



Offering of the FIRE Facility
prototype projects for running
and new research projects in
FP7 and beyond:

- [Wisebed](#)
- [PlanetLab Europe - Onelab2](#)
- [Panlab - PII](#)
- [Vital ++](#)
- [Federica](#)

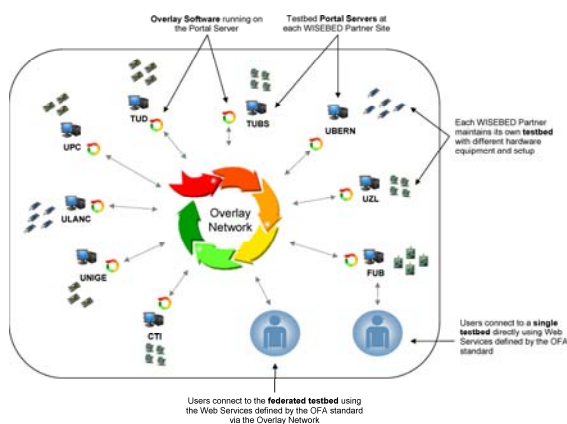
The WISEBED Experimental Facility

Potential Usage and Conditions

Status: February 2009

What does the WISEBED infrastructure look like?

The WISEBED Experimental Facility (WEF) currently consists of a number of independent sensor networks located at 9 locations throughout Europe. The following picture shows the architecture and the potential configurations:



In a nutshell, it is possible to use a single sensor network through its portal server, but there is also an overlay software which allows for the creation of virtual sensor networks built from physical networks and/or single nodes of networks. Details on the facility can be found in our first deliverables D1.1, D2.1, and D3.1. Please check www.wisebed.eu!

What can be tested?

Based on the available sensor networks and their sensors, basically all kinds of protocols, algorithms, middleware, and applications can be tested as long as the run on top of the MAC layer. Users are free to configure virtual networks as needed, and they can use different sensor node configurations. Those who want to test their own middleware can build on top of the MAC, those who want to create new algorithms or applications can use our own middleware and/or the library of sensor network algorithms, WISELIB.

How can I test?

There are basically no prerequisites, besides the ability to remotely configure your desired virtual networks and to call web services. All access to WEF is through the portal servers and the overlay software.

When can WISEBED be used?

WEF will be available, as a first prototype, from January 2010 on. The service will afterwards be gradually improved. Users have to register first in order to then be able to make reservations for specific days and configurations through the WEF management software.

Sounds great – but how much does it cost?

Until the end of the WISEBED project itself (June 2011), using WEF itself will be free of charge. However, there is a mandatory introductory 2-day-course into using the system for which we charge €1.000 per participant. In addition, we offer support on a half-day base for which we charge €300. We strongly recommend the support to all non-sensor network experts at least at the beginning of the WEF usage. After the end of the WISEBED project itself, usage cost will be €100 per day for academic institutions and €300 for commercial companies. Support rates remain the same.

Can the availability be guaranteed?

Yes, the experimental facility will continue to exist after the WISEBED project, potentially, however, organized in a different way.

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PlanetLab Europe – A Resource for Distributed Systems and Networking Research

Potential Audience: Research and Industrial efforts to understand the operation, performance and robustness of Internet algorithms and applications under real-world conditions. Developing and deploying Internet scale services depends on the ability to test these services with geographic distribution and real-world networks. PlanetLab Europe provides a reliable realistic platform for trial deployment and experimentation.

For what: Access to hundreds of Linux systems physically distributed across the world and available on the public Internet. Participants can provision private virtual servers on any PlanetLab node. These virtual servers can be used to deploy live Internet services that are exposed to the same issues as might be seen in production environments: bandwidth, latency, robustness and failure. In addition, diversity is progressively added to PlanetLab Europe in order to provide resources akin to those that exist or will be deployed on the Internet, namely some wireless components as well as emulation capabilities are now available and others will be made available in the future.

How: PlanetLab Europe is a partnership. Research and Industrial partners sign an agreement to abide by our Acceptable Usage Policy. The partner then provides two or more connected nodes to the PlanetLab Europe system and receives the ability to create and utilize virtual servers on any PlanetLab node. For more details, visit the PlanetLab Europe website (<http://www.planet-lab.eu/>).

