

LMAP/WT-304 Data Model for Customer Premises Networks

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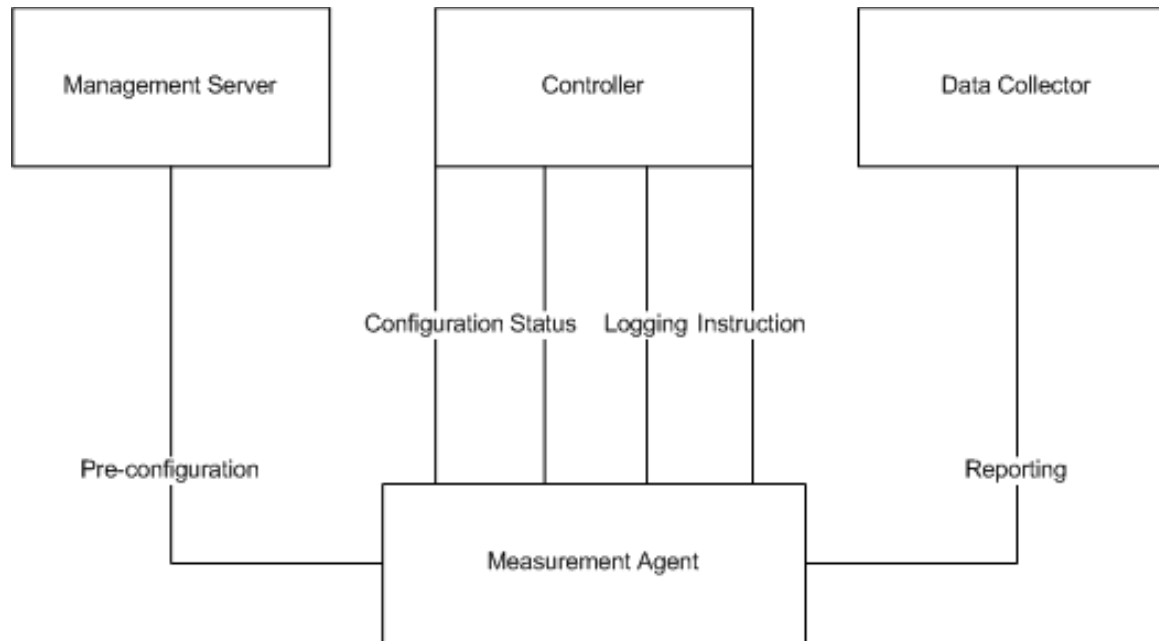
Agenda

- Overview of the SD-323 deployment options where CPEs are used as Measurement Agents
- Overview of the TR-181 data model
- Augmentation of TR-181 data model with the WT-304 elements
- What elements are need for the various SD-323 deployment options
- Integration of the LMAP model with bulk data collection

