LMAP WG Meeting – minutes
Date and Time: Tuesday 7/30, 0900-1130, Morning Session I

Based on notes taken by Barbara Stark and Sam Aldrin —
Thank You!

1. **Note Well, Note Takers, Jabber Scribes, Agenda Bashing –
   Chairs (5 min)**

Displayed: http://tools.ietf.org/agenda/87/slides/slides-
87-lmap-3.pdf
Dan Romascanu and Jason Weil chairing.
Read the note well and take into consideration.
Blue sheets, note takers and jabber.
Agenda
  - Will try to give time to everyone, but focus on use
    cases, terminology and FW
  - Number 9 and 10 are swapped in the order of preso
  - First deliverables in the charter are use cases and
    framework (includes terminology)
  - Everything else like protocols and data model will be
  derived from the use cases and FW. That is the high level
  plan but folks should start thinking about other areas and
  discuss on the mailing list

2. **Charter and Milestones – Chairs (10 min)**
Displayed: http://tools.ietf.org/agenda/87/slides/slides-
87-lmap-10.pdf
AD — Benoit requested this to be presented to get
clarification regarding the charter item

MIF considerations for LMAP — Margaret Wasserman
  - Have couple of slides related to MIF (multiple
    interfaces WG)
  - When more than one interfaces attached to provisioning
    domain, there are interesting scenarios
  - Couple of different ways this can play out in LMAP
  - Multiple provisioning interfaces. For ex: wifi and vpn
    in diff domain
  - For LMAP, it needs to know which interface information
    goes out
  - Another scenario - Could have one interface but in two
    different domains and have two diff prefixes
  - So, need to ensure that measurements are performed and
    reported in the correct domain
  - To summarize, need to know what interface you are
    measuring and chose the right provisioning domain in the
    single interface case.

- How to pick the right interface? In general you know which source address is associated with the interface you want, use that source address.

3. Use Cases
Use Cases I-D update - Phil Eardley (10 min)
Marc L. — coauthor of the draft with Phil
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-5.pdf
- 3 use cases but will discuss 2 of them
- Hope everyone has read the drafts so will just cover the details.
- Regulator use case — data needs to be verifiable and fair.
- End user use case deemed out of scope but end user initiated use case covered by ISP use case
- Should be scalable and cost-effective
- Characteristics from the use case are large scale and standardize the measurements. Diverse set of measurements and on-demand tests
- Regarding feedback received on the mailing list, will remove the reference to the draft which was expired
- Focus on ISP and regulator use cases. As end-user use case is out of scope of charter, will remove.
- Misalignment of benchmarking and competitor insight with charter statement. Will clean up some wording on this.
- Missing entry on checking service SLA. Will be adding words related to that.
- Asked to define broadband. Will define w.r.t. LMAP context.
- IPv4 Vs IPv6. Open suggestions from WG to add text related to that.
- Add text related to RFC6390. Will be doing that.
- No mention of MA on smartphone. Need input on this
- Need to determine how to integrate with new use case I-Ds

Questions:
Samita Chakrabarti — Any data on frequency of measurements?
Marc — no data available.
Samita — do you want to continuously measure like periodic measurement of data and what those are
Marc — Will investigate that

?? — Smartphone is the case of myth. When on 3G, you are measuring cellular but at home you will be on wifi. One should be aware which link layer when measuring.

Mark — Not yet but it's needed

Measurement Provider Use Case - K. Nagami (10 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-5.pdf
- Going to talk on measurement for SP
Users want to know performance of their actual network, but also want to compare what they get with what users of other providers are getting.
There are 3 experiments being run. (see slide 4)
 - using dedicated hardware to measure fixed network (details on slide 5)
 - using software to measure fixed network
 - using smartphone to measure mobile network (details on slide 6) Measurements are run from a user to multiple content providers.
- This is experiment and use case is based on this experiment.
- Fixed measurement with dedicated hardware: This experiment consists of 117 SP location's 9 MA's and 13 ISP's.
- Mobile measurement from Smartphone:
  - Flat rate pricing plans mean users not impacted financially by testing usage
  - The use can get the bandwidth throughput from MA's.
  - Run measurements periodically from 2000 MA's.
- two cases of experiments. One is from fixed networks for content providers.
- We measured from CP's to SP's for smartphones.
- For ex: 3G network actual BW is 3.4 MBPS, LTE is 12MBPS.
- Use case of measurement for provider, i.e. subscriber to SP.
- These measurements are for users to see the performance to content providers and compare the results

Questions:
Paul — Key focus on UC, is from user point of view. i.e. end-to-end. I like it. In the last slide, is it in the scope of the LMAP whether these measurements are standardized?
Dan — We need to discuss in WG. My opinion is it is not. But will define metrics.

Marcelo - This use case falls into Marc's ISP use case
Nagami — No, it is not.
Marcel0 — So, then it is to show end-to-end
Nagami — Yes to show end to end and compare.
Marcelo — if I have probe to measure from user home to

google server, is it end-to-end
Nagami – Yes.
Marcelo – it is already covered in Marc's use case
Dan – Need to find the differences between both and merge.