European Research Institutions and 7th Framework projects may join the consortium at no cost, but must still install and maintain at least two server-class computers, connected to the Internet without a firewall, and made available to the PlanetLab Europe system to administer and provide access to researchers worldwide.

Emerging proposals: Coordinators who are preparing project proposals for FP7 are encouraged to contact us if their proposal will include deployment of experiments on PlanetLab Europe. We are happy to work with them to understand if and how PlanetLab Europe can meet their research needs. Coordinators are encouraged to include the following template in their proposals:

Proposed project name:

Coordinator name:

Description of proposed experiments: (one to three paragraphs)

We are prepared to fulfill the conditions for PlanetLab Europe membership as laid out in the PlanetLab Europe Membership Agreement.

Contact: support@planet-lab.eu.

Services offered by Panlab partners

Responding to the requests by future collaborative projects that anticipate using available experimental facilities as their main testing environment, the Panlab partners offer information about what can be tested today and at which conditions:

- What you can test (e.g. which layers, protocols, architectures, applications...)
- How you can test (e.g. what are the necessary prerequisites to test, how do you connect to the test bed)
- What will be your cost for testing (to help you better plan your resources)
- What will be your guarantees for the above (e.g. contracts, agreements, commitment beyond EC-funding period)
- All testing facilities are operational and services can be contracted today!

ArcLabs NGN Testbed

The ArcLabs NGN testbed is operated by the Telecommunications Software & Systems Group (TSSG) at Waterford Institute of Technology, Ireland. The services are operational today, and will be available to external partners from January 2010.

You can [download a description of the service offering](#), which includes an excerpt from the costs for the use of the services, however you should always contact the test center manager for the most up to date service offering.

Other relevant information are in the Panlab repository if you follow [this link](#).

Media Interoperability Lab

The Media Interoperability Lab is operated by fraunhofer FOKUS in Berlin Germany.

You can [download a short description of the service offering](#), however you should always consult the [website](#) for the most up to date service offering. The Media Interoperability Lab was present at the Mobile World Congress 2009 with its [Interactive Rich Media Services for IPTV and the Mobile Web](#) offering.

Other relevant information are in the Panlab repository if you follow [this link](#).

Octopus Network

The Octopus Network is operated by Oulu Innovation, large parts of which are located in the city of Oulu, Finland.

You can [download a description of the service offering](#), as well as an excerpt from the [costs for the use](#) of the services, however you should always contact Oulu Innovation the most up to date service offering.

Other relevant information are in the Panlab repository if you follow [this link](#).

Open SOA Telco Playground

The Open SOA Telco Playground is operated by fraunhofer FOKUS in Berlin Germany.

You can [download a description of the service offering](#), however you should always consult the [website](#) for the most up to date service offering. Other relevant information are in the Panlab repository if you follow [this link](#).

Future Services

The service offering is continuously being enriched and capabilities being added, in order to serve as a credible research playground for European researchers in the area of Future Internet. To can get an idea about future service offerings you are welcome to browse the [Panlab testbed repository](#).



VITAL++

Embedding P2P Technology in Next Generation Networks: A New Communication Paradigm & Experimentation Infrastructure

Potential Audience: Industrial sectors like operators, content providers and content distribution platform providers or a combination thereof. This also includes their users (customer base) to deliver similar multimedia services beyond conventional means. Academia also may use VITAL++ facilities in order to test and compare new P2P algorithms and schedulers for content delivery.

What can be tested: Operators or content delivery network providers could use VITAL++ testbed in order to distribute content to a pilot customer base using P2P. To this end, they will be in a position to evaluate a different way of content distribution. Furthermore following the VITAL++ paradigm, they can adapt their existing telecom infrastructure in order to accelerate P2P operations by making use VITAL++ interfaces. This can be mainly be achieved through the hybrid architecture of VITAL++ client that can be distributed to their customers. We note here that VITAL++ can be adapted to work either in telecom environments like IMS or in the internet. Similarly, new P2P algorithms and schedulers proposed by researchers can be incorporated in order to be evaluated by being compared with existing ones.

How can I test: Currently, there are no prerequisites for testing. Due to the nature of the VITAL++ testbed that requires the use of the VITAL++ client and a telecom infrastructure like IMS (the latter is not mandatory) a number of adaptations might be required in order to customize the client and tune with the requestor's infrastructure or applications. The extent to which such adaptations should be carried out depend on the scale of the testing.

