

- » BOOST PERFORMANCE
- » REDUCE COST
- » INCREASE AGILITY
- » ENHANCE CRM
- » SHORTEN TIME TO MARKET
- » DRIVE INNOVATION
- » IMPROVE EFFICIENCY
- » INCREASE ADAPTIVITY
- » ENABLE BUSINESS TRANSPARENCY
- » FULFILL REGULATORY COMPLIANCE



CONSULTING > SOLUTIONS > OUTSOURCING

Future Internet in Europe: An Overview of Related Initiatives and ICT Security Challenges

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Johannesburg, August 16th, 2011

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The changes in ICT and business models



New data networks, using LTE are being deployed. This means a huge data capacity increase for the customer and a technical challenge which will require a huge investment

New intelligent devices and sensors offer new possibilities for information and analysis and open the door to new automation and control possibilities

A new way of service deployment:

- Use only what you need and pay only what you use (Cloud)
- Open innovation ecosystems where apps from different parties may be combined and delivered multi-screen

Consumers: What people demand



General Challenges and Security Research

Manage explosion of data / info

- Data has growth 10-fold in last 5 years (from ~177 exabytes in 2006 up to ~ 1,700 exabytes in 2011): scale in prosumers and sensors will make data grow even at higher rates
- Need to filter and exploit what is relevant for me, now, here
- Need to preserve privacy, manage confidential data, multilevel security, data loss prevention...

Smart solutions for daily life situations

- People want to find and easily access applications that assist them in daily life situations: this would transform home and cities in better places to life
- Access should be provided anywhere, anytime, from any device
- Context-aware Security for “constraint-driven” environments (tiny devices, usability rules...)

Improved means for communication and collaboration

- People wish to share content/data and applications with others
- They wish to learn what has been useful/interesting to others, in real-time, on the go
- Reputation and trust become decision drivers

Internet as a critical infrastructure

- Internet is not longer an experimental tool: people expect it should secure by design
- People entrusted their life (e.g. lifelogging) and their business to internet so they want to govern access to their data and to have “user-centricity”
- People want internet to handle dynamicity just like physical world : dynamicity of privacy, trust and security solutions

Today



Vice-President of the European Commission, Neelie Kroes, launched the Future Internet PPP in Brussels on 3 May 2011

<http://www.future-internet.eu/>



FI-WARE Project Kick off at Telefonica I+D Offices in Madrid

<http://www.fi-ware.com>



FI-WARE project and partnership



Working together to make it possible:

- ✓ New services for everybody
- ✓ Smart applications
- ✓ Innovative business models

Providing the Technology Foundation

- Standard interfaces.
- Open to other actors (SMEs)
- Scalable and demand oriented (cloud)