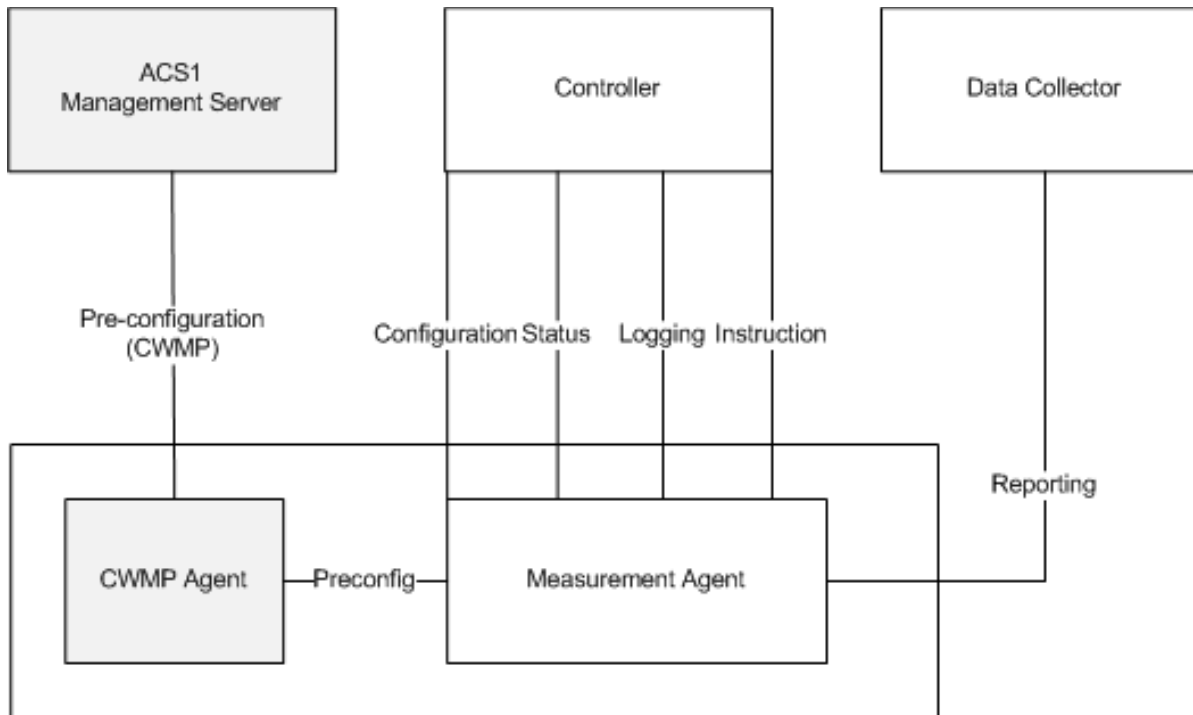
HOME DEPLOYMENTS OF LMAP (SD-323)



