Some thoughts towards an intercontinental federation

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The OneLab Experimental Facility

URL: `http://www.onelab.eu`

Federates testbeds from projects

(EU FP7)

(FR)

(FR)

(EU FP7 / BR)

A Legal framework: OneLab Consortium Agreement.

The OneLab Experimental Facility

1st phase launch

- Experimenter's portal open by end 2013
- Register users for the OneLab authority

Talk and demo at GEC18

Fully supported testbeds

PlanetLab Europe: Wired servers mostly across Europe

NITOS: Wireless mesh nodes

IoTLAB: Large scale deployments of WSN technologies to experiment with the Internet of Things

OneLab key federation software components (1/2)

Control plane

SFAWrap: A generic SFA wrapper to expose testbeds to SFA with minimal effort from testbed users (+ client libraries)
URL: `http://www.sfawrap.info`

Experimental plane

NEPI: A full-featured experiment control tool compatible, able to use NS3, FRCP(OMF) and SSH backends.
URL: `http://nepi.inria.fr`

Measurement & monitoring plane

TopHat: A measurement and monitoring aggregation service, compatible with several backends such as PostgreSQL, OML, perfSONAR (in progress), etc.

OneLab key federation software components (2/2)

Experimenter's portal

Integrated user portal supporting users' experiments from setup through completion

- User and slice management
- Advanced SFA client
- Tight integration of measurement and monitoring
- Open and extensible framework

Talks and demos at GEC 13, 15 and 18.

Roadmap towards a OneLab – GENI federation

Various (close) SFA specifications and implementations. . .

OpenSFA specification

- implemented in SFAWrap

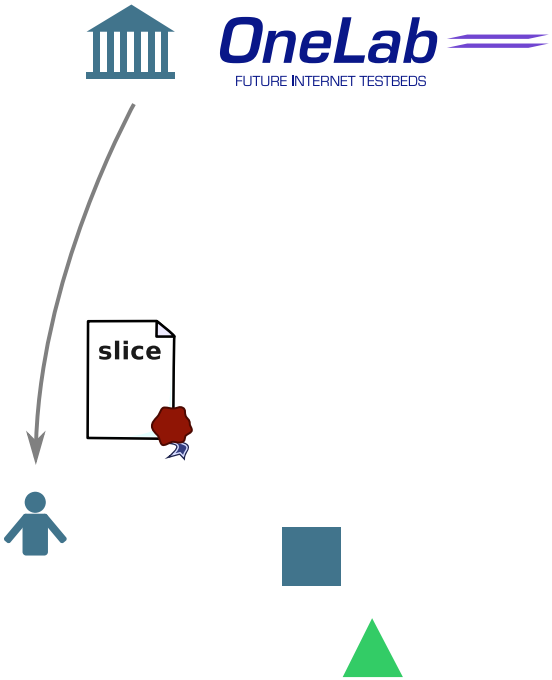
URL: `http://www.opensfa.info`

GENI specification

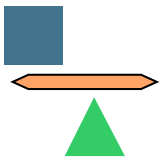
- implemented in protoGENI, etc.

