Can we define a standard interface for the measurement and monitoring plane ?

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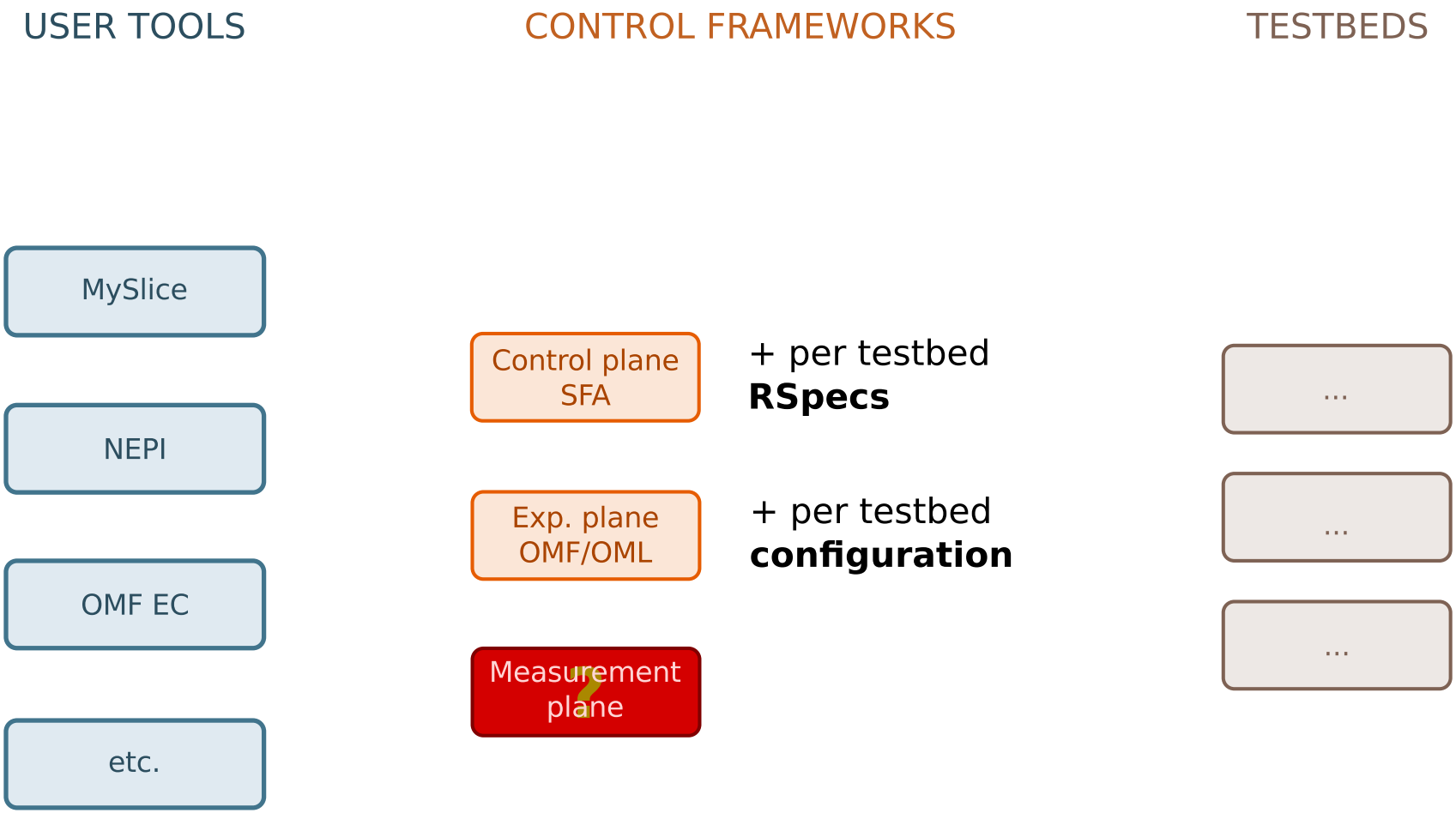
Integration of measurements



An ecosystem with a standard interface

Standard interfaces allow for an ecosystem to emerge. It decouples data producers and consumers.

Data producers

- Testbeds, Instrumentation services, Users' measurements, ...