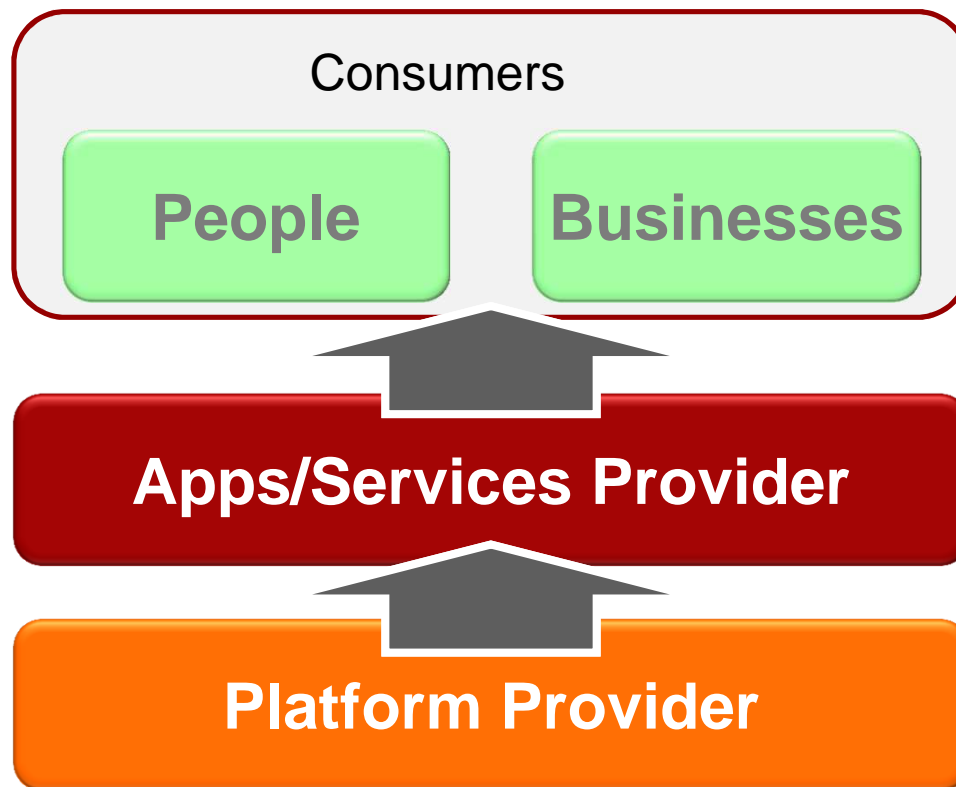
Our objective: create a solid basis for the Internet of the Future



The VISION



- *FI-WARE will be a technological foundation to satisfy the demands of application/services providers and consumers across various usage areas, stimulating and cultivating a sustainable FI service ecosystem*



