

## Panlab IST034305 Teagle for Partners

Sebastian Wahle,  
[sebastian.wahle@fokus.fraunhofer.de](mailto:sebastian.wahle@fokus.fraunhofer.de)



## Agenda

- ▶ Overview
- ▶ Testbed Federation Requirements
- ▶ Panlab Roles
- ▶ Federation Architecture
- ▶ Functional Components of Teagle
- ▶ Repository, Service Description and Interconnection
- ▶ Implementation Issues and Outlook

## Overview

- ▶ Existing distributed testbeds (industry and academia) across Europe
- ▶ Target is to federate and re-use existing infrastructure rather than re-building

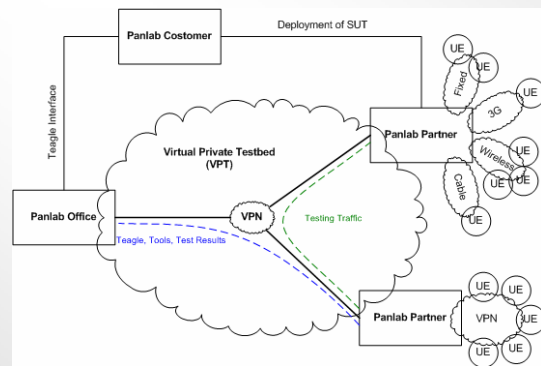
BUT:

- ▶ Highly heterogeneous landscape
- ▶ Different administrative domains
- ▶ Automated setup and configuration
- ▶ Nightmare from management point of view

## Federation Requirements

- ▶ Testbed / service search
- ▶ Interconnection
- ▶ Addressing
- ▶ Description and Classification
- ▶ Repository
- ▶ Service Composition

## Panlab Roles I



## Panlab Roles II

- ▶ Panlab Office
  - Central entity that realizes a component brokering service for the test facilities, coordinating and supporting the Panlab organization
  - Besides coordination and operational activities, Panlab Office is responsible for the technical and business development of Panlab as well as marketing and public relations.
- ▶ Panlab Partner
- ▶ Panlab Customer

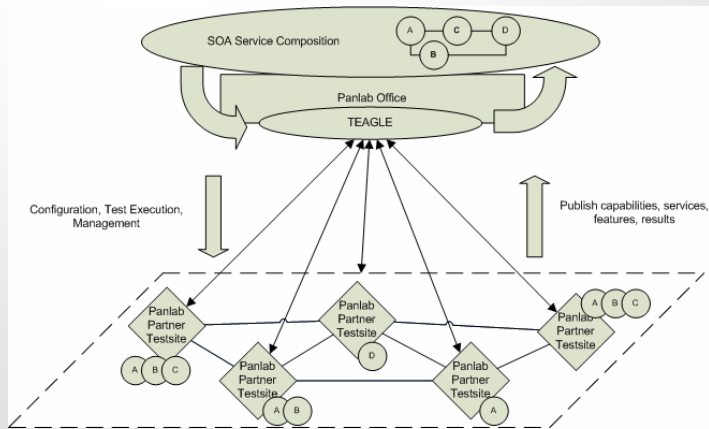
## Panlab Roles III

- ▶ Panlab Office
- ▶ Panlab Partner
  - Provides testing or any other supporting services.
  - Panlab Partners are connected to the Panlab Office for offering their capabilities and services and to customers
  - Testing and other cooperation traffic is transported via secure VPN connections.
- ▶ Panlab Customer

