
FIRE FOR FUTURE
INTERNET SUCCESS

FIRE IS REAL - USE IT!

Networks are the neural system of our society: the Internet keeps revolutionizing the world - the way we work, exchange, interact, communicate and behave. Equally, we revolutionize the Internet - the way it works, exchanges, interacts, communicates and behaves. Our needs, usage and visions push it to evolve into the Future Internet. The Internet is consequently a complex and evolving entity where any technological development, no matter how small, may have multifaceted and surprising consequences.

Humans are heuristic and discover through experimentation. Any research into new ways of approaching the Internet from the most fundamental level simply cannot be limited to paperwork. Early and realistic experimentation and testing in a large-scale environment is required, even though some of these ideas may only be implemented in the long-term.

WHAT IS FIRE?

FIRE - Future Internet Research and Experimentation - is a European Commission initiative which addresses the need to experiment with networks, creating a multidisciplinary environment for investigating and experimentally validating highly innovative and revolutionary ideas for new networking and service paradigms. FIRE offers a discipline, a platform and tools for trying out novel ideas for the Future Internet. FIRE is promoting the concept of experimentally-driven research, combining visionary academic research with the wide-scale testing and experimentation that is required for industry. FIRE helps to create a dynamic, sustainable, large-scale European Experimental Facility, the FIRE Facility, which is constructed by gradually connecting and federating existing and upcoming testbeds for Future Internet technologies.

THE FIRE FACILITY IS REAL - LET'S USE IT!

The FIRE Facility projects are building a variety of prototypes with different characteristics. Early versions are available now, trials ready to start; all facilities are subject to development in a demand-driven way. Services and tools remain available beyond the lifetime of the respective projects.

This publication gives an insight into what is real and usable today in FIRE. FIRE projects, funded by the European Commission under FP7 ICT Objective 1.6, are presented here, with a focus on use cases as concrete examples of experimentation. The FIRE outcome is open and public for all experimenters who find the facilities offered suited to their R&D needs. The FIRE Facility prototypes invite you as exploratory users: profit from being one of the first users and shape the FIRE Facility according to your needs!

We hope to spark your enthusiasm and ignite your burning desire to explore and experiment within FIRE. We can help you light up the Future Internet, because FIRE is real.

At your service,
FIRE STATION

CONTACT: contact@ict-fire.eu

Contact FIRE-office *

FIRE EC *

Information about the activities of the European Commission on FIRE - Future Internet Research and Experimentation, and about all FIRE projects at cordis.europa.eu/fp7/ict/fire/

* MOBILE CODE FOR THE ADDRESS. DOWNLOAD CODE READER: WWW.I-NIGMA.COM

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VeRTIGO: GENERALIZED SLICING MECHANISMS IN OPENFLOW NETWORKS

PARTICIPANTS

CREATE-NET (Italy)
University of Essex (UK)

CHALLENGE

A recent development in network virtualization is the use of FlowVisor, which exploits the specific features of an OpenFlow-controlled network, sharing the same hardware forwarding plane among multiple virtual networks. However, the rigid slicing mechanism of FlowVisor forces researchers to keep the network topology of their experiments strictly based on the physical topology of the underlying physical infrastructure.

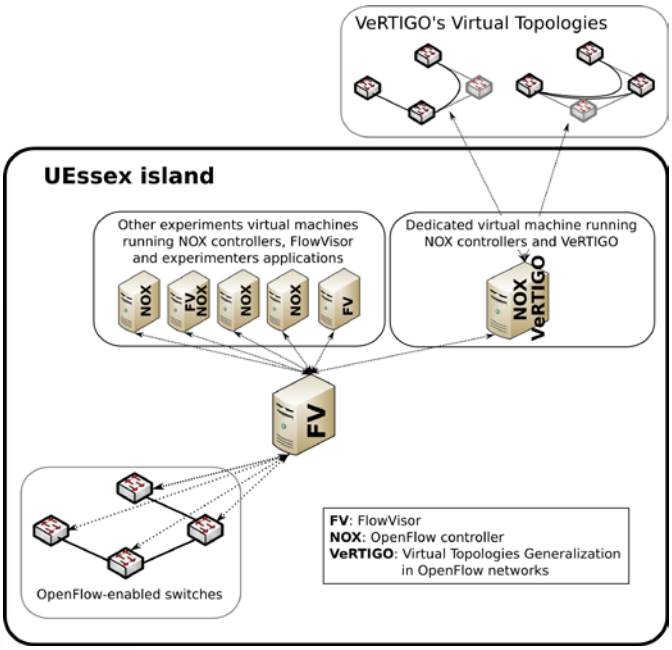
SOLUTION

To overcome FlowVisor limitations, novel slicing mechanisms are being developed. VeRTIGO (ViRtual Topologies Generalization in OpenFlow networks), a recently accepted initative in the first Open Call of the OFELIA IP project, is developing a prototype to enhance FlowVisor, providing two additional novel functionalities. VeRTIGO offers management of virtual links (a virtual link being a logical aggregation of several physical links and OpenFlow-enabled switches), as well as enabling virtual port management, where virtual ports connect switches to the network through virtual links. These two new capabilities will add flexibility to FlowVisor's slicing mechanism, freeing experimenters from the physical topology of their testbed.

FIRE CONTRIBUTION

In principle, VeRTIGO slicing mechanisms can be placed between the OpenFlow controllers and the physical network, or between an instance of FlowVisor and the controllers, to recursively "slice" a virtual topology. The latter scenario, implemented in the OFELIA "island" located in the University of Essex (see image), demonstrates the efficiency of VeRTIGO's proposed network virtualization architecture using a facility where generalized virtual topologies are shown on top of a FlowVisor-based slice.

In its current setup, this OFELIA island consists of four OpenFlow-enabled NEC Ethernet switches and a pool of virtual machines to host the controllers and experiment-related programs. Experiments are sliced-based on VLAN tags. The experimental setup has been defined with a flow space including 10 VLAN tags, enabling the instantiation of a considerable number of virtual topologies. The University of Essex's infrastructure has permitted a large set of measurements to be performed to investigate the performance of VeRTIGO and its scalability in terms of numbers of controlled virtual topologies.



Testing VeRTIGO's virtual topologies on the OFELIA "island".

MORE INFORMATION:
www.ict-fire.eu›
Use cases› OFELIA

FIRE use-cases

TESTBED FOR FUTURE INTERNET SERVICES

THE eTRAVEL APPLICATION

PARTICIPANTS

ActiveEon (France)

CHALLENGE

The development of the Internet has greatly simplified the lives of air travellers by facilitating their control over each step of their journey – tickets can now be searched for, reserved and paid for online. However, this process is still far from perfect, as delays and bugs considerably reduce the efficiency of the on-line flight ticket booking system. De-bugging can be a costly process for these systems, which need to handle large amounts of technical data (extending to terabytes) as well as functional logs containing confidential information.

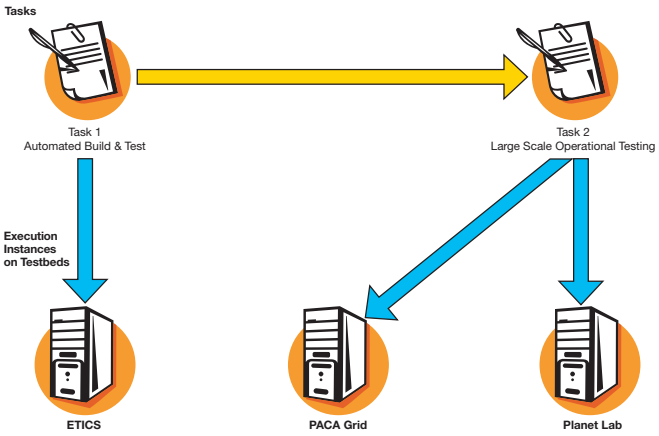
SOLUTION

The eTravel application is a commercial application under development by ActiveEon, which is intended to be run within an SOA (Service Oriented Architecture). It brings together many independent services for database access, log files and other dedicated tools, creating a complex system that allows specific SLA (Service Level Agreement) terms to be respected and supports the different environments required (such as different operating systems, applications, hardware, memory and storage capacity, etc.). All these services are orchestrated as a function of the life of the front-end application, which results in it being updated quasi constantly. The final result is a faster, more streamlined online ticket booking system.

FIRE CONTRIBUTION

The eTravel experiment is supported by the TEFIS project's single-access point to multiple test facilities. These include resources from three different testbeds: ETICS (Italy), PACA Grid (France) and PlanetLab Europe (Europe-wide). The TEFIS testing service has meant that ActiveEon are able to analyze the behaviour of the eTravel system, tracking efficiency and capacity to conform to the SLA, as well as tracking customer behaviour when bugs were reported. A high-level representation of user sessions can now be extracted for further evaluation.

