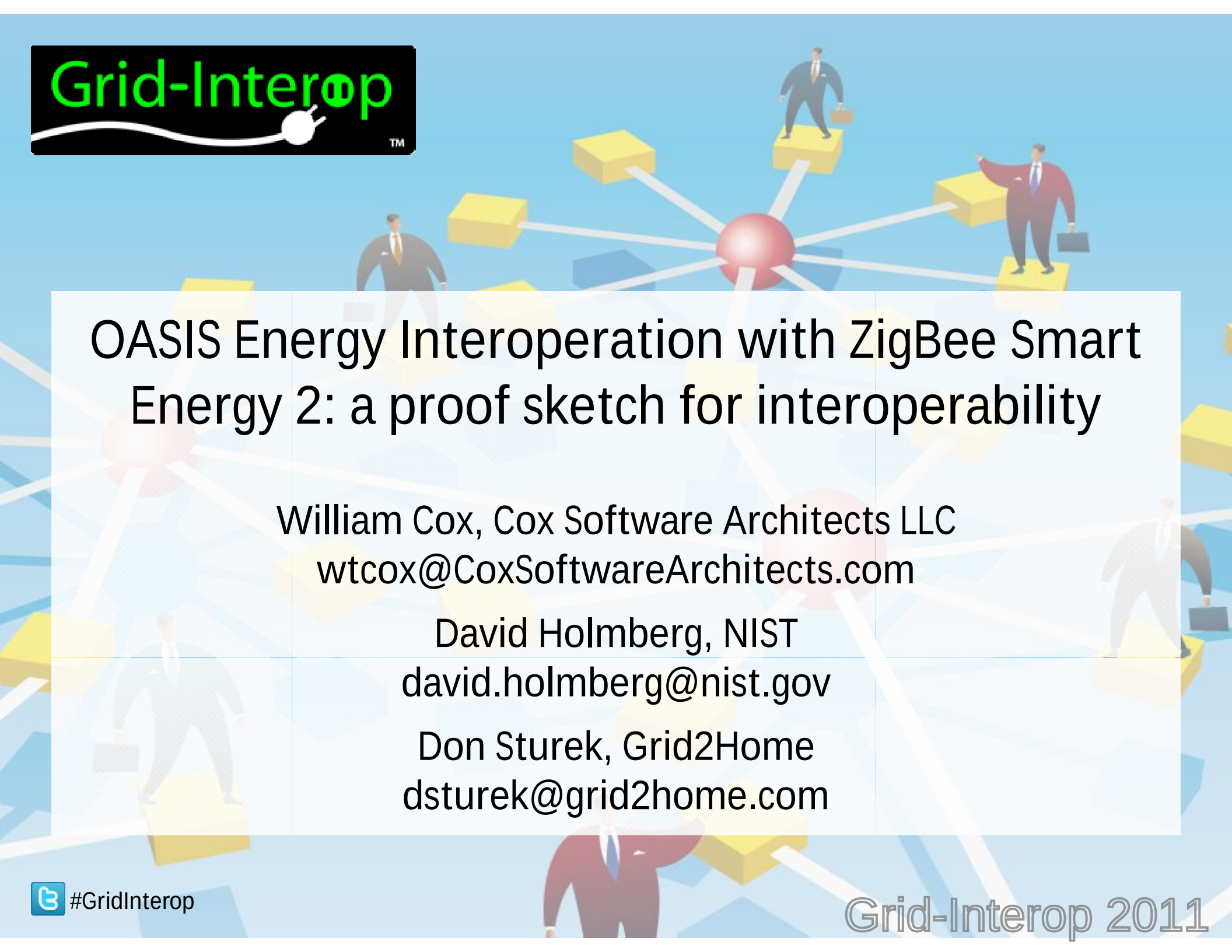


OASIS Energy Interoperation with ZigBee Smart Energy 2: a proof sketch for interoperability