When can I test and how much does it cost: Currently, the network and client architecture are under specification. Likely time for VITAL++ availability is second half year of the project, beginning of 2010. Then potential users will need to get in contact with VITAL++ to discuss their requirements and prepare a roadmap for the necessary adaptations. The envisaged costs are mainly due to the work that needs to be done for the adaptations. In case of a need for a telecoms environment, in case that this is not provided by the customer can be requested from other experimental facilities like Panlab.

Testing Beyond VITAL++ context: Although VITAL++ is targeting at content delivery, a number of key architectural components can be used and become useful in other contexts like storage, monitoring applications. To this end, other EU projects may make use of the VITAL++ experimental facility too.

Can the availability be guaranteed: Yes, some of the partners are willing to maintain the experimental facility beyond the lifetime of the project, provided of course that there is interest for its usage.

Contact:

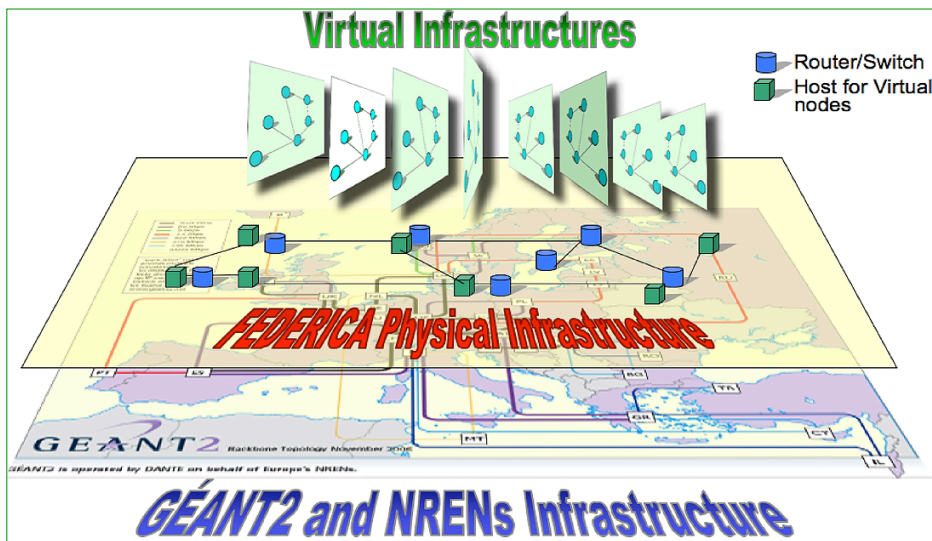
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What is FEDERICA?

FEDERICA is a European Project that manages a distributed e-Infrastructure based on virtualization, to support research on networking and Future Internet technologies.

What can it do?

The FEDERICA infrastructure (the substrate) using virtualisation techniques can be “sliced” to create virtual infrastructures to be handled to researchers. The substrate is based on Gigabit Ethernet circuits, computing nodes capable of hosting virtual systems and network switch/routers.



Started: 1 Jan 2008
Duration: 30 months

Project partners:

CESNET	CZ
DANTE	UK
DFN	DE
FCCN	PT
GARR (coord.)	IT
GRNET	GR
HEAnet	IE
i2CAT	ES
ICCS	GR
Juniper Networks	IE
KTH	SE
Martel	CH
NIIF/Hungarnet	HU
NORDUnet	DK
POLITO	IT
PSNC	PL
Red.es	ES
SWITCH	CH
TERENA	NL
UPC	ES

Each slice contains circuits, network virtualized programmable switches and computing resources, allocated and controlled by the user (researcher). The substrate creates resources that are agnostic as to the type of protocols, services and applications that may be trialed, whilst allowing disruptive experiments to be undertaken.

The basic resource within a slice (e.g. an instance of a Juniper router or a virtual machine over a Linux operating system) is “blank” and can be configured by the slice “owner”..

Particular care has been devoted the isolation between slices and overall reproducibility of the experiments.

How can it be used?

There are two main ways to use FEDERICA slices. For users that wish to test distributed applications that require virtual routers and hosts, it is possible to request a slice containing an IP routed network setup configured according to their needs. Alternatively, users wishing to test new network protocols or technologies might request a number of virtual machines interconnected by Ethernet circuits in a suitable topology, onto which they could upload their configuration and software (including open source router or, end nodes images).

