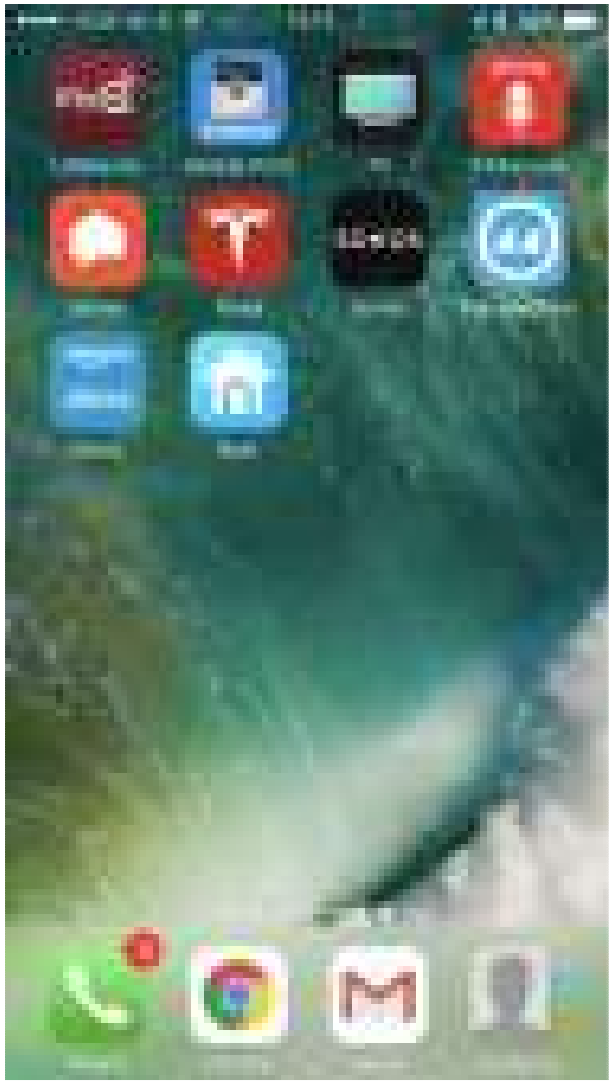
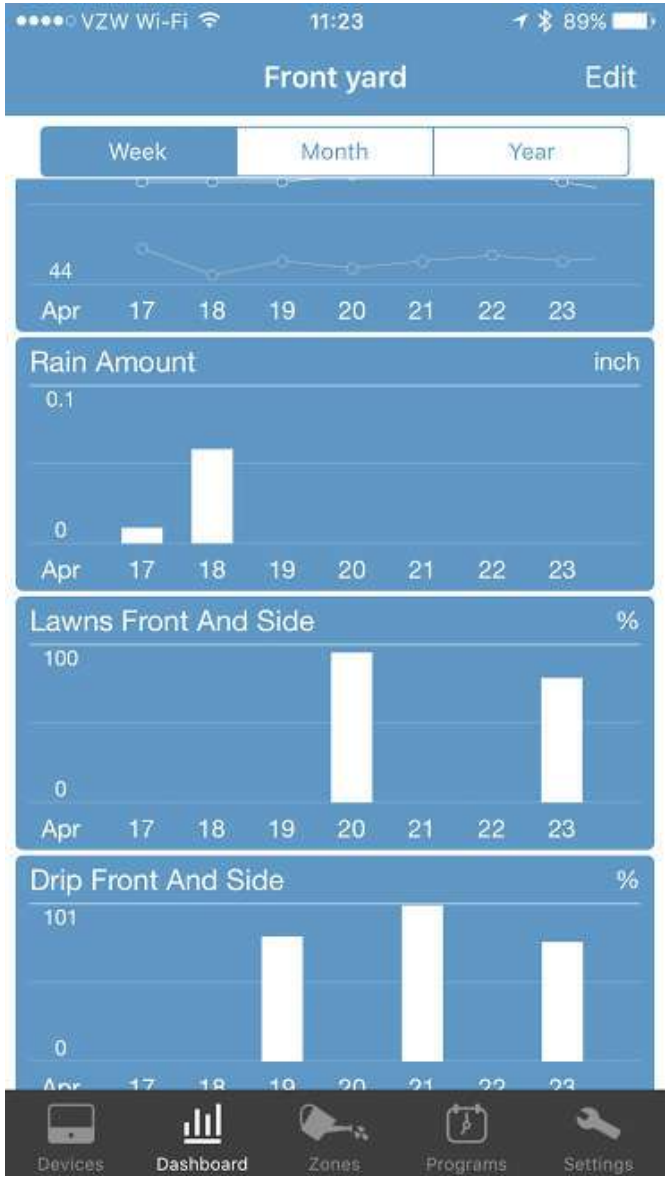
Secure Network Infrastructure
for
Mission Critical Data
from
Utility IoT

Peter Larsson

IoTium

IOT (Internet of Things) residential





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What are we talking about?

