



IoT overview

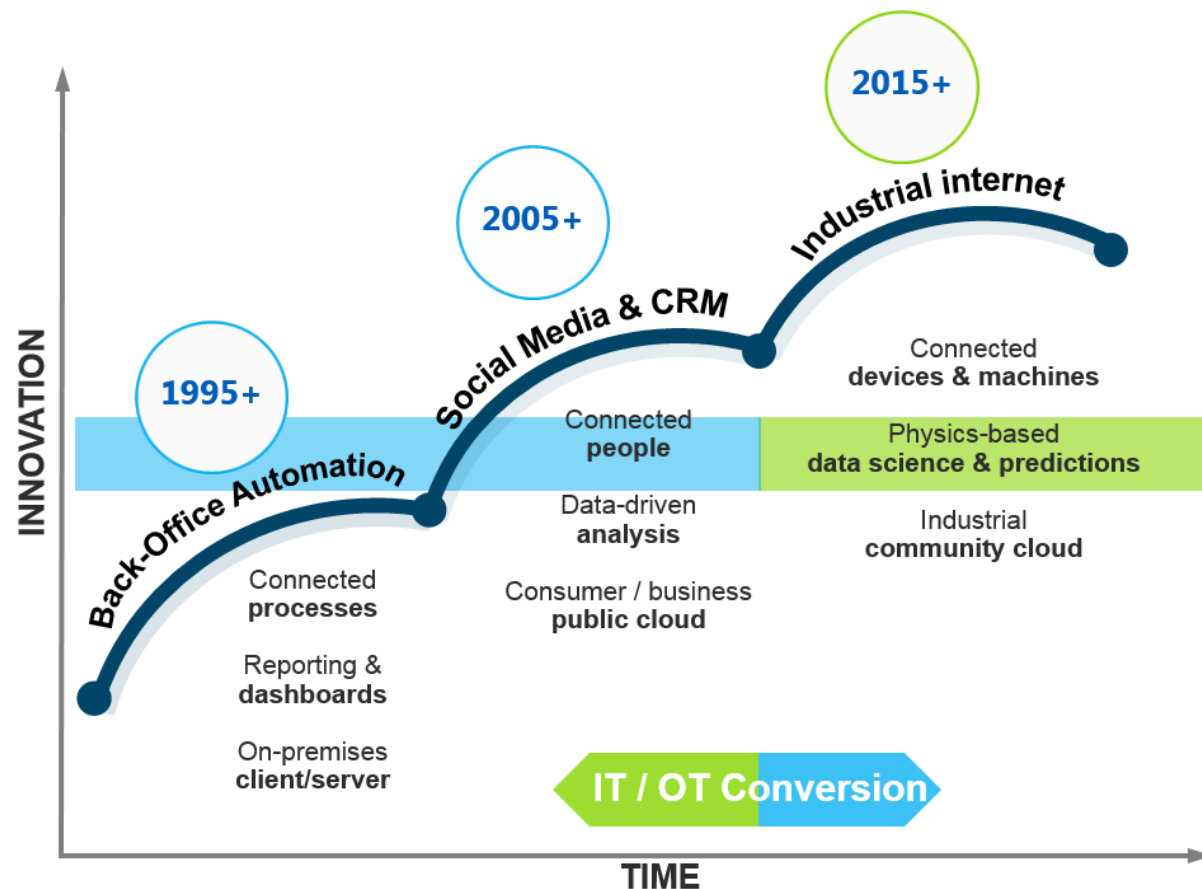
(extracts from mostly work done by GE)

Presented by: Mir Dawar Ali
IT Director, ACWAPower International

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IOT CLOUD

- Future is towards "connected" machines
- IIOT derivate of IOT
- IOE derivate of IOT

