ECS 2024 GHENT BELGIUM 5-6 December

Systems Design and Integration

Arrowhead fPVN

Data model interoperability across flexible Production Networks

ARROWHEAD fPVN

Challenges and objectives

The usage of heterogeneous data models is the major reason for non-interoperability between stakeholders and their machines!
Key technology gaps identified:

- Too many and non-interoperable standardized data models
- Non-mature technology for machine translation in-between data models
- Lack of open architectures and implementation platforms for interoperable fPVNs, having properties such as: flexible, secure, scalable, autonomous and evolvable

Technical goals

Microservice paradigm
An open, extensible solution architecture with reference implementation platform enablingseamless information interoperability between involved entities, operational technologies (OT) and information technology (IT).

Industrially accepted and standardized digital data models
Promoting the data models of a few major standards, between which autonomous translations enabled and integrated, to automation/ digitalization solutions using the microservices architecture and associated implementation platform.

Automated translations between data and information models
Automated information model translation between the major datamodeling languages enabling on the fly understanding of the entities in PVNs.

Expected impact

- Redusing cost for production Requirements, Design, Commissioning, Operation, Maintenance and Management by eliminating major information bottlenecks
- Reducing bottlenecks caused by non-interoperability within value networks
- Un-locking digital and non digital Design & Engineering , Operations and Maintenance information
- Create seamless interoperability between data based on standards from different sectors
- Cost efficient implementation

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