EMAN Energy Aware MIB

draft-parello-eman-energy-aware-mib-00

John Parello, Benoit Claise

79th IETF Meeting, Beijing, 2010
Charter: Documents

1. Requirements

2. Framework.

3. Energy-aware Networks and Devices MIB

4. Power and Energy Monitoring MIB

5. Battery MIB

6. Applicability Statement
Data Modeling of Power Monitor from Architecture Concepts

- Already Presented in IETF-77, IETF-78
  Nothing new just split of work from OPSAWG draft-claise-energy-monitoring-mib-04 two distinct parts:

- Awareness / Business Context (Collected Once or Configured)
  - Identity
  - Parent identification
  - Context
    - Domain, Category, Role, Keyword, Importance

- Presented Later (Not in this draft):
  - Usage (Collected over time)
    - Levels
    - Instantaneous Usage and Measurement
    - Optional Usage Over Time
    - Optional Power Quality
    - Optional Battery
OPEN ISSUES

• Capabilities is not modeled as yet
  – Model Parent capabilities on behalf of child and how to represent that

• Any Others?
Concepts

- Basic information needed to identify device and set (business) context
- Collected once or at configuration
- Relates to time based usage in monitoring MIB
Simple Elements Already Use in Deployments

energyAwareMIBTableGroup OBJECT-GROUP
  OBJECTS
    { -- pmIndex Reference
      pmPowerMonitorId,
      pmPhysicalEntity,
      pmEthPortIndex,
      pmEthPortGrpIndex,
      pmLldpPortNumber,
      pmName,
      pmDomainName,
      pmRoleDescription,
      pmKeywords,
      pmImportance,
      pmPowerCategory,
      pmParentId
    }
Can we assume that the ENTITY-MIB is supported on all monitored devices? No, so can’t use the entPhysicalIndex as THE index in the table
New index: pmIndex, for each power monitor

"This object contains the index of a physical entity in the ENTITY MIB. “ otherwise Zero
MIB Relationship

• Entity MIB
  – This object contains the index of a physical entity in the ENTITY MIB. “otherwise Zero

• PoE MIB
  – Use port and group from [RFC3621] or else zero.

• LLDP
  – Use port from LLDP-MIB/LLDP-MED-MIB or else zero.
Elements That Set Context

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pmName, pmDomainName,</td>
<td>Simple name like host name for device suggest default to model</td>
</tr>
<tr>
<td>pmRoleDescription,</td>
<td>The metering or power management group. Similar to community</td>
</tr>
<tr>
<td>pmKeywords, pmImportance, pmPowerCategory,</td>
<td>Set context. Answers &quot;provides?&quot; Two words like &quot;Hospitality Lighting&quot;</td>
</tr>
<tr>
<td>pmParentId</td>
<td>Arbitrary tagging for grouping</td>
</tr>
<tr>
<td>pmImportance, pmPowerCategory, pmParentId</td>
<td>Scale 1-100 with suggested ranges</td>
</tr>
<tr>
<td>pmPowerCategory,</td>
<td>Device is consider producer consumer meter. Used to check versus usage</td>
</tr>
<tr>
<td>pmParentId</td>
<td>Establishes link for children in framework</td>
</tr>
</tbody>
</table>
Example from working implementations

<table>
<thead>
<tr>
<th>ID</th>
<th>Domain</th>
<th>Name</th>
<th>Category</th>
<th>Role</th>
<th>Importance</th>
<th>Keywords</th>
<th>Vendor</th>
<th>Source</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>com.example.lincoln.building2.zone2</td>
<td>switch17</td>
<td>consumer</td>
<td>Public Access</td>
<td>50</td>
<td>sales, public</td>
<td>Cisco</td>
<td>2.2.2.2</td>
<td>energywise</td>
</tr>
<tr>
<td>51</td>
<td>com.example.lincoln.building2.zone3</td>
<td>light51</td>
<td>consumer</td>
<td>Hospitality Service</td>
<td>25</td>
<td>sales</td>
<td>Schneider</td>
<td>2.2.2.3</td>
<td>bms</td>
</tr>
<tr>
<td>153</td>
<td>com.example.lincoln.building2.zone3</td>
<td>light153</td>
<td>consumer</td>
<td>Common Service</td>
<td>75</td>
<td>public</td>
<td>Schneider</td>
<td>2.2.2.3</td>
<td>bms</td>
</tr>
<tr>
<td>459</td>
<td>com.example.lincoln.building2.zone2</td>
<td>phone459</td>
<td>consumer</td>
<td>Lobby Phone</td>
<td>100</td>
<td>emergency</td>
<td>Cisco</td>
<td>2.2.2.2/17</td>
<td>energywise</td>
</tr>
<tr>
<td>1377</td>
<td>com.example.lincoln.building2.zone5</td>
<td>pc1377</td>
<td>consumer</td>
<td>Public Kiosk</td>
<td>50</td>
<td>sales, public</td>
<td>IBM</td>
<td>2.2.2.5</td>
<td>energywise</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID</th>
<th>Time</th>
<th>Level</th>
<th>Usage</th>
<th>Scale</th>
<th>Accuracy</th>
<th>Caliber</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>7/17/10 1:00 PM</td>
<td>10</td>
<td>60</td>
<td>watts</td>
<td>1010</td>
<td>Actual</td>
</tr>
<tr>
<td>17</td>
<td>7/17/10 2:23 AM</td>
<td>10</td>
<td>57</td>
<td>watts</td>
<td>1010</td>
<td>Actual</td>
</tr>
<tr>
<td>51</td>
<td>7/17/10 1:00 PM</td>
<td>10</td>
<td>700</td>
<td>watts</td>
<td>1010</td>
<td>Actual</td>
</tr>
<tr>
<td>51</td>
<td>7/17/10 2:23 PM</td>
<td>5</td>
<td>300</td>
<td>watts</td>
<td>1010</td>
<td>Actual</td>
</tr>
<tr>
<td>153</td>
<td>7/17/10 1:00 PM</td>
<td>10</td>
<td>500</td>
<td>watts</td>
<td>0</td>
<td>Predicted</td>
</tr>
<tr>
<td>459</td>
<td>7/17/10 1:00 PM</td>
<td>8</td>
<td>6</td>
<td>watts</td>
<td>0</td>
<td>Trusted</td>
</tr>
<tr>
<td>1377</td>
<td>7/17/10 1:00 PM</td>
<td>10</td>
<td>65</td>
<td>watts</td>
<td>0</td>
<td>Presumed</td>
</tr>
<tr>
<td>1377</td>
<td>7/17/10 2:23 PM</td>
<td>8</td>
<td>42</td>
<td>watts</td>
<td>0</td>
<td>Presumed</td>
</tr>
</tbody>
</table>
Reporting with No Context

Energy Domain Metered

Time of Day

Usage

Metered
Conclusion

• MIB has been discussed
• Network Management vendors and device manufacturers are using concepts and links to entity MIB now in shipping products
• We believe this fulfils WG item 3
• Propose to accept Draft as WG Item

• Questions? Feedback?
END
Match Energy Domains to Electrical Distribution
Add Business Context