



TRUST management in oneM2M

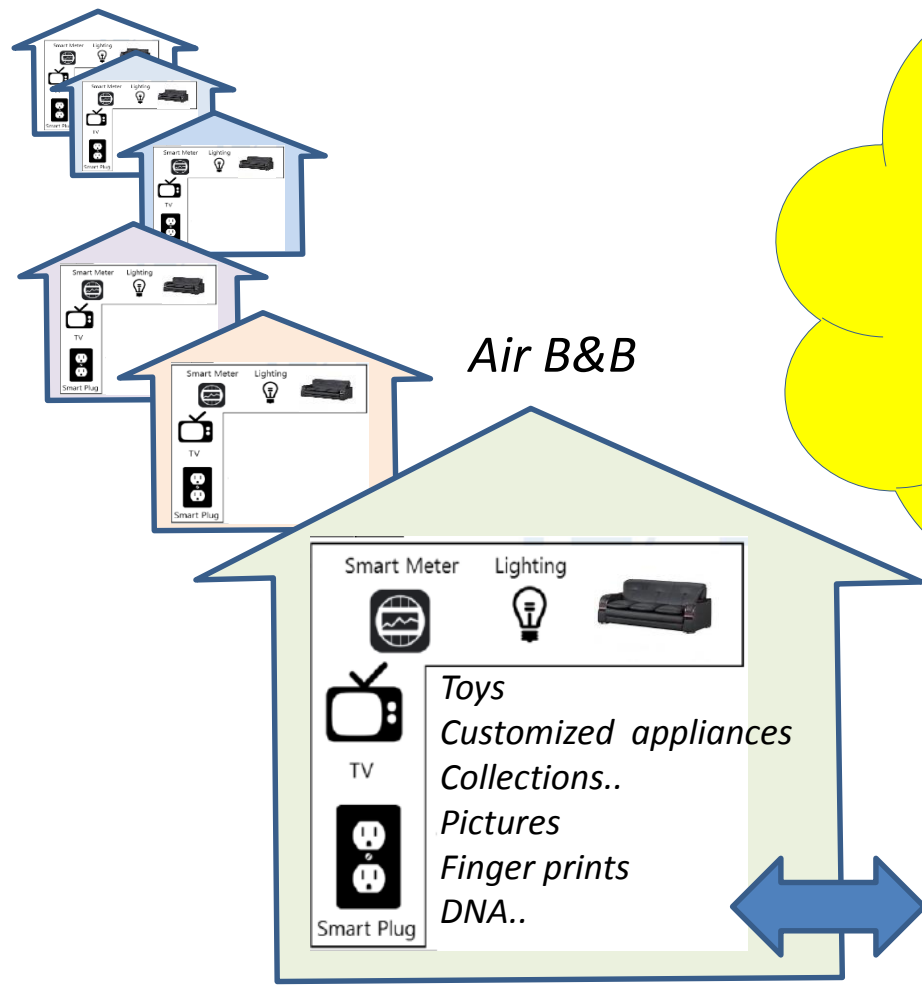
Group Name: TP/ARC/SEC

Source: JaeYoung Ahn(ETRI)

Meeting Date: 2016-10-20

Agenda Item:

A Man From Korea



A House in Sophia Antipolis

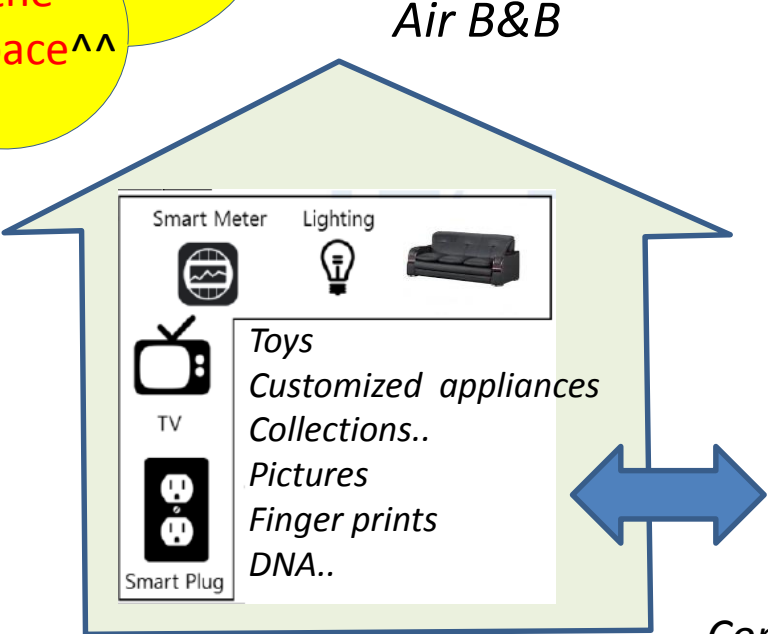
Thanks to Air B&B's **platform** that provides a uniform access to the houses all over the world. It gives me a chance to **access local habitat resources with a reasonable expense**. It is just like me to have a global network of houses; I can **use it whenever I need**, only with usage-based payment. It also contribute **recycling & environment saving^^**.