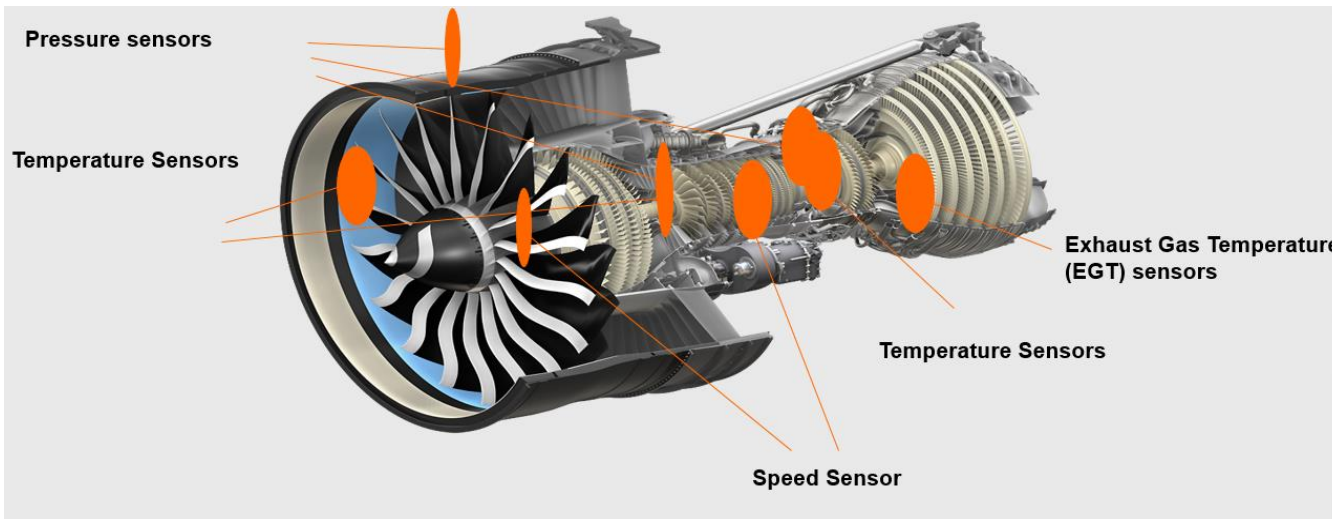
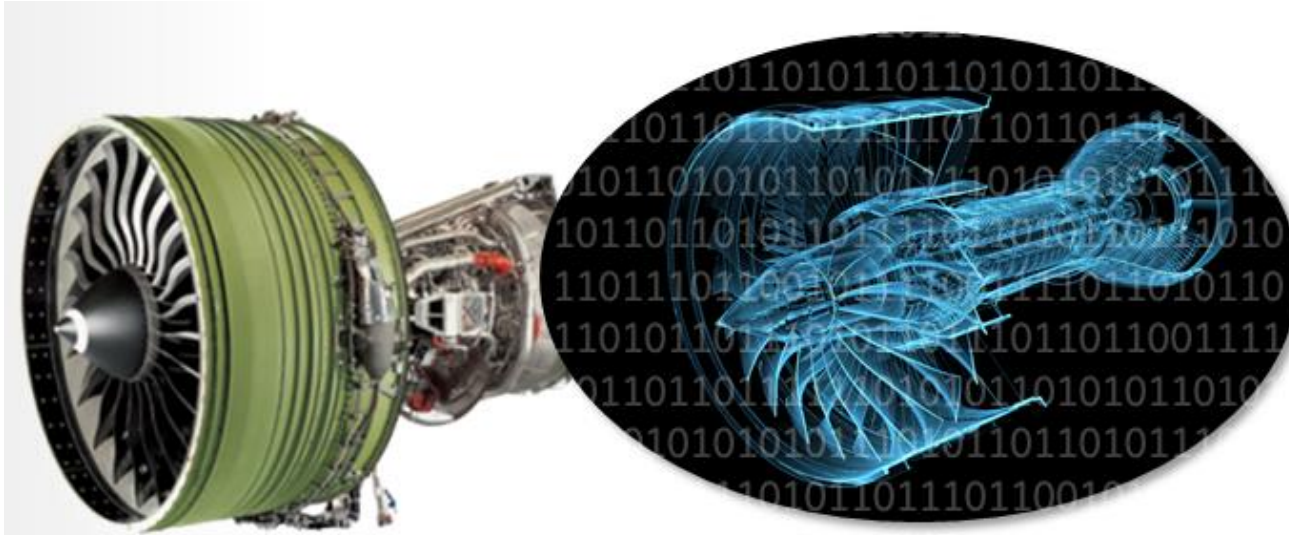


2

DIGITAL TWIN

- Mind + Machine
- Living model
- Be proactive instead of being reactive.

