OpenSAF™

The Open Service Availability Framework

OpenSAF Management Today & Tomorrow

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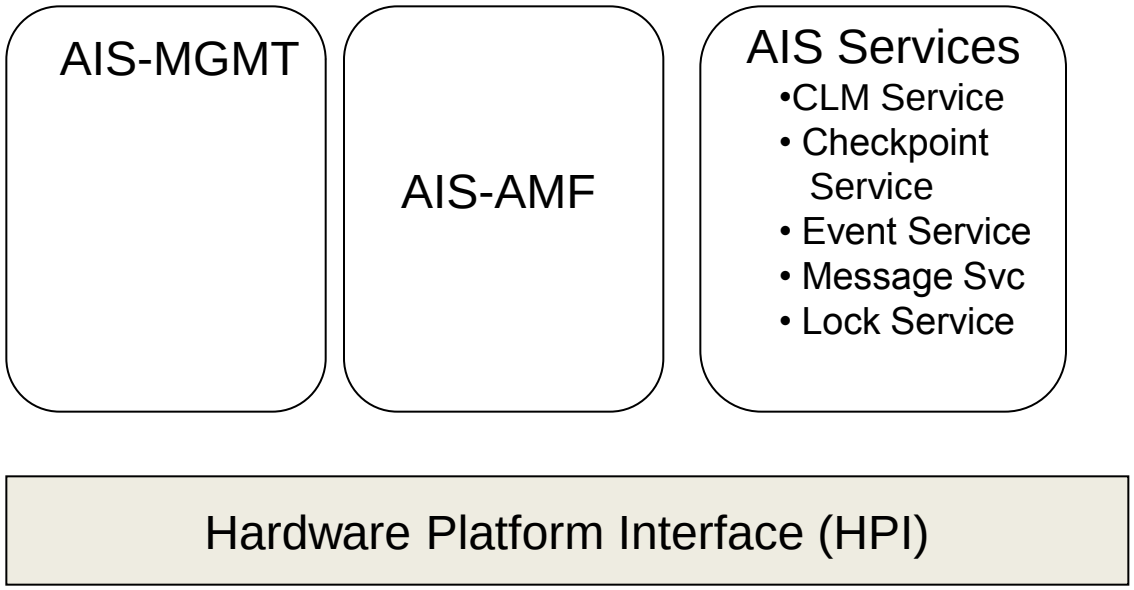
GoAhead Software

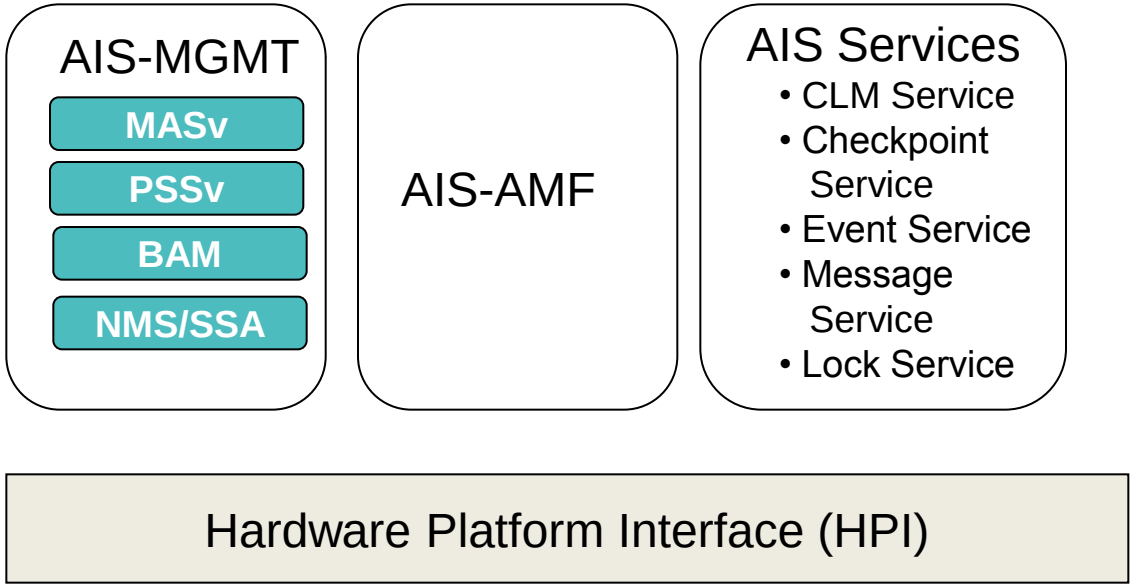
Agenda

- A very brief History of Management Services in SAF
- A quick overview of IMM service
- Applications using IMM
- Working with various Management clients
- Brief about LOGSv
- Brief about NTFSv

