



oneM2M Certification and the GCF – a Test Vendor View

October 2017

Introduction



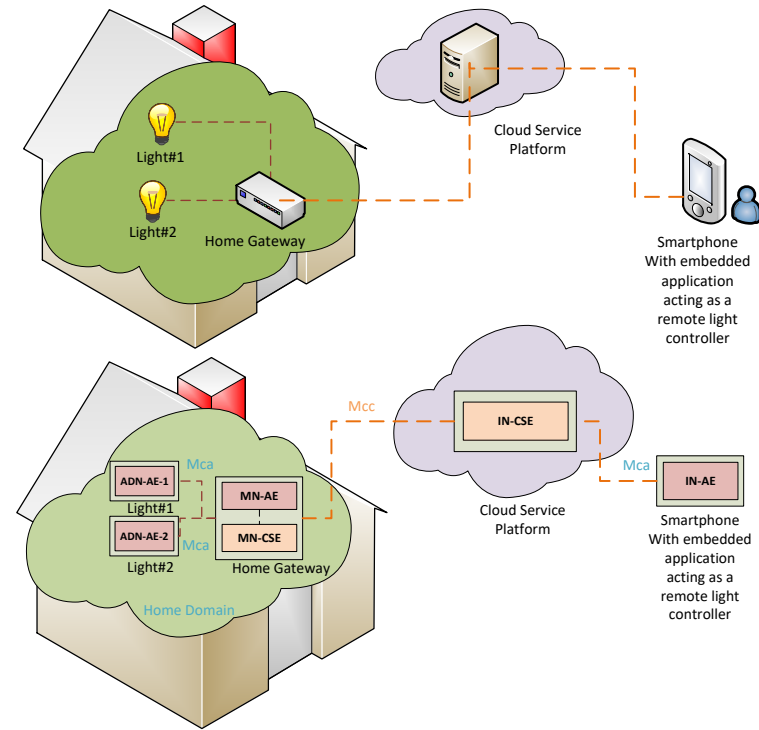
- Background to oneM2M conformance testing
- A test vendor (Spirent) requirements for GCF oneM2M certification

■ Terminology

- TST: oneM2M Testing Working Group – Interoperability test purposes, Conformance test purposes and associated TTCN-3, Interop Events (TestFests), etc.
- TPs: test purposes – (test cases)
- AE: Application Entity – (see next slide)
- CSE: Common Service Entity– (see next slide)
- TS-0013: Interoperability Testing
- TS-0015: Testing Framework – (background to Conformance and Interoperability testing)
- **TS-0017: Implementation Conformance Statement (ICS)**
- **TS-0018: Test Suite Structure and Test Purposes – (Conformance TPs)**
- **TS-0019: Abstract Test Suite and Implementation eXtra Information for Test (TTCN and IXIT)**
- TS-0025: Definition of Product Profiles – (Release 1 Profiles)
- (TR-0025 - Application developer guide)

Background ... 2

- AEs (Application Entity) and CSEs (Common Services Entity)
- The two basic entities in oneM2M – GCF will need to Certify both types.
- It gets more complicated – but we can ignore that for now!



■ oneM2M releases

- Release 1: original oneM2M release – used in South Korea (only), currently certified by TTA using Interoperability test cases (only)
- Release 2: first release to be used outside South Korea. Probably first release for GCF certification using conformance test cases (only)
- See additional slide for details of Release management

