

ISDN and DDR

Module 4, Review



4.1.1 Introducing ISDN

- ◆ ISDN uses out-of-band signaling, the delta (D channel) a separate channel for control signals, for call setup and signaling.

4.1.2 ISDN standards and access methods

- ◆ BRI uses two 64 kbps B channels plus one 16kbps D channel.
- ◆ Uses out of band signaling
- ◆ The B channels can be used for relatively high-speed data transport. In this mode, the information is carried in frame format, using either high-level data link control (HDLC) or PPP as the Layer 2 protocol.

4.1.2 ISDN standards and access methods

- ◆ In North America and Japan, PRI offers twenty-three 64 kbps B channels and one 64 kbps D channel. A PRI offers the same service as a T1 or DS1 connection.
 - Suitable for video

4.1.6 Determining the router ISDN interface

- ◆ If the router has a connector labeled BRI then it is already ISDN-enabled. With a native ISDN interface already built in, the router is a TE1. If the router has a U interface, it also has a built-in NT1.

4.1.7 ISDN switch types

- ◆ A SPID is a number provided by the ISDN carrier to identify the line configuration of the BRI service.
- ◆ SPIDs allow multiple ISDN devices, such as voice and data equipment, to share the local loop.
- ◆ Routers must be configured to identify the type of switch with which they will communicate because switches use various implementations of Q.931

4.2.1 Configuring ISDN BRI

- ◆ The command **isdn switch-type** *switch-type* can be configured at the global or interface command mode to specify the provider ISDN switch.
- ◆ ISDN Switch type is essential for all ISDN BRI interface configurations

4.2.2 Configuring ISDN PRI

- ◆ ISDN PRI is delivered over a leased T1 or E1 line. The main PRI configuration tasks are as follows:
 - Specify the correct PRI switch type that the router interfaces with at the CO of the ISDN provider.
 - Specify the T1/E1 controller, framing type, and line coding for the facility of the ISDN provider.
 - Set a PRI group timeslot for the T1/E1 facility and indicate the speed used.

4.2.2 Configuring ISDN PRI

- ◆ From global configuration mode, specify the controller and the slot/port in the router where the PRI card is located:
 - Router(config)#**controller** {t1 | e1}
 { *slot/port*}

4.2.3 Verifying ISDN configuration

- ◆ To confirm BRI operations, use the **show isdn status** command to inspect the status of the BRI interfaces.
- ◆ The **show isdn active** command displays current call information, including all of the following:
 - Called number
 - Time until the call is disconnected
 - Advice of charge (AOC)
 - Charging units used during the call
 - Whether the AOC information is provided during calls or at end of calls

4.2.4 Troubleshooting the ISDN configuration

- ◆ The **debug ppp authentication** command displays the PPP authentication protocol messages, including Challenge Handshake Authentication Protocol (CHAP) packet exchanges and Password Authentication Protocol (PAP) exchanges.

4.3.3 Defining static routes for DDR

- ◆ To prevent the frequent or constant activation of the DDR link necessary to support dynamic routing protocols, configure the necessary routes statically.

4.3.5 Configuring DDR dialer information

The **dialer-group** *group-number* command:

- ◆ Home(config-if)#**dialer-group 1**
- ◆ In the command, *group-number* specifies the number of the dialer group to which the interface belongs. The group number can be an integer from 1 to 10.
- ◆ If a dialer group number in a configuration is greater than 10 ISDN will not make a connection

4.3.7 Configuring dialer profiles

- ◆ If multiple calls need to be placed and only one interface is available, then the dialer pool with the lowest priority number is the one that dials out.

4.3.6 Dialer profiles

- ◆ Using dialer profiles, the following tasks may be performed:
 - Configure B channels of an ISDN interface with different IP subnets.
 - Use different encapsulations on the B channels of an ISDN interface.
 - Set different DDR parameters for the B channels of an ISDN interface.
 - Eliminate the waste of ISDN B channels by letting ISDN BRIs belong to multiple dialer pools.

Europe question

- ◆ Option 3