ⅢPlane

Project acronym: mPlane

Project full title: "mPlane – an Intelligent Measurement Plane for Future Network and Application Management"

Grant agreement no: 318627

Staring Date: November 1st 2012

Total Cost: 11,274,908.00Euros

Duration: 3y

Partners: 16

Coordinator: **Prof. Marco Mellia** – Politecnico di Torino - IT
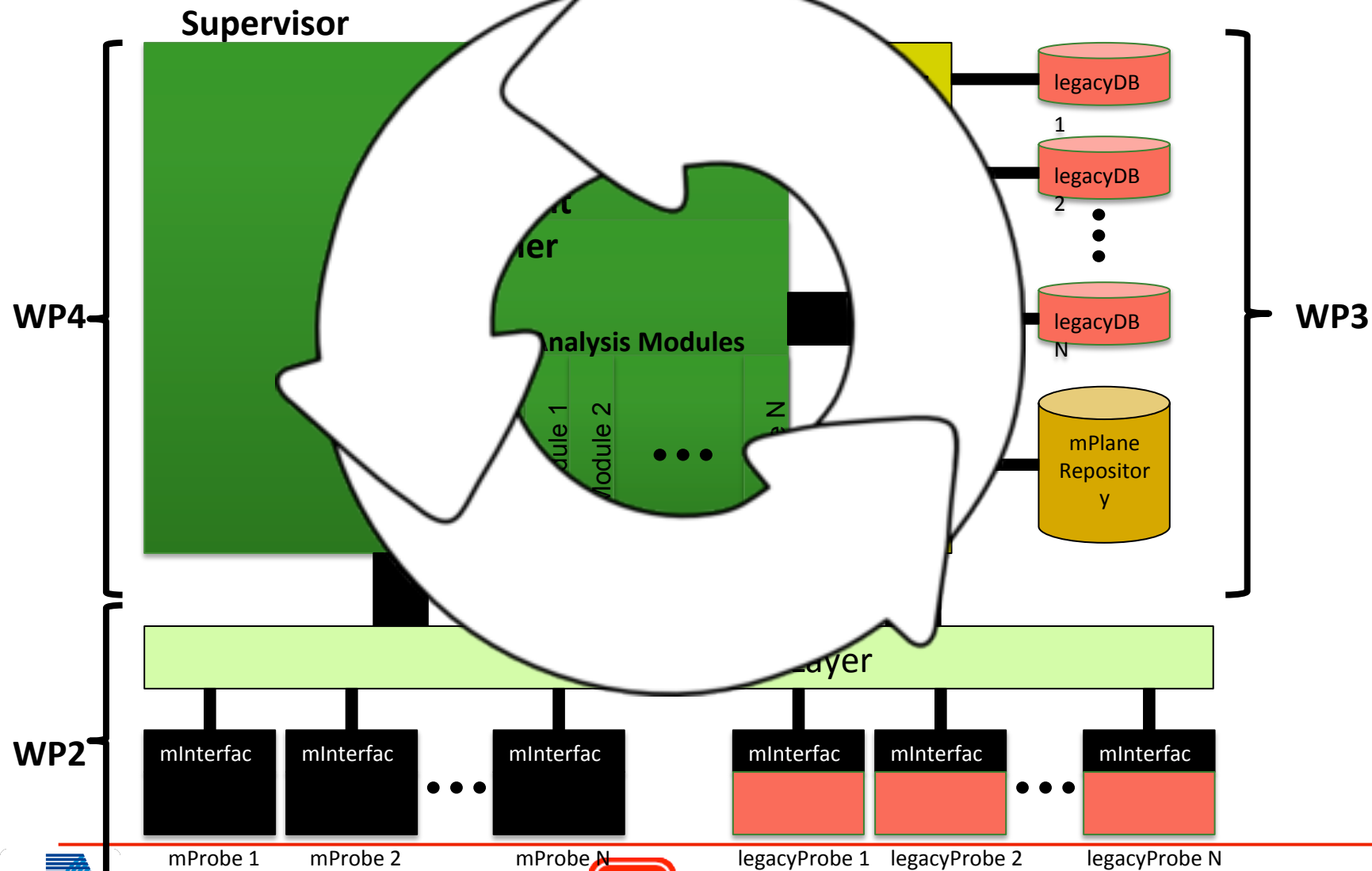
mPlane motivation

