Документация:

Устройство	Интерфейс	IP-адрес
S1	Vlanif10	192.168.1.1/24
	Vlanif20	192.168.2.1/24
	Vlanfi40	192.168.4.1/24
	Vlanif60	192.168.6.1/24
	Vlanif100	192.168.100.1/24
S2	Vlanif10	192.168.1.2/24
	Vlanif20	192.168.2.2/24
	Vlanfi40	192.168.4.2/24
	Vlanif60	192.168.6.2/24
	Vlanif100	192.168.100.2/24
S3	Vlanif40	10.53.1.4/16
	Vlanif100	192.168.100.3/24
S4	Vlanif40	10.53.1.1/24
	Vlanif100	192.168.100.4/24
S5	Vlanif10	192.168.1.5/24
	Vlanif60	192.168.6.5/24
	Vlanif100	192.168.100.5/24
S6	Vlanif10	192.168.1.6/24
	Vlanif60	192.168.6.6/24
	Vlanif100	192.168.100.6/24
S7	Vlanif10	192.168.1.7/24
	Vlanif20	192.168.2.7/24
	Vlanif60	192.168.6.7/24
	Vlanif100	192.168.100.7/24
R1	VirtualTemplate1	10.53.1.6/24
	GigabitEthernet0/0/0	10.53.0.1/24
	LoopBack1	172.16.1.1/24
R2	GigabitEthernet0/0/0	10.53.0.2/24
	GigabitEthernet0/0/1	10.53.1.3/16
	GigabitEthernet0/0/2	10.53.1.2/24
AC	Vlanif10	192.168.1.200/24
	Vlanif20	192.168.2.200/24
	Vlanif60	192.168.6.200/24
PC1	NIC	DHCP
PC2	NIC	DHCP
PC3	NIC	DHCP
PC4	NIC	DHCP

IP-адресация интерфейсов

Таблица планирования данных AC

Элемент	Конфигурация
VLAN для управления AP	VLAN20
DHCP-сервер	AC выполняет функции DHCP-сервера, который назначает IP-адреса AP.
Пулы IP-адресов	192.168.1.1–192.168.1.253/24 192.168.2.1–192.168.2.253/24 192.168.6.1–192.168.6.253/24
Исключенные IP-адреса из пула	192.168.1.1-192.168.1.7 192.168.6.1-192.168.6.2 192.168.6.5-192.168.6.7
Группа AP	Имя: area_1
	Ссылочные профили: профиль VAP **default** и профиль регулирующего домена **Egor**
Профиль регулирующего домена	Имя: Egor
	Код страны: CN
Профиль SSID	Имя: emp
	Имя SSID: Egor
Профиль безопасности	Имя: emp
	Политика безопасности: WPA-WPA2+PSK+AES
	Пароль: huawei123
Профиль VAP	Имя: emp
	Режим передачи: прямая передача
	Сервисная VLAN: VLAN 20
	Ссылочные профили: профиль SSID **Egor** и профиль безопасности **emp**
CAPWAP	Источник: VlanIf20

VLAN

VLAN ID	IP-адреса сети	Описание VLAN
10	192.168.1.0	VLAN отдела №1
20	192.168.2.0	Управляющая VLAN услуг WLAN
40	192.168.4.0	VLAN для связи S1-S4
60	192.168.6.0	VLAN отдела №2
100	192.168.100.0	Управляющая VLAN

Описание подключения физических интерфейсов

Устройство	Интерфейс	Конфигурация
S1	GigabitEthernet0/0/1	Описание: до S3
	GigabitEthernet0/0/2	Описание: до S4
	GigabitEthernet0/0/3	Описание: до AC1
	GigabitEthernet0/0/5	Описание: до S5
	GigabitEthernet0/0/6	Описание: до S6
	GigabitEthernet0/0/7	Описание: до S2
	GigabitEthernet0/0/8	Описание: до S7
S2	GigabitEthernet0/0/1	Описание: до S3
	GigabitEthernet0/0/2	Описание: до S4
	GigabitEthernet0/0/5	Описание: до S5
	GigabitEthernet0/0/6	Описание: до S6
	GigabitEthernet0/0/7	Описание: до S1
	GigabitEthernet0/0/8	Описание: до S7
S3	Eth-Trunk 1	Режим: LACP-static Trunk-port: Ge0/0/2-Ge0/0/3 Описание: до S4 Eth-Trunk 1
	GigabitEthernet0/0/1	Описание: до S2
	GigabitEthernet0/0/4	Описание: до R2
	GigabitEthernet0/0/5	Описание: до S1
S4	Eth-Trunk 1	Режим: LACP-static Trunk-port: Ge0/0/2-Ge0/0/3 Описание: до S3 Eth-Trunk 1
	GigabitEthernet0/0/1	Описание: до S1
	GigabitEthernet0/0/4	Описание: до R2
	GigabitEthernet0/0/5	Описание: до S2

S5	Ethernet0/0/2	Описание: до PC1
	Ethernet0/0/21	Описание: до PC4
	GigabitEthernet0/0/1	Описание: до S2
	GigabitEthernet0/0/2	Описание: до S1
S6	Ethernet0/0/2	Описание: до PC2
	Ethernet0/0/22	Описание: до PC3
	GigabitEthernet0/0/1	Описание: до S1
	GigabitEthernet0/0/2	Описание: до S2
S7	GigabitEthernet0/0/1	Описание: до S2
	GigabitEthernet0/0/2	Описание: до S1
	GigabitEthernet0/0/4	Описание: до AP1
R1	GigabitEthernet0/0/0	Описание: до R2
R2	GigabitEthernet0/0/0	Описание: до R1
	GigabitEthernet0/0/1	Описание: до S3
	GigabitEthernet0/0/2	Описание: до S4
AC1	GigabitEthernet0/0/1	Описание: до S1

VLAN на интерфейсах

Устройство	Интерфейс	Тип	Конфигурация
S1	GigabitEthernet0/0/1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/2		
	GigabitEthernet0/0/3		
	GigabitEthernet0/0/5		
	GigabitEthernet0/0/6		
	GigabitEthernet0/0/7		
	GigabitEthernet0/0/8		
S2	GigabitEthernet0/0/1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/2		
	GigabitEthernet0/0/5		
	GigabitEthernet0/0/6		
	GigabitEthernet0/0/7		
	GigabitEthernet0/0/8		
S3	Eth-Trunk 1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/1		
	GigabitEthernet0/0/5		
	GigabitEthernet0/0/4	Access	Default VLAN40