SAI-Overview-A.01.01



OpenSAF 1.x/2.x



SAI-Overview-B.05.01

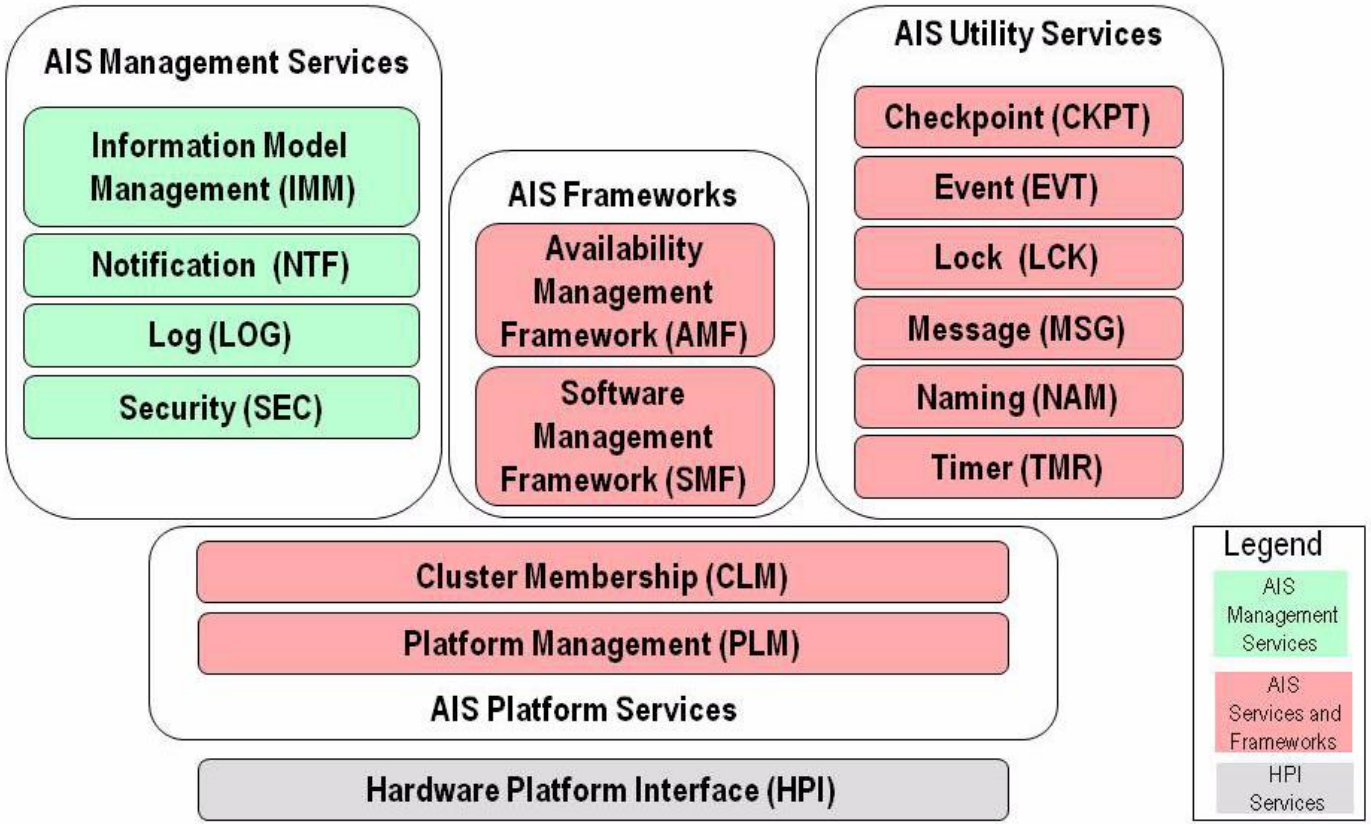
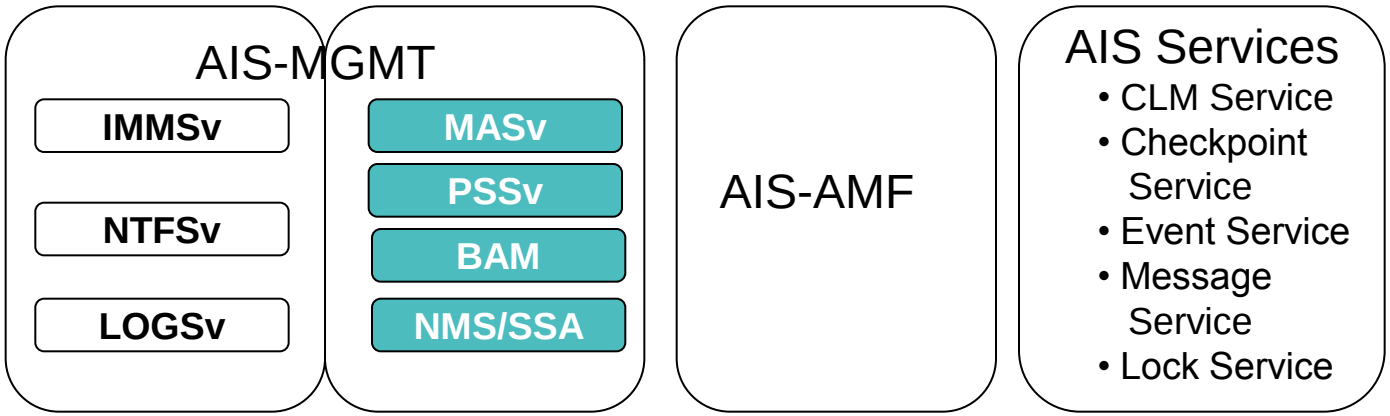


