

# Лаборатория работа 9

Использование протокола STP. Агрегирование  
каналов

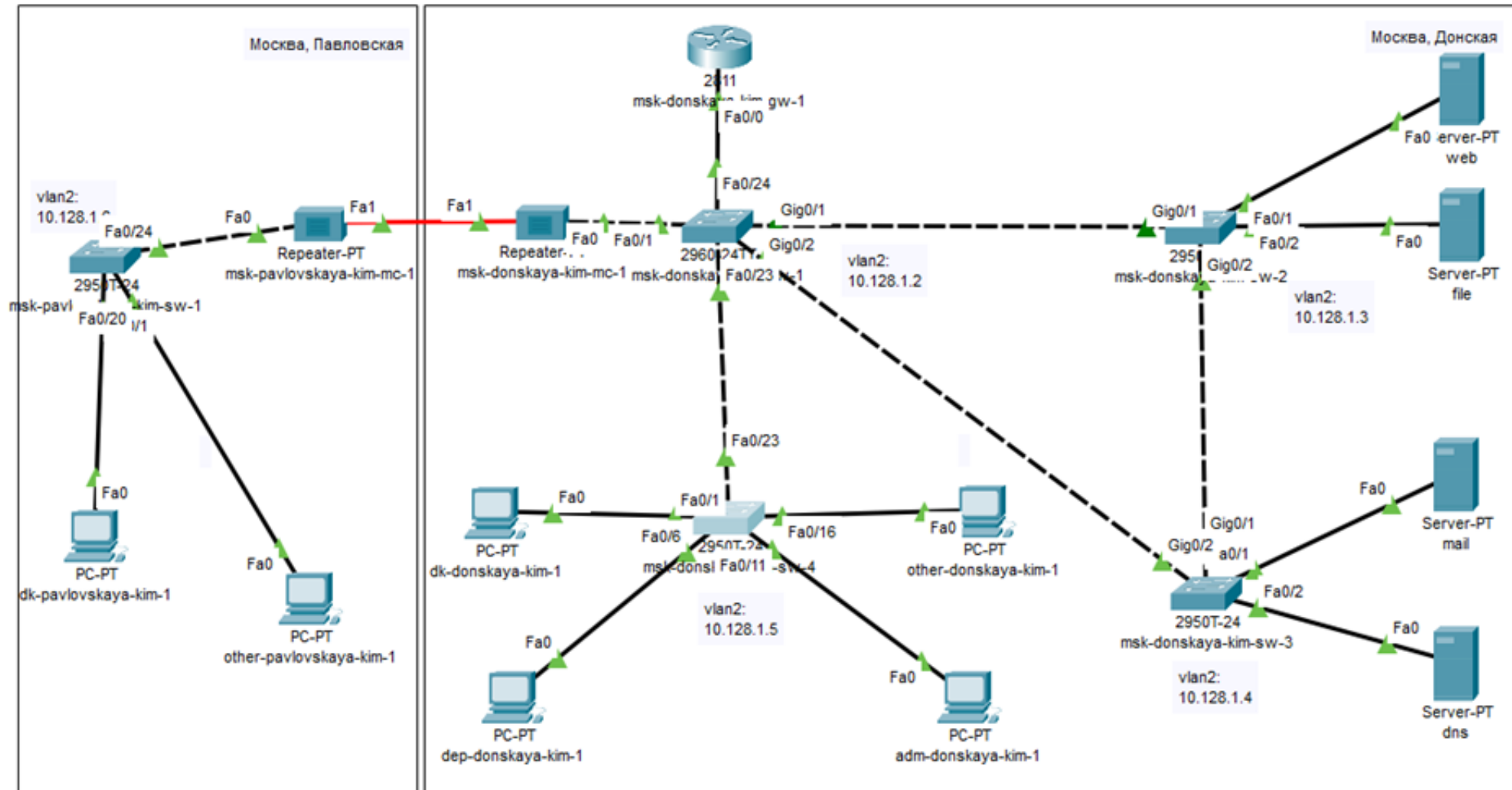
ПОДГОТОВИЛА: КИМ РЕАЧНА  
ГРУППА: НПИБД-02-20

# Цель работы:

Изучение возможностей протокола STP и его модификаций по обеспечению отказоустойчивости сети, агрегированию интерфейсов и перераспределению нагрузки между ними.