The TEFIS Experiment Manager is used to request, configure and deploy resources, define test run workflows and generate the data structures used to hold the information that will be required during the test. The TEFIS Workflow Scheduler manages the deployment of the experiment to the appropriate resources. The TEFIS Connector Interface manages deployment to a given test resource and all components interact with the TEFIS Data Services to retrieve and store data during the experimental test run.



Overview of the eTravel experiment.

MORE
INFORMATION:
www.ict-fire.eu ▸
Use cases ▸ TEFIS

FIRE use-cases

BonFIRE

FEDERATED CLOUDS: QoS-ORIENTED SERVICE ENGINEERING OFFER

PARTICIPANTS

University of Southampton IT Innovation Centre (UK)

CHALLENGE

Today, Infrastructure-as-a-Service (IaaS) providers describe their infrastructure offerings in different and limited ways. Given heterogeneous and incomplete information about expected resource behaviour, how can consumers know what resources they will need to execute their application, especially when a particular quality of service (QoS) is required? If the application is already adapted for the IaaS provider's system then it may be possible to just try the application out and measure its performance, scaling the deployment as required. But what if the application is not yet adapted, or what if you want to choose between several IaaS providers?

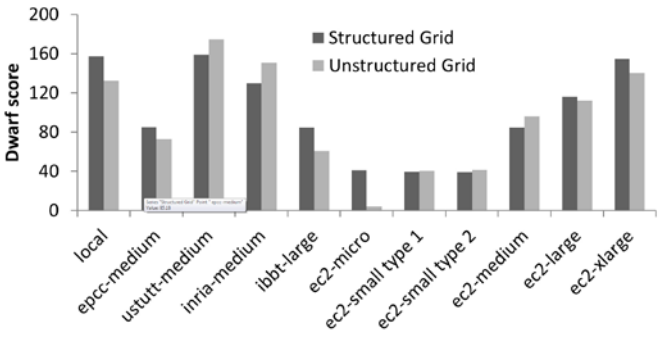
SOLUTION

QoS-oriented service engineering provides tools to predict application performance and help choose between IaaS providers. Such tools have the potential to shift power from the provider to the consumer by helping to reduce lock-in and increasing accountability. These tools describe IaaS resources in terms of algorithmic benchmark scores, meaning that application performance models will be easier, cheaper to create and yet still be sufficiently predictive to be useful compared to those that need to take hardware details into account.

The approach uses "dwarf benchmarks" as a way to describe hardware resources in terms of patterns of computation and communication which are then used by application performance models to predict performance. IaaS providers describe the performance of resources in terms of a standard set of benchmark scores or even agreeing SLAs in those terms. Alternatively, a Platform-as-a-Service (PaaS) provider (or consumers) can measure the performance of many IaaS providers, adding to one of many possible services that could be offered. This use case explores the complexity of QoS-oriented service engineering and thus the feasibility of a PaaS provider or other actors making such an offering.

FIRE CONTRIBUTION

The BonFIRE facility provides this experiment with a diverse array of hardware on which to execute application benchmarks and test applications accessed in a controllable and uniform manner. BonFIRE's ability to monitor and control QoS at physical, virtual and application levels is critical for the experiment. Moreover, the ability to request deployments with the same specifications repeatedly is important for the different experiment phases.



Comparison of the "dwarf benchmark" scores of structured and unstructured grids.

MORE INFORMATION:
www.ict-fire.eu › Use cases › BonFIRE

FIRE use-cases

COGNITIVE NETWORKING: COEXISTENCE OF WIRELESS DEVICES

PARTICIPANTS

IBBT (Belgium)
imec (Belgium)

CHALLENGE

Whether at home, in the office, or at conference venues, devices such as laptops, smart phones, or audio systems compete to access the scarce 2.4 GHz wireless spectrum, regularly resulting in slow or failing communication links. For example, a ZigBee-based sensor network used for home automation is likely to be interfered by Wi-Fi devices in the same environment.

SOLUTION

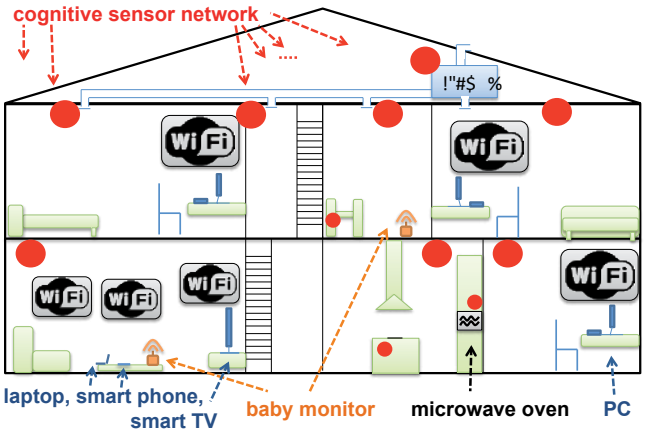
Cognitive radio and cognitive networking solutions optimize the use of the wireless spectrum, by dynamically changing the configuration of the radio transmitters and/or communication stacks, based on the characteristics of the environment in which they are operating. To solve the ZigBee/Wi-Fi coexistence issue, the ZigBee nodes dynamically switch between different communication channels based on local noise power measurements using their built-in radios, or based on spectral measurements collected by dedicated sensing engines.

FIRE CONTRIBUTION

FIRE has enabled this use case's solution to be tested and developed through the use of two components of the CREW infrastructure: the IBBT w-iLab.t testbed, and the imec sensing engine. The w-iLab.t is a heterogeneous, two-site wireless testbed, partly installed in an office building. At the office site, researchers are able to easily deploy, monitor, and evaluate cognitive solutions using the sensor nodes and/or embedded PCs available at 200 node locations.

The analog front-end of the imec sensing engine is built around the imec SCALDIO (SCALable raDIO) chip, which is able to support future flexible radios with a tuning range between 100 MHz and 6 GHz. Processing of the signals is done in real-time on an ASIP (Application-Specific Instruction-set Processor), called the DIFFS (Digital Interface for Sensing), which contains a wide variety of sensing algorithms.

For FIRE research, multiple sensing engines are integrated in w-iLab.t. Experimenters can complement packet-level information with a reliable view on the spectrum. In this coexistence use case, the sensing engines provide feedback on the spectrum efficiency of the developed cognitive channel selection protocols. Alternatively, the output of the sensing engines may be directly used as input for newly developed cognitive networking protocols.



Cognitive network protocols help to resolve interference issues in an environment where multiple devices and networks compete for access to the 2.4GHz ISM band.

MORE INFORMATION:
www.ict-fire.eu › Use cases › CREW

FIRE use-cases

DO-RE-MI: DIGITAL FOUNTAIN FOR EFFICIENT OVER-THE-AIR REPROGAMMING

PARTICIPANTS

Libelium (Spain)
University of Cantabria (Spain)

CHALLENGE

Wireless Sensor Networks (WSNs) are an innovative new form of experimental test facility, allowing research and experimentation on new architectures, services and applications for the Internet of Things (IoT). However, in order to configure different kinds of experiments and provide the new functionalities and thresholds needed to fulfill service profiles, WSN node clusters need to be regularly reprogrammed. This reprogramming, known as MOTAP (Multihop Over-the-Air Programming), imposes some challenges - particularly when a large number of nodes are involved. Often, each node is affected by different end-to-end communication conditions, and therefore a different packet error rate. Traditional coding schemes used for reprogramming are unable to meet the different requirements of each node, making the process inefficient, leading to energy limitations (limited battery duration) and bandwidth constraints.

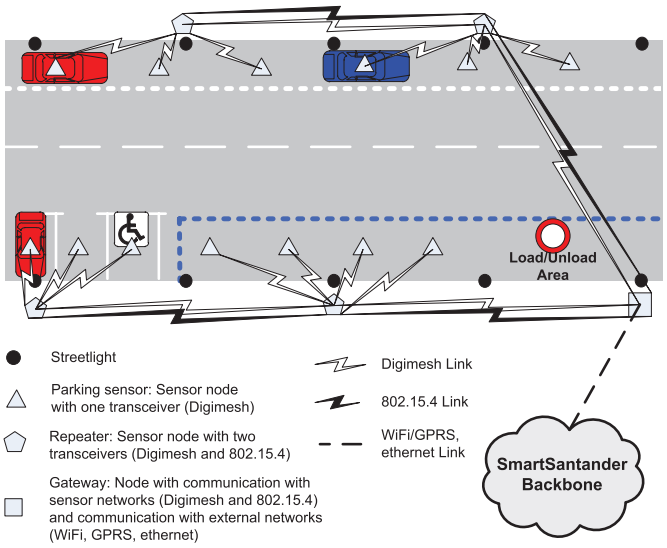
SOLUTION

DO-RE-MI proposes the use of digital fountain codes on top of the SmartSantander platform, aiming to optimize the management of a massive WSN. Digital fountain codes are near-optimal rateless codes that increase the throughput to the WSN's different constituent nodes on certain pre-selected channels.