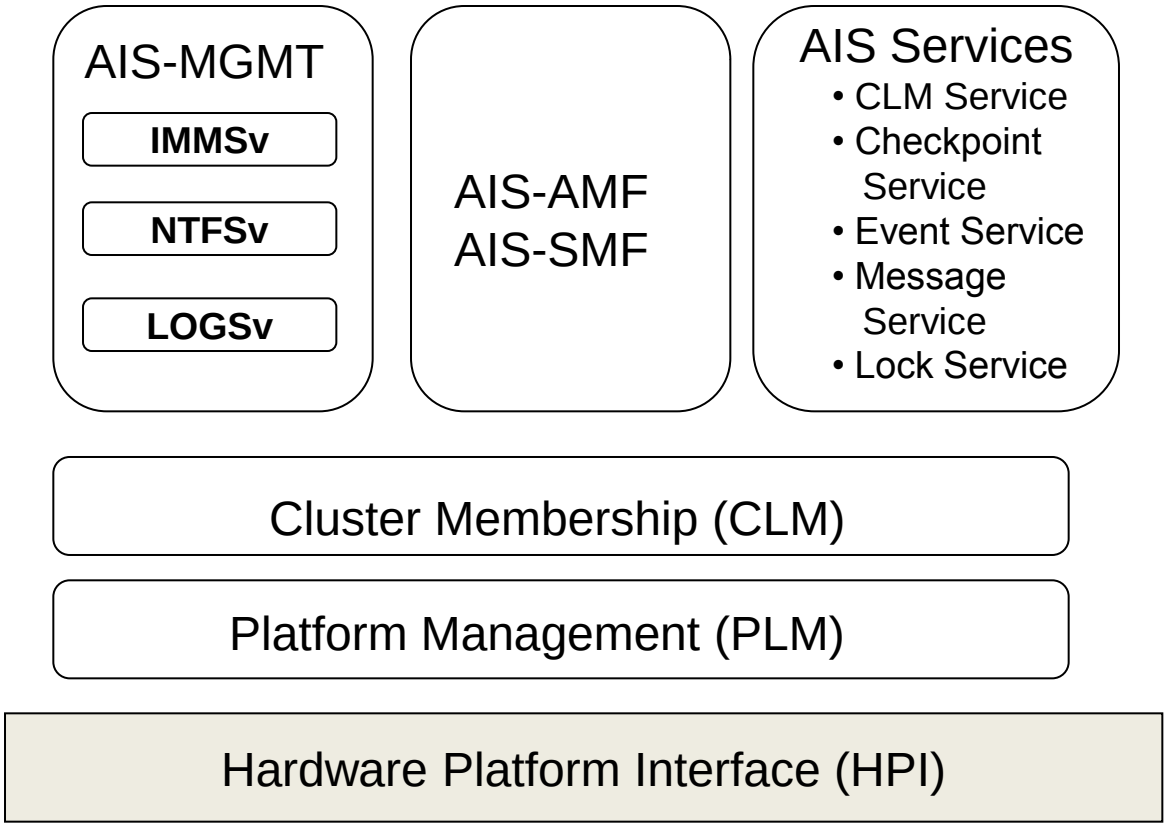
Figure 2: Overview of HPI and AIS Services of SAI-Overview-B.05.01 Section 3.2.2.2

OpenSAF 3.0



Hardware Platform Interface (HPI)

