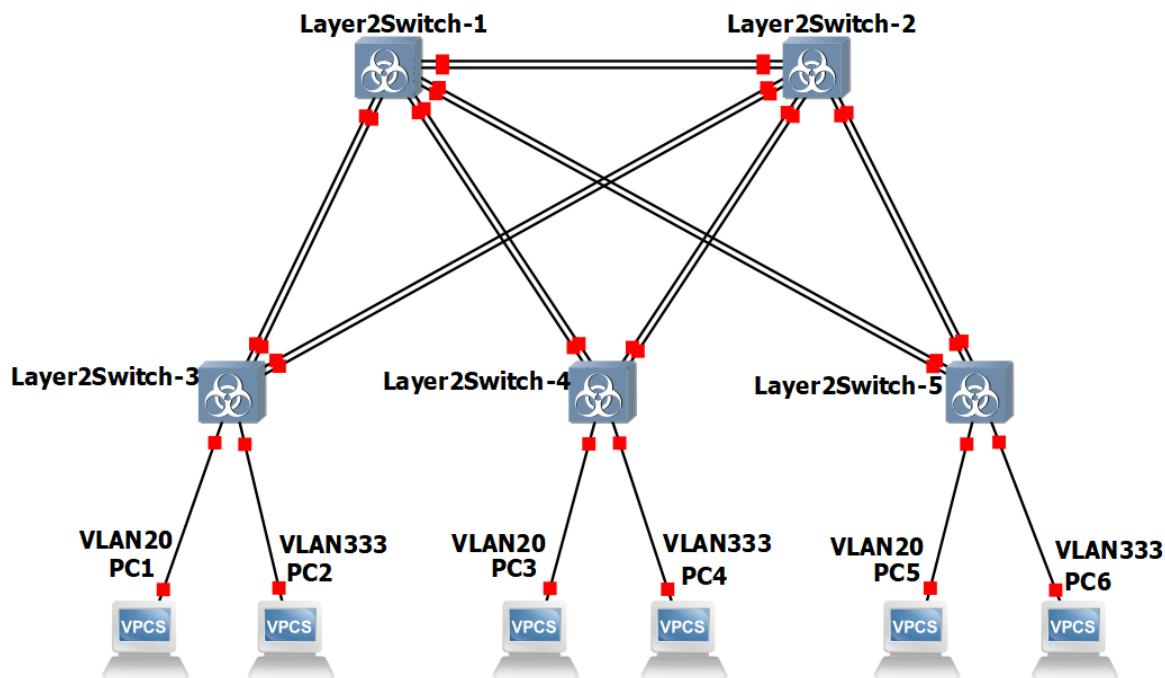


Лабораторная работа №3

Тема: Настройка виртуальной локальной сети (VLAN)

- 1) Для заданной на схеме schema-lab3 сети, состоящей из управляемых коммутаторов и персональных компьютеров



настроила на коммутаторах логическую топологию, используя протокол IEEE 802.1Q, для передачи пакетов VLAN333 между коммутаторами использовала Native VLAN. Для этого на каждом коммутаторе были использованы данные команды (пример для SW3):

```
enable
configure terminal
// Если есть подключение к PC
int gigabiethernet 1/0
description PC1-VLAN20
switchport mode access
switchport access vlan 20
```

no shutdown

exit

int gigabiethernet 1/1

description PC2-VLAN333

switchport mode access

switchport access vlan 333

no shutdown

exit

int gigabiethernet 0/0

description Trunk-to-Layer2Switch-1_1

switchport mode trunk

switchport trunk native vlan 333

switchport trunk allowed vlan 20,333

no shutdown

exit

int gigabiethernet 0/1

description Trunk-to-Layer2Switch-1_2

switchport mode trunk

switchport trunk native vlan 333

switchport trunk allowed vlan 20,333

no shutdown

exit

```
int gigabiethernet 0/2
description Trunk-to-Layer2Switch-2_1
switchport mode trunk
switchport trunk native vlan 333
switchport trunk allowed vlan 20,333
no shutdown
exit
```

```
int gigabiethernet 0/3
description Trunk-to-Layer2Switch-2_2
switchport mode trunk
switchport trunk native vlan 333
switchport trunk allowed vlan 20,333
no shutdown
exit
```