- http://arstechnica.com/security/2016/10/beware-of-all-powerful-ddos-malware-infecting-cellular-gateways-feds-warn/
- http://www.economist.com/news/science-and-technology/21708220-electronic-tsunami-crashes-down-solitary-journalist-internet
- https://krebsonsecurity.com/2014/02/target-hackers-broke-in-via-hvac-company/

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Who are the attackers

- **For hate and creating national instability**
  - Terrorist attacking grid
  - Revenge seekers
- **For profit data theft**
  - Cyber black-mail
  - Stealing customer credit card/identity information
- **For proving it can be done**
  - Pranksters

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IOT is everywhere: Connect, Secure, Protect

Building Automation

Transportation

Oil and Gas

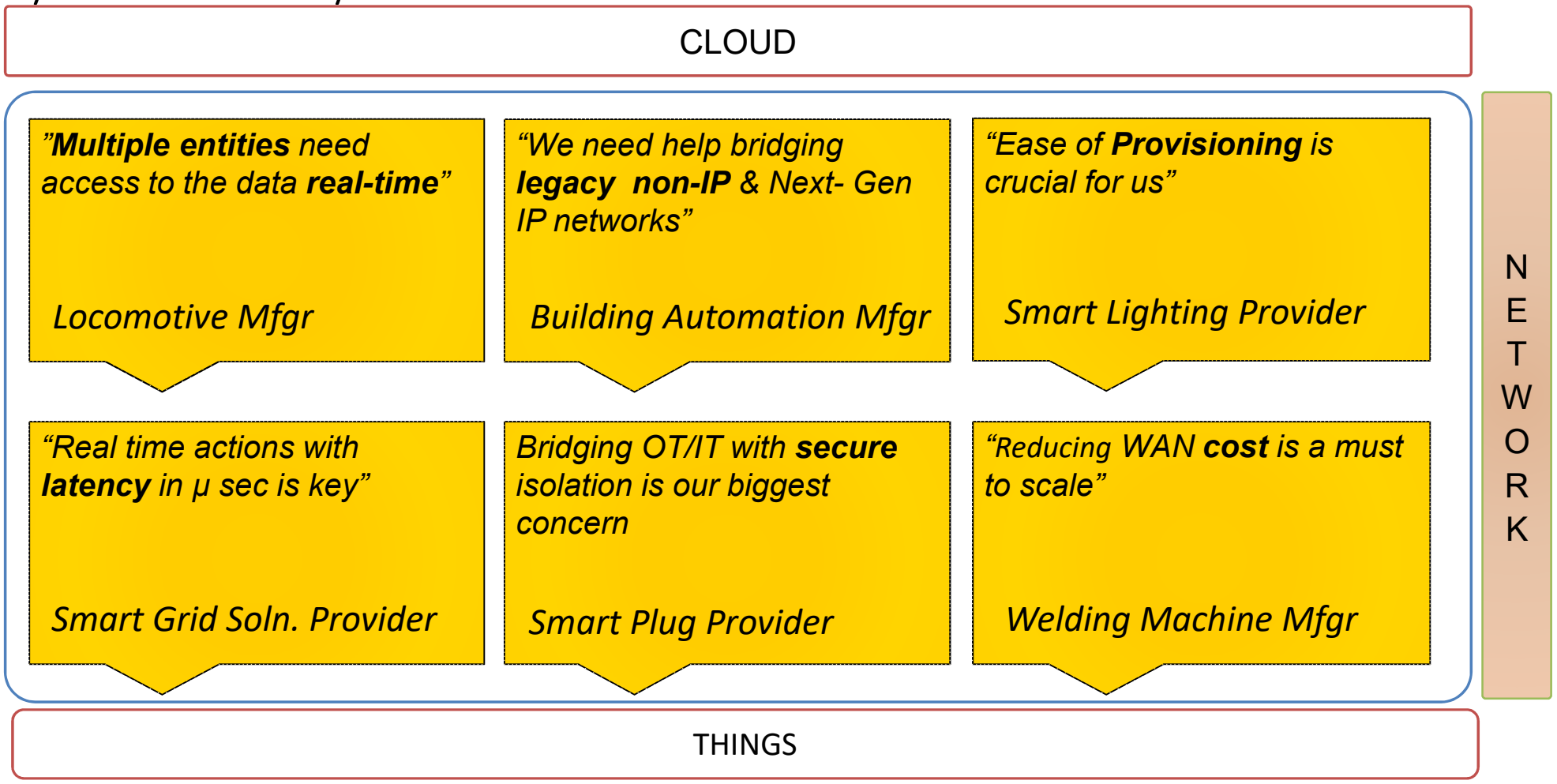
Energy

Industrial Automation

Mining

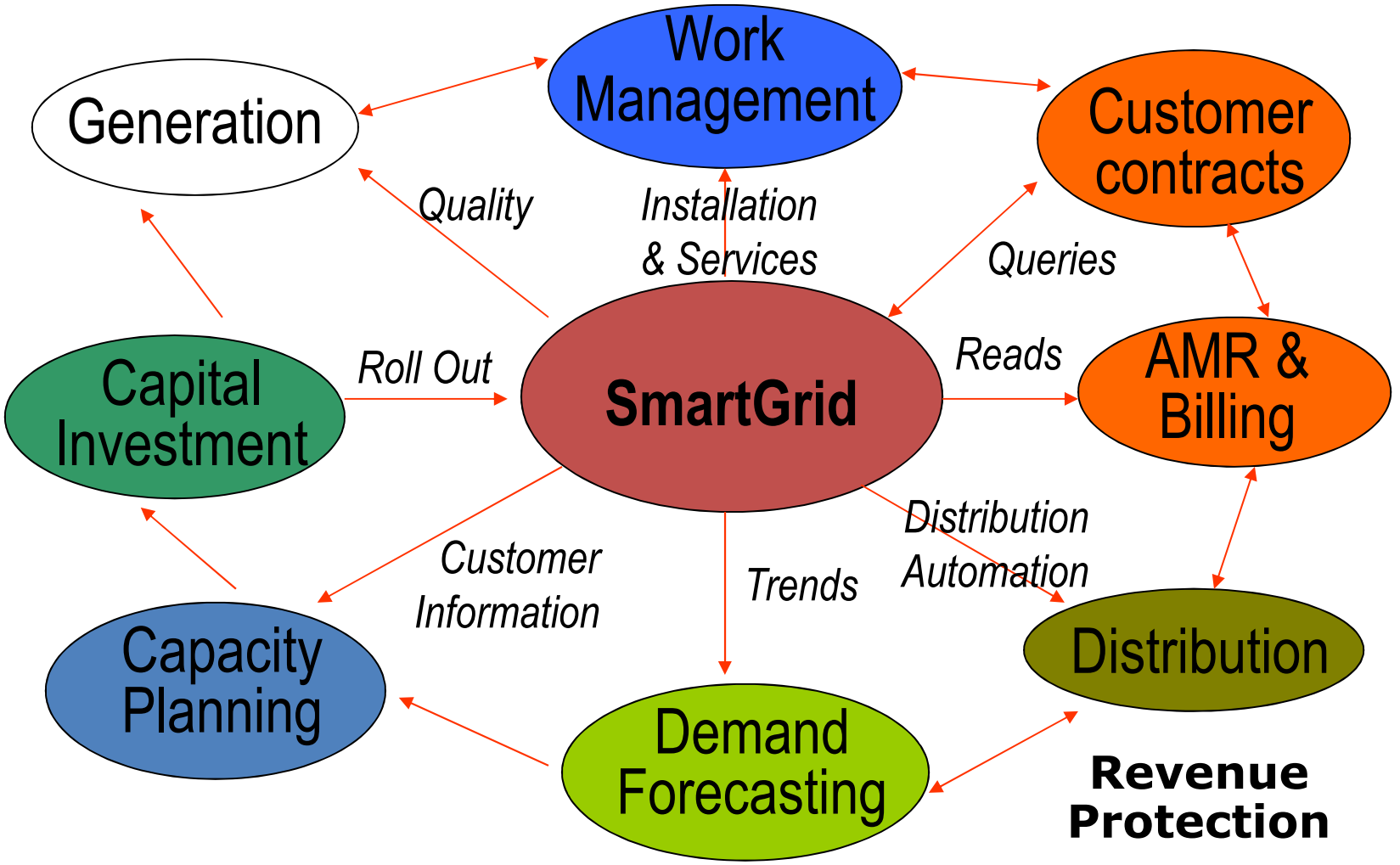
THE PROBLEM

RELIABILITY / VULNERABILITY / SCALABILITY



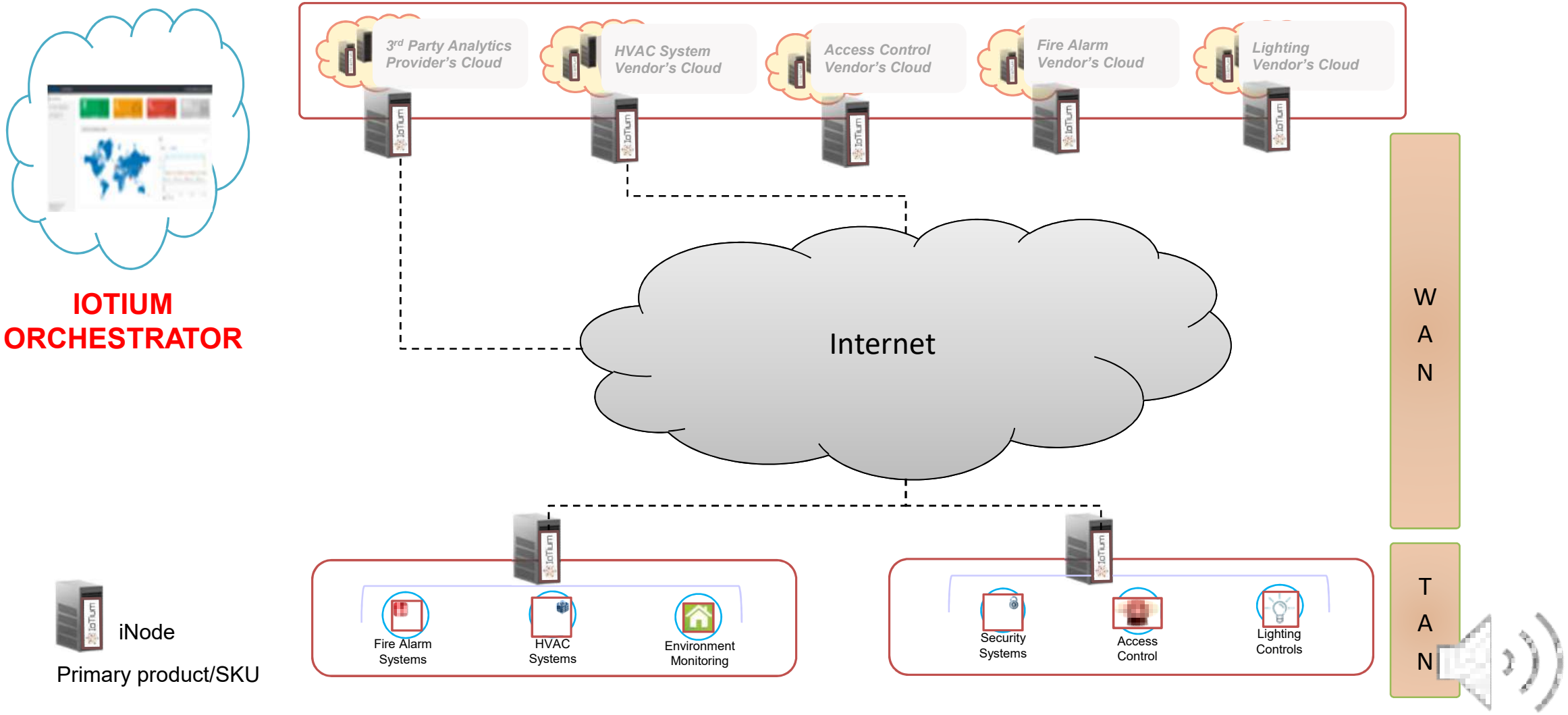
SmartGrid involves all parts of the Utility.
Data needs to flow safely and reliably to multiple tenants

