Pilot Overview

Review September 2011

Josef Noll (Movation), based on contributions from partners

ARTEMIS Call 2009 – SP6100204

Overview - prototypical demonstrations

- SPD levels are achieved through specific configurations by the overlay
- Composability Middleware prototype
- Monitoring trains with WSNs
- FPGA Power Node Prototype
- Cognitive Radio Node Prototype

Also prototypes for

- pSHIELD semantic model prototype (ontology)
- Policy-based management and hybrid-automata model

we will see them all in the demo room

ARTEMIS Call 2009 Project

p.S.HI.E.L.D.

pilot embedded Systems arcHItecturE for multi-Layer Dependable solutions

ARTEMIS

EXECUTIVE *summary*

To help safeguard society, pSHIELD will guarantee the privacy and security of embedded systems by making these 'built-in' features of future designs.

RELEVANCE CALL *2008 objectives*

The SHIELD consortium proposes a compact R&D, or pilot, project (pSHIELD) to address the core concepts of SHIELD. The pilot is intended to be a pioneer investigation enhanced with R&D activities that will be proposed in the future ARTEMIS Calls.

MARKET *innovation*

The project will have a great impact on the S[illegible]rket of the ES. By addressing the reusa[illegible] designed solutions, the interoperability of ac[illegible]ologies and the standardised SPD certifiability, it is poss[illegible]te an overall 30% cost reduction for a full SHIE[illegible] design methodology. The composability of the SHIELD archit[illegible]ework will have great impact on the system design costs and tim[illegible] market of new SPD solutions in ES. The integrated use of SPD metrics will have impact on the development because the qualification, (re-)certification and (re-)validation process of a SHIELD framework instance will be faster, easier and widely accepted.

TECHNICAL *innovation*

pSHIELD will approach SPD at 4 different levels: node, network, middleware and overlay. For each level, the state of the art in SPD of single technologies and solutions will be improved and integrated (hardware and communication technologies, cryptography, middleware, smart SPD applications, etc.). The SPD technologies will be enhanced with composable functionality to incorporate the pSHIELD architectural framework.

The pSHIELD project will be focused on:

- Demonstrate composability
- New technologies
- Modularity and expandability
- Innovative, modular, composable, expandable and highly dependable architectural framework
- Metrics
- Validation of the SHIELD integrated system in one application scenario.

SHIELD

PROJECT COORDINATOR: Antonio Di Marzo
START: June 2010
INSTITUTION: SESM - FINMECCANICA
DURATION: 12 months
EMAIL: adimarzo@sesm.it
TOTAL INVESTMENT: 5.4 ME
WEBSITE: www.pshield.eu
PARTICIPATING ORGANISATIONS: 18
NUMBER OF COUNTRIES: 6

Advanced Research & Technology for EMbedded Intelligence and Systems

Pilot: Semantic Overlay and Composability

- SPD levels are achieved through specific configurations by the overlay
  - demonstrating the behaviour of the pSHIELD middleware
  - demonstrating SPD-driven composability
  - using metrics-formulation from WP2

Pilot: Nano-Micro-Personal-M2M platform

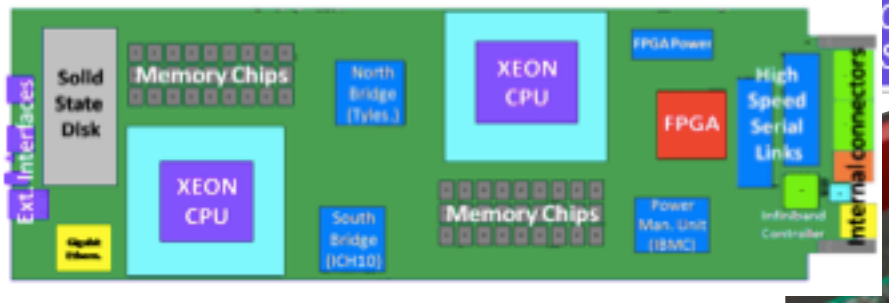
- Nano-Micro-Personal-M2M Platform
  - security interworking between embedded sensors and Telecom service platform
  - Identify SPD functions in an integrated embedded sensor testbed
  - opens for SPD metrics based composability

