FIRE @ IoT week 2015, Lisbon

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AMPLIFI FIRE

Instead of building your own Future Internet testbed you can SAVE money, efforts and time by re-using already available FIRE test facilities!
About!

Presentation of available IoT experimentation platforms in FIRE and share experience from experimenting on IoT in real-life settings. FIRE promotion and discussion on FIRE offerings with happy customers i.e. users from an industry perspective. Emphasize future needs and interest for collaboration and use of FIRE IoT testbeds.

Outcome!

A wider understanding and interest in the potential of IoT testbeds and their use.

To give future insights on demands and experiences in using experimentation facilities when developing IoT technologies and services, and experiences from services and technologies being tested.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>15.50-16.00</td>
<td><strong>General Introduction on FIRE situation in the IoT landscape</strong></td>
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<td>Welcoming message, Michael Nilsson, AmpliFIRE</td>
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<td>16.00–16.50</td>
<td><strong>FIRE-IoT testbeds and experiments' experiences from an industry perspective,</strong></td>
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<td>moderated by Michael Nilsson, AmpliFIRE</td>
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<td>- The Global Market Confidence and Certification Programme for Industry</td>
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<td>users: <strong>Franck Le Gall</strong>, Festival</td>
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<td>- FIRE projects in the smart cities: EAR-IT user experience: <strong>Bruno Almeida</strong></td>
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<td>- FIT IoT-Lab: The Hikob customer case, <strong>Mohammed Yasin Rahman</strong>, Onelab</td>
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<td>- South Africa needs in enabling M2M, geographical/economical/cultural</td>
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<td>differences to be taken into account for experimentation in this region:</td>
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<td><strong>Louis Coetzee</strong>, CSIR/Trescimo</td>
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<td>- The two faces of FIRE: Perspectives from academic and industry research:</td>
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<td><strong>Alex Gluhak</strong>, OrganiCity</td>
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<td>16.50–17.15</td>
<td><strong>Discussion: FIRE future to serve the IoT community from a user perspective,</strong></td>
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<td>moderated by <strong>Sebastien Ziegler</strong>, IoT Lab</td>
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<td>- What should be the FIRE service offering portfolio for future IoT</td>
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<td>experimentation?</td>
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<td>- What are the challenges that the IoT evolution faces from a FIRE users</td>
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<td>(customers e.g. industry) perspective?</td>
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<td>- Experimentation needs identified in users 'experience</td>
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<td>- How to use open calls? Next FIRE open calls relevant for IoT</td>
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<td>17.15-17.20</td>
<td><strong>Wrap up and Closing remarks by Michael Nilsson, AmpliFIRE</strong></td>
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FIRE has been embracing a number of IoT-driven R&D efforts and several IoT Experimentation platforms are available

- Testbeds facility resources
  - SUNRISE
  - FESTIVAL
  - FIESTA
  - RAWFIE
  - ORGANICITY
  - ....
- Experiments
  - Social & Smart
  - SMARTFIRE
  - TRESCIMO
  - FIT IoT Lab
  - ....
The FIRE IoT testbeds can offer real-life IoT experimentation in:

- Office premises
- Cities
- Buildings
- Under water
- ...

For innovative SMEs, IoT vendors, service developers, researchers...

- IPv6/Wireless Sensor motes equipped with temperature, humidity, light, etc.
- CO/CO2 sensors to measure energy, presence, light, noise, temperature
- Electromechanical actuators to control devices inside the testbed such as lights, curtains, air condition etc.
- Sensors control cubes that act as an interface for legacy electronic and electrical devices inside the testbed
- Building automation actuators, blinds, valves
- Magnetic sensors to detect if the doors and the windows are open
- Participatory sensing applications
- Energy meters
FIRE IoT Facilities: what can you use them for?

✓ Scalability testing
✓ Equipment and hardware testing
✓ Algorithm optimization
✓ Service integration
✓ User acceptance testing
✓ Performance-testing of IoT communication protocols and algorithms

and much more....

