

Presentation to Hydro Quebec Smart Meter LAD Project

Explanatory Notes by:

Mr. Ludo Bertsch, P.Eng

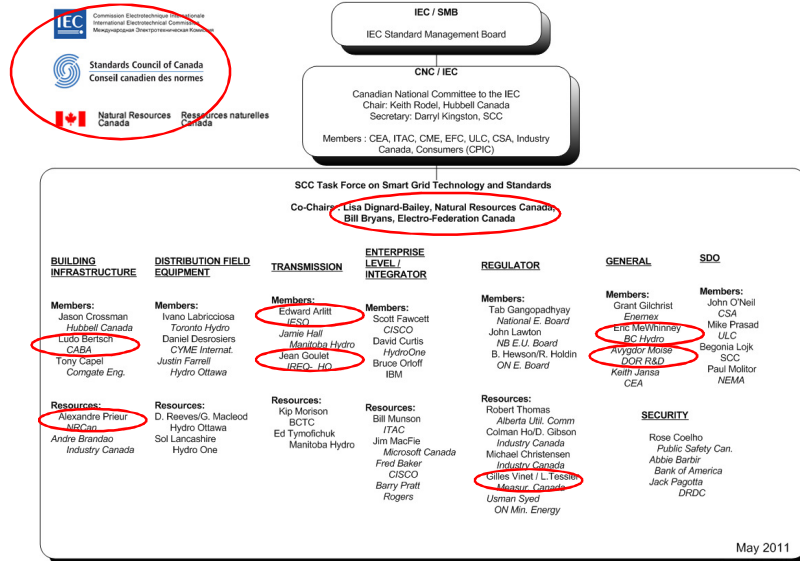
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April 26, 2012

Canadian Smart Grid Task Force

- NRCan, Standards Council of Canada,
& International Electrotechnical Commission (IEC)
- Begin Canada Smart Grid standardization
- Goals: Canada's needs, leverage,
national/regional coordination
- Tasks: Advise policy, support integration, provide
feedback, develop liaison, provide
recommendations

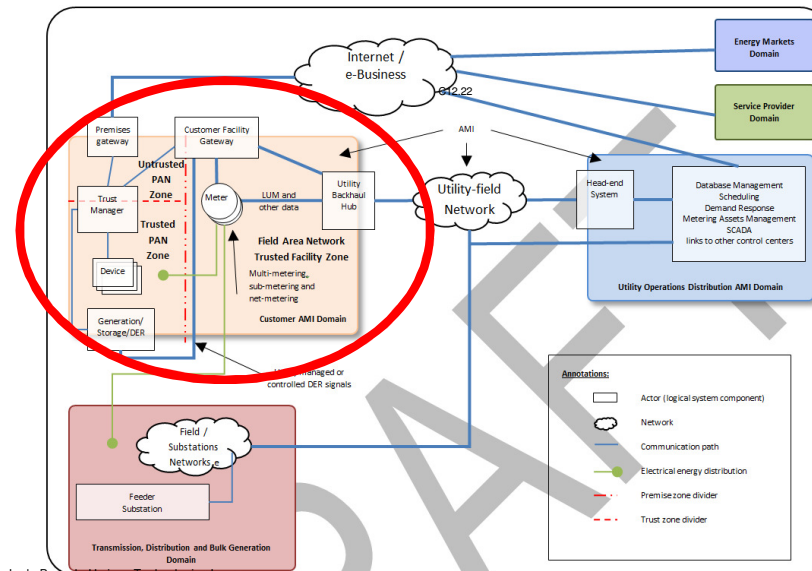
Task Force Members



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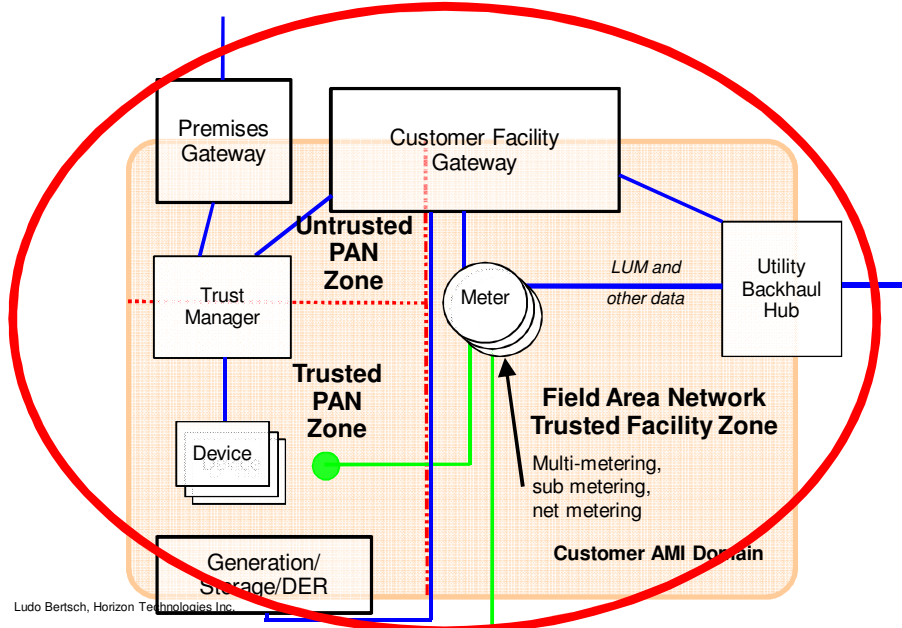
Architectural Logical Diagram