Benoit – when do you measure? Should you expand why LMAP
has to do it.
Nagami – This is experiment
Benoit – what is the value for ISP by this use case
Nagami – this is only experiment.

Paul – It is very bad thing to do end user test case. End
user shouldn't directly do it.

Paul – On the order of 500000 MA's what are the variations
and are there differences in s/w or is it the same
Nagami – Same software.

?? – Which are the measured parameters?
Nagami – measured throughput, loss and delay.
?? - is it just download?
N – both upload and download
?? - how many servers you have setup? Is it just a speed
test?
Dan – clarify on the list of offline.
?? – Tests include last mile and last mile?
N – end-to-end

?? – this should be in scope for both ISP and regulator.

Alissa Cooper: It is important for all: user, ISP, and
regulator. Users run on-demand tests using measurement
provider, before calling ISP with trouble. So this is used
by user wanting to test ISP.
Marcelo: Nothing different is needed from the protocols
used for testing.
Alissa: Agreed that protocols are the same but we need to
be clear that end users can and do run these tests without
help from ISP, and that shouldn't be precluded.

Data Collection Use Case - Rachel Huang (10 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-
87-lmap-7.pdf
- going to talk about simulation use case for LMAP.
- measurements are from the physical network. But for large
scale, there is no efficient protocol to collect such

information.
- This simulation use LMAP to measure forwarding Q's etc.
- Could be used to efficiently use network.
- This simulation use both passive and active measurements
- various characteristics are considered for measurements.
- It is not dedicated to certain services.

Questions:
?? – Bullet says sync is required for MA's.
Rachael – Sync is required to start simultaneously to measure accurately.
Dan – why? This is required only for simulation purposes
?? – sync is needed for simulation for agents measuring accurately based on time etc.

Chris – When you need accurate measurements for active measurements it is necessary to sync.

Discussion (10 min)
- Deliverables are for sept.
- minimal set of use cases is needed but proposition is to get more use cases

??(ATT) – service level KPI use cases required? Is WG entertaining those?
Dan – Too early at this time.
Benoit – Use cases are fine but WG is not defining metrics.
Marc – Charter asking for use cases, but we are restricting the number of use cases
Benoit – question to chairs – do you have a use case for user initiated testing? What I want to clarify is that there is some control on infra otherwise LMAP will be good DDOS machine.

Rolf – Don't exclude use cases. End user UC, though removed from FW, move it to appendix instead of removing it.

Al Morton – user initiated doesn't mean the test shouldn't be run from provider infrastructure like controller based on request.
Dan – understood.

Brian Trammell: Need to be clear what we mean about user-initiated measurements. Just because the user initiated doesn't mean that the measurement capabilities aren't being supplied by a provider. Need to have some capabilities

discovery element, because different MAs will have different capabilities.

4. **LMAP Framework**
  draft-eardley – Phil Eardley (10 min)
    Displayed:
    http://tools.ietf.org/agenda/87/slides/slides-87-lmap-1.pdf
  - Need standards based interoperable measurements for provider to use
  - Place to collect issues related to architecture
  - Some of the pieces of measurements are in scope and some are not in scope of LMAP.
  - Basic Arch pieces consists of test type at the top, the frequency etc in the middle and underneath are analysis tools at to take action based on measurements.
  - Out of scope of LMAP in arch pieces is how to use those info and characterization of those.

Marc: Clarifying Question. Is control protocol single arrow line?
Phil: The arrow direction shows direction of instructions. The protocol will be expected to have messages that go back and forth.
Marc: For regulator use case, may need to have an initializer in scope.

?? — Data model out of scope? For some UC's it should be in scope.
Phil — Yes.

Samita — What is the interface between controller and the parameter dB? As it is part of FW, want to know its usefulness.
Phil — It is out of scope. Need to see how much to say about out of scope items (green and blue boxes)

Benoit — Is passive measurement in scope?
Brian — Passive measurements in IPPM already.
Dan — we promise we will not do IPPM work.

Ning Z — I see controller and collector separate. Do the boxes imply physically separated functionality? Why?
Phil — It is just functional pic. Not h.w.

Constraint #1 — Single org is responsible for data and user experience
Constraint #2 — Single controller determines MA's schedule
 <skip other constraints>

Nadia T — What do you mean by single org? Concerns from regulator UC
Phil — If something goes wrong, lot of nasty things could happen like user privacy.

Jason — Not sure this is achievable. Like policy decisions etc. In reality coordination is inevitable.
Phil — Need to capture that point.

David S. — This FW is in very much in line by duplicate with BBF effort. Any coordination is being planned?
Dan — We sure will.