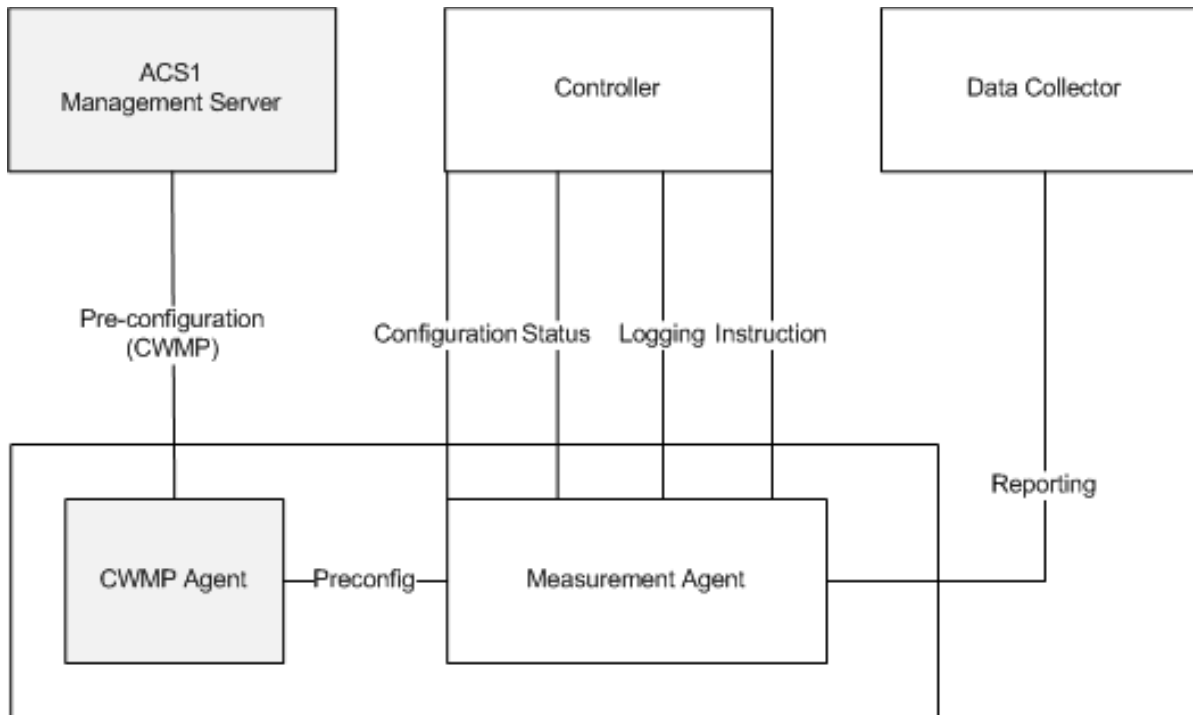
Overview of the LMAP Framework



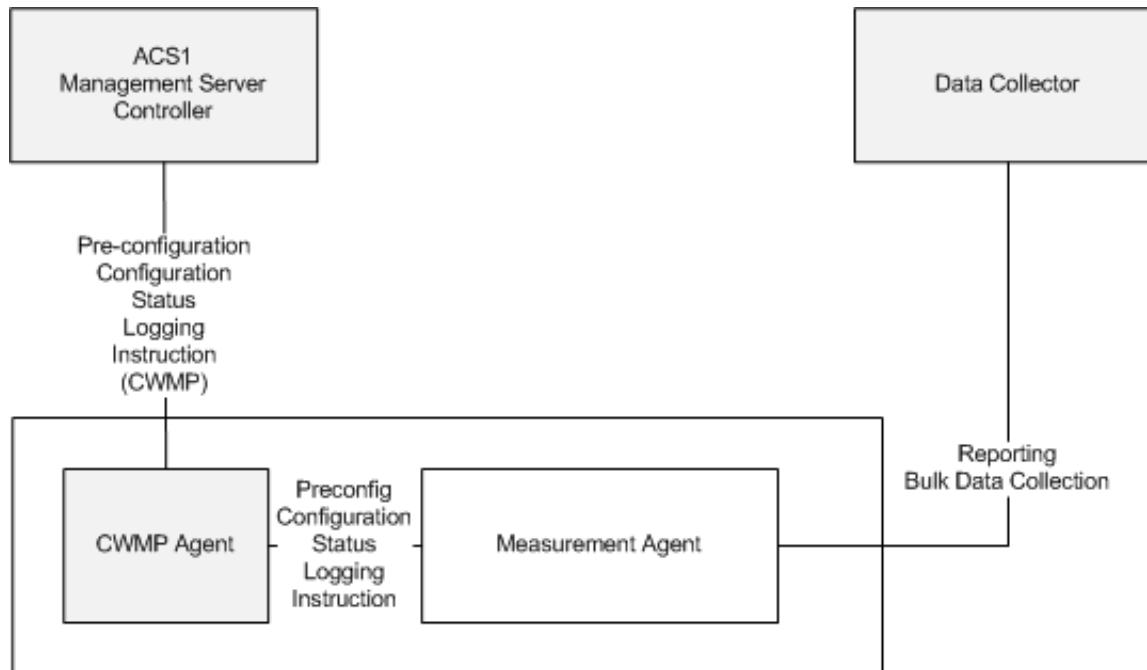
LMAP Deployment Models Using the ACS



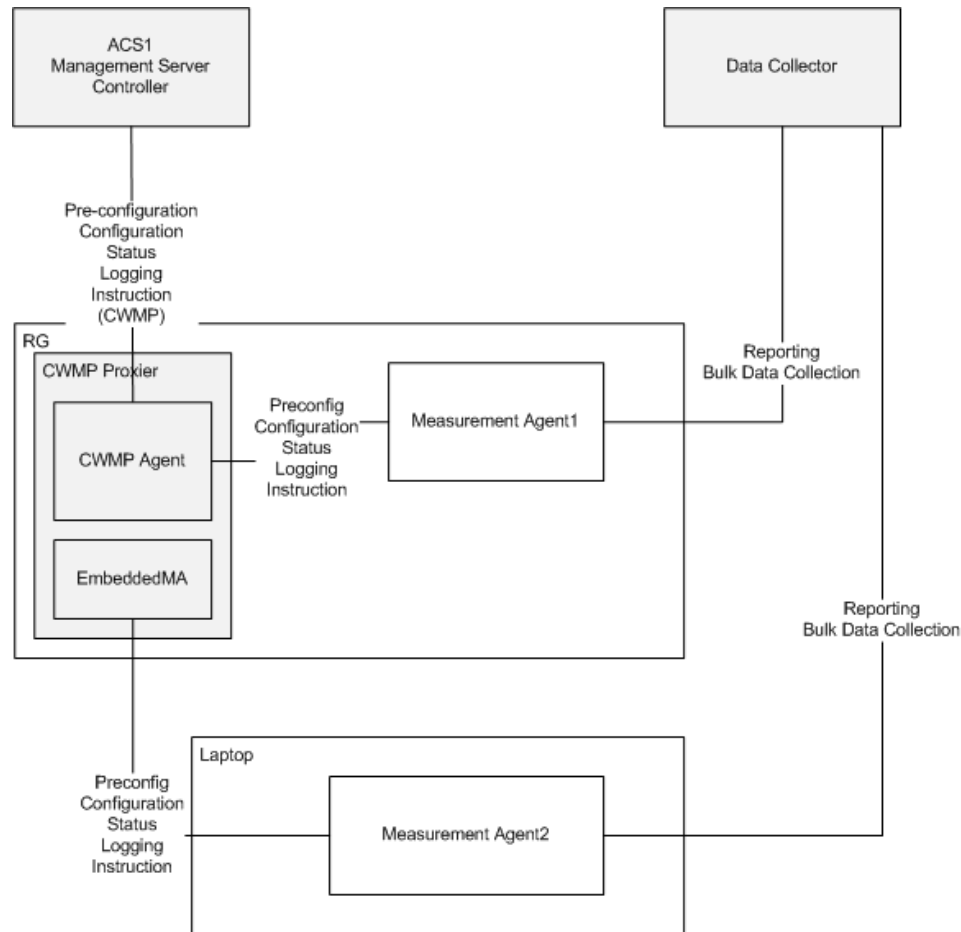
Using the ACS for Pre-configuration



Using the ACS for Everything



Using the CPE as a Proxy



TR-181 LMAP Data Model



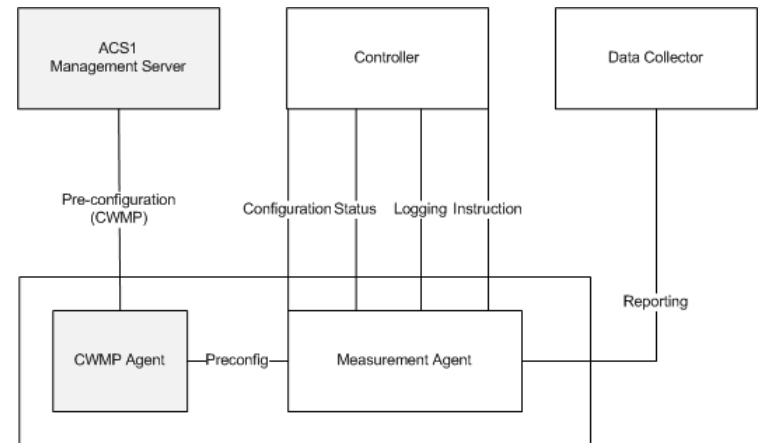
TR-181 Data Model

- The data model is based on the LMAP Information Model: draft-ietf-lmap-information-model-02
- Adds additional attributes needed to identify Measurement Endpoints in the context WT-304
 - Operational and Internet Domains, ISP Device's reference point and location
- Integrates into the TR-157 Bulk Data Profiles for Reporting to Data Collectors
- Has stand-alone elements that cross MAs: Timers and Reports

