Modeling, Specifying, Discovering, and Integrating Trust into Distributed Real-time and Embedded Systems -- Preliminary Outcomes

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To develop principles and an associated framework that will enable the creation of trustworthy Distributed Real-time and Embedded (DRE) Systems.

Objectives

- How to model and incorporate trust during the entire life cycle of DRE systems?
- How to discover trusted services from a collection of repositories and compose a trusted DRE system out of them?

Limitations of Existing Approaches

- Trust is considered as an afterthought.
- Trust models are not aligned with the software development life-cycle.
- Do not provide a generalized trust model.

Our Approach

- Enhance trust representation which uses subjective logic. (by Jøsang et al.²).

Current Focus - Deployment Artifacts

- Trust Model (TrDRES¹)
  - Trust of the software is evaluated using its artifacts (a).
  - Trust is evaluated using subjective logic.

Future Directions

- Trust By Construction
- Design of a Trusted Discovery System
- Empirical validation of the TrDRES model

References