Security Research in FI-WARE

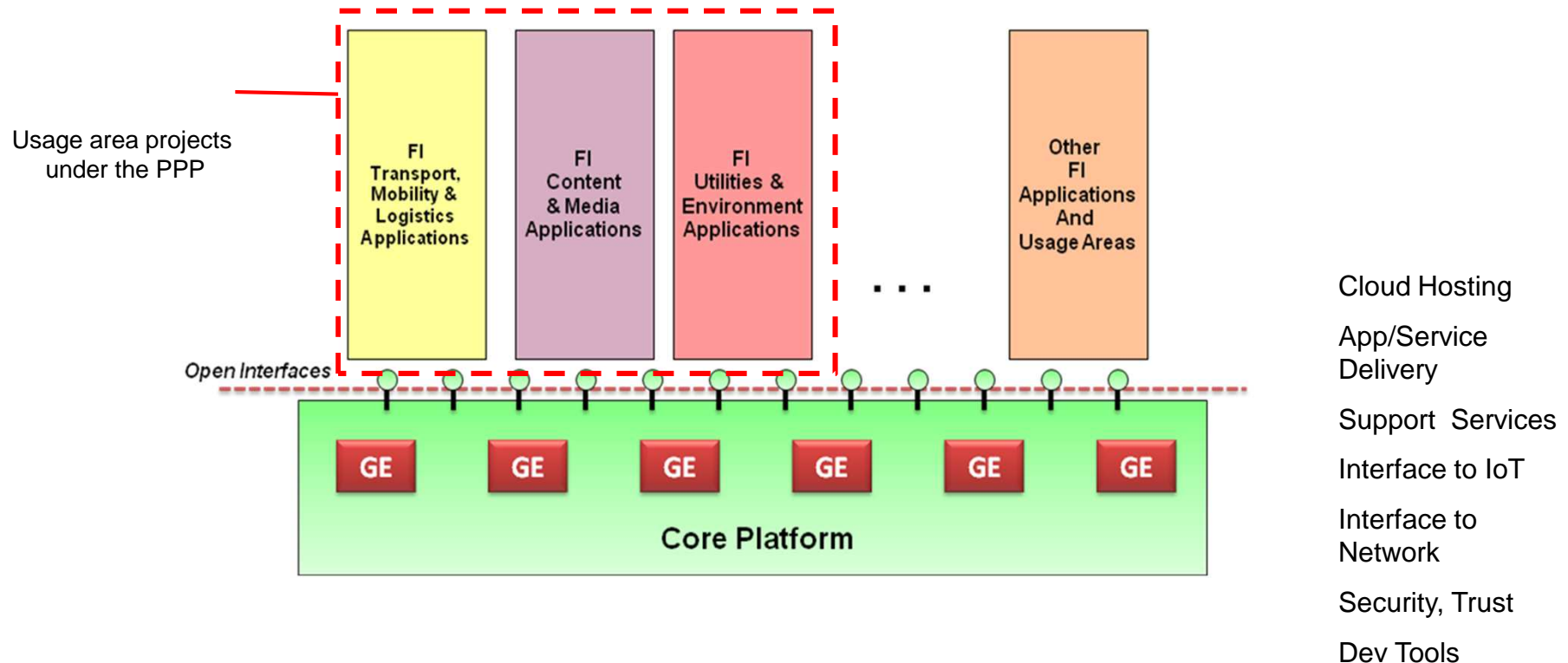


- Security Monitoring
 - Collection of heterogeneous information and standardisation
 - Risk analysis and correlation
 - Decision making support and simulations
 - Visualisation and reporting
 - Forensics
- Generic Enablers
 - Identity and privacy
 - Authorisation and Usage Control Policies
 - Auditing
- Context-based security and Compliance
 - Security properties and service descriptions
 - Selection and deployment of reconfigurable solutions
 - Monitoring aspects
- Optional security enablers (e.g. protected data etc)

Elements & Functions of FI Core Platform



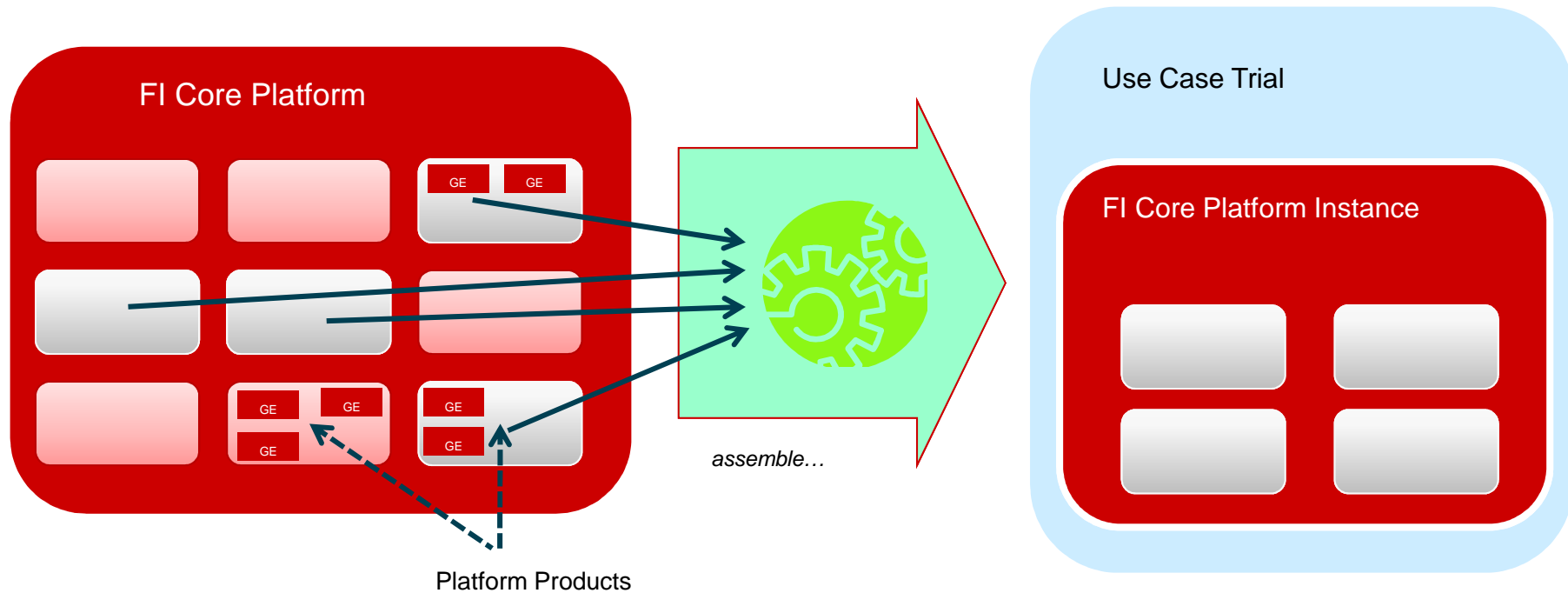
- The FI Core Platform comprises a set of technological “Generic Enablers” which are considered general purpose and common to several current and future “usage areas”
- Generic Enablers (therefore, the FI Core Platform) will provide open interfaces for development of Applications