Data consumers

- Resource selection tools, Experiment control, Operations, ...

Support for: Peerings, Policies, Trust relationships, etc.

Handling large heterogeneous and distributed datasets

The MANIFOLD proposal

1. Protocol & data model
   - allows different entities to communicate (mandatory)
   - use of adapters to accomodate for heterogeneity
   - eg: SFA, PLE monitoring, PostgreSQL, OML, perfSONAR, etc.
2. Ontologies: common language (optional)

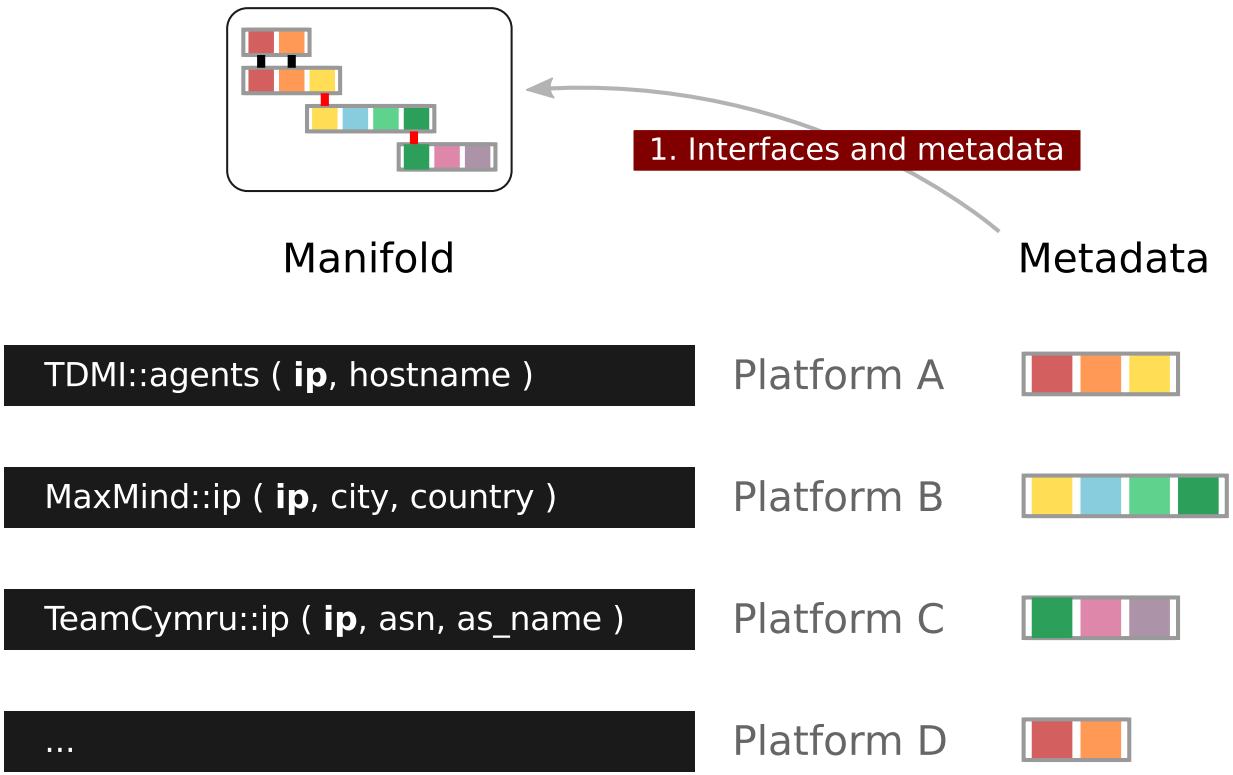
Intelligent mediator, grounded on work from networking and distributed databases communities

Handling large heterogeneous and distributed datasets

Simple requirements from platforms

- Assumes use of ontologies *at the edge*
- Platforms expose data through a table-like data model...
- ...and describe their "processing" capabilities

How does it work ?