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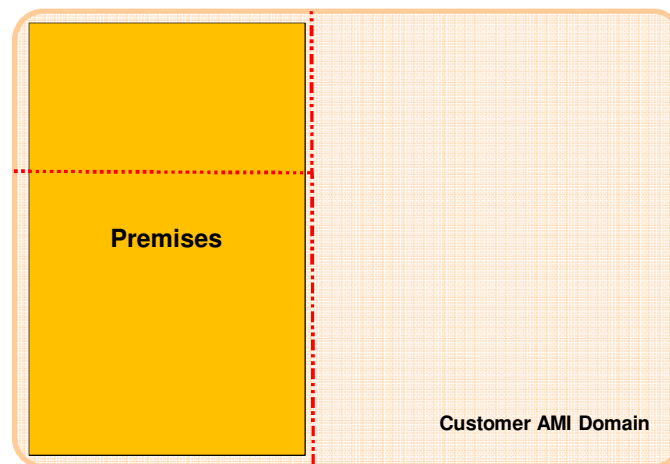
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Customer AMI Domain



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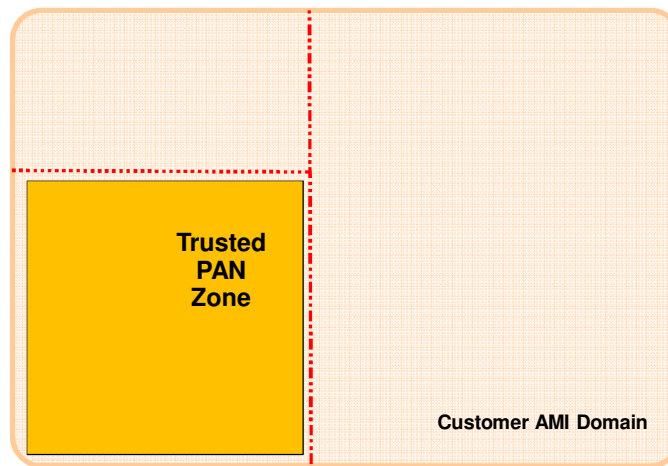
Premises



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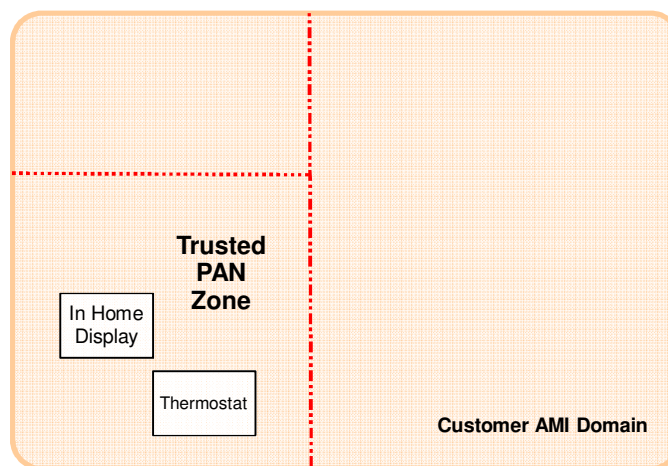
Trusted Premise Zone



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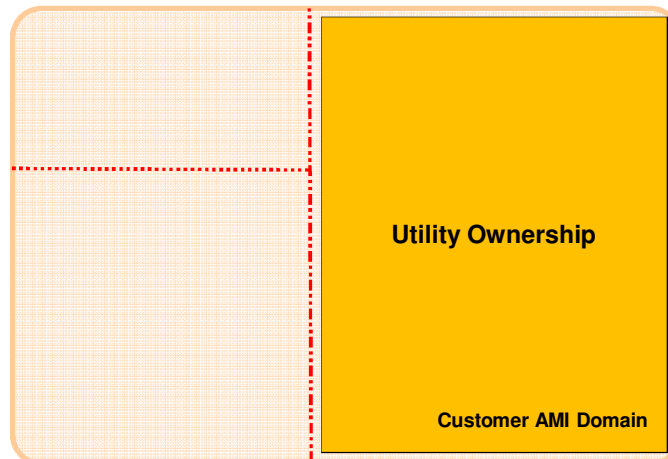
Trusted Premise Zone



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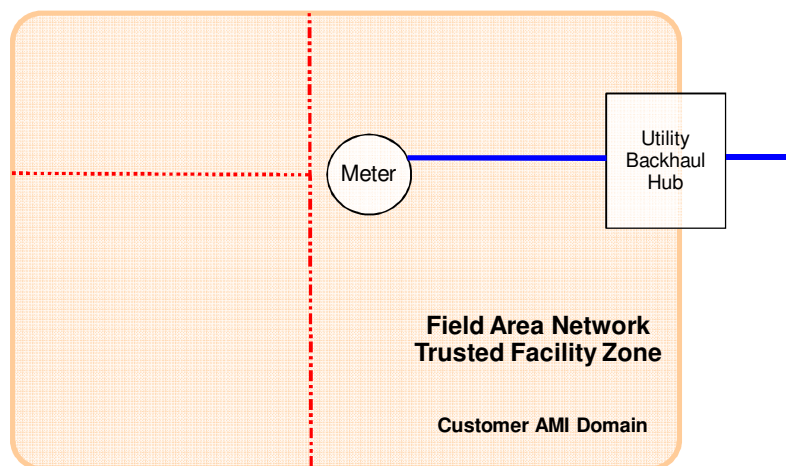
Trusted Utility Zone



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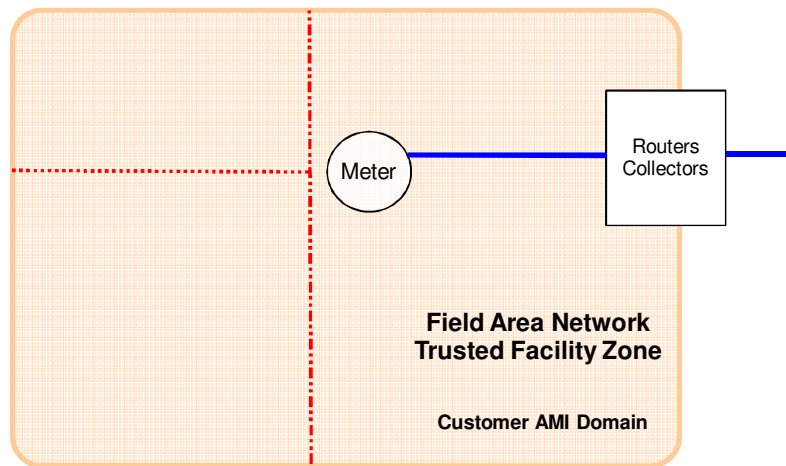
Trusted Utility Zone