- 2) Проверила доступность персональных компьютеров, находящихся в одинаковых VLAN и недоступность находящихся в различных.

```
PC1> ping 192.168.20.2
84 bytes from 192.168.20.2 icmp_seq=1 ttl=64 time=2.220 ms
84 bytes from 192.168.20.2 icmp_seq=2 ttl=64 time=4.305 ms
84 bytes from 192.168.20.2 icmp_seq=3 ttl=64 time=9.667 ms
84 bytes from 192.168.20.2 icmp_seq=4 ttl=64 time=4.887 ms
84 bytes from 192.168.20.2 icmp_seq=5 ttl=64 time=9.115 ms

PC1> ping 192.168.20.3
84 bytes from 192.168.20.3 icmp_seq=1 ttl=64 time=7.837 ms
84 bytes from 192.168.20.3 icmp_seq=2 ttl=64 time=14.092 ms
84 bytes from 192.168.20.3 icmp_seq=3 ttl=64 time=9.429 ms
84 bytes from 192.168.20.3 icmp_seq=4 ttl=64 time=6.218 ms
84 bytes from 192.168.20.3 icmp_seq=5 ttl=64 time=4.692 ms

PC1> ping 192.168.33.1
No gateway found

PC1> ping 192.168.33.2
No gateway found

PC1> ping 192.168.33.3
No gateway found
```

```
ping 192.168.33.2
84 bytes from 192.168.33.2 icmp_seq=1 ttl=64 time=15.022 ms
84 bytes from 192.168.33.2 icmp_seq=2 ttl=64 time=6.991 ms
84 bytes from 192.168.33.2 icmp_seq=3 ttl=64 time=6.582 ms
84 bytes from 192.168.33.2 icmp_seq=4 ttl=64 time=13.142 ms
84 bytes from 192.168.33.2 icmp_seq=5 ttl=64 time=4.693 ms

PC2> ping 192.168.33.3
84 bytes from 192.168.33.3 icmp_seq=1 ttl=64 time=9.328 ms
84 bytes from 192.168.33.3 icmp_seq=2 ttl=64 time=12.520 ms
84 bytes from 192.168.33.3 icmp_seq=3 ttl=64 time=2.520 ms
84 bytes from 192.168.33.3 icmp_seq=4 ttl=64 time=12.190 ms
84 bytes from 192.168.33.3 icmp_seq=5 ttl=64 time=11.438 ms

PC2> ping 192.168.20.1
No gateway found

PC2> ping 192.168.20.2
No gateway found

PC2> ping 192.168.20.3
No gateway found
```

```
PC3> ping 192.168.20.1
84 bytes from 192.168.20.1 icmp_seq=1 ttl=64 time=6.142 ms
84 bytes from 192.168.20.1 icmp_seq=2 ttl=64 time=7.192 ms
84 bytes from 192.168.20.1 icmp_seq=3 ttl=64 time=7.772 ms
84 bytes from 192.168.20.1 icmp_seq=4 ttl=64 time=3.658 ms
84 bytes from 192.168.20.1 icmp_seq=5 ttl=64 time=3.904 ms

PC3> ping 192.168.20.3
84 bytes from 192.168.20.3 icmp_seq=1 ttl=64 time=16.965 ms
84 bytes from 192.168.20.3 icmp_seq=2 ttl=64 time=1.474 ms
84 bytes from 192.168.20.3 icmp_seq=3 ttl=64 time=5.934 ms
84 bytes from 192.168.20.3 icmp_seq=4 ttl=64 time=7.137 ms
84 bytes from 192.168.20.3 icmp_seq=5 ttl=64 time=7.842 ms

PC3> ping 192.168.33.1
No gateway found

PC3> ping 192.168.33.2
