Лабораторная работа №13

Статическая маршрутизация в Интернете. Планирование

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Докладчик

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Ход работы

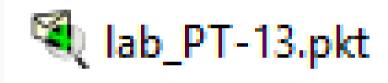


Рис. 1: Создание нового проекта

На схеме предыдущего проекта разместим необходимое оборудование

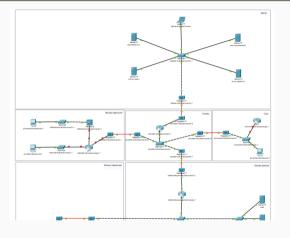


Рис. 2: Размещение необходимого оборудования

Замена имеющихся модулей на PT-REPEATER-NM-1FFE и PT-REPEATER-NM-1CFE

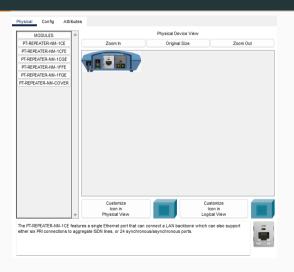


Рис. 3: Замена модулей

Дополнительный интерфейс NM-2FE2W

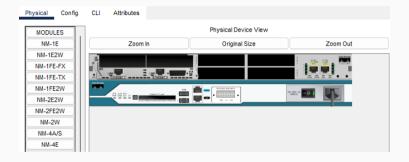


Рис. 4: Дополнительный интерфейс

Физическая рабочая области Packet Tracer



Рис. 5: Здание 42-го квартала

Физическая рабочая области Packet Tracer



Рис. 6: Город Сочи и Здание Сочи

Перенос из сети «Донская» оборудования

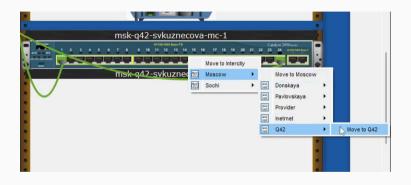


Рис. 7: Перенос оборудования

Перенос из сети «Донская» оборудования

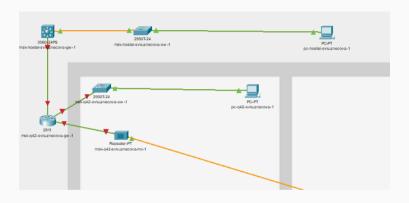


Рис. 8: Оборудование сети 42-го квартала

Перенос из сети «Донская» оборудования

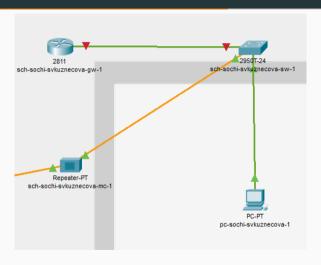


Рис. 9: Оборудование сети Сочи

```
Router>en
Routerfoonf t
Enter configuration commands one per line End with CNTL/Z
Router (config) thostname msk-g42-sykuznecova-gy-1
msk-g42-sykuznecova-gy-1(config)#line vtv 0 4
msk-g42-svkuznecova-gw-1(config-line)#password cisco
msk-g42-svkuznecova-gw-1(config-line) #login
msk-g42-svkuznecova-gw-1(config-line)#exit
msk-g42-sykusnecova-gy-1(config) #line console 0
msk-g42-sykuznecova-gy-1(config-line)ipassword cisco
msk-g42-svkuznecova-gw-1(config-line) #login
msk-g42-sykuznecova-gw-1(config-line)#exit
msk-g42-svkuznecova-gw-1(config) #enable secret cisco
msk-g42-svkuznecova-gw-1(config)#service password-encryption
msk-q42-svkuznecova-qw-1(config) #username admin privilege 1 secret cisco
msk-g42-svkuznecova-gw-1(config) #ip domain-name g42.rudn.edu
msk-g42-sykuznecova-gy-1(config) #crypto key generate rsa
The name for the keys will be: msk-q42-svkuznecova-qw-1.q42.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Kevs. Choosing a key modulus greater than 512 may take
  a few minutes.
How many bits in the modulus (5121:
* Generating 512 bit RSA keys, keys will be non-exportable...[OK]
msk-q42-svkuznecova-gw-1(config) #line vty 0 4
*Mar 1 0:43:11.321: RSA key size needs to be at least 760 bits for ssh version 2
*Mar 1 0:43:11 498: $SSH-5-ENARLED: SSH 1 5 has been enabled
msk-g42-svkuznecova-gv-1(config-line)ftransport input ssh
msk-q42-sykuznecova-gy-1(config-line)fexit
msk-g42-sykuznecova-gw-1(config)fexit
msk-q42-svkuznecova-qw-l#
$SYS-5-CONFIG I: Configured from console by console
mek-q42-evkuznecova-qu-lfur me
Building configuration ...
LOK1
msk-g42-sykuznecova-gy-1#
```

