

# *The Expressway to ATCA Platform Integration*

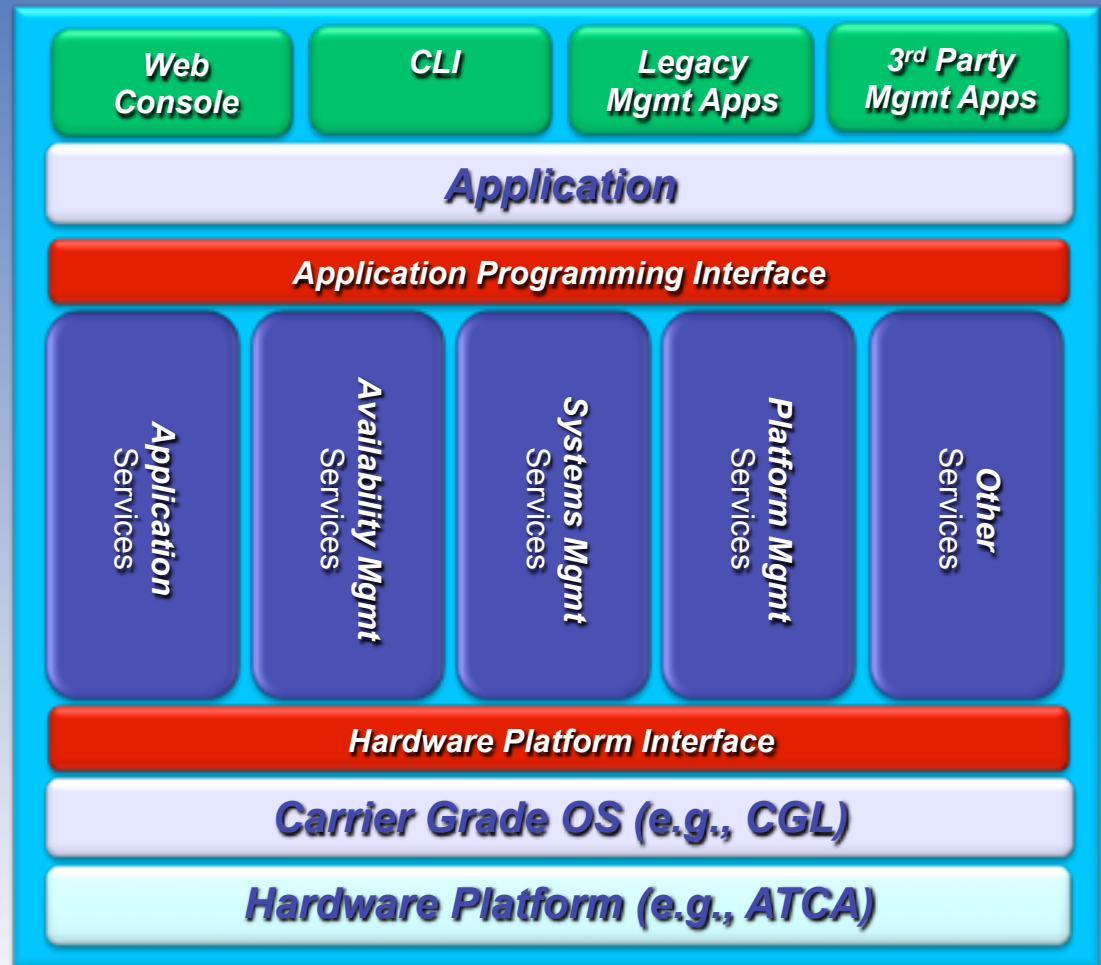
**Dr. Asif Naseem**

President & COO, GoAhead Software

President, Service Availability Forum

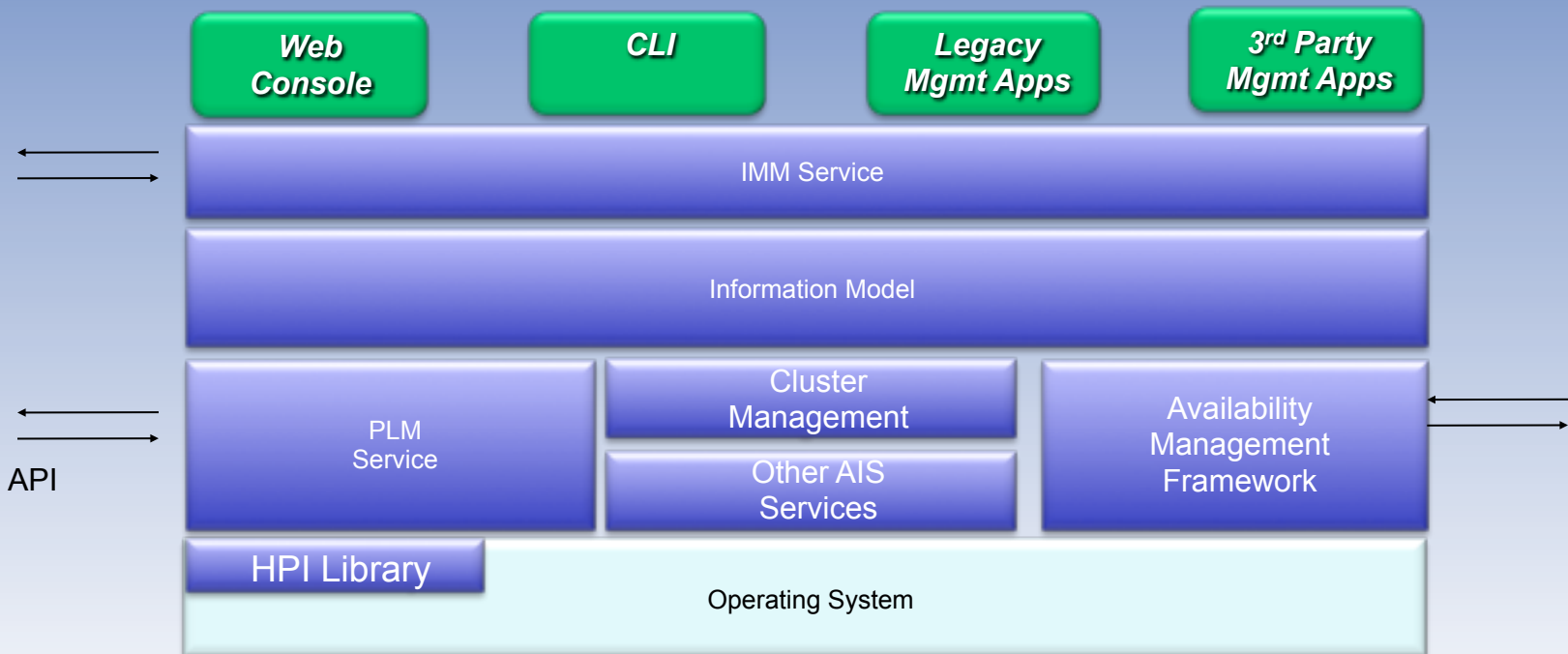
# An Application Ready Platform

- Platform integration
  - Resource discovery
  - Mapping to Information Model
  - Dynamic reconfiguration
- Consistent system view
  - Hardware, software
  - Multiple interfaces
- Rich application development environment
  - Frameworks
  - Services
  - Development aids