No gateway found

PC3> ping 192.168.33.3
No gateway found
```

```
ping 192.168.33.1
84 bytes from 192.168.33.1 icmp_seq=1 ttl=64 time=9.889 ms
84 bytes from 192.168.33.1 icmp_seq=2 ttl=64 time=7.325 ms
84 bytes from 192.168.33.1 icmp_seq=3 ttl=64 time=13.748 ms
84 bytes from 192.168.33.1 icmp_seq=4 ttl=64 time=6.622 ms
84 bytes from 192.168.33.1 icmp_seq=5 ttl=64 time=7.185 ms

PC4> ping 192.168.33.3
84 bytes from 192.168.33.3 icmp_seq=1 ttl=64 time=11.931 ms
84 bytes from 192.168.33.3 icmp_seq=2 ttl=64 time=3.148 ms
84 bytes from 192.168.33.3 icmp_seq=3 ttl=64 time=7.832 ms
84 bytes from 192.168.33.3 icmp_seq=4 ttl=64 time=7.025 ms
84 bytes from 192.168.33.3 icmp_seq=5 ttl=64 time=7.163 ms

PC4> ping 192.168.20.1
No gateway found

PC4> ping 192.168.20.2
No gateway found

PC4> ping 192.168.20.3
No gateway found
```

```
PC5> ping 192.168.20.1
84 bytes from 192.168.20.1 icmp_seq=1 ttl=64 time=5.731 ms
84 bytes from 192.168.20.1 icmp_seq=2 ttl=64 time=8.622 ms
84 bytes from 192.168.20.1 icmp_seq=3 ttl=64 time=5.754 ms
84 bytes from 192.168.20.1 icmp_seq=4 ttl=64 time=7.124 ms
84 bytes from 192.168.20.1 icmp_seq=5 ttl=64 time=7.488 ms

PC5> ping 192.168.20.2
84 bytes from 192.168.20.2 icmp_seq=1 ttl=64 time=4.234 ms
84 bytes from 192.168.20.2 icmp_seq=2 ttl=64 time=10.319 ms
84 bytes from 192.168.20.2 icmp_seq=3 ttl=64 time=4.872 ms
84 bytes from 192.168.20.2 icmp_seq=4 ttl=64 time=6.872 ms
84 bytes from 192.168.20.2 icmp_seq=5 ttl=64 time=6.426 ms

PC5> ping 192.168.33.1
No gateway found

PC5> ping 192.168.33.2
No gateway found

PC5> ping 192.168.33.3
No gateway found
```

```
ping 192.168.33.1
84 bytes from 192.168.33.1 icmp_seq=1 ttl=64 time=7.071 ms
84 bytes from 192.168.33.1 icmp_seq=2 ttl=64 time=6.297 ms
84 bytes from 192.168.33.1 icmp_seq=3 ttl=64 time=9.156 ms
84 bytes from 192.168.33.1 icmp_seq=4 ttl=64 time=5.160 ms
84 bytes from 192.168.33.1 icmp_seq=5 ttl=64 time=9.307 ms

PC6> ping 192.168.33.2
84 bytes from 192.168.33.2 icmp_seq=1 ttl=64 time=6.315 ms
84 bytes from 192.168.33.2 icmp_seq=2 ttl=64 time=3.795 ms
84 bytes from 192.168.33.2 icmp_seq=3 ttl=64 time=7.276 ms
84 bytes from 192.168.33.2 icmp_seq=4 ttl=64 time=6.641 ms
84 bytes from 192.168.33.2 icmp_seq=5 ttl=64 time=13.912 ms

PC6> ping 192.168.20.1
No gateway found

PC6> ping 192.168.20.2
No gateway found

PC6> ping 192.168.20.3
No gateway found
```

