Use Cases

Utilizing an EMS

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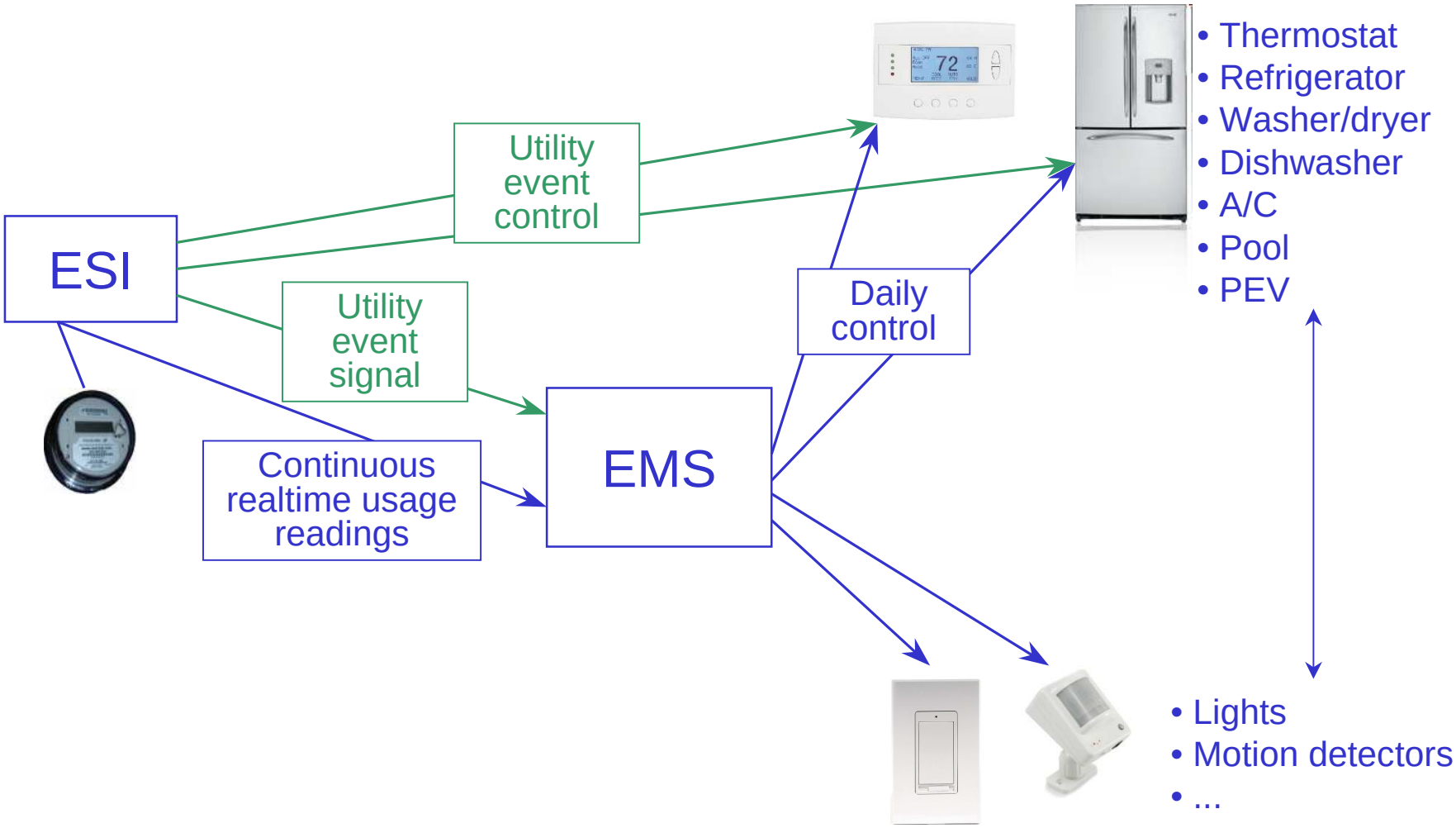
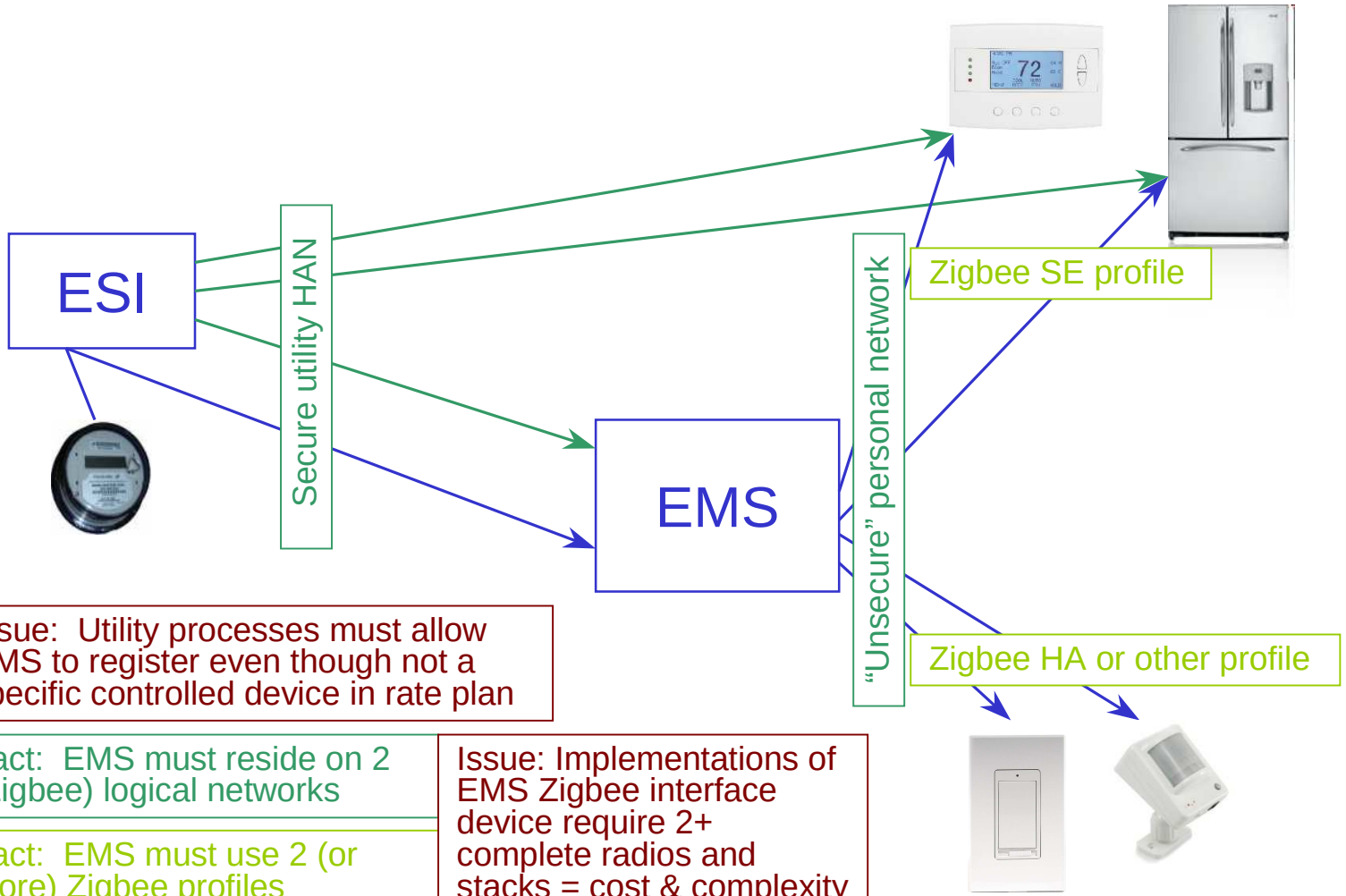
Both Direct & Consumer Control