Slices can contain point to point L2 circuits, L3 configurations (IPv4 & IPv6 unicast and multicast), routing resources, and hosts able to run operating systems of various flavours. The interconnecting circuits are provided using VLANs or MPLS L2 LSPs, although in both cases Ethernet framing is used (SONET/SDH framing is not currently possible). These circuits can also be setup with guaranteed bandwidth, using QoS techniques like 802.1p (up to 4 classes of service), or switches line card shaping in hardware.

Slices are accessible either directly or through a gateway host from everywhere via the Internet. The user does not need then to move from its office to use a slice. At the present time, access to resources is undertaken through SSH, but the plan is to eventually allow slices to be controlled through web services. The FEDERICA infrastructure also has monitoring facilities that can be utilised to collect relevant information for diagnostic purposes.

Monitoring information may be requested on the resources used in a slice.

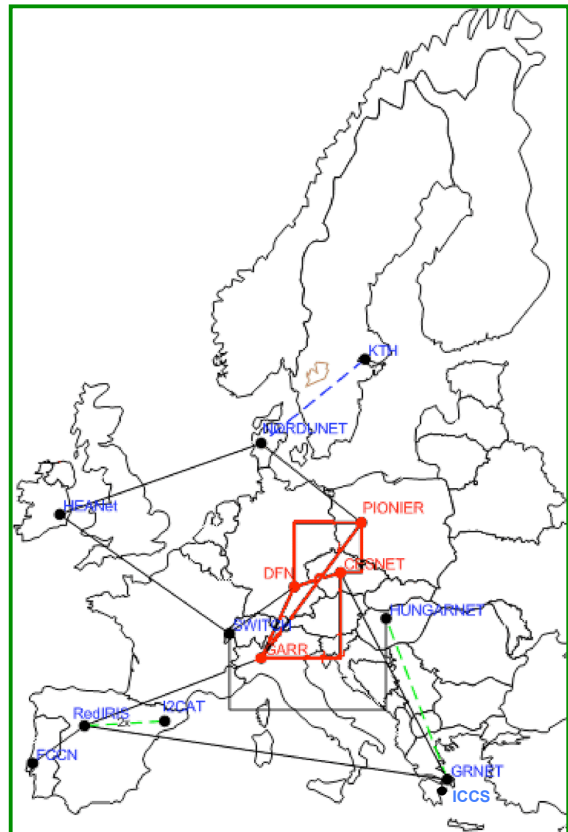
What does the e-Infrastructure substrate look like?

The substrate is not accessible by the user and it will be managed by the FEDERICA network operation centre to create slices.

The FEDERICA infrastructure is comprised of thirteen planned Points-of-Presence (PoPs), closely associated with National Research & Education Networks (NRENs) and their GÉANT interconnection. PoPs host programmable routing and switching equipment capable of supporting virtualisation; they are inter-connected via dedicated Gigabit Ethernet circuits.

Four of these PoPs are core nodes, hosted in NRENs. Core PoPs are connected in a full mesh topology and are operational since November 2008. The remaining non-core nodes (being introduced into service) complement a long distance multi-domain environment for undertaking end-to-end experiments under real world conditions.

The FEDERICA project is open to physically interconnect to other e-Infrastructures. The substrate can also host a limited amount of user's equipment in its PoP.



More information at: <http://www.fp7-federica.eu/infrastructure/infrastructure.php>

How can I request a slice ?

External projects and users are encouraged to make use of the FEDERICA infrastructure. Proposals need to be submitted to the User Policy Board (UPB) for a usage agreement (see <http://www.fp7-federica.eu/users/users.php>). The procedure is requested so that the resources can be allocated in the best way to ensure separation, reproducibility and optimization of the infrastructure. It will also be necessary to sign the Acceptable Use Policy, and allow a few days for the slice to be set up.

Are there costs and usage time limits ?

The use of a slice composed by the available resources is free of charge. To favour the use of the infrastructure by all users a proposed maximum use time of three months is suggested. When requesting additional services or resources the cost will be agreed on a case by case basis.

More information and detailed documentation is available at <http://www.fp7-federica.eu/>