FIRE CONTRIBUTION

FIRE IP project SmartSantander is deploying a massive WSN infrastructure in the context of several real cities. This testbed facility includes around 20,000 WSN elements, or nodes, of which 12,000 are deployed in Santander, Spain, and the rest in Belgrade, Serbia, Guildford, UK, and Lübeck, Germany. Experimenters will be able to design, implement, test and assess the best rateless coding schemes for coping with some of the constraints previously mentioned. Last but not least, additional techniques aiming to improve throughput, such as network coding, can also be analyzed in this context.

The facility is conceived as an essential instrument to achieve European leadership in key enabling technologies for the IoT, and to provide the European research community with a unique platform, suitable for large-scale experimentation and evaluation of IoT concepts under real-life conditions.



Architecture detail in Phase 1 of SmartSantander. With the help of digital fountain codes, both repeaters and parking sensor nodes benefit from efficient over-the-air reprogramming.

MORE
INFORMATION:
www.ict-fire.eu ▸
Use cases ▸ SmartSantander

FIRE use-cases

EXPERIMEDIA

WORLD SKI CHAMPIONSHIP 2013:
USER-GENERATED CONTENT MANAGEMENT AT LARGE-SCALE LIVE EVENTS

PARTICIPANTS

Schladming 2030 (Austria)
Joanneum Research (Austria)
Infonova (Austria)

CHALLENGE

It is enjoyable to attend a live sporting event: the sights, the noise and atmosphere all contribute to a great experience. A viewer at home does not get the same buzz but may well see the action from a better viewpoint than the spectator on site and also benefits from the expert commentary and sporting data added to the TV broadcast. Using today's advanced digital technologies, would it be possible to combine the positive aspects of both viewpoints to create the ultimate spectator experience?

SOLUTION

The town of Schladming in Austria is due to hold the World Ski Championship in 2013. This use case will develop and deploy Future Media Internet technologies to deliver rich personalised and collective experiences for spectators both at the event and watching by television or Internet. It will combine user generated content (UGC) and augmented reality applications to let the thousands of spectators on site use their mobile devices to both broadcast what they are seeing and choose what viewpoint of the event they wish to watch, perhaps a feed from a particular professional camera source or a composition which automatically follows a specific participant. In addition to these video services, the race leader-board, information about the current skier and background historical data will all be provided through a mobile application along with data useful to the spectator on the ground such as car parking availability, tourist facilities and a navigation system to points of interest at the event.

FIRE CONTRIBUTION

This use case will make use of one of the three culturally important "smart venues" offered by the EXPERIMEDIA facility, allowing experimenters to access state-of-the-art testbed resources in an environment where real-world consumers provide demand and participation in experiments. EXPERIMEDIA allows experimenters to design, execute and analyse innovative socio-technical experiments; gain an understanding of how and why participants and communities behave the way they do; access an open infrastructure through which new media services can be developed and tested; and verify and validate how network media systems produce the desired social experiences, commercial value, and validated legal compliancy.

Production and mobile delivery of co-created social and broadcast content.

MORE
INFORMATION:
www.ict-fire.eu ▸
Use cases ▸ EXPERIMEDIA

FIRE use-cases

FIRE OFFERING

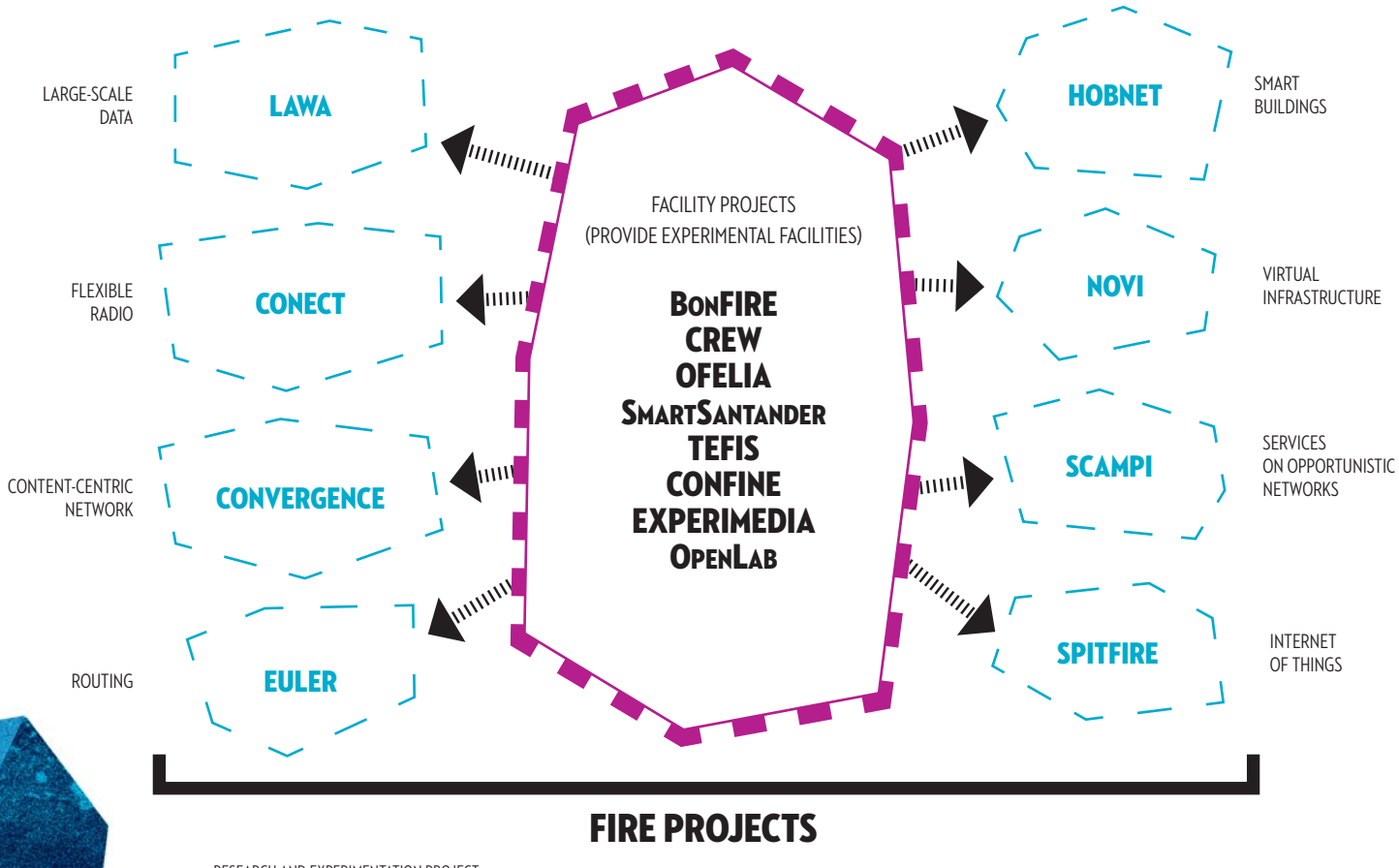
FIRE addresses our growing expectations of the Internet by offering a research environment for investigating and validating highly innovative and revolutionary ideas. This offering is known as the FIRE Facility and it consists of a combination of projects which research new paradigms and others that provide comprehensive test facilities upon which new ideas and technologies can be validated and experimented.

In this context FIRE offers a core pool of resources for driving European research into future networks. In particular FIRE provides an environment enabling both incremental and disruptive approaches, supporting multi-disciplinary research that goes beyond low-level networking layers, scholastic dogmas and confined public-private discussions.

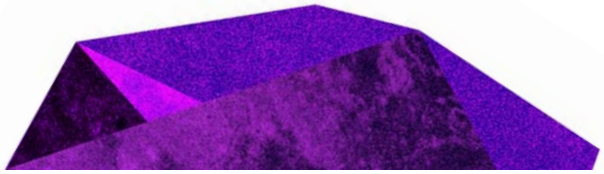
FIRE's offering currently includes eight Facility projects (BonFIRE, OFELIA, SmartSantander, TEFIS, CREW, OpenLab, EXPERIMEDIA and CONFINE) which all contribute to the FIRE Facility by developing a large-scale testbed or federation of testbeds. FIRE's other projects (LAWA, NOVI, SCAMPI, SPITFIRE, CONECT, CONVERGENCE, EULER and HOBNET) are more research-focused and experimentally-driven. The coordinating and support action (CSA) project FIRE STATION coordinates and supports the FIRE projects, alongside three further CSA projects, the soon to be completed PARADISO, FIREBALL and My-FIRE ; and one Network of Excellence (NoE) project, EINS.

