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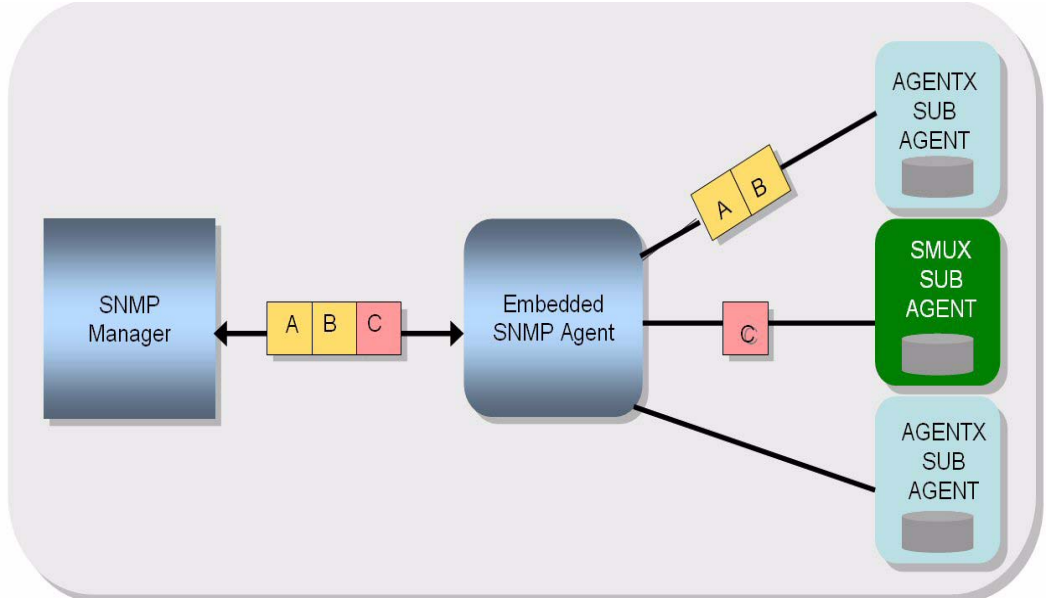
ZebOS®
Network Platform

SNMP Agent Modules

Overview

The ZebOS® Network Platform SNMP Agent Modules provides AgentX and SMUX-compatible modules. In typical kernel/user systems, an SNMP agent is often implemented as a user process that reads kernel variables in order to realize Internet-standard Management Information Bases (MIBs). This approach works well when all of the information needed by the SNMP agent either resides in the kernel or in stable storage. However, when a client employs other processes to implement other network services (such as ZebOS routing protocols), communication between the SNMP agent and other processes is problematic. The client can employ the SNMP Multiplexing (SMUX) protocol to solve this problem. When a user process (termed a SMUX peer) needs to export a MIB module, it initiates a SMUX association to the local SNMP agent, registers itself, and subsequently fields management operations for objects in a MIB module.

Additionally, it is possible to generalize the SNMP agent so that it knows only the SNMP group of the Internet standard MIB. All other portions of the standard MIB can be implemented by another process. This is useful when a computer manufacturer wishes to provide SNMP access for its operating system in binary form. The Agent Extensibility protocol (AgentX) performs the same functions as SMUX; however, it communicates between master agents and sub-agents, and implements elements of procedures by which the extensible agent processes SNMP protocol messages. AgentX supports a master agent that is available in the standard transport address and accepts SNMP protocol messages, and a set of sub-agents that each contain management instrumentation.



SNMP Agent Modules

Features

- Accepts AgentX session establishment requests and registration of MIB regions by subagents
- Sends and accepts SNMP protocol messages on the agent's specified transport addresses
- Implements the agent role Elements of Procedure specified for the administrative framework applicable to the SNMP protocol message
- Provides instrumentation for the MIB objects defined in RFC 1907, and for any MIB objects relevant to any administrative framework it supports
- Sends and receives AgentX or SMUX protocol messages to access management information, based on the current registry of MIB regions
- Forwards notifications on behalf of subagents

ZebOS Protocol Modules can now act in a subagent role to perform the following functions:

- Initiate AgentX sessions and register MIB regions with the master agent
- Instantiate managed objects
- Bind OIDs within its registered MIB regions to actual variables
- Perform management operations on variables
- Initiate notifications

Benefits

- Interoperable with major router vendors
- Can be used in embedded equipment and on standard server platforms
- Enables implementing any embedded SNMP Agent that supports either AgentX or SMUX
- Other system specific process can easily add ZebOS SMUX/AgentX glue code to create additional subagents as required.

Requirements

- ZebOS Network Services Module
- ZebOS SNMP AgentX Module

Standards Support

- RFC 1227 — SNMP MUX Protocol and MIB
- RFC 2747 — Agent Extensibility (AgentX) Protocol Version 1

Standard Deliverables

- Source Code (written in ANSI compliant C)
- Installation Guide
- Command Reference Guide
- Configuration Guide
- Developer Guide