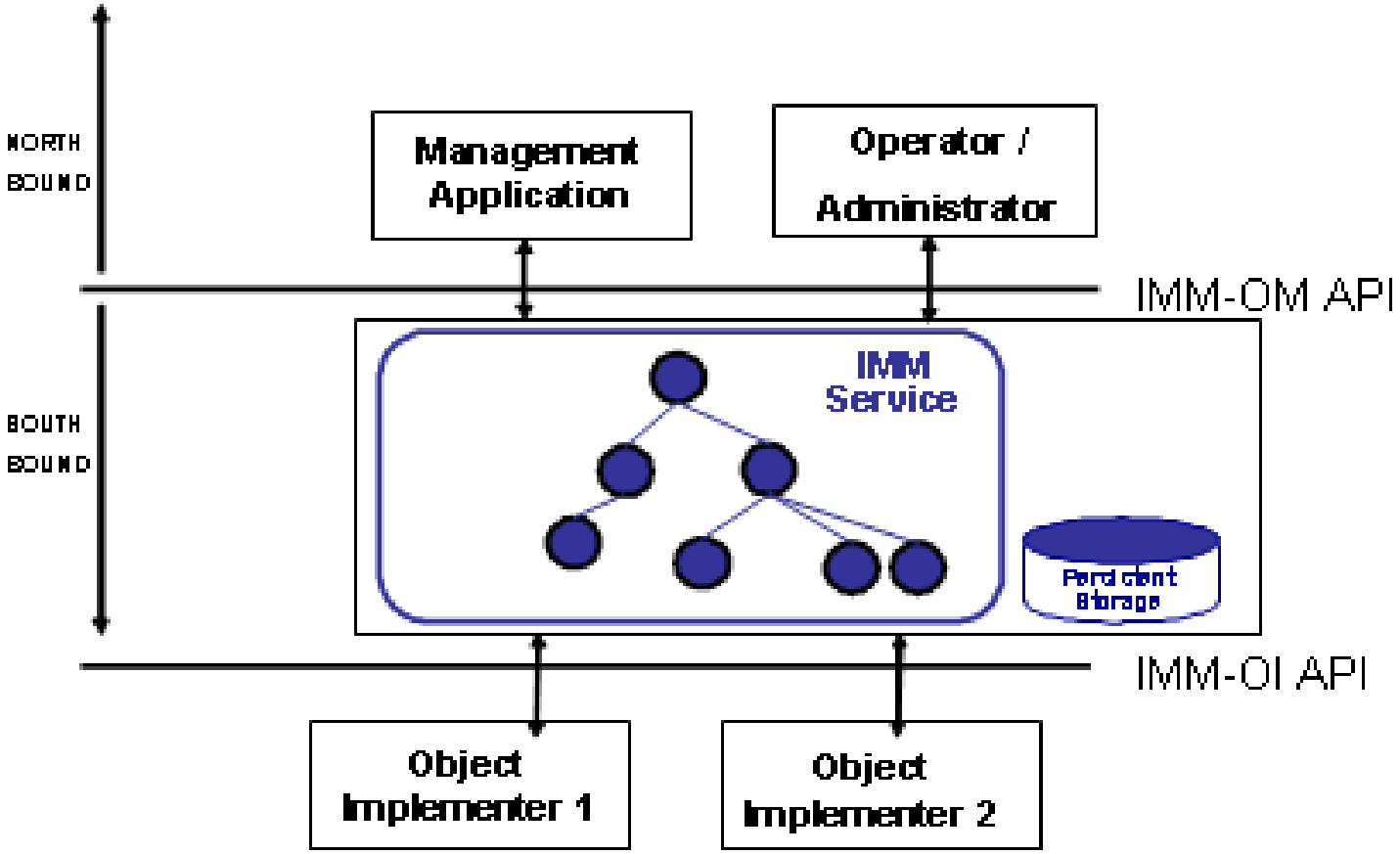
OpenSAF 4.0


AIS-MGMT
IMMSv
NTFSv
LOGSv
AIS-AMF
AIS-SMF
AIS Services
• CLM Service
• Checkpoint Service
• Event Service
• Message Service
• Lock Service
Cluster Membership (CLM)
Platform Management (PLM)
Hardware Platform Interface (HPI)

A brief about IMM

- IMM is an AIS Management Service, a SAF standard, should be used by the implementation of all AIS Services and applications.
- Information Model consists of managed objects indexed by distinguished name (DN) of each object
- Two types of managed objects: configuration and runtime
- Classes define the attributes of objects
- Persistent data backup using sqlite DB

IMM Service Interface



IMM API

- Manager (OM) API allows
  - Create Configuration Change Bundle – CCB
  - Group all Changes into CCB
  - Changes include create/delete/modify configuration objects
  - All changes are dealt as transactions.
- Implementer (OI) API allows
  - Process and Respond to CCB requests
  - Process and Respond to admin operations requests
  - Create/delete runtime objects
  - Modify/Update attributes of runtime objects