- The Internet is a global interconnection of networks
    - No single organization operates, administers or governs it
    - It is robust thanks to its diversity, but it is vulnerable and fragile
- In case of "failure", who can tell what's going wrong?
    - Each ISP may have a figure of what happens inside its network
    - But what if the failure depends on other ISPs? Or on the content provider? Or on the CDN? Or on user equipment?
- Today, the web is a tangle
    - Nobody really understands what happens today in the Internet
    - How to predict what will happen tomorrow?
- We need an intelligent system that **collects, analyzes**, **provides visibility to support** better management: **an oracle that provides answers**

Plane

mPlane in a slide

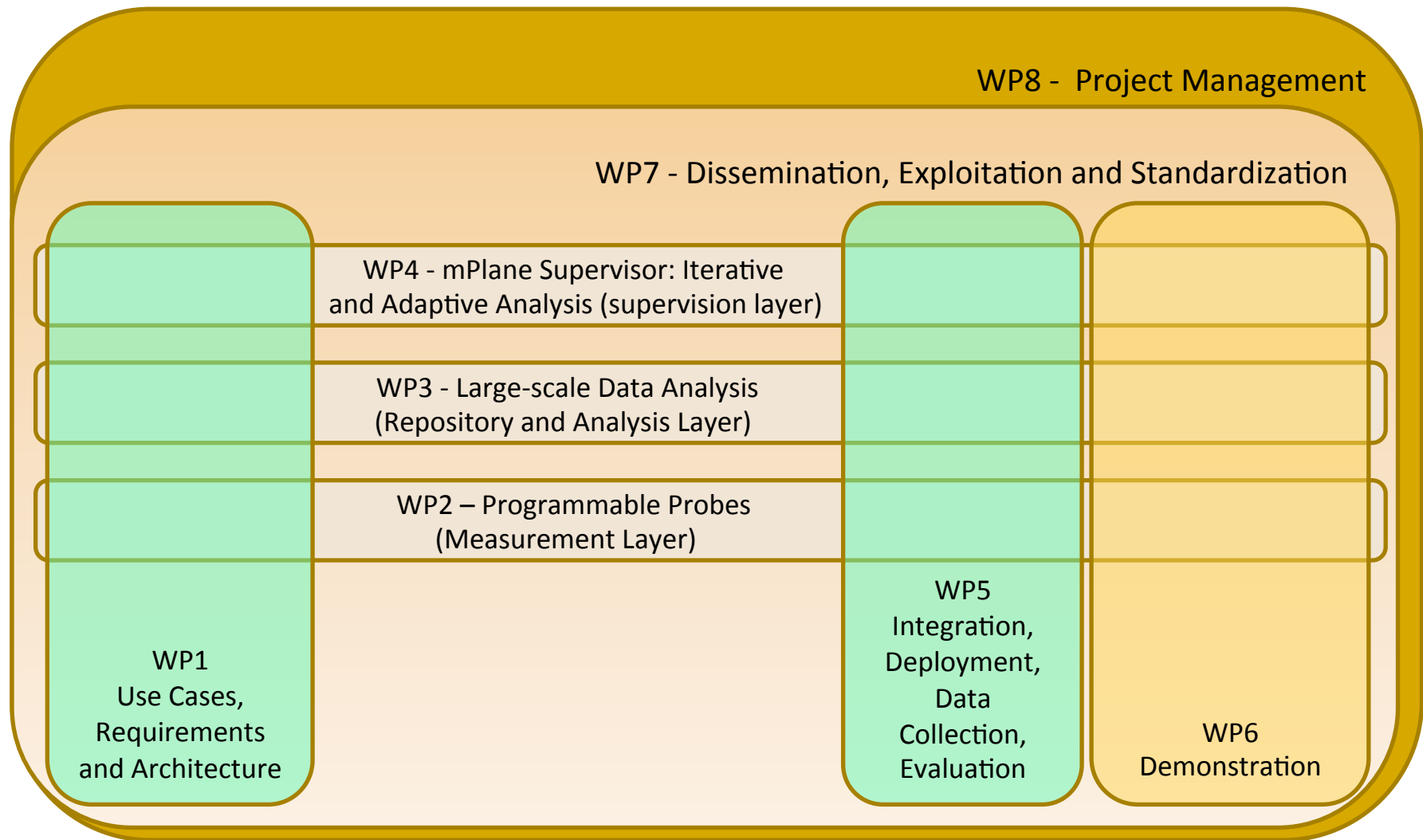- Build a distributed, open, standard measurement infrastructure for the Internet
  - **Probes (WP2) – get the data**
    - Build on existing tools/methodologies
    - Offer a flexible, programmable, open platform to run and collect passive, active, hybrid measurement
  - **Repositories (WP3) – store and preprocess the data**
    - Collect measurement in a standard way
    - Pre-process large amounts of data in efficient ways
    - Grant access to interested parties (ISP, content providers, end-users, regulation agencies, etc.) subject to authorization rules
  - **Intelligent reasoner (WP4) – dig into the data**
    - Mine automatically the data and extract useful information
    - Help in drilling down to the root cause of a problem
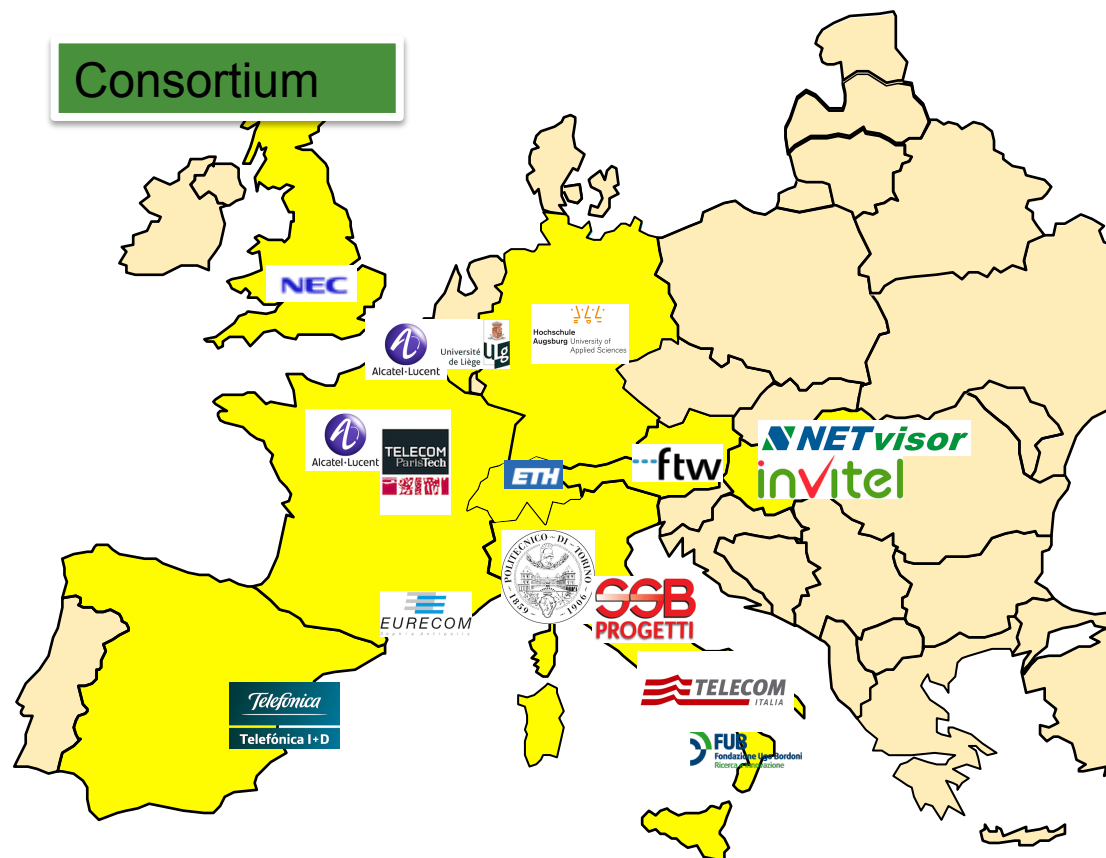
mPlane in a picture