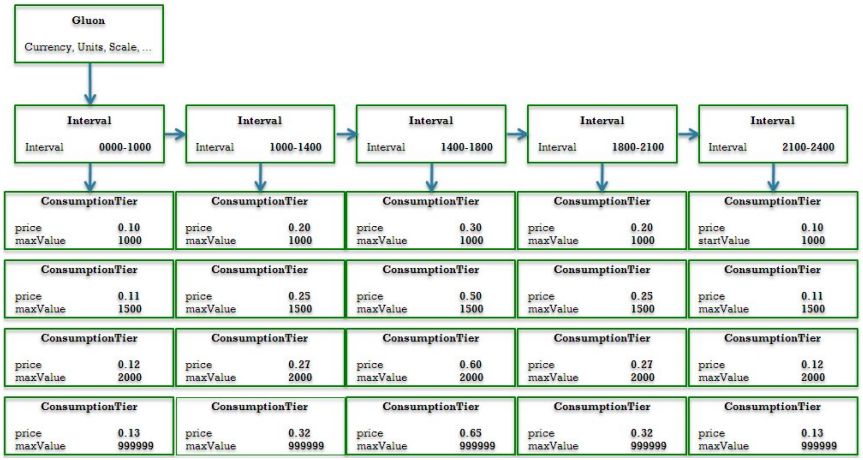
William Cox, Cox Software Architects LLC
wtcox@CoxSoftwareArchitects.com