Jochen — Should there be communication between collector and controller?
Phil — It is not a clarification Q. Needs long discussion.
Brian T: Agree we should discuss on list. There has already been a lot of discussion on the list.

draft-akhter - Paul Aitken (10 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-8.pdf
 - Different perspective with consideration of what is already in existence
 - We consider lots of controllers and collectors and of course thousands of MA's.
 - Will not be considering the boundary restriction like firewall etc at this point of time.
 - User initiated tests. Are they really needed? Only indirectly as it could introduce DOS attacks.
 - Multi-peer tests
 - Test failure — various constraints like should controller be informed when test fail?
 - Is failover a concern?
 - Security is a major concern. Will be addressed in the future.
 -

 discussion (10 min)

- No questions
Dan: Main challenge is to merge drafts.

Paul: That's already being done. Phil to take first stab at this.
Dan: If there are more important ideas that need to be included, people need to bring them forward.

5. LMAP Terminology — Phil Eardley (5 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-2.pdf
- Terminology will appear in FW doc.
- Listed out the terms defined thus far.

Dan: Need to make sure we don't invent new definitions for existing terms. Especially need to try not to have terms that conflict with how other orgs are using. Do we refer to other orgs?
Benoit: Do not refer where docs are not open.
Al: We need to make our definitions as unambiguous as possible. We should be able to do mapping to other orgs instead of actually using their terms. But we should try to coordinate with other orgs that we're chartered to liaise with.
Marcelo: We tried to encompass terminology already in use in IETF. But we don't always have access to others' docs.
Dave Sinicrope: Easy to get access to docs where there is a liaison.

6. Reference Path and Measurement Points – Al Morton (5 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-2.pdf
- Taken from IPPM draft. Also discussed at the Orlando BOF
- Got a comment on mailing list — It is important in the arch to distinguish shared and dedicated resources.
- Arch document should document Resource transition point between dedicated and shared resources.
- New terms in the draft are identified.

Question — should the terms be defined in LAMP or IPPM?
Answer — coordinate on definitions across WG's

7. LMAP Information Model – Trevor Burbridge (20 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-11.pdf
- Trevor couldn't be here, Juergen Schoenwaelder presenting
- Divide and split things into different parts
- Draft proposes into 6 categories.

- pre-config, config, instruction, logging, status and reporting are different categories.

Paul — making assumptions about FW, like preconfig? Pre-config is out of scope for FW.

Al M. — Happy to see the Status portion.
Jürgen - Yes we need to find out ways to do statusing, but there are different types of status that need to be provided. Need to understand credential needs.
Dan - Is this really a question for the information model?
Jürgen - We need to figure out if something needs to be in the information model.
Number of issues came on mailing list. Please take it up on mailing list.
Identified various issues received in each of the category, received on the mailing list.

8. ALTO for Querying LMAP Results - Jan Seedorf (10 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-87-lmap-0.pdf
- What we see is pdf of jpeg type of results. We don't see something in between which is of interest.
- We are out of scope with current charter, but hope it will be useful in the future.
- ALTO has two concepts. Network map and cost map.
- Are there cases that benefit to query aggregated results?

?? — why not use the data in CSV format etc and use query tools
Jan — FCC data sets are too large. So, do you want to download everytime for small data?

Q — measure directly from browser. Why not use it.
Ans — That is good input.

Vijay Gurbani: The size of data is huge. This may not be flexible enough for searching huge data.
Jan: Huge is good and not a problem - we want to provide another way to aggregate info.

Samita — Want to see ALTO to be applicable
Jan — ALTO provisioning is out of scope for IETF.

?? — would it be good to have WIKI kind of place to see what kind of data is available

Jan — Sure

?? - If ISP already have ALTO server, you can re-use it,
but not general enough.
Jan — I am interested to discuss this further.

Paul — Did I miss anything about out of scope?
Jan — Yes it is out of scope of LMAP charter.
Paul — we need to be tightly focused and focus on chartered
items.

9. FCC Broadband Data Set – David Goergen (5 min)
Displayed: <in draft is link to displayed picture with map
of US showing where statistics are being collected / where
FCC data collection units are>
- Preliminary data of results of measurements
- FCC has public policy to see what is the broadband
penetration, which was released publicly
- Use the date to create ALTO topology map and play around
the cost map.

Vijay: Trying to create a topology map that is public. Need
to see where units are that are sending info.
Paul — we have discussed this in FW draft. We have to be
careful about the location data.
Marc: Need to understand selection process of how
volunteers for measuring were identified.
David G: If there are further questions, they can be
discussed off-line or on list.

10. HTTP-based Protocol Proposal – Marcelo Bagnulo (10 min)
Displayed: http://tools.ietf.org/agenda/87/slides/slides-
87-lmap-9.pdf
- Using HTTP as transport and using data model.
- HTTP is already present in devices.
- Lots of benefits with HTTP.
- MA's may not have names, so, proposed to use identifiers.
- Control protocol to retrieve instructions. Performs a get
to a well-known prefix. What we get is set of pointers.
- MA performs the tests and will have results to report
back.
- Identified various considerations for future.

Dan - We're out of time. No time for questions.

11. Open Mic and Next Steps (remaining time)
There was no time for this.