Supervisor

WP4

WP3

Analysis Modules

Module 1 Module 2 ... N

legacyDB 1
legacyDB 2
...
legacyDB N

mPlane Repository

Layer

WP2

mInterfac | mInterfac | ... | mInterfac | mInterfac | mInterfac | ... | mInterfac

mProbe 1 | mProbe 2 | mProbe N | legacyProbe 1 | legacyProbe 2 | legacyProbe N

mPlane

mPlane WPs'organization

mPlane objectives

mPlane Mission and S/T Objectives	Benchmarks
1. **(M)** *Improve knowledge of the state of the Internet and enable better network management and operations*	Improvements in terms of capabilities and time to perform the troubleshooting documented in the assessment and evaluation deliverables (WP5).
2. **(M)** *Increase the transparency of the Internet*	Use cases that exploit the transparency provided by mPlane documented in the assessment and evaluation deliverables (WP5).
6. **(M)** *Offer the research community a large and well-defined set of measurements coupled with a standard and open platform*	Probes and repositories open for the research community (following the applicable privacy regulations).
1. **(S/T)** *The definition of an architecture for the mPlane platform*	Interface definition to interact with existing/emerging/novel standards (WP1)
5. **(S/T)** *The prototyping and demonstration of mPlane capabilities and benefits*	WP5 and WP6 deliverables documenting the mPlane prototype and demonstrator.

mPlane impact

#	Expected impact
1	**Strengthened positioning of European industry** in the fields of Future Internet technologies, mobile and wireless broadband systems, optical networks, and network management technologies.
2	**Developing the technology** for the future generations of the European high-speed broadband and mobile network infrastructure.
3	**Increased economic** and energy efficiency of access/transport infrastructures (cost/bit).
4	**Contributions to standards** and regulation as well as the related IPRs, with a predominant role for Europe in standardization bodies and fora.
5	**Industry adoption** of integrated all optical networks and of spectral-efficient broadband wireless systems, novel Internet architectures and technologies.

mPlane

mPlane partners

Consortium

- **Prof. Marco Mellia (PoliTo) Project Coordinator**
- **Dr Saverio Niccolini (NEC) Technical Coordinator**

- Prof. Ernst Biersack (Eurecom)
- Prof. Pietro Michiardi (Eurecom)
- Prof. Dario Rossi (ENST)
- Prof. Laurent Mathy (Univ.Liege)
- Prof. Bennoit Donnet (Univ.Liege)
- Prof. Bernhard Plattner (ETH)
- Dr. Brian Trammel (ETH)
- Prof. Fabio Ricciato (FTW)
- Dr. Pedro Casas (FTW)
- Dr. Dina Papagiannaki (TID)
- Dr. Giovanna Carofiglio (ALU)
- Dr. Fabrizio Invernizzi (TI)
- Dr. Rolf Winter (Hochschule Augsburg)
- …
- …

Collaborating Institutions

- **mPlane foresees the collaboration with external partners**
  - To strengthen the standardization effort in mPlane
  - To allow larger deployment of the mPlane system
  - To enable external partners to get in touch with mPlane technology
- **Collaborating institutions have no commitment**
  - No bureaucracy, no deliverable, no deadline
  - They can have access to results and technology preview
  - They can collaborate with partners
  - They get no funding

Perguntas

Fragen Domande Galdera Otázky

Questions

Spørgsmål Pertanyaan kysymykset

Spørsmål

Frågor Cwestiynau

вопросы Preguntes Sorular

Въпроси

Vragen

Pytania

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