<https://youtu.be/2dCz3oL2rTw>



Digital Twin – The Mind of a Machine

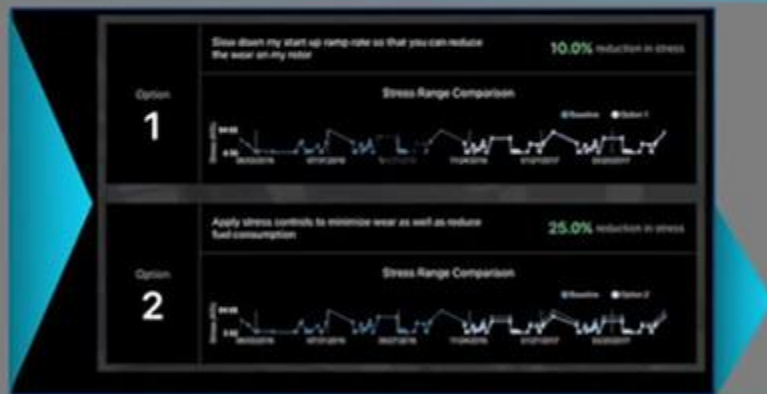
SEE



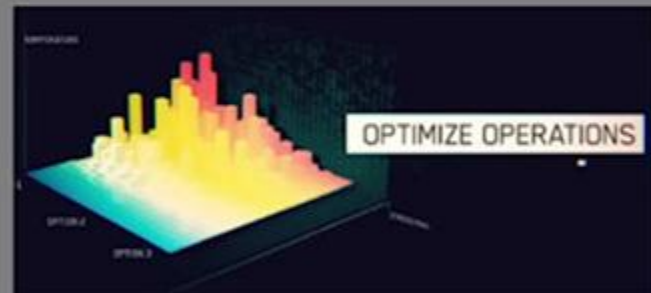
updating, learning



THINK



reasoning, optimizing



DO



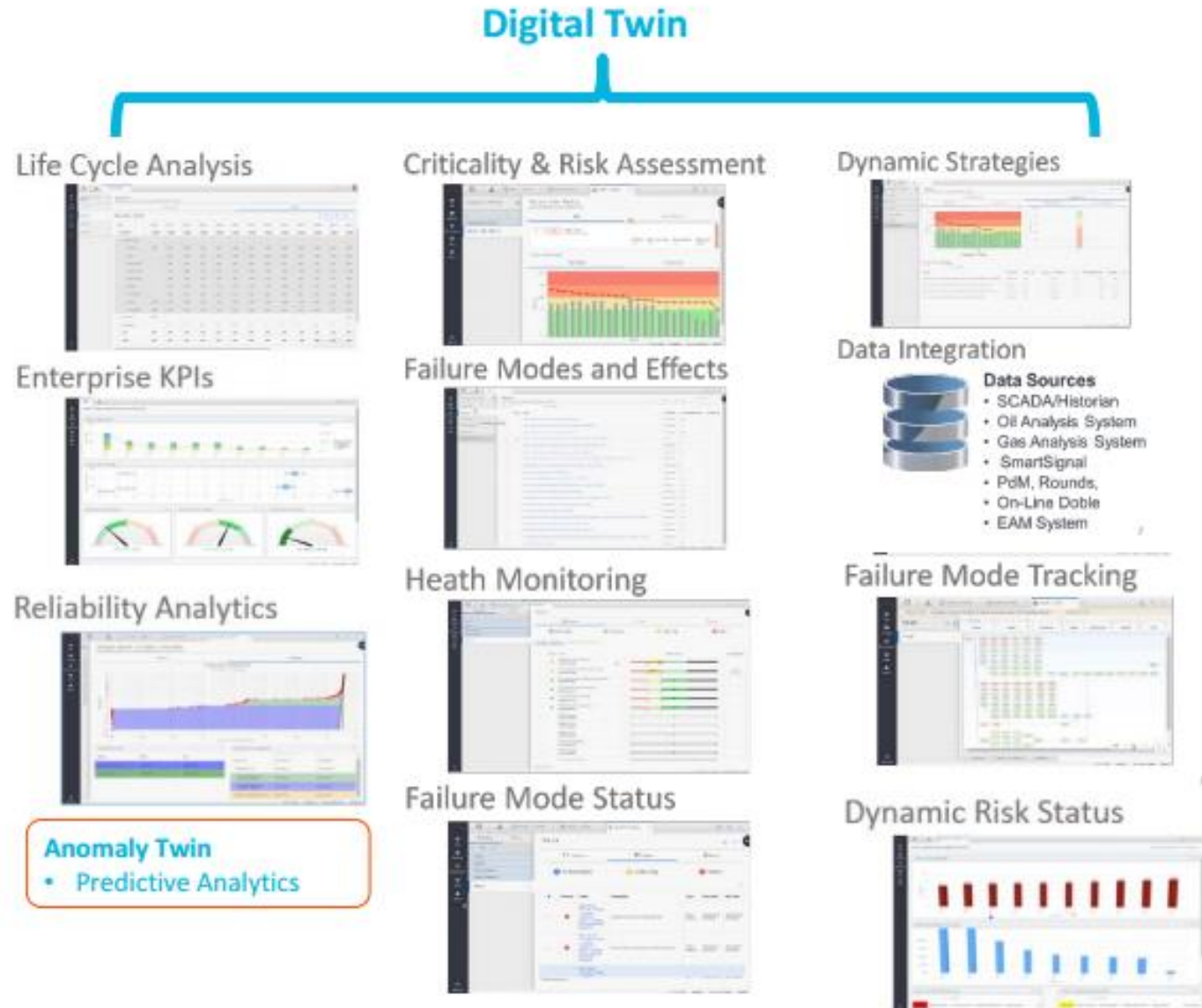
informing, acting using
edge controls



Digital Twin for Transformers



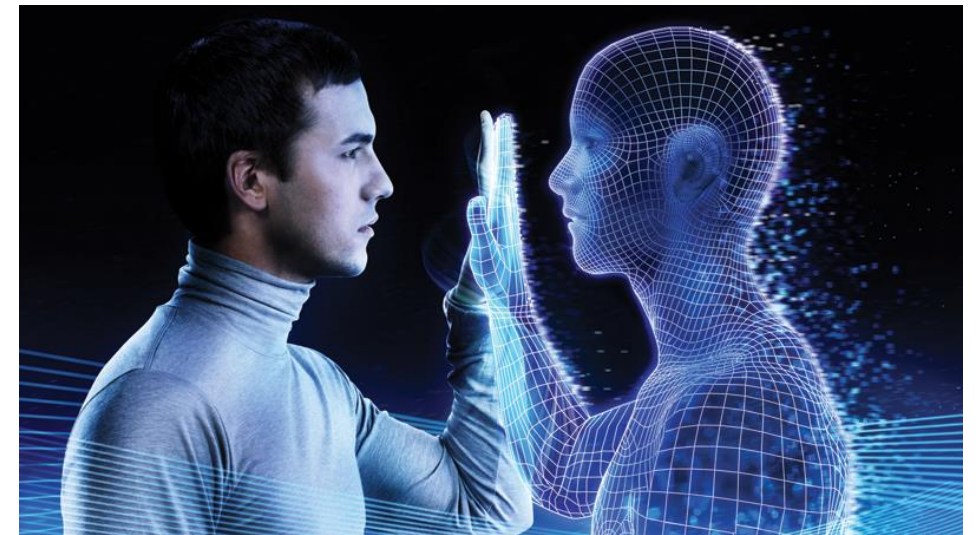
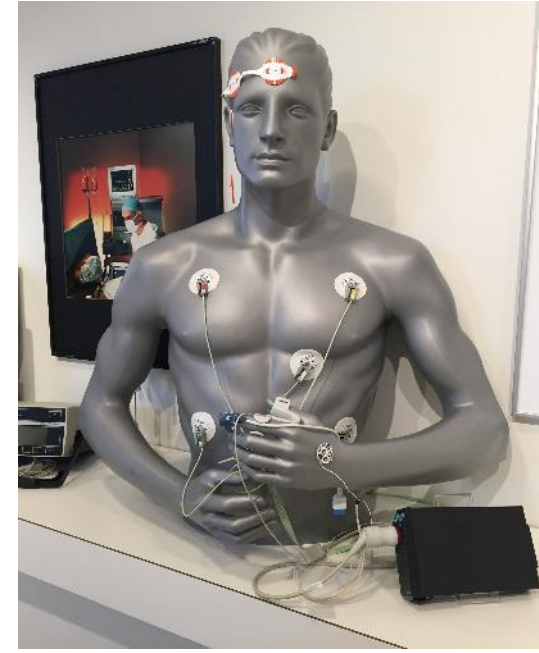