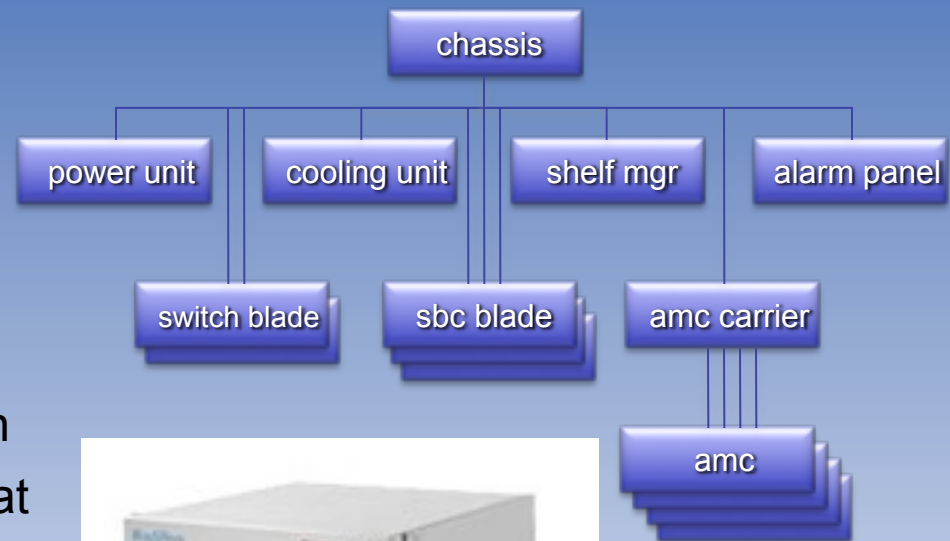
# PLM Enhances Platform Integration

- SA Forum Platform Management Service
  - Standards-based service
  - Consistent with, and interoperates with, other AIS services (IMM, AMF, SMF, etc.)



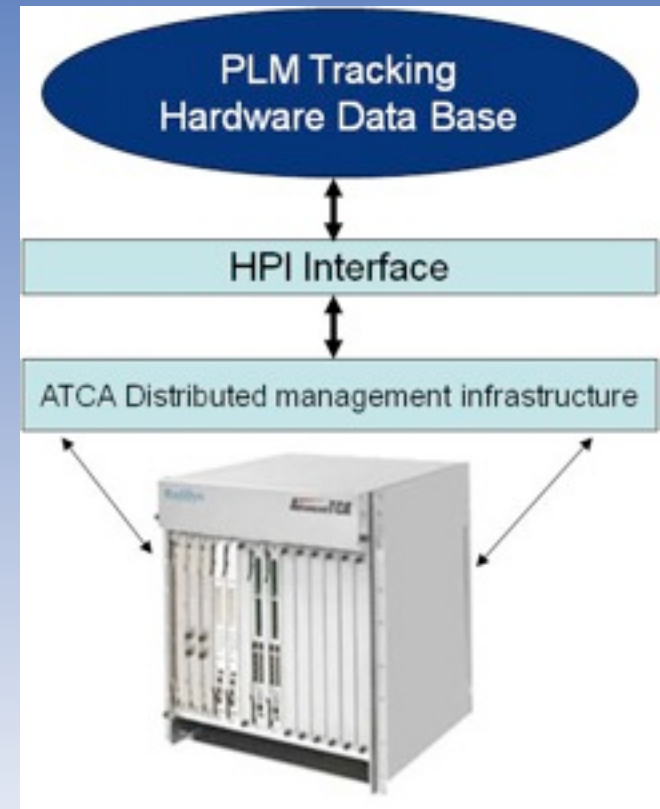
# Bridging the Hardware & Software Views

- Information model for hardware components
- Status coordination
- Status notification
- Readiness tracking service
  - Real-time status change information
  - Approval/Rejection of operations that may impact service availability

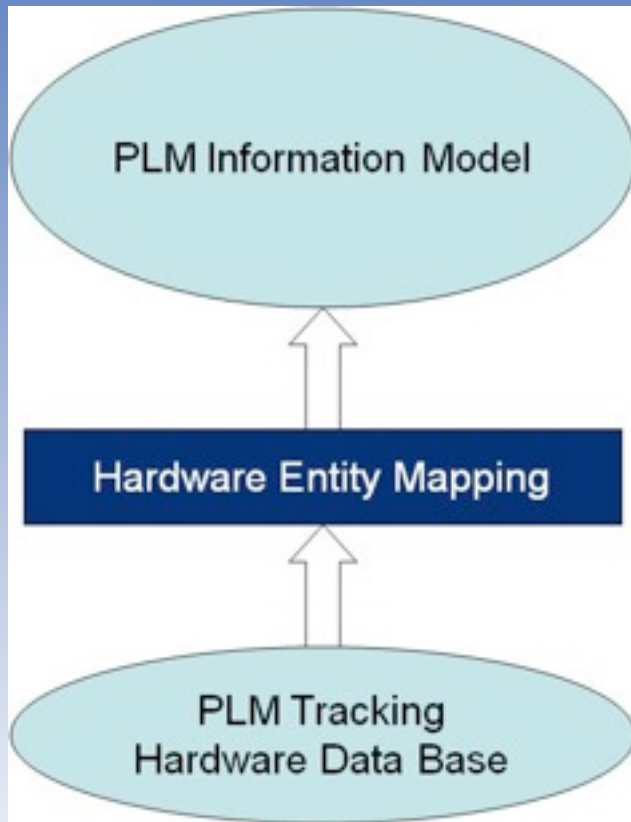


# PLM Operation

- HPI Discovery and Hot Swap Tracking
  - Collects inventory of all hardware
  - Monitors for hot swap of hardware entities
- HPI Alarm Tracking
  - Collects sensor data from selected sensors
  - Monitors for sensor events