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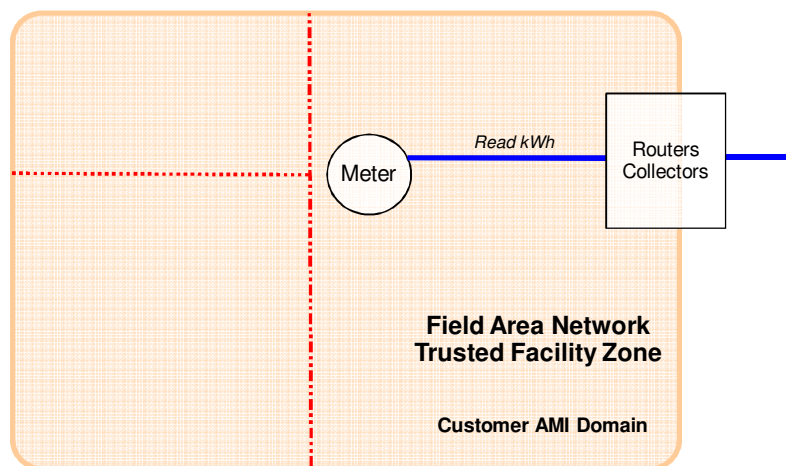
HQ LAD Project – Proposed Phase #1



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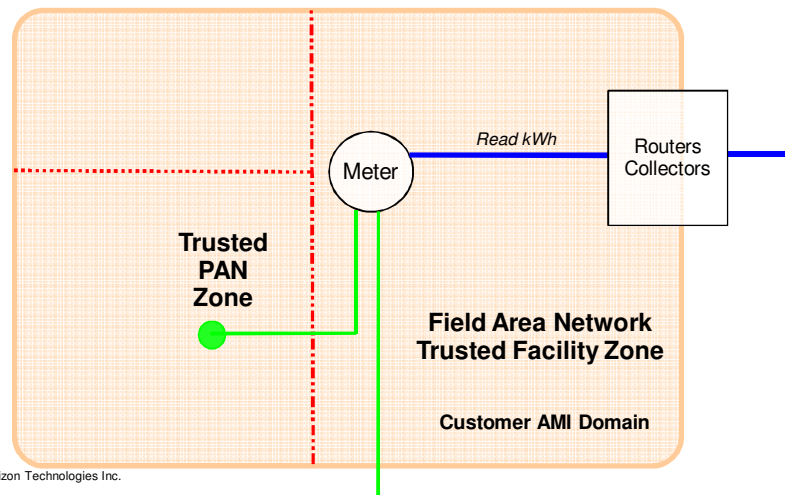
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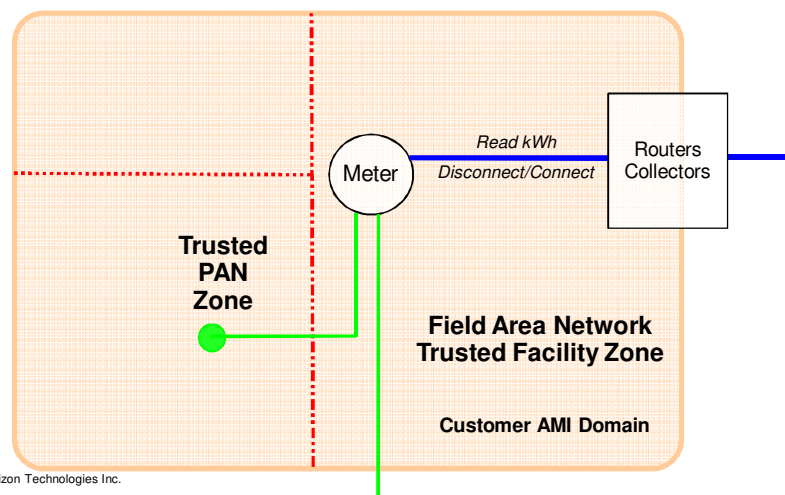
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HQ LAD Project – Proposed Phase #1



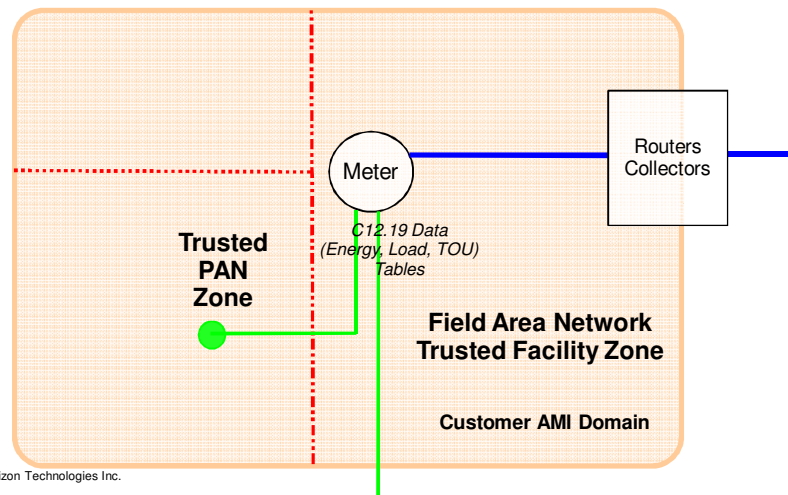
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HQ LAD Project – Proposed Phase #1