# Задание:

- Сформируйте резервное соединение между коммутаторами msk-donskaya-sw-1 и msk-donskaya-sw-3.
- Настройте балансировку нагрузки между резервными соединениями.
- Настройте режим Portfast на тех интерфейсах коммутаторов, к которым подключены серверы.
- Изучите отказоустойчивость резервного соединения.
- Сформируйте и настройте агрегированное соединение интерфейсов Fa0/20 – Fa0/23 между коммутаторами msk-donskaya-sw-1 и msk-donskaya-sw-4.



```
msk-donskaya-kim-sw-1(config)#interface f0/23
msk-donskaya-kim-sw-1(config-if)#switchport mode trunk

msk-donskaya-kim-sw-1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/23, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/23, changed state to up
```

```
C:\>ping 10.128.0.5

Pinging 10.128.0.5 with 32 bytes of data:

Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping mail.donskaya.rudn.ru

Pinging 10.128.0.4 with 32 bytes of data:

Reply from 10.128.0.4: bytes=32 time<1ms TTL=127
Reply from 10.128.0.4: bytes=32 time<1ms TTL=127
Reply from 10.128.0.4: bytes=32 time<1ms TTL=127
Reply from 10.128.0.4: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping www.donskaya.rudn.ru

Pinging 10.128.0.2 with 32 bytes of data:

Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time=10ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 2ms
```

```
msk-donskaya-kim-sw-2(config)#int f0/1
msk-donskaya-kim-sw-2(config-if)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single
host. Connecting hubs, concentrators, switches, bridges, etc... to this
interface when portfast is enabled, can cause temporary bridging loops.
Use with CAUTION
```

```
%Portfast has been configured on FastEthernet0/1 but will only
have effect when the interface is in a non-trunking mode.
msk-donskaya-kim-sw-2(config-if)#int f0/2
msk-donskaya-kim-sw-2(config-if)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single
host. Connecting hubs, concentrators, switches, bridges, etc... to this
interface when portfast is enabled, can cause temporary bridging loops.
Use with CAUTION
```

