



# SEDCC

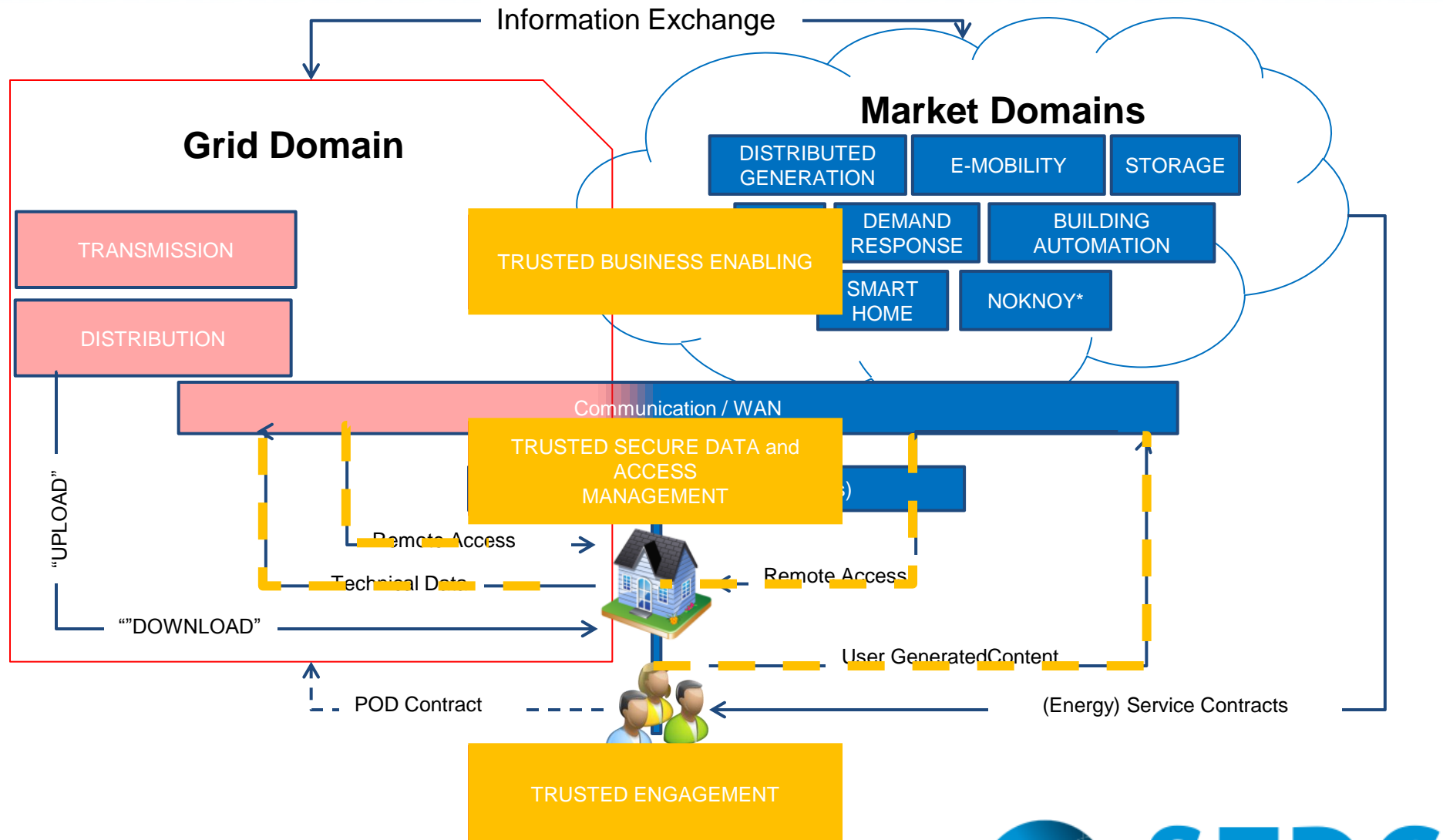
Smart Energy Demand Coalition

## Holistic view on security as foundation for trust and innovation in new energy markets

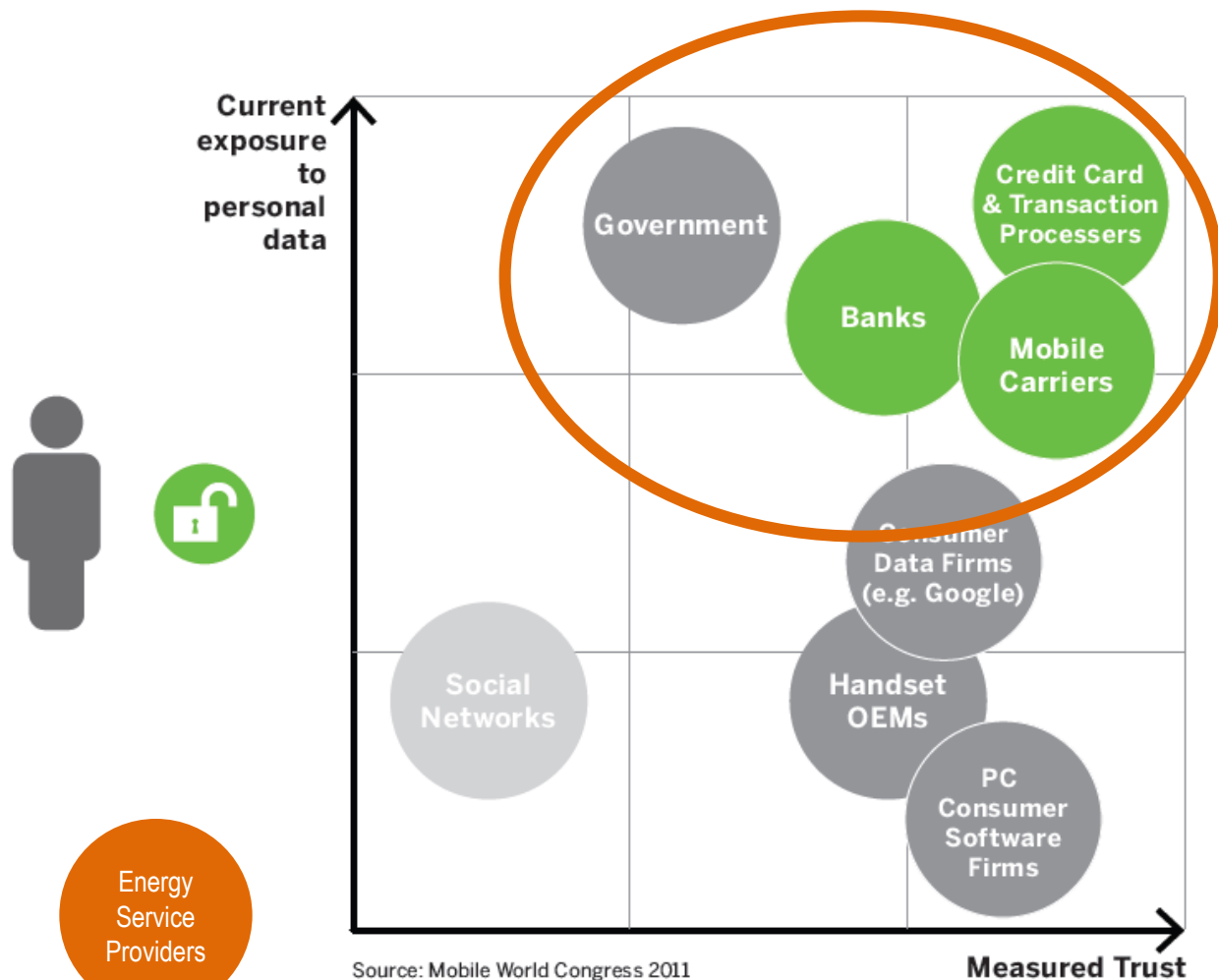


**CEER workshop on Meter Data Management  
Brussels, 19 April 2012  
Thomas Weissaupt**

# Challenge: create trust for enabling innovation



# Looking at Data Exposure, Trust and Players – Energy service providers should become trusted actors



frog

Source: frog primary research 2011



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# What if...