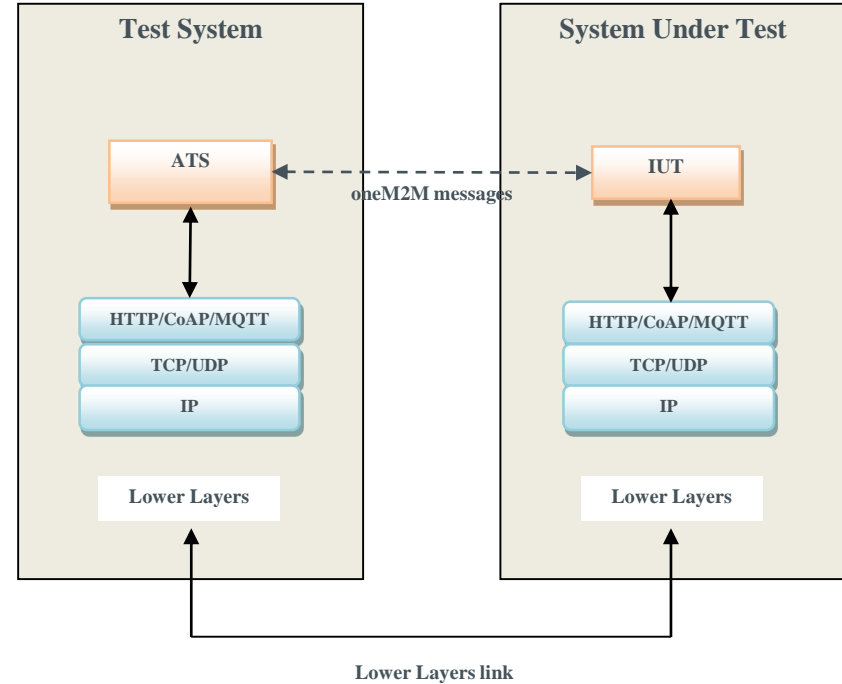
■ TPs and TTCN-3 status

- See presentation from oneM2M

■ TP permutations (variants)

- Many TPs have a number of “permutations” or variants where the basic TP is repeated a number of times using all the (relevant) values of a variable – this variable may be a number, an attribute, a resource type etc., dependent on the type of TP

- Four possible protocol bindings:
 - CoAP/UDP/IP
 - HTTP/TCP/IP
 - MQTT/TCP/IP
 - WebSockets/TCP/IP
 - → Out of scope (not tested) – but part of test adapter
- Three possible serializations:
 - XML/JSON/CBOR
 - → Out of scope (not tested) – but part of test adapter



TP (TTCN-3) Statistics for Release 1

■ Testing AEs:

- 31 TPs
 - Average three variants each
 - Plus four protocol bindings each

■ Testing CSEs:

- 162 TPs
 - Average three variants each
 - Plus four protocol bindings each

■ Typical lines of TTCN-3 per TP: <35

- Approx. total testing time for AE Certification: Not yet available (TTCN still under development)
- Approx. total testing time for CSE Certification: 2 hours (assumes no errors)

- Software-only test tools
 - “Value” of test tool perceived to be “low”
- > 600 TTCN-3 test cases (including permutations/variants but excluding protocol bindings) for Release 1. Release 2 could double this ...
 - Validation and maintenance costs “high”
- Test time is very short
 - “Value” of test tool perceived to be “low” for both vendors and test labs
 - On-line / remote certification testing very likely. (What role for test labs?)
- Assumptions
 - Will target GCF “Platform” certification, so customer base may not be very large

- (Re-)Validation costs must be kept “very low”:
 - Mutual recognition of Validations agreed by other certification bodies (TTA, ...) – so no need to re-validate or validate multiple times
 - Self-validation by test vendor or “Validation-Lite” by Test Lab
 - TP variants not individually Validated (after “sanity check”)
 - “Lite” “Transfer Validations” used for similar TPs in a sub-group
 - Note: TTCN-3 is anyway pre-verified by oneM2M TST
 - Only one protocol binding required for Validation
 - No re-validation required when moving TPs to a new oneM2M release (only XSD file changed) (see additional slides)
 - ...

Note: it is likely that different IoT work items will require their own “special conditions” for validations etc., but some of the above requirements may well be common for other IoT work items

A Test Vendor (Spirent) Requirements for oneM2M Testing ... 2



- Other areas for consideration:
 - Other existing GCF procedures for test vendors probably OK:
 - Observer membership – OK
 - Test platform “approval” – OK
 - Work item procedure – OK – but will there be enough full-member supporters?
 - Certification issues for oneM2M Vendors:
 - Self-Certification or “Certification-Lite” by Test Lab?
 - Role of Test Labs?
 - Issues for GCF
 - Handling and number of TPs (logistics, database size, ...)
 - ...

Note: most of the above requirements/issues will be common for other IoT work items

Questions / comments?

Additional Slides

Release Management