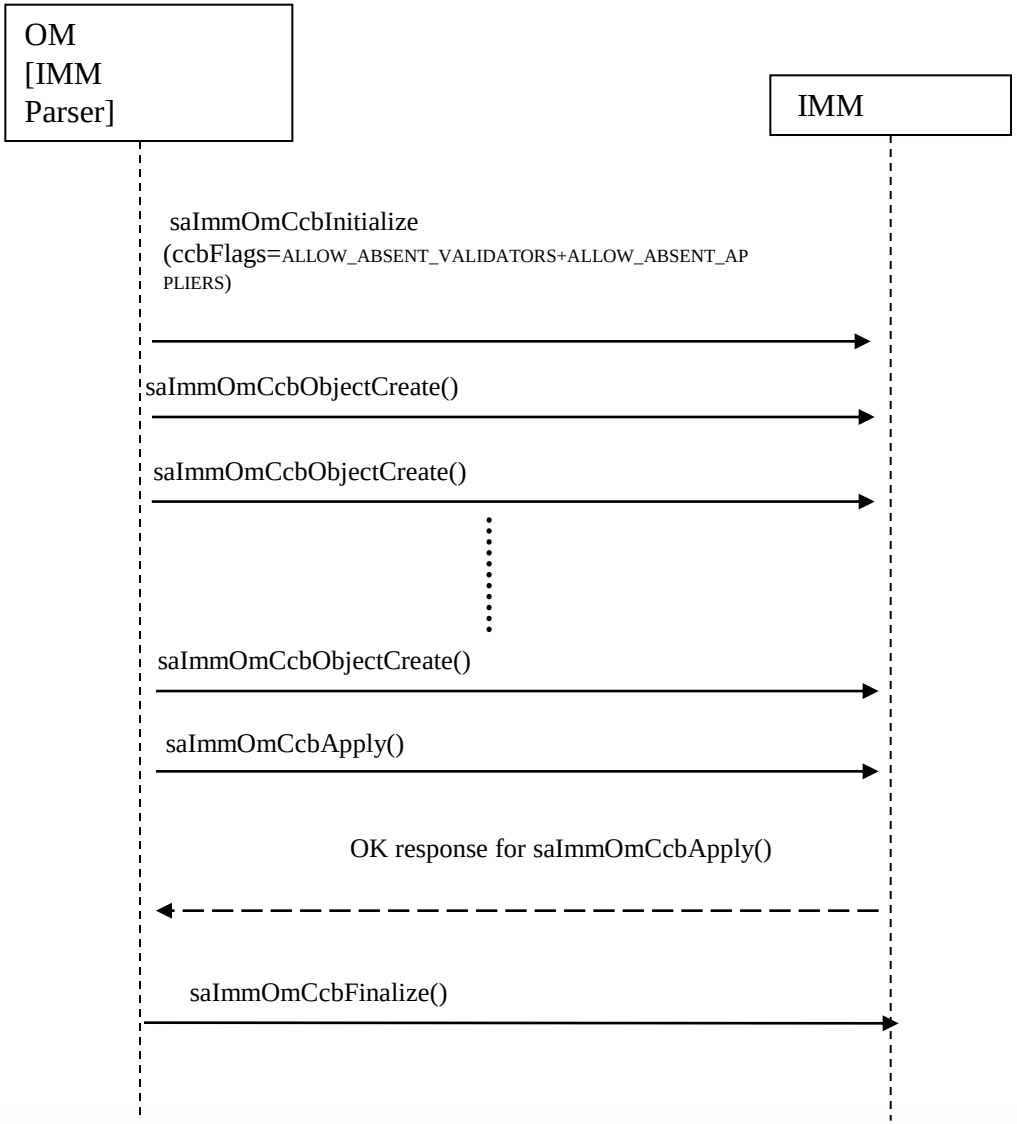
Configuring Applications using IMM

- Create class descriptions specifying proper characteristics to Attributes
  - Is it a Mutli Value attribute?
  - Is it a persistent
  - Config or Runtime
  - Writable (is it valid to modify after creation)
  - Cached
- Create configuration objects
  - Initial configuration information
- Add the above into imm.xml

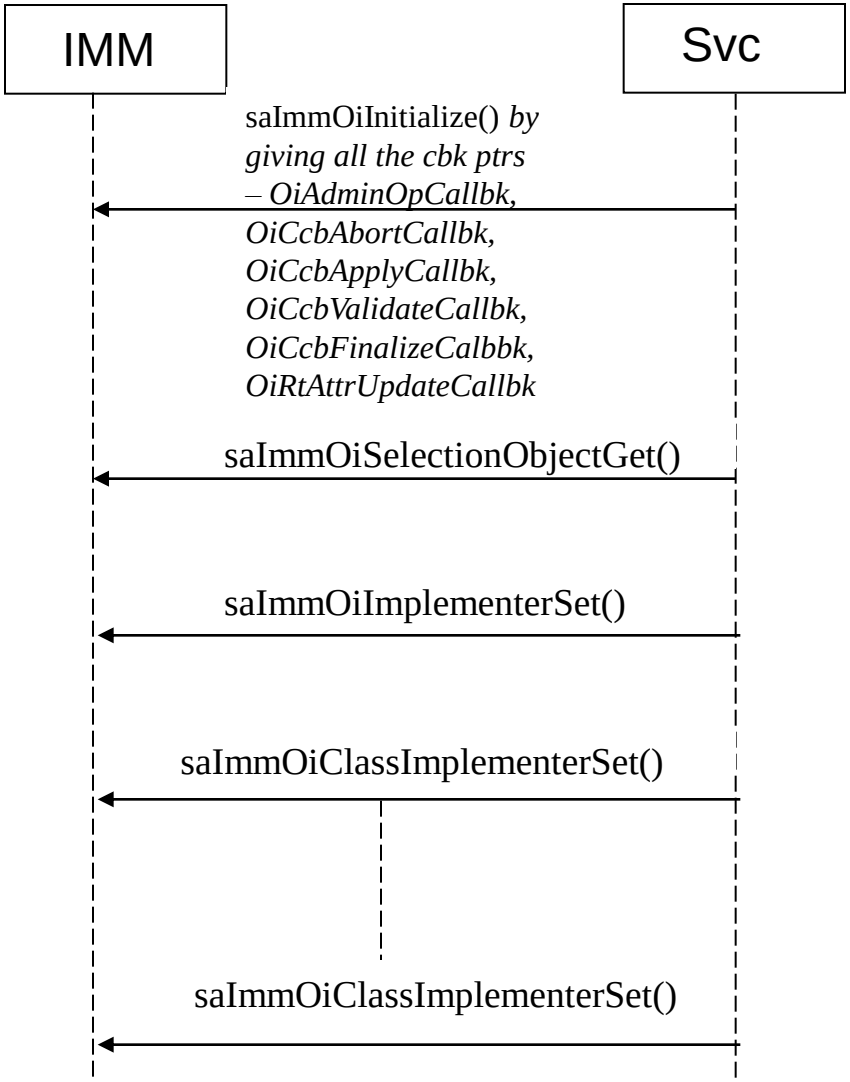
Applications Implementation using IMM

- Using the OM-API to get initial configuration in runtime
- Become class/object implementer using the OI-API
- Respond to all IMM callbacks
- Transition from MASv to IMM is not in-service upgradable.

