



# An information-centric approach for smart grid communications

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# Smart grid context

Multiple applications



Multiple actors



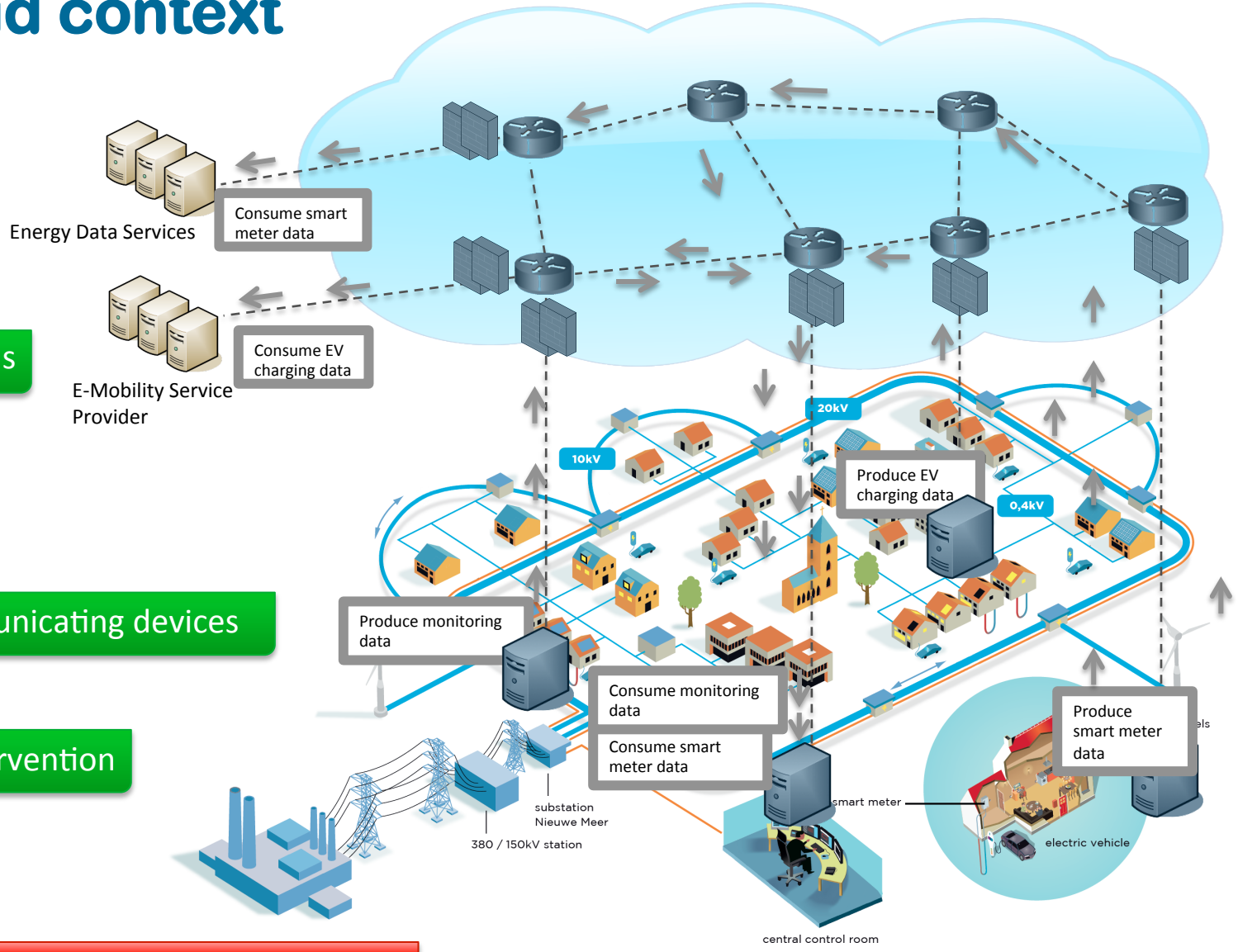
Multitude of communicating devices



Limited human intervention



High configuration / management complexity



# Information-centric networking (ICN)

- The network becomes aware of **what** it delivers, not **where**
  - Primarily referring to named information objects (IOs), not end-hosts
  - Routing and/or forwarding decisions based on IO names
  