David Holmberg, NIST
david.holmberg@nist.gov

Don Sturek, Grid2Home
dsturek@grid2home.com

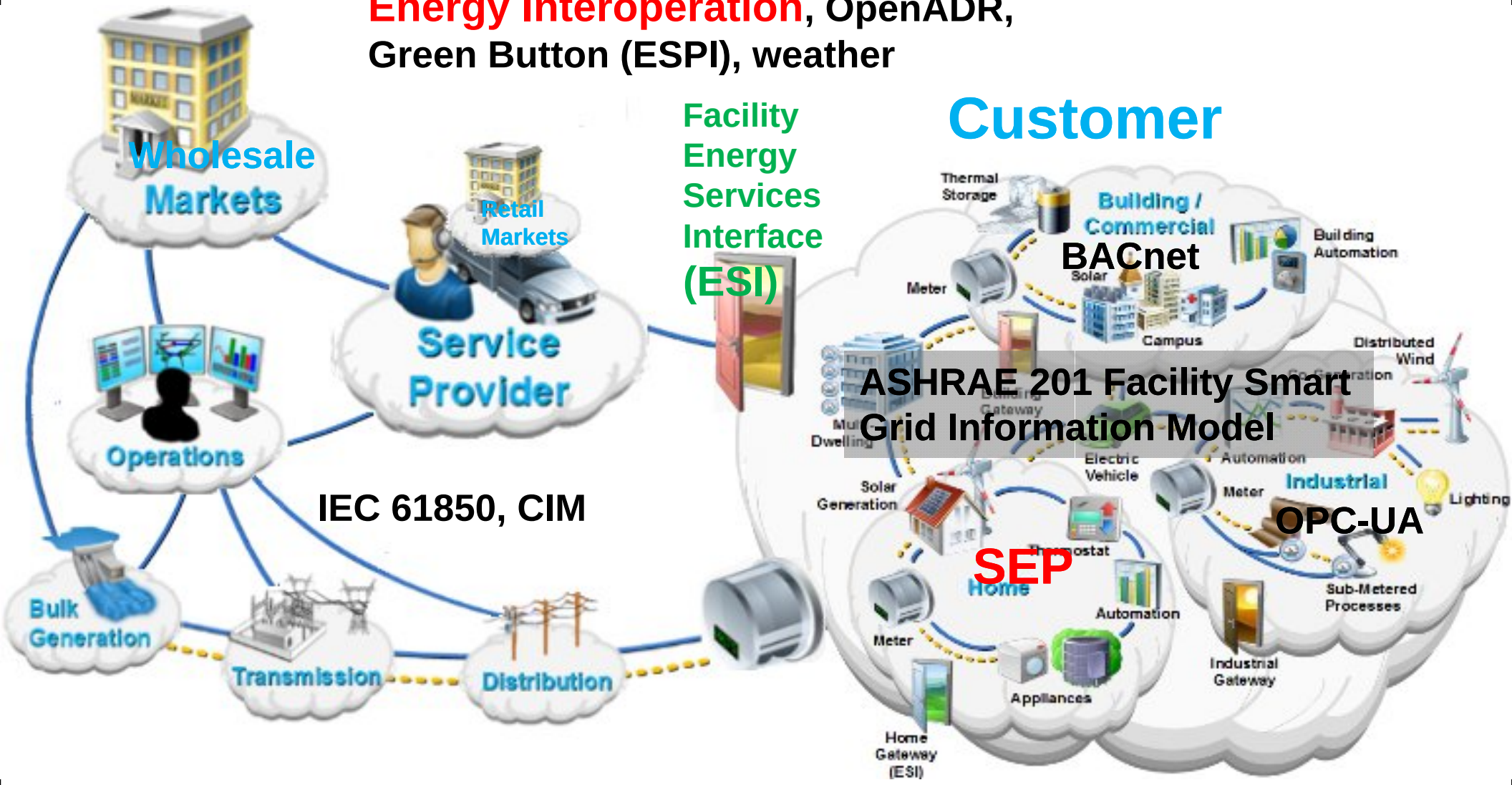
Agenda

- 2 key types of information:
  - Block and Tier Prices
  - and DR Event signals

