PPP Persuasion (Instructor Version)

Instructor Note: Red font color or Gray highlights indicate text that appears in the instructor copy only.

Objectives

Describe the benefits of using PPP over HDLC in a WAN.

This activity can be completed individually or in small groups of 2-3 students per group.

Scenario

Your network engineering supervisor recently attended a networking conference where Layer 2 protocols were discussed. He knows that you have Cisco equipment on the premises, but he would also like to offer security and advanced TCP/IP options and controls on that same equipment by using the Point-to-Point Protocol (PPP).

After researching the PPP protocol, you find it offers some advantages over the HDLC protocol, currently used on your network.

Create a matrix listing the advantages and disadvantages of using the HDLC vs. PPP protocols. When comparing the two protocols, include:

- Ease of configuration
- Adaptability to non-proprietary network equipment
- Security options
- Bandwidth usage and compression
- Bandwidth consolidation

Share your chart with another student or class. Justify whether or not you would suggest sharing the matrix with the network engineering supervisor to justify a change being made from HDLC to PPP for Layer 2 network connectivity.

Resources

- Internet access to the World Wide Web
- Word processing or spreadsheet software

Instructor - Suggested Model Example and Resources

Internet Sites/Resources:

- 3 WAN Protocols You Should Know
- RFC 1661

HDLC and PPP Comparison Chart

Criteria	HDLC	PPP
Ease of Configuration	Standard or default for all Cisco equipment	Can be simple or more involved, depending upon the PPP options chosen to implement
Adaptability to Non-Proprietary Network Equipment	Not adaptable to other non-Cisco devices	Adaptable to other non-proprietary devices
Security Options	Not offered	CHAP (encrypted and secure link passwords) or PAP (non-encrypted link passwords)
Bandwidth Usage and Compression	Standard TDM and no compression	Compression available
Bandwidth Consolidation	Standard serial bandwidth used on one connection	Different connections can be bundled to offer higher bandwidth and traffic throughput

Identify elements of the model that map to IT-related content:

- PPP
- HDLC
- CHAP
- PAP
- TDM
- STDM
- Bandwidth compression
- Bandwidth consolidation