



WICHITA STATE
UNIVERSITY

Wireless Sensor Networks and Energy Metering

Presentation By:

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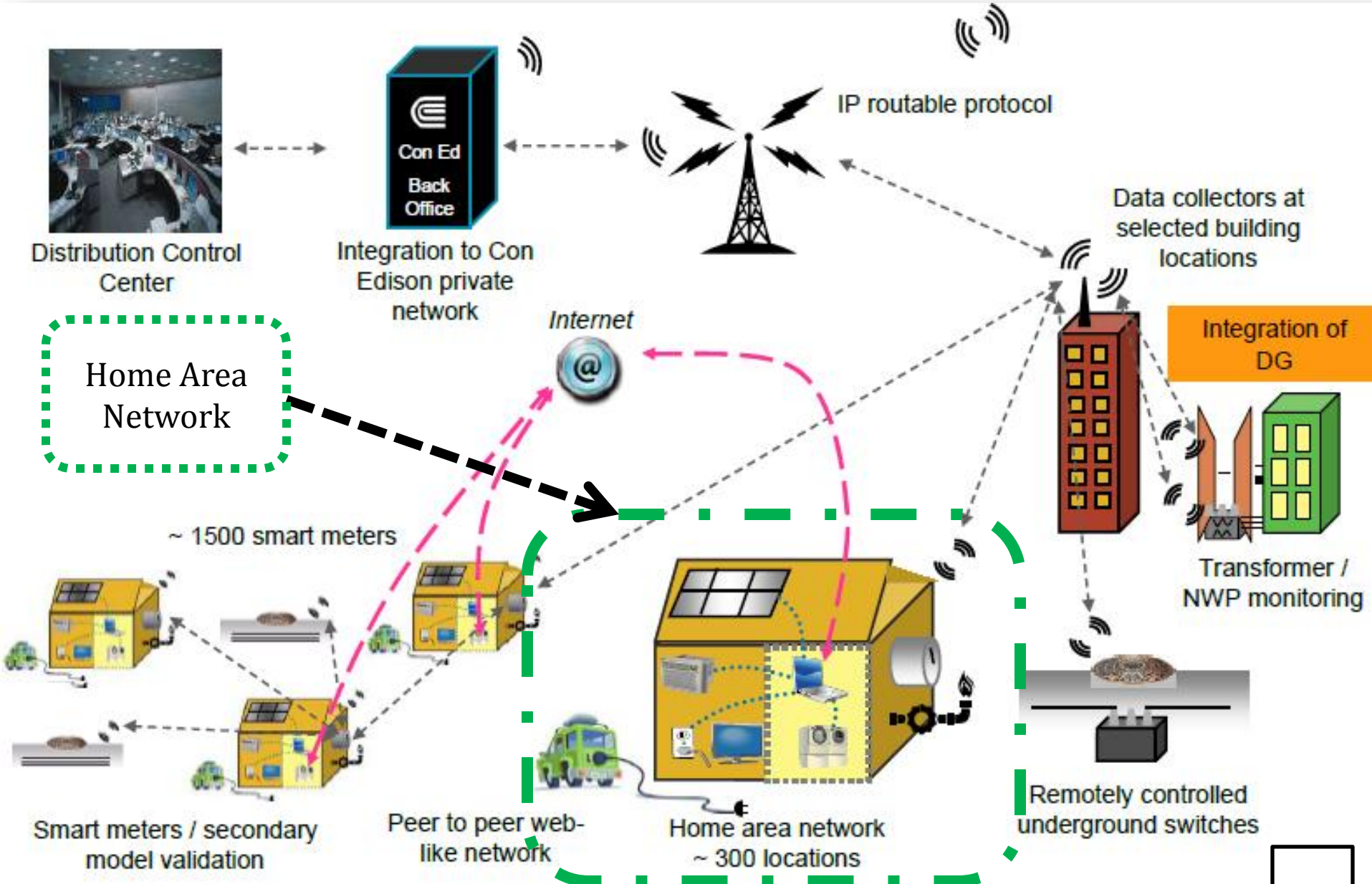