URL: `http://groups.geni.net/geni/wiki/GeniDesign`

Towards a bidirectional federation



Towards a bidirectional federation



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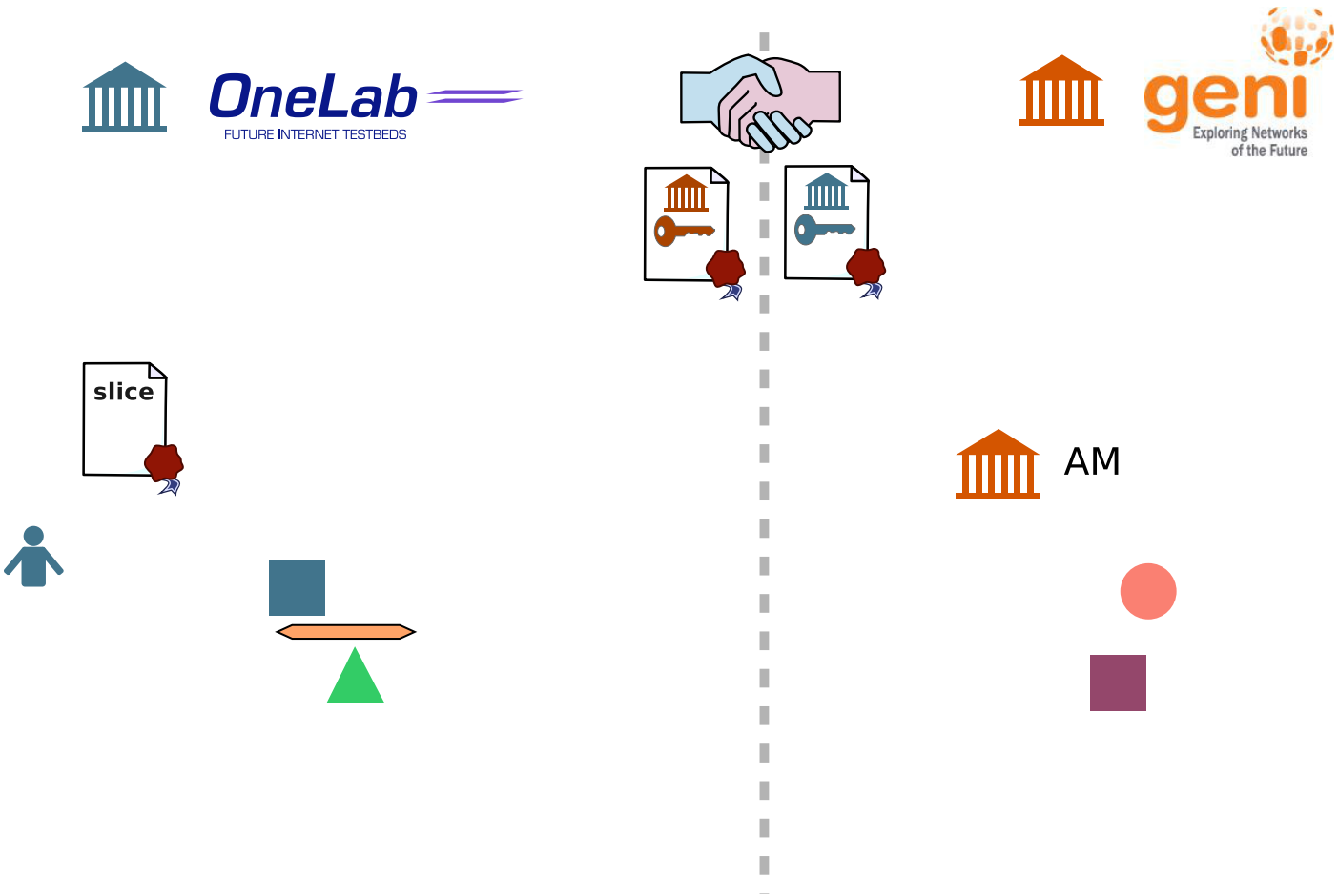