Failure Modes Templated	- 11
Anomaly Analytics	- 17
Failure Mode Effects defined	- 55
Identified Recommendations	- 46
Asset Health indicators created	- 6-15
Fault Policies defined per transformer	- 9+
Measurement points identified	- 38
KPIs created for this asset class	- 4



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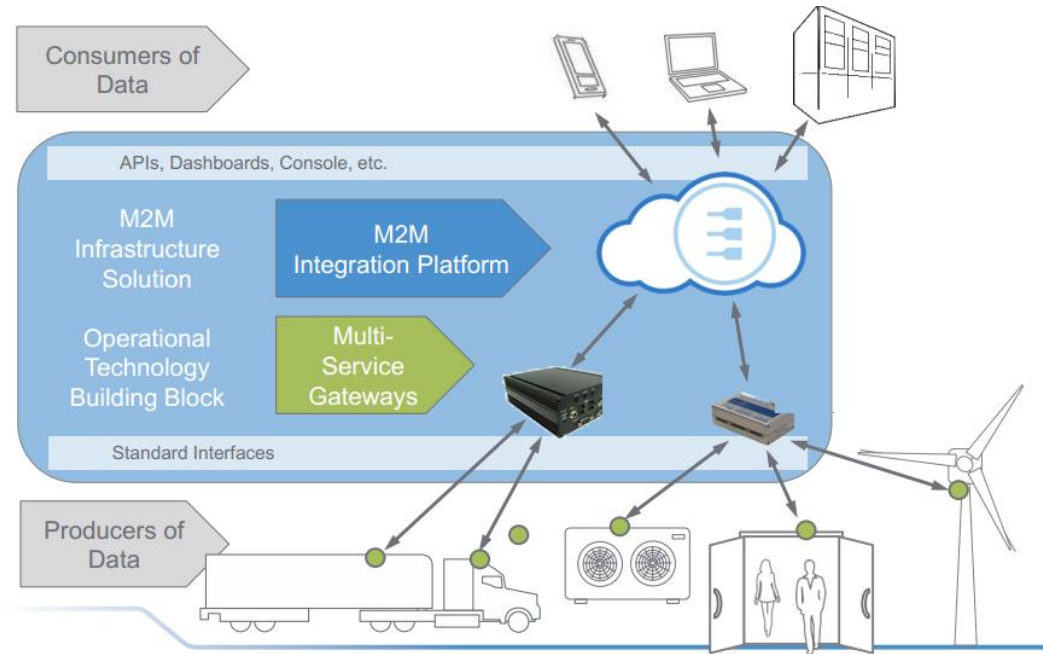
HUMAN DIGITAL TWIN