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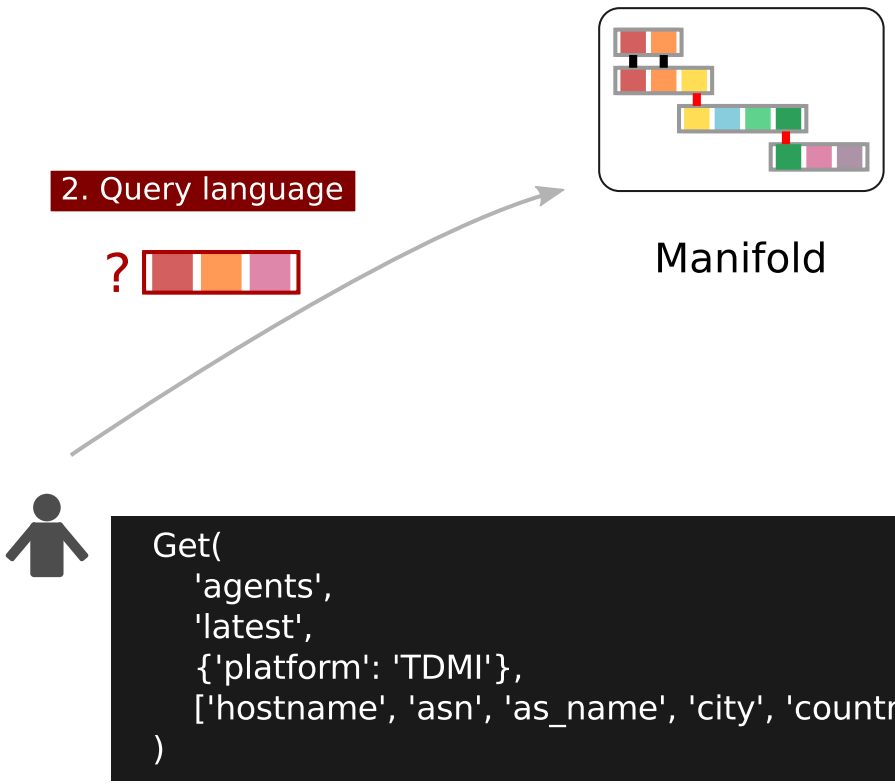