Contract for open access

The Landlady

I am going to travel to Korea to enjoy Korean BBQ & Kimchi! Thanks to Air B&B's **platform** that provides me a chance to sell my extra habitat resource during my travel. I **earn money with the extra/spare/idle time & space**^^



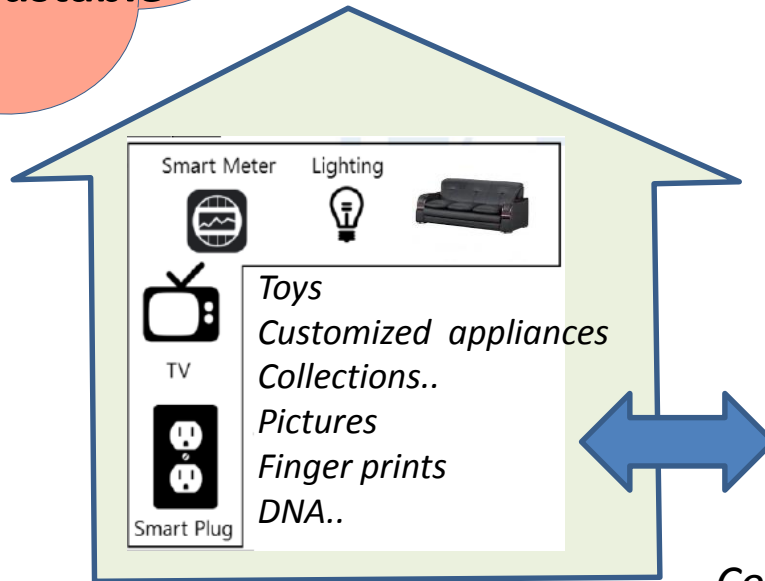
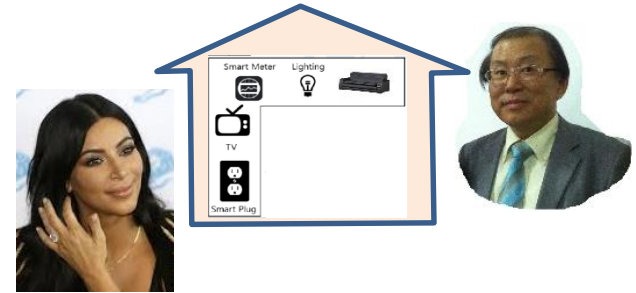
A House in Sophia Antipolis



Contract for open access

Trustworthy is Naturally Desired

BUT, will it be OK?
Somebody will be in my living space that is basically my private domain. There are so many values that are not counted as individual items for rent. I am afraid about unexpected damages. I want **only a trustable person** as my guest.