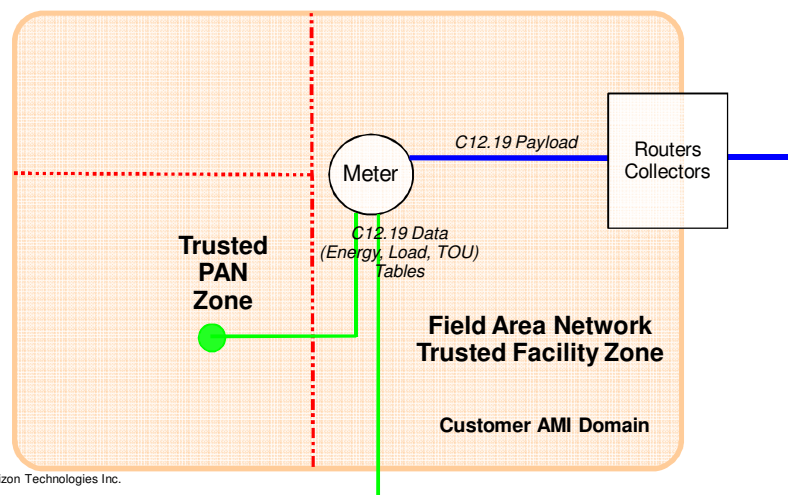
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HQ LAD Project – Proposed Phase #1



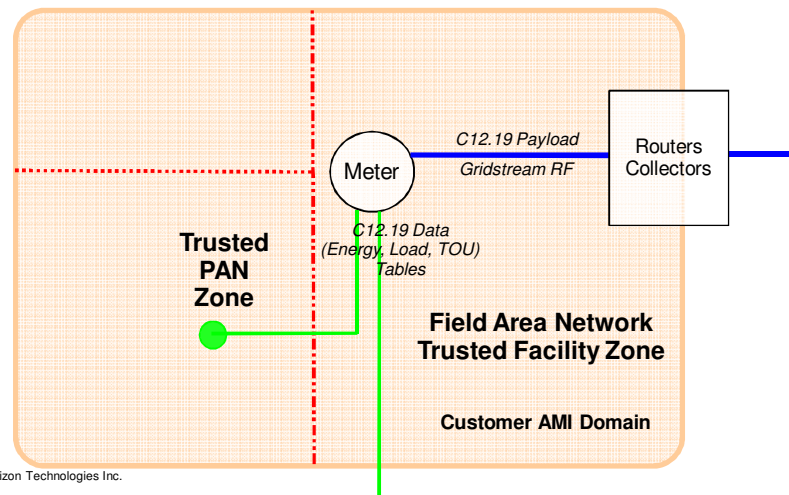
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HQ LAD Project – Proposed Phase #1



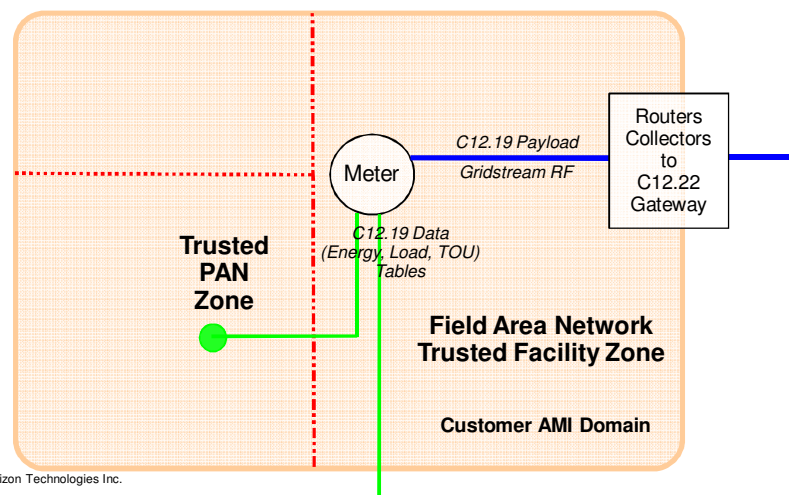
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HQ LAD Project – Proposed Phase #1



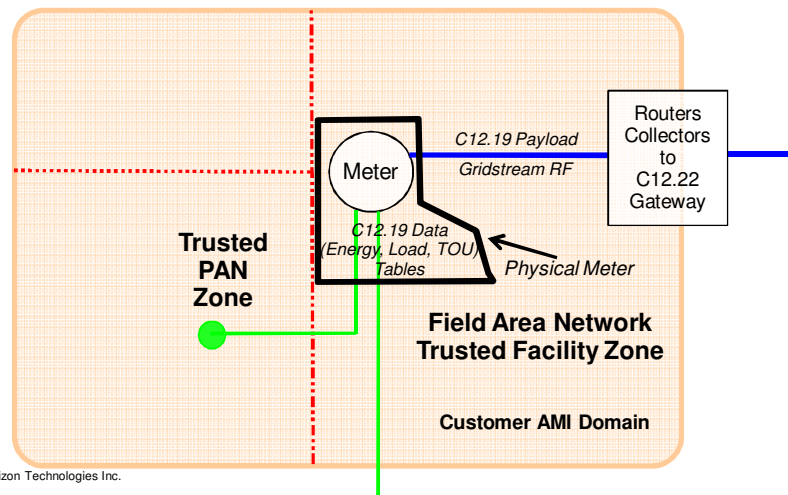
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HQ LAD Project – Proposed Phase #1



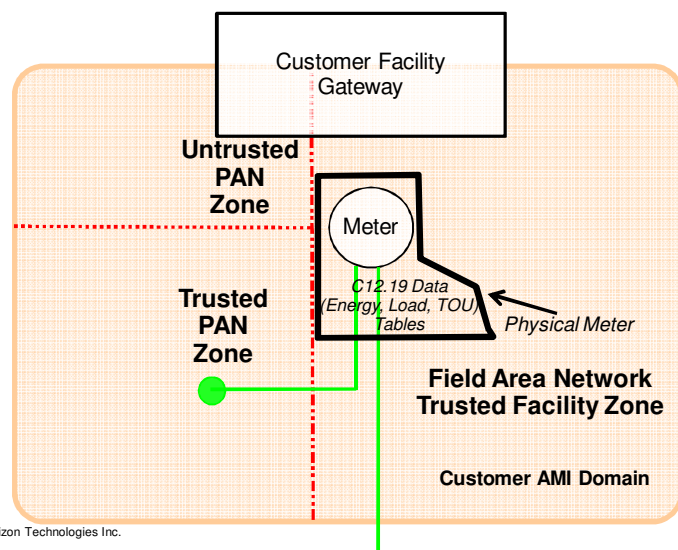
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In Home Display – Home Area Network



