Выпускная квалификационная работа на тему:

Проектирование корпоративной сети отелей «Diamond Hotel»

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Заданием предусмотрено:

- Анализ текущих требований для

реализации необходимого проекта сети

- Создание макета сети в Cisco Packet Tracer

- Настройка сети
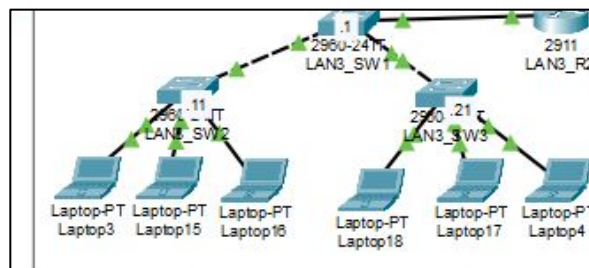
Макет сети предприятия в Cisco Packet Tracer

Разбиение сети на виртуальные подсети (настройка VLAN)

```
LAN2_SW4(config)#vlan 6
LAN2_SW4(config-vlan)#name NATIVE
LAN2_SW4(config-vlan)#vlan 120
LAN2_SW4(config-vlan)#name manager
LAN2_SW4(config-vlan)#vlan 122
LAN2_SW4(config-vlan)#name CLIENT_2
LAN2_SW4(config-vlan)#vlan 123
LAN2_SW4(config-vlan)#name CLIENT_3
LAN2_SW4(config-vlan)#vlan 124
LAN2_SW4(config-vlan)#name CLIENT_4
LAN2_SW4(config-vlan)#exit
LAN2_SW4(config)#int vlan 120
LAN2_SW4(config-if)#ip address 172.29.162.129 255.255.255.128
%LINK-5-CHANGED: Interface Vlan120, changed state to up
```

```
LAN2_SW4(config)#vtp domain diamondhotel.ru
Domain name already set to diamondhotel.ru.
LAN2_SW4(config)#vtp password cisco
Password already set to cisco
LAN2_SW4(config)#vtp version 2
VTP mode already in V2.
LAN2_SW4(config)#vtp mode server
Device mode already VTP SERVER.
```

```
LAN2_SW4(config)#vtp domain diamondhotel.ru
Domain name already set to diamondhotel.ru.
LAN2_SW4(config)#vtp password cisco
Password already set to cisco
LAN2_SW4(config)#vtp version 2
VTP mode already in V2.
LAN2_SW4(config)#vtp mode server
Device mode already VTP SERVER.
```

```
LAN2_SW6(config)#vtp domain diamondhotel.ru
Domain name already set to diamondhotel.ru.
LAN2_SW6(config)#vtp password cisco
Password already set to cisco
LAN2_SW6(config)#vtp version 2
VTP mode already in V2.
LAN2_SW6(config)#vtp mode transparent
Setting device to VTP TRANSPARENT mode.
```



```
                            .1
                       2960-24TT         2911
                       LAN3_SW1          LAN3_R2

              2960 .11 TT        2960 .21
              LAN3_SW2           LAN3_SW3

Laptop-PT  Laptop-PT  Laptop-PT   Laptop-PT  Laptop-PT  Laptop-PT
 Laptop3    Laptop15   Laptop16    Laptop18   Laptop17   Laptop4
```

Офис Адлер
10.45.216.0/21 – vlan 120 (manager)

10.45.224.0/21 – vlan 125 (CLIENT_3)

Отель Б
10.45.192.0/21 – vlan 120 (manager)

10.45.200.0/21 – vlan 126 (CLIENT_1)

10.45.208.0/21 – vlan 127 (CLIENT_2)