- Digital replica of a human being
- Advance medical healthcare research



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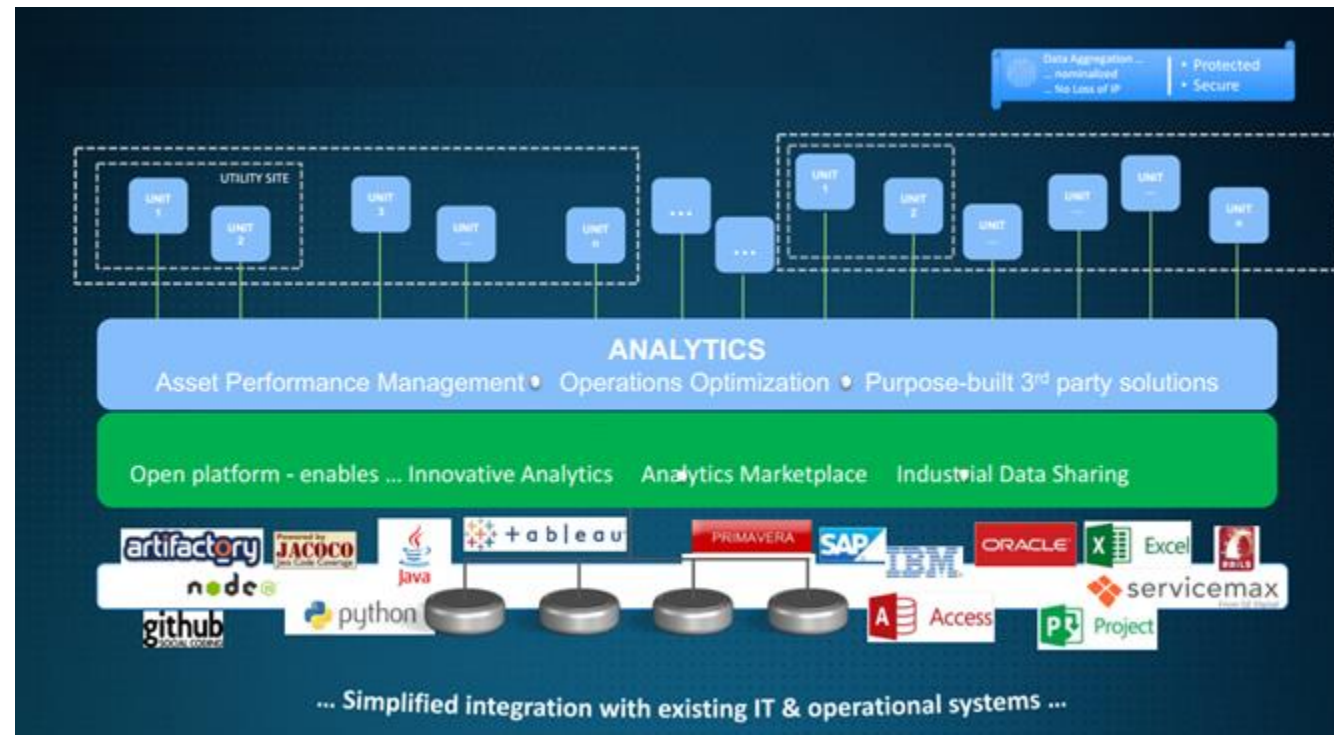
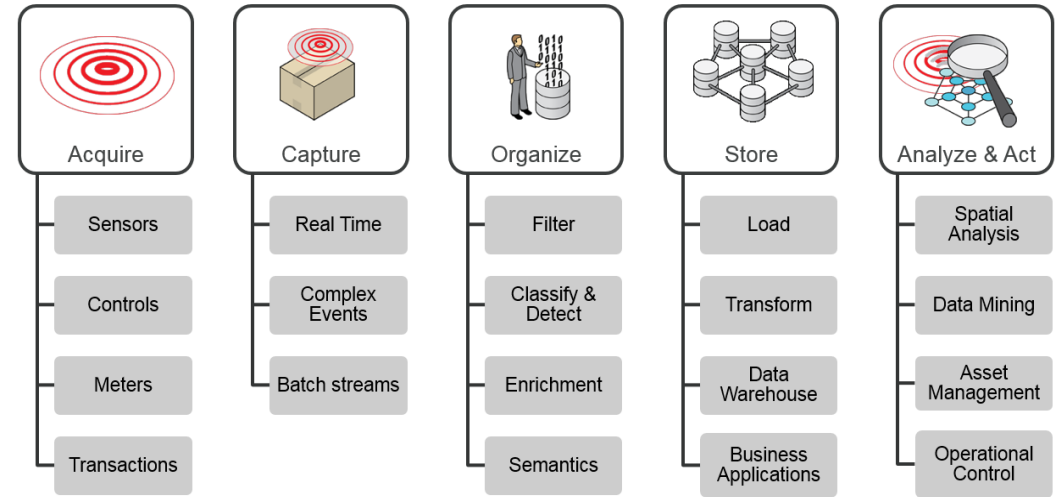
IOT constructors



- Operational and Environment data inputs
- Multi-service gateways
- M2M integration platforms
- Analytics
- Business consumers
- Intra-systems