Past FIRE projects have laid the foundations for FIRE's offering today. Completed facility projects (OneLab2, PII, Vital++ and WISEBED) and research and experimentation projects (ECODE, N4C, NanoDataCenters, Opnex, PERIMETER, ResumeNet, Self-NET and Smart-Net) have created solid basis for the continuous development of FIRE facilities and experimental research.

More information on FIRE web at http://www.ict-fire.eu/home/fire-projects.html.



OpenLab



Experimentally-driven research is key to success in exploring the possible futures of the Internet. An open, general-purpose, shared experimental facility, both large-scale and sustainable, is essential for European industry and academia to innovate today and assess the performance of their solutions.

OpenLab brings together the essential ingredients to address this challenge, building on and improving Europe's early and successful prototypes that serve the demands of Future Internet Research and Experimentation (FIRE). This project deploys the software and tools that allow a selection of advanced testbeds to support diverse applications and protocols in more efficient and flexible ways. The project delivers control and experimental plane middleware to facilitate early use of these testbeds by researchers in industry and academia, exploiting its own proven technologies, developed notably in the closed OneLab and Panlab projects, as well as drawing upon other initiatives' best work, such as the Slice Facility Architecture (SFA) control framework and OpenFlow switching.

HOW DOES IT WORK?

OpenLab extends these facilities with advanced capabilities in the area of mobility, wireless, monitoring and domain interconnections, and introduces new technologies such as OpenFlow. In addition OpenLab will finance and work with users who propose innovative experiments using its technologies and testbeds, via the open call mechanism developed for FIRE Facility projects.

OpenLab offers access to a wide range of testbeds, providing an infrastructure for experiments that go beyond what can be tested on the current Internet. The testbeds offered include:

- **PlanetLab Europe**, offering access to over 1000 nodes distributed world-wide based on the proven PlanetLab system
- **NITOS**, an OMF-based wireless testbed consisting of 45 nodes equipped with a mix of Wi-Fi and GNU-radios
- **w-iLab.t**, a wireless mesh and sensor network infrastructure of 180 nodes (including 20 mobile nodes)
- Two **IMS telco testbeds**, supporting carrier-grade next generation network platforms that can connect to the public PSTN and IP phone services, and can explore merged media distribution
- **ETOMIC**, a high-precision network measurement testbed featuring dozens of Internet-connected nodes synchronized via GPS
- **.SEL**, a hybrid delay-tolerant opportunistic networking testbed
- **ns-3**, a free open-source discrete-event network simulator
- **HEN**, which allows emulation of rich topologies in a controlled fashion over switched VLANs that connect multiple virtual machines

PROJECT FACTS

COORDINATOR: Serge Fdida, UPMC (France).
EXECUTION: From 2011-09-01 to 2014-02-29.
PARTNERS: UPMC (France) (coordinator), Cosmote (Greece) Creative Systems Engineering (Greece), ELTE (Hungary), ETH Zurich, (Switzerland) Eurescom (Germany), Fraunhofer (Germany), HUJI (Israel), IBBT (Belgium) INRIA (France), NICTA (Australia), ETS (Canada), TUB (Germany), UAM (Spain), UCL (UK), Università di Pisa, (Italy), University of Patras, (Greece), University of Thessaly (Greece), Waterford Institute of Technology (Ireland).

MORE
INFORMATION:
www.ict-openlab.eu

Distribution of current OpenLab testbeds in Europe.

EXPERIMEDIA

Offering collective and participative experiences to real-world and online communities is at the heart of the Future Media Internet (FMI) and forms an essential part of entertainment, collaborative working, education, product and service innovation and advertising. "Smart communities" include hundreds of professionals, tens of thousands at live public events and millions online, and understanding their complexity and dynamics is essential for FMI research.

EXPERIMEDIA aims to explore the new forms of social interaction and rich media experiences enabled by the FMI. The project will develop and operate a unique facility that offers researchers what they need for large-scale FMI experiments, and in particular for socio-technical experimentation of networked media systems conducted in the real world. The state-of-the-art Future Internet testbed infrastructure offered will support large-scale experimentation of user generated content, 3D Internet, augmented reality, integration of online communities and full experiment lifecycle management.

HOW DOES IT WORK?

EXPERIMEDIA will target the research community in the FMI, working with stakeholders such as venue management, broadcasters, content and service providers, and application developers (including mobile). The facility will allow them to gain valuable insight into how Future Internet technologies can be used and enhanced to deliver added-value legally-compliant media experiences to consumers. Users can take advantage of three culturally important "smart venues" offered by the facility where they can access state-of-the-art testbed resources in an environment where real-world consumers provide demand and participation in experiments. EXPERIMEDIA also gives access to experts to help them design, execute and analyse innovative socio-technical experiments and gain an understanding of how and why participants and communities behave the way they do. EXPERIMEDIA facilitates the testing of new media services with the desired social experiences, commercial value, and validated legal compliancy.

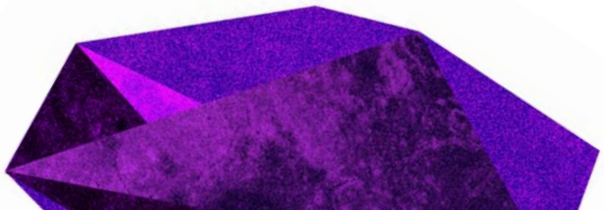
PROJECT FACTS

COORDINATOR: Michael Boniface, University Of Southampton IT Innovation Centre (UK).
EXECUTION: From 2011-10-01 to 2014-09-30.
PARTNERS: University Of Southampton IT Innovation Centre (UK) (coordinator), Institute Of Communication And Computer Systems (Greece), Atos Origin Sociedad Anonima Espanola (Spain), Joanneum Research Forschungsgesellschaft Mbh (Austria), Bearingpoint Infonova Gmbh (Austria), Idrima Meizonos Ellinismou (Greece), Schladming 2030 Gmbh (Austria), Centre D'alt Rendiment Esportiu De Sant Cugat Del Valles (Spain), Katholieke Universiteit Leuven (Belgium), La F@brique Du Futur Association (France), The Interactive Institute II Aktiebolag (Sweden).

EXPERIMEDIA

MORE
INFORMATION:
www.experimedia.eu

EXPERIMEDIA offers a FIRE facility for experiments in social interaction and rich media experiences.



CONFINE

(COmmunity Networks testbed for the Future InterNEt) provides an experimental facility that supports and extends experimentally-driven research on Community-owned Open Local IP Networks (COPLANs), which are already successful in developing Internet access in many areas of Europe and the world. The project takes an integrated view on these innovative community networks, offering a testbed that federates the resources of several COPLANs, each hosting between 500 – 20,000 nodes, along with a greater number of links and even more end-users.

The CONFINE facility, through federation and virtualization, allows experimental validation of varied scenarios. For example, the cooperation and comparison between nodes using diverse mesh routing protocols; self-managing (or autonomic) application protocols that adapt to the dynamic conditions of nodes, links and routes in these networks; network self-management or cooperative and decentralized management; the adaptation of services such a VoIP (live video streaming) to low bandwidth wireless networks.

HOW DOES IT WORK?

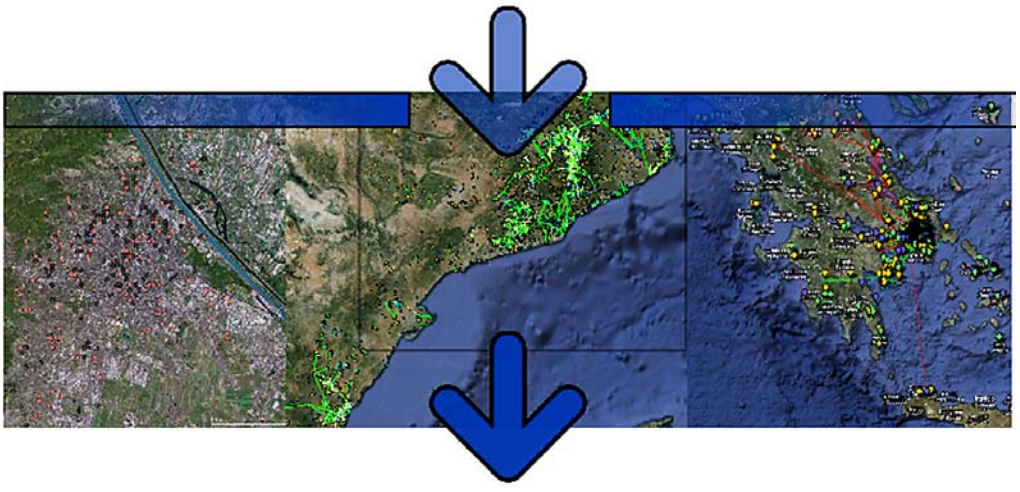
CONFINE's testbed integrates and extends three existing community networks: Guifi.net (Catalonia, Spain), FunkFeuer (Wien, Austria) and AWMN (Athens, Greece). These facilities are extremely dynamic and diverse, and successfully combine different wireless and wired (optical) link technologies, fixed and mobile routing schemes and management schemes, running multiple self-provisioned, experimental and commercial services and applications. The testbed is an innovative model of self-provisioned, dynamic and self-organizing networks using unlicensed and public spectrum and links. It offers unified access to an open testbed with tools that allow researchers to deploy, run, monitor and experiment with services, protocols and applications as part of real-world community IP networks. This integrated platform provides user-friendly access to these emerging COPLAN networks, supporting any stakeholder interested in developing and testing experimental technologies for open and interoperable network infrastructures.

