LMAP Framework
draft-ietf-lmap-framework-03

Philip Eardley, Al Morton, Marcelo Bagnulo,
Trevor Burbridge, Paul Aitken, Aamer Akhter

7th March 2014

London, IETF-89

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)

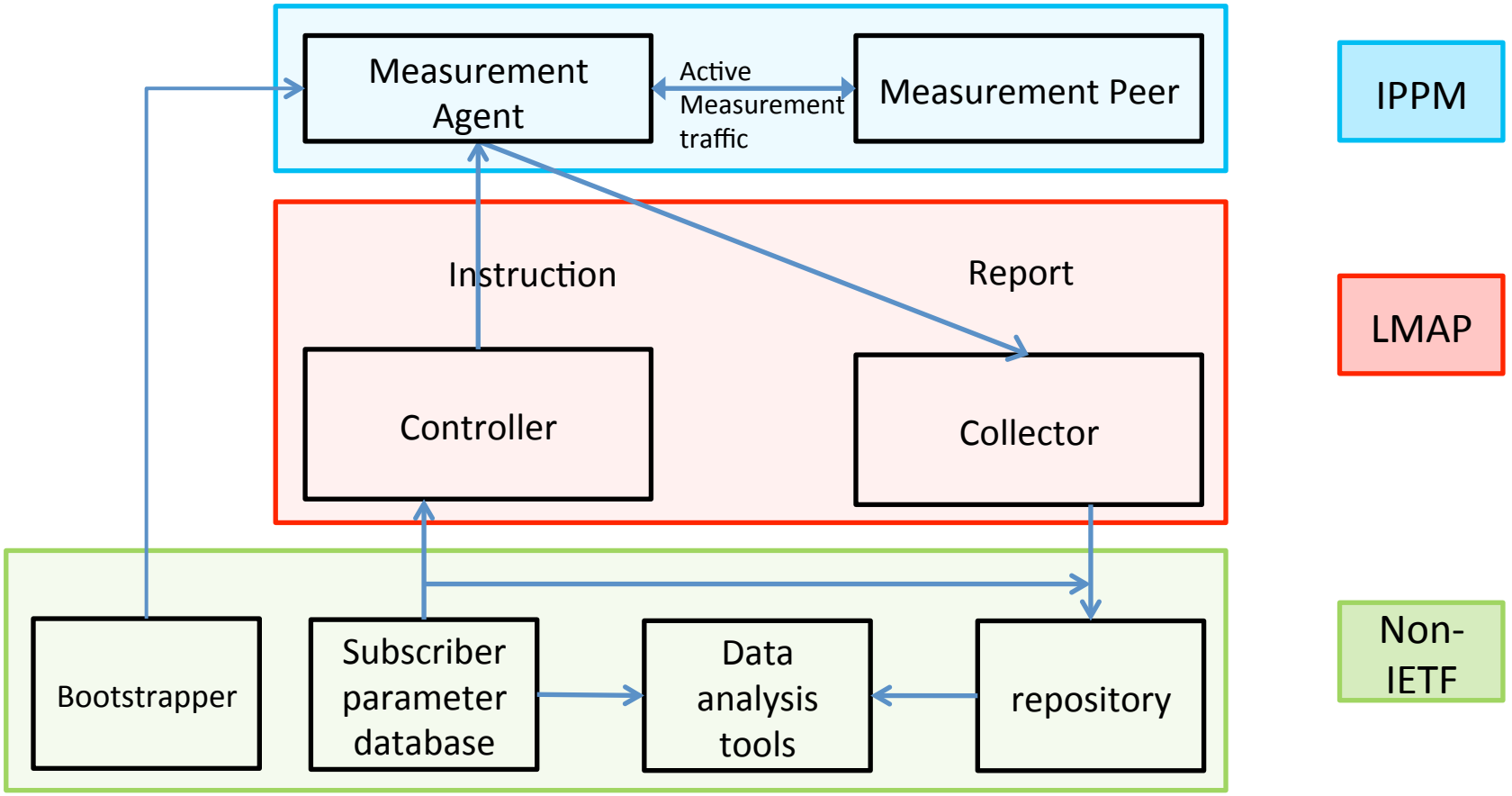
- Many thanks for the very helpful WG last call comments
  - Jason Weil, Juergen Schoenwaelder, Greg Mirsky, Ken Ko, Dan Romascanu
- Wide support for the document
- A lot of clarification comments
- Some technical issues raised (slide on each follows)
- Various emails to summarise main issues raised - 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)