3) Перехватила в Wireshark пакеты с тегами и без тегов.

С тегом 20:

The screenshot shows the Wireshark interface with a capture filter applied to frames where eth.type == 0x8100. The list view displays several frames, all of which have a Source MAC address of 0c:e1:3e:79:00:02 and a Destination MAC address of PVST+. The Protocol column shows STP for most frames, except for frame 643 which is 802.1Q Virtual LAN (0x8100). The Length/Info column provides detailed information about each frame, including the frame ID, priority, DEI, and CFI values. The hex and ASCII panes show the raw bytes and readable text for the selected frame 643.

No.	Time	Source	Destination	Protocol	Length Info
640	479.950904	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
641	481.944643	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
642	481.950666	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
643	483.951240	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
644	483.951424	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
648	485.943885	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
649	485.949879	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
650	487.943583	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
651	487.949568	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
652	489.943282	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
653	489.949349	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
654	491.950076	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
655	491.950306	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003

```

Frame 643: Packet, 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface -, id 0
Ethernet II, Src: 0c:e1:3e:79:00:02 (0c:e1:3e:79:00:02), Dst: PVST+ (01:00:0c:cc:cc:cd)
  Destination: PVST+ (01:00:0c:cc:cc:cd)
  Source: 0c:e1:3e:79:00:02 (0c:e1:3e:79:00:02)
  Type: 802.1Q Virtual LAN (0x8100)
    [Stream index: 0]
  802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 20
    000. .... .... = Priority: Best Effort (default) (0)
    ...0 .... .... = DEI: Ineligible
    .... 0000 0001 0100 = ID: 20
    Length: 50
  Logical-Link Control
  Spanning Tree Protocol

```

0000 01 00 0c cc cc cd 0c e1 3e 79 00 02 81 00
0010 00 32 aa aa 03 00 00 0c 01 0b 00 00 00 00
0020 14 0c 36 e4 51 00 00 00 00 00 04 80 14 0c
0030 79 00 00 80 03 01 00 14 00 02 00 0f 00 00
0040 00 02 00 14

С тегом 333:

The screenshot shows the Wireshark interface with a capture filter applied to frames where eth.type == 0x8100. The list view displays several frames, all of which have a Source MAC address of 0c:e1:3e:79:00:02 and a Destination MAC address of PVST+. The Protocol column shows STP for most frames, except for frame 547 which is 802.1Q Virtual LAN (0x8100). The Length/Info column provides detailed information about each frame, including the frame ID, priority, DEI, and CFI values. The hex and ASCII panes show the raw bytes and readable text for the selected frame 547.

No.	Time	Source	Destination	Protocol	Length Info
540	403.957638	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
543	405.951126	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
544	405.956055	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
545	406.434614	0c:e1:3e:79:00:02	CDP/VT/PDP/PAgP/UDLD	DTP	62 Dynamic Trunk Protocol
546	407.950805	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
547	407.955732	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
548	408.179833	0c:e4:52:fc:00:00	CDP/VT/PDP/PAgP/UDLD	DTP	62 Dynamic Trunk Protocol
549	409.950491	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
550	409.955527	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
551	411.950186	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
552	411.955378	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
553	413.950303	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/20/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003
554	413.954981	0c:e1:3e:79:00:02	PVST+	STP	68 Conf. Root = 32768/333/0c:36:e4:51:00:00 Cost = 4 Port = 0x8003

```

Frame 547: Packet, 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface -, id 0
Ethernet II, src: 0c:e1:3e:79:00:02 (0c:e1:3e:79:00:02), dst: PVST+ (01:00:0c:cc:cc:cd)
  Destination: PVST+ (01:00:0c:cc:cc:cd)
  Source: 0c:e1:3e:79:00:02 (0c:e1:3e:79:00:02)
  Type: 802.1Q Virtual LAN (0x8100)
    [Stream index: 0]
  802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 333
    000. .... .... = Priority: Best Effort (default) (0)
    ...0 .... .... = DEI: Ineligible
    .... 0001 0100 1101 = ID: 333
    Length: 50
  Logical-Link Control
  Spanning Tree Protocol

```

0000 01 00 0c cc cc cd 0c e1 3e 79 00 02 81 00
0010 00 32 aa aa 03 00 00 0c 01 0b 00 00 00 00
0020 4d 0c 36 e4 51 00 00 00 00 00 04 81 4d 0c
0030 79 00 00 80 03 01 00 14 00 02 00 0f 00 00
0040 00 02 01 4d