Smart Meter in Home to provide security and save energy

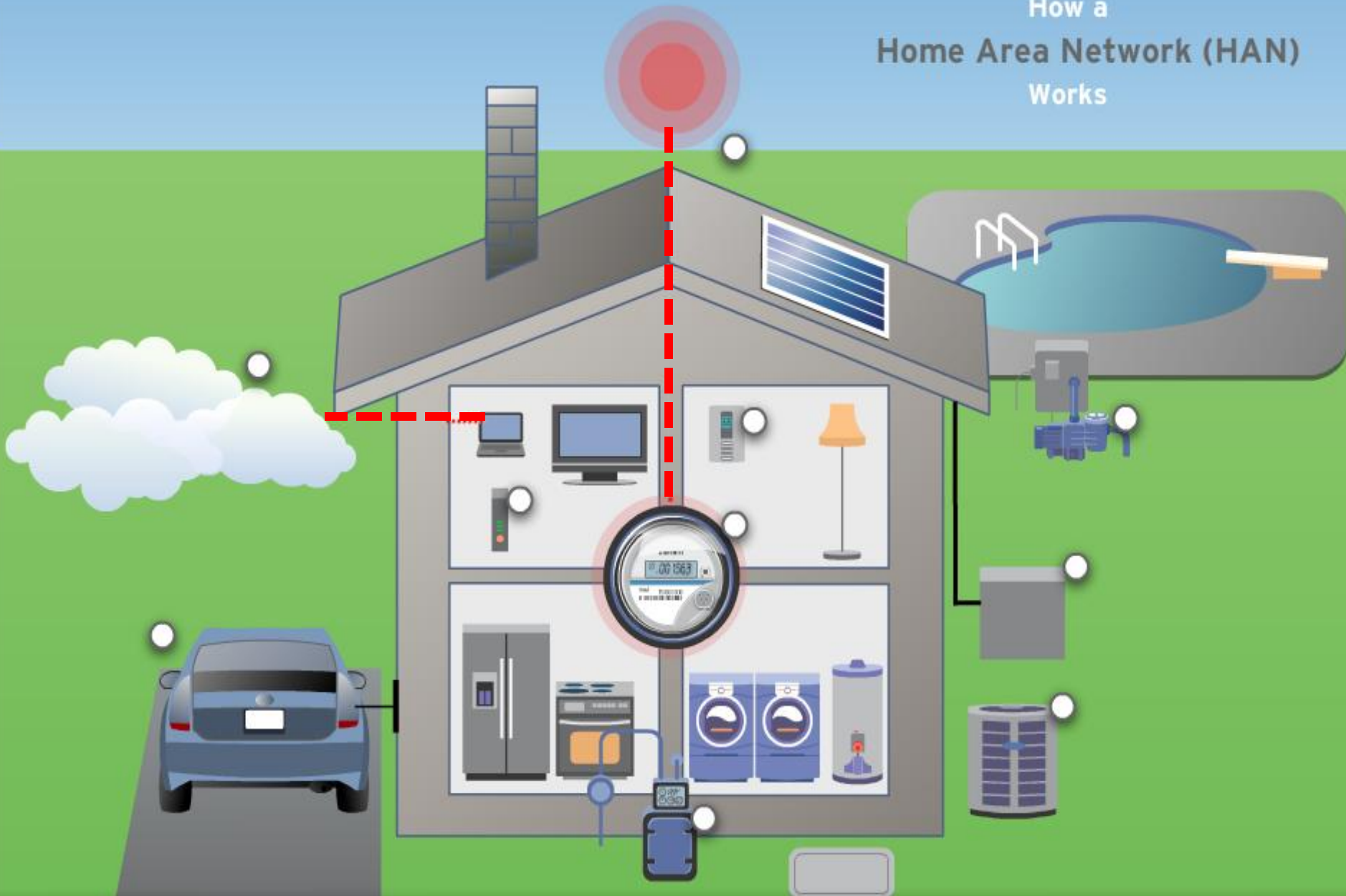
- Utility installs a smart meter in every customer premise that can communicate with appliances and devices and control their operation.
- Load balancing, demand response
- Utility looks at aggregate load(Area) and can issue instructions on how to handle load
- Customer saves money by operating at off-peak hours
- Customer allows control on his devices to the utility.



Smart Grid



How a Home Area Network (HAN) Works



Why Wireless Communication ?

- Minimal Infrastructure
- Integration wit other residential Wireless N/w (Fire alarm)
- Simplified configuration
- Ambience and easily changed to different locations.

