

Juniper Circuit-to-Packet (CTP) Syllabus

3-14-2012

Course Number:	3139-29
Course Length:	4 Days
Per Student Course Fee*:	\$2,595.00

**Discounts may apply. Minimum class size is four (4) students. Maximum class size is twelve (12) students. Contact whelms@caci.com or hfitzpatrick@caci.com for inquiries or additional information.*

COURSE OBJECTIVES

- Explain the functionality of the CTP.
- Identify the hardware components of the CTP.
- Understand the relationship between the CTP and IP.
- Be able to configure Network and Port side parameters.
- Understand and implement various Port side timing options.
- Perform Operational and Maintenance functions using the Menu system and the GUI.

COURSE OUTLINE

Day 1

- **Module 1 - Theory of CTP Operation**
 - Packet Creation
 - Packet Processing
 - System Features

- **Module 2 - Hardware Overview**
 - Chassis Overview
 - 1000, 2000 and 150 series
 - Replacing Card Procedures
 - Processor and Common Equipment cards
 - Connectors, Indicators, Pinouts, and Switches
 - Feature Modules
 - Serial, T1E1, Analog, and Compression cards
 - Cables Used

- **Module 2.1 – CTPOS 6.1 Addendum**
 - Upgrade Processor Requirements
 - New Features
 - Upgrade Kit information

- **Module 3 – First Boot and Initial Configuration**
 - Out of the Box 'First Boot' Setup w/lab
 - Accessing the CLI Menu following First Boot
 - Menu Tree

- **Module 4 – CLI Menu Mode – Node Operations**

- Network Interface Configurations
- Virtual IP
- OAM Packets
- Layer 2 Bridging
- Using Ping, Traceroute, ssh
- Configuring the Ethernet Media

(Lab exercises in the afternoon)

Day 2

- **Module 4 – CLI Menu Mode – Node Operations (continued)**

- Security Profile Menu
 - User and Password Management
 - Creating New User Accounts
 - Security Level Settings
 - Secure Logging Functions

(Lab exercises in the morning)

- **Module 5 – CTP Synchronization**

- General Clocking Concepts – Clocking 101
- Challenges of Passing Synchronous Circuits over IP
- CTP System/Node Synchronization Options
- Data Port/T1E1 Timing Options
 - Local Timing Source
 - External Timing Source
 - Adaptive Timing Configuration
 - Autobaud Timing Configuration
 - Custom Clock Options
 - Port synchronization flowcharts

(Lab exercises in the afternoon)

Day 3

- **Module 6 – CTP Circuit/Bundle Creation**

- What is a Bundle?
- Packet Size considerations
 - Packet Per Second (PPS) rate
 - Serialization delay
- Buffer Concepts
 - Recenters, Overflows and Underruns
- Type of Service (TOS) and Differentiated Service Code Point (DSCP) equivalencies
- Configuration of a CTP Bundle based circuit
- Configuration of a SaTOP Bundle
- Configuration of a CESoPSN Bundle
 - Fractional T1 with DS0 Grooming
- Configuration of a 4WTO to 4WTO based circuit
- Configuration of a VCOMP Based Circuit

(Lab exercises in the morning and afternoon)

- **Module 7 – CTP Diagnostics and Operations**
 - Data Port / T1E1 Serial Loops
 - Data Port BER Testing
 - End to End Testing, Error Injection
 - Local Data Path Tests

(Lab exercises in the afternoon)

Day 4

- **Module 8 – CTPView Graphical User Interface**
 - Initial Configuration of the CTPView Network Interface
 - Accessing the CTPView via a standard web browser
 - Configuration of CTPView Administrative options
 - Defining Node Groups and Hosts for CTPView Management
 - Accessing a Node for the first time
 - Configuration of a Node's Synchronization settings via the CTPView
 - Port/Bundle Based Configurations
 - Runtime Query
 - Network Monitoring
 - Port Based Diagnostic Testing
 - BER/Loops
 - System Configuration Options
 - SysMon / Autoswitch / etc.
 - Node Maintenance Settings
 - Saving Configurations
 - Upgrading CTP Software
 - Saving / Restoring a CTP Configuration
 - Statistics
 - Generating Plots using the graph tool

HANDS-ON EXERCISES

- Setting up a CTP from an 'out of the box' first boot
- Learning how to access remote CTPs using ssh
- Configuring Login and System Banners
- Assigning New User accounts
- Configuring an overall network synchronization scheme
- Configuring ports with various timing options
- Setting up various Data / T1E1 and Voice circuits through the CTP
- Executing BER Tests
- Use of the GUI