Issues

Both Direct & Consumer Control



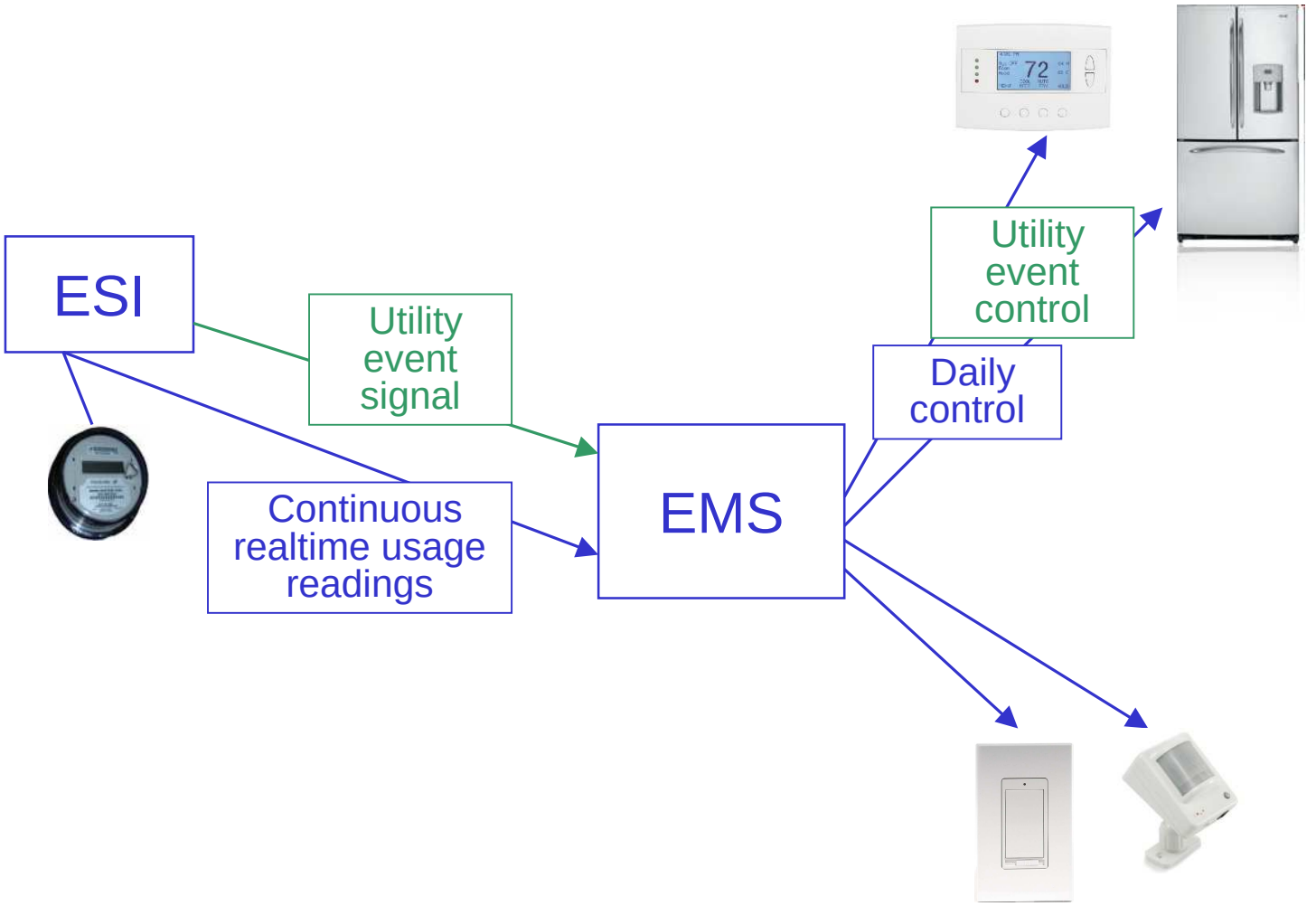
Issue: Utility processes must allow EMS to register even though not a specific controlled device in rate plan

