Hands-On

SNMP

Simple Network Management Protocol

Course Description

In this Hands-On SNMP program, the student will work on alive SNMP network reinforcing the discussed subject material . All the various concepts, techniques, terminology, conventions, and components of SNMP will be discussed with the focus on making the student productive in his/her network environment.

Now, SNMPv3 training, Simple Network Management Protocol Version 3 introduces the fundamentals of network management, SNMP, SNMPv2, SNMPv3 and RMON 1, and RMON 2. It details the technology fundamentals of SNMP, SNMPv2, SNMPv3, and RMON 1 and 2 by explaining whats behind this family of popular networking standards.

SNMPv3 provides the details on secure access to devices by a combination of authenticating and encrypting IP packets over the network. It details SNMPv3s Message integrity, Authentication, and Encryption features.

Students Will Learn

- **Specify the motivation for SNMPv3 protocol**
- **Discuss the status of SNMPv3, related standards and key players**
- **Sketch SNMPv3 architecture and components**
- **Discuss key features of SNMPv3 such as Authentication, Privacy Services and Access Control**
- **List key concepts and operations of SNMPv3**
- **Devise a strategy for deploying SNMPv3**
- **Examine the key differences between SNMPv1, 2 and 3 technologies**
- **And more...**

Target Audience

This course is primarily intended for anyone interested in a practical understanding of the architecture, attributes and features of the SNMPv3

Prerequisites

A basic understanding of TCP/IP networking concepts and terminology, would be beneficial.

Course Outline

Introduction

- Network Management Fundamentals
- Network Management Requirements
- Network Management Systems
- Network Monitoring Architecture
- Performance Monitoring
- Fault Monitoring
- Accounting Monitoring
- Network Control
- Configuration Control
- Security Control

SNMP Basics

- Simple Network Management Protocol
- SNMP Network Management Concepts
- SNMPv1
- SNMP Management Information
- Structure of Management Information
- Data Types
- Structure of Management Information (SMI)
- Textual Conversions
- SNMPv1 Operations
- Upper Level Protocols

Standard MIBs

- Basic Concepts
- Ethernet Interface MIB
- MIB-II Protocol Specification
- Transport-Level Support
- System Group
- Interfaces Group
- IP Groups
- ICMP Group
- TCP Group
- UDP Group
- Transmission Group
- SNMP Group
- Extensions to MIB-II

Remote Network Monitoring (RMON)

- Basic Concepts
- statistics Group
- history Group

- host Group
- hostTopN Group
- matrix Group

Remote Network Monitoring: Alarms and Filtering

- alarm Group
- filter Group
- Packet capture Group
- event Group
- Practical Issues

RMON2

- Overview
- Protocol Directory Group
- Protocol Distribution Group
- Address Map Group
- Application Layer Host Group
- RMON2 Host Groups
- RMON2 Matrix Groups
- User History Collection Group
- History Collection Group
- Probe Configuration Group
- Extensions to RMON1 for RMON2 Devices
- Practical Issues

SNMPv2

- Background
- Structure of Management Information
- SNMPv2 Protocol
- Protocol Operations
- Transport Mappings
- Coexistence with SNMPv1

MIBs and Conformance

- SNMPv2 Management Information Base
- Conformance Statements
- Evolution of the Interfaces Group of
- MIB-II

SNMPv3 Framework

- Architecture Overview
- New Textual Conventions
- The snmpEngineGroup
- SNMPv3
- Message Format
- Additional SNMP Statistics Reports

Cryptographic Algorithms in SNMPv3

- Conventional Encryption with DES
- The MD5 Secure Hash Function
- The SHA-1 Secure Hash Function

- Message Authentication with HMAC

SNMPv3: Architecture and Applications

- Background
- SNMPv3 Overview
- SNMP Architecture
- SNMPv3 Applications
- MIBs for SNMPv3 Applications

SNMPv3: Message Processing

- User-Based Security Model
- Message Processing
- The SNMPv3 User-Based Security Model

SNMPv3 View-Based Access Control

- The VACM Model
- Access Control Processing
- The VACM MIB
- vacmContextTable
- vacmSecurityToGroupTable
- vacmAccessTable
- vacmViewTreeFamilyTable
- Configuring the VACM MIB

SNMPv3 Applications

- Command Generator Applications
- Command Responder Applications
- Notification
- Originator Applications
- Notification Receiver Applications
- Proxy Forwarder
- Applications
- MIB Tables for Configuring Notifications and Proxy Forwarding

SNMPv3 Security

- Authoritative and Non-authoritative
- Security ParametersDiscovery
- Timeliness
- Keys
- USM MIB
- Authentication
- Privacy
- Final Thoughts

Coexistence Issues

- Proxy Issues
- Supporting Multiple Message Processing Models

Delivery Method

Instructor-Led with numerous exercises throughout the course.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

2 Days