S4	Eth-Trunk 1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/1		
	GigabitEthernet0/0/5		
	GigabitEthernet0/0/4	Access	Default VLAN40
S5	Ethernet0/0/2	Access	Default VLAN60
	Ethernet0/0/21	Access	Default VLAN10
	GigabitEthernet0/0/1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/2	Trunk	Allow-pass VLAN all
S6	Ethernet0/0/2	Access	Default VLAN10
	Ethernet0/0/22	Access	Default VLAN60
	GigabitEthernet0/0/1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/2	Trunk	Allow-pass VLAN all
S7	GigabitEthernet0/0/1	Trunk	Allow-pass VLAN all
	GigabitEthernet0/0/2	Trunk	pvid vlan 20 allow-pass vlan 10 20 60
	GigabitEthernet0/0/4	Trunk	Allow-pass VLAN all
AC1	GigabitEthernet0/0/1	Trunk	Allow-pass VLAN all

Таблица настройки сети

Устройство	Интерфейс	Режим доступа	Режим NAT	Примечания
R2	GigabitEthernet0/0/0	PPPoE	Easy IP	Имя пользователя: client1

Таблица аутентификации

Устройство	Режим управления	Режим аутентификации
S1	SSH	AAA
S2		
S3		
S4		
S5		
S6		
S7		
R1		
R2		

Топология:

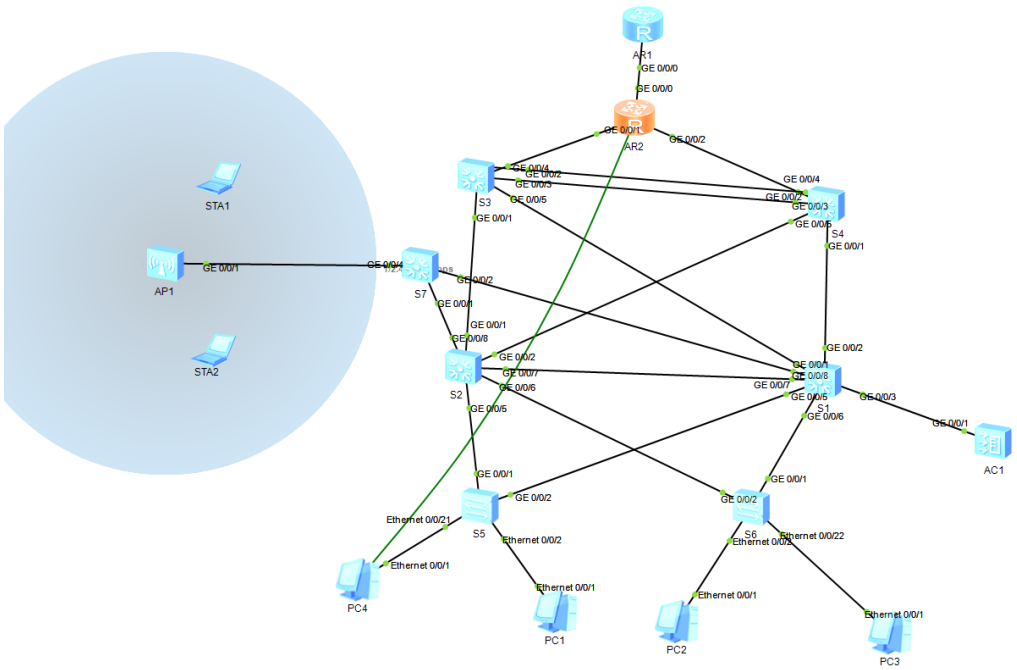

Рисунок 1 Топология сети

Конфигурации:

S1:

```
#
sysname S1
#
vlan batch 10 20 40 60 100
#
stp mode rstp
stp instance 0 root primary
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
drop-profile default
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
```

Рисунок 2 Конфигурация S1

```
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
interface Vlanif1
#
interface Vlanif10
 ip address 192.168.1.1 255.255.255.0
 vrrp vrid 2 virtual-ip 192.168.1.11
 ospf enable 1 area 0.0.0.0
#
interface Vlanif20
 ip address 192.168.2.1 255.255.255.0
 vrrp vrid 6 virtual-ip 192.168.2.11
 vrrp vrid 6 priority 120
 vrrp vrid 6 preempt-mode timer delay 20
 ospf enable 1 area 0.0.0.0
#
interface Vlanif40
 ip address 192.168.4.1 255.255.255.0
 ospf enable 1 area 0.0.0.0
```

Рисунок 3 Конфигурация S1

```
interface Vlanif60
 ip address 192.168.6.1 255.255.255.0
 vrrp vrid 1 virtual-ip 192.168.6.11
 vrrp vrid 1 priority 120
 vrrp vrid 1 preempt-mode timer delay 20
 vrrp vrid 1 track interface GigabitEthernet0/0/6 reduced 30
 ospf enable 1 area 0.0.0.0
#
interface Vlanif100
 ip address 192.168.100.1 255.255.255.0
 vrrp vrid 4 virtual-ip 192.168.100.11
 vrrp vrid 4 priority 120
 vrrp vrid 4 preempt-mode timer delay 30
 ospf enable 1 area 0.0.0.0
#
interface MEth0/0/1
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/3
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
```

Рисунок 4 Конфигурация S1

```
#
interface GigabitEthernet0/0/4
 port link-type trunk
 port trunk pvid vlan 20
 port trunk allow-pass vlan 10 20 60
#
interface GigabitEthernet0/0/5
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/6
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/7
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/8
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
```

Рисунок 5 Конфигурация S1

```
#
ospf 1
 area 0.0.0.0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
ssh client first-time enable
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher b&@4SpYRn(~Cug.W&J%O"$*#
user-interface vty 0 4
 authentication-mode aaa
 set authentication password cipher B3HGC!}SeH,vs=Hws)!WR$,#
 protocol inbound ssh
user-interface vty 5 14
 set authentication password cipher B3HGC!}SeH,vs=Hws)!WR$,#
 protocol inbound all
#
port-group link-type
#
return
```

Рисунок 6 Конфигурация S1

S2:

```
#
sysname S2
#
vlan batch 10 20 40 60 100
#
stp mode rstp
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
drop-profile default
#
```

Рисунок 7 Конфигурация S2

```
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
interface Vlanif1
#
interface Vlanif10
 ip address 192.168.1.2 255.255.255.0
 vrrp vrid 2 virtual-ip 192.168.1.11
 vrrp vrid 2 priority 120
 vrrp vrid 2 preempt-mode timer delay 20
 vrrp vrid 2 track interface GigabitEthernet0/0/5 reduced 30
 ospf enable 1 area 0.0.0.0
#
interface Vlanif20
 ip address 192.168.2.2 255.255.255.0
 vrrp vrid 6 virtual-ip 192.168.2.11
 ospf enable 1 area 0.0.0.0
#
```

