Identity for energy management

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Application Context

- Energy management systems (buildings)
  - Gather information from ALL (mains powered) devices on the IP network (and some beyond)
    - Information **unrelated** to services the device provides
  - Usually have no other relationship to devices
  - Mechanisms need to be **universal**
- Many buildings will be unmanaged (all partly)
  - Devices come and go asynchronously
- First role of EMS is to provide breakdown of how energy is use by different types of devices

Observations

- Ensure that this data is available from **all** devices
  - Some may implement few MIBs other than eman
- Most identity info is completely static
  - Human-readable name changed infrequently
- People may dig into energy data after device is gone from network, or not have access to the network

Identity – what it is

- "… whatever makes an entity **definable** and **recognizable**, in terms of possessing a set of **qualities or characteristics** that distinguish it from other entities. In layman's terms, identity is whatever makes something the same or different." (Wikipedia, "Identity (philosophy)")
- Element of taxonomy (ontology?)
  - system of organization – categories – meaning
- Identity (on network) is self-determined

Identity Needs

- What
  - Species: e.g. switch, server, PC, refrigerator, light, …
  - Origin: e.g. brand X, model Y (URL)
- Who
  - Name (human readable):
  - Network address/identity: _____ MAC?
- What existing MIBs speak to these needs?
- Need unified view of identity

Network address/identity

- Purpose – uniquely identify the device in energy management database
  - Track device when moves to a different subnet
- What value to reference?
- What to do for non-IP proxied devices?

Set by manufacturer

Name (human readable)

- Purpose – help user of NMS to know what the device is
- Should correspond to existing MIB variable(s) that do this

Set by user / network manager

Origin

- Brand (manufacturer), Model, URL
- Should correspond to existing MIB variable(s) that reference brand, model

- URL to human-readable page
  - Machine-readable info would be useful later

Set by manufacturer

Species (class?)

- Purpose – provide basic characterization of type of device – primary function
- Not intended to be specific or descriptive
- Not intended to replace any existing mechanisms

Assumptions

- Need IANA registry – (~100 entries ?)
- Only one species/device

Set by manufacturer

Also…

- I expect identity to be useful in other contexts
  - Internet of Things
  - In future, most IP devices will not be traditional (IT-oriented) ones found on network today
- Also want location (but too early to go there)

- Discovery
  - What guidance can we offer for users on how to learn network identity of ALL devices on local network?

Questions

- What are all relevant existing MIBs
- Are there other relevant non-IETF references?
- What MIBs should identity be part of?
- Any barriers to doing this?

Thank you

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