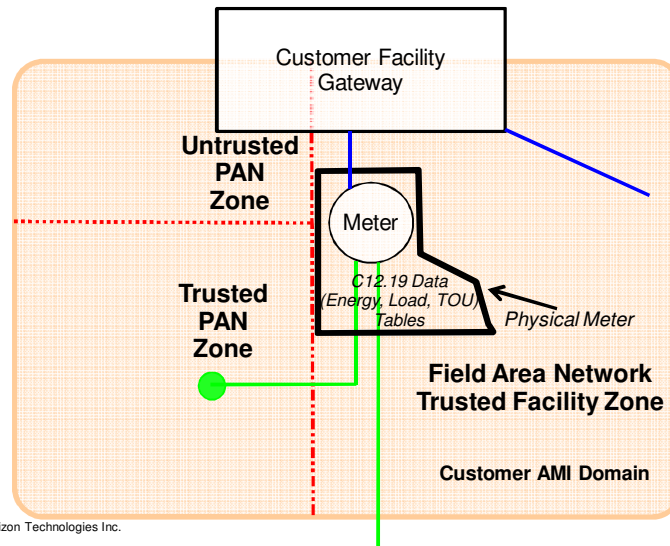
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In Home Display – Home Area Network



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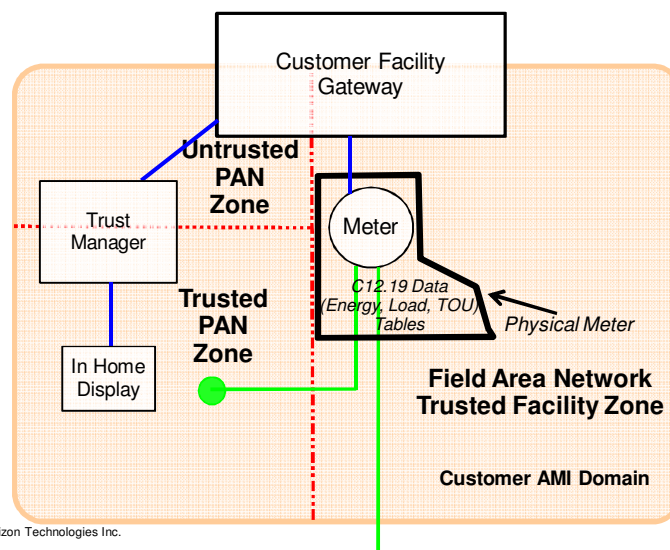
In Home Display – Home Area Network



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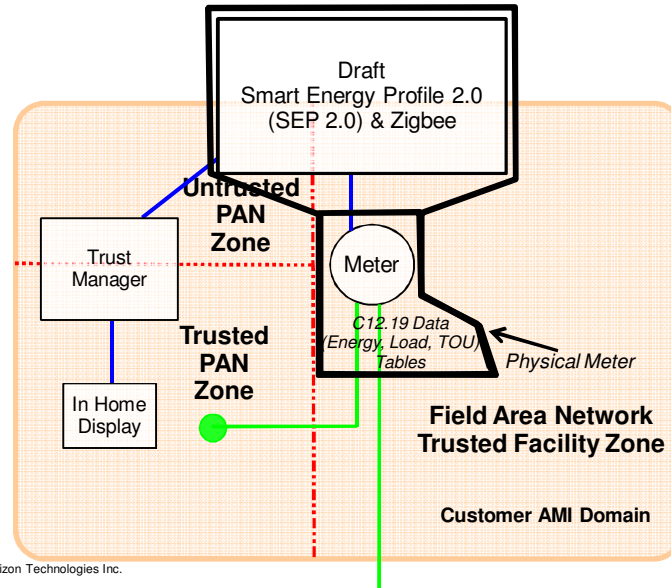
In Home Display – Home Area Network



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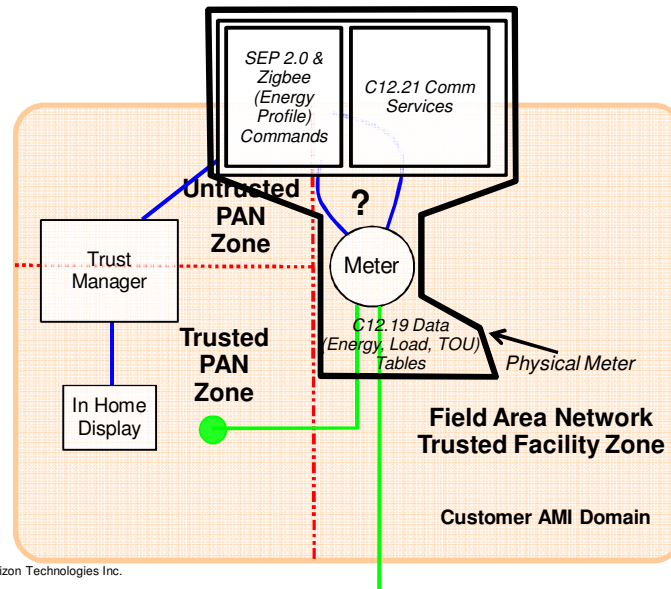
HQ LAD Project – IHD and HAN



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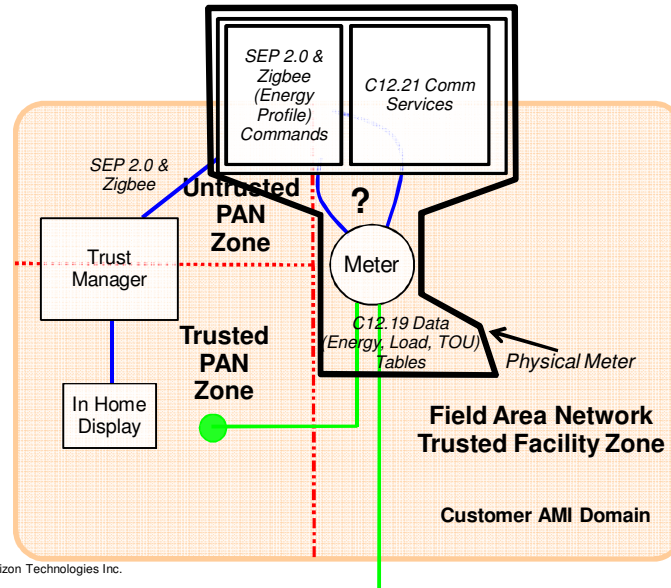
HQ LAD Project – IHD and HAN