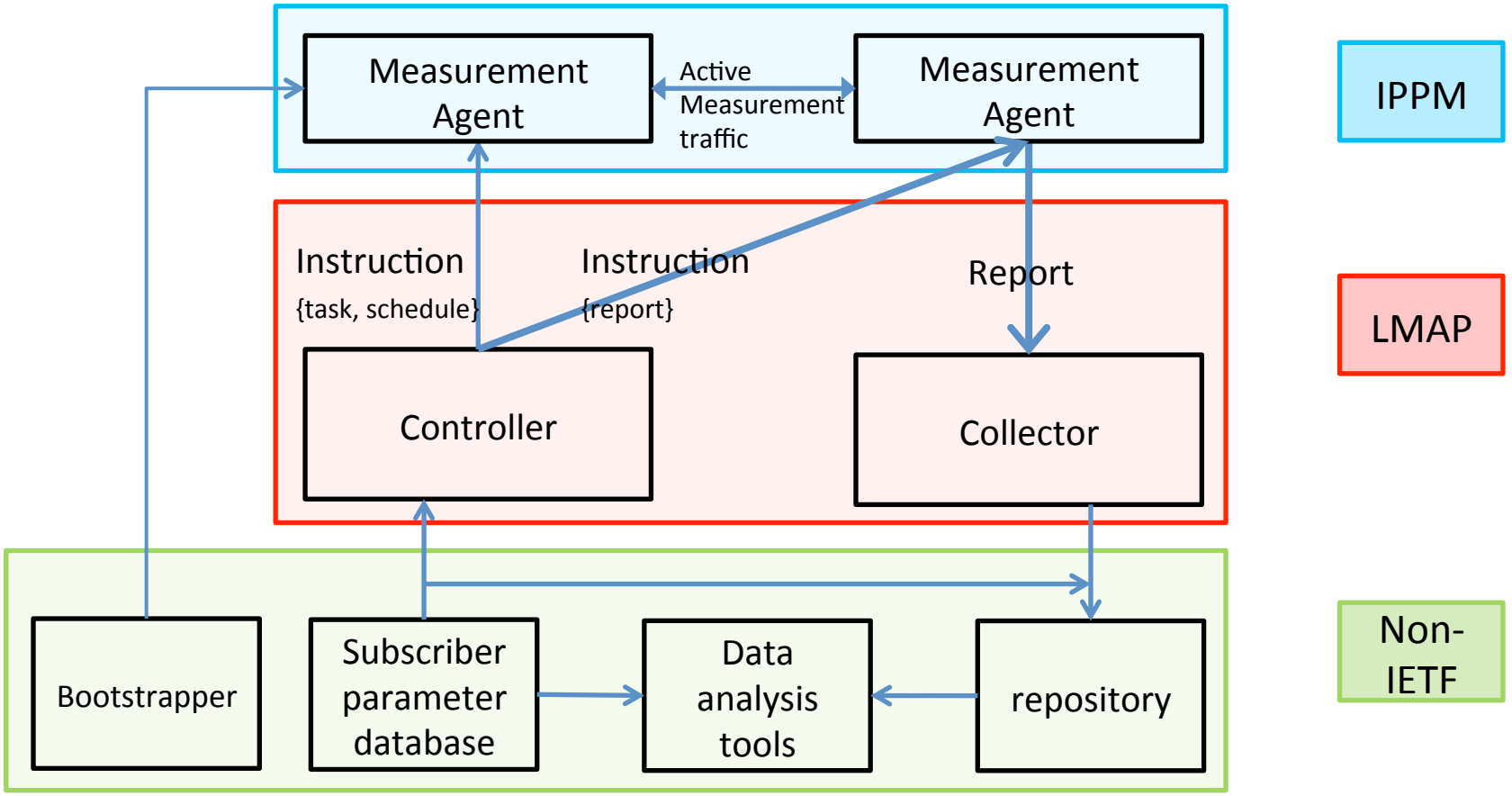
- MA interacts with Controller and Collector
- MP doesn't
- Revised definitions (note, MA & MP are functions)
  - Measurement Agent (MA): The function that receives Instructions from a Controller, performs Measurement Tasks (perhaps in concert with one or more other Measurement Agents or Measurement 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

Example-2



- 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