- New interaction model: **publish/subscribe**
  - Decoupling of communicating entities
  - No end-to-end communication sessions
  - Network mediates for the delivery of information
  
- Benefits
  - Multicast, Mobility
  - In-network caching and processing (if needed)
  - Reduced application configuration complexity

# Publish/subscribe basics

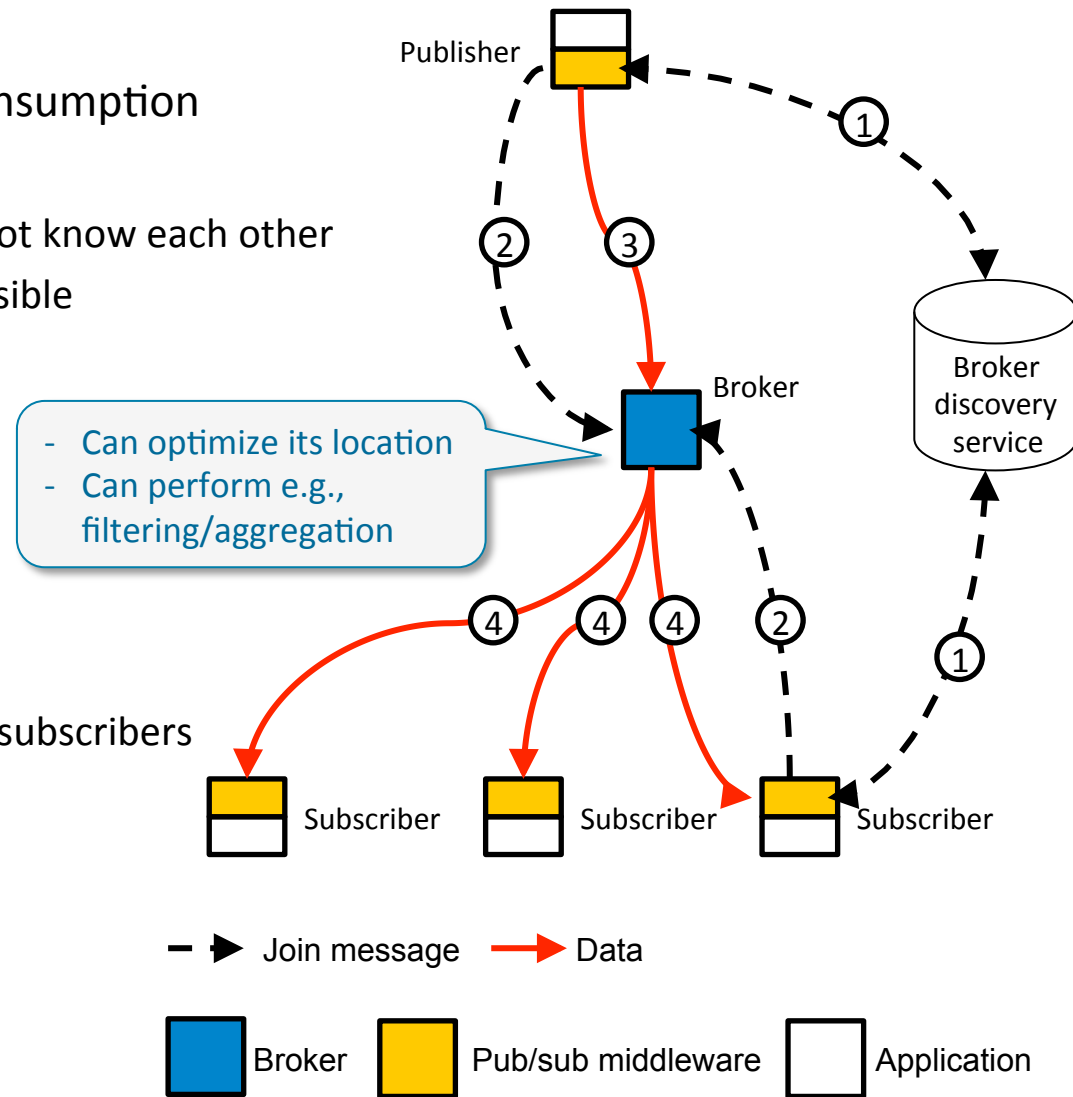
- **Decoupling** data production and consumption in **space** and **time**
  - Communicating end-points need not know each other
  - Asynchronous communication possible