Рис. 10: Первоначальная настройка маршрутизатора msk-q42-svkuznecova-gw-1

```
Switchlen
Switch#conf t
Enter configuration commands one per line End with CNTL/Z
Switch(config) #hostname msk-g42-svkuznecova-sw-1
msk-g42-sykuznecova-sw-1(config)fline vtv 0 4
msk-g42-sykuznecova-sw-1(config-line)#password cisco
msk-g42-svkuznecova-sw-1(config-line)#login
msk-q42-svkuznecova-sw-1(config-line) #exit
msk-q42-svkuznecova-sw-1(config) #line console 0
msk-c42-svkugnecova-sw-1(config-line) #password cisco
msk-g42-svkuznecova-sw-1(config-line) #login
msk-g42-sykusnecova-sy-1(config-line) fexit
msk-g42-sykuznecova-sw-1(config)tenable secret cisco
msk-g42-sykuznecova-sw-1(config) fservice password-encryption
msk-g42-svkuznecova-sw-1(config) #username admin privilege 1 secret cisco
msk-g42-sykuznecova-sw-1(config) fip domain name g42.rudn.edu
msk-g42-sykuznecova-sw-1(config) #ip domain-name g42.rudn.edu
msk-q42-svkuznecova-sw-1(config) #crypto key generate rsa
The name for the kevs will be: msk-g42-svkuznecova-sw-1.g42.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Durnose Keys Choosing a key modulus greater than 512 may take
  a few minutes
How many bits in the modulus [512]:
& Generating 512 bit RSA keys, keys will be non-exportable...[OK]
msk-g42-sykuznecova-sw-1(config) #line vtv 0 4
*Mar 1 0:59:9.162: RSA kev size needs to be at least 768 bits for ssh version 2
*Mar 1 0:59:9.162: $SSH-5-ENABLED: SSH 1.5 has been enabled
msk-g42-svkuznecova-sw-1(config-line) #transport input ssh
msk-q42-svkuznecova-sw-1(config-line) #exit
msk-g42-svkuznecova-sw-1(config) #exit
mek-g42-sykuznecova-sy-1#
$SYS-5-CONFIG I: Configured from console by console
msk-q42-sykuznecova-sw-lfwr me
Building configuration ...
LONI
msk-g42-sykuznecova-sw-1#
```