Без тега:

Захват с Standard input [Layer2Switch-1 Ethernet2 to Layer2Switch-3 Ethernet0]

Файл Дравка Вид Запуск Захват Анализ Статистика Телефония Беспроводная связь Инструменты Справка

not vlan

No.	Time	Source	Destination	Protocol	Length	Info
7	4.239020	0c:e4:52:fc:00:00	CDP/VTB/DTP/PAgP/UDLD	CDP	424	Device ID: Switch Port ID: GigabitEthernet0/0
8	5.340811	0c:e4:52:fc:00:00	0c:e4:52:fc:00:00	LOOP	60	Reply
9	5.849885	0c:e1:3e:79:00:02	0c:e1:3e:79:00:02	LOOP	60	Reply
20	15.339324	0c:e4:52:fc:00:00	0c:e4:52:fc:00:00	LOOP	60	Reply
21	15.848314	0c:e1:3e:79:00:02	0c:e1:3e:79:00:02	LOOP	60	Reply
34	25.338789	0c:e4:52:fc:00:00	0c:e4:52:fc:00:00	LOOP	60	Reply
35	25.847792	0c:e1:3e:79:00:02	0c:e1:3e:79:00:02	LOOP	60	Reply
46	35.337281	0c:e4:52:fc:00:00	0c:e4:52:fc:00:00	LOOP	60	Reply
47	35.846339	0c:e1:3e:79:00:02	0c:e1:3e:79:00:02	LOOP	60	Reply
58	45.336750	0c:e4:52:fc:00:00	0c:e4:52:fc:00:00	LOOP	60	Reply
59	45.607375	0c:e1:3e:79:00:02	CDP/VTB/DTP/PAgP/UDLD	CDP	424	Device ID: Switch Port ID: GigabitEthernet0/2
60	45.844689	0c:e1:3e:79:00:02	0c:e1:3e:79:00:02	LOOP	60	Reply
71	52.292702	0c:e4:52:fc:00:00	CDP/VTB/DTP/PAgP/UDLD	CDP	424	Device ID: Switch Port ID: GigabitEthernet0/0
74	55.225526	0c:e4:52:fc:00:00	0c:e4:52:fc:00:00	LOOP	60	Reply

```

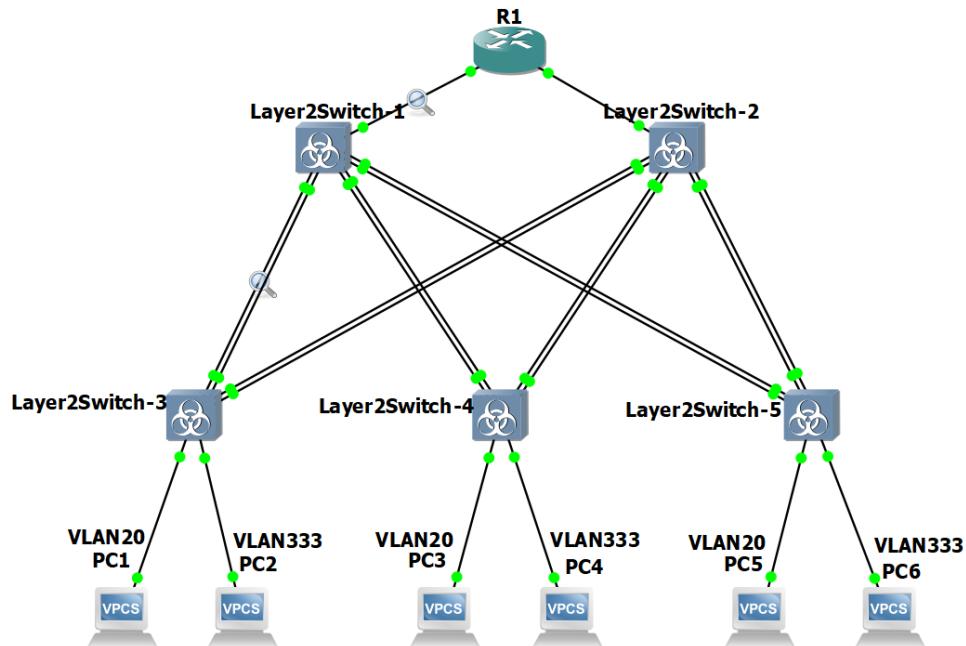
Frame 7: Packet, 424 bytes on wire (3392 bits), 424 bytes captured (3392 bits) on interface -, id 0
IEEE 802.3 Ethernet
  > Destination: CDP/VTB/DTP/PAgP/UDLD (01:00:0c:cc:cc:cc)
  > Source: 0c:e4:52:fc:00:00 (0c:e4:52:fc:00:00)
  Length: 410
  [Stream index: 1]
  > Logical-Link Control
  > Cisco Discovery Protocol

