Why use tunneling?

Tunneling is used to connect two networks without configuring the whole IP cloud for IPX. Tunnel interface creates a point-to-point link and allows traffic from isolated hosts to be carried through an intermediate network using IP as the transport mechanism. The tunnel is created by specifying the source and destination IP address.

Explanation of Router1 configuration

ipx routing

This command enables IPX routing. The router will choose a MAC address from one of its interfaces to associate with the process, so you do not need to specify it in the command.

interface tunnel0
ipx network 100
Assigns a IPX network number for the tunnel interface.

**tunnel source 1.1.1.1**

This sets the tunnel interface's source IP address. In the example it is the serial interfaces IP address for Router R1.

**tunnel destination 2.2.2.2**

This sets the tunnel interface's destination IP address. In the example it is the serial interface's IP address for Router R2.

**tunnel sequence-datagrams**

This configures the tunnel interface to drop datagrams arriving out-of-order.

**tunnel mode gre ip**

The tunnel mode sets the encapsulation mode for the tunnel interface. The default mode is gre ip.

R1#sh ipx ro

Codes: C - Connected primary network, c - Connected secondary network
S - Static, F - Floating static, L - Local (internal), W - IPXWAN
R - RIP, E - EIGRP, N - NLSP, X - External, A - Aggregate
s - seconds, u - uses

5 Total IPX routes. Up to 1 parallel paths and 16 hops allowed.

No default route known.

L BBBBB is the internal network
C 100 (TUNNEL), Tu0
C BBB (X25), Se0
R AAA [151/01] via 100.0000.0c3b.ed6f, 33s, Tu0

R1#sh int tu0

Tunnel0 is up, line protocol is up

Hardware is Tunnel
MTU 1500 bytes, BW 9 Kbit, DLY 500000 usec, rely 255/255, load 1/255
Encapsulation TUNNEL, loopback not set, keepalive set (10 sec)

**Tunnel source 1.1.1.1, destination 2.2.2.2**

Tunnel protocol/transport GRE/IP, key disabled
Order sequence numbers 57/60 (tx/rx)
Checksumming of packets disabled, fast tunneling disabled
Last input 00:00:36, output 00:00:47, output hang never
Last clearing of "show interface" counters never
Queueing strategy: fifo
Output queue 0/0, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 1 packets input, 40 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 60 packets output, 3322 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 output buffer failures, 0 output buffers swapped out

R2#sh ipx ro
Codes: C - Connected primary network, c - Connected secondary network
S - Static, F - Floating static, L - Local (internal), W - IPXWAN
R - RIP, E - EIGRP, N - NLSP, X - External, A - Aggregate
s - seconds, u - uses

5 Total IPX routes. Up to 1 parallel paths and 16 hops allowed.

No default route known.

C        100 (TUNNEL),        Tu0
C        AAA (HDLC),          Se0
R        BBB [151/01] via 100.0000.0c45.4211,   55s, Tu0
R       4500 [151/01] via 100.0000.0c45.4211,   55s, Tu0
R      BBBBB [151/01] via 100.0000.0c45.4211,   55s, Tu0

R2#ping ipx BBB.0000.0c45.4211
Type escape sequence to abort.
Sending 5, 100-byte IPX cisco Echoes to BBB.0000.0c45.4211, timeout is 2 seconds:
!!!!!