Fact: EMS must reside on 2 (Zigbee) logical networks

Fact: EMS must use 2 (or more) Zigbee profiles

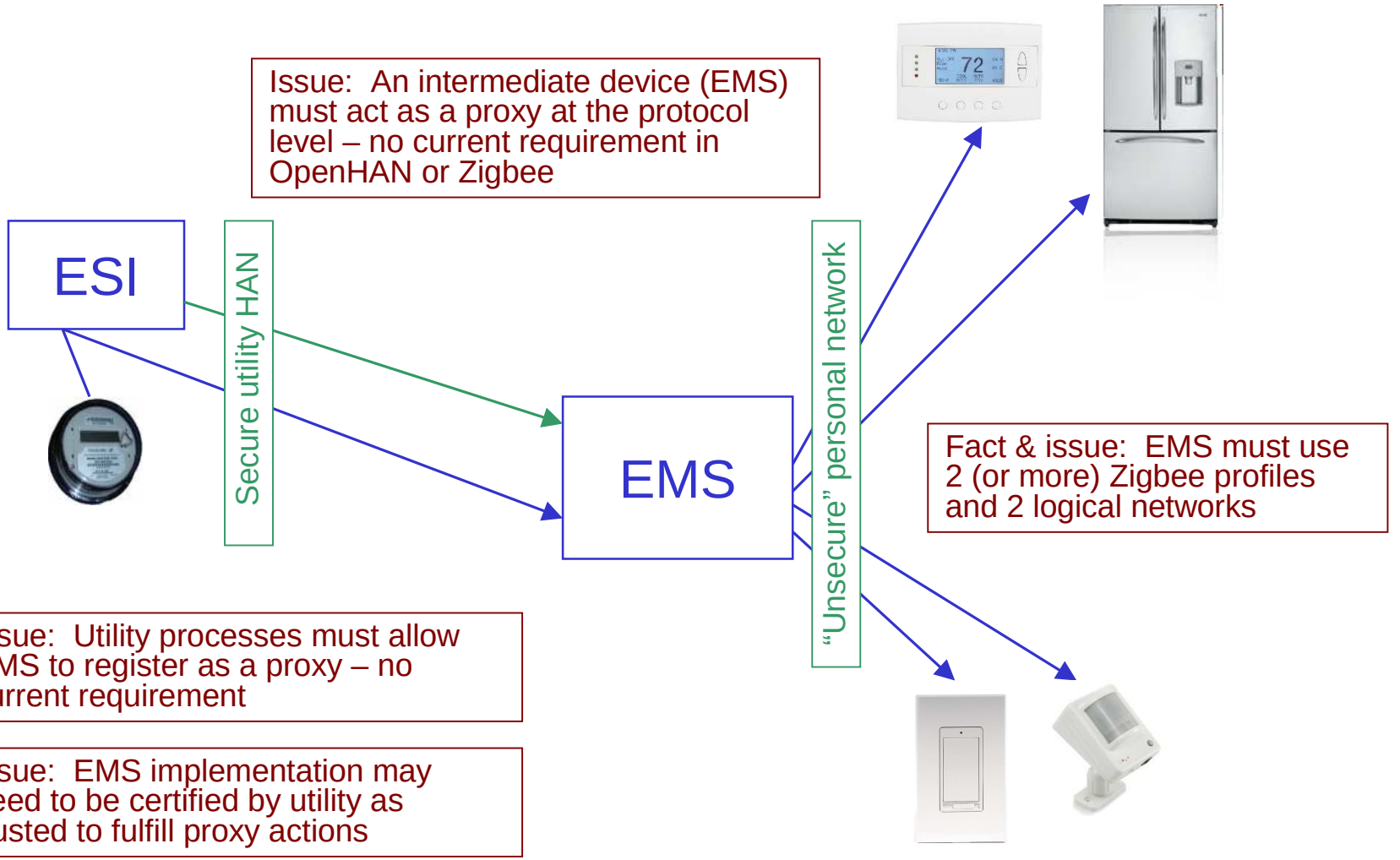
Issue: Implementations of EMS Zigbee interface device require 2+ complete radios and stacks = cost & complexity