```

0000	01 00 0c cc cc cc 0c e
0010	03 00 00 0c 20 00 02 b
0020	69 74 63 68 00 05 01 3
0030	53 20 53 6f 66 74 77 6
0040	5f 6c 32 20 53 6f 66 7
0050	6f 73 5f 6c 32 2d 41 4
0060	49 53 45 4b 39 2d 4d 2
0070	6e 20 31 35 2e 30 28 5
0080	36 30 35 29 46 4c 4f 5

4) Сохранила файлы конфигураций устройств в виде набора файлов с именами, соответствующими именам устройств.

5*) Добавила в схему маршрутизатор, подключенный к коммутаторам Layer2Switch1 и Layer2Switch2, настроила через него маршрутизацию между VLAN.



Проверим, что компьютеры с одинаковыми VLAN доступны.

```
ping 192.168.20.3

84 bytes from 192.168.20.3 icmp_seq=1 ttl=64 time=3.391 ms
84 bytes from 192.168.20.3 icmp_seq=2 ttl=64 time=15.061 ms
84 bytes from 192.168.20.3 icmp_seq=3 ttl=64 time=10.163 ms
84 bytes from 192.168.20.3 icmp_seq=4 ttl=64 time=7.027 ms
84 bytes from 192.168.20.3 icmp_seq=5 ttl=64 time=7.829 ms

PC1> ping 192.168.20.2

84 bytes from 192.168.20.2 icmp_seq=1 ttl=64 time=8.207 ms
84 bytes from 192.168.20.2 icmp_seq=2 ttl=64 time=1.444 ms
84 bytes from 192.168.20.2 icmp_seq=3 ttl=64 time=2.994 ms
84 bytes from 192.168.20.2 icmp_seq=4 ttl=64 time=17.766 ms
84 bytes from 192.168.20.2 icmp_seq=5 ttl=64 time=13.405 ms
```

```
ping 192.168.33.2

84 bytes from 192.168.33.2 icmp_seq=1 ttl=64 time=7.888 ms
84 bytes from 192.168.33.2 icmp_seq=2 ttl=64 time=3.211 ms
84 bytes from 192.168.33.2 icmp_seq=3 ttl=64 time=7.740 ms
84 bytes from 192.168.33.2 icmp_seq=4 ttl=64 time=8.083 ms
84 bytes from 192.168.33.2 icmp_seq=5 ttl=64 time=21.333 ms

PC2> ping 192.168.33.3

84 bytes from 192.168.33.3 icmp_seq=1 ttl=64 time=12.923 ms
84 bytes from 192.168.33.3 icmp_seq=2 ttl=64 time=9.027 ms
84 bytes from 192.168.33.3 icmp_seq=3 ttl=64 time=5.343 ms
84 bytes from 192.168.33.3 icmp_seq=4 ttl=64 time=6.583 ms
84 bytes from 192.168.33.3 icmp_seq=5 ttl=64 time=7.240 ms
```

```
ping 192.168.20.1

84 bytes from 192.168.20.1 icmp_seq=1 ttl=64 time=10.715 ms
84 bytes from 192.168.20.1 icmp_seq=2 ttl=64 time=6.904 ms
84 bytes from 192.168.20.1 icmp_seq=3 ttl=64 time=6.360 ms
84 bytes from 192.168.20.1 icmp_seq=4 ttl=64 time=6.537 ms
84 bytes from 192.168.20.1 icmp_seq=5 ttl=64 time=6.520 ms

PC3> ping 192.168.20.3

84 bytes from 192.168.20.3 icmp_seq=1 ttl=64 time=10.283 ms
