



FUSION



CONNECTING SMEs
TO THE FUTURE INTERNET



FUSION to support SMEs with R&D verification and testing of Future Internet Products and Services

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Agenda

FIRE and FUSION. Why?

FIRE and FUSION. How?

FIRE and FUSION. What?

Examples

- Sensor Networks
- 5G/Wireless broadband
- Cloud/SDN
- Multimedia
- Underwater communications

FIRE and FUSION. Why?

FUSION?

- Focus on SMEs only
- Speak the language SMEs understand
- ... and translate this to FIRE testbed owners
- Make FIRE to meet SME needs
- Give focused overview of FIRE testbeds
- Compete with SMEs experienced in EU programs

FIRE and FUSION. How? (1)

- There is more than just “Testing on Fed4FIRE (Experimedia, CREW, Ofelia, SUNRISE, etc.)”
- There is a lot of “Testing of (WSN, LTE, Augmented reality, Multimedia, etc.)”
- There is pretty much of “We want to expand our business to new markets, but need to test performance first”
- There is even more of “We are startup and made new Smart City application and emulated it in the lab. Now we want to test it in real world environment”

FIRE and FUSION. How? (2)

- Federated testbeds provision
- Multi-channel marketing platform: multicast delivery of different digital messages (SMS, e-mails, QR-codes, messages inside social networks etc.)
- Via usage of Fed4FIRE facilities for:
 - *Determination of optimal geographical nodes distribution on PlanetLab;*
 - *Performing of scalability/QoE tests on Virtual Wall*
 - *Testing of novel approaches for messaging platform on BonFIRE:*
 - ✓ *Cloud-based architecture*
 - ✓ *Novel database technologies*
 - ✓ *Loadbalancing mechanisms*
 - ✓ *Message engines replication*

FIRE and FUSION. How? (3)

1. Definition of optimal geographical distribution of nodes and measuring of accompanying parameters:
 - At **PlanetLab Europe**: installation of instance of multi-channel marketing platform at center of Europe (Rennes), North of Europe (Stockholm) and South of Europe (Athens)
 - Performing of measurement of actual network characteristics and relevant bottlenecks (useless packets, checksum errors, lost packets etc.)
2. Identifying of maximum scalability of the current platform and measuring of accompanying QoS deteriorations:
 - At **Virtual Wall**: setup of the architecture of the platform (including several hundred clients) with pre-configured network layer parameters (previously defined on the PlanetLab Europe at step#1)
 - Measurement of load limit where clients QoS will be at the minimum acceptable level
3. Implementation and testing of the novel algorithms for dynamically ranging highly scalable cloud-based platform
 - At **BonFIRE**: setting up of architecture and testing of implemented solutions:
 - ✓ Splitted READ/WRITE access to databases
 - ✓ Database/API loadbalancing (between BonFIRE cloud nodes)
 - ✓ Message engines replication



FIRE and FUSION. What?

- Sensor Networks
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- Cloud/SDN
- Multimedia
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Sensor network

- Testbeds
 - w-iLab.t (Belgium)
 - Log-a-Tec (Slovenia)
 - TWIST (Germany)
 - ...
- Services, facilities, functionalities
 - AP nodes, terminals (incl. moving), power, load, interference, etc. adjustments, measurements of network characteristics, data traffic patterns modelling, etc.

5G/Wireless broadband

- Testbeds
 - IRIS (Ireland)
 - EASY-C (Germany)
 - NITOS (Greece)
 - Perform LTE (Spain)
 - ...
- Services, facilities, functionalities
 - eNodeB-s, femtocells, terminals (incl. moving), power, load, interference, etc. adjustments, measurements of network characteristics, data traffic patterns modelling, QoS/QoE etc.



Cloud/SDN

- Testbeds
 - Wirtual Wall (Belgium)
 - INRIA Grid (France, Brazil)
 - EPCC (Scotland)
 - Ofelia (UK, Spain)
 - ...
- Services, facilities, functionalities
 - Configurable platforms (servers, switches,...), OpenFlow, emulation of network characteristics, data traffic patterns modelling, QoS/QoE, experiment visualizations, etc.

Multimedia

- Testbeds
 - Experimedia
- Services, facilities, functionalities
 - Game engine, Video streaming, AV Content, Augmented reality, 3D content, Biomechanics, Environment sensing, Social analytics, etc.



Underwater communications

- Testbeds (federated by SUNRISE)
 - UPorto (Portugal)
 - UB (USA)
 - CMRE (Italy)
 - SUASIS (Turkey)
 - TWENTE (Netherlands)
- Services, facilities, functionalities
 - Nodes, terminals (incl. moving), power, load, interference, measurements of network characteristics, data traffic patterns modelling, etc.

Thank You!

- Contact us via: info@sme4fire.eu
- Any time @ our website: www.sme4fire.eu



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