



intraway
Provisioning Suite

Training Courses

Intraway for Cable Operators

Intraway Corp.

Last modified: April 11th, 2007

Intraway Provisioning Suite – Cable Edition

Audience

This course is designed for the staff that interacts with Intraway Provisioning Suite in a Cable Operation, where Internet and/or Telephony services are provided.

Objectives

This is a basic course that makes an introduction to all software components as well as to different functioning and provisioning flow in implementations based on DOCSIS® and PacketCable™.

The objective of the course is to provide the attendees with the necessary knowledge to understand in a detailed way the capacities of the product, the modules that compose it, what you can do for your company and how it has to be integrated with the management and billing systems. In addition, it also gives important knowledge about the provisioning flow specified in DOCSIS and PacketCable.

The topics covered in the course are:

- Provisioning systems
- DOCSIS and PacketCable Introduction
- Initialization of DOCSIS devices
- Initialization of PacketCable devices
- Devices based on SIP
- Intranet and Client Management
- Cable Modem Activation
- E-MTAs and Telephony Lines activation

Continues on the next page

Intraway Provisioning Suite – Cable Edition,

Continued

List of Topics

Day 1

- ❖ Provisioning Systems
 - Service Activation
 - Disintegration Problems
 - Integration of all Services
 - Self-management Web Site
 - Cable Modems, E-MTAs and Telephone Lines Activation
 - Captive Portal in all the Services
 - System Capacity
 - Cable Modems DOCSIS® Management
 - E-MTA PacketCable™ Management
 - Telephone lines in the Softswitch Management
 - Centrex Groups Management
 - Set-Top Boxes Management
 - Hotspots Management
 - IP Cameras Management
 - Proactive Network Support and Monitoring
 - Email, Web Hosting, DNS Parking and Other Services

- ❖ DOCSIS and PacketCable Introduction
 - Advantages of Broad Band in Cable Networks
 - Same Network, Multiple Services
 - Data Traffic over Cable Networks
 - Better than Other Technologies
 - DOCSIS as a Base Platform
 - DOCSIS Evolution
 - DOCSIS 1.1, 2.0 and 3.0
 - Current DOCSIS State
 - The Future based on DOCSIS
 - PacketCable based Telephony
 - DQoS Functioning
 - PacketCable Architecture
 - DOCSIS and PacketCable Specifications
 - MIBS of SNMP for DOCSIS and PacketCable
 - Group Work

Continues on the next page

Intraway Provisioning Suite – Cable Edition, *Continued*

List of Topics (*Cont.*)

Day 1 (*Cont.*)

- ❖ Initialization of DOCSIS and PacketCable Devices
 - DOCSIS Architecture and Provisioning
 - Intraway Architecture and Description of Different Servers
 - Detailed Process of Initialization of a Cable Modem
 - Tests in Models are Deep Inspection of Packets
 - Basic DOCSIS Configuration File
 - Introduction to SNMP
 - Advanced DOCSIS Configuration File with SNMP Commands
 - PacketCable Architecture and Provisioning
 - Basic Provisioning Flow, Hybrid and Safe
 - Detailed Safe Initialization of a MTA PacketCable
 - Configuration of PacketCable File

- ❖ Devices based on SIP
 - Introduction to Telephony based on SIP
 - Available Specifications and Standards
 - Comparison: Telephony based on SIP or PacketCable?
 - Provisioning Problems due to Integral Standard
 - Only for HFC networks: SIP devices based on PacketCable
 - Only a few: SIP Devices based on TR-069 del DSL Forum.
 - Most: SIP Devices based on Proprietary Definitions
 - When it is convenient and when it is not convenient to use SIP
 - Centralized Provisioning of SIP Devices using Intraway
 - Devices standardized by Intraway
 - Example of Devices Provisioning based on PacketCable
 - Example of Devices Provisioning based on TR-069
 - Example of Proprietary Devices Provisioning
 - Integration with the Softswitch
 - Summary and Conclusions
 - Group Debate