- ... data of demand-response interventions are **authenticated** the same level as **credit card transactions** are ?
- ...neighbours can run a virtual powerplant and share the revenue based on a clear and consistent **identification** of their assets and their **generation data** ?
- ...smart meters have **built-in security** to prevent fraud and attacks, and to protect **privacy while enabling new actors commercial participation in energy markets** ?
- ...at **access control** to data warehouse, strong **authentication of data** is given ?
- ...common energy storage devices can be used by a group of people and all incoming and released data about energy flow is subject to a **trusted transaction** ?
- ...multitude of services could be **provisioned securely** to manage energy generation and/or devices ?
- ...a new **service market** evolves out of a trusted way of **generating, managing and using** meter data?

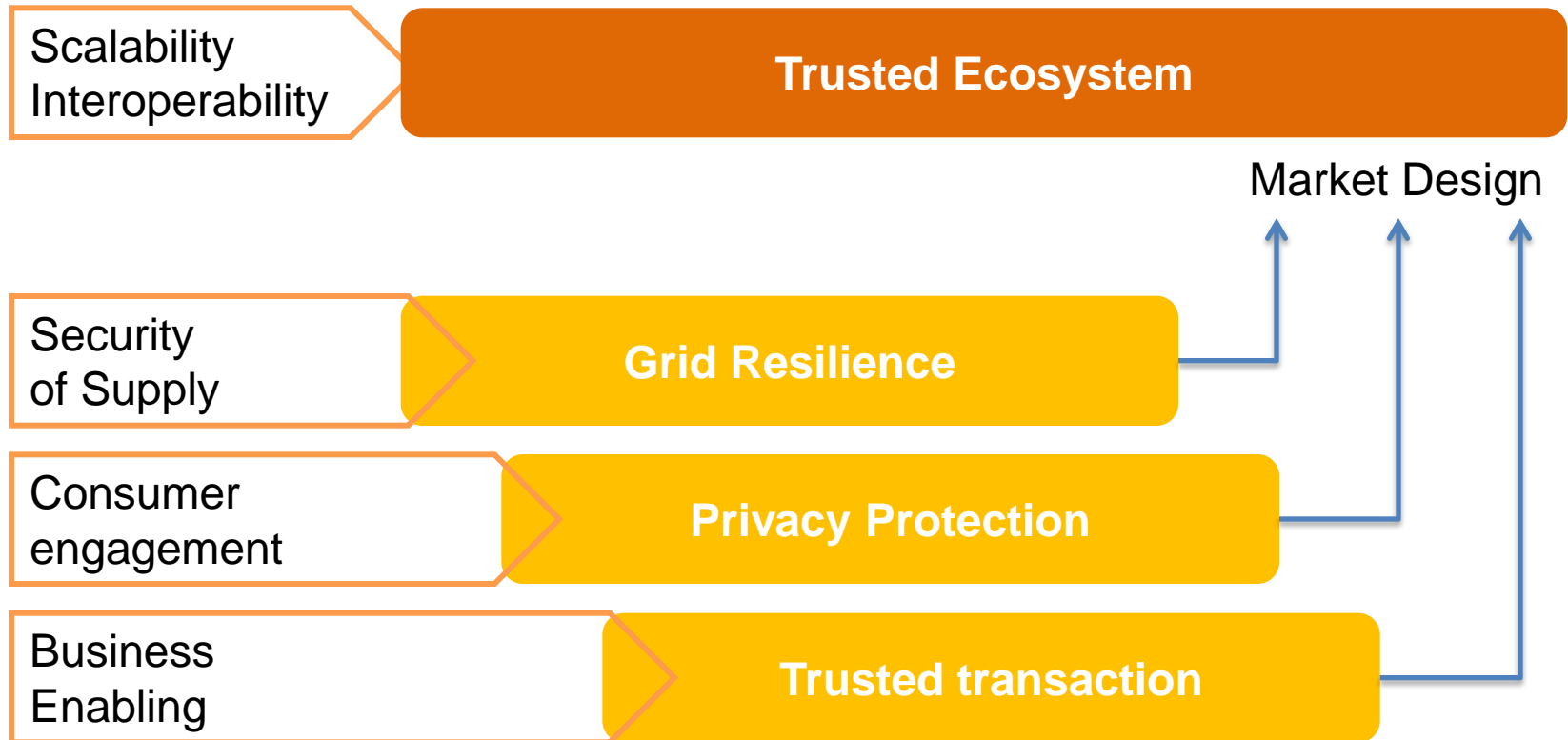


**Thank you**

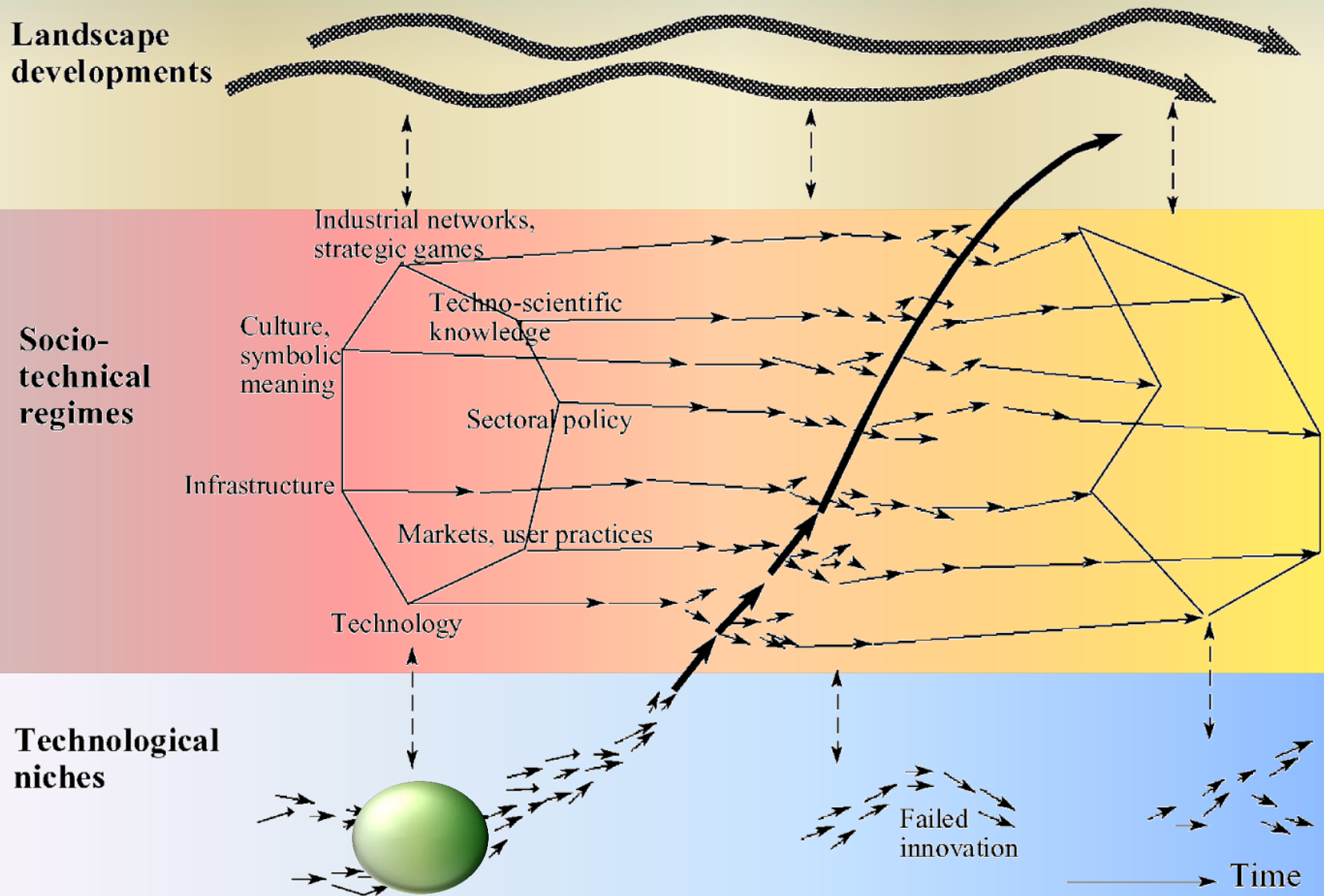


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# Why security and privacy is crucial for a prosperous market ?