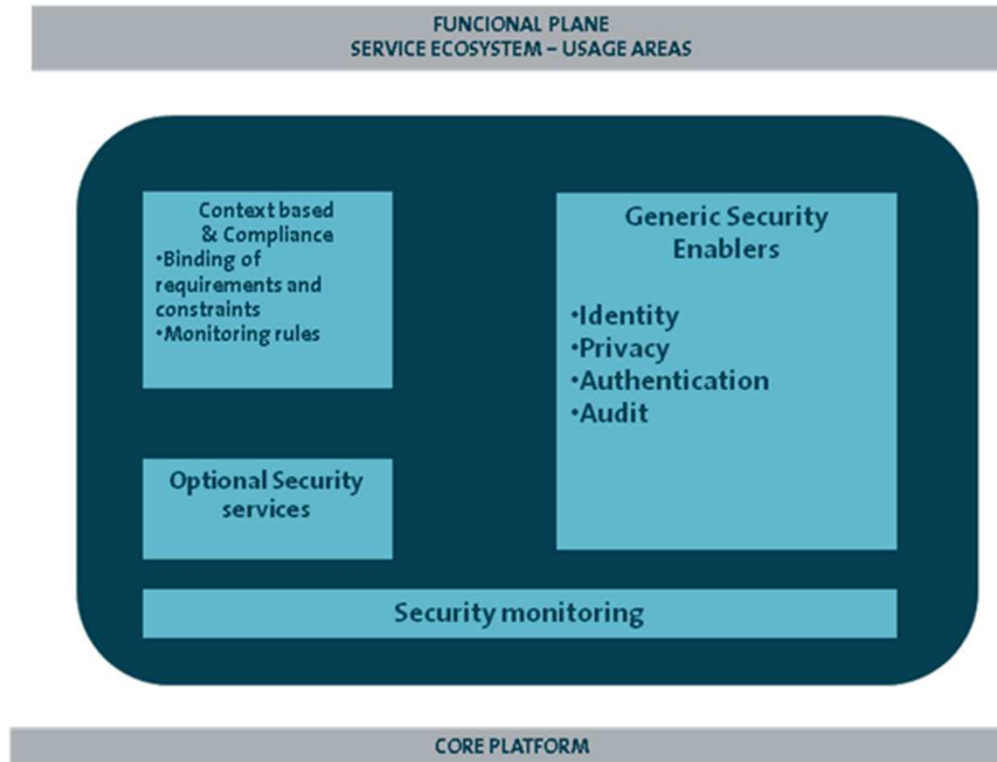
Core Platform Instances and Use Case Trials



- Future Internet Applications run on top of “FI Core Platform Instances” built upon selection and assembly of “Platform Products” implementing “Generic Enablers” of the “FI Core Platform”
- Use Case trials will consist on application scenarios running on top of FI Core Platform Instances, involving real users



Security and trust in Pilots



Trust and Security:

- Spanning from infrastructure and “things” all up to the application layer
- Common enablers for identity, authentication and authorization
- User privacy management
- Protection against any malicious action damaging its services and reputation

Operations

- Lifecycle Management Support
- End user usage accounting
- Platform usage accounting
- Support for Analytics

