Where is the SMART in smart grid connected devices?
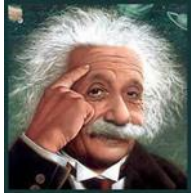
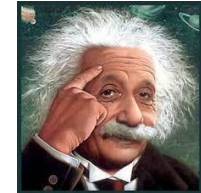ACEEE HOT WATER FORUM

Feb 27, 2017   Portland, OR
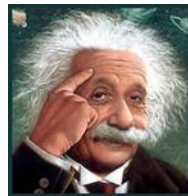
Where are we headed?

Connected Customer Working Council

Recap and Meeting Plans

March 24, 2016

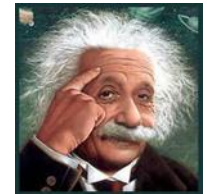# Where is the SMART?

Smart Water Heater

Cloud

Fog

Smart Gateway

AOSmith

Water Heater

- Intelligent Control
  - Priority on consumer comfort
  - Can Add or Shed Load as directed by the grid
- Time of Use and other functions are possible in conjunction with 3rd party communication modules.
- Future – Increased intelligence is possible for more autonomous operation by increasing CPU horsepower adding memory advanced algorithms etc.

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Cloud Computing

- Bulk of intelligence is in the cloud
  - Cloud input from various connected devices
  - Spot price signals
  - Weather Forecasting data
  - System constraint information real time

- Devices have limited intelligence primarily focused on device operation for performance and reliability
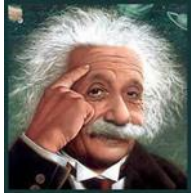
AOSmith

Smart Gateway

- Gateway box contains multiple communication technologies
  - Wi-Fi, Zigbee, Z-Wave, Bluetooth, ……
  - Provides common connection point for various devices
  - Gateway can intelligently manage devices to provide various grid benefits i.e. load balancing minimize co-incidental load don't run pool pump and water heater at the same time.

AO Smith

Fog Computing

- What is FOG computing

- Fog computing is simply a cloud that is closer to the ground. Hence cloud computing carried out closer to the end users network

- Advantages of FOG computing
  - Low Latency / Fast response
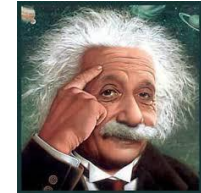 - More secure
  - Lower data costs

AOSmith

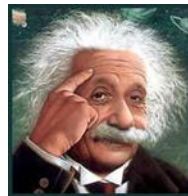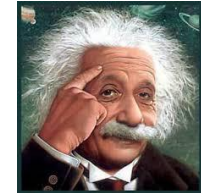# Who is the Winner?

Smart Water Heater

Cloud

Fog

Smart Gateway

AOSmith

Who is the Winner?

Smart Water Heater
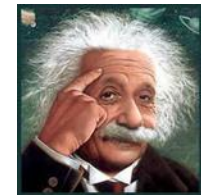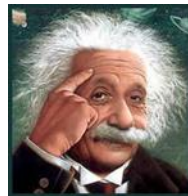

Cloud

Fog

Smart Gateway

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