Pitch of the Project Proposal

TIPS: Trust, Isolation and ProofS

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Teaser

• **Outcome**
  • Abstract model of isolation solution
  • 1\textsuperscript{st} European **open source & formally proven minimal kernel** [https://github.com/2xs/pipcore](https://github.com/2xs/pipcore)
  • Architecture consolidated by the use of **tokens**
  • Systems security evaluation methodology **Lego methodology**

• **Impacts**
  • Enhanced products & offers for several partners
  • Pip user club
  • 1\textsuperscript{st} European workshop (academic) on proven OS [https://entropy2018.sciencesconf.org/](https://entropy2018.sciencesconf.org/)
Proposal Introduction (1)

- **Vision:** Deliver **secure** environments of services for M2M, IOT, real-time systems and reach **high security levels**

- **Problems**
  - Security by design & evaluation of system with heterogeneous and multi-level security components require **time & expertise**
  - Chain of **responsibilities** (& liabilities) are not clear
  - Security solutions need to be tailored for **constrained objects**
  - **Proofs** are delicate in terms of security & safety

- **Solutions**
  - Provide **secure building blocks & models** by generalising the approaches defined in ODSI
  - Provide **tools for lego methodology** systems security evaluation

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Proposal Introduction (2)

**OS & formal proof**
- Multicore processors
- Extend ODSI approach beyond memory isolation
- New hardware model
- Automated code generation from proof

**System Security evaluation**
- Lego methodology pilot
- Tool specifications

**Security architecture**
- Security model for automated exchanges between objects
- Functional tokens & kernel/hardware rights

**Industrialization**
- Linux over Pip
- Pip over Arm
- Automated security evaluation tool
- Frameworks

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Proposal Introduction (3)

• Expected outcome
  • **Secure-by-design building blocks** to achieve a good level of security even without certification
  • Lego **Security Evaluation Methodology & tools** to evaluate complex industrial systems in the context of a well-defined Use Case

• Impacts
  • **E-health, smart cities, Industry 4.0,…** : Achieve a good level of security in a cost/effort/time-effective way

• Schedule (ideally)
  • Consortium definition: End February
  • Full project proposal: End March (submission 8th April)
  • Project Starts : ~October 2019
Partners

- **Existing Consortium:**
  - Orange (France) → management & use case
  - Internet Of Trust (France) → security evaluation
  - University of Lille (France) → OS & formal proof

**WE NEED YOU!**

- **IOT / real-time uses cases / applications which require security (e.g. isolation, formal methods, tokens, …)**
- **OS/hardware development**
- **Develop software solution to industrialize lego methodology**
- **Frameworks for secure communications, authorizations & management**

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Presentation available via:

www.tiny.cc/proposaltidea
Join the follow-up Telco
12 Feb. 13.00 CET

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