<http://www.fi-ppp.eu/projects>



European Future Internet Portal



ENVIROFI

OUTSMART



∞ INFINITY ∞
INfrastructures for the
Future Internet commuNITY



ADVANCE YOUR BUSINESS >>

Other Relevant EU Initiatives



- EP3R Partnership focuses on Internet Resilience and Internet as a Critical Infrastructure
 - Area 1: Key assets/ resources/ functions for the continuous and secure provisioning of electronic communications across countries
 - Area 2: Baseline requirements for security and resilience of electronic communications
 - Area 3: Coordination and cooperation needs and mechanisms to prevent and respond to large scale disruptions affecting electronic communications

Other EU Initiatives (II)



- EOS working group on ICT security focuses mainly on cybersecurity and privacy in Homeland security and Defence sectors
- Transversal issue: Architecture & procedures for secure exchange of data
- Transversal issue: Standardisation, validation & certification of solutions & services
- Specific issue: Pilot MS / local competence & capabilities to face cyber attacks
- Specific issue: EU Information Sharing and Alert Systems
- Specific issue: EU cyber crime center/platform
- Specific issue: Pilot & validation cyber resilience of C.Is
- Specific issue: Cloud security
- Specific issue: EC CERT / network

Other EU Initiatives (III)



- Trust in Digital Life focuses more on “consumers” and societal aspects of ICT security:
 - Technology and Requirements,
 - Use cases,
 - Law and Technology

- SSEDIC thematic Network focuses more on digital identity and e-ID
 - use of e-ID in leisure, government, transport
 - Technical issues & architecture for e-ID
 - Legal & others

Digital agenda and security



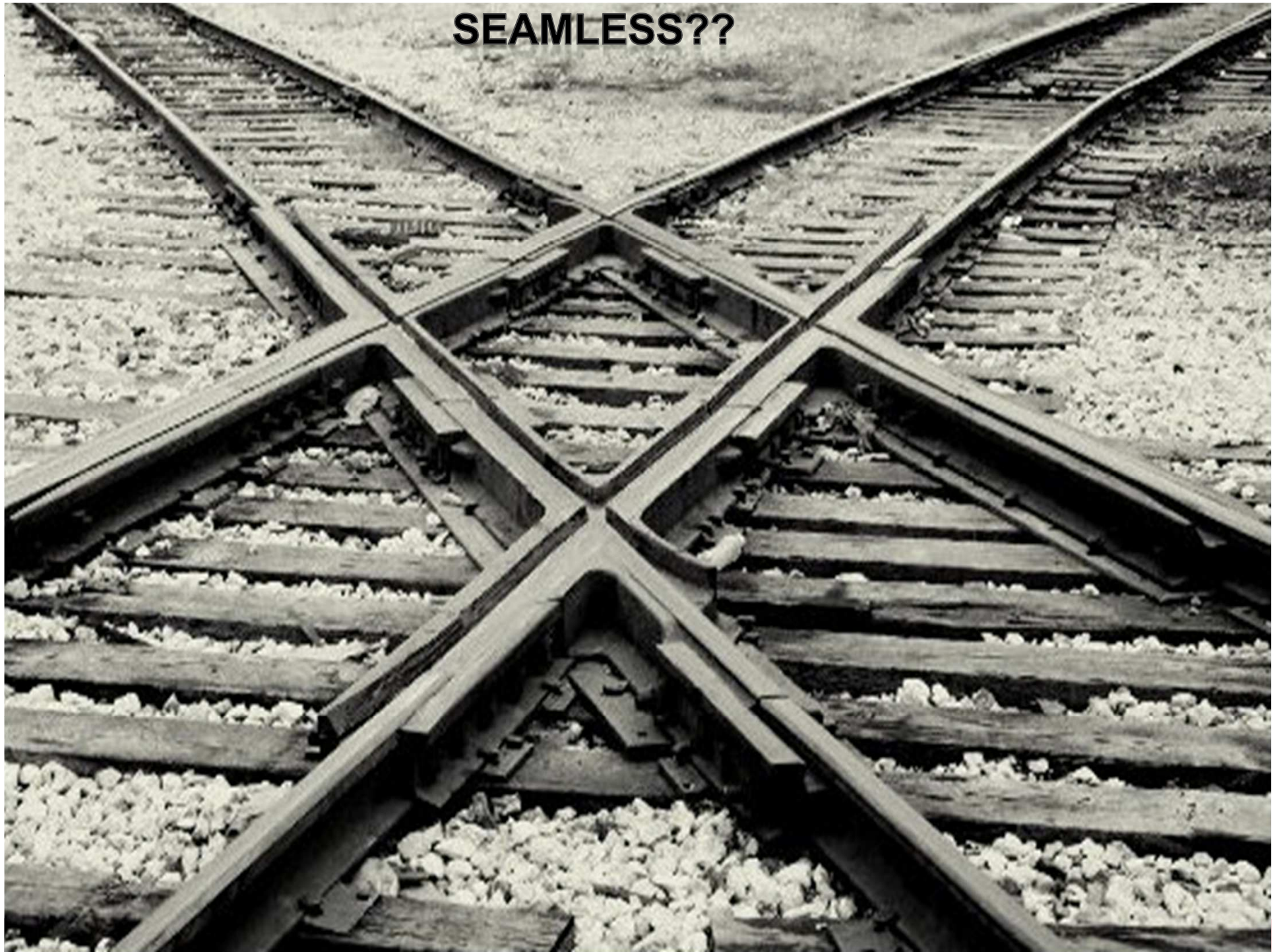
- [Action 38: Member States to establish pan-European Computer Emergency Response Teams](#)
- [Action 39: Member States to carry out cyber attack simulations](#)
- [Action 41: Member States to set up national alert platforms](#)
- [Action 56: Member States to Engage in large-scale pilots financed by the Competitiveness and Innovation Programme](#)