Настройка VLAN и саб-интерфейсов (IEEE 802.1q)


```
LAN2_R3(config)#interface GigabitEthernet0/1.120
LAN2_R3(config-subif)#encapsulation dot1Q 120
LAN2_R3(config-subif)#ip address 172.29.162.252 255.255.255.128
LAN2_R3(config-subif)#exit
LAN2_R3(config)#interface GigabitEthernet0/1.122
LAN2_R3(config-subif)#encapsulation dot1Q 122
LAN2_R3(config-subif)#ip address 172.29.161.124 255.255.255.128
LAN2_R3(config-subif)#ip helper-address 1.1.1.1
LAN2_R3(config-subif)#exit
LAN2_R3(config)#interface GigabitEthernet0/1.123
LAN2_R3(config-subif)#encapsulation dot1Q 123
LAN2_R3(config-subif)#ip address 172.29.161.252 255.255.255.128
LAN2_R3(config-subif)#ip helper-address 1.1.1.1
LAN2_R3(config-subif)#exit
LAN2_R3(config)#interface GigabitEthernet0/1.124
LAN2_R3(config-subif)#encapsulation dot1Q 124
LAN2_R3(config-subif)#ip address 172.29.162.124 255.255.255.128
LAN2_R3(config-subif)#ip helper-address 1.1.1.1
LAN2_R3(config-subif)#exit
```
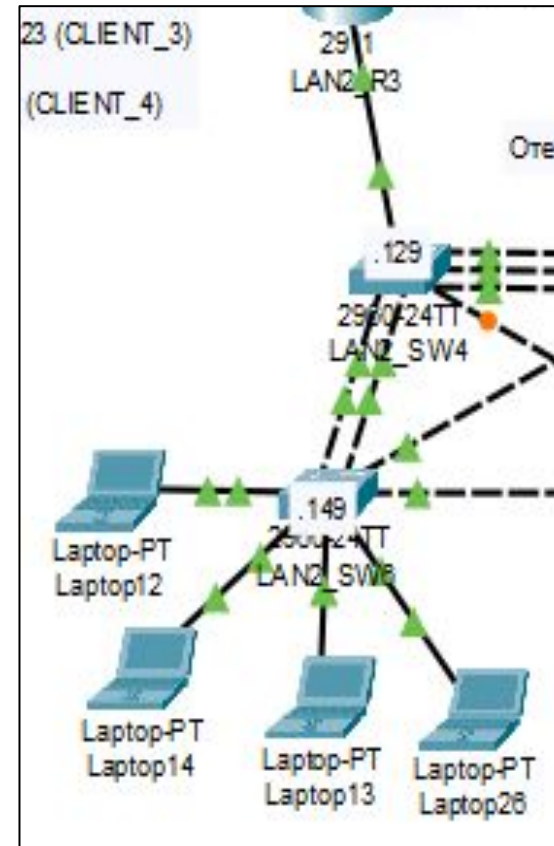
Настройка DHCP

```
LAN2_R1(config)#ip dhcp pool vlan121_Office1
LAN2_R1(dhcp-config)#network 172.29.160.128 255.255.255.128
LAN2_R1(dhcp-config)#default-router 172.29.160.254
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp pool vlan122_Office2
LAN2_R1(dhcp-config)#network 172.29.161.0 255.255.255.128
LAN2_R1(dhcp-config)#default-router 172.29.161.126
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 172.29.161.1 172.29.161.10
LAN2_R1(config)#ip dhcp excluded-address 172.29.161.53 172.29.161.73
LAN2_R1(config)#ip dhcp excluded-address 172.29.161.106 172.29.161.126
LAN2_R1(config)#ip dhcp pool vlan123_Office2
LAN2_R1(dhcp-config)#network 172.29.161.128 255.255.255.128
LAN2_R1(dhcp-config)#default-router 172.29.161.254
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 172.29.161.129 172.29.161.149
LAN2_R1(config)#ip dhcp excluded-address 172.29.161.200 172.29.161.205
LAN2_R1(config)#ip dhcp excluded-address 172.29.161.244 172.29.161.254
LAN2_R1(config)#ip dhcp pool vlan124_Office2
LAN2_R1(dhcp-config)#network 172.29.162.0 255.255.255.128
LAN2_R1(dhcp-config)#default-router 172.29.162.126
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 172.29.162.1 172.29.162.5
LAN2_R1(config)#ip dhcp excluded-address 172.29.162.60 172.29.162.63
LAN2_R1(config)#ip dhcp excluded-address 172.29.162.124 172.29.162.126
```

```
LAN2_R1(config)#ip dhcp pool vlan125_LAN3
LAN2_R1(dhcp-config)#network 10.45.224.0 255.255.248.0
LAN2_R1(dhcp-config)#default-router 10.45.231.254
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 10.45.224.7 10.45.224.20
LAN2_R1(config)#ip dhcp excluded-address 10.45.231.254
LAN2_R1(config)#ip dhcp excluded-address 10.45.224.1
LAN2_R1(config)#ip dhcp pool vlan126_LAN3
LAN2_R1(dhcp-config)#network 10.45.200.0 255.255.248.0
LAN2_R1(dhcp-config)#default-router 10.45.207.254
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 10.45.207.254
LAN2_R1(config)#ip dhcp pool vlan127_LAN3
LAN2_R1(dhcp-config)#network 10.45.208.0 255.255.248.0
LAN2_R1(dhcp-config)#default-router 10.45.215.254
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 10.45.210.10 10.45.210.50
LAN2_R1(config)#ip dhcp excluded-address 10.45.215.254
```

```
LAN2_R1(config)#ip dhcp pool vlan128_LAN4
LAN2_R1(dhcp-config)#network 10.45.236.0 255.255.252.0
LAN2_R1(dhcp-config)#default-router 10.45.239.254
LAN2_R1(dhcp-config)#dns-server 8.8.8.8
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 10.45.236.100 10.45.236.150
LAN2_R1(config)#ip dhcp excluded-address 10.45.239.254
LAN2_R1(config)#ip dhcp pool vlan129_LAN4
LAN2_R1(dhcp-config)#network 10.45.240.0 255.255.252.0
LAN2_R1(dhcp-config)#default-router 10.45.243.254
LAN2_R1(dhcp-config)#dns-server 8.8.8.8
LAN2_R1(dhcp-config)#domain-name diamondhotel.ru
LAN2_R1(dhcp-config)#exit
LAN2_R1(config)#ip dhcp excluded-address 10.45.240.50 10.45.240.55
LAN2_R1(config)#ip dhcp excluded-address 10.45.243.254
```