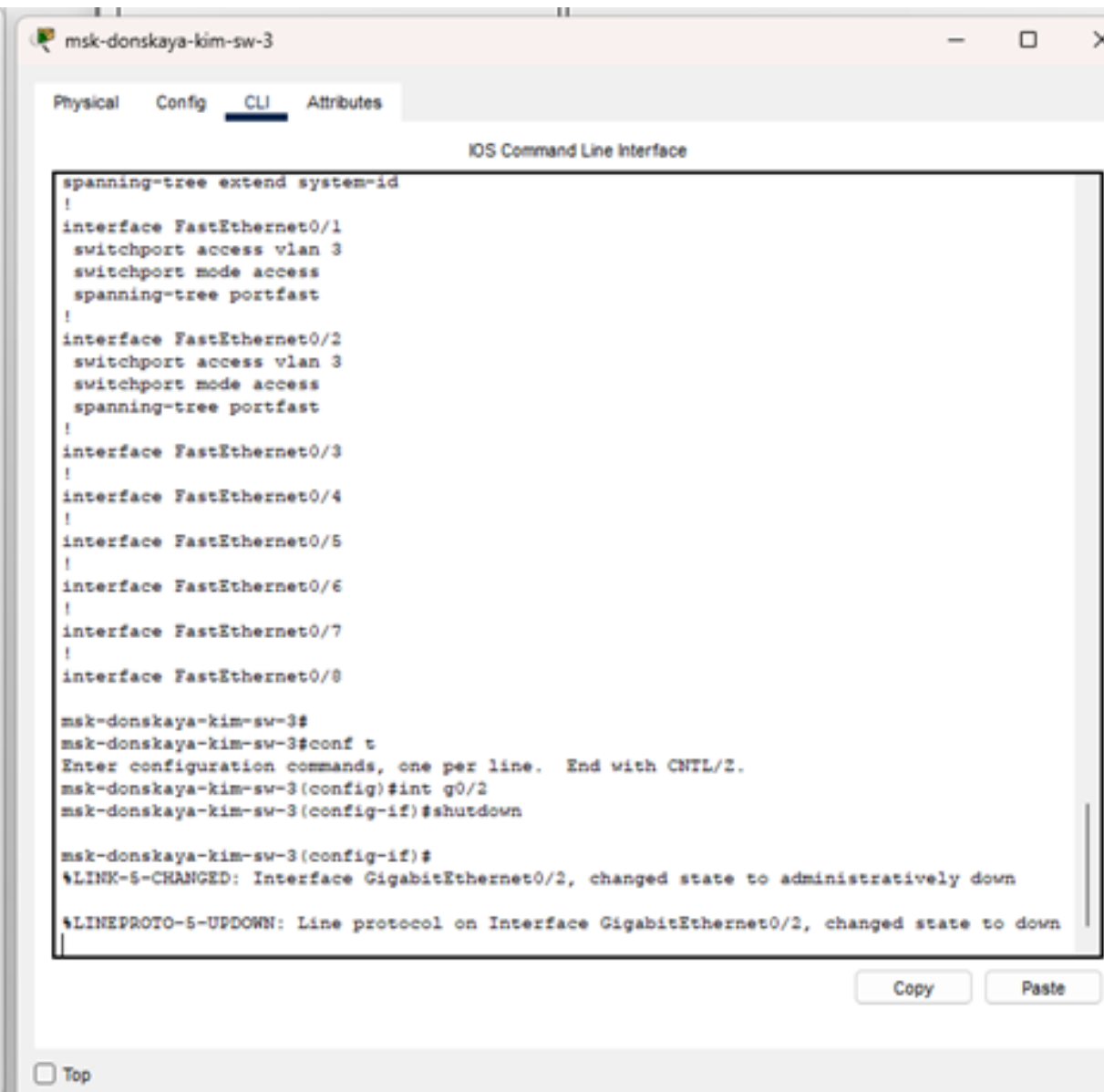
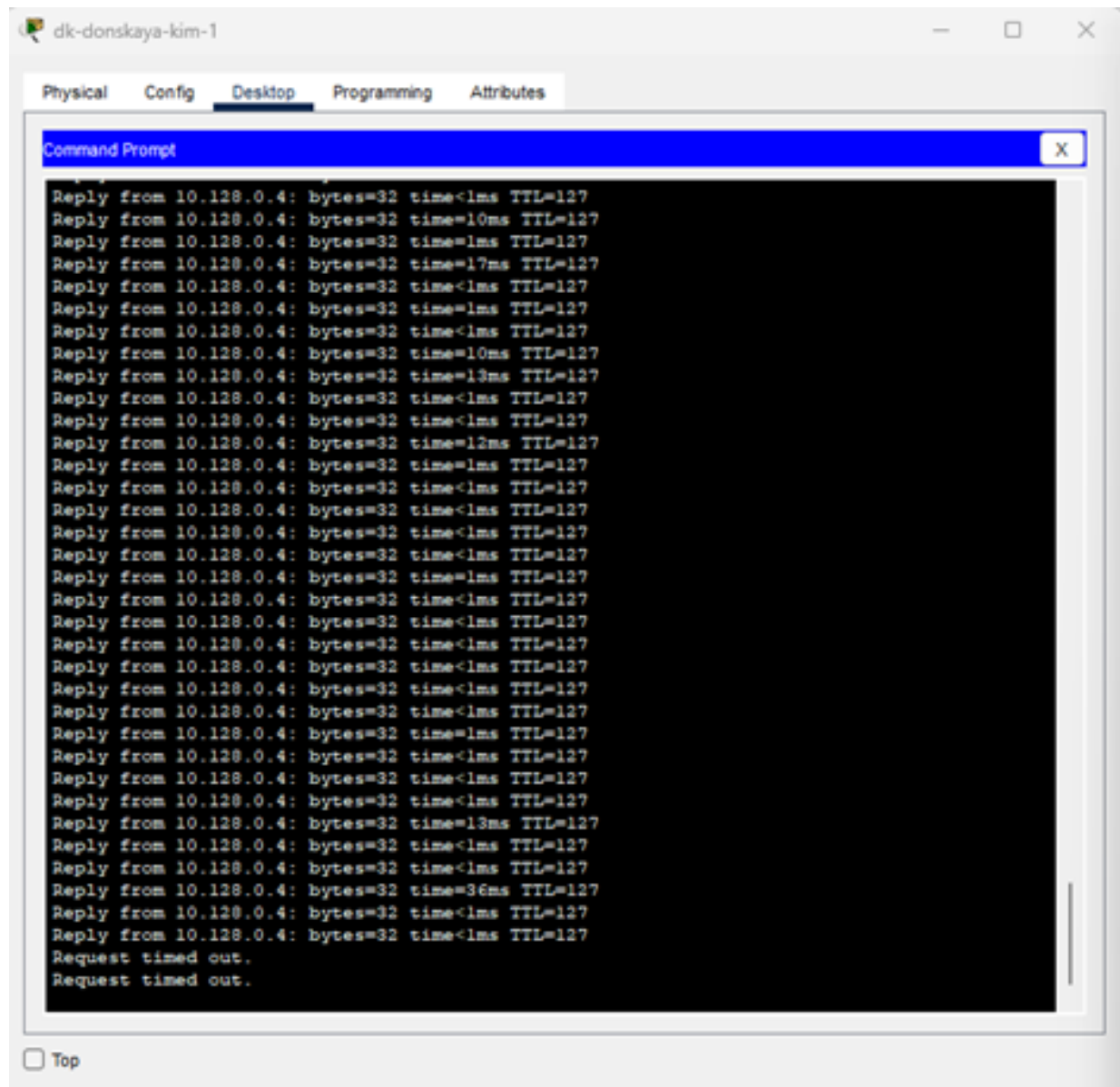
```
%Portfast has been configured on FastEthernet0/2 but will only
have effect when the interface is in a non-trunking mode.
msk-donskaya-kim-sw-2(config-if)#
```

```
msk-donskaya-kim-sw-3>en
Password:
msk-donskaya-kim-sw-3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-kim-sw-3(config)#int f0/1
msk-donskaya-kim-sw-3(config-if)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single
host. Connecting hubs, concentrators, switches, bridges, etc... to this
interface when portfast is enabled, can cause temporary bridging loops.
