SMI-S Client and Server Development, from Check Box to Industrial Strength

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PMC-Sierra
What a checkbox implementation looks like

- Polling
  - Everybody polls
  - Updates take forever
- No View Classes
  - Just more classes to implement
  - Can get certified without it
- Don’t need extras like
  - WS-management, CMPI, Pull operations
- No integrated whole
  - SMI-S is just for “third party access”
  - We use native interface for our own
How to get to Industrial strength

- Events and Indications
  - Nobody polls
  - Push the updates

- View Classes
  - Reduces CIM operations
  - Simplifies the model

- Extra features
  - Pull Operations, WS-management, CMPI interface

- The Stack
  - Putting it all together as an integrated whole
Indications
Lifecycle / Alerts

- Checkbox
  - GUI, Provider, and CLI all poll for information
    - Polling places Load on driver
    - Changes in the device takes time to reflect on display

- Industrial
  - Driver interface sends update notices
  - Alternate is for one process to poll and send events to everyone subscribed for events (indications)
  - Central place to distribute events
Two types of SMI-S indications

- Lifecycle – management data state changes
  - Used to update management data presentation (GUI)

- Alerts – messages to the user
  - Displayed to user by GUI or CLI
  - Saved in an event log

- A single real word event can create both
Indications added
View Classes

- Checkbox
  - Implement the basic commands
  - Not required to get certified
- Industrial
  - Operations are expensive Views reduce calls
  - Simplify the management model
View Classes

- View Classes makes Clients job fast and easy
  - 10 to 1 reduction in operations
    - Performance
    - Less code
  - Fewer calls to get device management data
  - Lifecycle indications on views reduces indications
    - One get instance call updates display

- Sample - Get Disk drive
  - Checkbox - 6 objects and 5 associations
    - Get all disks – 6 operations per disk
  - View – 1 Object
    - Get all disks – one CIM operation
HHRC in Views

ControllerView

PMC_SystenDeviceView

VolumeView

AllocatedFromStoragePoolView

ConcreteStoragePoolView

AllocatedFromStoragePoolView

PrimordialStoragePoolView

SystemDeviceView

DriveComponentView

DiskDriveView

HostedStoragePoolView

DiskDriveView
Added features

- CMPI interface allows use of different CIMOMs
  - Support as many environments as possible
- WS-man / CIMxml
  - Implemented by the CIMOM
  - Most CIMOMs support both protocols
- Pull operations
  - Implemented by the CIMOM
  - Lets client pull data in manageable pieces
The stack

- Now it is industrial strength **USE IT!**
The stack

- Driver interface for properties, signals for events
- Provider and CIMOM
  - Event Notification
  - Device library
  - Provider (instance, indication, method, ViewClass)
  - CMPI interface
- GUI and CLI uses SMI-S