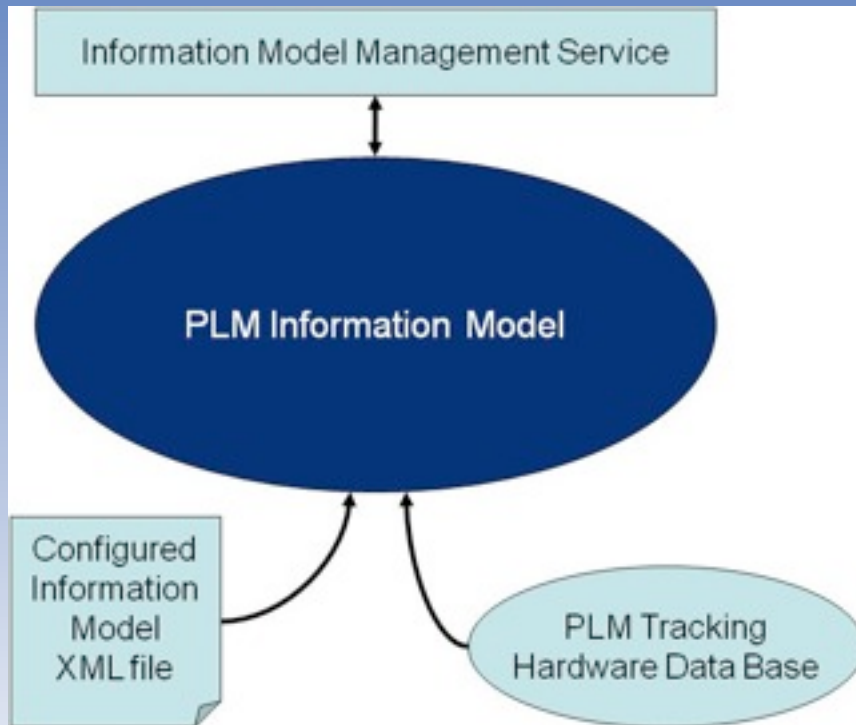


# PLM Operation: Hardware Entity Mapping



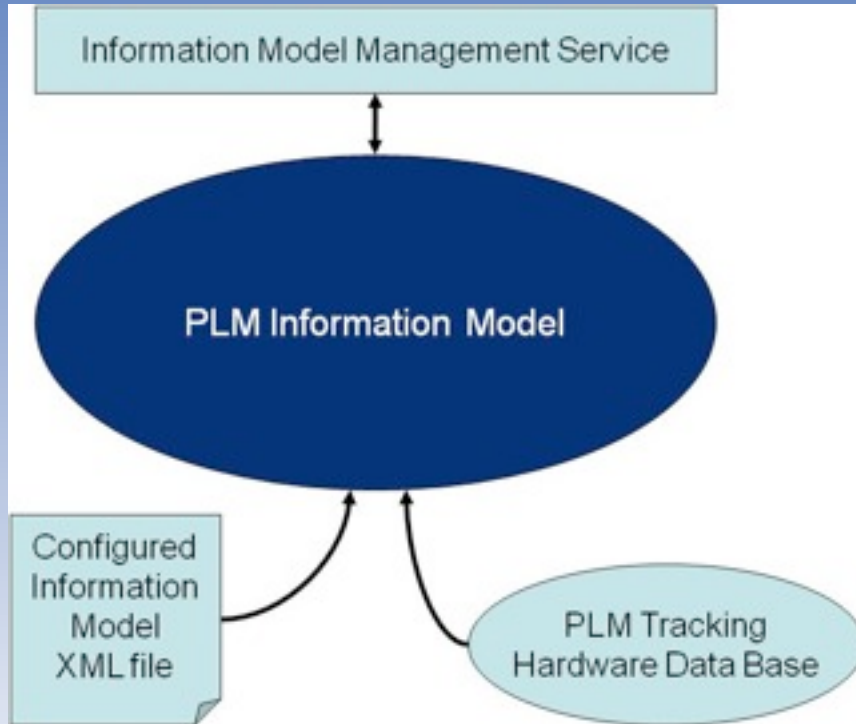
- PLM Analyzes discovered hardware and maps it to configured Information Model
- Mapping based on
  - HPI Entity Paths
  - Hardware Inventory Data
- Mapping may be “tight” or “loose”
  - System Integrator can choose to map hardware inserted in any slot or only specific slots
  - A variety of individual blades can be recognized as a single logical type
- When Hardware discovered that cannot be mapped:
  - May be configured to automatically add to PLM information model (auto-provisioning)
  - May be configured to generate Unmapped Entity Notification