FIRE IoT testbeds as unique resources to capitalize and optimize on your R&D investments!
Bottom-up IoT FIRE initiatives are essential to drive progress at the IoT level so as to contribute building a common approach towards the Future IoT Architectures

– Overcoming heterogeneity
– Aiming at interoperability

For FIRE to have more significant impact:

- It must align and federate its IoT facilities - supported by common central tools - to provide useful and broad experimental resources
- It must align with other IoT research programmes to ensure complimentarity and a common approach towards the Future IoT Architectures
- It shall consider more comprehensive IoT facilities that allow realistic experimentation with real-world impact
12 FIRE projects have a large scale facility infrastructure ready to use:

- **CONFINE** – exploration and advancement of the community networks
- **CREW** – radio spectrum and measurements of wireless
- **Fed4FIRE** – a real federation of experimentation facilities: Wired, wireless, sensor, cellular, Openflow, cloud computing and/or Smart City testbeds
- **FELIX-EU** – Software Defined Networking - SDN
- **FESTIVAL** – IoT experimentation platforms
- **FIESTA** – IoT
- **FLEX** – Long Term Evolution (LTE)
- **MONROE** – Measuring Mobile Broadband Networks
- **ORGANICITY** – Smart Cities - EaaS
- **RAWFIE** – Unmanned/robotic networked devices
- **SUNRISE** – Underwater sensors – IoT
- **WISHFUL** – Wireless unified radio and network control

**Open Access** provided by **completed projects**:

- **OneLab** – Core Networking

Step 2: Projects own portals:
## Objectives for the future

Exploit FIRE IoT testbeds for the wider IoT community and package FIRE service offering to address specific IoT RDI requirements

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<th>Benefits FIRE</th>
<th>Benefits IoT</th>
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<td>• FIRE IoT testbeds can be further developed based on collaboration with the IoT community, adding to the service offer and facility enhancement</td>
<td>• FIRE testbeds offer real-life IoT experimentation in office premises, buildings, cities, etc.</td>
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<td>• Working with other initiatives empowers sustainability of the FIRE testbed facilities</td>
<td>• For innovative SMEs, IoT vendors, service developers, researchers</td>
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<td>• Decreasing the costs of experimentation and development</td>
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## Conditions to be addressed

- **FIRE must align and federate its IoT facilities**
- **FIRE must align with other IoT research programmes**
- **FIRE shall consider more comprehensive IoT facilities that allow realistic experimentation with real-world impact**
Ongoing FIRE IoT related projects

**IoT Lab** – researching the potential of crowdsourcing to extend IoT testbed infrastructure for multidisciplinary experiments with more end-user interactions

**Social@Smart** - instantiating a large-scale IoT Experiments which will be run on top of the Crew, OpenLab and SmartSantander facilities

**Trescimo** - a Reference Architecture for Greener and Smarter Cities

**SunRISE** - developing innovative solutions for networking smart devices to monitor and control the marine environments

**FIESTA** – will provide a blueprint experimental infrastructure, tools, techniques, processes and best practices enabling IoT testbed/platforms operators to interconnect their facilities in an interoperable way
...end of introduction...

Thank you!

To find more information and get support in identifying the most suitable testbed for your needs:

- FIRE portal: [www.ict-fire.eu](http://www.ict-fire.eu)
- e-mail: [contact@ict-fire.eu](mailto:contact@ict-fire.eu)

And of course, please, contact individual facilities for more information about access and services!
Questions

- What are the main end-user adoption challenges?
  - from research community
  - from the industry
- How to capitalize on and synergize with existing FIRE infrastructure?
Questions

- How to enable FIRE infrastructure sustainability and development beyond the duration of the EU funding?
Questions

- What should be the FIRE service offering portfolio for future IoT experimentation?
- How to use open calls? Next FIRE open calls relevant for IoT
Thank you!

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