Digital agenda and Security (II)



- [Action 33: Support EU-wide cyber-security preparedness](#)
- [Action 35: Guidance on implementation of Telecoms rules on privacy](#)
- [Action 32: Strengthen the fight against cybercrime at international level](#)
- [Action 33: Support EU-wide cyber-security preparedness](#)
- [Action 30: Establish a European cybercrime platform](#)
- [Action 41: Member States to set up national alert platforms](#)

SEAMLESS??



Issue 1: Seamless security management



- The more context sources leads to better solution, but it has to be manageable
- Automation of physical & virtual security context information gathering and processing should be a must
- Automated processing (e.g. correlation) needs also some reasoning on security info (weight, priority etc)

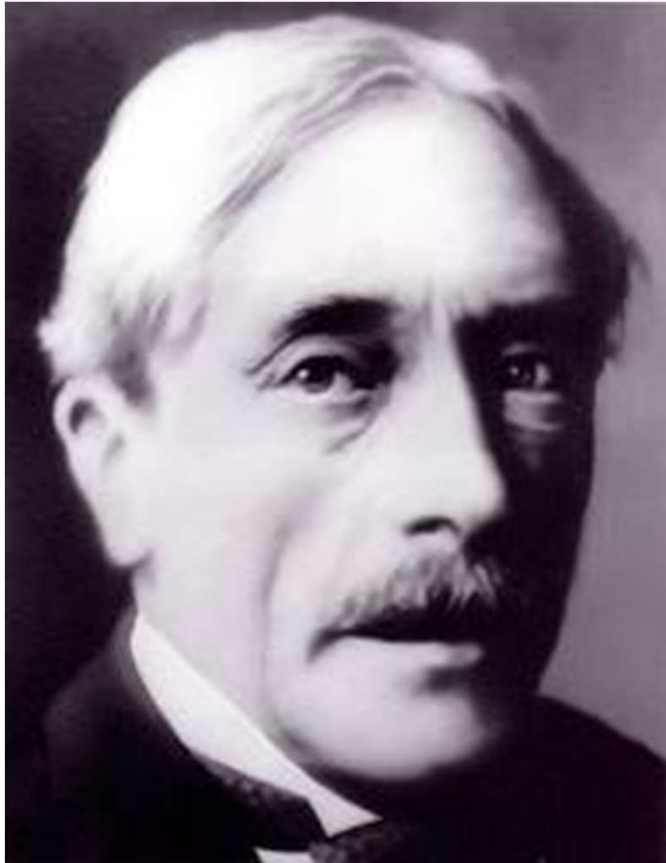
ADAPTIVE??



