Impact and best practices of Celtic projects
Orange view point

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ODSI project: On Demand Secure Isolation

Goal: Enhance security of connected objects
- Provide solutions for isolation and associate security models with a price/delay acceptable for the market
- Adapt/ Optimize certification processes

a 3 year project (end in October 2018)
11 partners from 3 countries

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<th>PARTNER</th>
<th>ACRONYM</th>
<th>PARTNER TYPE</th>
<th>COUNTRY</th>
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Encountered problems

- German and Polish partners could not join the project → Reshape of project proposal.
- Romanian partners have been funded one year after the project start
- Gap in expertise, and lack of communication at the beginning of the project:
  - HardSeco (FR) could not join the project (bankroute)
  - Partners from different culture hardware/software
- Absence of mature hypervisor to develop industrial products
- No collaborative tool for software development at the beginning of the project

→ Delay at mid term review
Solutions to encountered problems

Not enough interactions between partners
- Close collaboration between Orange and Lille CNRS Lab
- The partners dealing with use cases have been a lot solicitated

Absence of mature hypervisor to develop industrial products
- Development done on alternative hardware/system using ODSI architecture principles
- Orange developed a demonstrator based on the University hypervisor

Gap in expertise
- Some partners took over some activities
- Orange recruited some experts

GOOD results
ODSI Industrial results

XOPS
- Multi-tenant aspect
- 2 commercial tenders won (Paris and Hong Kong)

Prove&Run
- Verified Hypervisors
- Results integrated in product line

CityPassenger
- Security and isolation of routing
- New product offer

Ingenieria del Polierutano
- Système SCADA usine
- POC

BEIA
- Data Isolation for M2M agriculture
- 1 tender won vs Bayer

Internet of Trust
- Enhanced offer for system evaluation
ODSI- lessons learnt

– Robustness of very small partners (Start-ups) to check and challenge before starting project

– When common software development: Need to put in place process/methodologies for common work

– Identify and monitor critical paths in development planning

– **Celtic Plus Projects:**
  – Good tool for industry driven projects 😊
  – Very flexible tool allowing
    – re-orientations of activities, when needed 😊
    – innovation (new and enhanced products and services) 😊
Soogreen project
• Service-oriented optimization of Green mobile networks

Goals: Reduce the energy consumption of services wrt traffic evolution. Exploit the new network architectures and smart grids.
• modeling the energy consumption of services in different mobile network architectures (end-to-end path)
• definition of KPIs for energy efficiency of services and adequate measurement and reporting methods (→ standardization)
• a joint dynamic optimization of the mobile access network and the content delivery solutions
• definition of service-specific offload solutions that reduce the energy consumption
• proposal of solutions for enabling the bi-directional interaction of the mobile network and the smart grid by exploiting the flexibility of some services and the energy storage capabilities in the network.
Why we did it through CELTIC

- Key partnership: 16 partners from 5 countries
  Finland, France, Turkey, Sweden, Portugal

- Complementary of expertise

- Former good experience in previous CELTIC projects

- Inputs for next project IA4Green:
  AI (Machine learning) as enabler for Greener services for wireless networks and power systems.
Soogreen – Takeaways show it was worth it!

1. First model for sharing energy between services and per service energy efficiency

2. New sleep features (esp. 5G)

Tele2: 2.8% savings on whole network / year

3. Energy-Aware Cloud-RAN

4. Passive cooling (TBC)

5. Interaction between smart grid, mobile operator and local energy

CELTIC projects from Orange: awards and records

HFCC-G.fast « Turning copper into gold ». Eureka Innovation Award 2016 in the category Competitiveness.

SASER Flagship (secure optical networks): Celtic Excellence Award 2016

Data Transmission World Record on Orange fiber network: 38.4 Terra bit/sec. The American Library of Congress would be transmitted in 3 seconds!

Spin-off’s and Start-ups:
- Cailabs (France)
- aXenic Ltd (UK)

27 new and 28 improved products.

QUEEN (Quality of experience): Celtic Excellence Award 2016
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