- **Core components**

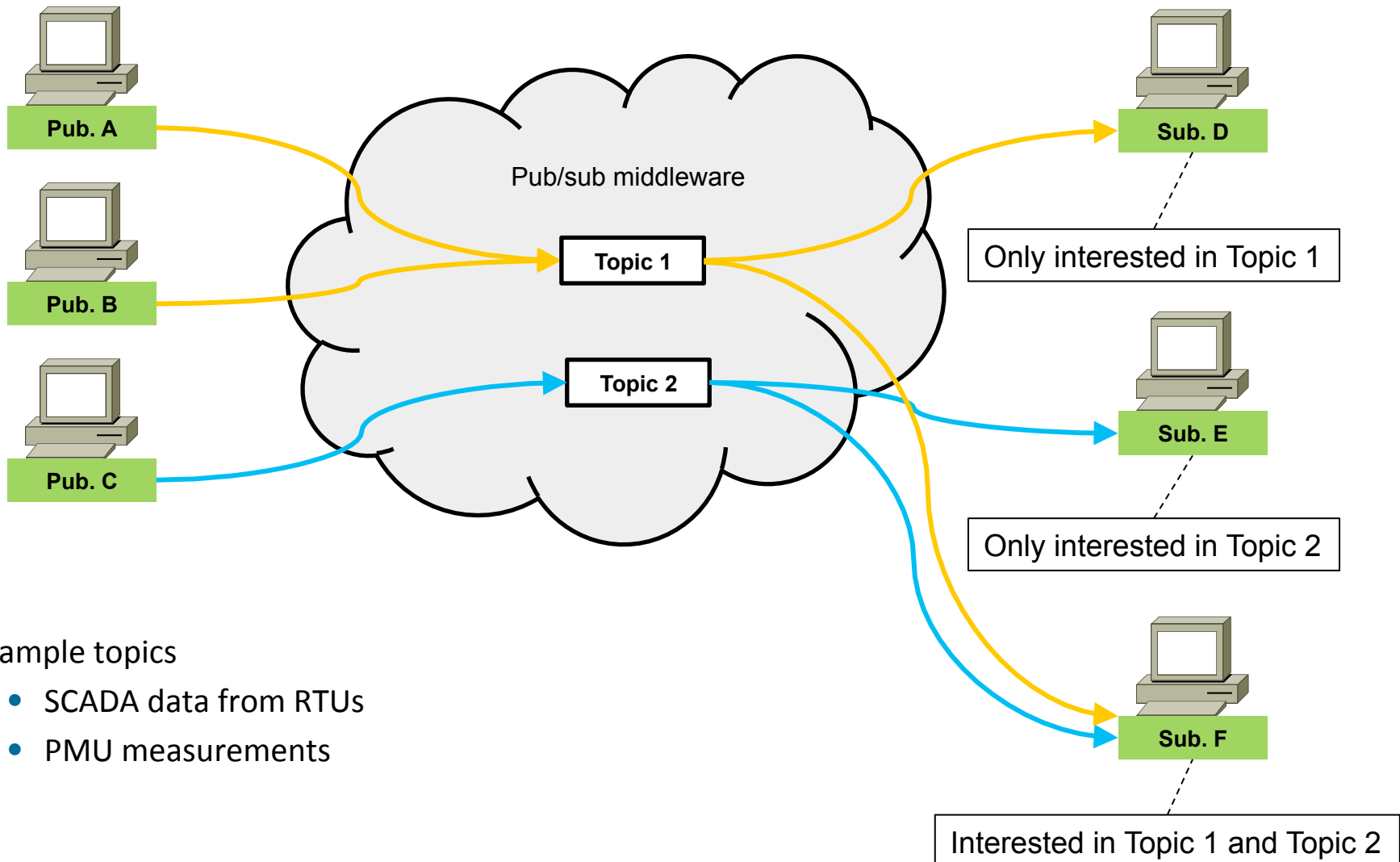
- Publisher client: produces data
- Subscriber client: consumes data
- Broker: stores and forwards data
- Broker discovery service: indicates broker to publishers and subscribers