Рисунок 8 Конфигурация S2

```
#
interface Vlanif40
 ip address 192.168.4.2 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
interface Vlanif60
 ip address 192.168.6.2 255.255.255.0
 vrrp vrid 1 virtual-ip 192.168.6.11
 ospf enable 1 area 0.0.0.0
#
interface Vlanif100
 ip address 192.168.100.2 255.255.255.0
 vrrp vrid 4 virtual-ip 192.168.100.11
 ospf enable 1 area 0.0.0.0
#
interface MEth0/0/1
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/3
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
```

Рисунок 9 Конфигурация S2

```
interface GigabitEthernet0/0/4
 port link-type trunk
 port trunk pvid vlan 20
 port trunk allow-pass vlan 10 20 60
#
interface GigabitEthernet0/0/5
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/6
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/7
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/8
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
```

Рисунок 10 Конфигурация S2

```
#
ospf 1
 area 0.0.0.0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
ssh client first-time enable
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher I'x|%mL2YP~Cug.W&J%O|$R#
user-interface vty 0 4
 authentication-mode aaa
 set authentication password cipher 6[O~O2Fhe$ygFk%uyYl6f$T#
 protocol inbound ssh
user-interface vty 5 14
 set authentication password cipher 6[O~O2Fhe$ygFk%uyYl6f$T#
 protocol inbound all
#
return
```

Рисунок 11 Конфигурация S2

S3:

```
sysname S3
#
vlan batch 40 100
#
stp mode rstp
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
drop-profile default
#
```

Рисунок 12 Конфигурация S3

```
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
interface Vlanif1
#
interface Vlanif40
 ip address 10.53.1.4 255.255.0.0
 vrrp vrid 5 virtual-ip 10.53.1.5
 ospf enable 1 area 0.0.0.0
#
interface Vlanif100
 ip address 192.168.100.3 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
interface MEth0/0/1
#
interface Eth-Trunk1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
 mode lacp-static
#
```

Рисунок 13 Конфигурация S3

```
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 eth-trunk 1
#
interface GigabitEthernet0/0/3
 eth-trunk 1
#
interface GigabitEthernet0/0/4
 port link-type access
 port default vlan 40
#
interface GigabitEthernet0/0/5
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
```

Рисунок 14 Конфигурация S3

```
#
ospf 1
 area 0.0.0.0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher R]X1'S9bH>nvq=.W7m]R3$q#
user-interface vty 0 4
 authentication-mode aaa
 set authentication password cipher I'x|%mL2YPi!|h@Np.("g$t#
 protocol inbound ssh
user-interface vty 5 14
 set authentication password cipher I'x|%mL2YPi!|h@Np.("g$t#
 protocol inbound all
#
port-group qu
#
return
```

Рисунок 15 Конфигурация S3

S4:

```
sysname S4
#
vlan batch 40 100
#
stp mode rstp
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
drop-profile default
#
```

Рисунок 16 Конфигурация S4

```
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
interface Vlanif1
#
interface Vlanif40
 ip address 10.53.1.1 255.255.255.0
 vrrp vrid 5 virtual-ip 10.53.1.5
 vrrp vrid 5 priority 120
 vrrp vrid 5 preempt-mode timer delay 20
 ospf enable 1 area 0.0.0.0
#
interface Vlanif100
 ip address 192.168.100.4 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
```

Рисунок 17 Конфигурация S4

```
interface Eth-Trunk1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
 mode lacp-static
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 eth-trunk 1
#
interface GigabitEthernet0/0/3
 eth-trunk 1
#
interface GigabitEthernet0/0/4
 port link-type access
 port default vlan 40
#
interface GigabitEthernet0/0/5
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
```

Рисунок 18 Конфигурация S4

```
ospf 1
 area 0.0.0.0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
ssh client first-time enable
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher I'x|%mL2YP/(]>41=GBP<$c#
user-interface vty 0 4
 authentication-mode aaa
 set authentication password cipher 8xpcW+1k:MQs:#N`11279$d#
 protocol inbound ssh
user-interface vty 5 14
 set authentication password cipher 8xpcW+1k:MQs:#N`11279$d#
 protocol inbound all
#
return
```

Рисунок 19 Конфигурация S4

S5:

```
#
sysname S5
#
vlan batch 10 60 100
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
drop-profile default
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
```

Рисунок 20 Конфигурация S5

```
interface Vlanif10
 ip address 192.168.1.5 255.255.255.0
#
interface Vlanif60
 ip address 192.168.6.5 255.255.255.0
#
interface Vlanif100
 ip address 192.168.100.5 255.255.255.0
#
interface MEth0/0/1
#
interface Ethernet0/0/1
#
interface Ethernet0/0/2
 port link-type access
 port default vlan 60
#
```

Рисунок 21 Конфигурация S5

```
interface Ethernet0/0/21
 port link-type access
 port default vlan 10
#
interface Ethernet0/0/22
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface NULL0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
ssh client first-time enable
#
```

Рисунок 22 Конфигурация S5

```
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher "zsBT4c$}Yi!|h@Np.("rd4#
user-interface vty 0 14
 set authentication password cipher j@381E0poWnvq=.W7m]ROd6#
 protocol inbound all
#
return
```

Рисунок 23 Конфигурация S5

S6:

```
#
interface Vlanif10
 ip address 192.168.1.6 255.255.255.0
#
interface Vlanif60
 ip address 192.168.6.6 255.255.255.0
#
interface Vlanif100
 ip address 192.168.100.6 255.255.255.0
#
interface MEth0/0/1
#
interface Ethernet0/0/1
 port link-type trunk
 undo port trunk allow-pass vlan 1
#
interface Ethernet0/0/2
 port link-type access
 port default vlan 10
#
```

Рисунок 24 Конфигурация S6

```
#
sysname S6
#
vlan batch 10 60 100
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
drop-profile default
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
```

Рисунок 25 Конфигурация S6

```
interface Ethernet0/0/22
 port link-type access
 port default vlan 60
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface NULL0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
ssh client first-time enable
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher @JNkN}\/%'ZtepVl.zg>MdG#
user-interface vty 0 14
 set authentication password cipher 7xi`5q+7<K6:8d$[Fr'D-dH#
 protocol inbound all
#
return
```

Рисунок 26 Конфигурация S6

S7:

```
<S7>di cur
#
sysname S7
#
vlan batch 10 20 60 100
#
cluster enable
ntdp enable
ndp enable
#
undo nap slave enable
#
drop illegal-mac alarm
#
diffserv domain default
#
```

Рисунок 27 Конфигурация S7

```
drop-profile default
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher -J&7(SW'E2AI>,Z,88J\:Q!!
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password simple admin
 local-user admin service-type http
#
interface Vlanif1
#
interface Vlanif10
 ip address 192.168.1.7 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
interface Vlanif20
 ip address 192.168.2.7 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
interface Vlanif60
 ip address 192.168.6.7 255.255.255.0
 ospf enable 1 area 0.0.0.0
```