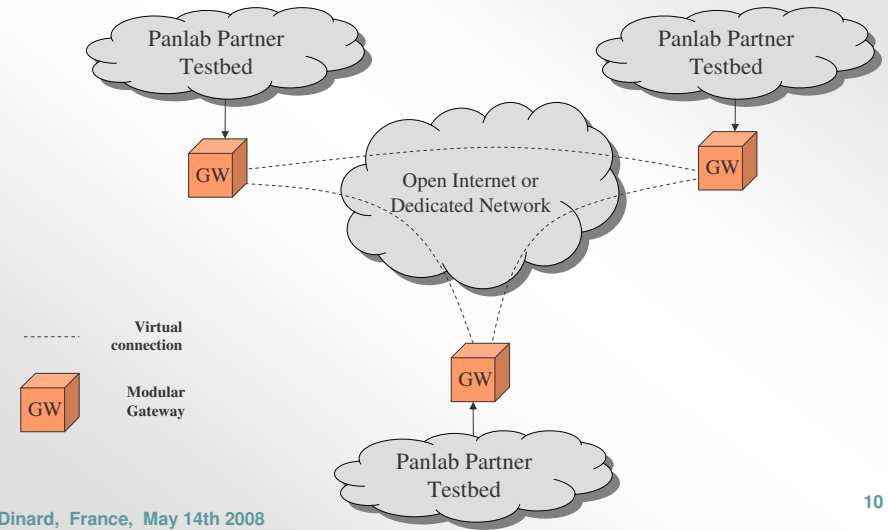
## Panlab Roles IV

- ▶ Panlab Office
- ▶ Panlab Partner
- ▶ Panlab Customer
  - Uses services provided by Panlab
  - Customers typically carry out R&D projects, implement and evaluate new technologies or products, or introduce and evaluate new telecom services, benefiting from the Panlab infrastructure.

## Architecture I



## Architecture II



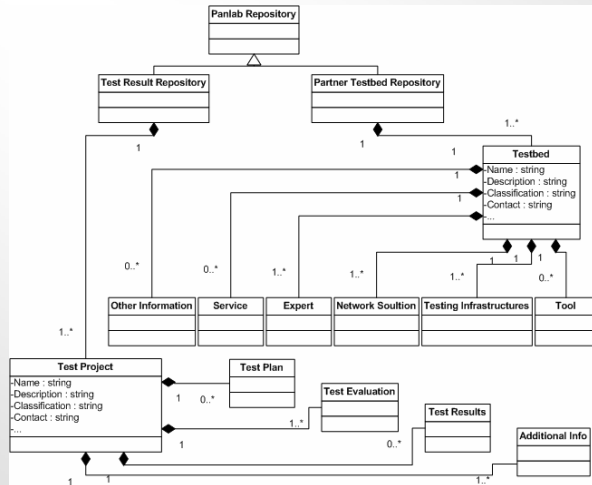
## TEAGLE

- ▶ Provides interface to customer
- ▶ The testbed search engine
- ▶ Provides search tool based on the service descriptions held in the repository
- ▶ Provides service composition engine
- ▶ Availability checks, booking, scheduling, etc.

## Repository I

- ▶ Holds the descriptions of testbeds and services
- ▶ Semantic descriptions are required for services to enable meaningful composition
- ▶ The will also be used as a result repository

## Repository II



## Interconnection and Addressing

- ▶ Testbeds will be interconnected via VPN
- ▶ VPN maintenance should be provided by Panlab Office
- ▶ Uniform addressing scheme required for entire Panlab

## Service Description

- ▶ Uniform way of describing services offered by the testbeds is required
- ▶ Semantics must be included to allow search and composition
- ▶ Most probably ontologies needed
- ▶ Classification scheme is needed
- ▶ Static classification vs. tagging and wisdom of crowds

## Phased Implementation Approach

- ▶ Phase 1:
  - Manual description of resources
  - <http://www.panlab.net/testbed-repository.html>
- ▶ Phase 2:
  - Middleware can be used to advertise some resources
  - Manual configuration
- ▶ Phase 3:
  - Teagle will directly interact with testbed resources in order to establish the testbed configurations on-demand based on the customer descriptions
  - Web Services provide the means to use most resources

## Summary

- ▶ At this stage we have gained a detailed insight into the problem space
- ▶ We identified the technologies to address some of the challenges and proposed some solutions
- ▶ Advantage: easy to join Panlab, not impose too much technical requirements on the Panlab Partner infrastructure
- ▶ Biggest challenge: very heterogeneous infrastructure
- ▶ PII will deploy what we have started

**Thank you**

**Questions?**

[www.panlab.net](http://www.panlab.net)  
[info@panlab.net](mailto:info@panlab.net)