

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

PARTNER	ACRONYM	PARTNER TYPE	COUNTRY
CityPassenger	CTP	Industry, SME	France 
Internet Of Trust	IOTR	Industry, SME	
Orange	ORA	Telco	
Prove & Run	P&R	Industry, SME	
University of LILLE	Lille	University	
Ingenieria del Poliuretano	IPF	Industry	Spain 
Innovalia	INNO	Research	
Nextel	Nextel	Industry, SME	
Software Quality Systems	SQS	Industry, SME	
			Romania 
BEIA Consult International	BEIA	Industry, SME	
Resonate MP4 Romania	RRO	Industry, SME	



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 solicited

Gap in expertise

- Some partners took over some activities
- Orange recruited some experts

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

GOOD results

ODSI Industrial results

XOPS

Multi-tenant
aspect

2 commercial
tenders won (Paris
and HongKong)

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

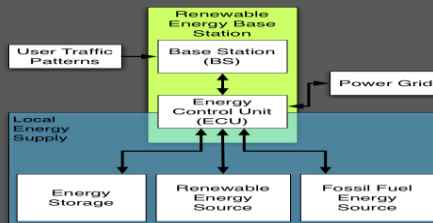
3 - Energy-Aware Cloud-RAN



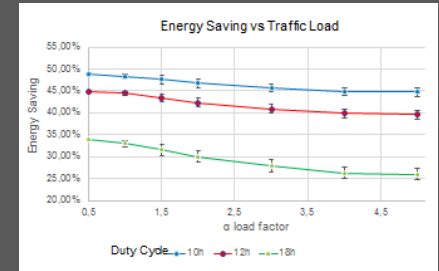
4 - Passive cooling (TBC)



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



6 – Energy saving in Wifi networks



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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