Challenges from the Identities of Things

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Challenges from the Identities of Things.

Agenda.

- Exemplary IoT Scenario
- Object Identifier and Namespace
- Authentication and Authorization
- Ownership and Identity Relationships
- Governance of Data and Privacy
Exemplary IoT Scenario
Exemplary IoT Scenario:
Fleet management in farming industry.

*by courtesy of Claas
Exemplary IoT Scenario:
Support of farming production processes.

- Harvesting
- Transport
- Processing
Object Identifier and Namespace
Object Identifier and Namespace
It needs new mechanisms to find identifier and addresses of communication partners in the IoT.

Example XRI
xri://construction-community.org/(urn:yelllowMachine.serialno:#123abc)
xri://construction-community.org/(urn:abcConst.license:#B-BC1234)

How to address?

"Yellow Machine Inc."
serial no. as identifier
e.g. #123abc

"ABC Construction Inc."
license plate as identifier
e.g. B-BC1234

construction-community.org
Authentication and Authorization
Authentication and Authorization
Proper IdM mechanisms become paramount in the IoT.
Strong Authentication 1/2
How to strengthen authentication means in the IoT?

User Identities

Identities of Things

Something you know + have + are

Something you know + have + are

User Identities

Identities of Things
Strong Authentication 2/2
Context-based authentication.

Additional information could be taken e.g. from the network layer, from geographical information or from other use case specific factors.
Authorization 1/2
OAuth – Authorization for the “classic” Internet.

User has to be online!
Authorization 2/2
User Managed Access - Authorization for the IoT(?)

Application → Authorization Server → Resource Server / API Endpoint

Token Request → Exchange Code for Token → Token Response → Call API / Get Resource w/ token

Code

Authentication & Consent

Policies and Identity Claims
Ownership and Identity Relationships
Ownership and Identity Relationships

Things or objects in the IoT often have a relationship to real persons.

Identity relationships in the IoT have an impact on other identity-related processes like e.g. authentication, authorization, or governance of data.
Governance of Data and Privacy
Governance of Data and Privacy

The problem.

Data produced in a IoT device

Persons having different claims to data

Claims to data

GPS

Position

Velocity

Usage of Gas

Oil temperature

Oil pressure

Engine status


Sensors

owner

user

„I want to use the position data for statistics!“

„I don’t want the position data to be used. They could be used to track my personal behavior“
Governance of Data and Privacy
Users have their claims-to data.

Persons having different claims to data

Appropriate methods to be applied to the data
- publish
- anonymize
- discard
- encrypt end-2-end
Governance of Data and Privacy
The configurable “claims-to” approach.

Different configurations in different domains, regions and countries.
Identities of Things
Discussion Group
IDoT
Identities of Things Discussion Group
Current Members.
Identities of Things Discussion Group
Become a member.

- No formal burdens in Kantara Initiative
- Rather hands on work
- No membership fees apply for working in a DG
- Just sign GPA: http://signup.kantarainitiative.org/?selectedGroup=34

- Agenda and more: http://kantarainitiative.org/groups/idot/

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Questions?