A House in Sophia Antipolis

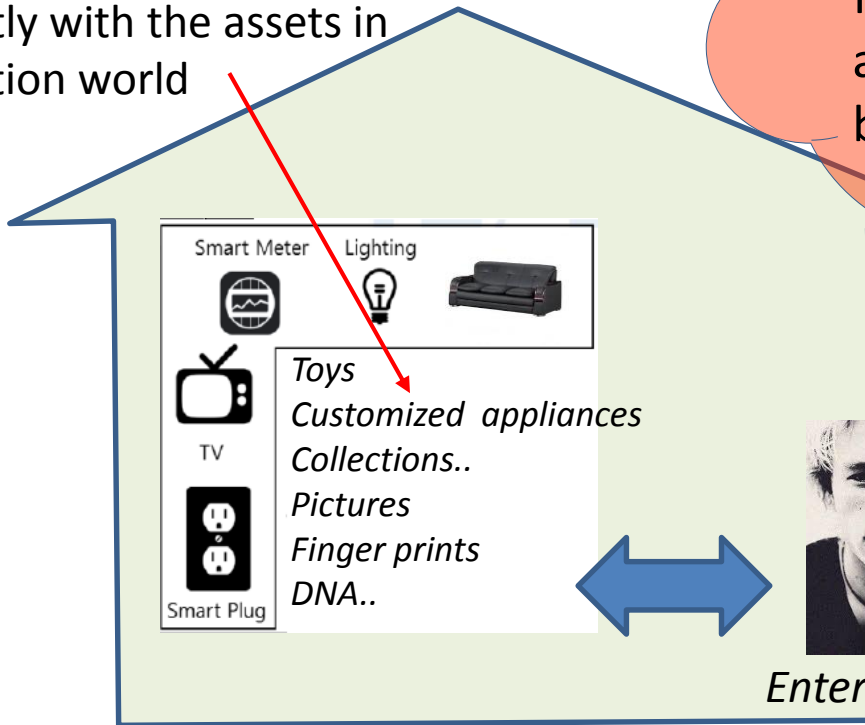
Contract for open access

Risk of Malicious Behavior

- at inside your secure/private domain

many physical properties not protected perfectly, differently with the assets in information world

Sorry, actually I can do more than your worries.
There are so many private information in the house, as in the form of fragmented PII. I can restore almost all your private credentials to break your security and privacy...