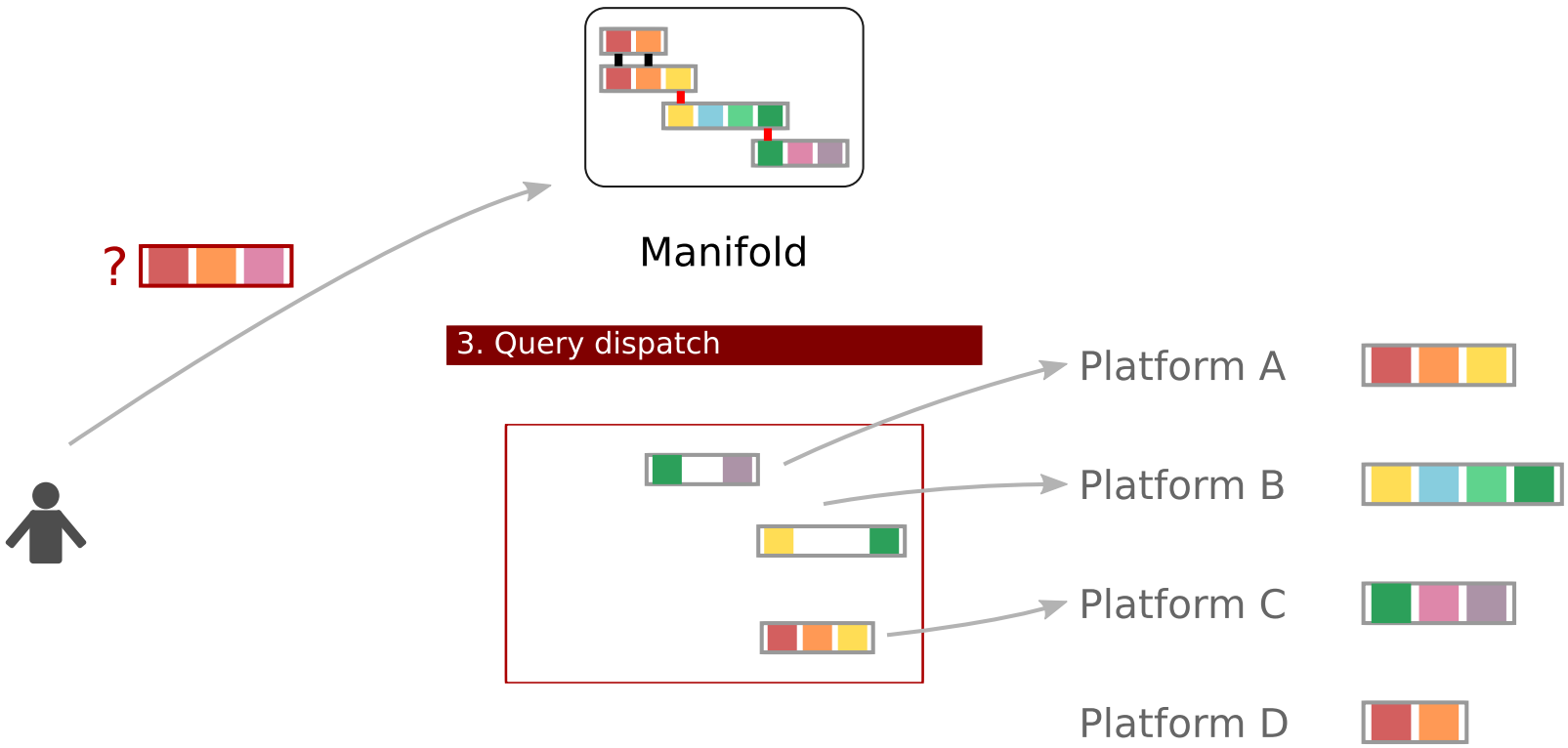
Platform A

Platform B

Platform C

Platform D

How does it work ?



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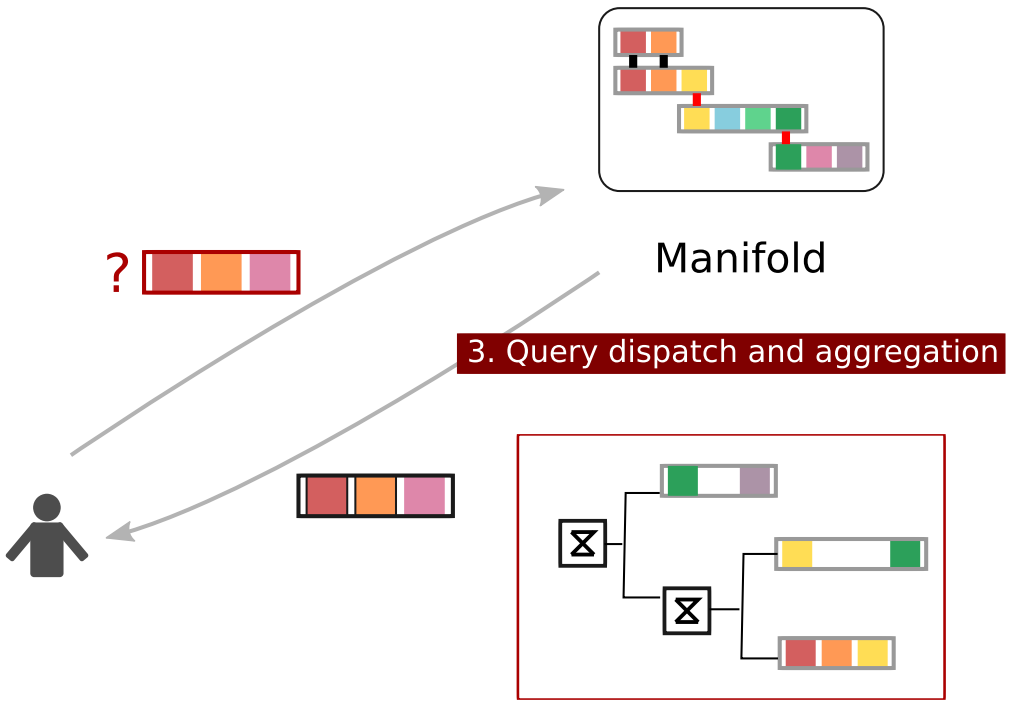


Platform A

Platform B

Platform C

Platform D

Aggregation

A typical experiment (eg. on PLE) might want

1. to retrieve consistently:
   - slice measurements in OML database(s)
   - traceroute from TopHat/TDMI + BW from SONoMA
   - system measurements from CoMon
   - geolocalization from a webservice
   - etc.