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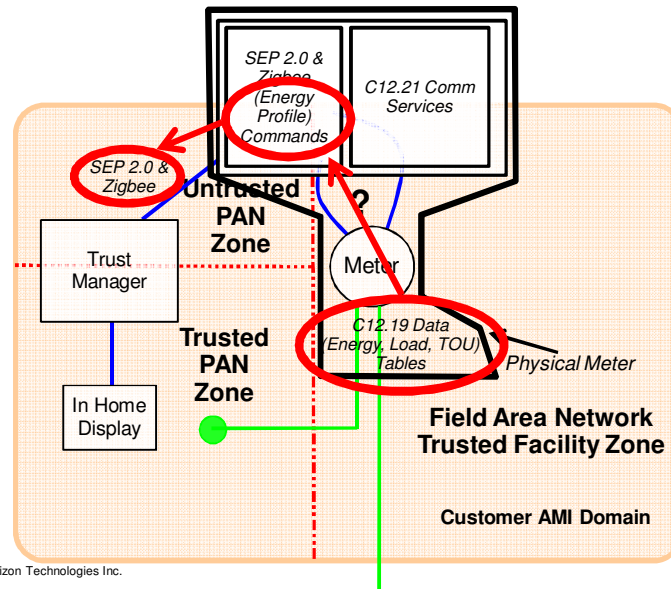
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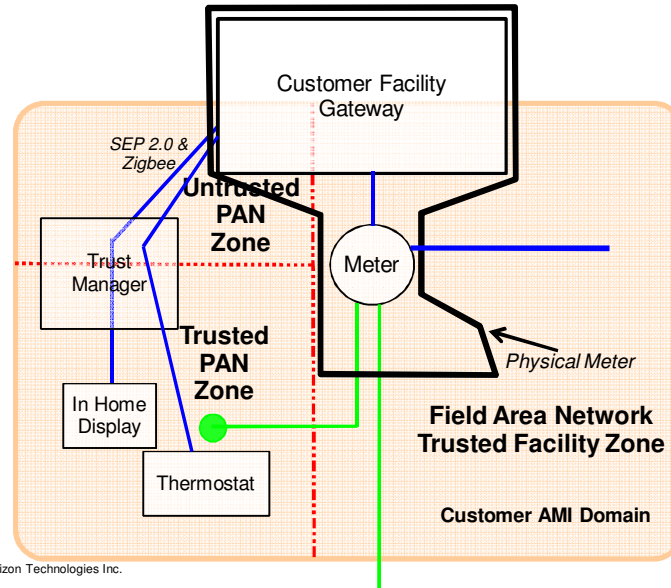
HQ LAD Project – IHD and HAN



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HQ LAD Project – IHD and HAN



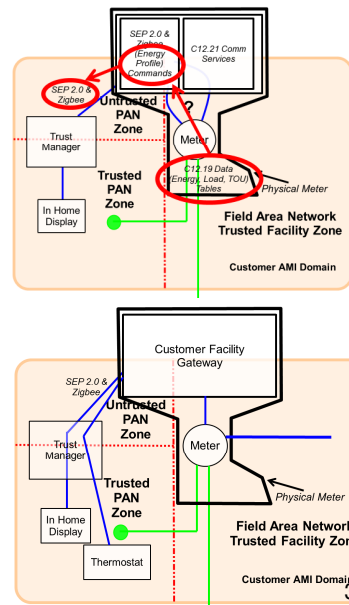
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HQ LAD Project – IHD and HAN

Issues

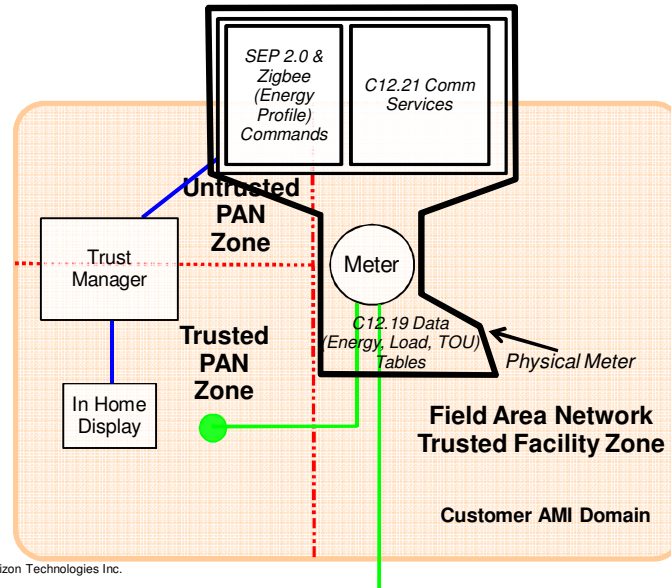
- Extra processing and memory is required inside meter to handle SEP 2.0, including downloading capability
- Will there be enough memory for future needs in downloading; expensive changeout as it is “under the glass”?
- SEP 2.0 is still draft, so subject to change - technology risks (besides, HAN technology tend to change rapidly)
- “My home is my castle” - does it make sense for a utility-owned meter to become the hub for smart devices of the home?