Using the TR-181 Data Model

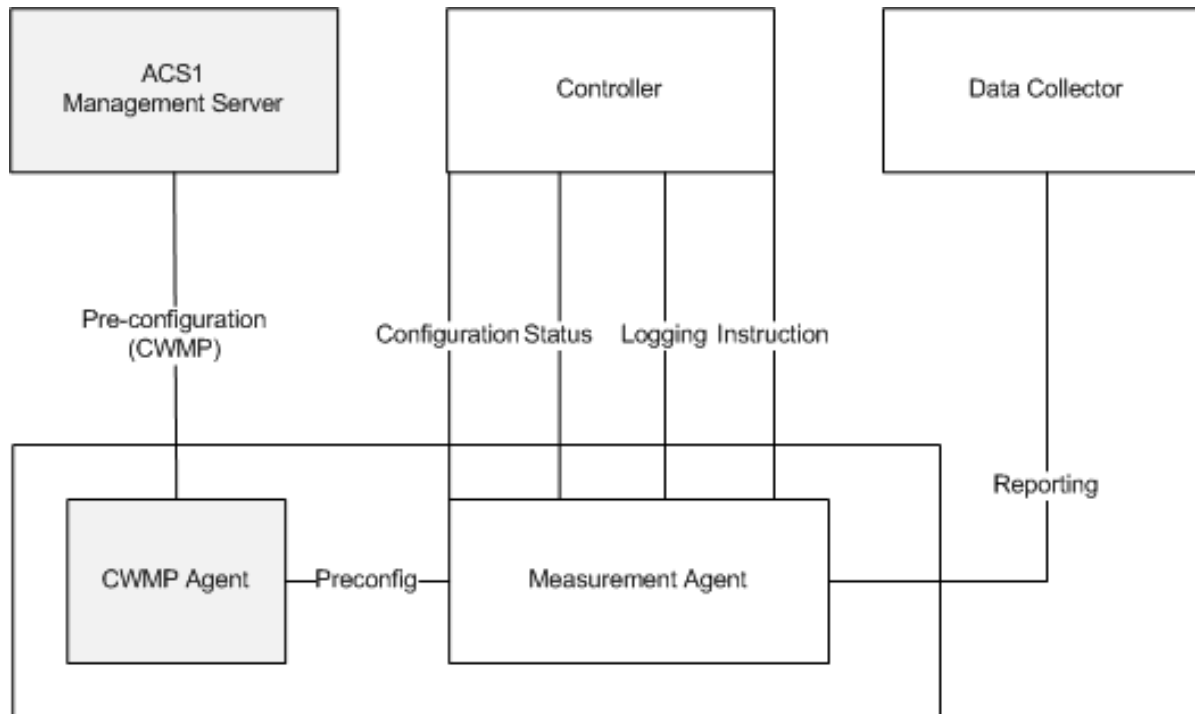
The data model emulates the deployment scenarios + WT-304 attributes using Profiles:

- Basic: MA pre-configuration
- BASAPM: WT-304 pre-configuration
- Proxy: MA-Proxy configuration
- Logging
- Status
- Reporting
- Instruction
- Configuration



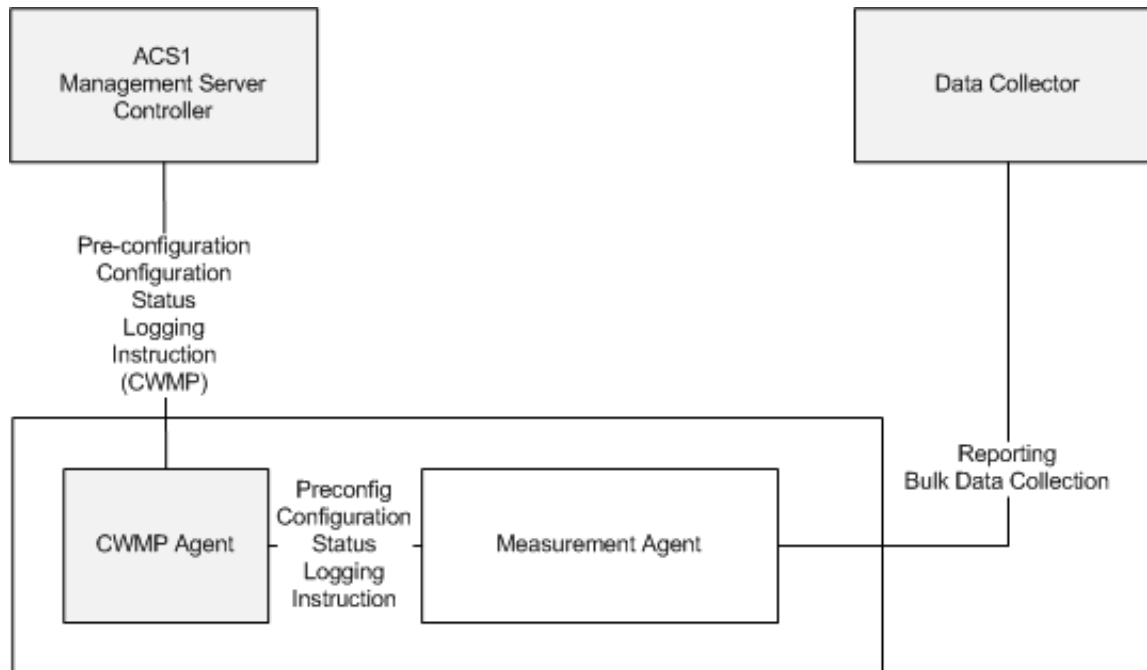
*Profiles have not been filled out in the latest model