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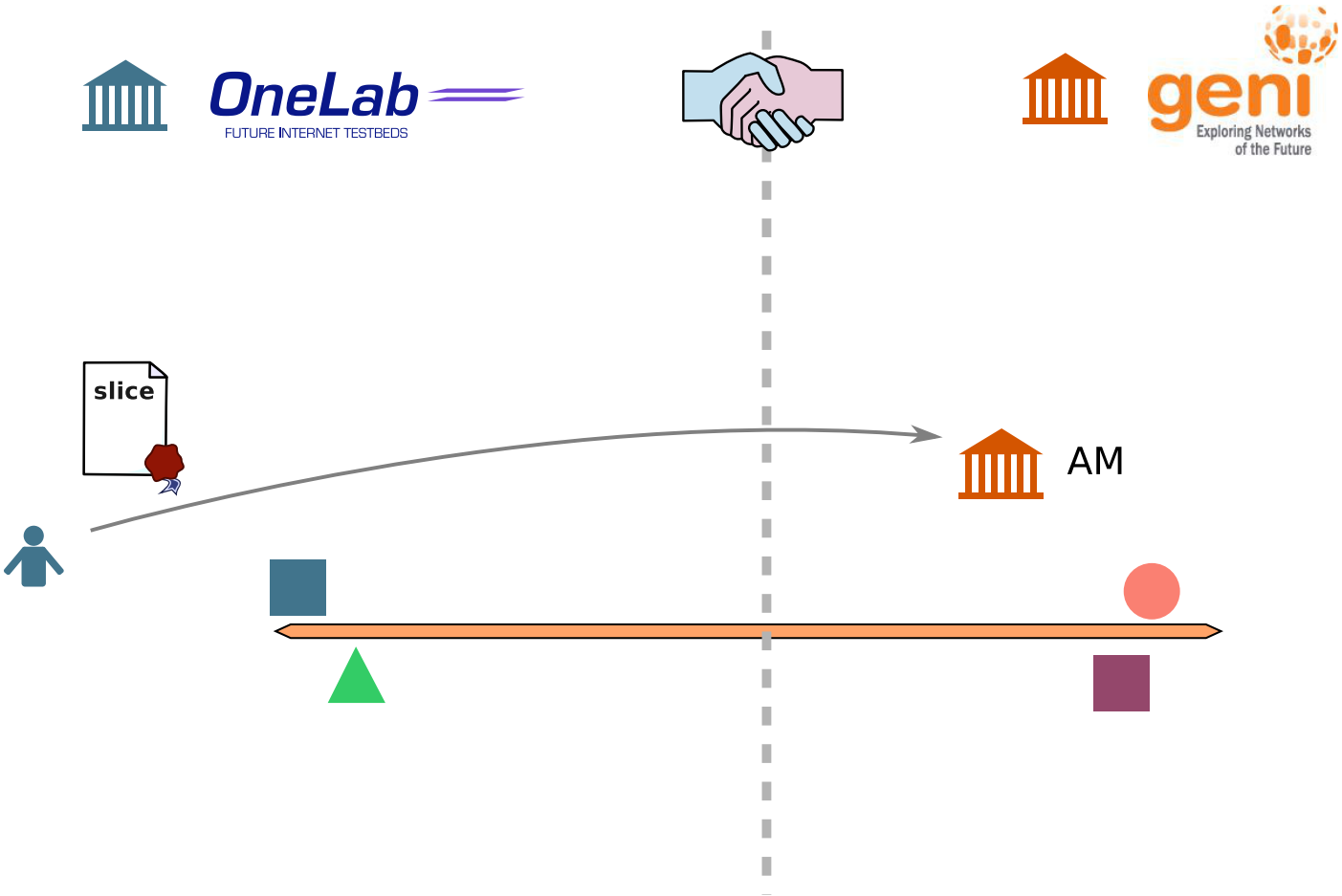