Настройка OSPF

```
LAN2_R1(config)#router ospf 2
LAN2_R1(config-router)#network 172.29.160.0 255.255.255.128 area 0
LAN2_R1(config-router)#network 172.29.160.128 255.255.255.128 area 0
LAN2_R1(config-router)#network 172.29.167.128 255.255.255.252 area 0
LAN2_R1(config-router)#network 172.29.167.136 255.255.255.252 area 0
LAN2_R1(config-router)#network 1.1.1.1 255.255.255.255 area 0
LAN2_R1(config-router)#passive-interface gig0/1
LAN2_R1(config-router)#passive-interface gig0/1.120
LAN2_R1(config-router)#passive-interface gig0/1.121
LAN2_R1(config-router)#exit
```

```
LAN3_R1(config)#router ospf 2
LAN3_R1(config-router)#network 10.45.216.0 255.255.248.0 area 0
LAN3_R1(config-router)#network 10.45.224.0 255.255.248.0 area 0
LAN3_R1(config-router)#network 172.29.167.152 255.255.255.252 area 0
LAN3_R1(config-router)#passive-interface gig0/1
LAN3_R1(config-router)#passive-interface g0/1.120
LAN3_R1(config-router)#passive-interface g0/1.125
LAN3_R1(config-router)#exit
```

```
LAN2_R2(config)#router ospf 2
LAN2_R2(config-router)#network 172.29.167.128 255.255.255.252 area 0
LAN2_R2(config-router)#network 172.29.167.140 255.255.255.252 area 0
LAN2_R2(config-router)#network 172.29.167.144 255.255.255.252 area 0
LAN2_R2(config-router)#exit
```
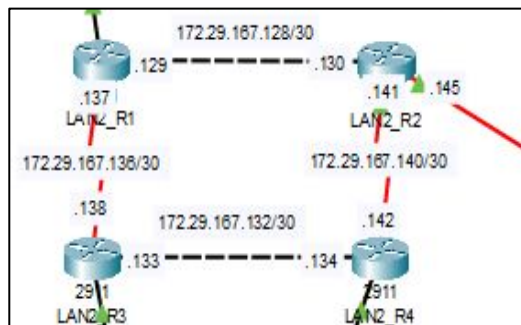


```
LAN4_R1(config)#router ospf 2
LAN4_R1(config-router)#network 10.45.232.0 255.255.252.0 area 0
LAN4_R1(config-router)#network 10.45.236.0 255.255.252.0 area 0
LAN4_R1(config-router)#network 10.45.240.0 255.255.252.0 area 0
LAN4_R1(config-router)#network 156.99.184.144 255.255.255.252 area 0
LAN4_R1(config-router)#passive-interface gig0/1
LAN4_R1(config-router)#passive-interface g0/1.128
LAN4_R1(config-router)#passive-interface g0/1.129
LAN4_R1(config-router)#exit
```

