

ALTO for LMAP

draft-seedorf-lmap-alto-01

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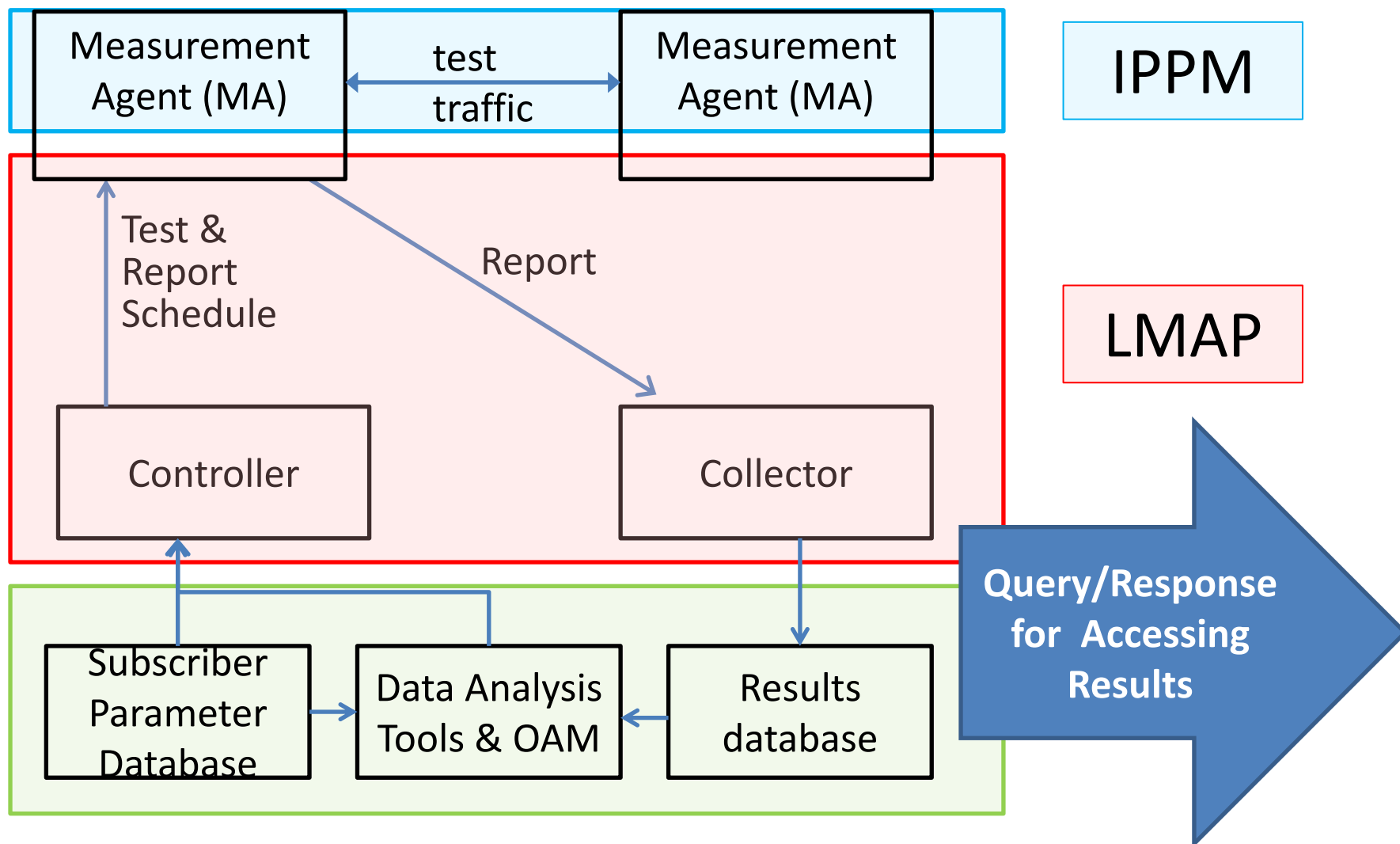
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Overview & Motivation

How to make “Large-Scale Measurement of Broadband Performance” measurement results available?

- Status quo (of measurement result publication):
 - very high level human-readable format (pdf, jpeg, ...)
 - finest granularity level (csv)
 - Question: Are there use cases that benefit from an intermediate way to provide access to large-scale network measurement results?
 - flexible enough to allow for querying of specific and possibly aggregated data
- If answer to question is yes, ALTO may be a good candidate

Overall measurement framework



Example Use Cases

- **Video Streaming Service Provider**
 - LMAP results regarding a particular end user's access network provider could help the service provider to optimize/parametrize its HTTP adaptive streaming service
- **Website Front End Optimization**
 - Statistics about e.g. average download speeds for a given end user request can be useful for dynamically adapting HTML/CSS/JavaScript content
- **Display estimation of service quality / total download time to users**
 - Using LMAP results e.g. to indicate to the user what Quality-of-Experience to expect when clicking on a given link, or the estimated total download time for given content
- **Troubleshooting**
 - In general, any service on the Internet may be interested in LMAP data for troubleshooting

Advantages of using ALTO

- A very lightweight JSON-based encoding for network information (set of REST APIs on top of HTTP)
- ALTO “network map”: abstracts physical network topology into an aggregated but logical topology
 - individual hosts are aggregated into a well defined network location identifier called a PID
- ALTO “cost map”: associates “costs” between two network locations (PIDs)
 - Costs can indicate e.g. routing hops, the financial cost of sending data over the link, available bandwidth on the link, or a user-defined cost attribute that allows arbitrary reasoning

Discussion

- Are there use cases that benefit from being able to query for specific, possibly aggregated, measurement results in a flexible way?
- If yes, would ALTO be useful to provide such a query-response mechanism?

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