Issue 2: Dynamic security management



- The existence of appropriate infrastructure (smartmeters, sensors, services etc) is pre-requisite, but security agents should be able to configure sec mechanisms ad-hoc
- We need adaptation (e.g. of secure service delivery), personalization, dynamic reconfiguration...



Internet
Future is not
what it used
to be

Paul Valéry

French critic & poet
(1871 - 1945)

Conclusions (II)

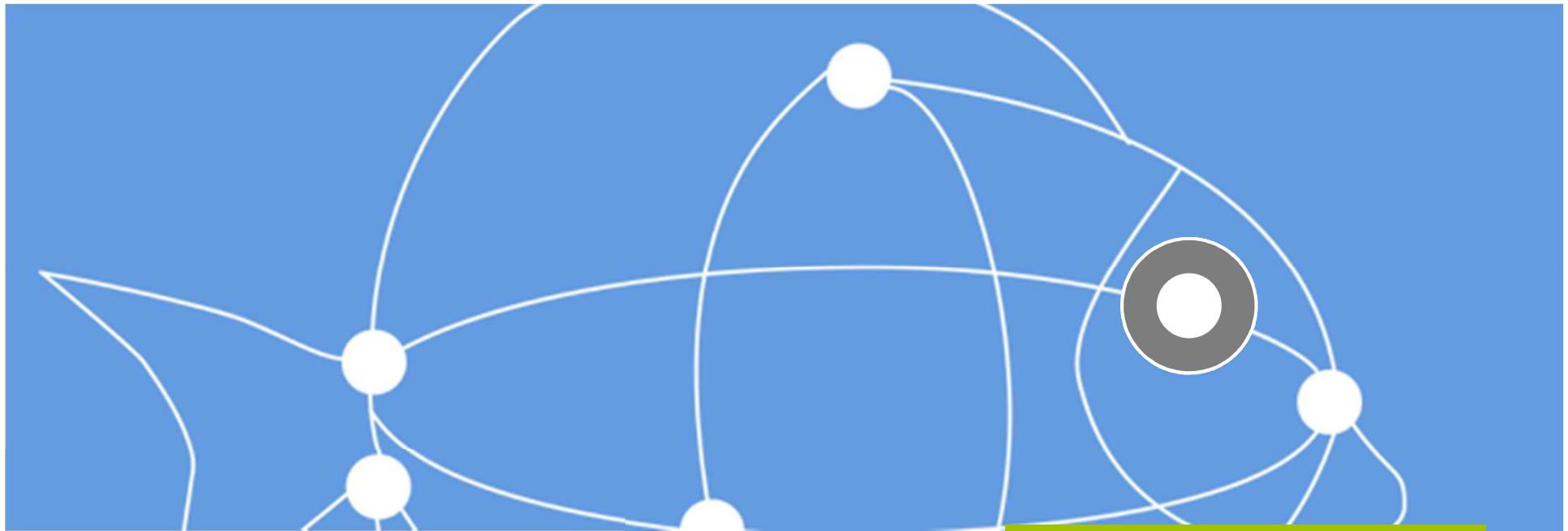


International collaboration in Future Internet research
is ESSENTIAL in order to avoid mistakes from the
past !!!!

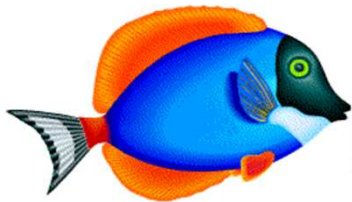


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1969-xxx



Thank you



FACING TECHNOLOGICAL CHALLENGES TOGETHER
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