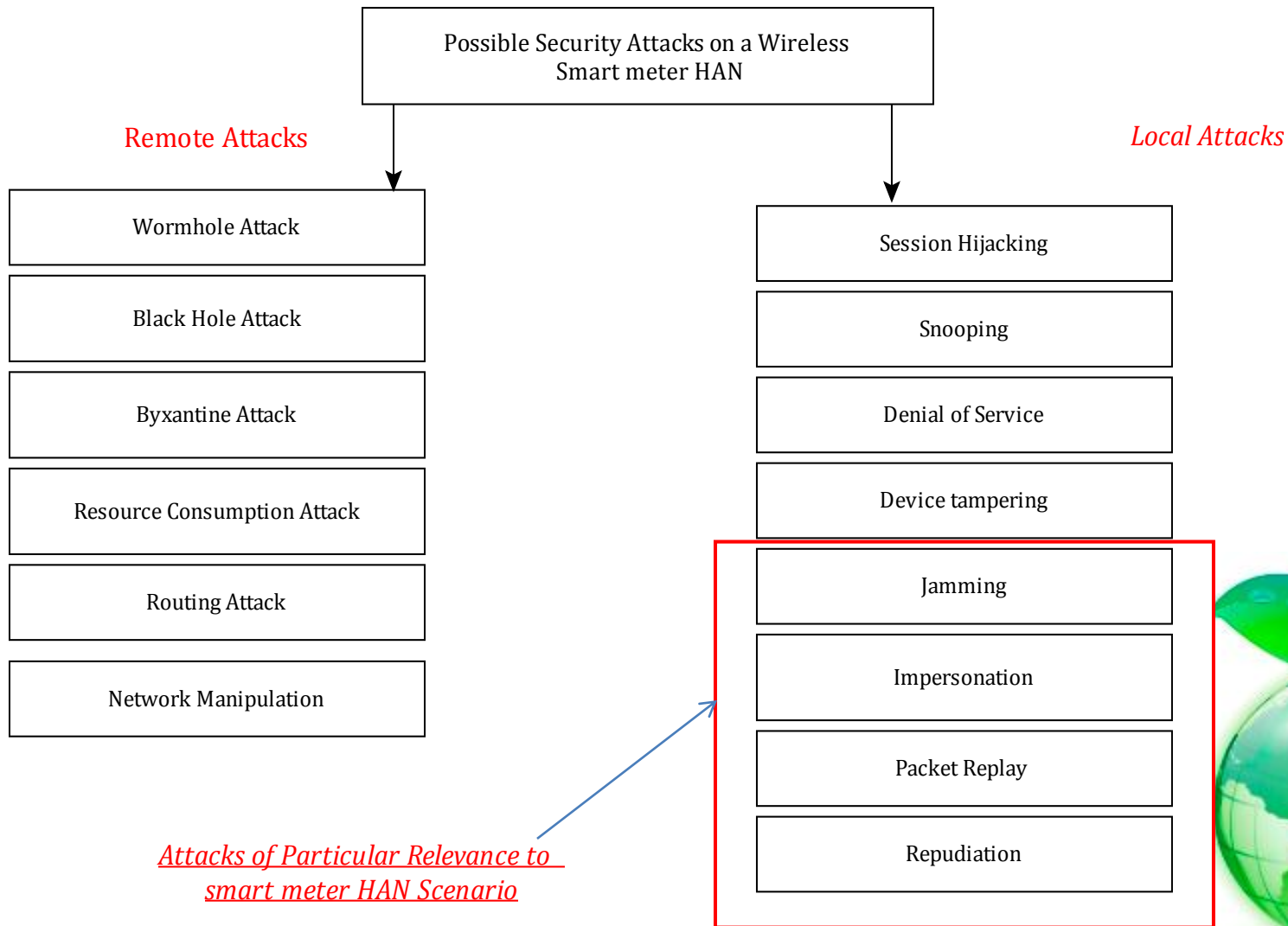


Security Concepts

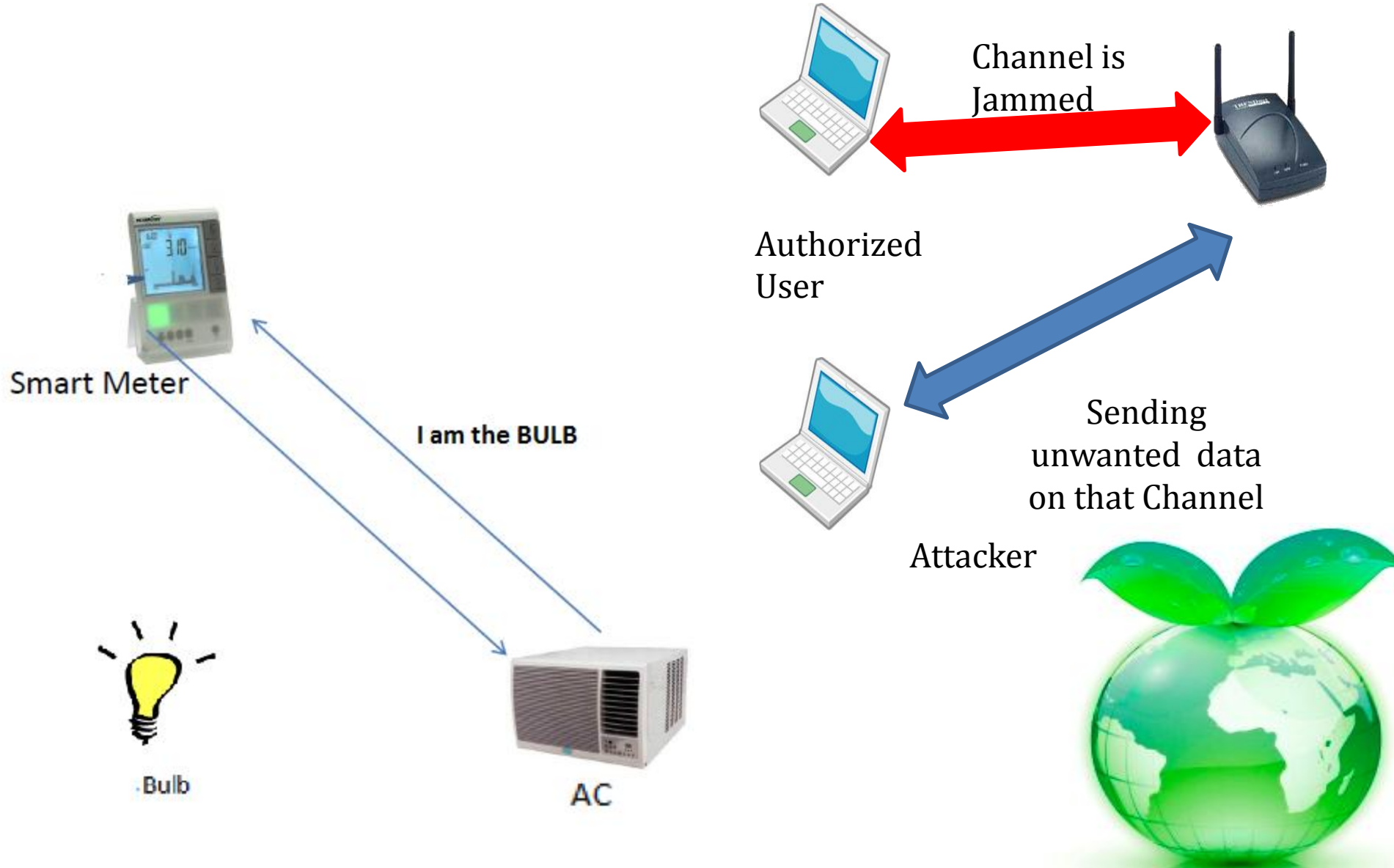
- Confidentiality: Contents of a message are kept secret.
- Integrity: Contents of a message are protected.
- Authentication : the sender is who they claim to be.
- Availability: the method or medium can be used by authorized user.
- Time Sensitivity: the receiver of the message looks at Time details.