PROJECT FACTS

COORDINATOR: Leandro Navarro, Universitat Politècnica de Catalunya (Spain).
EXECUTION: From 2011-10-01 to 2015-09-30.
PARTNERS: Universitat Politècnica de Catalunya (Spain) (coordinator), Fundació Privada per a la Xarxa Oberta, Lliure i Neutral, guifi.net (Spain), FunkFeuer (Austria), Athens Wireless Metropolitan Network (Greece), The OPLAN Foundation (UK), Comunicació per a la Cooperació – Pangea (Spain), Fraunhofer (Germany), IBBT (Belgium).

CONFINE

MORE
INFORMATION:
www. confine-project.eu



CONFINE is an entry point for experimentation on a federation of real community networks, including Guifi.net, FunkFeuer and AWMN, shown here.

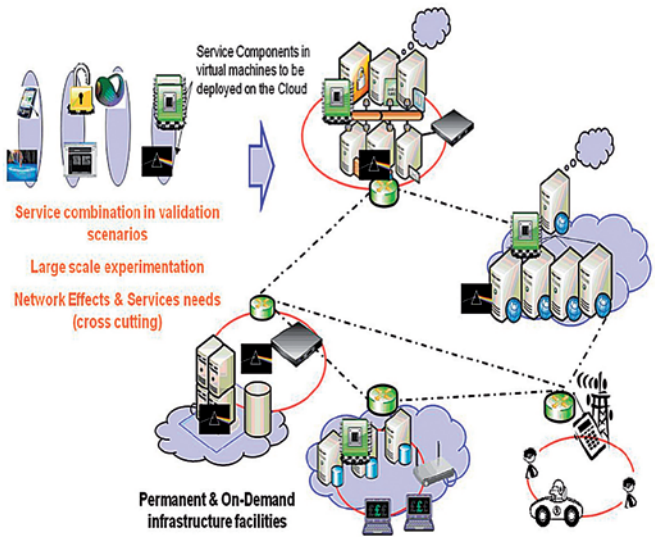
BonFIRE

The BonFIRE project designs, builds and operates a multi-site cloud facility to support applications, services and systems research. It offers an experimental facility which enables large-scale experimentation of systems and applications, evaluation of cross-cutting effects of converged service and network infrastructures and assessment of socio-economic and other non-technological impacts.

HOW DOES IT WORK?

The BonFIRE cloud facility is based on an Infrastructure-as-a-service delivery model with guidelines, policies and best practices for experimentation. It has a federated multi-platform approach, providing interconnection and interoperation between novel service and networking testbeds. It offers advanced services and tools for services research including cloud federation, virtual machine management, service modelling, service lifecycle management, service level agreements, quality of service monitoring and analytics.

The BonFIRE project provides innovative methods for describing, deploying, managing, executing, measuring and removing experiments. These methods include uniform test description and deployment descriptors for all scenarios (including cross-cutting tests), federation of cloud resources in different administrative domains that provide BonFIRE with physical resources, and user-friendly interfaces at the facility's entry point.



Testing experiments selected in Open Calls.

Three key test scenarios are envisaged:

1. Extended cloud: the extension of current cloud offerings towards a federated facility with heterogeneous virtualized resources and best-effort Internet interconnectivity.
2. Cloud with emulated network implications: a controlled environment providing an experimental network emulation platform to service developers, where topology configuration and resource usage is under full control of the experimental researcher.
3. Extended cloud with complex physical network implications: investigation of federation mechanisms for an experimental cloud system that interconnects individual BonFIRE sites with other FIRE facilities.

PROJECT FACTS

COORDINATOR: Josep Martrat, ATOS (Spain).
EXECUTION: From 2010-06-01 to 2014-06-31.
PARTNERS: ATOS (Spain) (coordinator), University of Edinburgh (UK), Fundacio Privada I2CAT (Spain), SAP AG (Germany), Hewlett-Packard Ltd (UK), Universitaet Stuttgart (Germany), The 451 Group Ltd (UK), Fraunhofer-Gesellschaft ZurFoerderung Der Angewandten Forschung E.V (Germany), Technische Universitaet Berlin (Germany), IBBT (Belgium), University of Southamption IT Innovation Centre (UK), Universidad Complutense de Madrid (Spain), INRIA (France), Nextworks (Italy), INSTYTUT CHEMII BIOORGANICZNEJ PAN (Poland), RedZinc (Ireland), Cloudium Systems (Ireland), Fundación Centro Tecnológico de Supercomputación de Galicia (Spain), Centre d'Excellence en Technologies de l'Information et de la Communication (Belgium), University of Manchester (UK).

MORE
INFORMATION:
www.bonfire-project.eu

CREW

The CREW project facilitates experimentally-driven research on advanced spectrum sensing, cognitive radio and cognitive networking strategies in view of horizontal and vertical spectrum sharing in licensed and unlicensed bands.

HOW DOES IT WORK?

The CREW platform federates five individual wireless testbeds, built on diverse wireless technologies: heterogeneous ISM (Industrial, Scientific and Medical) radio, heterogeneous licensed radio, cellular networks, wireless and heterogeneous outdoor sensors. The offerings of these geographically distributed testbeds are federated, and improved with the addition of state-of-the-art cognitive sensing equipment.

The platform offers users a common portal with a comprehensive description of the functionalities of each federated testbed, and clear user guidelines. Experimenters have the ability to 'mix and match' different aspects of federated testbeds, allowing them to explore a wide range of usage scenarios. For instance, the platform enables horizontal resource sharing between heterogeneous networks in the ISM radio band, allowing the investigation of techniques for advanced resource sharing in typically densely populated environments (e.g., home, office, public building, etc.) with various wireless ISM band devices. In addition, the CREW platform facilitates the investigation of robust cognitive radio solutions in cognitive sensor networks, aiming to achieve a certain quality of service while ensuring non-interference.

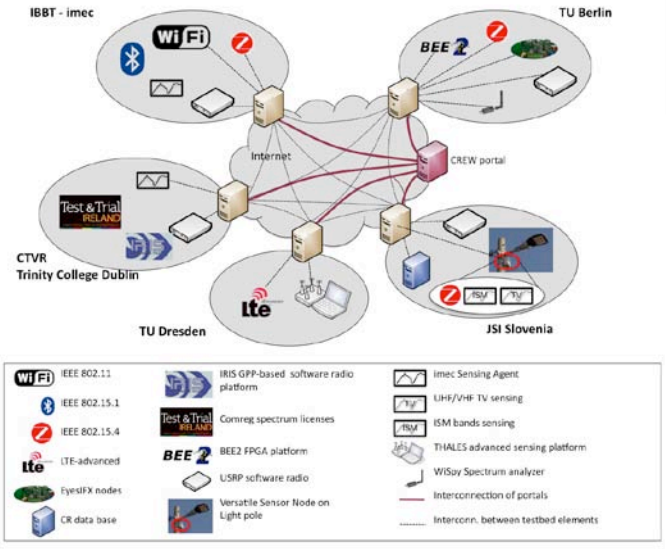
CREW also provides a common data format and a benchmarking framework. The benchmarking framework enables experiments under controlled/ reproducible test conditions, and offers universal and automated procedures for experiments and performance evaluation. This allows fair comparison between different cognitive radio and networking concepts.

PROJECT FACTS

COORDINATOR: Ingrid Moerman, IBBT (Belgium).
EXECUTION: From 2010-10-01 to 2015-09-30.
PARTNERS: IBBT (Belgium) (coordinator), imec (Belgium), Trinity College Dublin (Ireland), Technische Universität Berlin (Germany), Technische Universität Dresden (Germany), Thales Communications (France), EADS Deutschland GmbH (Germany), Jožef Stefan Institute (Slovenia).

CREW

MORE
INFORMATION:
www.crew-project.eu



The CREW platform.

