EVLA Monitor and Control

Monitor & Control Slot – ID

Slot – ID

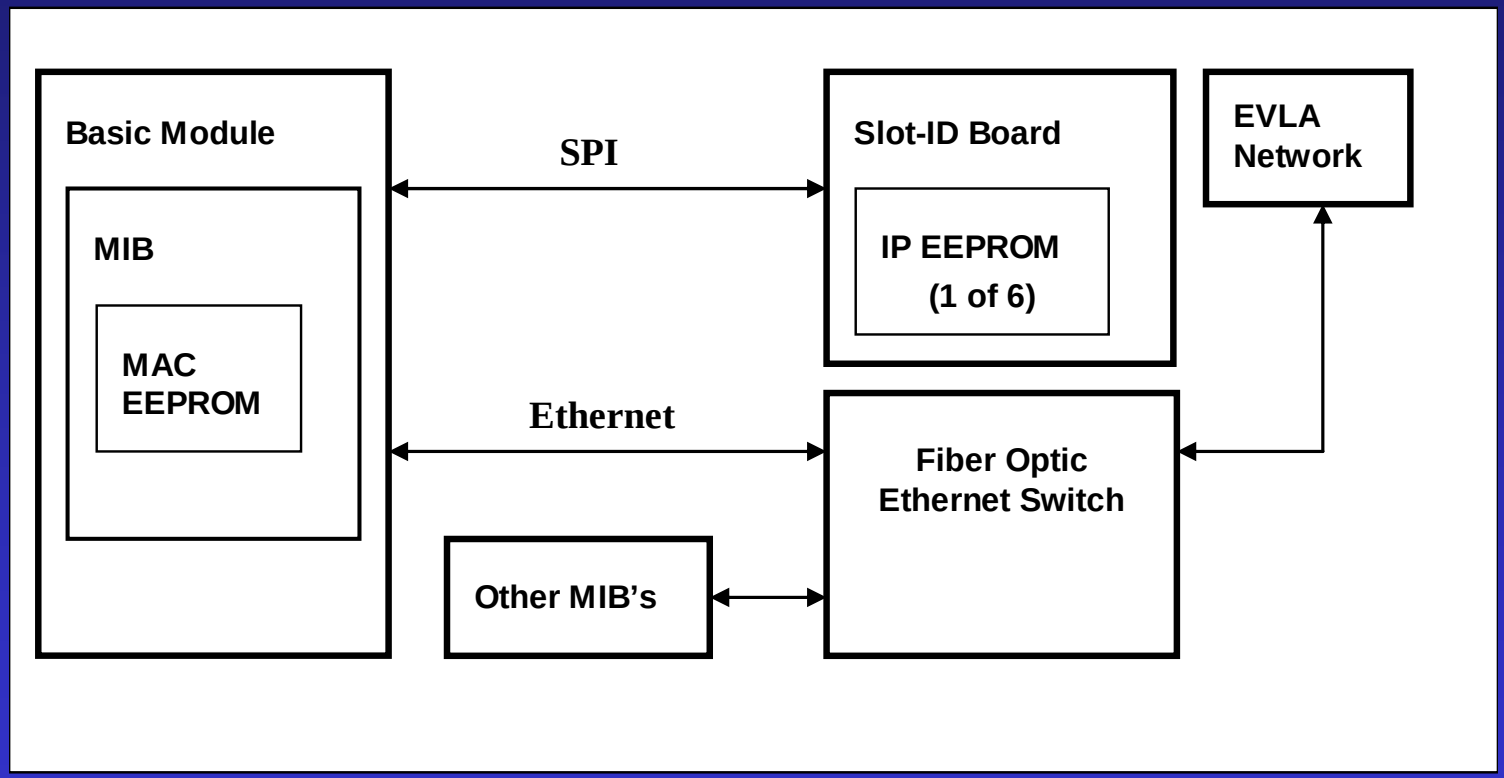

Figure 1: Basic MIB Network Block Diagram

Media Access Control

- Ethernet – Communication Method
  - IEEE Standard 802.3
  - Organizationally Unique Identifier (OUI)
    - NRAO Bought an OUI From IEEE
  - Ethernet Frame Utilizes MAC Addresses
    - Three Byte OUI + Three Byte NRAO

    MIB ID Makes ~16 Million MAC Addresses

Internet Protocol (IP)

- Ethernet Transports the Internet Protocol
  - IP Requires Addresses
    - IP Addresses Defines IP Networks
  - Defined Networks are More Maintainable
  - Slot – ID Simply Provides IP Addresses
    - Controls the IP Address at Known Locations and for Known Devices

Internet Protocol (IP)

- Three Locations
  - IP Address Consists of Four Bytes or Levels
  - Top Level
    - Value = 10 (Private NRAO Network)
  - Second Level
    - Value = 64 (AOC) or 80 (EVLA Site)
  - Third Level
    - Values Define Antenna, Master Rack, Test Bench, or Other Locations

Internet Protocol (IP)

- Device
  - Fourth Level
    - Value Defines Devices
  - Examples
    - ACU at EVLA Antenna 13 (10.80.113.128)
    - ACU at AOC Antenna 13 (10.64.113.128)
    - ACU at EVLA Test Rack (10.80.99.128)
    - ACU at AOC Test Rack (10.64.99.128)