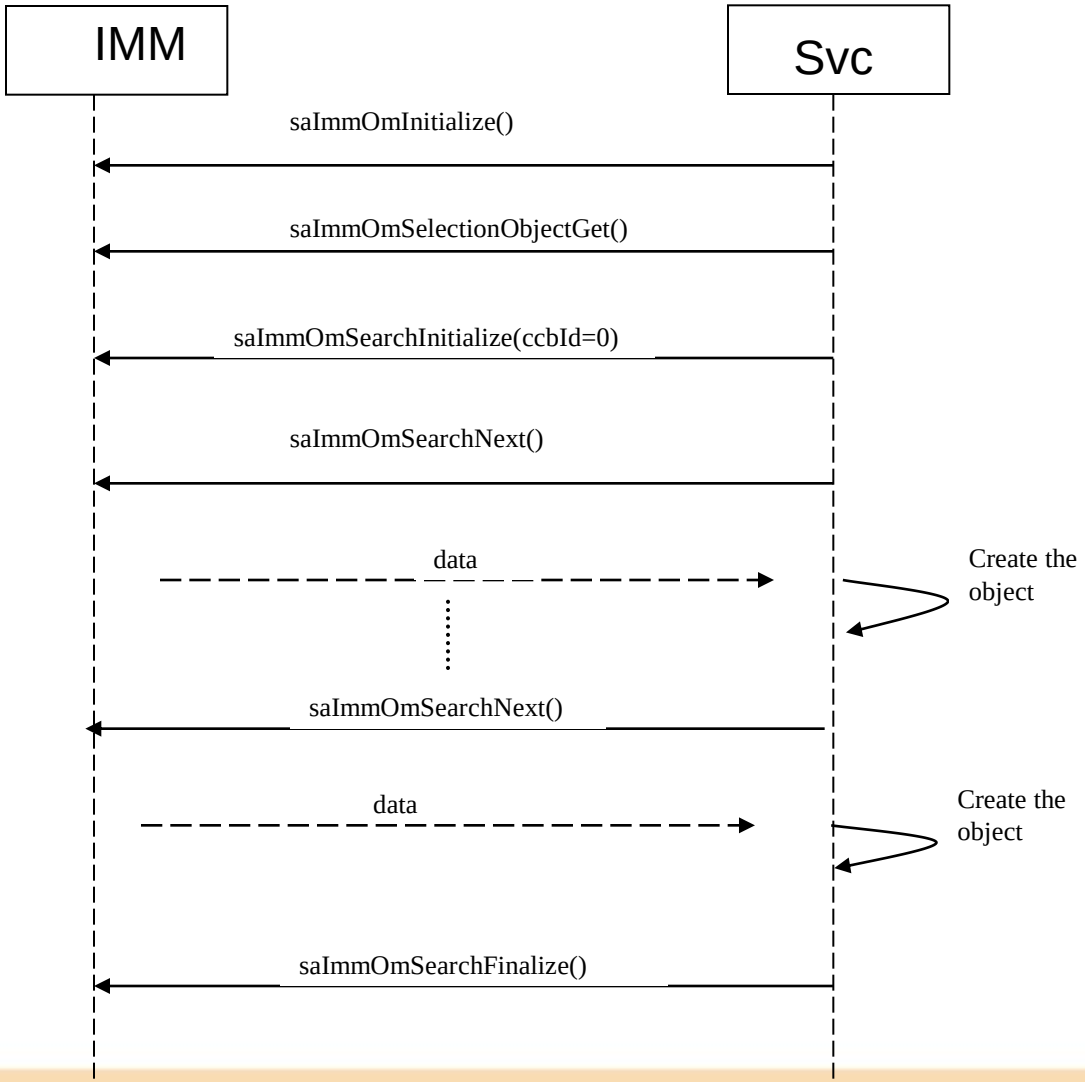
Creation of Objects in IMM



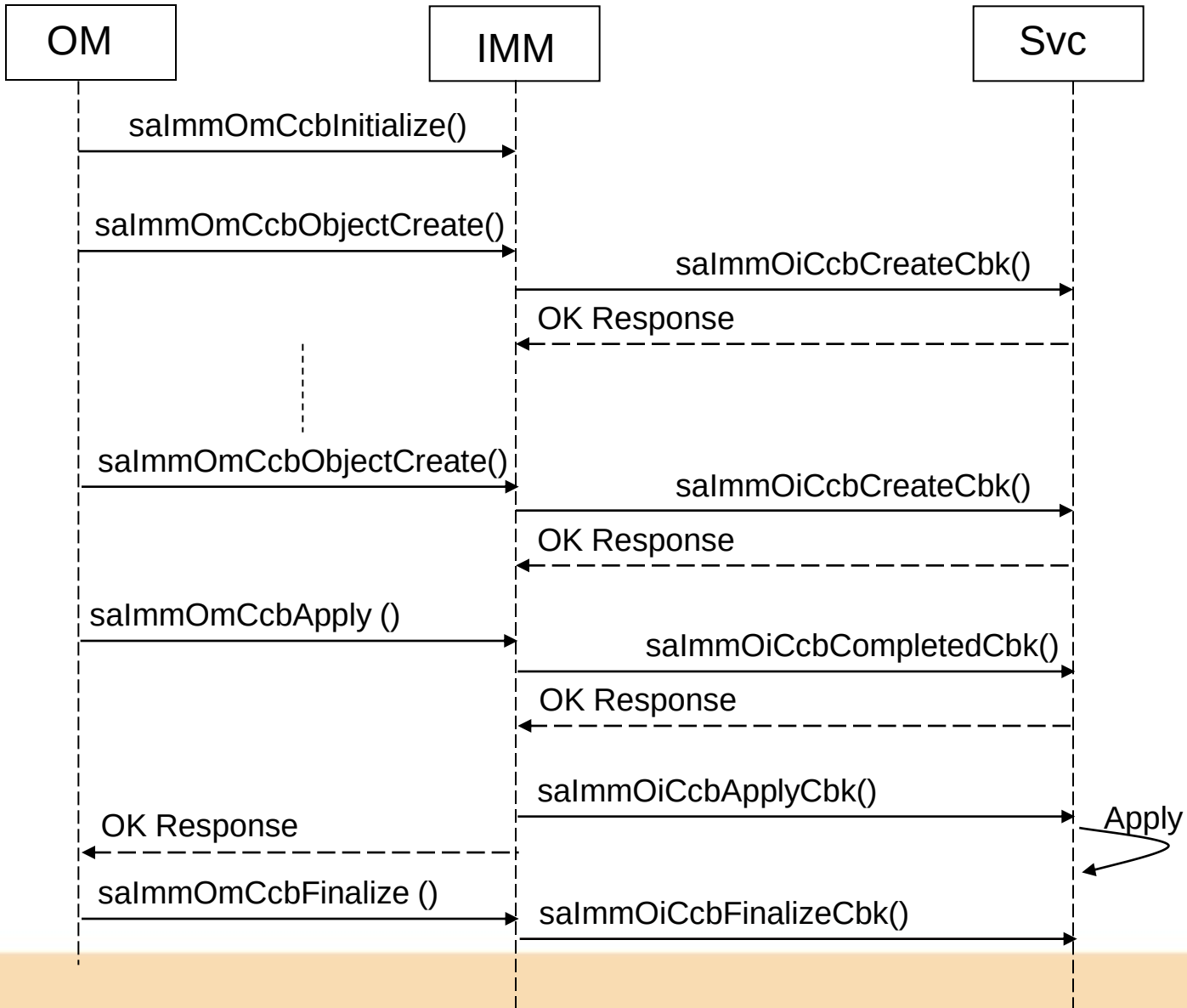
Services registering with IMM as OI



Svc retrieving objects from IMM as OM



Runtime configuration of Objects



Differences/Advantages

- MASv was MIB driven
- IMM is object driven (tools to convert mib to yang)
- Discrete commands to MAS
- Ability to bundle and handle as transactions by IMM
- All read/get operations have to land on Application
- IMM can offload Applications by handling read operations for cached data.