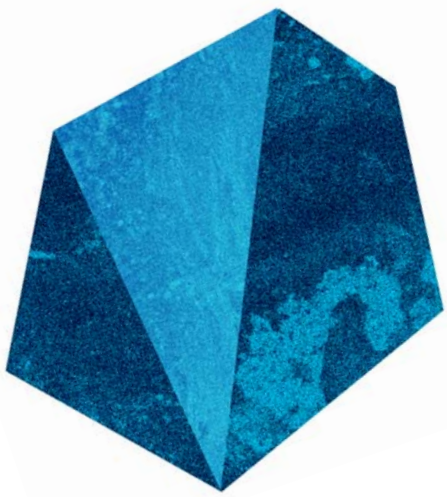
OFELIA

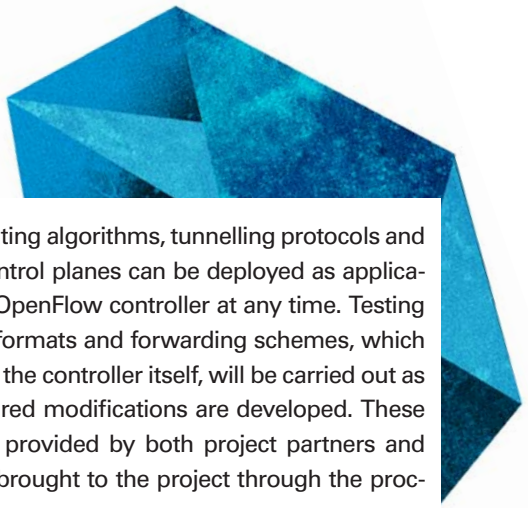
The OFELIA project (OpenFlow in Europe: Linking Infrastructure and Applications) offers a facility that allows researchers to not only experiment "on" a test network but to control the network itself precisely and dynamically. To this end, OFELIA deploys OpenFlow, a recently-developed networking technology that enables users to virtualize and control the network environment through secure and standardized interfaces. Network behaviour can be modified as part of the experiment rather than, if at all, as part of the experiment setup.

HOW DOES IT WORK?

OFELIA comprises five federated but autonomous testing environments, located at five different universities and research institutions across Europe. While these five "islands" will be equipped with different systems and technologies, OpenFlow will be the common control hardware, giving the research community a cohesive bundle of optics for the testing of packet-related technology and optical technology. These interconnected testbeds allow experimentation on multi-layer and multi-technology networks. Together they form a facility that extends all the way from standard Ethernet to optical and wireless transmission, and also includes an emulation wall comprising thousands of nodes for scalability tests.

OFELIA creates an experimentation space which allows for flexible integration of test and production traffic by isolating the traffic domains inside the OpenFlow-enabled network equipment. This provides realistic test scenarios and permits the seamless deployment of successfully tested technology.





Tests of new routing algorithms, tunnelling protocols and tailored network control planes can be deployed as applications on top of the OpenFlow controller at any time. Testing of new addressing formats and forwarding schemes, which requires changes to the controller itself, will be carried out as and when the required modifications are developed. These innovations will be provided by both project partners and other contributors, brought to the project through the process of open calls.

The facility will continue to evolve and develop for the duration of the OFELIA project, incorporating the feedback of the user community and extending its reach to other FIRE test facilities.

PROJECT FACTS

COORDINATOR: Hagen Woesner, EICT (Germany).
EXECUTION: From 2010-10-01 to 2013-09-30.
PARTNERS: EICT (Germany) (coordinator), Deutsche Telekom AG (Germany), University of Essex (UK), Fundacio Privada i2CAT (Spain), Technische Universität Berlin (Germany), NEC Europe Ltd (UK), Interdisciplinary Institute for Broadband Technology (Belgium), Eidgenössische Technische Hochschule Zürich (Switzerland), The Board of Trustees of the Leland Stanford Junior University (USA), ADVA AG Optical Networking (UK), CREATE-NET (Italy), Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy).

OFELIA

MORE
INFORMATION:
www.fp7-ofelia.eu

SmartSantander

SmartSantander proposes a unique city-scale experimental research facility that supports the testing of typical applications and services for a smart city. The infrastructure, when completed, will be sufficiently large, open and flexible to enable horizontal and vertical federation with other experimental facilities and stimulate user development of varied new applications, including advanced research on IoT (Internet of Things) technologies and realistic assessment of acceptability tests. The facility will eventually comprise more than 20,000 sensors, based on a real-life IoT deployment in an urban setting. The core of the facility is located in the Spanish city of Santander and the surrounding area. SmartSantander enables the Future Internet of Things to become a reality.

HOW DOES IT WORK?

SmartSantander offers a scalable, heterogeneous and trustable large-scale real-world experimental facility. This facility is specifying, designing and implementing the necessary building blocks for a real-world IoT experimental platform. An initial high-level architecture for the resulting facility is shown in the figure. This architecture relies heavily on existing components which will over time be supplemented by the building blocks yet to be developed.

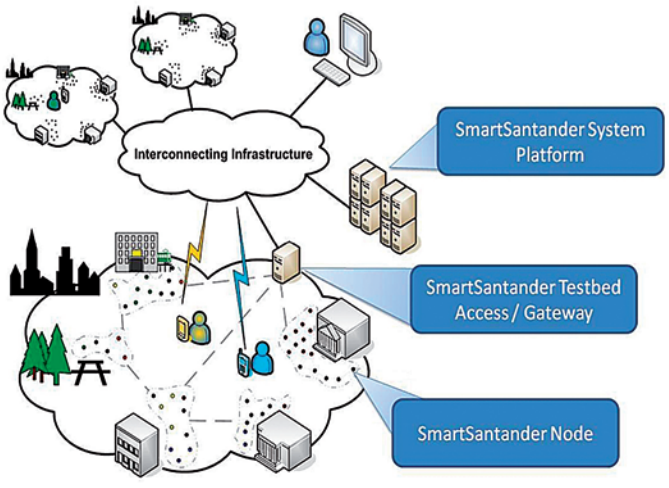
By making available its specially-designed facility to the scientific community, end-users and service providers, SmartSantander aims to reduce the technical and social barriers that currently prevent the IoT concept from becoming reality. The offer includes a wide range of applications, selected for their high potential impact on smart city citizens as well as to exhibit the diversity, dynamics and scale that are essential in advanced protocol solutions. All services and applications offered can be evaluated through the platform, making the platform attractive to all potential stakeholders, from industries and user communities, who use the facility to deploy and assess new services, to Internet researchers who can validate their cutting-edge technologies (protocols, algorithms, radio interfaces, etc.).

PROJECT FACTS

COORDINATOR: José M. Hernández-Muñoz, Telefónica I+D (Spain).
EXECUTION: From 2010-09-01 to 2013-08-31.
PARTNERS: Telefónica I+D (Spain) (coordinator), Alcatel-Lucent Italy S.P.A. (Italy), Alcatel-Lucent Spain S.A. (Spain), Ericsson D.O.O. (Serbia), TTI Norte (Spain), Universidad de Cantabria (Spain), University of Surrey (UK), Universität zu Lübeck (Germany), Lancaster University (UK), Commissariat à l'Énergie Atomique (France), Computer Technology Institute (Greece), Alexandra Instituttet A/S (Denmark), Santander Council (Spain), Sociedad para el Desarrollo de Cantabria S.A. (Spain), University of Melbourne (Australia).

SmartSantander

MORE
INFORMATION:
www.smartsantander.eu



High-level architecture for the SmartSantander experimental facility.

TEFIS

TEFIS (TEstbed for Future Internet Services) supports research on future large-scale and resource-hungry Internet service technologies. It offers an open platform to access heterogeneous and complementary experimental facilities for the community of software and business developers to test, experiment, and collaboratively elaborate knowledge. It provides appropriate tools and methodologies to address the full development life-cycle of these innovative services.

HOW DOES IT WORK?

The project develops an open platform able to integrate existing and next-generation testing facilities. It has also established a connector model that enables facilities to be accessed and used in a unified manner. Through the TEFIS platform users will be supported throughout the whole experiment lifecycle with access to different testing tools covering the majority of software development-cycle activities, such as software build and packaging, compliance tests, system integration, SLA dimensioning, large-scale deployment, and user evaluation of run-time services. The platform will provide all services necessary for the management of underlying testbed resources, including generic management and identification, access scheduling, software deployment, and measurement services. Thus TEFIS provides a single access point to a range of different testbed resources, allowing experiments to be run remotely on heterogeneous testbeds.

TEFIS offers a portal with the necessary features and tools to support the service development lifecycle, testbed users will be able to create their personalised entry point to the Future Internet, by defining their own environment for their experiments.

The TEFIS platform integrates six complementary experimental facilities, which include network and software testing facilities, as well as user-oriented "living labs". Key experimental facilities offered include the PACA grid, which addresses distributed computing and cloud applications, the ETICS testbed, offering automatic build, test and quality certification for software-exploiting distributed resources, and the Botnia living lab. The Kyatera platform offers resources to develop applications that collaborate remotely via a high-capacity optical network in São Paulo State (Brazil). The IMS testbed provides support for conformance validation and interoperability testing of applications over IMS (IP Multimedia Subsystem) and the PlanetLab testbed (also offered by the FIRE OneLab facility) as a source of DTN (Delay Tolerant Networking) emulation components for use in cases involving challenging mobile communication environments (e.g. involving nomadic users, fleets of vehicles, etc.).