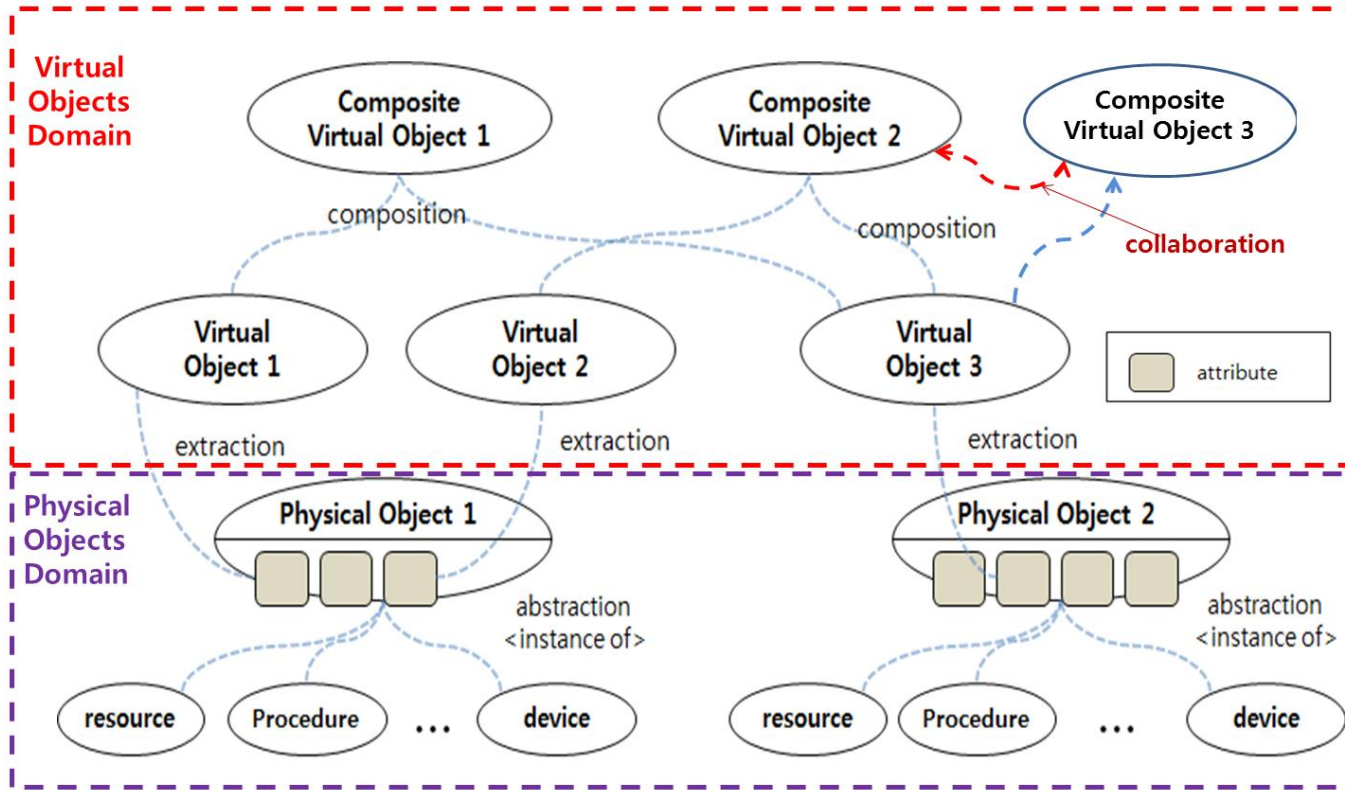
5 Cycle

- Predictive analytics
- Optimization
- Mitigation
- Forecast



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Hybrid model

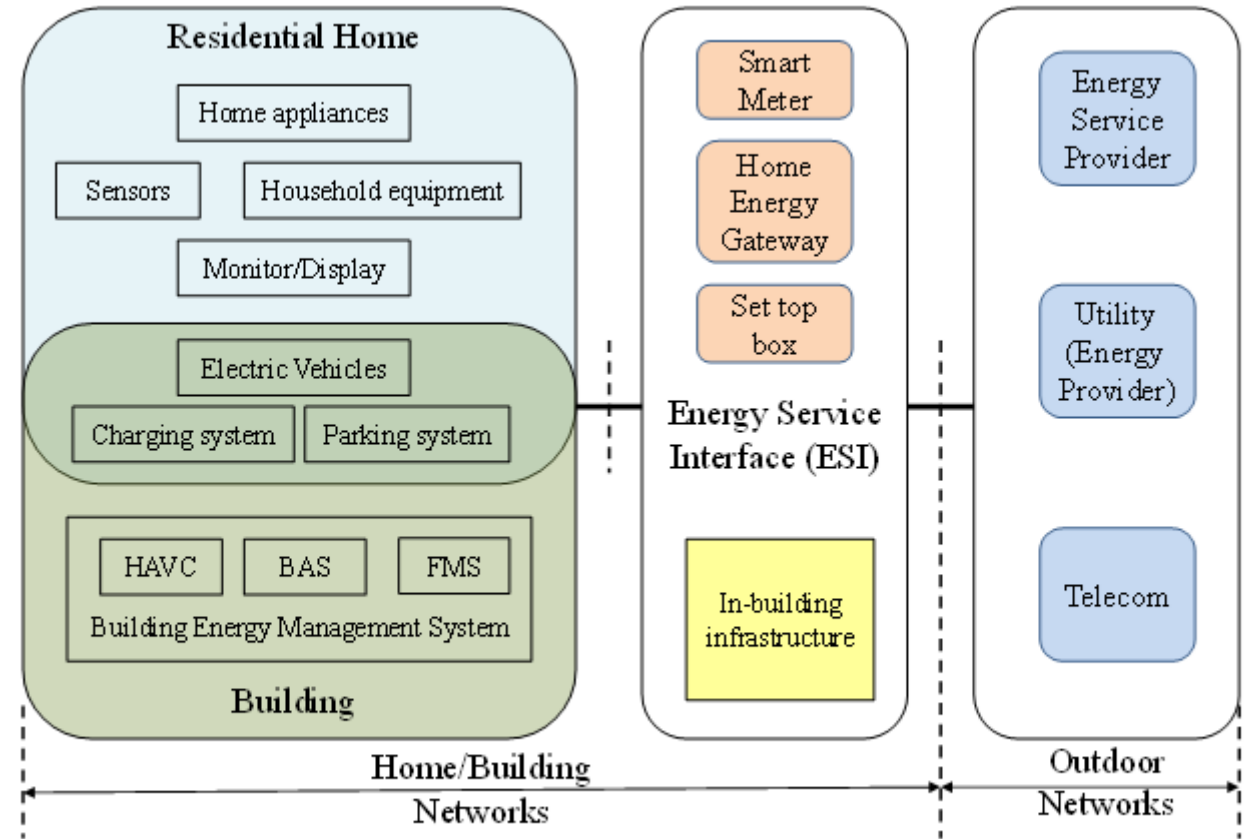


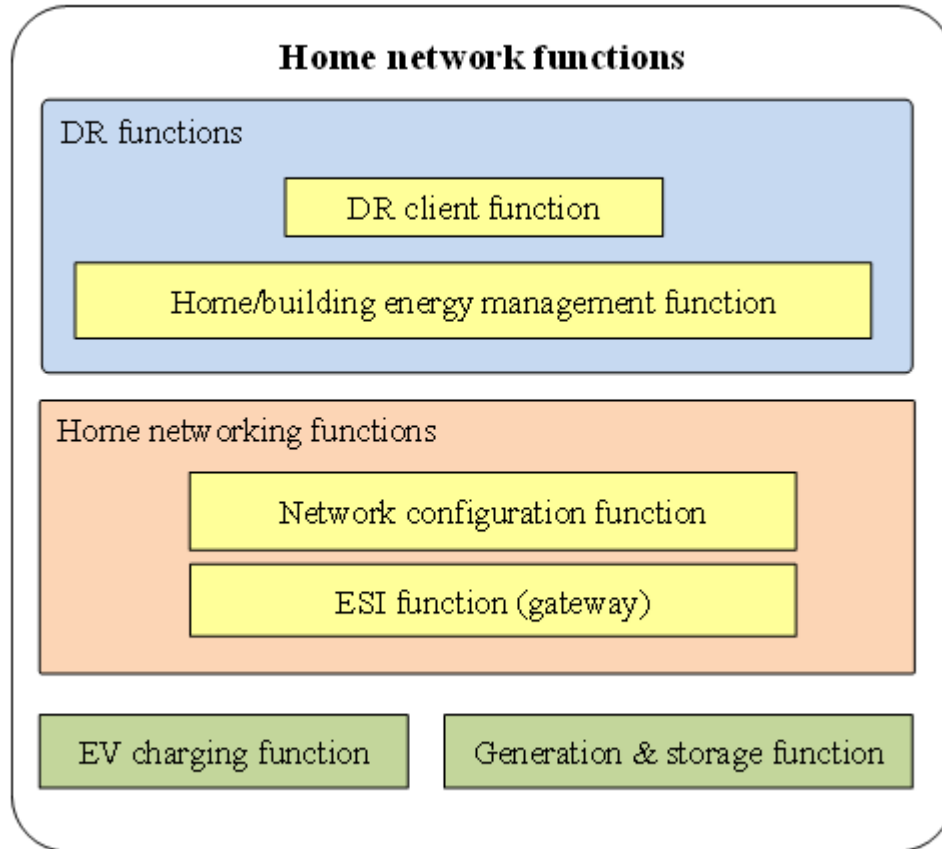
- Physical capabilities
- Digital capabilities
- Machine learning
- Artificial intelligence
- Software analytics

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IOE connectivity

- Home network
- Energy service interface
- Outdoor network
- <https://www.youtube.com/?v=EFx74jecwNc>