Рисунок 28 Конфигурация S7

```
interface Vlanif100
 ip address 192.168.100.7 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
interface MEth0/0/1
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/2
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
#
interface GigabitEthernet0/0/3
#
interface GigabitEthernet0/0/4
 port link-type trunk
 port trunk pvid vlan 20
 port trunk allow-pass vlan 10 20 60
#
```

Рисунок 29 Конфигурация S7

```
#
ospf 1
 area 0.0.0.0
#
stelnet server enable
ssh user egor
ssh user egor authentication-type password
ssh user egor service-type stelnet
ssh client first-time enable
ssh client 10.53.0.2 assign rsa-key 10.53.0.2
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher QH2'5Jk+EWZtepV1.zg>x%)#
user-interface vty 0 4
 authentication-mode aaa
 set authentication password cipher Y(Q@.dS]%L~Cug.W&J%O[%*#
 protocol inbound ssh
user-interface vty 5 14
 set authentication password cipher Y(Q@.dS]%L~Cug.W&J%O[%*#
 protocol inbound all
#
return
```

Рисунок 30 Конфигурация S7

R1:

```
[V200R003C00]
#
 sysname R1
#
 snmp-agent local-engineid 800007DB03000000000000
 snmp-agent
#
 clock timezone China-Standard-Time minus 08:00:00
#
portal local-server load flash:/portalpage.zip
#
 drop illegal-mac alarm
#
 wlan ac-global carrier id other ac id 0
#
 set cpu-usage threshold 80 restore 75
#
```

Рисунок 31 Конфигурация R1

```
ip pool pool1
 gateway-list 10.53.1.5
 network 10.53.1.0 mask 255.255.255.0
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher %$%$@-)n,,<q`."I%jUM(sG7J&|,%$%$
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password cipher %$%$K8m.Nt84DZ}e#<0`8bmE3Uw}%$%$
 local-user admin service-type http
 local-user client1 password cipher %$%$)!/UVfxdMTW2T-M:NWc7#$dJ%$%$
 local-user client1 service-type ppp
#
firewall zone Local
 priority 15
#
interface Virtual-Template1
 ppp authentication-mode chap
 remote address pool pool1
 ip address 10.53.1.5 255.255.255.0
#
```

Рисунок 32 Конфигурация R1

```
interface GigabitEthernet0/0/0
 pppoe-server bind Virtual-Template 1
 ip address 10.53.0.1 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
interface GigabitEthernet0/0/1
#
interface GigabitEthernet0/0/2
#
interface NULL0
#
interface LoopBack1
 ip address 172.16.1.1 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
ospf 1
 area 0.0.0.0
#
 ssh client 10.53.0.2 assign rsa-key 10.53.0.2
 ssh client first-time enable
 stelnet server enable
#
```

Рисунок 33 Конфигурация R1

```
#
user-interface con 0
 authentication-mode password
 set authentication password cipher %$%$AZok%6NfL=dd]<~@bSsD,"Q0VYb}I~}^KR&2WvI
)[I("Q3,%$%$
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound ssh
user-interface vty 16 20
#
wlan ac
#
return
```

Рисунок 34 Конфигурация R1

R2:

```
[V200R003C00]
#
 sysname R2
#
 snmp-agent local-engineid 800007DB0300000000000
 snmp-agent
#
 clock timezone China-Standard-Time minus 08:00
#
portal local-server load flash:/portalpage.zip
#
 drop illegal-mac alarm
#
 wlan ac-global carrier id other ac id 0
#
 set cpu-usage threshold 80 restore 75
#
```

Рисунок 35 Конфигурация R2

```
#
acl number 2000
 rule 5 permit source 192.168.1.0 0.0.0.255
 rule 6 permit source 192.168.6.0 0.0.0.255
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user egor password cipher %$%$)W#81`+G7>JM~a/N=LR2J%0,%$%$
 local-user egor privilege level 15
 local-user egor service-type ssh
 local-user admin password cipher %$%$K8m.Nt84DZ}e#<0`8bmE3Uw}%$%$
 local-user admin service-type http
#
firewall zone Local
 priority 15
#
 nat address-group 1 10.53.1.10 10.53.1.100
#
```

Рисунок 36 Конфигурация R2

```
#
interface Dialer1
 link-protocol ppp
 ppp chap user client1
 ppp chap password cipher %$%$^c^::>><4HR@A3IIEJu*,.:_%$%$
 ip address ppp-negotiate
 dialer user user1
 dialer bundle 1
 dialer queue-length 8
 dialer timer idle 300
 dialer-group 1
#
interface GigabitEthernet0/0/0
 pppoe-client dial-bundle-number 1
 ip address 10.53.0.2 255.255.255.0
 ospf enable 1 area 0.0.0.0
 nat outbound 2000 address-group 1 no-pat
#
interface GigabitEthernet0/0/1
 ip address 10.53.1.3 255.255.0.0
#
interface GigabitEthernet0/0/2
 description ospf peer
 ip address 10.53.1.2 255.255.255.0
 ospf enable 1 area 0.0.0.0
#
```

Рисунок 37 Конфигурация R2

```
dialer-rule
 dialer-rule 1 ip permit
#
ospf 1
 area 0.0.0.0
#
 ssh client 10.53.0.1 assign rsa-key 10.53.0.1
 ssh client 172.16.1.1 assign rsa-key 172.16.1.1
 ssh client 10.53.1.4 assign rsa-key 10.53.1.4
 ssh client 10.53.1.1 assign rsa-key 10.53.1.1
 ssh client 192.168.2.2 assign rsa-key 192.168.2.2
 ssh client 192.168.1.1 assign rsa-key 192.168.1.1
 ssh client 192.168.100.7 assign rsa-key 192.168.100.7
 ssh client first-time enable
 stelnet server enable
#
user-interface maximum-vty 15
user-interface con 0
 authentication-mode password
 set authentication password cipher %$%$=u*&@&UC2.ppDZO^hZ*H,"+@3;UYDs+;PC``V.&e
0^W&"+C,%$%$
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound ssh
user-interface vty 5 14
 authentication-mode password
 set authentication password cipher %$%$=u*&@&UC2.ppDZO^hZ*H,"+@3;UYDs+;PC``V.&e
0^W&"+C,%$%$
 protocol inbound all
user-interface vty 16 20
```

Рисунок 38 Конфигурация R2

AC:

```
#
 sysname AC
#
 set memory-usage threshold 0
#
nat session icmp aging-time 600
#
ssl renegotiation-rate 1
#
vlan batch 10 20 60
#
authentication-profile name default_authen_profile
authentication-profile name dot1x_authen_profile
authentication-profile name mac_authen_profile
authentication-profile name portal_authen_profile
authentication-profile name macportal_authen_profile
#
dhcp enable
#
diffserv domain default
#
radius-server template default
#
pki realm default
 rsa local-key-pair default
 enrollment self-signed
#
```