PROJECT FACTS

COORDINATOR: Joseph Latanicki, THALES Services (France).
EXECUTION: From 2010-06-01 to 2012-12-31.
PARTNERS: THALES Services SAS (France) (coordinator), Engineering Ingegneria Informatica S.P.A. (Italy), INRIA (France), IT Innovation (United Kingdom), Fundação de Apoio à Universidade de São Paulo (Brazil), THALES Communications (France), ActiveEon (France), Lulea University of Technology (Sweden), Software Quality System S.A (Spain), Fraunhofer Institute FOKUS (Germany), University of Geneva (Switzerland), Institute of Communication and Computer Systems (Greece), Poznan Supercomputing and Networking Center (Poland), Universitat Politecnica de Catalunya (Spain), VELTI SA of Software Products & Related products & Services (Greece), Technische Universitaet Braunschweig (Germany), Eyeski Media Ltd (UK), Commune de Megève (France).

MORE
INFORMATION:
www.tefisproject.eu

CONECT

CONECT (Cooperative Networking for High Capacity Transport Architectures) proposes a holistic network design approach that drastically enhances performance in wireless networks by unlocking the hidden potential of the broadcast wireless medium. CONECT will develop an architecture that exploits the principles of signal interaction and user cooperation all the way, from the physical communication layer and efficient code design, to cooperative packet level access and forwarding, to end-to-end information transport and application level information exchange.

HOW DOES IT WORK?

Wireless communication is currently realized under the suboptimal assumption of the signals' separation into useful and interfering components. Its full potential can be exploited by effectively pooling overheard information and allowing for signal interaction by removing signal boundaries. This rationale gives rise to fresh principles for wireless network design and control, leading to improved and simplified network operation. Under this new paradigm, CONECT will search for new theoretical performance limits and design algorithms to achieve or closely approximate these limits. A concrete experimentation plan will also be carried out on the OpenAir-Interface and NITOS testbeds (both of which will be federated with the OneLab/Planetlab infrastructure) to validate the design choices by demonstrating performance improvement over currently used techniques.

PROJECT FACTS

COORDINATOR: Leandros Tassiulas, Center for Research and Technology Hellas (Greece).
EXECUTION: From 2010-05-01 to 2013-04-30.
PARTNERS: Center for Research and Technology Hellas (Greece) (coordinator), EPFL (Switzerland), EURECOM (France), Samsung Electronics Ltd. (UK), Thales Communications S.A. (France), University of Berkeley (USA).

CONECT

MORE
INFORMATION:
www.conect-ict.eu

CONVERGENCE

CONVERGENCE will enhance the Internet by providing a content-centric network and a publish-subscribe service model, based on a self-contained data unit, called Versatile Digital Item (VDI). The VDI is a general-purpose container that can encapsulate not only classical media files, but also data about services, people and real-world objects. Metadata describing the item and including security and control information are also contained in the VDI, minimizing the need to use external information stored in the network. The content-centric network provides users directly with contents, instead of providing only communication channels between hosts, and is aware of such contents; the publish-subscribe service model effectively decouples the application end points in space and time.

HOW DOES IT WORK?

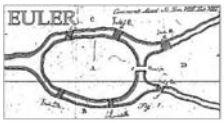
CONVERGENCE supports dynamic VDIs, so that producers of information can release updates and consumers can select between several versions of the same VDI. CONVERGENCE protects content, by exploiting security information embedded in VDIs, as opposed to connection-based or application-based security. It supports "digital forgetting" and performs garbage collection (deleting expired information). It offers a homogeneous way of searching information contained in VDIs and their metadata, and also provides a native, in-network, caching and peer-to-peer functionality and a per-content quality of service differentiation.

PROJECT FACTS

COORDINATOR: Nicola Blefari Melazzi, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy).
EXECUTION: From 2010-06-01 to 2013-02-28.
PARTNERS: Nicola Blefari Melazzi, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy) (coordinator), Alinari 24 Ore Spa (Italy), Cedeo.Net (Italy), Fondation Maison des Sciences de l'Homme (France), Institute of Communication and Computer Systems of the National Technical University of Athens (Greece), Instituto de Engenharia de Sistemas e Computadores do Porto (Portugal), Ludwig-Maximilians-Universitaet Muenchen (Germany), Morpho (Germany), Singularlogic (Greece), Uti (Romania), Wipro (Portugal), Xiwrite S.R.L. (Italy).

CONVERGENCE

MORE
INFORMATION:
www.ict-convergence.eu



EULER

The main objective of EULER (Experimental UpdateLess Evolutive Routing) is to investigate new routing paradigms so as to design, develop, and validate experimentally a distributed and dynamic routing scheme suitable for the future Internet and its evolution. The resulting routing scheme is intended to address the fundamental limits of current stretch-1 shortest-path routing in terms of routing table scalability but also topology and policy dynamics. EULER investigates trade-offs between routing table size (to enhance scalability), routing scheme stretch (to ensure routing quality) and communication cost (to efficiently and timely react to various failures).

HOW DOES IT WORK?

The driving idea of this research project is to investigate the structural and statistical properties of the Internet topology as well as the stability and convergence properties of the Internet policy. EULER will then design a specialized distributed routing scheme known to perform efficiently under dynamic network and policy conditions when these properties are met. The project will develop new models and tools to exhaustively analyze Internet topology, to accurately and reliably measure its properties, and to precisely characterize its evolution. These models will be used to derive useful properties and metrics for the routing schemes and provide relevant experimental scenarios. The project will develop appropriate tools to evaluate the performance of the proposed routing schemes on large-scale topologies (order of 10k nodes), and will benefit from the realistic test conditions offered by several of FIRE's experimental facilities.

PROJECT FACTS

COORDINATOR: Dimitri Papadimitriou, Alcatel-Lucent Bell Antwerpen (Belgium).
EXECUTION: From 2010-10-01 to 2013-09-30
Oct.1, 2010 - Sep.30, 2013 .
PARTNERS: Alcatel-Lucent Bell Antwerpen (Belgium) (coordinator), INRIA (France), IBBT (Belgium), UPMC (France), Université Catholique de Louvain (Belgium), University of Patras (Greece), Universitat Politècnica de Catalunya (Spain).

EULER

MORE
INFORMATION:
www.euler-fire-project.eu

HOBNET

HOBNET (HOlistic Platform Design for Smart Buildings of the Future InterNET) mainly aims to ease and maximize the use of FIRE platforms by multidisciplinary developers of Future Internet applications focused on automation and energy efficiency for smart/green buildings. The project takes a holistic approach addressing critical aspects at different layers (networks, algorithms, applications/tools) in an integrated way, via complementary expertise of specialized research groups, leading industry and a public utility end-user.

HOW DOES IT WORK?

Key innovations are experimentally validated in a large-scale smart building proof-of-concept application in buildings of a United Nations-related public utility foundation in Geneva, as well as an existing FIRE testbed at the University of Geneva and a CTI testbed in Greece. Large numbers of sensor, actuator, RFID and mobile devices will be deployed to test and improve large-scale derived research solutions in practice. HOBNET will implement characteristic smart/green building scenarios including local adaptation to presence, emergency management and early warning, electricity monitoring, CO2 monitoring, customization to personal profile, building 3D visualization and monitoring, user awareness and resource tracking and monitoring.

PROJECT FACTS

COORDINATOR: Sotiris Nikoletseas, Research Academic Computer Technology Institute (Greece).
EXECUTION: From 2010-06-01 to 2013-05-31.
PARTNERS: Research Academic Computer Technology Institute (Greece) (coordinator), Ericsson Serbia (Serbia), Mandat International (Switzerland), Sensinode (Finland), University College Dublin (Ireland), University of Edinburgh (Scotland), University of Geneva (Switzerland).

HOBNET

MORE
INFORMATION:
www.hobnet-project.eu

SCAMPI

The Future Internet will be characterized by an increasing diffusion of devices with heterogeneous capabilities and resources. The main goal of SCAMPI is to empower end users through a combination of pervasive and opportunistic networking capabilities for a more effective and secure access to a variety of services. The project focuses on opportunistic networking environments, where (i) devices are spread in the environment, (ii) events such as long disconnections and network partitions are the rule, and (iii) no simultaneous multi-hop paths can be guaranteed. In this way, SCAMPI enables the novel concept of opportunistic resource usage in challenged networks.

HOW DOES IT WORK?

SCAMPI (Service platform for soCial Aware Mobile and Pervasive computIng) involves experiments with real users and real applications in trials of increasing scale. Initial experiments include the use of sensors, smartphones, and smartphone apps to collect mobility and behavioural data and support opportunistic networking research. Further experiments will leverage FIRE facilities to evaluate and validate the SCAMPI results at a larger scale than that of individual or even cross-partner testbeds, and with more features including sensors, WiFi hotspots with storage for caching, 3G/LTE broadband access and so on. Moreover, large-scale experiments with real users will illustrate the usefulness of the SCAMPI approach as a platform for enabling rich distributed service composition in opportunistic human networks.