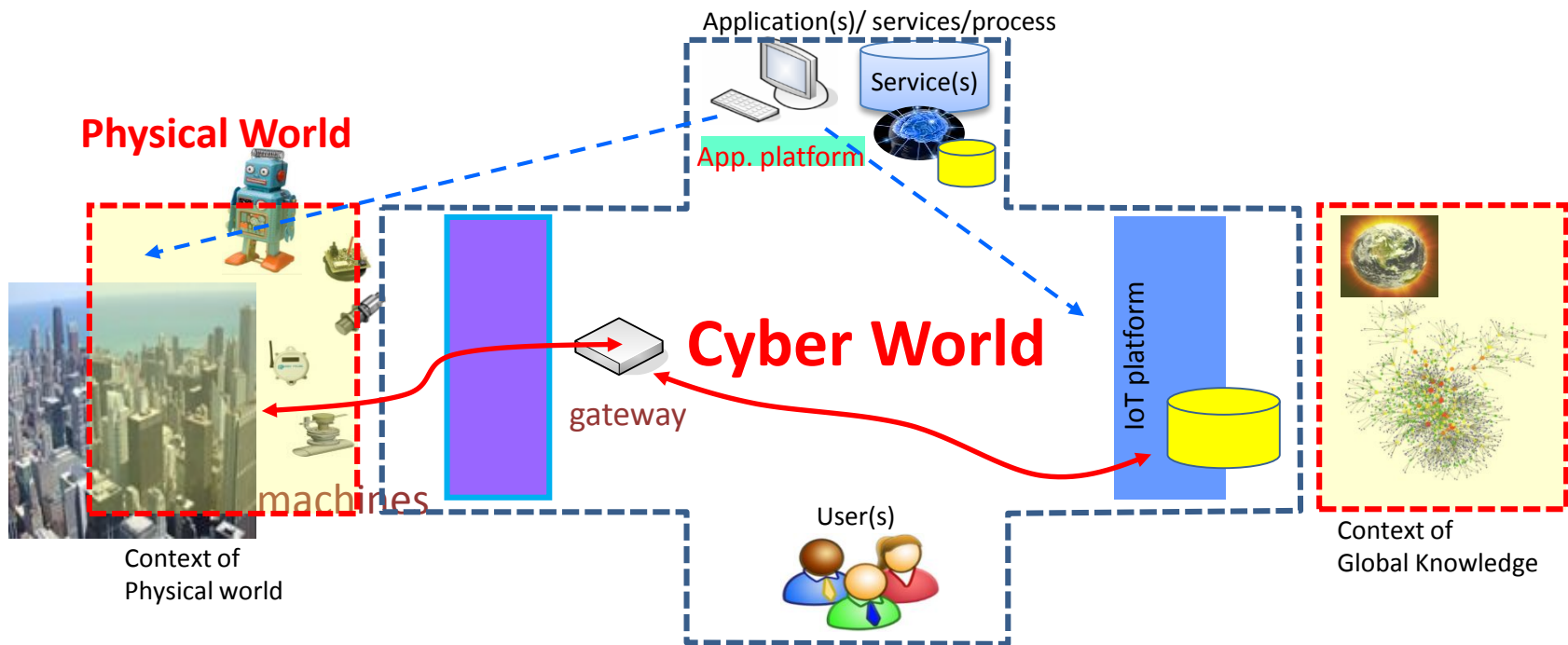


Entered into the secure/private domain

A House in Sophia Antipolis

Why TRUST is important in IoT?

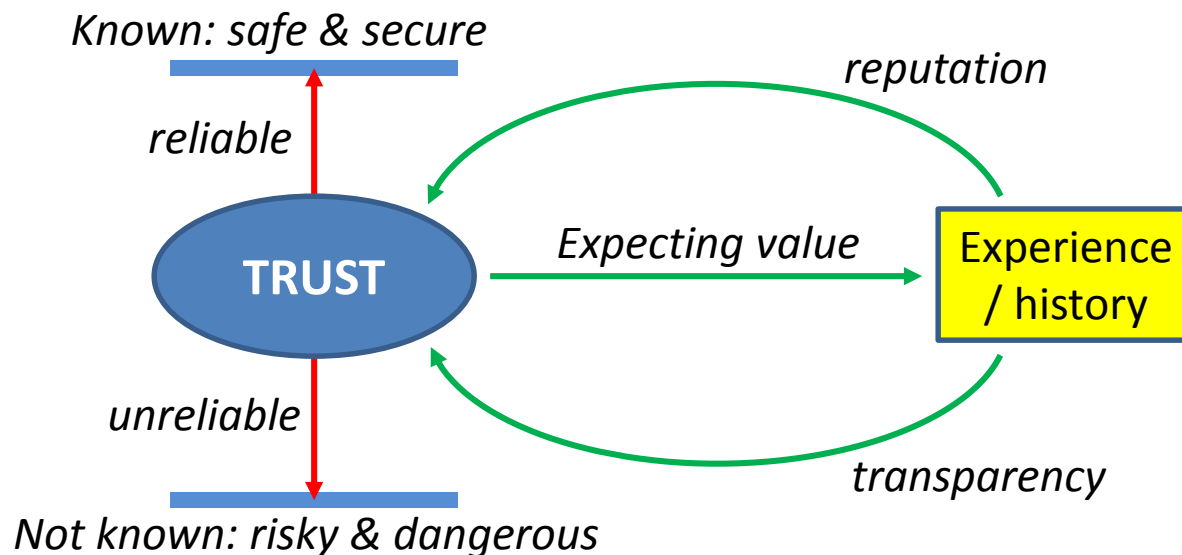
- *Security & Privacy issue more, due to the open connection to physical context*
- *IoT is to collect data and upload it to services*
 - *“awareness” issues impacting privacy, with dynamic/widespread partial PII*
- *IoT extends access capability to physical context, causing “unknown danger”*
 - *Risk management becomes serious though it is conditional & cost oriented*



What is TRUST in connected world?

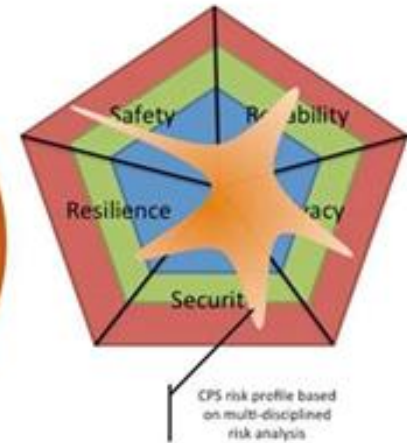
- *Definition of TRUST in ITU*

- *Trust is an accumulated value from history & the expecting value for the future.*
- *Trust is quantitatively and/or qualitatively calculated and measured, which is used to evaluate values of physical components, value-chains among multiple stakeholders, and human behaviors including decision making.*
- *Trust is applied to social, cyber and physical domains.*



