**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **IEEE 802.15 TG10 Applications-Providers-Requirements** | |
| Date Submitted | [18 Sept., 2013] | |
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| Re: | [Ground Work for Layer 2 Routing] | |
| Abstract | [Working document] | |
| Purpose | [see Re:] | |
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**Application/Use Cases – Providers - Requirements**

# Applications/Use Case Examples

## Example Application 1 - Smart Metering (HAN and NAN)

## Example Application 2 - Smart City - Street Lighting/Parking/Meters…

# Current Providers of Mesh Under Routing (Layer 2) Soln’s. – Proprietary and Non-Proprietary

* ARM (Sensinode)
* SiLabs (Ember)
* Linear Technologies (Dust)
* Synapse
* OKI
* Atmel
* Need to check on these – Fujitsu, FireTide Networks, TI, Freescale, NEC, Samsung, Mitsubishi, NXP, Philips

# Requirements

This recommended practice will facilitate the routing of packets in dynamically changing wireless networks.

Facilitating:

* (Dynamic) Address network changes on the order of a minute time frame
* Minimizes impact to route handling

Specifically it will provide for automatic handling of route related capabilities such as:

* Route establishment and continuity
  + Effective frame forwarding
    - Priority vs. sphere of relevance (right size fit for the priority level)
  + Impact of maintaining security (don’t break it)
    - Impacts on provisioning, joining
* Dynamic route reconfiguration
  + Discovery and addition of new nodes
  + Breaking of established routes
  + Loss and recurrence of routes
* Route determination metrics and real time gathering of link status
  + Intra
    - Quality of individual hop
    - Quality of end-to-end route
      * Reduction of end-to-end retransmissions
  + Inter workings
    - Reported to system management
      * Persistent/consistent issues
      * Node outage (failure detection)
    - Respond to system management feedback
* Support scalability
  + Node density, network size etc.
  + Hardware resource requirements
  + Behavior at restarts
* Management of flooding, multicasts
  + Support of broadcast
  + Support of multicast
* Allowing for single hop appearance at the networking layer  
  (not breaking standard L3 mechanisms)

Are there different device requirements?