Continues on the next page

Intraway Provisioning Suite – Cable Edition, *Continued*

List of Topics (*Cont.*)

Day 2

- ❖ PacketCable Multimedia
 - Evolution from PKTC 1.0 to PCMM
 - Basic Functioning
 - Applications
 - Turbo Button
 - Time Zones
 - DQOS for telephone calls
 - DQOS for online games
 - DQOS for video on demand
 - Extended Architecture of PCMM
 - Session & Resource Control Domains
 - PacketCable Multimedia Policy Server in Detail
 - CMTS as Policy Enforcement Point
 - Intraway as Policy Server PDP (Policy Decision Point)
 - Integration with Traffic Shapers
 - Model demonstration and team work

- ❖ Intranet and Clients Management
 - The Intranet
 - Initial Configuration
 - Login and Main Screen
 - Presentation of Each Module
 - Subscribers Management
 - Network Monitoring
 - Reports and Data Analysis
 - System Configuration
 - Integration with External Systems
 - Clients Management
 - Managing a Client
 - Creation of a Space for Cable Modem
 - Manual Activation of a Cable Modem
 - Operations over an Active Cable Modem
 - Cable Modems Technical Support (CSR Screen)
 - MTA Creation
 - Active Cable Modem, Inactive MTA
 - CMR and Integration Simulator

Continues on the next page

Intraway Provisioning Suite – Cable Edition, *Continued*

List of Topics (*Cont.*)

Day 2 (*Cont.*)

- ❖ Captive Portal
 - Captive Portal
 - What is a Captive Portal?
 - News and Expiration Dates
 - Effective Communication
 - Billing Management and In-debt Clients
 - Recovery of deactivations
 - Model Demonstration

- ❖ DOCSIS and PacketCable Self-Provisioning
 - Activation Options of a Cable Modem
 - Manual Activation
 - Tech-Provisioning
 - Self-Provisioning
 - DOCSIS Self-Provisioning
 - Sale of Service
 - Management Interfaces
 - Physical Installation of a Cable Modem
 - Firmware Update
 - Traffic Redirection to the Activation Portal
 - Guarantee in the Quality of the Installation
 - Cable Modem Activation
 - Management System Activation
 - Cable Modems Replacement
 - PacketCable Self-Provisioning
 - Sale of Service
 - Management Interfaces
 - E-MTA Physical Installation
 - Firmware Update
 - Calls Redirection to Intraway IVR
 - Guarantee in the Quality of the Installation
 - MTA Activation
 - Notification to the Management System
 - Methods of Automatic Activation of MTAs
 - Model Demonstration

- ❖ Course summary, group work

Intraway Advanced Internals – Cable Edition

Audience

This course is designed for the staff that operates and manages the NOC. Its content is highly useful for those revising the last line of internal support of the company, before getting in touch with Intraway Technical Support.

Requirements

The attendees must have completed or have the knowledge given by the “Intraway Provisioning Suite – Cable Edition” course.

Objectives

The objective of the course is to acquire advanced knowledge of the functioning of DOCSIS and PacketCable Provisioning Devices, in order to ease and speed up the solution of complex problems, taking into account the following milestones:

- Understand the specification of DOCSIS and PacketCable Provisioning
 - Identify abnormalities in the provisioning process
 - Learn how each one of Intraway services work
 - Use and know the functioning of Intraway modules and advanced functionalities, including firmware management, fraud control and network monitoring
 - Learn to solve problems and the most complex situations
 - Know the Integration methodologies with the CRM
-

