LMAP Framework

draft-ietf-lmap-framework-03

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Progress since last IETF (1)

• -01 to -02
  – Main technical changes:
    – add that optionally a Report is not sent when there are no Measurement Results
    – add that a Measurement Task may create more than one Measurement Result

• -02 to -03
  – alignment with the Information Model [I-D.burbridge-lmap-information-model] as this is agreed as a WG document
  – One-off and periodic Measurement Schedules are kept separate, so that they can be updated independently
  – Measurement Suppression can optionally include particular Measurement Tasks &/or Schedules to suppress, and start/stop time
  – numerous editorial changes, mainly arising from a very detailed review by Charles Cook

• WG last call
Progress since last IETF (2)

• Many thanks for the very helpful WG last call comments
  – Jason Weil, Juergen Schoenwaelder, Greg Mirsky, Ken Ko, Dan Romascanu
• Wide support for the document
• A lot of clarification comments
• Some technical issues raised (slide on each follows)
• Various emails to summarise main issues raised - very active and useful discussion since (150+ emails)
  – Charles Cook, Michael Bugenhagen, Barbara Stark, Al Morton, Brian Trammell, Sharam Hakimi + those above + authors
• A group of us met on Monday to try and resolve the technical issues
  – Barbara Stark, Juergen Schoenwaelder, Marcelo Bagnulo, Al Morton, Aamer Akhter, Tim Carey, Andrea Soppera, Sam Crawford, Philip Eardley, Trevor Burbridge
  – we have a proposed resolution for all open technical issues (with the odd nit)
• The Framework (with its protocol mode) & Information Model need to be in step
  – So Proposals have impact on Information Model
LMAP Framework:
WGLC comments & proposals for their resolution
MA vs MP
(Measurement Agent vs Measurement Peer)

• MA interacts with Controller and Collector
• MP doesn’t
• Revised definitions (note, MA & MP are functions)
  – Measurement Agent (MA): The function that receives Instructions from a Controller, performs Measurement Tasks (perhaps in concert with one or more other Measurement Agents or Measurement Peers) and reports Measurement Results to a Collector
  – Measurement Peer: A function assists a Measurement Agent with Active Measurement Tasks but has no Controller interface
    • Could be just an ordinary web server
  – Active Measurement Task – to be done – note that Active Task may send test traffic between MA and MP or between MA and another MA
Example-1

- This is in -03
• Not allowed in -03; this is now also allowed
Updating element of instruction

• What’s is in -03:
  – Instruction has 5 elements
    • Configuration of Measurement Tasks
    • Configuration of Report Channels
    • Set of periodic Measurement Schedules
    • Set of one-off Measurement Schedules
    • Suppression information (if any)
  – An Instruction message replaces (rather than adds to) those elements that it includes.
  – eg if the message includes (only) a one-off Measurement Schedule, then that replaces the old one-off Measurement Schedule but does not alter the configuration of the Measurement Tasks and Report Channels or the periodic Measurement Schedules

• Comment:
  – May want to replace at a finer level of granularity (eg a single Schedule)
  – Framework (& Info Model) should be silent on level of granularity of Instruction message
  – Don’t split periodic and one-off Schedules

• Proposal:
  – Framework (and Information Model) silent on this - leave this for each protocol to decide – a protocol might do as a whole instruction or partial at whatever level of granularity it decides
  – Fine granularity is possible for at least some potential protocols,
    • Eg TR-069 can update individual parameter
    • Eg RESTful protocol could ‘follow the trail of URNs’
Overlapping Measurement Tasks

• Could happen if Schedule(s) lead to overlapping Tasks (may be deliberate or a mistake); or a Task is “wait for condition X and then measure”
• There are lots of ways you could address this
  – Avoid: Don’t delay a Task and don’t start 2nd Task if 1st Task is still running
    • Could be part of the MA’s overall configuration
  – Per Task decision (issue for IPPM)
    • Part of the Task’s definition (or a Parameter of the Task)
  – Ignore: if it happens, it happens
• Proposal:
  – The operator of the measurement system can solve (or not) in any way they choose
    • This is a policy /implementation issue - not a framework /protocol issue
  – If there’ve been overlapping Measurement Tasks, it’s likely to be important to include this in the Report
    • Information Model basically allows - to clarify
MA CPU resource check

• Comment:
  – want ability for MA to check CPU, memory etc

• Proposal:
  – No change – a Task might define this check, out of scope of the LMAP protocol
Suppression

• -03: the default is that Suppress applies to all new Active Tasks (can also suppress named Tasks or Schedules)

• Comments:
  – Not specified impact on Passive Tasks – should we?
    • Passive Task may generate lots of Reports or an Active Task may be mislabelled as a Passive Task
    • Passive Task may run for ever in the background
  – Not specified impact on on-going Active Tasks – should we?
    • Could be long-running
  – Add ability to send suppress to Measurement Peer?
    • Could be generating download traffic to many MAs

• Proposal:
  – No specified impact on Passive Task – implementation choice
    • Important thing is that a suppressed MA sends no Active Measurement Traffic (including data traffic that has been specially marked)
  – Add an option in Suppress: “suppress on-going Active Tasks”
  – Suppression doesn’t go to Measurement Peer (since they don’t understand Instructions)
Definition of Channel

... proposed new types of Task

- Comments:
  - Definition of Channel
  - Channel should not include timing information

- Proposal:
  - A Channel is bi-directional
  - A Channel is a logical thing
  - A Channel should not include timing information (it has target and security credentials)
  - New concept of Data Transfer Task – this will be discussed properly in the Information Model agenda item
  - Data Transfer means:
    - (1) Report from MA to Collector;
    - (2) request for updated Instruction (from MA to Controller);
    - (3) Capabilities info from MA to Controller;
    - (4) Logging /Failure info from MA to Controller
    - What data(s) to transfer
    - On what Channel
    - And when to transfer
Inclusion of service parameters in Report

• Comment:
  – Enhancement of Measurement Results with Subscriber parameters (line rate, contract), dynamic Subscriber policy information (being capped as beyond usage allowance), dynamic information on CPU usage of device with MA, etc

• Proposal
  – Enhancement with Subscriber parameters – could be done; how is out of LMAP’s scope
    • Could be done post-Collector (eg interface from Subscriber parameter database to data analysis tools)
    • Could be done by MA (having been told earlier): either a specific Data Transfer Task; or as a field in existing Data Transfer Task that’s reporting Results
    • How MA knows such information is out of scope (because it’s highly dependent on the device type)
      – Planned contribution to homenet wg, where home gateway would publish info it knows (from ISP) on a local webpage for retrieval by MAs within the home
  – Reporting of dynamic information is again out of LMAP’s scope
Things needing extra or tweaked text (minor clarifications)

• Bootstrapping
  – Need to refer to the new Data Transfer Task
  – After a re-boot, need to bootstrap (or at least re-check with Controller)

• Deployment considerations
  – Operator of measurement system shouldn’t overload Measurement Peer (as a DoS or so Measurement Tasks impact each other)

• Interface
  – Task and Report may specify interface (perhaps with an alias like “wlan”)

• Security
  – Security of upgrading MA
  – DoS of Collector
  – Storage on Collector