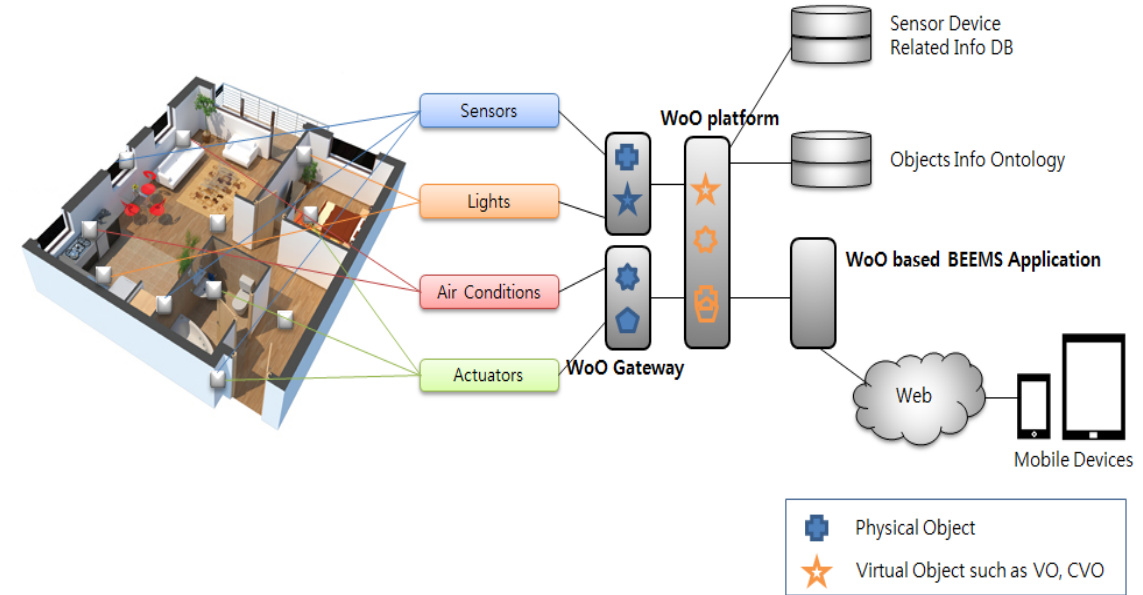
BEEMS *(building energy efficiency management system)*

- Dynamic pricing
- Demand response
- EV charging
- Optimization

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Web-based BEEMS

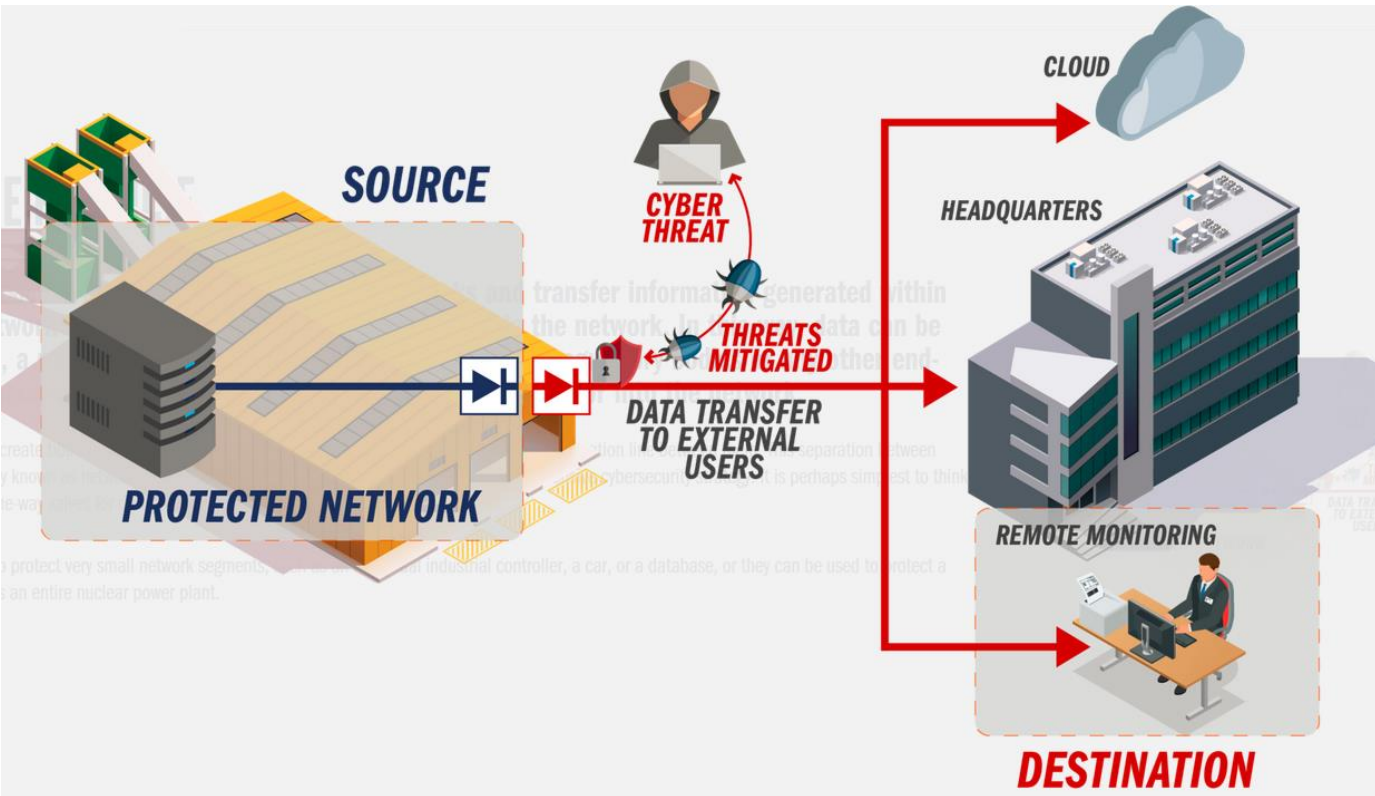
- Quality efficient response
- Intelligent
- Manageability



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DATA DIODE

- Unidirectional traffic
- Protected source network
- Replication strategy



THANK YOU

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