Настройка отказоустойчивости

```
LAN2_R3(config)#int g0/1.122
LAN2_R3(config-subif)#standby 1 ip 172.29.161.126
LAN2_R3(config-subif)#standby 1 preempt
LAN2_R3(config-subif)#
LAN2_R3(config-subif)#int g0/1.123
LAN2_R3(config-subif)#standby 1 ip 172.29.161.254
LAN2_R3(config-subif)#standby 1 preempt
LAN2_R3(config-subif)#
LAN2_R3(config-subif)#int g0/1.124
LAN2_R3(config-subif)#standby 1 ip 172.29.162.126
LAN2_R3(config-subif)#standby 1 preempt
LAN2_R3(config-subif)#
LAN2_R3(config-subif)#int g0/1.120
LAN2_R3(config-subif)#standby 1 ip 172.29.162.254
LAN2_R3(config-subif)#standby 1 preempt
```

```
LAN2_R4(config-subif)#int g0/1.120
LAN2_R4(config-subif)#standby 1 ip 172.29.162.254
LAN2_R4(config-subif)#standby 1 priority 95
LAN2_R4(config-subif)#standby 1 preempt
LAN2_R4(config-subif)#
LAN2_R4(config-subif)#int g0/1.122
LAN2_R4(config-subif)#standby 1 ip 172.29.161.126
LAN2_R4(config-subif)#standby 1 priority 95
LAN2_R4(config-subif)#standby 1 preempt
LAN2_R4(config-subif)#
LAN2_R4(config-subif)#int g0/1.123
LAN2_R4(config-subif)#standby 1 ip 172.29.161.254
LAN2_R4(config-subif)#standby 1 priority 95
LAN2_R4(config-subif)#standby 1 preempt
LAN2_R4(config-subif)#
LAN2_R4(config-subif)#int g0/1.124
LAN2_R4(config-subif)#standby 1 ip 172.29.162.126
LAN2_R4(config-subif)#standby 1 priority 95
LAN2_R4(config-subif)#standby 1 preempt
LAN2_R4(config-subif)#
LAN2_R4(config-subif)#int g0/1.120
LAN2_R4(config-subif)#standby 1 ip 172.29.162.254
LAN2_R4(config-subif)#standby 1 priority 95
LAN2_R4(config-subif)#standby 1 preempt
```
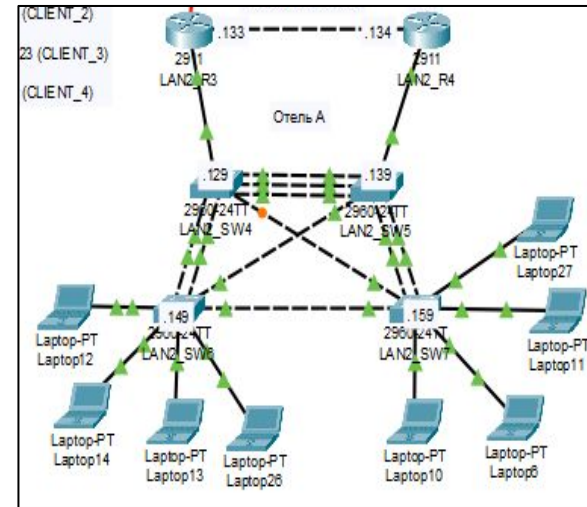

LAN2_SW4.