Рисунок 39 Конфигурация AC

```
ike proposal default
 encryption-algorithm aes-256
 dh group14
 authentication-algorithm sha2-256
 authentication-method pre-share
 integrity-algorithm hmac-sha2-256
 prf hmac-sha2-256
#
free-rule-template name default_free_rule
#
portal-access-profile name portal_access_profile
#
ip pool dhcp
 gateway-list 192.168.2.11
 network 192.168.2.0 mask 255.255.255.0
 option 43 sub-option 2 ip-address 192.168.2.200
#
ip pool dhcp2
 gateway-list 192.168.1.11
 network 192.168.1.0 mask 255.255.255.0
 excluded-ip-address 192.168.1.1 192.168.1.7
 excluded-ip-address 192.168.1.21
 excluded-ip-address 192.168.1.31
#
```

Рисунок 40 Конфигурация AC

```
ip pool dhcp3
 gateway-list 192.168.6.11
 network 192.168.6.0 mask 255.255.255.0
 excluded-ip-address 192.168.6.1 192.168.6.2
 excluded-ip-address 192.168.6.5 192.168.6.7
#
aaa
 authentication-scheme default
 authentication-scheme radius
  authentication-mode radius
 authorization-scheme default
 accounting-scheme default
 domain default
  authentication-scheme radius
  radius-server default
 domain default_admin
  authentication-scheme default
 local-user admin password irreversible-cipher $1a$tm@YADf[cU$Fi8l+bo%j$!+g{+#Ti
M6Q(x{C-{*0lLq"qJ!{Fq9$
 local-user admin privilege level 15
 local-user admin service-type http
#
interface Vlanif10
 ip address 192.168.1.200 255.255.255.0
 dhcp select global
#
interface Vlanif20
 ip address 192.168.2.200 255.255.255.0
 dhcp select global
```

Рисунок 41 Конфигурация AC

```
#
interface Vlanif60
 ip address 192.168.6.200 255.255.255.0
 dhcp select global
#
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
```