- **Basic interactions**

- Broker discovery
- Client join
- Data dissemination

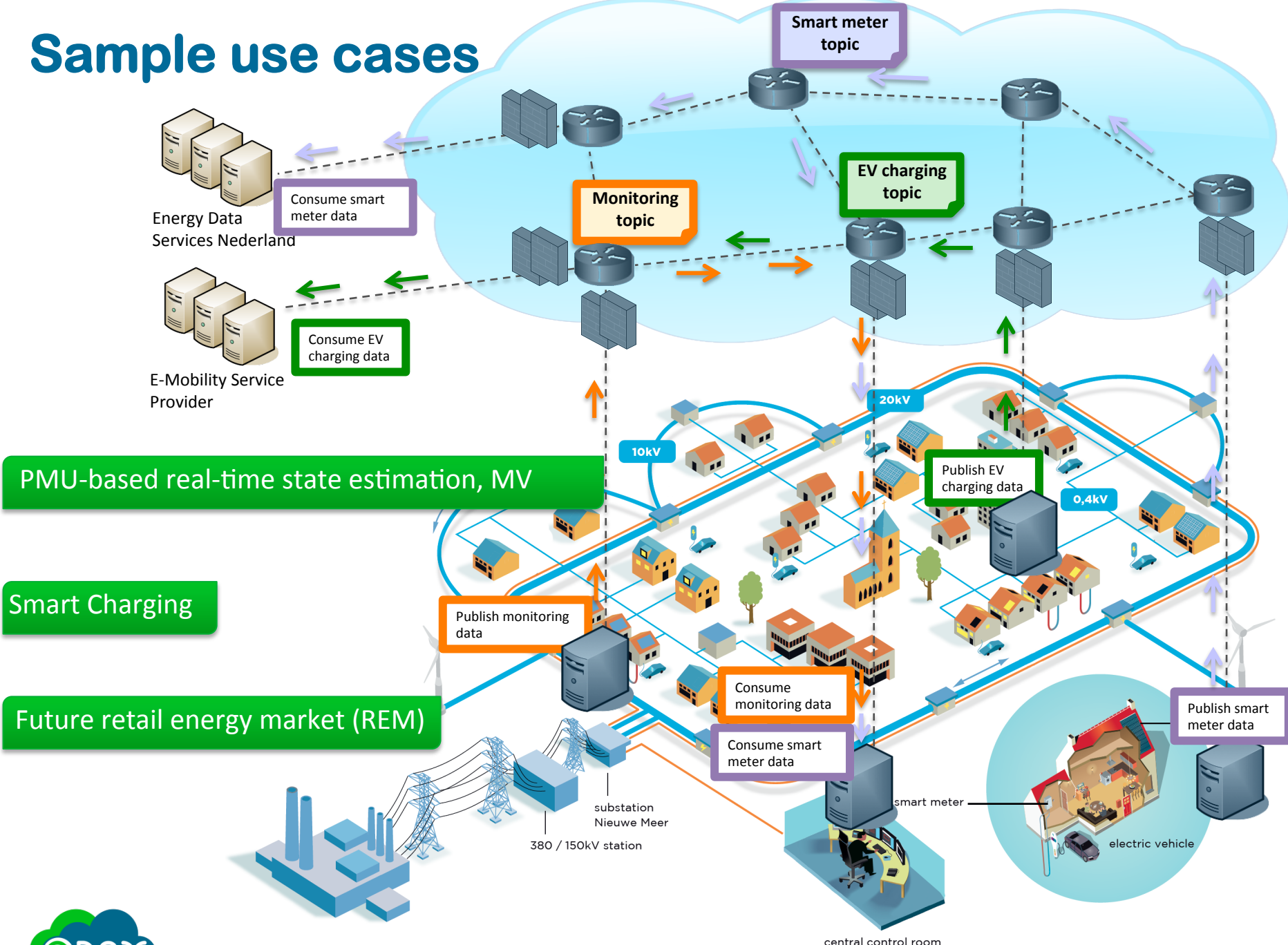


# One platform, multiple applications



- Example topics
  - SCADA data from RTUs
  - PMU measurements

# Sample use cases



PMU-based real-time state estimation, MV

Smart Charging

Future retail energy market (REM)



# Thank you ... any questions?



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