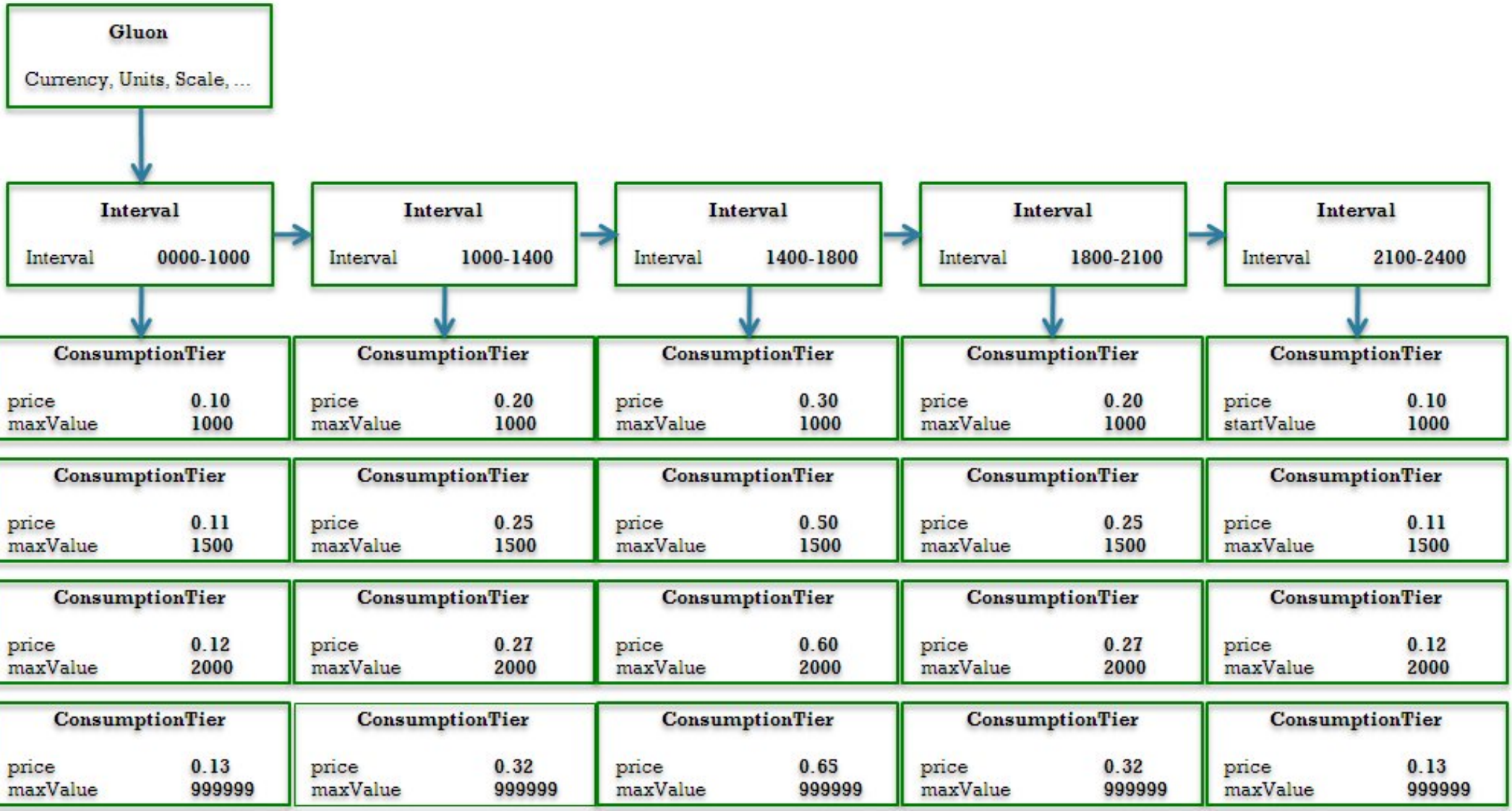


- Expression of each in EMIX/Energy Interoperation and in SEP2.
- Main point: information may be expressed in different ways, but the information can be communicated across the interface.
- But first: some context…