LMAP Deployment Models Using the ACS



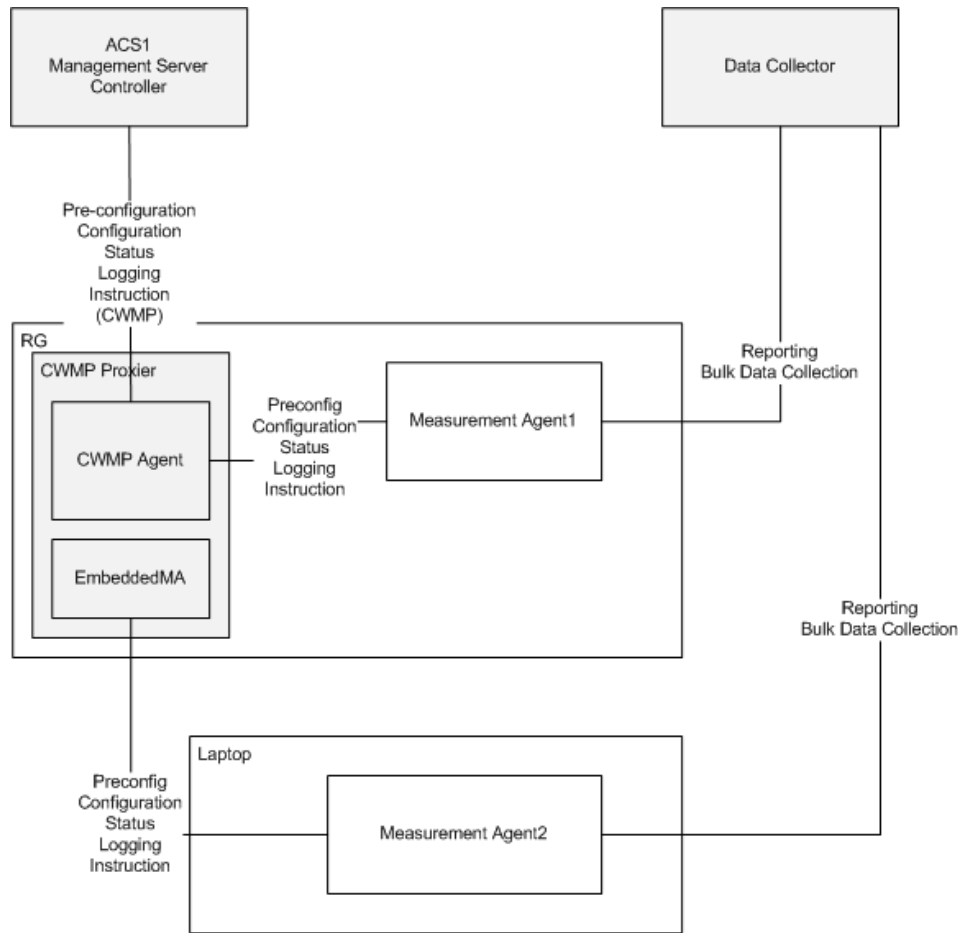
- Implements the Basic, BASAPM profiles

Using the ACS for Everything



- Implements the Basic, BASAPM, Logging, Status, Reporting, Instruction, Configuration profiles