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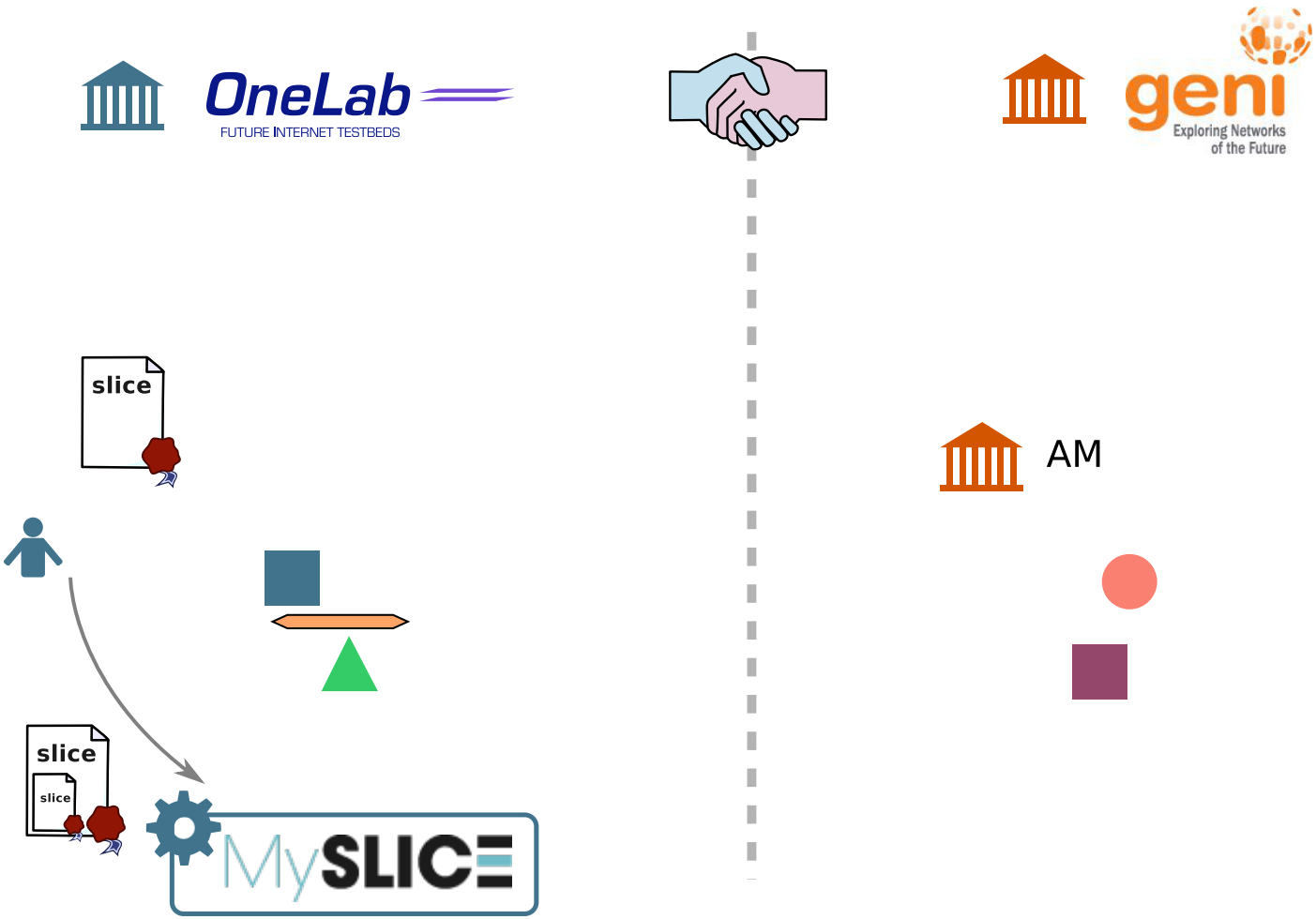