Рис. 11: Первоначальная настройка коммутатора msk-q42-svkuznecova-sw-1

```
Switch>en
Switchtconf t
Enter configuration commands, one per line. End with CNTL/2.
Switch(config) #hostname msk-hostel-svkuznecova-gw-l
msk-hostel-sykusnecova-my-1(config) #line vtv 0 4
msk-hostel-sykuznecova-gw-l(config-line)#password cisco
msk-hostel-sykuznecova-gw-1(config-line)#login
msk-hostel-svkuznecova-qw-l(config-line) #exit
msk-hostel-sykuznecova-gw-1(config)#line console 0
msk-hostel-svkuznecova-gw-l(config-line)#password cisco
msk-hostel-sykuznecova-gw-1(config-line)#login
msk-hostel-sykuznecova-gy-1(config-line)fexit
msk-hostel-sykuznecova-gw-1(config) tenable secret cisco
msk-hostel-sykuznecova-gw-1(config) #service password-encryption
msk-hostel-svkuznecova-gw-1(config) #username admin privilege 1 secret cisco
msk-hostel-svkuznecova-gw-1(config) #ip ssh version 2
Please create RSA keys (of at least 768 bits size) to enable SSH v2
msk-hostel-sykuznecova-gw-l(config) #ip domain name hostel.rudn.edu
msk-hostel-sykuznecova-gw-1(config) #ip domain-name hostel.rudn.edu
msk-hostel-svkuznecova-gw-1(config)#crvpto kev generate rsa
The name for the kevs will be: msk-hostel-svkuznecova-gw-1.hostel.rudn.edu
Choose the size of the key modulus in the range of 360 to 2048 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.
How many bits in the modulus [512]:
• Generating 512 bit RSA keys, keys will be non-exportable...[OK]
msk-hostel-sykusnecova-my-1(config) #line vtv 0 4
*Mar 1 1:3:24.745: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 1:3:24.745: $SSH-5-ENABLED: SSH 1.5 has been enabled
msk-hostel-svkuznecova-gw-1(config-line) #transport input ssh
msk-hostel-svkuznecova-gw-l(config-line) #exit
msk-hostel-sykuznecova-gw-1(config) fexit
msk-hostel-sykuznecova-gw-lf
$SYS-5-CONFIG I: Configured from console by console
msk-hostal-sykuspacova-cy-leyr ma
Building configuration ...
LOK1
msk-hostel-svkuznecova-gw-1#
```

Рис. 12: Первоначальная настройка маршрутизирующего коммутатора msk-hostel-svkuznecova-gw-1

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config) #hostname msk-hostel-svkznecova-sw-1
msk-hostel-sykunecova-sy-1 (config) fline yty 0 4
msk-hostel-sykznecova-sy-1 (config-line) #passyord cisco
msk-hostel-svkznecova-sw-l(config-line) #login
msk-hostel-sykznecova-sw-1(config-line)fexit
msk-hostel-sykgnecova-sw-l(config) #line console 0
msk-hostel-svkznecova-sw-l(config-line) #password cisco
msk-hostel-sykspecova-sy-1(config-line)#login
msk-hostel-sykznecova-sy-1(config-line) fexit
msk-hostel-sykznecova-sy-1(config) fenable secret cisco
msk-hostel-sykznecova-sw-l(config) #service password-encryption
msk-hostel-sykznecova-sw-1(config) #username admin privilege 1 secret cisco
msk-hostel-svkznecova-sw-1(config) #ip domain-name hostel.rudn.edu
msk-hostel-svkmnecova-sw-l(config) #crypto key generate rsa
The name for the keys will be: msk-hostel-syksnecova-sw-1 hostel rudn edu
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.
How many bits in the modulus [512]:
• Generating 512 bit RSA keys, keys will be non-exportable...[OK]
msk-hostel-sykmecova-sw-1(config)fline vtv 0 4
*Mar 1 1:6:51.864: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 1:6:51.864: $SSH-5-ENABLED: SSH 1.5 has been enabled
msk-hostel-sykenecova-sw-1(config-line) ftransport input ssh
msk-hostel-sykznecova-sy-1(config-line)fexit
msk-hostel-syksnecova-sy-1 (config) fexit
msk-hostel-svkznecova-sw-l#
$SYS-5-CONFIG I: Configured from console by console
msk-hostal-sykspacova-sy-lfyr ma
Building configuration ...
msk-hostel-svkznecova-sw-1#
```

Рис. 13: Первоначальная настройка коммутатора msk-hostel-svkuznecova-sw-1

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#sch-sochi-svkuznecova-sw-1
& Invalid input detected at '0' marker
Switch (config) thostname sch-sochi-sykuznecova-sw-1
sch-sochi-sykuznecova-sw-1(config)#line vtv 0 4
sch-sochi-svkuznecova-sw-l(config-line) #password cisco
sch-sochi-svkuznecova-sw-l(config-line) #login
sch-sochi-svkuznecova-sw-l(config-line) #exit
sch-sochi-sykusnecova-sy-1 (config) #line console ()
sch-sochi-sykuznecova-sv-1(config-line) #passyord cisco
sch-sochi-sykuznecova-sy-1(config-line)#login
sch-sochi-svkuznecova-sw-1(config-line) #exit
sch-sochi-sykuznecova-sw-l(config)#enable secret cisco
sch-sochi-svkuznecova-sw-l(config) #service password-encryption
sch-sochi-svkuznecova-sw-l(config) #username admin privilege 1 secret cisco
sch-sochi-sykuspecova-sy-1 (config) fin domain-name sochi rudo edu
sch-sochi-sykuznecova-sw-l(config)#crypto key generate rsa
The name for the keys will be: sch-sochi-sykusnecova-sw-l.sochi.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
 a few minutes
How many bits in the modulus [512]:
4 Generating 512 bit RSA keys, keys will be non-exportable...[OK]
sch-sochi-sykusnecova-sw-1(config) #line vtv 0 4
*Mar 1 0:4:58.846: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:4:58.846: $SSH-5-ENABLED: SSH 1.5 has been enabled
sch-sochi-svkuznecova-sw-l(config-line) #transport input ssh
sch-sochi-svkuznecova-sw-l(config-line) #exit
sch-sochi-sykuspecova-sy-1 (config) fevit
sch-sochi-sykusnecova-sy-1#
$SYS-5-CONFIG I: Configured from console by console
sch-sochi-sykuznecova-sw-liwr me
Building configuration ...
sch-sochi-svkuznecova-sw-l#
```