Using the CPE as a Proxy



- Implements the Basic, BASAPM, Logging, Status, Reporting, Instruction, Configuration, **Proxy** profiles
- Different Measurement Agent instances for the RG and each proxied MA

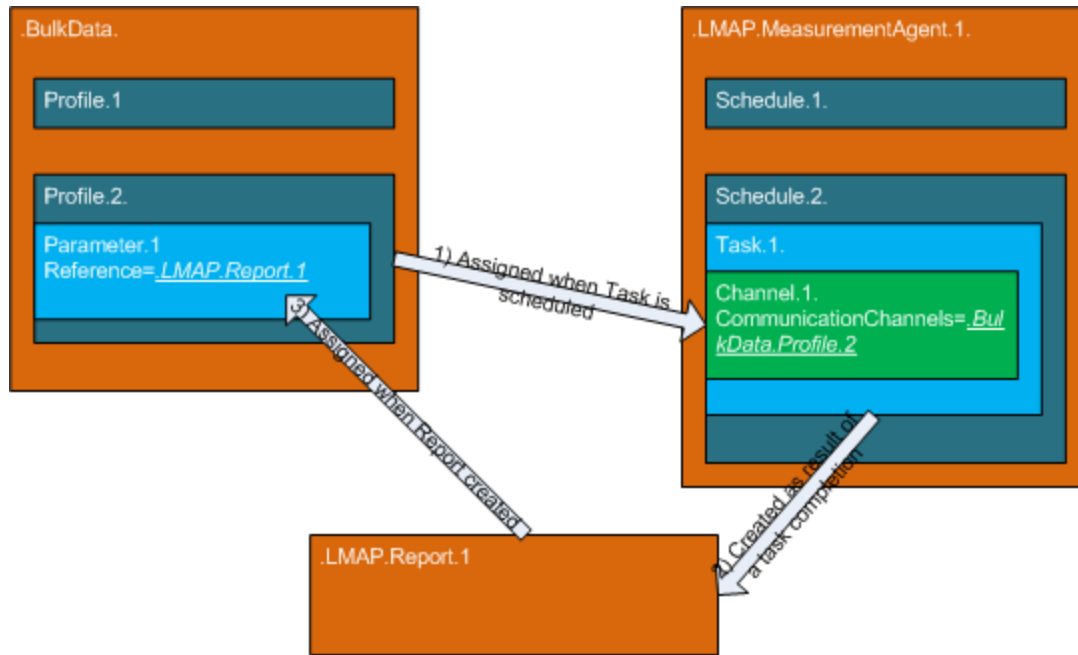
Integration of LMAP with BDC (1)

- A Bulk Data Profile defines:
 - How to reach and when to reach a data collector
 - The protocol and encoding to use when transferring data
 - Parameters to be collected
- The LMAP data model defines the communication channels a task reports its results:
 - Device.LMAP.MeasurementAgent.{i}.Schedule.{i}.Task.{i}.Dataset.{i}.CommunicationChannels
 - When integrating with BDC – the Communication Channel points to the BDC Profile.

Integration of LMAP with BDC (2)

- When the CPE generates a LMAP Report as an outcome of the Task, the CPE:
 - Creates the associated Report object instance - Device.LMAP.Report.{i}
 - Adds the Report object instance to the Parameter reference of the Bulk Data Profile by creating a new Device.BulkData.Profile.{i}.Parameter.{i} object instance and setting the Reference parameter to the Bulk Data Profile object instance reference in the Device.LMAP.MeasurementAgent.{i}.Schedule.{i}.Task.{i}.Channel.{i}.CommunicationChannels parameter.
 - Once the CPE sends out a profile with a LMAP.Report instance – the Report and Parameter instance is deleted by the CPE (**this could be improved by adding a dynamic feature to profile parameters**).

Integration of LMAP with BDC (3)



Using the data model for proprietary tasks.

- All tasks within the model are defined using:
Device.LMAP.MeasurementAgent.{i}.Task.{i}.RegistryEntry:
URI of the IETF Registry or a URI understood by the
Measurement Agent, Collector and Controller.
- The Device.LMAP.MeasurementAgent.{i}.Task.{i}.Options field
contains task specific options needed by the MA to execute the
task.