

Module 10 – Introduction to Voice over IP

Objective: An optional module to demonstrate the basic configuration of voice over IP on an IP network.

Prerequisites: Module 1

Two routers in the ISP/IXP Workshop Lab have Cisco's Voice over IP cards installed. These cards support two types of telephony connection:

- The FXO port supports connections to PABXs, or telephone lines going to an external service.
- The FXS port supports connections to standard analogue telephones.

This short module will introduce you to the configuration of two routers to demonstrate Voice running over the lab network. Pre-requisite is Module1, or at least OSPF running on all the routers to ensure connectivity in the lab network.

- 1. Identify the routers with the VoIP ports.** The standard lab has VoIP cards installed in Router 2 and Router 11. Each router has two FXO ports and two FXS ports.

Scenario One: End-to-End telephony

- 2. Configure the two routers to be end systems for an end-to-end telephony service running over IP.**

Router 2:

Enter configuration defining the remote telephony target. The IP address of the loopback interface of Router 11 is used (for all the reasons covered in other Modules). The *destination-pattern* is the telephone number of the remote site.

```
dial-peer voice 10 voip
 destination-pattern 200
 session target ipv4:222.222.7.224
!
```

Enter the configuration defining the local port. The *destination-pattern* is the telephone number of the local site. The telephone at the local site should be connected to **port 1/1/0**.

```
dial-peer voice 1 pots
```

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```
destination-pattern 222
port 1/1/0
!
```

Router 11:

Enter configuration defining the remote telephony target. The IP address of the loopback interface of Router 2 is used (for all the reasons covered in other Modules). The *destination-pattern* is the telephone number of the remote site.

```
dial-peer voice 10 voip
destination-pattern 222
session target ipv4:200.200.11.224
!
```

Enter the configuration defining the local port. The *destination-pattern* is the telephone number of the local site. The telephone at the local site should be connected to **port 1/1/0**.

```
dial-peer voice 1 pots
destination-pattern 200
port 1/1/0
!
```

- 3. Try it out!** Now go and test the network. Pick up one telephone handset and dial the remote station. One of the other teams should answer the ringing phone. Engage in conversation, or whatever you would normally use the telephone for! Once finished, hang up, and allow other teams to make test calls.

Scenario Two: External Calls

- 4. Configure the routers to, additionally, make external calls.**

The FXO ports on Router 2 can be configured to connect to an external PABX, or other external telephone line. If a telephone line is installed in the workshop lab, try the configuration presented in this step. Retain the configuration in Scenario #1.

Router 2:

Enter configuration defining the external line. “9” means that all numbers beginning with 9 will be sent to the external line connected to port 1/0/0.

```
dial-peer voice 2 pots
 destination-pattern 9. . . . .
 port 1/0/0
!
```

Router 11:

Enter configuration defining the remote telephony target. The IP address of the loopback interface of Router 2 is used (for all the reasons covered in other Modules). The *destination-pattern* is the telephone number of the remote site. “9” means that all numbers beginning with 9 will be sent to Router 2.

```
dial-peer voice 11 voip
 destination-pattern 9. . . . .
 session target ipv4:200.200.11.224
```

5. Summary

This module has given a basic introduction to Voice over IP configuration. It’s primarily aimed at showing the type of configuration required to create a simple operational VoIP network. More complex scenarios are beyond the scope of this workshop.