Рисунок 42 Конфигурация AC

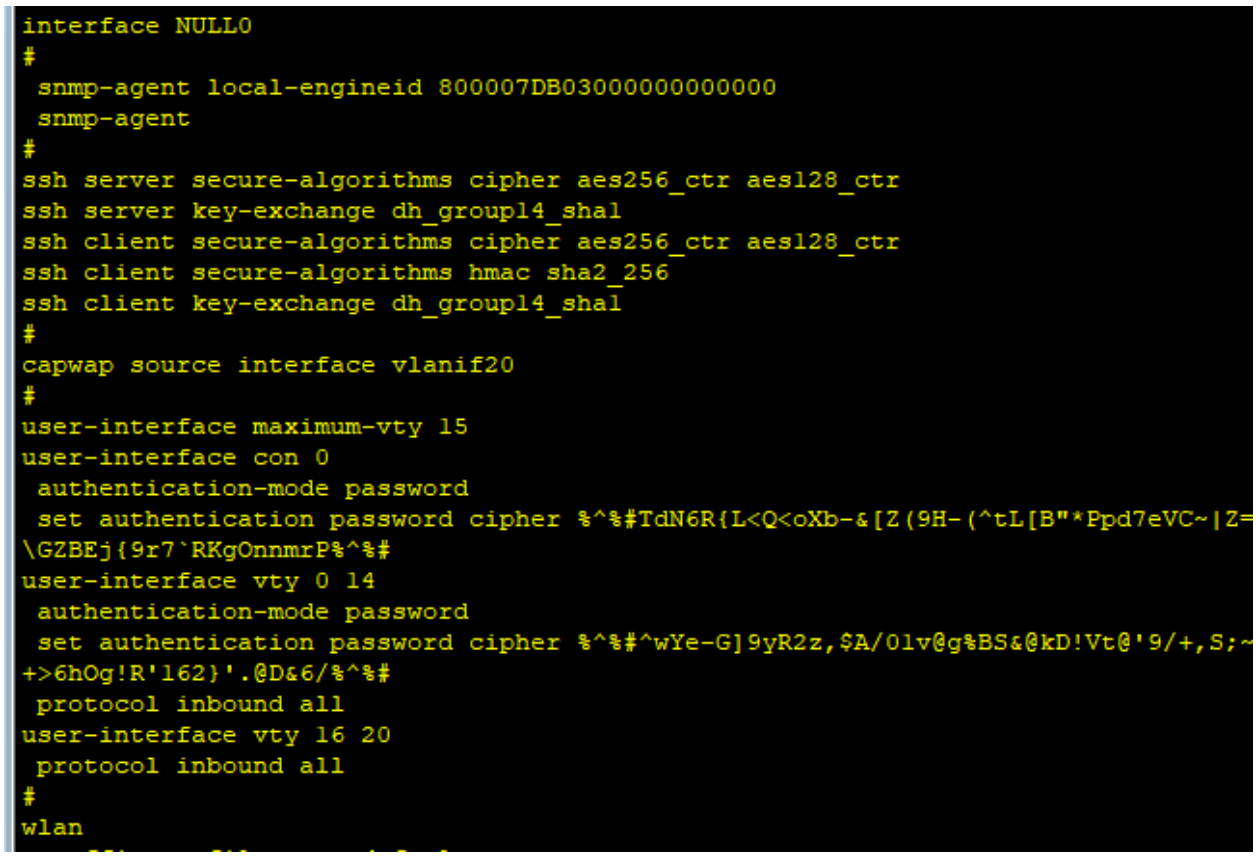

Рисунок 43 Конфигурация AC

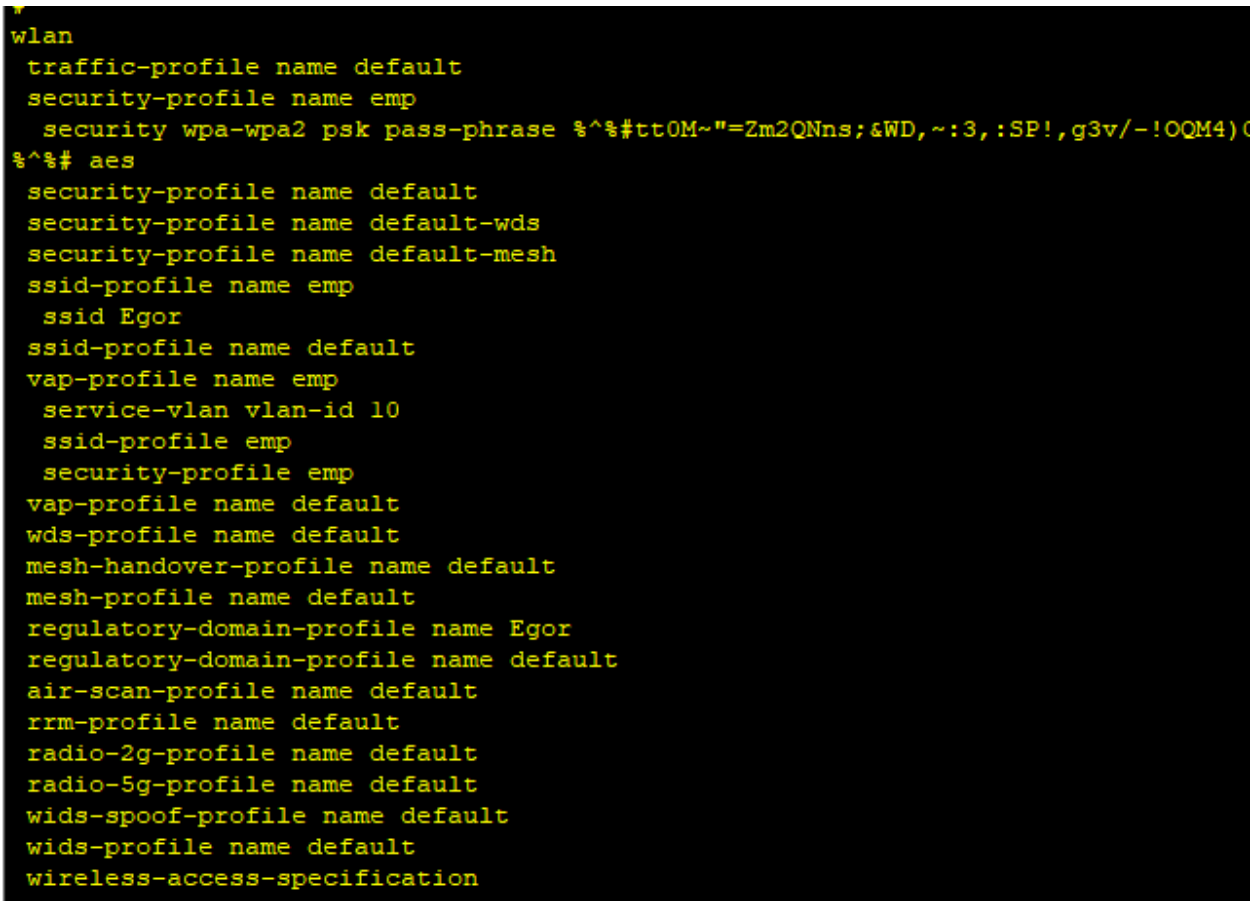

Рисунок 44 Конфигурация AC

```
 ap-system-profile name default
 port-link-profile name default
 wired-port-profile name default
 serial-profile name preset-enjoyor-toeap
 ap-group name ap
  regulatory-domain-profile Egor
  radio 0
   vap-profile emp wlan 1
 ap-group name default
 ap-id 0 type-id 69 ap-mac 00e0-fcee-0f30 ap-sn 2102354483104E421E67
  ap-name area_1
  ap-group ap
 provision-ap
#
dot1x-access-profile name dot1x_access_profile
#
mac-access-profile name mac_access_profile
#
return
```

Рисунок 45 Конфигурация AC

PC’s:

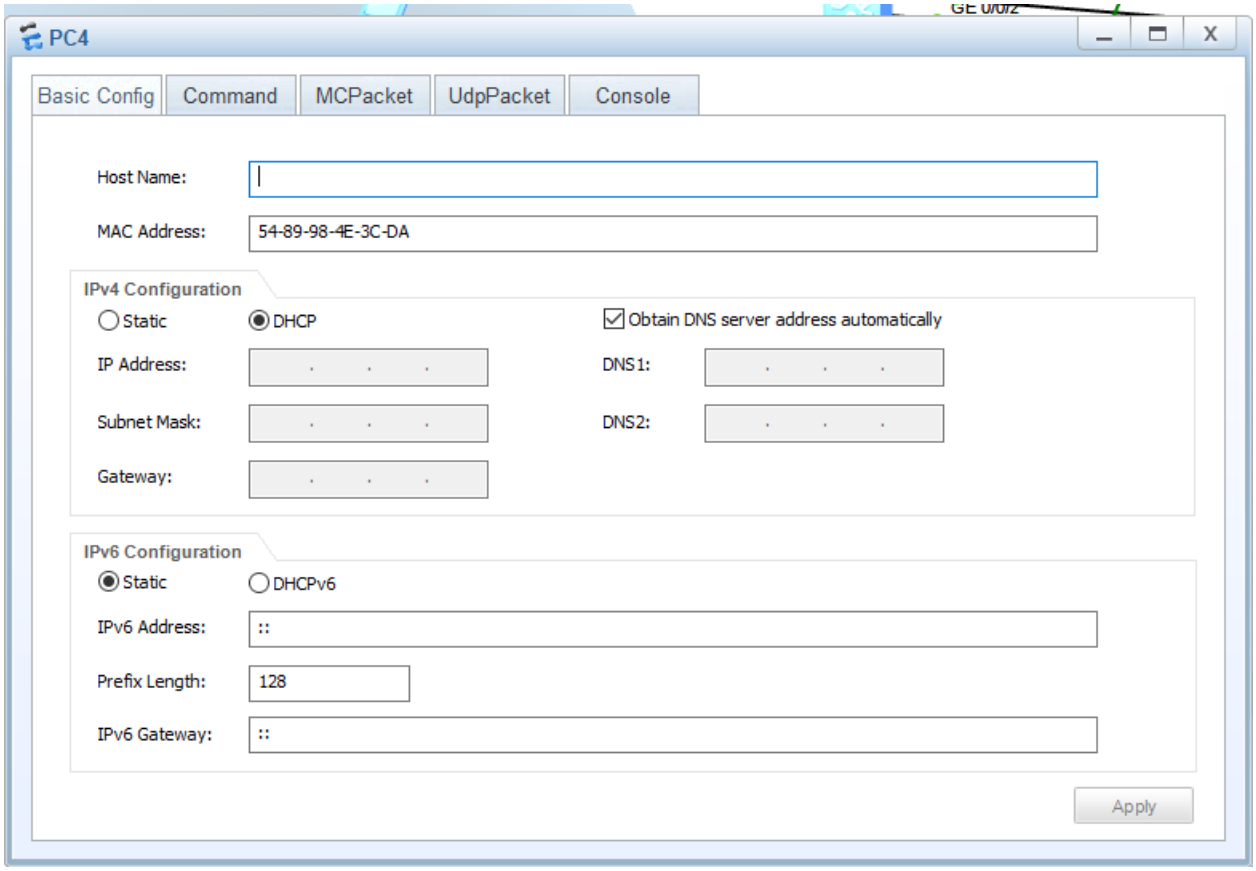

Рисунок 46 Конфигурация PC's

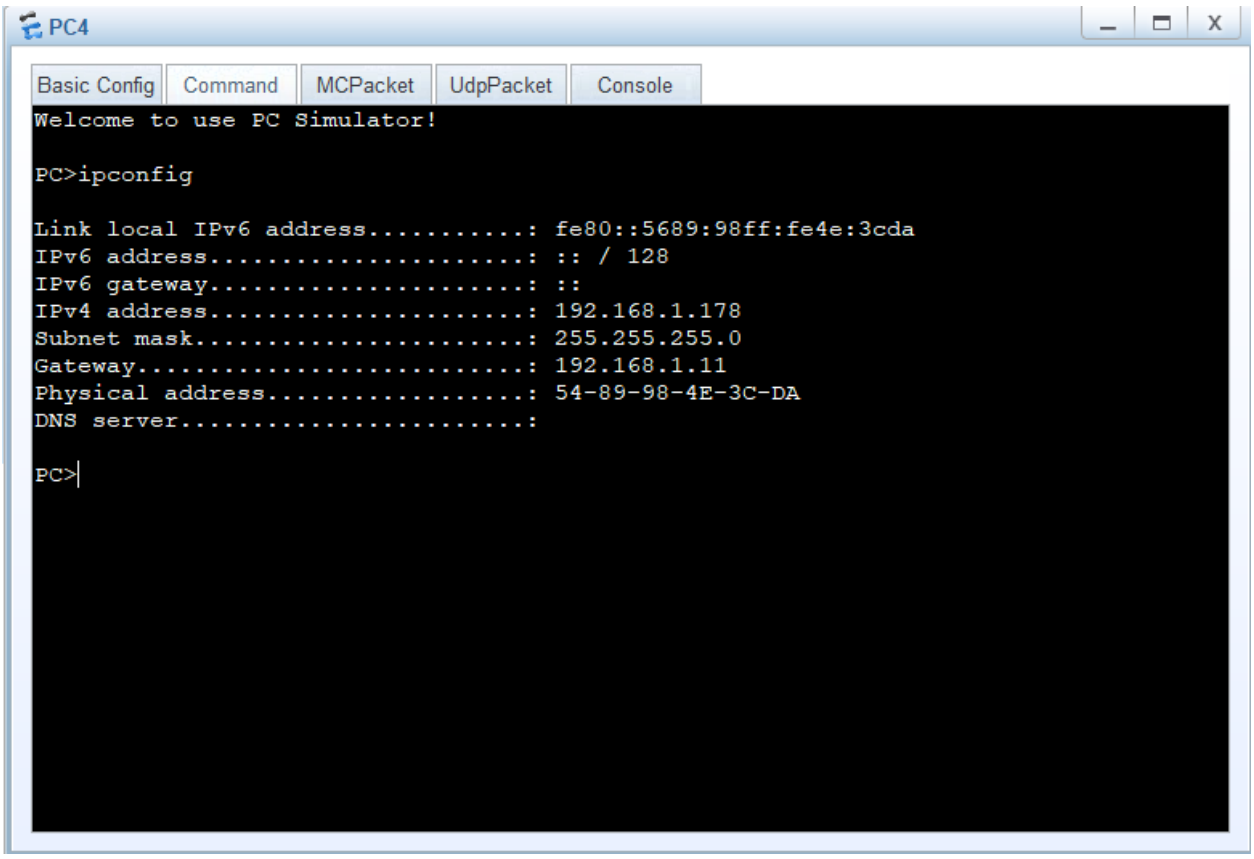

Рисунок 47 Конфигурация PC Vlan 10

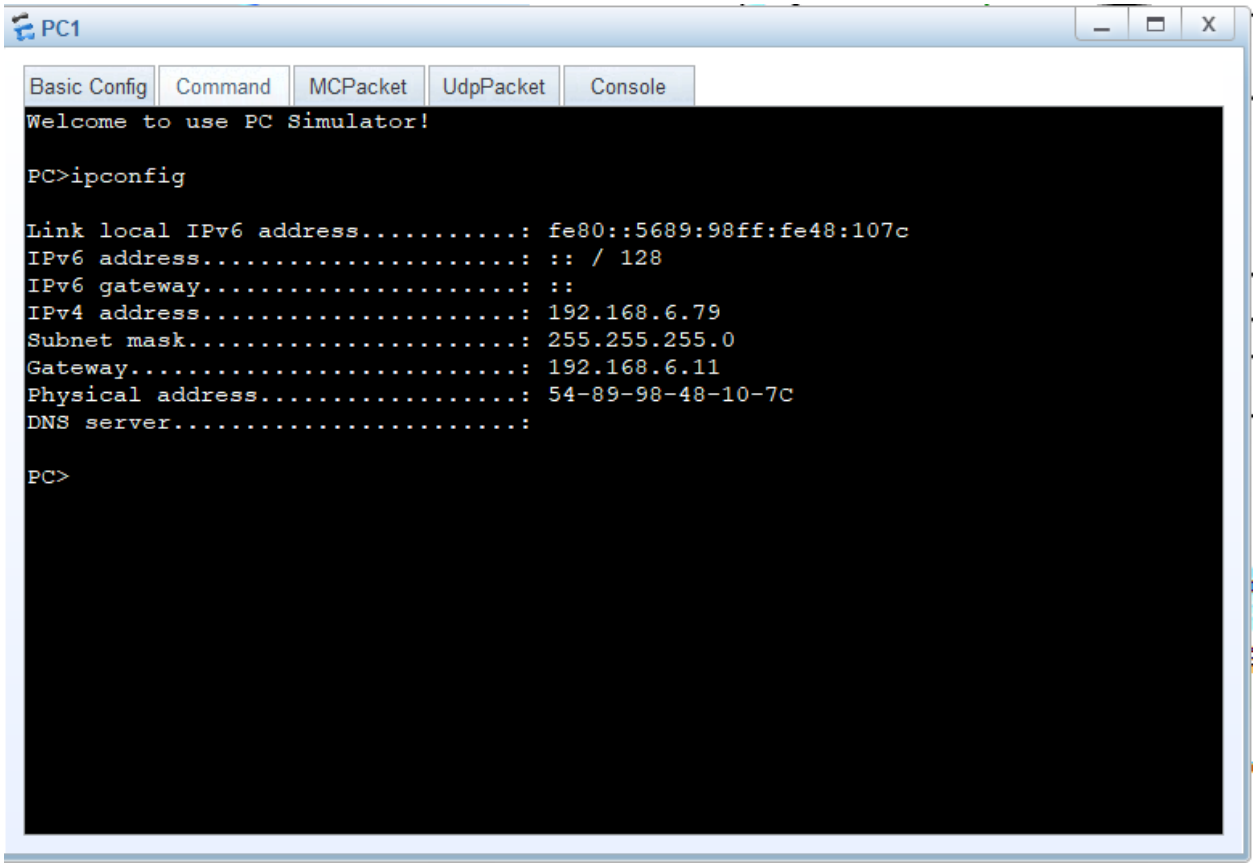

Рисунок 48 Конфигурация PC Vlan 60

SSH:

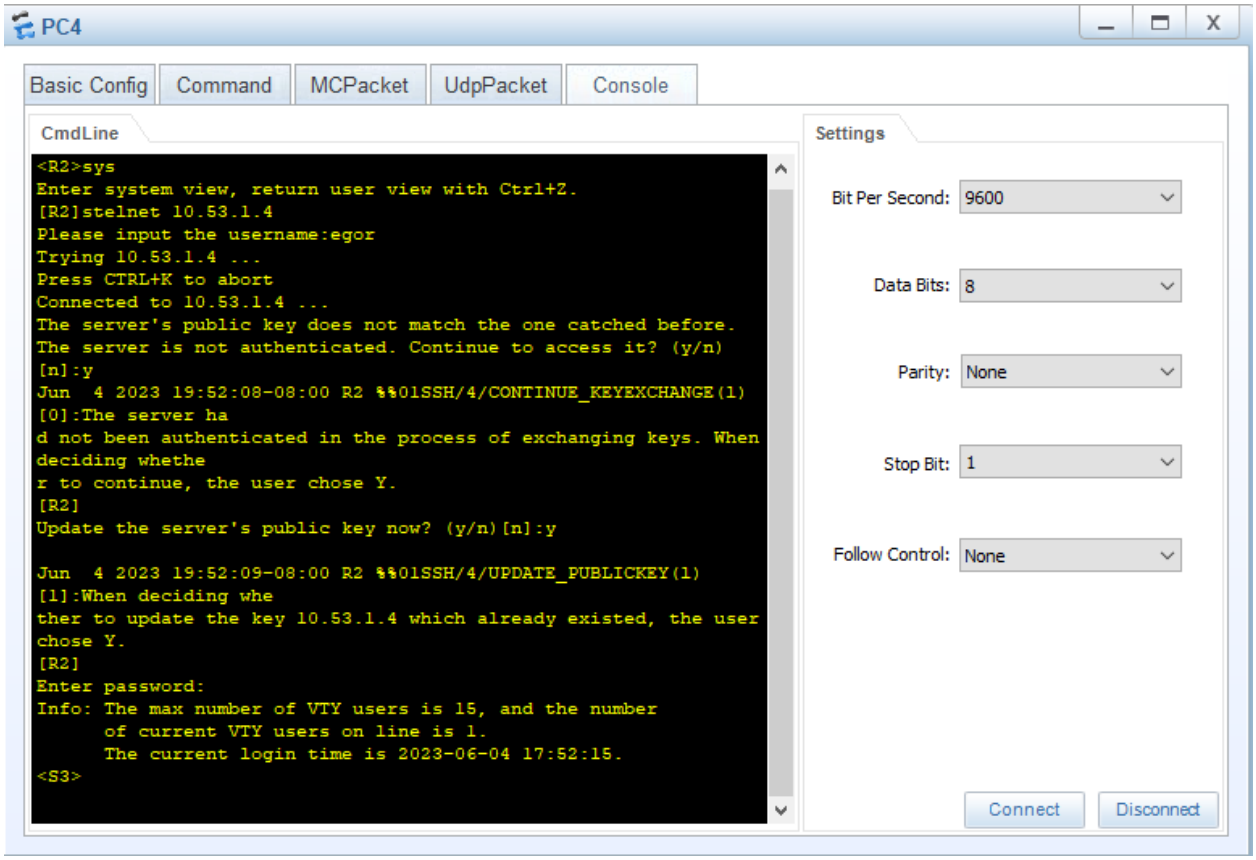

Рисунок 49 Проверка работоспособности SSH

NAT:

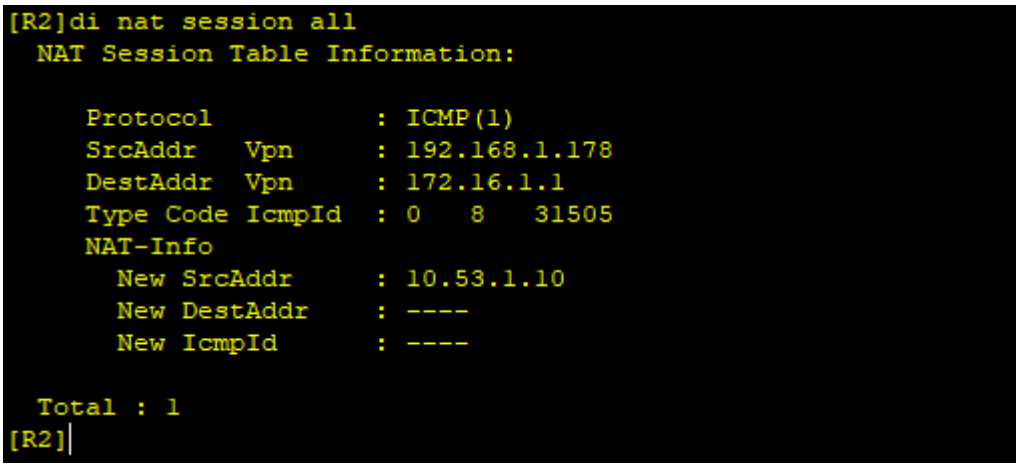

Рисунок 50 Проверка работоспособности NAT

PPPOE:

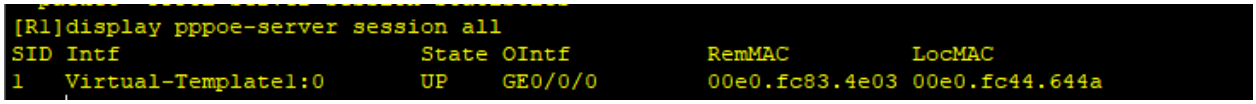

Рисунок 51 Проверка работоспособности pppoe на сервере

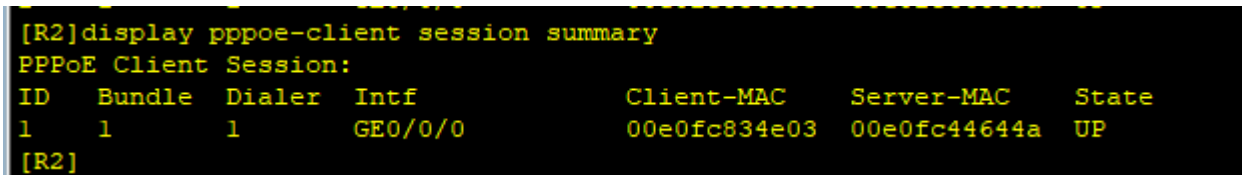

Рисунок 52 Проверка работоспособности pppoe на клиенте