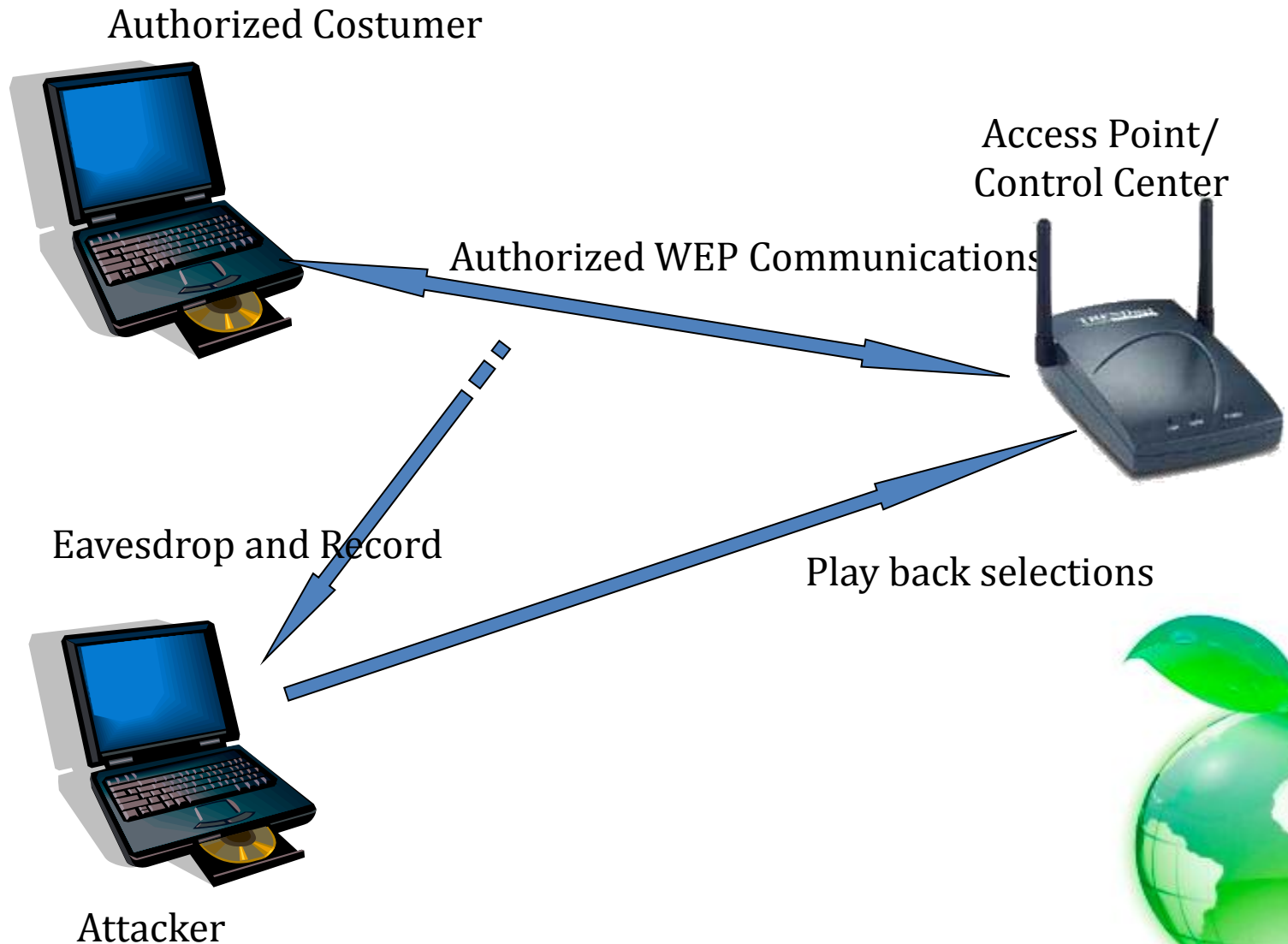
Attacks:



Impersonation & Jamming



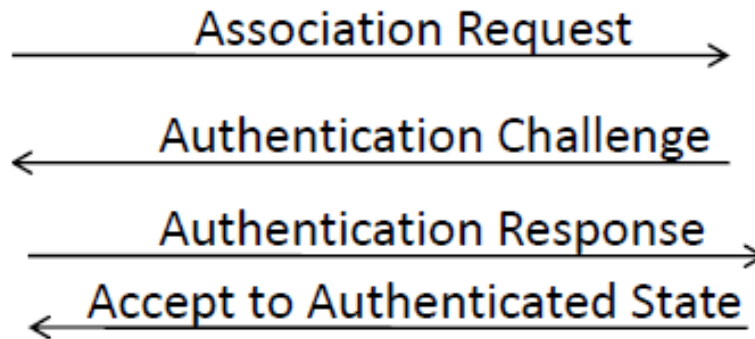
Replay Attack



Authentication



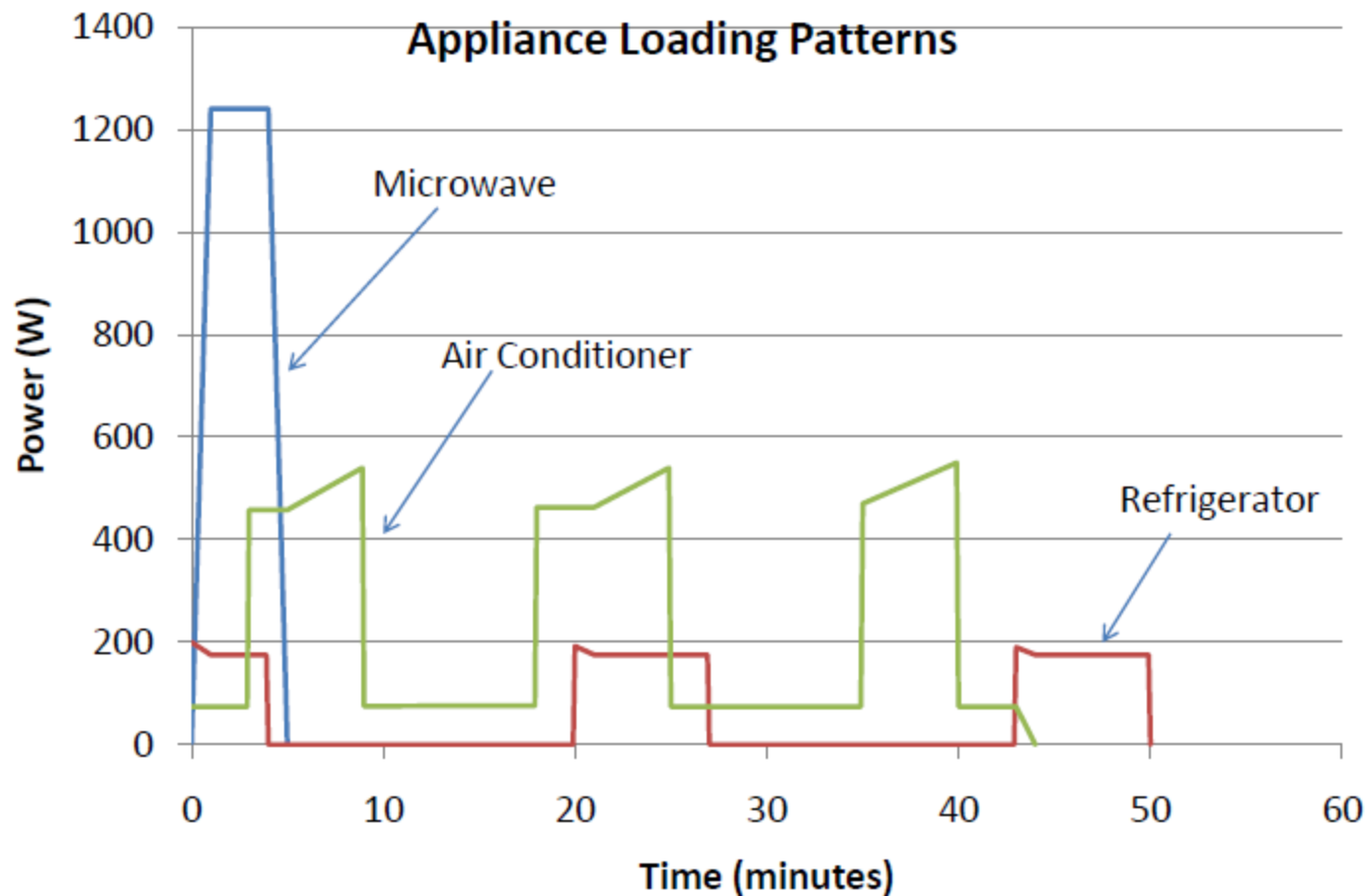
New Equipment
Joining HAN



SmartMeter



Power consumption pattern



Summary

Sensors +

Wireless Networks +

Smart Meter

Can provide a great advantage in Power industry
in saving power and improvising the efficiency.