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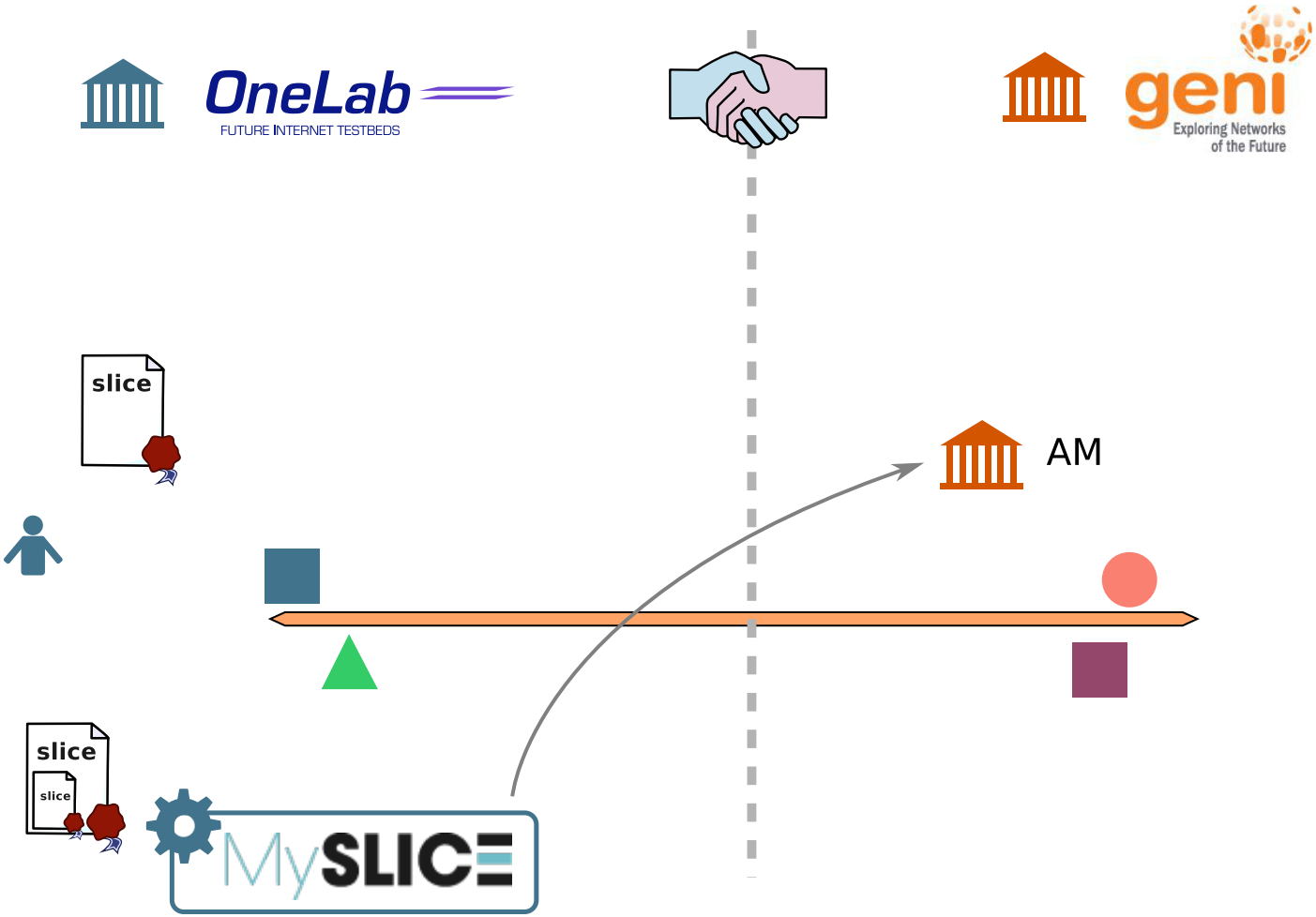


Roadmap towards a OneLab – GENI federation

Component	Comment wrt federation
Certificates/GID	slights differences
Credentials	mostly compatible
Delegated credentials	Incompatible
AM API	convergence on AM API v3
Registry/CH API	different APIs, same functionalities, not mandatory for federation

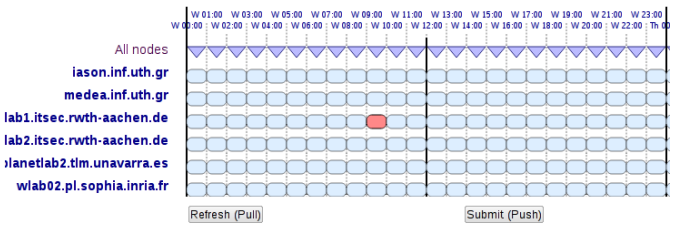
User's tool perspective

Metadata: `GetVersion()`

- easy to "standardize"
- new features ? (supported credential delegation, best RSpec version, etc.)

RSpec parsing and creation

- How a tool can cope with new highly heterogeneous new RSpecs
- RDF/OWL + ontologies ?



Support for shared functionalities

- reservable nodes: consensus implementation (NITOS, IoTLAB, etc.)
- mobility, etc. ?

Conclusion

Federation between OneLab and GENI CL is feasible in the very short term !

- Joint work needed to testbed federation: contacts ?
- Policies ?

Tools can cope with heterogeneity. . . heading towards joint specifications would be great !

- foster adoption, exchange, reuse of tools

Website: `http://www.onelab.eu`
Contacts: info@onelab.eu