pSHIELD Major Findings and Achievements

pSHIELD Extra Review Meeting

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Introduction

Starting from the Innovation and Expected Outcomes foreseen for the pSHIELD project, and taking into account the reviewer indications, so far (month 16 over 19) we have obtained a set of significant achievements and major findings

These major findings and achievements are with respect to:

- Consortium “Recovery” and Administrative Issues

- Technological Achievements

- Impact, visibility and business opportunity

Consortium “Recovery” & Administrative Issues – WP1

Achievements:

After the initial *inertia* in project consolidation, the consortium has achieved a good working spirit by:

- improving collaboration towards common objectives
- improving information sharing for a wider awareness and
- improving companies’ effort to reach the goal

These achievements are mainly “intangible”, but…

Measurable outcomes:

- Consolidation of administrative documents
- Identification and clear assessment of roles and responsibilities
- Intensive use of BSCW as well as WiKi tool for information exchange
- Increase in the number of meetings and phone calls

Technological Achievements – WP2

Achievements:

- Identification and formalization of a coherent SPD Metric
- Formalization of two methodologies to compose SPD Metrics
- Compliance with the existing standard Common Criteria

Measurable Outcomes:

- D2.2.1 pSHIELD SPD Metrics
- Adaptation and implementation of one of these methodologies into the WP5 prototypes (i.e. semantically-enabled metrics composition and metrics-aware middleware emulator)

Technological Achievements – WP3 (1/2)

Achievements:

- Development of extensive set of Node requirements that exactly address the goals of Technical Annex.

- Design of *generic conceptual model* of a pSHIELD node for all node types, which can be implemented in different architectures, providing different functionalities, different SPD compliance levels and different services, depending on the type of node and application field. Three node types represent very different devices but they share the same conceptual model, enabling a seamless composability.

Measurable Outcomes:

- D2.1.1 pSHIELD Preliminary Requirements

- First version of pSHIELD SPD FPGA Power Node prototype (already presented during Consortium Meeting in Rome 12-13.07.2011)

Technological Achievements – WP3 (2/2)

Achievements:

- Development of a new cryptographic key exchange protocol. The major finding is that with this protocol it is possible to increase the lifetime of the cryptographic keys during a session and greatly increase the strength of the underlying cryptographic algorithm against cryptanalytic attacks while keeping the computational overhead to minimal levels.

Measurable Outcome:

- Deliverable D3.4

Technological Achievements – WP4

Achievements:

- Implementation of a specific Cognitive Node for radio environments. The main novelty of this contribution is the development of a real Cognitive Radio Node software that is able to automatically detect the presence of a threat and adjust internal radio transmission parameters accordingly.
- Establishment of communication across heterogeneous platforms, thus preparing for security interworking
- ETSI M2M platform functionality TS102.690 supported by the access to the telecom platform

Measurable Outcomes:

- WP4 Prototype of Cognitive Radio
- Demonstrator with Telenor Platform

Technological Achievements – WP5 (1/2)

Achievements:

- Drawing of an original ontological model of ESs, including the semantic characterization of the system and inferential engine features (based on specific metrics) to face the SPD composability problem

Measurable Outcome:

-A prototype owl file with the pSHIELD Ontology has been obtained

-A prototype of reasoner has been integrated into the pSHIELD Middleware emulator

Technological Achievements – WP5 (2/2)

Achievements:

- Design and implementation of a reduced but significant “working” example of the pSHIELD Middleware and Overlay. This Middleware is able to discover and compose SPD functionalities to achieve the desired SPD level.
- Technological Assessment of the Policy Based Management for Security applications and preliminary feasibility analysis with respect to pSHIELD
- Formulation of an innovative model to represent (composable) Embedded Systems based on the theory of Hybrid Automata. Thanks to this formulation it has possible to apply some closed-loop control algorithms (like MPC) to optimize the SPD composability in a context-aware way.

Measurable Outcome:

- OSGI prototype of pSHIELD middleware performing composability tasks.
- D5.2 Analysis on Policy Based Management
- Closed-loop algorithms simulations

Technological Achievements – WP6

Achievements:

- Identification and test of two platforms suitable for the integration with the pSHIELD key functionalities for the final demonstrator in the railways scenario

-These platforms are provided by Movation in collaboration with Telenor and Ansaldo, in collaboration with University of Naples.

Measurable Outcome:

- Architecture, analysis and tests performed by ASTS (poster session)
- Architecture and analysis performed by Movation (poster session)
- On site trial with Norwegian Railways

Impact, visibility and business opportunity – WP7

Achievements:

- Targeted dissemination at top level, including telecom actors (Telenor), industrial actors (ABB) and security research institutes (Norwegian Defense Research Establishment)

- pSHIELD implementation in place in an electrical motorcycle at the showroom of Telenor, the Innovation Fair at Fornebu

- Real world interworking of sensors on the measurement locomotive of the Norwegian Rail Authorities and Telenor Objects

Measurable Outcome:

- Dissemination and Exploitation reports

- Field trials

Conclusions

Up to now the project has produced many results and achieved different goals in line with the foreseen activities.

These results have been punctually reported in the project documentation, and…

The most significant findings and achievements are available in the demonstration session!

Thanks for your attention

and

Enjoy the Demonstration Area