.254: Destination host unreachable.
Reply from 192.168.25.254: Destination host unreachable.

Ping statistics for 192.168.17.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

四、实验心得

- 有其他的配置方案，教学区可以分两个子网

- 宿舍区汇聚层下有四个 vlan，再加上与核心层的一个接口，总共会有 5 条路由信息；而其余两个分别只有 4 条和 2 条。
- 理论上讲办公区和教学区似乎可以访问宿舍区，但在实际的 ping 过程中会一直显示超时。原因是因为：宿舍区可以收到办公区和教学区的 ICMP 请求，并且作出相应，但是由于宿舍区不能访问办公区和教学区，因此宿舍区的相应并不能到达办公区和教学区，在中途直接被丢掉了。