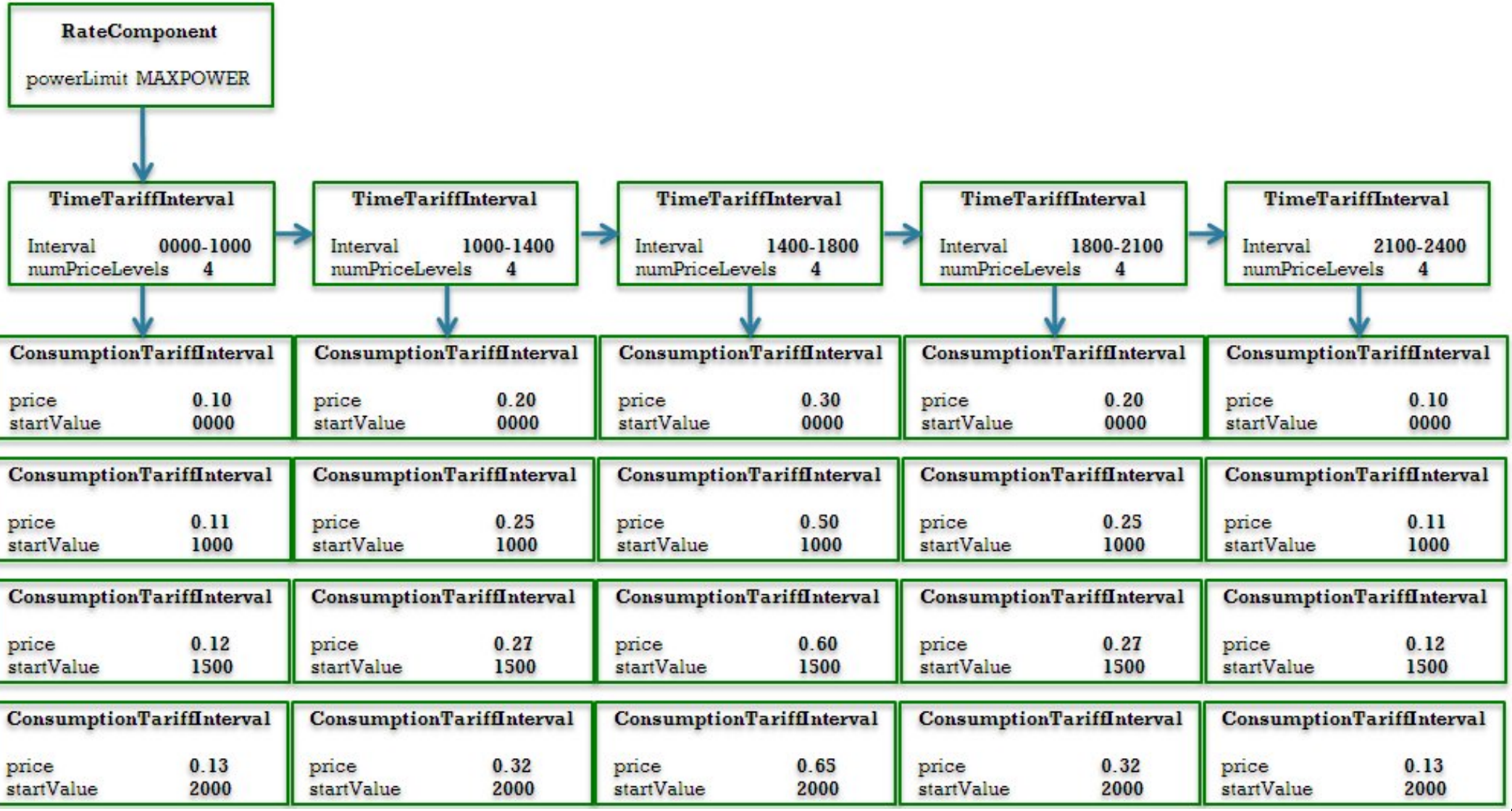
Relationships of standards



EMIX Information Structure for Block & Tier Example



SEP2 Information Structure for Block & Tier Example