Direct Control via EMS Proxy



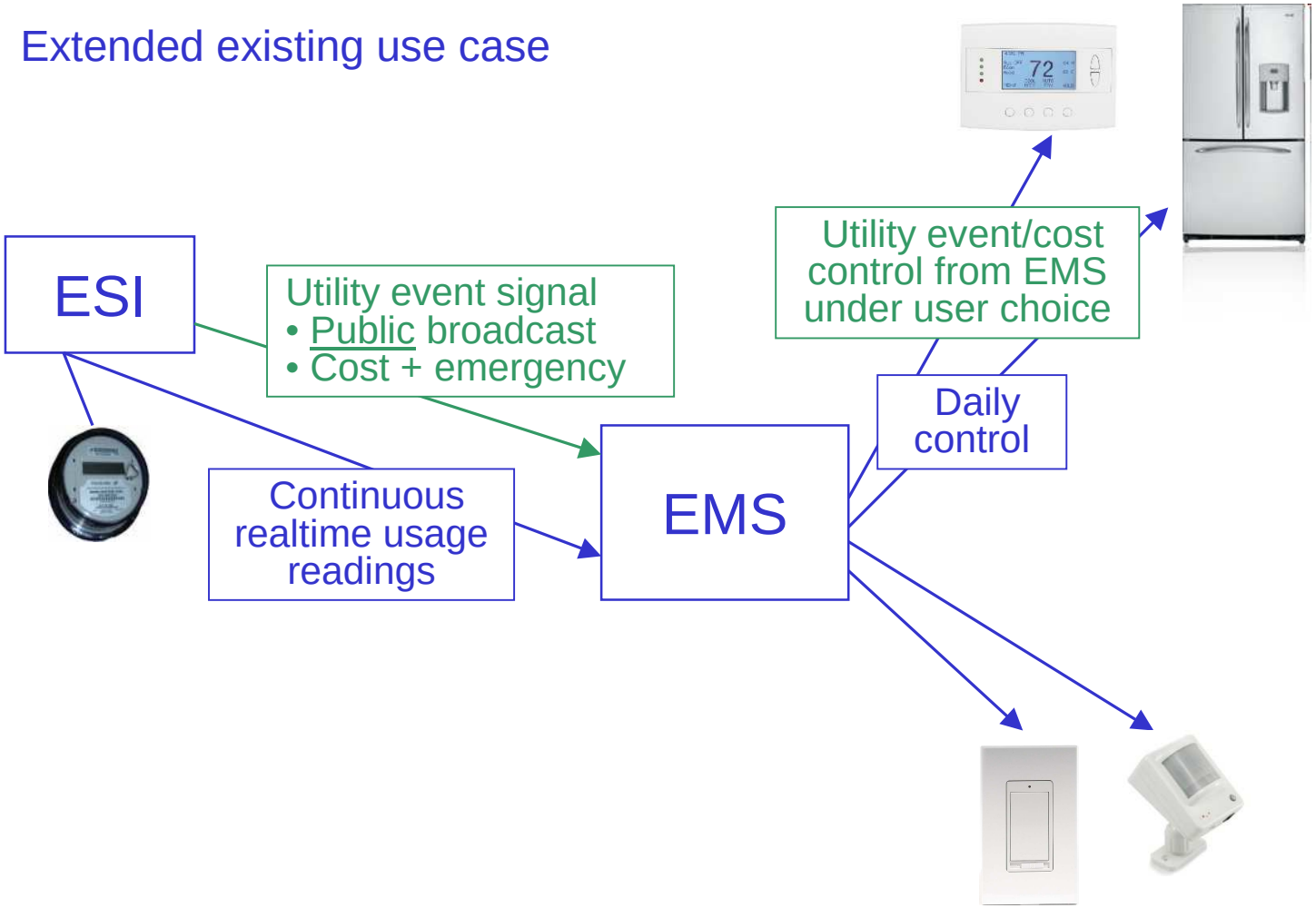
Issues

Direct Control via EMS Proxy



Cost Incentives, No Direct Control

Extended existing use case



Issues

Cost Incentives, No Direct Control

Extended existing use case

ESI

EMS

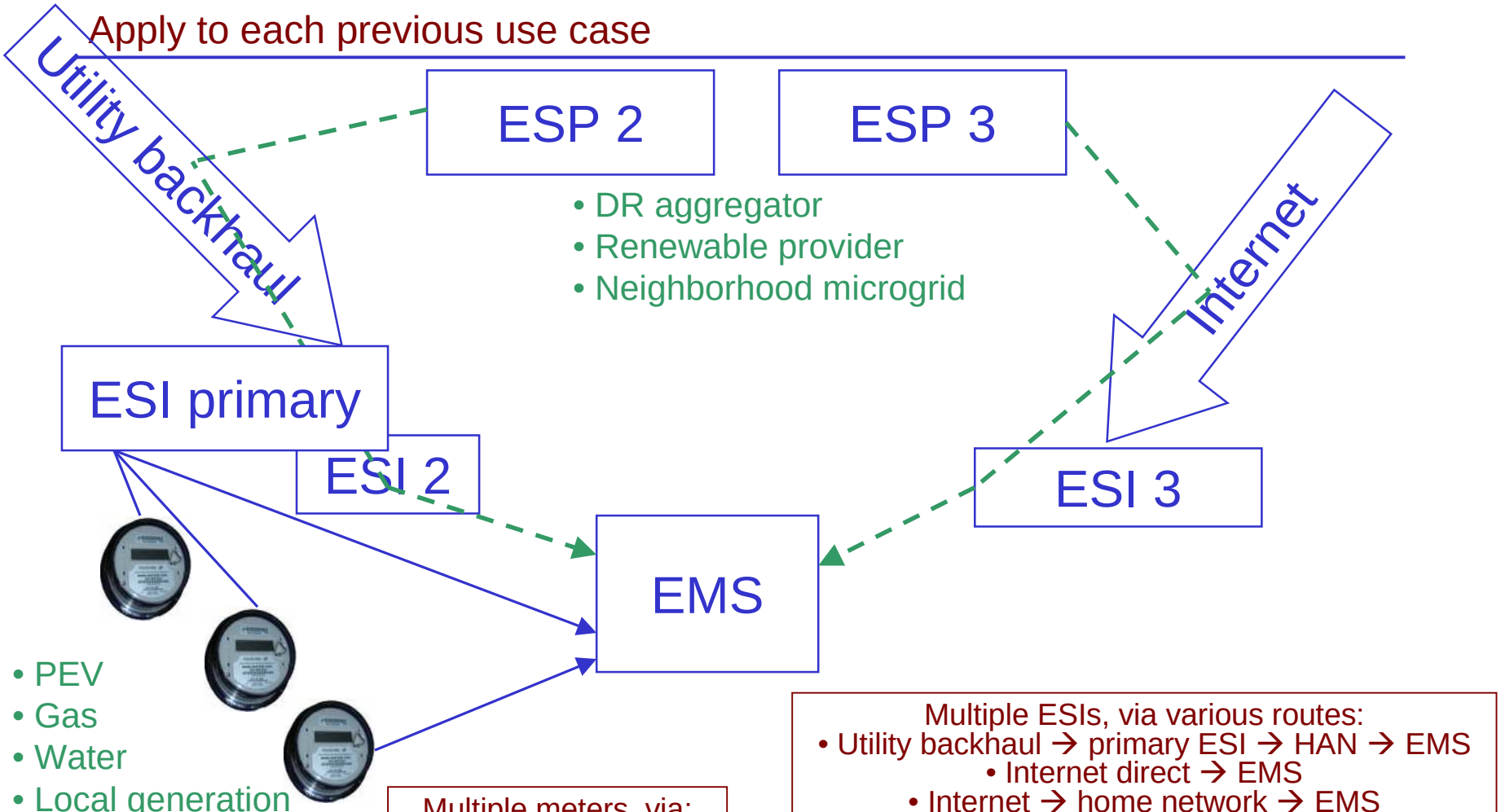
Fact & issue: EMS must still use 2 (or more) Zigbee profiles and 2 logical networks

Issue: EMS must still be registered securely to read the meter

Note: The logical separation of the ESI and meter must be maintained

2 Additional Use Case Factors

Apply to each previous use case



ESP = Energy Service Provider

A Comprehensive Solution

- Standards could apply utility-grade security to individual HAN messages
  - Current security credentials
    - Apply to all communications of all devices on a logical network
    - Logical and physical network are treated as one (at least in most current implementations)
    - Thus for one device to talk to another they must be registered on the same logical network
  - Potential solution (on a single logical/physical HAN)
    - Most messages: utilize existing wireless network security
    - Messages requiring higher security, privacy or confirmation: additional SEP-level security is applied at low level in the stack
    - Could be based on one or more of: specific message; message type; source/destination pair
    - Utility-controlled devices must support this higher security but inexpensive dimmers, etc, would not need to
    - This solves all stated issues but would be a significant architectural change