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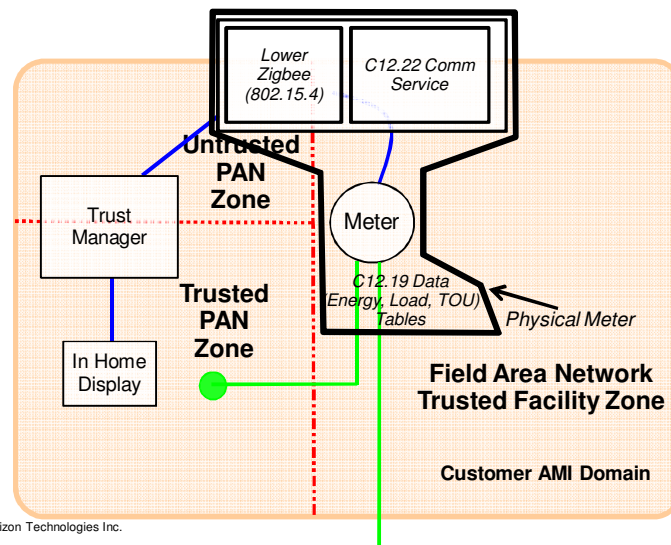
HQ LAD Project – IHD and HAN



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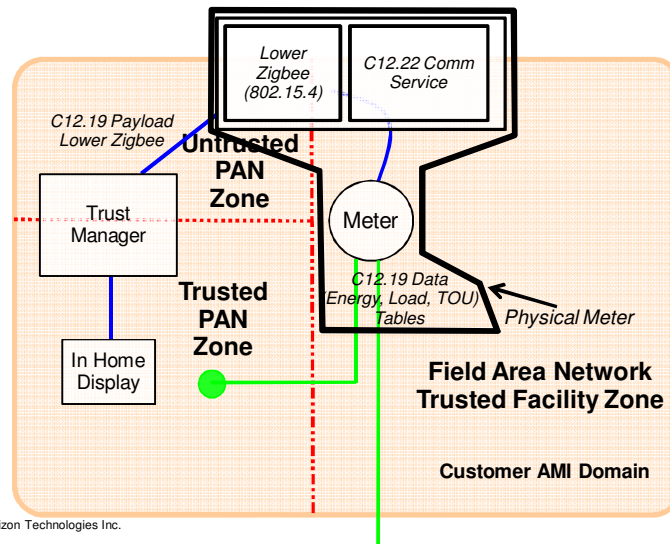
HQ New Pilot – IHD and HAN



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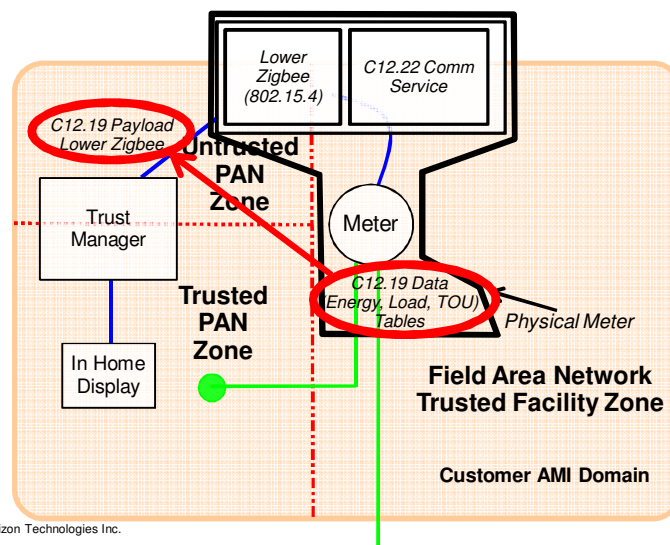
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HQ New Pilot – IHD and HAN



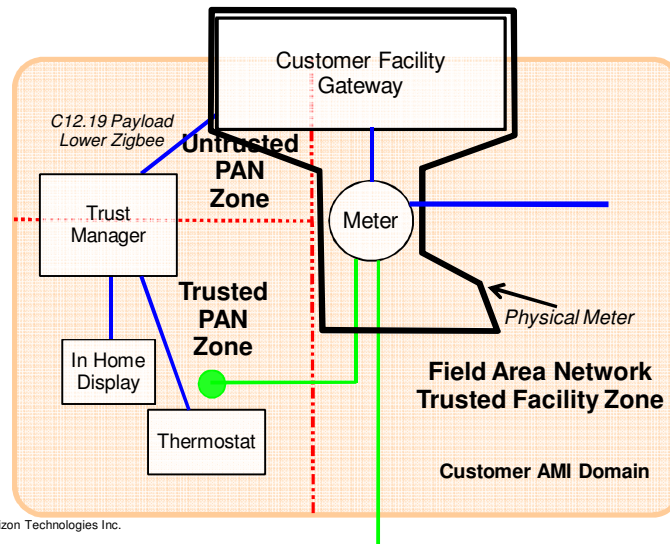
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HQ New Pilot – IHD and HAN



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HQ New Pilot – IHD and HAN



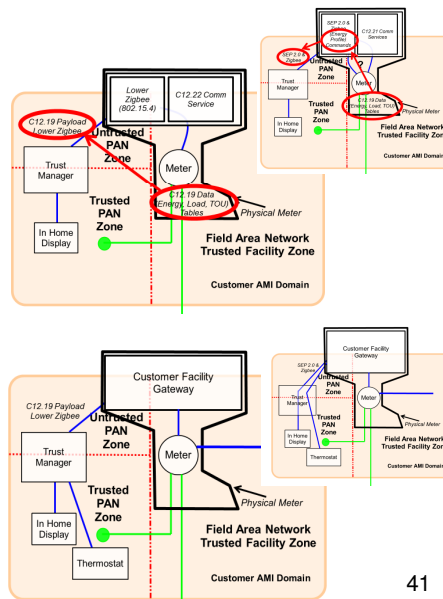
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HQ LAD > New Pilot – IHD and HAN