LAN2_SW4(config)#interface range fa0/1-fa0/3

LAN2_SW4(config-if-range)#channel-group 1 mode active

LAN2_SW4(config-if-range)#int port-channel 1

LAN2_SW4(config-if)#switchport mode trunk

LAN2_SW4(config-if)#switchport trunk allowed vlan 6,120,122,123,124

LAN2_SW4(config)#interface range fa0/4-fa0/5

LAN2_SW4(config-if-range)#channel-group 2 mode active

LAN2_SW4(config-if-range)#int port-channel 2

LAN2_SW4(config-if)#switchport mode trunk

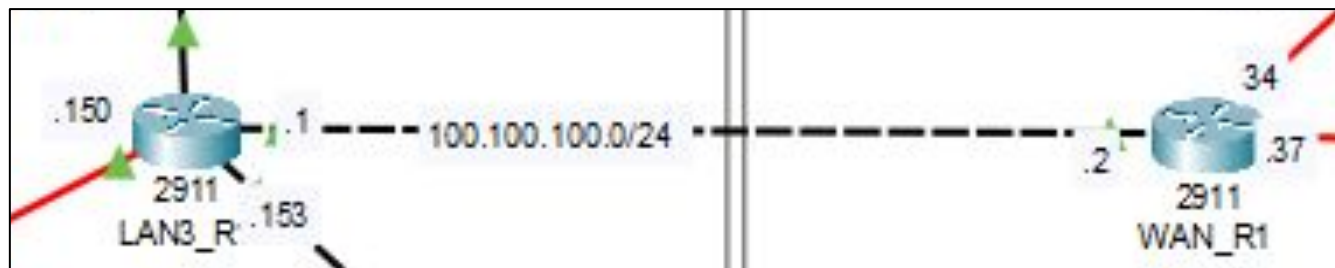LAN2_SW4(config-if)#switchport trunk allowed vlan 6,120,122,123,124

Настройка NAT с перегрузкой (PAT)

```
LAN3_R1(config)#ip access-list standard 12
LAN3_R1(config-std-nacl)#permit 10.45.192.0 0.0.7.255
LAN3_R1(config-std-nacl)#permit 10.45.200.0 0.0.7.255
LAN3_R1(config-std-nacl)#permit 10.45.208.0 0.0.7.255
LAN3_R1(config-std-nacl)#exit
LAN3_R1(config)#ip nat pool 12 100.100.100.4 100.100.100.10 netmask
255.255.255.0
LAN3_R1(config)#ip nat inside source list 12 pool 12
LAN3_R1(config)#int g0/1
LAN3_R1(config-if)#ip nat inside
LAN3_R1(config-if)#exit
LAN3_R1(config)#int g0/2
LAN3_R1(config-if)#ip nat outside
LAN3_R1(config-if)#exit
```

```
LAN3_R1(config)#ip access-list standard 18
LAN3_R1(config-std-nacl)#permit 172.29.160.0 0.0.0.127
LAN3_R1(config-std-nacl)#permit 172.29.160.128 0.0.0.127
LAN3_R1(config-std-nacl)#permit 172.29.161.0 0.0.0.127
LAN3_R1(config-std-nacl)#permit 172.29.161.128 0.0.0.127
LAN3_R1(config-std-nacl)#permit 172.29.162.0 0.0.0.127
LAN3_R1(config-std-nacl)#permit 172.29.162.128 0.0.0.127
LAN3_R1(config-std-nacl)#exit
LAN3_R1(config)#ip nat pool 18 100.100.100.3 100.100.100.3 netmask
255.255.255.0
LAN3_R1(config)#ip nat inside source list 18 pool 18 overload
LAN3_R1(config)#int s0/0/0
LAN3_R1(config-if)#ip nat inside
LAN3_R1(config-if)#exit
```

```
LAN3_R1(config)#ip nat inside source static 10.45.224.1 100.100.100.11
LAN3_R1(config)#
```

Спасибо
за внимание!