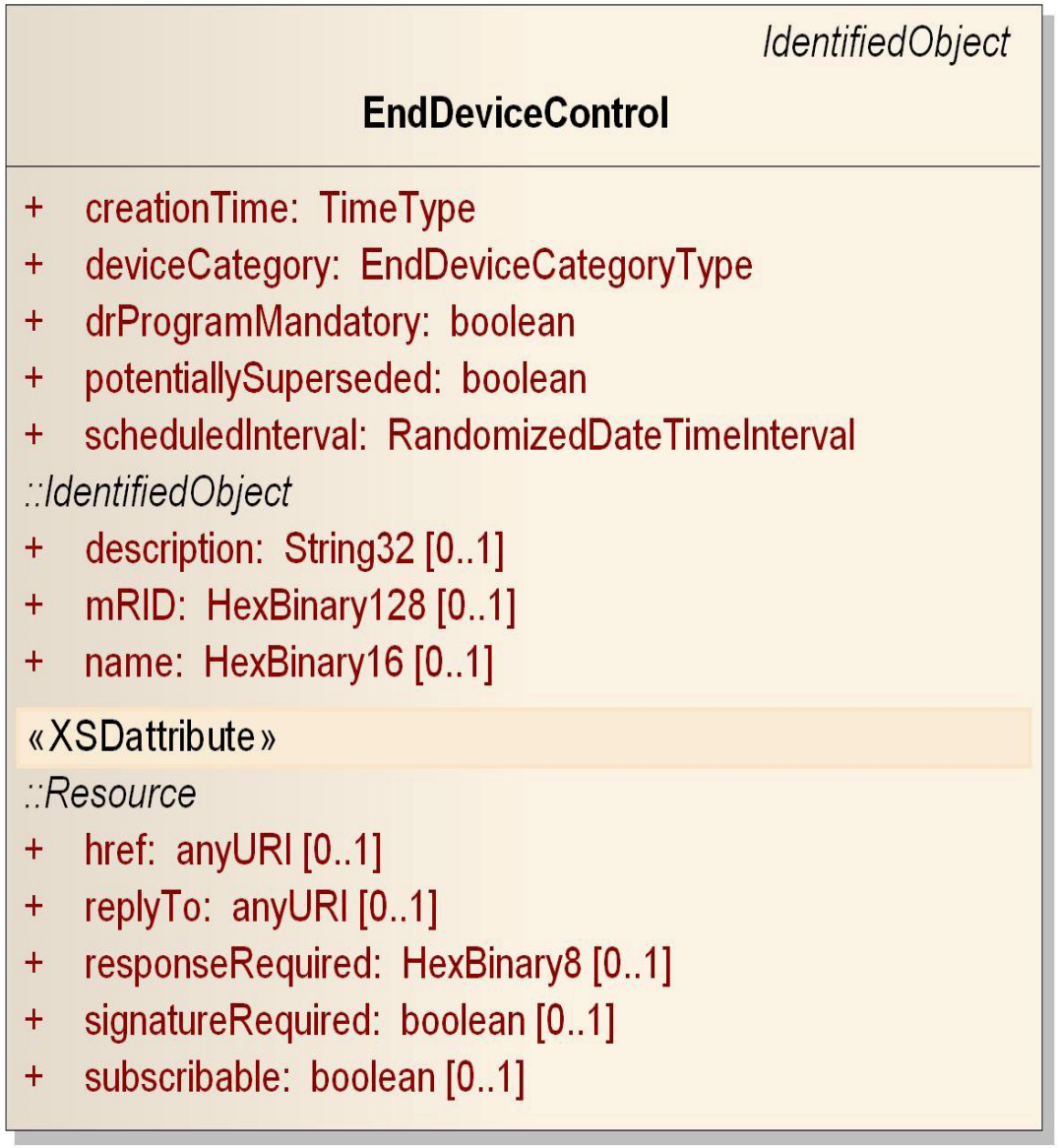
BTT Summary

- EMIX and SEP2 BTT structures are very similar
- BTT information can be mapped cleanly.