Continues on the next page

Intraway Advanced Internals – Cable Edition, *Continued*

List of Topics

Day 1

- ❖ DOCSIS and PacketCable Configuration
 - DOCSIS and PacketCable Network Topology
 - Networks in DOCSIS Implementations
 - Advanced Multi-ISP Configuration
 - Geographic Distribution
 - Different DHCP Servers Support
 - Registrar Cisco Network
 - Incognito IP Commander
 - ISC DHCP
 - SNMP Poller Distribution
 - Network Element Management
 - CMTSs
 - Groups of CM, CPE and MTA Networks
 - Softswitches Management
 - Temporal Numbers for Self-Provisioning Management
 - Service Packages Management
 - Kinds of DOCSIS 1.0 Service
 - Service Flows and Service Classifiers de DOCSIS 1.1 and 2.0
 - IP Filters, LLC Filters and Management License via SNMP
 - Personalized and Proprietary SNMP Commands
 - Configuration Proprietary Commands (TLV43)
 - Firmware Management
 - Specific Configuration of MTAs through Model and Firmware
 - Examples and Group Work

Continues on the next page

Intraway Advanced Internals – Cable Edition, *Continued*

List of Topics (*Cont.*)

Day 1 (*Cont.*)

- ❖ DHCP, TFTP and SNMP Backend Servers
 - DHCP Server
 - Basic Packet and Options
 - Deep Inspection of DHCP Options
 - SNOOP and DHCP DUMP Examples
 - Initialization of a Cable Modem and a CPE
 - Register of Events in Intraway
 - LOGs Analysis
 - DHCP Lease Query
 - Dynamic DNS
 - TFTP Server
 - DOCSIS and PacketCable Configuration Files
 - DOCSIS and PacketCable Format
 - Types, Subtypes and Message Integrity Check
 - File Codification and Decodification Applicatives
 - SNMP Provisioning Server
 - TFTP/SNMP Server
 - Auto-Provisioning and Self-Provisioning
 - LOGs Follow up
 - PacketCable Configuration File
 - Cable Modems Problem Solution
 - CPE Problem Solution
 - MTA Problem Solution
 - Configuration Files Analysis Specification
 - Group Work

Continues on the next page

Intraway Advanced Internals – Cable Edition, *Continued*

List of Topics (*Cont.*)

Day 2

- ❖ Network Monitoring
 - Alarms and Events
 - CMTS, Upstreams, Downstreams and Nodes
 - Upstreams Saturation
 - Cable Modems out of Range
 - Preactive Action Report
 - IP Addresses Usage
 - Model Demonstration

- ❖ Network Behavior
 - Managing the DHCP Server
 - DHCP Server Redundancy
 - What to do in case of Leases Base loss
 - Automatically deactivated Leases
 - Time Determination of Optimum Leases
 - Network Maintenance
 - Maintenance Procedures
 - Network Maintenance Considerations

- ❖ Security and Fraud Control
 - Network Risks
 - Attacks in Service Negation
 - CPE are attacking us!
 - Stolen Identity
 - Cable Modems doing Uncapping: Detection and Report
 - Cloned Cable Modems: Detection and Report
 - Cloned Cable Modems Eradication
 - Cable Modems Filter Control
 - Firmware Update
 - Model Examples

Continues on the next page

Intraway Advanced Internals – Cable Edition,

Continued

List of Topics (*Cont.*)

Day 3

- ❖ Integration with the Systems Passed on by Management and Billing (CRM)
 - Intraway Interfaces
 - Interfaces Architecture and Types of Communication
 - Introduction to Intraway Web Service
 - Spaces and Products
 - Commands Queries
 - Interfaces Propagation
 - Fixed Parameters
 - Variable Parameters
 - Data Flow and Real Examples
 - Real Exercises in Models

 - ❖ Intraway Deployment
 - System Platform
 - Recommended Platform
 - Supported Hardware
 - Supported Operative Systems
 - Data Base
 - Data Base Administration
 - Basic Requirements for Monitoring
 - Available Redundancy Strategies and Recommended
 - Backup Strategies
 - Schemes used by Intraway

 - ❖ Technical Support and Maintenance
 - Description of Hired Service
 - What it is and what it is not included
 - Intraway On line Technical Support System
 - Tickets Management
 - How to Determine the Severity of a Problem
 - Information that must be provided
 - Remote Access to Client System
 - New Capacities Requirements
 - Follow up and Closure of a Requirement

 - ❖ Group Work
 - ❖ Planning and Debate of Real Problems
 - ❖ Course summary
-