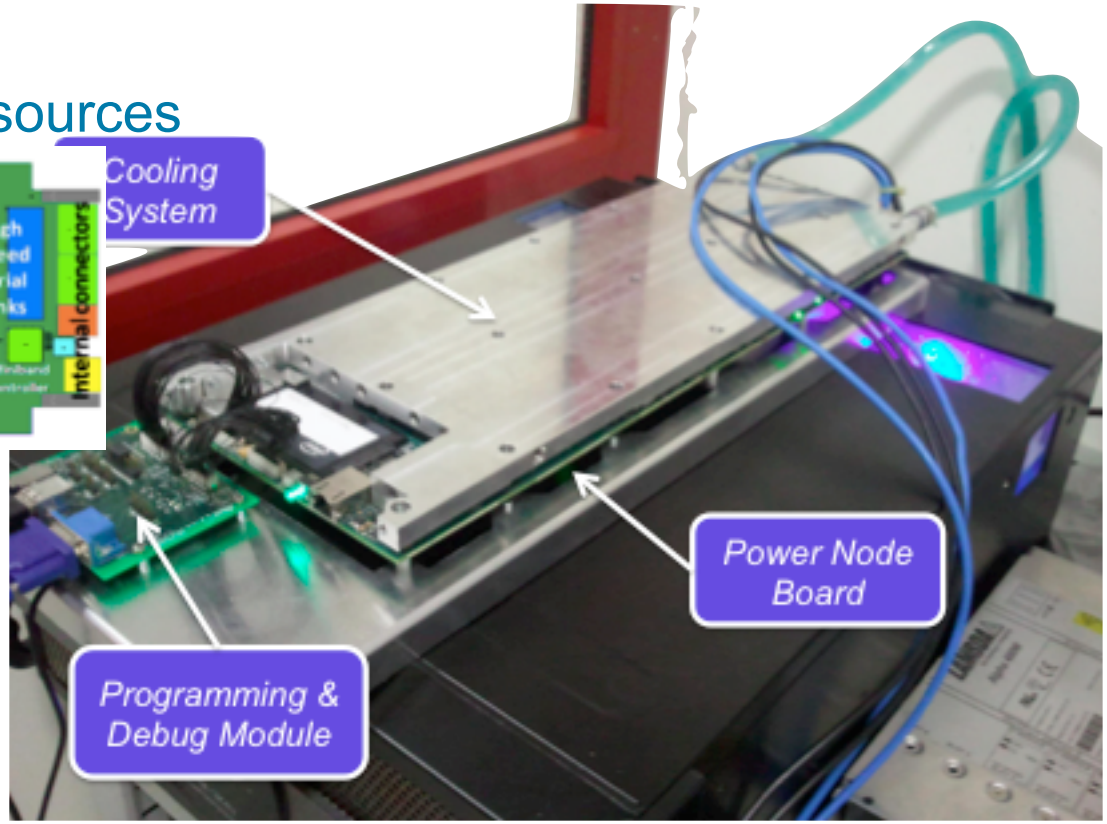
Pilot: Monitoring trains with WSNs

- Monitoring trains with WSNs
  - identity requirements of real-world applications
  - Identify SPD functions in an integrated embedded sensor testbed
  - opens for SPD metrics based composability

Pilot: FPGA Power Node Prototype

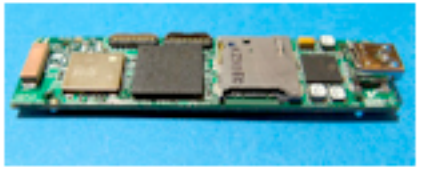
- FPGA Power Node Prototype
  - modular system reconfiguration
  - self-dependability at node layer
  - hardware and software security and privacy service provider
  - management of power sources





Pilot: Cognitive Radio Node Prototype

- Cognitive Radio Node Prototype
  - reconfigurable radio components with waveform Tx parameters
  - Sensing mechanisms to acquire awareness about resources
  - Cognitive algorithms elaborating available resources
  - Embedded platform adaptation for validation of algorithms



PCB OMBRA-pSHIELD – OMAP uP (18x68 mm)
WCP (1K pieces) =~150 Euro
Computational Power 5X

Life pilots

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let us walk to the demo room

and get something to eat