84 bytes from 192.168.20.3 icmp_seq=2 ttl=64 time=6.154 ms
84 bytes from 192.168.20.3 icmp_seq=3 ttl=64 time=10.119 ms
84 bytes from 192.168.20.3 icmp_seq=4 ttl=64 time=10.397 ms
84 bytes from 192.168.20.3 icmp_seq=5 ttl=64 time=3.035 ms
```

```
ping 192.168.33.1
```

```
84 bytes from 192.168.33.1 icmp_seq=1 ttl=64 time=7.394 ms
84 bytes from 192.168.33.1 icmp_seq=2 ttl=64 time=7.512 ms
84 bytes from 192.168.33.1 icmp_seq=3 ttl=64 time=6.844 ms
84 bytes from 192.168.33.1 icmp_seq=4 ttl=64 time=15.222 ms
84 bytes from 192.168.33.1 icmp_seq=5 ttl=64 time=14.896 ms
```

```
PC4> ping 192.168.33.3
```

```
84 bytes from 192.168.33.3 icmp_seq=1 ttl=64 time=17.006 ms
84 bytes from 192.168.33.3 icmp_seq=2 ttl=64 time=5.710 ms
84 bytes from 192.168.33.3 icmp_seq=3 ttl=64 time=2.912 ms
84 bytes from 192.168.33.3 icmp_seq=4 ttl=64 time=6.543 ms
84 bytes from 192.168.33.3 icmp_seq=5 ttl=64 time=12.968 ms
```

```
ping 192.168.20.1
```

```
84 bytes from 192.168.20.1 icmp_seq=1 ttl=64 time=12.738 ms
84 bytes from 192.168.20.1 icmp_seq=2 ttl=64 time=7.767 ms
84 bytes from 192.168.20.1 icmp_seq=3 ttl=64 time=5.551 ms
84 bytes from 192.168.20.1 icmp_seq=4 ttl=64 time=8.710 ms
84 bytes from 192.168.20.1 icmp_seq=5 ttl=64 time=6.964 ms
```

```
PC5> ping 192.168.20.2
```

```
84 bytes from 192.168.20.2 icmp_seq=1 ttl=64 time=2.491 ms
84 bytes from 192.168.20.2 icmp_seq=2 ttl=64 time=5.222 ms
84 bytes from 192.168.20.2 icmp_seq=3 ttl=64 time=9.415 ms
84 bytes from 192.168.20.2 icmp_seq=4 ttl=64 time=7.737 ms
84 bytes from 192.168.20.2 icmp_seq=5 ttl=64 time=13.909 ms
```

```
ping 192.168.33.1
```

```
84 bytes from 192.168.33.1 icmp_seq=1 ttl=64 time=12.961 ms
84 bytes from 192.168.33.1 icmp_seq=2 ttl=64 time=6.720 ms
84 bytes from 192.168.33.1 icmp_seq=3 ttl=64 time=7.198 ms
84 bytes from 192.168.33.1 icmp_seq=4 ttl=64 time=7.674 ms
84 bytes from 192.168.33.1 icmp_seq=5 ttl=64 time=7.188 ms
```

```
PC6> ping 192.168.33.2
```

```
84 bytes from 192.168.33.2 icmp_seq=1 ttl=64 time=5.834 ms
84 bytes from 192.168.33.2 icmp_seq=2 ttl=64 time=6.981 ms
84 bytes from 192.168.33.2 icmp_seq=3 ttl=64 time=11.938 ms
84 bytes from 192.168.33.2 icmp_seq=4 ttl=64 time=6.733 ms
84 bytes from 192.168.33.2 icmp_seq=5 ttl=64 time=8.330 ms
```