# Smart Grids Development as a Sociotechnical Transformation





# Energy utility Smart Grid Strategies

## Active player

- Centralised profit model + adding distributed resources
  - Seeking new aggregation business
- Combining Energy and ICT technology for new services
- Cooperation with manufacturers and ICT companies

PASSIVE

ACTIVE

## Passive enabler

- Centralised profit model
- Distributed resources:
  - according to law
- New service providers between enabler and customers

## Territory expander

- New business from services
- New partnerships, especially service providers (Estates, eMobility Services)
- Can be energy utility as well
  - benefit is customer connections

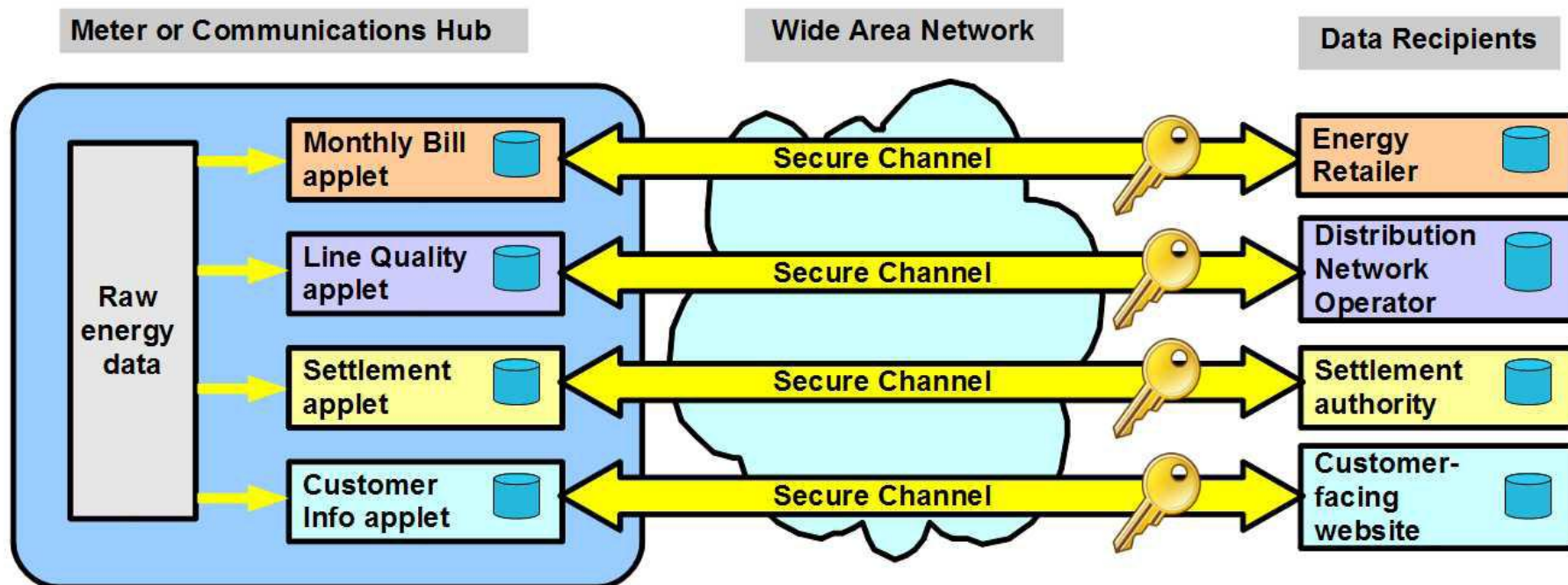


# Addressing Smart Grid Privacy challenges

- European Expert Groups advising the European Commission advise a “Privacy by Design” approach
  - System design should ensure that “Personal Data” should not be exposed more than required
  - “Personal Data” are mostly frequent consumption readings generated by Smart Meters, putting home privacy at risk
  - Actors involved in Smart Grids only need specific information:
    - Energy retailers needs information required for billing
    - Distribution Network Operator need information related to line quality
    - Third party may provide enhanced services such as reward schemes based on energy Time of use, or Consumption recommendations based on analysis of consumption profiles
- A standardized local processing environment in the Smart Meter or metering Gateway answers the problem
  - Each grid actor remotely loads and manages its own applet, sending only required information over a secure channel
  - Note that requirements are emerging for dedicated Hardware Security Elements in Smart Meters or Gateways (e.g. German BSI)



# Example of decentralized approach



- Extended API could be developed to facilitate exploitation of locally stored metering data (consumption readings, tariffs information, load connect/disconnect events...) by service providers, enabling them to perform their duty in a privacy friendly manner