2. to issue cross-testbed snapshots of current cpu and network usage
   - each testbeds might use different monitoring tools

Composition and contextualization

Composition to enhance the value of individual platforms:

- traceroute + IP-to-ASN mapping = AS level traceroute
- testbed activity + geolocalization = usage monitoring on a map

Contextualization of M&M information


Usage monitoring related to **users**


Measurements and monitoring information related to **slices**


System & pairwise topology information about **resources**

Portal integration

Examples:

- Resource selection with respect to their properties
  - transparent in the portal: new columns
  - eg. geography (map), AS-level information, system data, etc.
  - pairwise measurements (in progress)

List | Map |

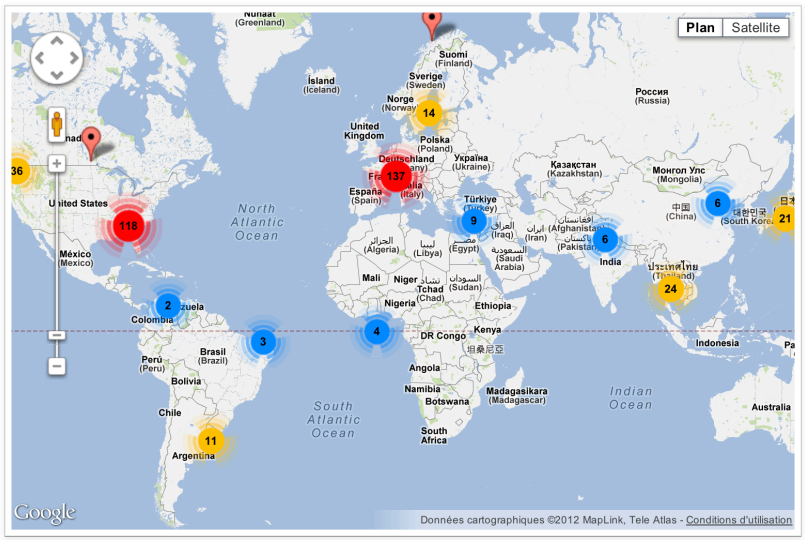
Show 10 entries Search:

Select All

network	type	hrn	hostname	+/-
ple	node	planetlab.test.eurecomple.planetlab1	planetlab1.eurecom.fr	
ple	node	planetlab.test.eurecomple.planetlab2	planetlab2.eurecom.fr	
ple	node	planetlab.test.loriaple.host4-plb	host4-plb.loria.fr	
ple	node	planetlab.test.upmc.plewifi	plewifi.ipv6.lip6.fr	
ple	node	planetlab.test.thalesple.thalescom-48-41	thalescom-48-41.cnt.nerim.net	
ple	node	planetlab.test.thalesple.thalescom-48-42	thalescom-48-42.cnt.nerim.net	
ple	node	planetlab.test.thomsonple.planetlab1	planetlab1.thlab.net	
ple	node	planetlab.test.upmc.ple6	ple6.ipv6.lip6.fr	
ple	node	planetlab.test.inria.openlab01	openlab01.pl.sophia.inria.fr	
ple	node	planetlab.test.inria.openlab02	openlab02.pl.sophia.inria.fr	

Showing 1 to 10 of 31 entries (filtered from 1,371 total entries) FirstPrevious1234NextLast

List | Map |



- Display all measurements related to a slice (in progress)

TopHat, MySlice, MANIFOLD

Supports testbed users throughout the experimental lifecycle
Targets federated experimental facilities

Measurement aggregation service
Supports the measurement community
Feeds measurements to MySlice

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MANIFOLD

Interconnection framework component
- Library, web GUI and API.

Supports both MySlice and TopHat

Conclusion

A simple interface for users and platforms...

- metadata describing information and processing capabilities
- simple query language

...thanks to an intelligent mediator (manifold)

- enhanced by the shared use of ontologies

- A base on which to build additional functionalities: alerts, reactive monitoring, auth(Z), provenance, ...
- Adopted or under discussion in several EU projects

Website: `http://trac.myslice.info/wiki/Manifold`
Contact: info@onelab.eu