Event Signal communication

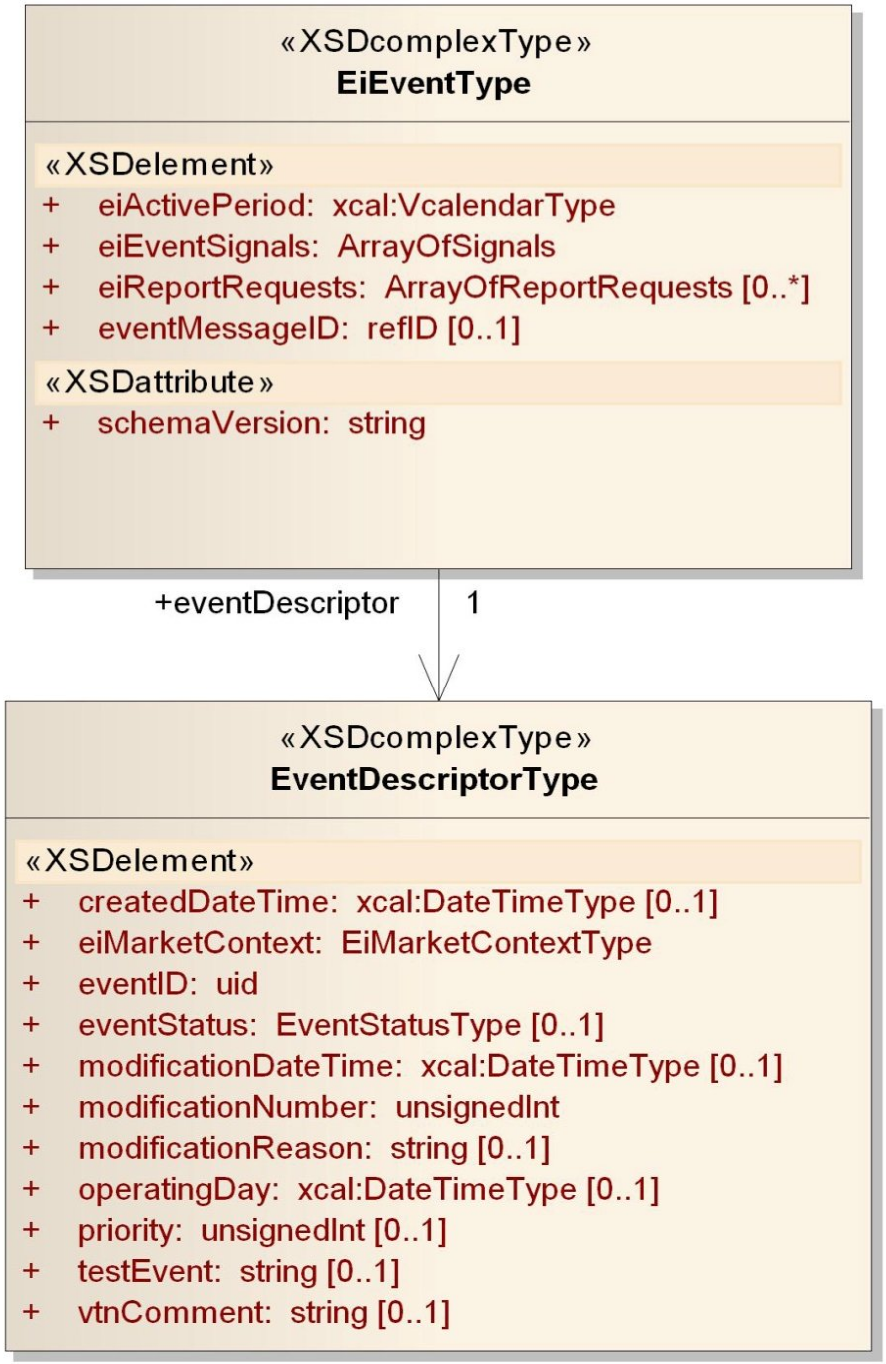
- The critical elements in an event signal:
  - **Start time, How much, How long**
- Energy Interoperation standardizes and extends the OpenADR 1 event type, with input from the IRC via NAESB.
- SEP2 has the same OpenADR concept of a DR Event, and thus can carry Energy Interop event information.
- Energy Interop has an extension point to allow carrying additional application-specific information.

SEP2 End Device Control



- Start time, duration and randomization are defined in the scheduledInterval attribute.
- For “how much”, EDC has a status and optionally a duty cycle, offset, set point, or target reduction.

Energy Interoperation EiEvent and Event Descriptor



- Start time and duration are defined within the *eiActivePeriod* attribute which is a container for time intervals.
- Event payloads include quantity, multiplier, set point

Conclusions

- We have demonstrated common information elements in SEP2 and EMIX/EI
- Ability to map Block and Tier prices and event signals between SEP2 and EMIX/EI
- Actual implementation specification on how exactly to map EI signals to SEP for a given application, along with any SEP application-specific information to be carried by extending EI, is left as an exercise for the implementer (vendor organization).

Selected References

- OASIS Energy Market Information Exchange
  - Price and product definition/description
  - Transactional EMIX Notes
  - Committee Specification pending publication
  - http://www.oasis-open.org/committees/emix
- OASIS Energy Interoperation
  - Designed to work to, from, inside, and outside microgrids
  - Committee Specification ballot in process
  - http://www.oasis-open.org/committees/energyinterop

Thank you!