NIST concept of Trustworthiness

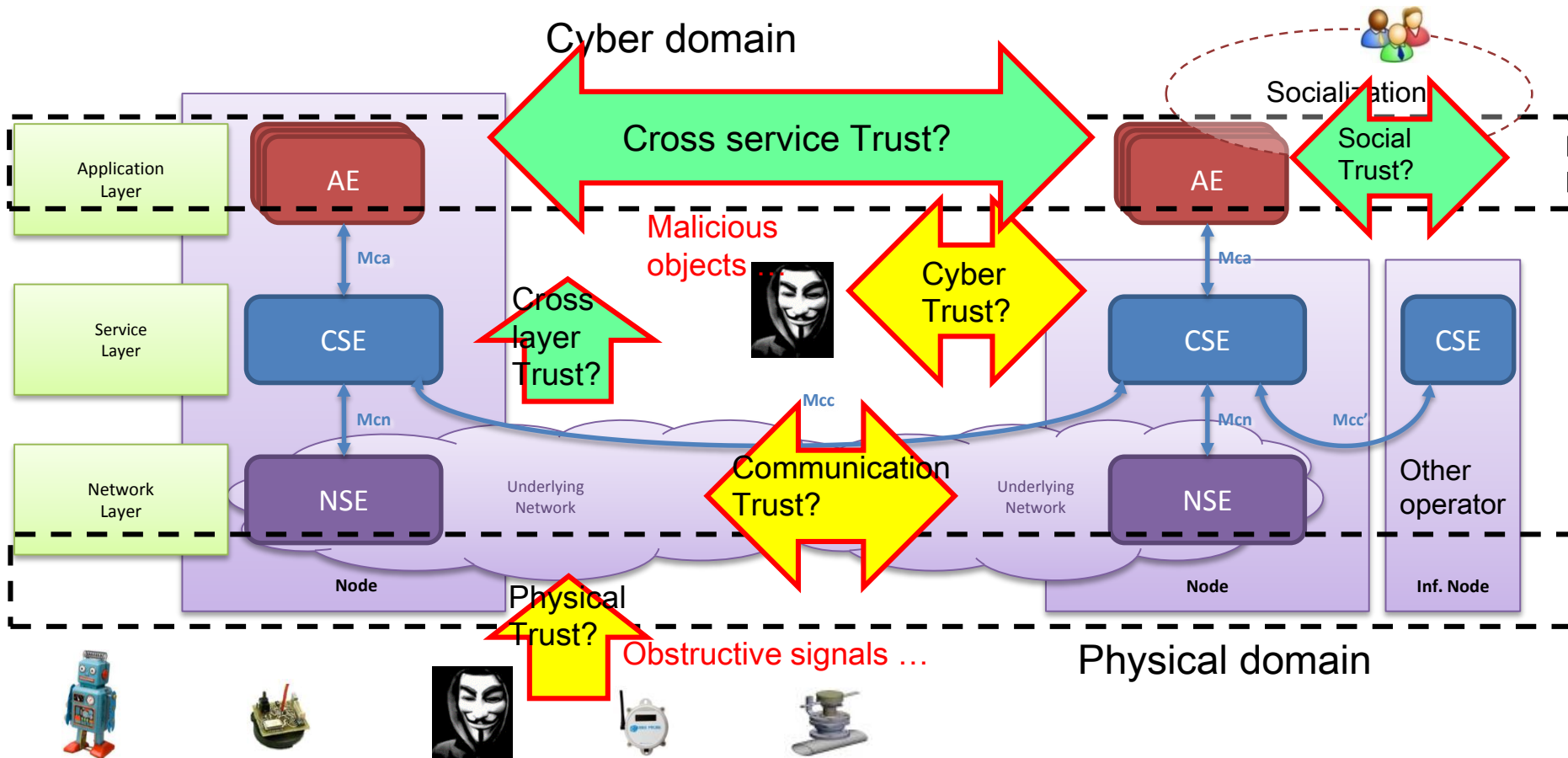
- *CPS cyber security faces wide range of security challenges*
- *Expanded cyber security to cross-property risk management in complicated systems*
- *Trustworthiness: CPS does what users and operators expect in the presence of various disruptions, errors, and attacks.*
- *Five risk management support the CPS trustworthiness*
 - *Security*
 - *Privacy*
 - *Safety*
 - *Reliability*
 - *resiliency*