Improvements

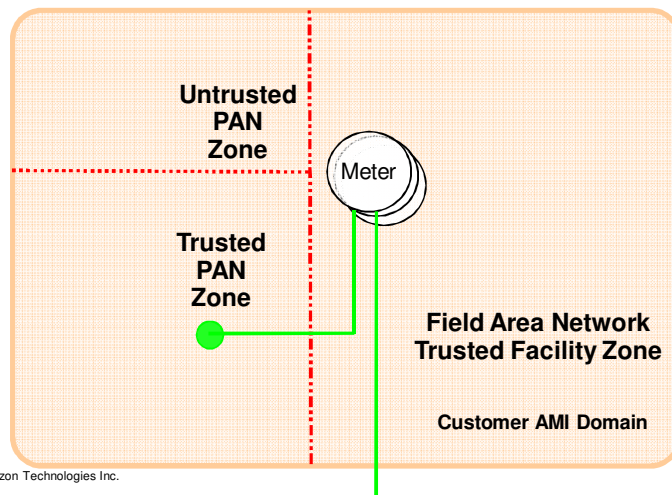
- Less processing and memory required inside meter because simpler functionality and lower cost
- Predetermined memory requirements, because no downloading of major programs
- Stable lower Zigbee, (or 802.15.4), so technology risk improved (rapid HAN technology changes occur outside meter)
- “My home is my castle” - customer in control of their own hub for smart devices themselves instead of utilities



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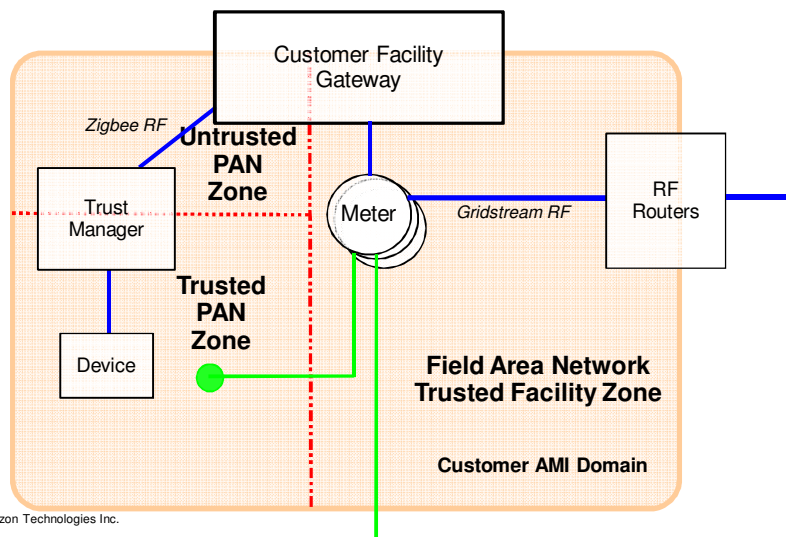
HQ Proposal - Opt Out



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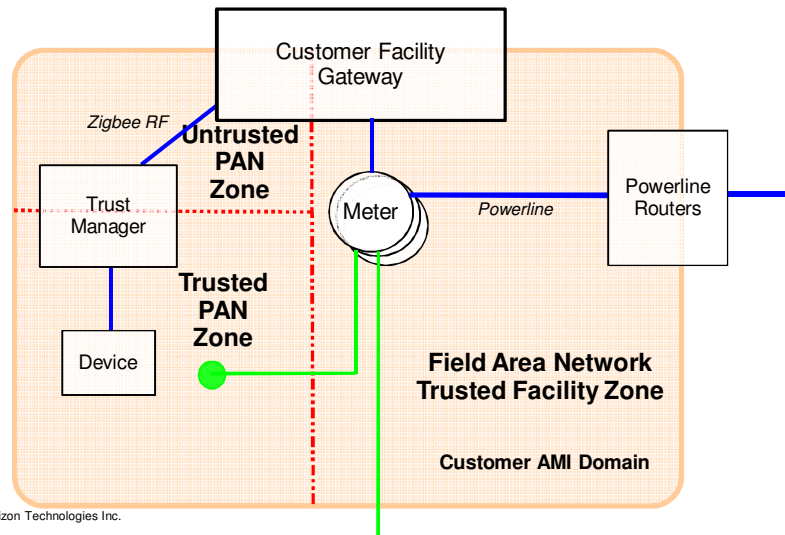
HQ New Pilot - Opt Out



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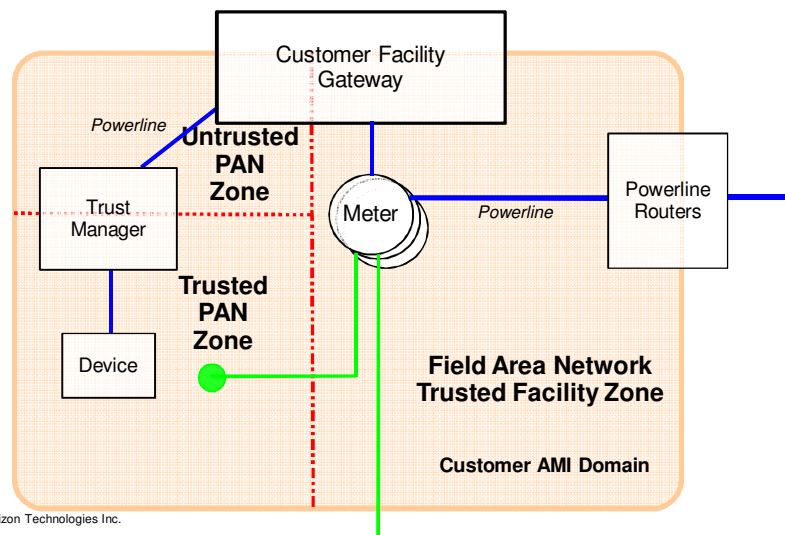
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HQ New Pilot - Opt Out



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HQ New Pilot - Opt Out



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Recommendations

- Evaluate how HQ LAD Smart Meter program follows CNC/IEC Task Force Roadmap recommendations; modify as needed; document
- Describe HQ LAD program using Task Force architectural drawings
- Create dissertation on Utility/Customer controlled zones and Trusted/Untrusted zones
- Implement New Pilots with suggested changes
- Recommendations from Dec 12, 2011 evidence