# Hardware Element Objects tracked with ITU-style state Model



- **Presence State** – Is hardware physically present and activated
- **Administrative State** – Is hardware administratively prohibited from being activated or used
- **Operational State** – Is hardware in working condition or faulted
- **Readiness State** – Is hardware available for use (summary of other states of this object and other objects on which this object depends)
- **Readiness Flags** – Additional information to report:
  - Out of service due to dependencies
  - Impending Failure detected
  - Impending Failure of dependencies
  - Management capability lost

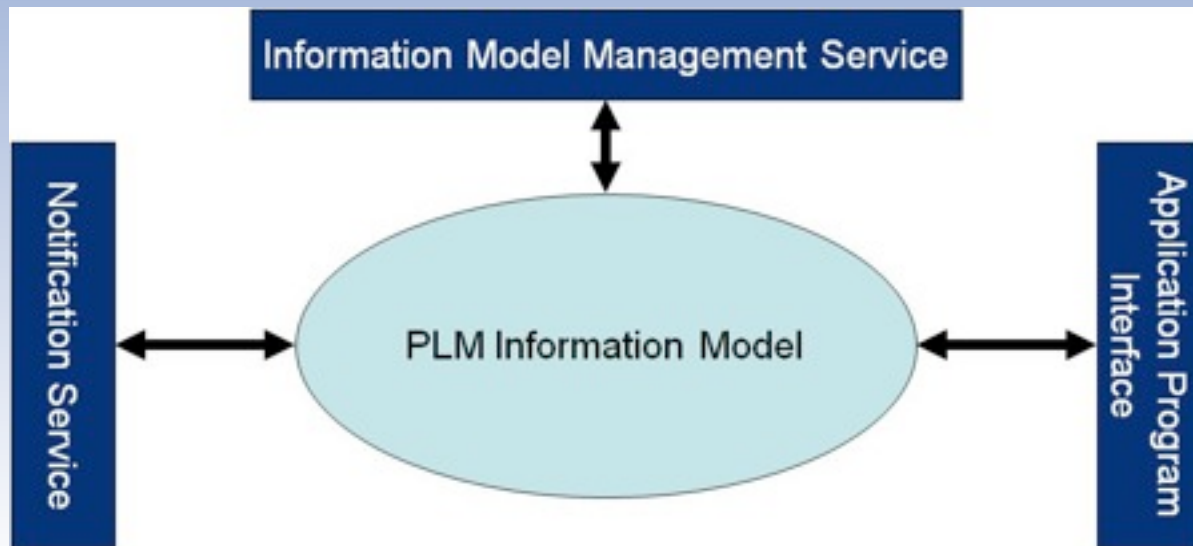
# Dependency Configuration



- Hierarchical HE structure has implicit dependencies defined by parent/child relationships
- Additional Configured dependencies can be defined among any objects
  - One-on-one
  - All-of-a-group
  - One-of-a-group
  - N-of-a-group
- State changes automatically propagated through dependencies
- Availability Analyses take implicit and configured dependencies into account

# PLM Interfaces

- All PLM Interfaces are standards-based
  - SA Forum specified interfaces
  - Based on ITU standards
  - Three main user/management interfaces



# Summary

- PLM is an important new service in the AIS suite
- Comprehensive, standards-based approach to hardware platform management
- Analyzes discovered physical hardware and maps it to a logical information model
- Permits management through the information model
- Standard north-bound interface available for integration with legacy or 3<sup>rd</sup> party management applications
- Designed to cooperate fully with availability management for non-stop computing applications
- Includes APIs permitting full availability analysis of proposed system reconfiguration actions to help prevent system outages
- Useful without availability management as a framework for platform management of bladed systems