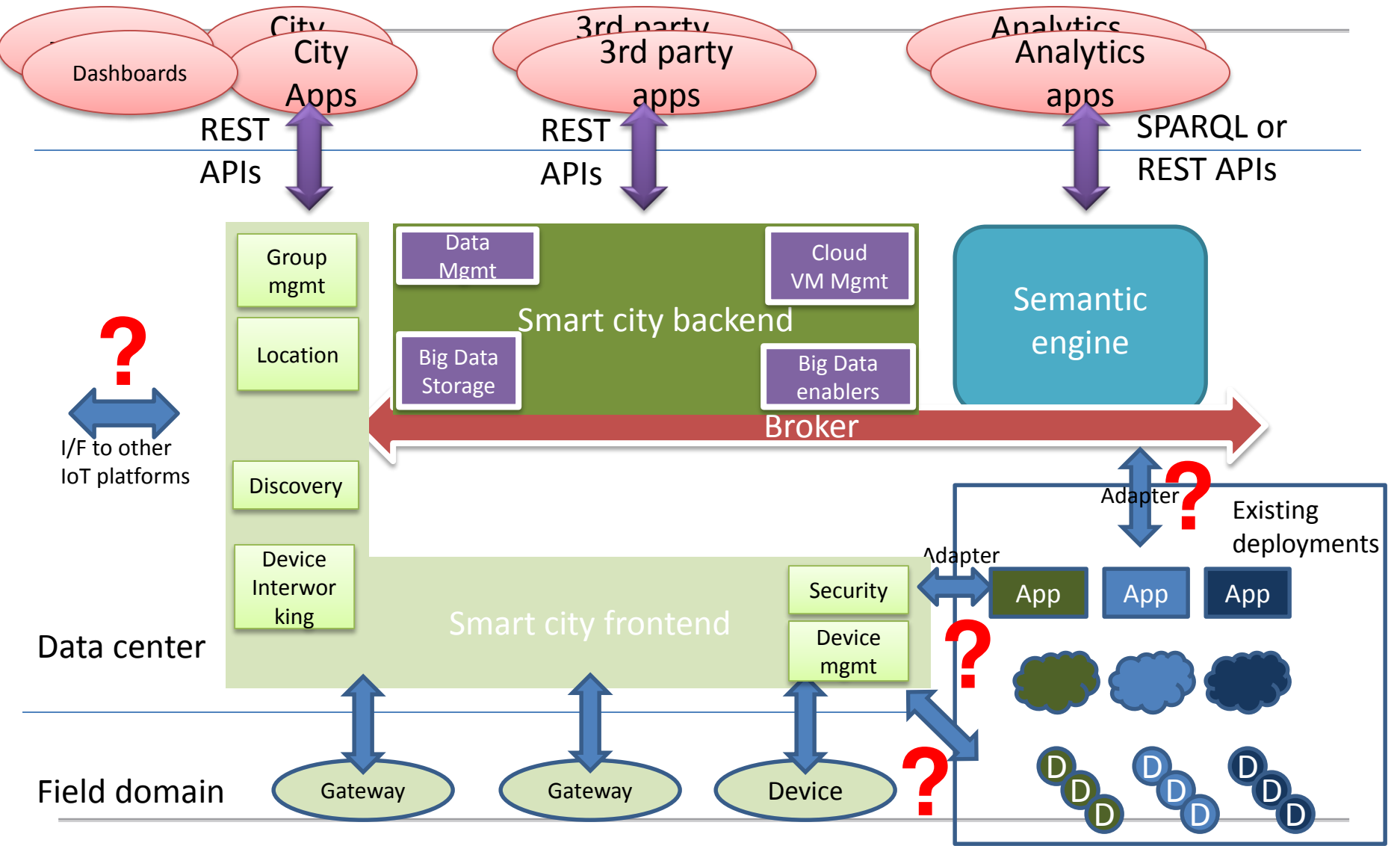
CPS/IoT trustworthiness relies on an integrated, concern-driven approach that takes into account the interaction between the cyber & physical elements of systems

Trust over oneM2M reference model?

- ❑ Case studies of TRUST in oneM2M reference model
- ❑ Investigated TRUST establishment model for each case
- ❑ Identifying TRUST property
- ❑ Resolving Identity TRUST issues



Trust for cross domain/unknown world?



Related works

- NIST
 - ITU-T
 - ETSI NFV
 - Trusted Computing Group (TCG)
 - Online Trust Alliance (OTA) (activities for IoT trust)
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