PROJECT FACTS

COORDINATOR: Jörg Ott, Aalto University (Finland).
EXECUTION: From 2010-10-01 to 2013-09-30.
PARTNERS: Aalto University (Finland) (coordinator), Consiglio Nazionale Delle Ricerce (Italy), Eidgenössische Technische Hochschule Zürich (Switzerland), Martel GMBH (Switzerland), Scuola Universitaria Professionale Della Svizzerra Italiana (Switzerland), Technicolor (France), Futurice (Finland), EURECOM (France).

SCAMPI

MORE
INFORMATION:
www.ict-scampi.eu

SPITFIRE

SPITFIRE (Semantic-service Provisioning for the Internet of Things using Future Internet Research by Experimentation) develops unified concepts, methods, and software infrastructures facilitating the efficient development of applications that span and integrate the Internet and the embedded world. SPITFIRE's results will help to significantly reduce the effort required for development of robust, interoperable, and scalable applications in the Internet of Things (IoT).

HOW DOES IT WORK?

Building on the experimental facilities developed in the WISEBED FIRE project, a tightly knit team of experts in semantics, embedded systems, middleware, algorithms, and two cutting-edge SMEs will investigate integrated approaches across these research areas to optimally combine them into a comprehensive application development framework significantly reducing application development costs and enabling new kinds of applications. SPITFIRE will be based on 6LoWPAN, CoAP, RDF, linked data principles and light-weight semantics with specific focus on real-world semantic entities and semi-automatic annotation. The SPITFIRE architecture will enable industry to evaluate new solutions and pick those that operate satisfactorily under realistic conditions based on experiments in FIRE testbeds. Due to the enabling technologies provided by SPITFIRE, IoT-related technology could permeate private households and enterprises in a way not seen to date.

PROJECT FACTS

COORDINATOR: Manfred Hauswirth, National University of Ireland, Galway (Ireland).
EXECUTION: From 2010-07-01 to 2013-06-30.
PARTNERS: National University of Ireland, Galway (Ireland) (coordinator), University of Lübeck (Germany), Braunschweig Institute of Technology (Germany), Research Academic Computer Technology Institute (Greece), IBBT (Belgium), Daysha Consulting (Ireland), Coalesenses (Germany).

SPITFIRE

MORE
INFORMATION:
www.spitfire-project.eu

LAWA

The LAWA project on Longitudinal Analytics of Web Archive data will build an Internet-based experimental testbed for large-scale data analytics. Its focus is on developing a sustainable infrastructure, scalable methods, and easily-usable software tools for aggregating, querying, and analyzing heterogeneous data at Internet scale. Particular emphasis will be given to longitudinal data analysis along the time dimension for Web data that has been crawled over extended time periods.

HOW DOES IT WORK?

LAWA will federate distributed FIRE facilities with the rich Web repository of the European Archive, to create a Virtual Web Observatory and use Web data analytics as a use case study to validate our design. The outcome of the work will enable Internet-scale analysis of data, and bring the content aspect of the Internet into the roadmap of Future Internet research. A demonstrator is planned which will allow citizens at large to interactively browse, search, and explore born-digital content along the time dimension.

PROJECT FACTS

COORDINATOR: Gerhard Weikum, Max-Planck-Institut für Informatik (Germany).
EXECUTION: From 2010-09-01 to 2013-08-31.
PARTNERS: Max-Planck-Institut für Informatik (Germany) (coordinator), The Hebrew University of Jerusalem (Israel), Stichting European Archive (Netherlands), Magyar Tudomanyos Akademia (Hungary), Hanzo Archives Limited (UK), University of Patras (Greece).

LAWA

MORE
INFORMATION:
www.lawa-project.eu

NOVI

NOVI's (Networking innovations Over Virtualized Infrastructures) composes virtualized e-Infrastructures towards a holistic Future Internet cloud service. Resources belonging to various levels, i.e. networking, storage and processing are in principle managed by separate yet interworking providers. NOVI investigates and experiments new techniques for 1) monitoring, 2) formal description and 3) brokerage of virtualized resources within a federation of these Future Internet platforms.

HOW DOES IT WORK?

A user ideally expects seamless and secure access to virtual resources distributed across multiple domains. The complex nature of the federated infrastructure requires adoption of common definitions and abstractions of virtualized resources. Within this context, NOVI will propose and test resource description data models and abstraction algorithms, incorporating Semantic Web concepts. Predictable and accountable service delivery will be further addressed by investigating monitoring and resource brokerage methods in multi-domain virtualized infrastructures. Secure, authenticated access is a key requirement for a service cloud. NOVI will assess options of federated AAI schemas as they pertain to multi-domain Future Internet environment.

PROJECT FACTS

COORDINATOR: Vasilis Maglaris, National Technical University of Athens (Greece).
EXECUTION: From 2010-09-01 to 2013-08-31.
PARTNERS: National Technical University of Athens (Greece) (coordinator), Martel Consulting (Switzerland), Université Pierre & Marie Curie (France), Consortium GARR (Italy), University of Amsterdam (Netherlands), Fundació i2CAT (Spain), Verein zur Förderung eines Deutschen Forschungsnetzes (Germany), INRIA (France), Eötvös Loránd Tudományegyetem (Hungary), Poznan Supercomputing and Networking Center (Poland), Cisco (Netherlands), Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung (Germany), Universitat Politècnica de Catalunya (Spain).

NOVI

MORE
INFORMATION:
www.fp7-novi.eu

OPEN CALLS

Users' demand is the guiding principle in building FIRE's Europe-wide environment for investigating and experimentally validating innovations for new networking and service paradigms. We want to provide facilities that are developed from the ideas and needs of researchers and that satisfy requirements for experimenting and validating those ideas.

FIRE welcomes users to experiment with the FIRE Facility. The FIRE outcome is open and public for all experimenters who find the facilities offered suited to their R&D needs. What is more, the current FIRE Facility projects have **resources allocated to host the best use cases** that exploit the facilities they are developing. Open Calls are organized to announce these opportunities to submit an experimentation challenge for the respective FIRE Facility project. Profit from being one of the first users and shape the FIRE Facility according to your needs!

HOW DOES IT WORK?

FIRE Facility projects (also known as Integrated Projects, or IPs), together with FIRE STATION Coordinating Support Action (CSA), will communicate the opportunities to submit proposals for experimentation use cases. The IP projects from FP7-ICT Call 5 and Call 7 have each reserved a budget for funding experiments on their testbeds. Taking into account the great success of Open Calls it is recommended that for future Calls (e.g. Call 8), IP/Facility projects should also reserve budget for their Open Calls. Each use case may request up to €200K. The proposals for the experiments will be submitted through a process of "Open Calls". These will be evaluated in a similar way to regular EC Calls, and the innovation and added value for FIRE Facility development benefiting the Future Internet community will be assessed. The most exciting yet feasible ones will be selected and implemented in collaboration with the proposer and the facility provider(s).

Prior to each Open Call, there will be an "Information Day", co-ordinated by FIRE STATION. At these events, the IP projects will present their facilities in detail and identify the types of experiments which they believe could be interesting to perform. There will be an opportunity to ask questions and for prospective projects to present their ideas and receive feedback.

DID IT STRIKE A SPARK ALREADY? Should you get ignited, please contact@ict-fire.eu and stay tuned to www.ict-fire.eu for upcoming Open Calls and associated events.

FIRE

MORE
INFORMATION:
www.ict-fire.eu

FIRESTATION

FIRE STATION

FIRE STATION provides the FIRE (Future Internet Research and Experimentation) Initiative with an active hub that matches, guides and co-ordinates demand for - and offering of - experimentation facilities in the context of future networks and services.

FIRE STATION contains a FIRE Office and a FIRE Architecture Board. The FIRE Office serves as the single contact point and the mediator when looking for either the right experimental resources or new customers for the facilities. The FIRE Architecture Board involves all FIRE facility builders to jointly decide on the strategy and means to co-ordinate and facilitate the development of FIRE Facility offerings to support the evolving needs of the customers. FIRE STATION increases the global collaboration between relevant stakeholders, promotes an experimentally-driven approach in Future Internet research and intensifies the usage of experimental facilities, ultimately speeding up the development process of new systems and services.

The purpose of FIRE STATION is to join forces to allow for the most efficient bilateral (and multilateral when and if appropriate) collaboration, reduce duplication of work, share experiences and best practices and work for the future of experimental research.

PROJECT FACTS

COORDINATOR: Timo Lahnalampi, Dimes Association (Finland).

EXECUTION: From 2010-06-01 to 2013-05-31.

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FIRESTATION

MORE INFORMATION:

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LINKS

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