Slot – ID

- Why Slot – ID?
  - Maintains a Structured Network
  - No Operator IP Table Reprogramming
  - Allows Easy Module Exchange
  - Provides Maximal Information of Slot
  - Flexibility for Operations and Testing Modes

Slot – ID

Table 1: ACU Slot-ID Example

Address	Data
0x0000	0x0A, 0x50, 0x65, 0x80 (10.80.101.128) ACU IP
0x0004	0x0A, 0x50, 0x65, 0x01 (10.80.101.1) Antenna Gateway IP
0x0008	0x0A, 0x50, 0x01, 0x1F (10.80.1.31) Secondary DNS IP
0x000C	0x92, 0x58, 0xC9, 0x08 (146.88.201.1) Main DNS IP
0x0010-0x00FF	N/A
0x0100	'ACU', 0x00
0x0104	'Antenna 1', 0x00
0x010E	'Revision: -', 0x00

Slot – ID

- RFI Issue
  - ➢ D301 Through D304 Have 2 GHz Clocks
    - ◆ Minimal Module Penetrations
    - ◆ Slot – ID Internal to These Modules
  - ➢ Slot – ID Can't Provide Full IP Addresses
    - ◆ How Slot – ID Works for This Case is Still to be Determined

Naming Convention

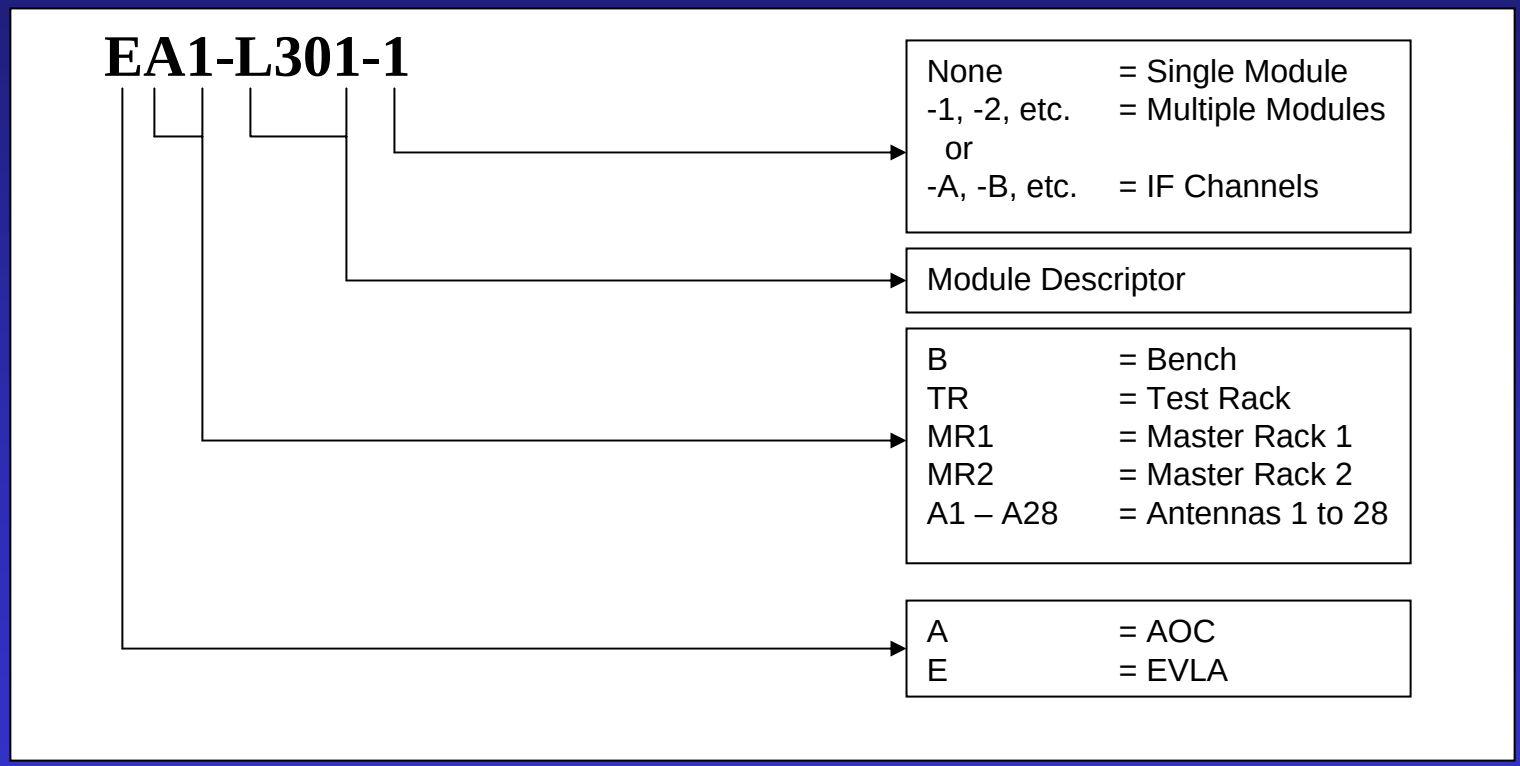

Figure 2: Naming Convention Breakdown

Naming Convention

- Naming Convention
  - Slot – ID = Simple Name Server Table
  - Quick Name Server Table Updates
  - Don’t Need to Remember Raw IP Addresses
  - Provides Module Access Not System