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/2.
Router(config) #hostname sch-sochi-svkuznecova-gw-1
sch-sochi-svkuznecova-gw-1(config) #line vty 0 4
sch-sochi-sykusnecova-my-1 (config-line) #nassword cisco
sch-sochi-sykusnecova-gw-1(config-line)#login
sch-sochi-svkuznecova-gw-1(config-line) #exit
sch-sochi-sykuznecova-gw-1(config) #line console 0
sch-sochi-sykuznecova-gw-1(config-line) #password cisco
sch-sochi-svkuznecova-gw-l(config-line)#login
sch-sochi-sykuspecova-mu-1(config-line)fevit
sch-sochi-sykusnecova-qu-l(config)tenable secret disco
sch-sochi-sykusnecova-gw-1 (config) #service password encryption
& Invalid input detected at '^' marker.
sch-sochi-svkuznecova-gw-l(config) #service password-encryption
sch-sochi-svkuznecova-gw-1(config) #username admin privilege 1 secret cisco
sch-sochi-svkuznecova-gw-1(config) $ip domain name sochi.rudn.edu
sch-sochi-sykusnecova-gw-1 (config #in domain-name sochi rudo edu
sch-sochi-sykuznecova-gw-1 (config) #crypto key generate rsa
The name for the keys will be: sch-sochi-sykuznecova-gw-l.sochi.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
 General Purpose Kevs. Choosing a key modulus greater than 512 may take
  a few minutes.
How many bits in the modulus [512]:
* Generating 512 bit DSA keys, keys will be non-exportable...[OK]
sch-sochi-svkuznecova-gw-l(config)#line vtv 0 4
"Mar 1 1:8:0.797: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 1:8:0.797: $SSH-5-ENABLED: SSH 1.5 has been enabled
sch-sochi-svkuznecova-gw-l(config-line) #transport input ssh
sch-sochi-svkuznecova-gw-1(config-line) #exit
sch-sochi-sykusnecova-gw-1 (config) tevit
sch-sochi-svkuznecova-gw-l#
$SYS-5-CONFIG I: Configured from console by console
sch-sochi-sykuznecova-gw-l#wr me
Building configuration...
ech-sochi-sykuznecova-gu-1#
```

Выводы

Выводы

В ходе выполнения лабораторной работы мы провели подготовительные мероприятия по организации взаимодействия через сеть посредством статической маршрутизации локальной сети с сетью основного здания, расположенного в 42-м квартале в Москве, и сетью филиала, расположенного в г. Сочи.

Спасибо за внимание!