Use with CAUTION

%Portfast has been configured on FastEthernet0/1 but will only
have effect when the interface is in a non-trunking mode.
msk-donskaya-kim-sw-3(config-if)#int f0/2
msk-donskaya-kim-sw-3(config-if)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single
host. Connecting hubs, concentrators, switches, bridges, etc... to this
interface when portfast is enabled, can cause temporary bridging loops.
Use with CAUTION

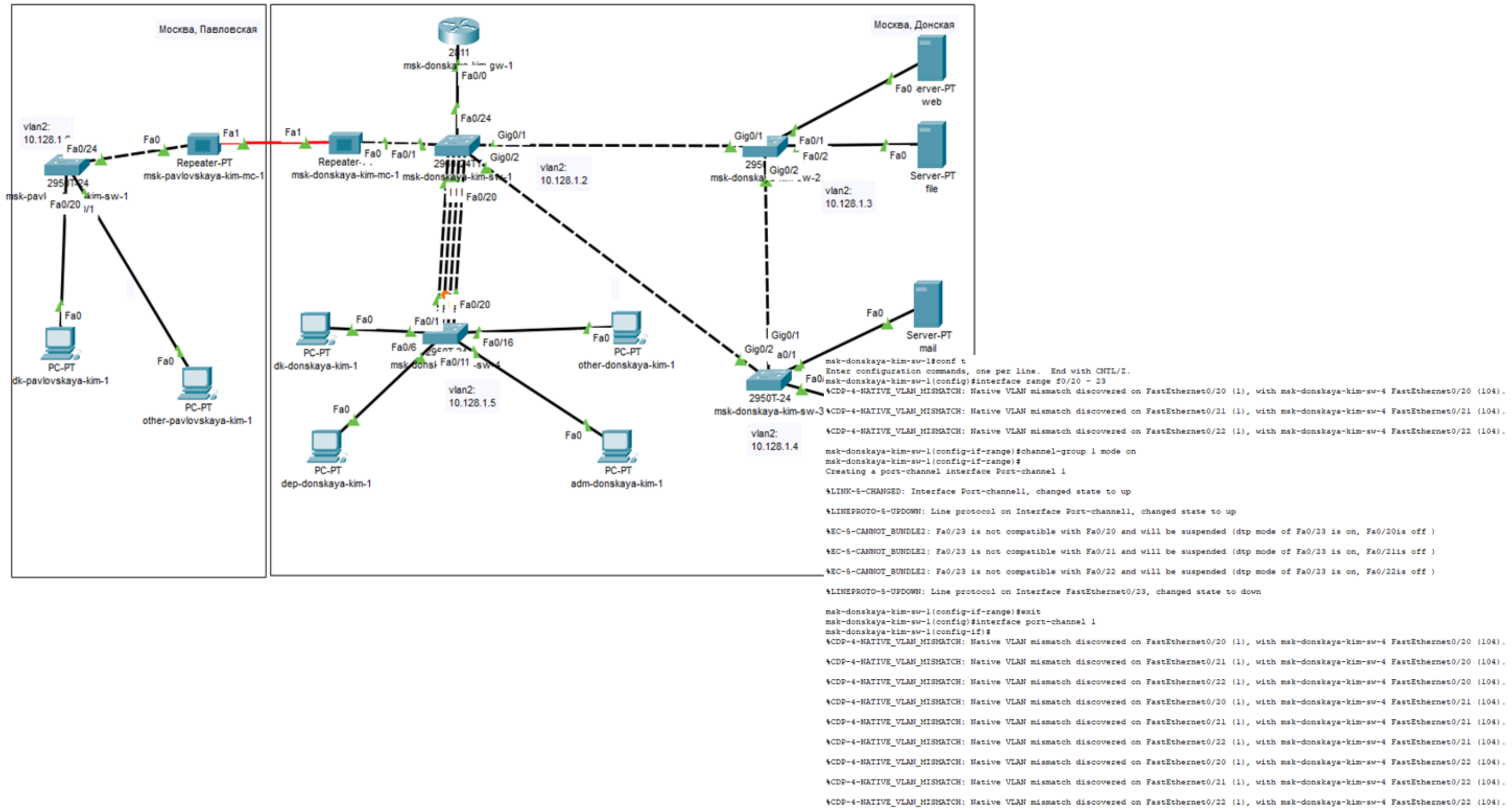
%Portfast has been configured on FastEthernet0/2 but will only
have effect when the interface is in a non-trunking mode.
msk-donskaya-kim-sw-3(config-if)#
```





```
msk-donskaya-kim-sw-1>en
Password:
msk-donskaya-kim-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-kim-sw-1(config)#spanning-tree mode rapid-pvst
msk-donskaya-kim-sw-1(config)#^Z
msk-donskaya-kim-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-kim-sw-1#wr m
Building configuration...
[OK]
```



# Вывод

Изучила возможностей протокола STP и его модификаций по обеспечению отказоустойчивости сети, агрегированию интерфейсов и перераспределению нагрузки между ними.

**Спасибо за внимание!**