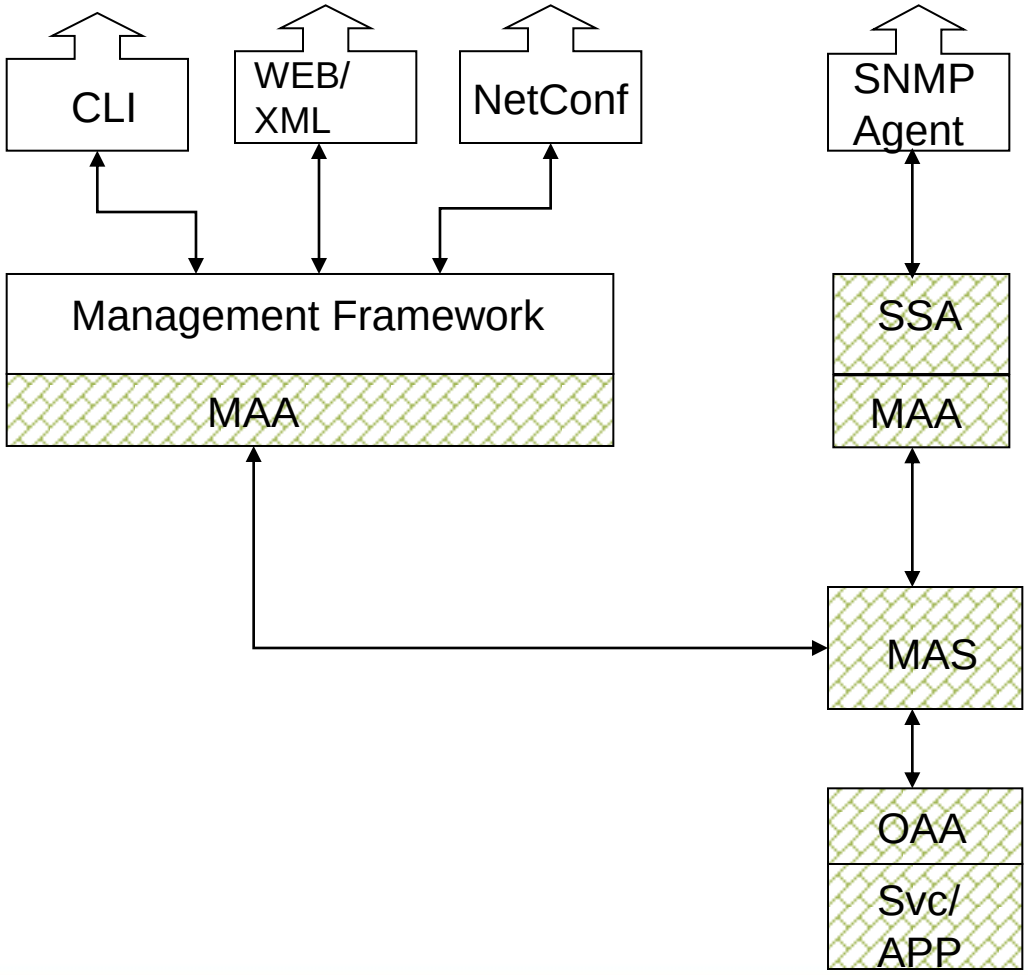
Old commands Vs New tools

- immadm – perform admin operations
- immcfg – modify attributes of config objs
  - Replace SNMP Set

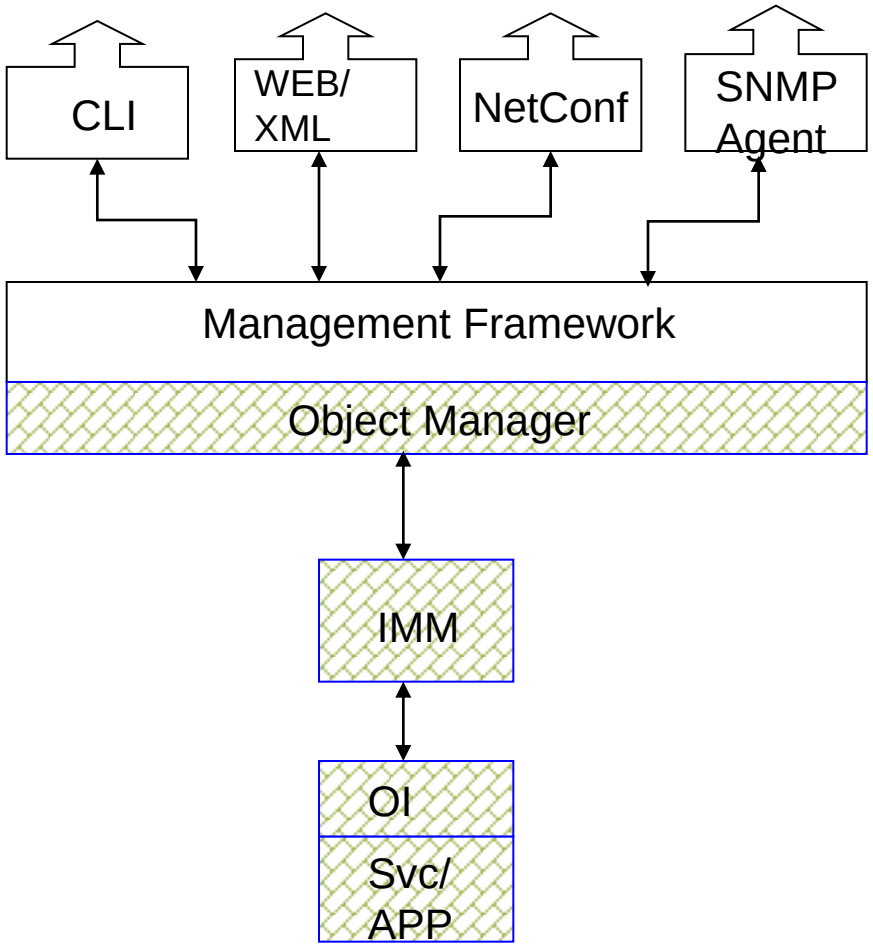
- immdump – dump inf. model to XML file
  - Replace ncs_cli_maa command to dump pssv profile

- immfind – find objects
- immlist – list object attributes
  - Replace SNMP Get/Next

Working with various Management Clients Today



Working with various Management Clients Tomorrow



Brief about LOGSv

- Logging information is of interest to network or system administrators.
- Four types of log streams are supported by the Log Service:
  - Alarm log stream
  - Notification log stream
  - System log stream
  - Application log streams

/var/log/opensaf/saflog/saLogAlarm_xx_yy.log

- saflogger is a SAF LOG client

  saflogger --alarm --severity=crit --interval=6 --count=3 "test message"

- Tracing information is for developers or field engineers for debugging purposes.

Brief about NTFSv

- An Adaption of definitions from ITU-T X.710 and 73x
- Producer
- Consumer
  - Subscriber
  - Reader (pull)
- Notification filters can be used with the Subscriber and Reader API.
- Notification Types
  - Alarm
  - State change
  - Object create/delete
  - Attribute change
  - Security alarm
  - Miscellaneous

Typical Subscriber

1. Initialize the notification service library
2. Obtain a selection object
3. Allocate filter
4. Subscribe for notifications
5. Receive notification based on subscription filter
6. Free the notification
7. Close the subscription
8. Finalize the notification service library

Typical Send (Producer)

1. Initialize the notification service library
2. Allocate a notification
3. Send the notification
4. Receive notification ID
5. Free the notification
6. Finalize the notification service library

Thank you