IoTium
Third Party Analytics Provider's Cloud

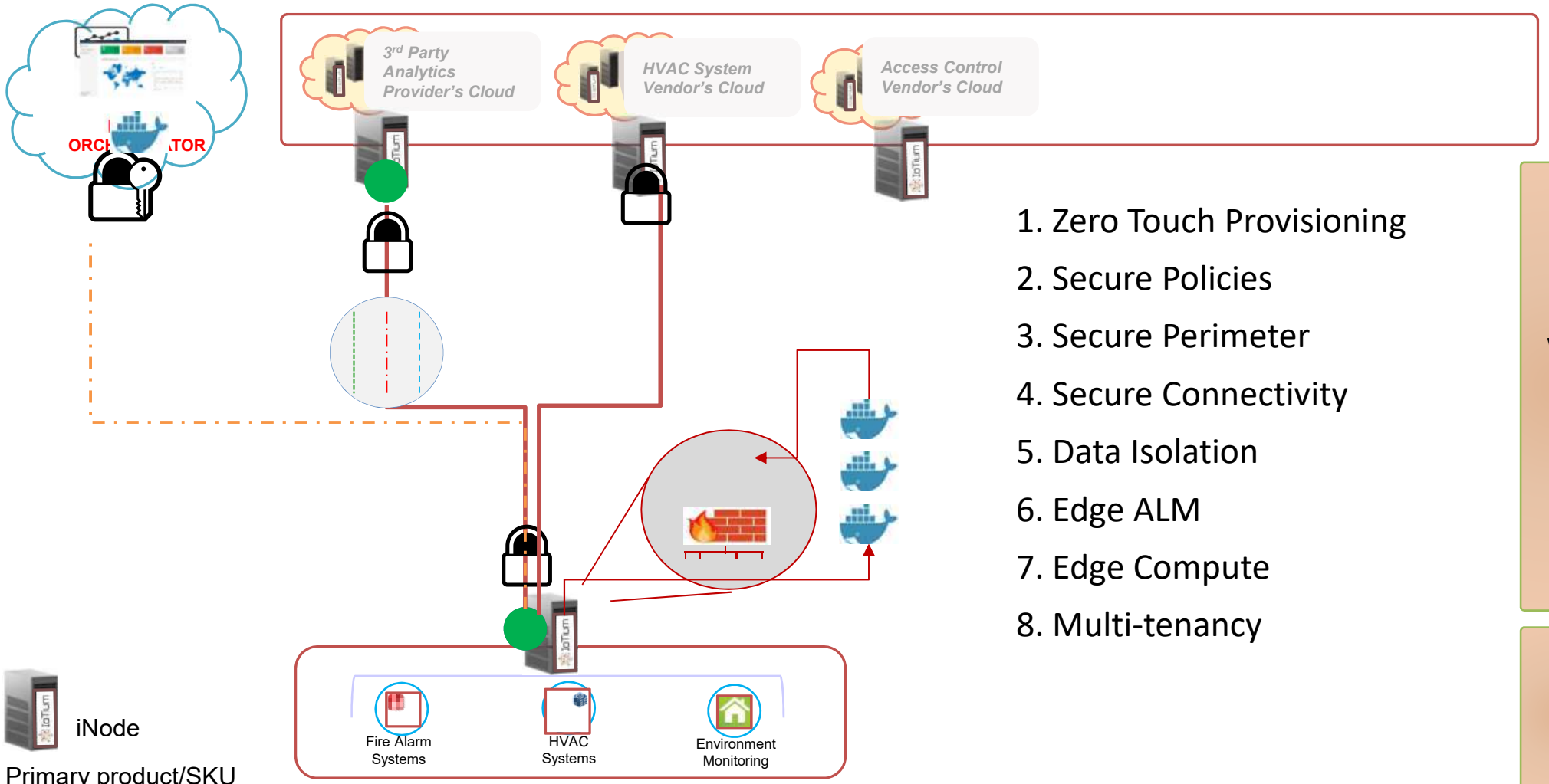


IoTium SOLUTION

Easy To Deploy Secure OPEN Network Infrastructure aaS



IoTium SOLUTION
How it works



1. Zero Touch Provisioning
2. Secure Policies
3. Secure Perimeter
4. Secure Connectivity
5. Data Isolation
6. Edge ALM
7. Edge Compute
8. Multi-tenancy

Use Case Scenarios

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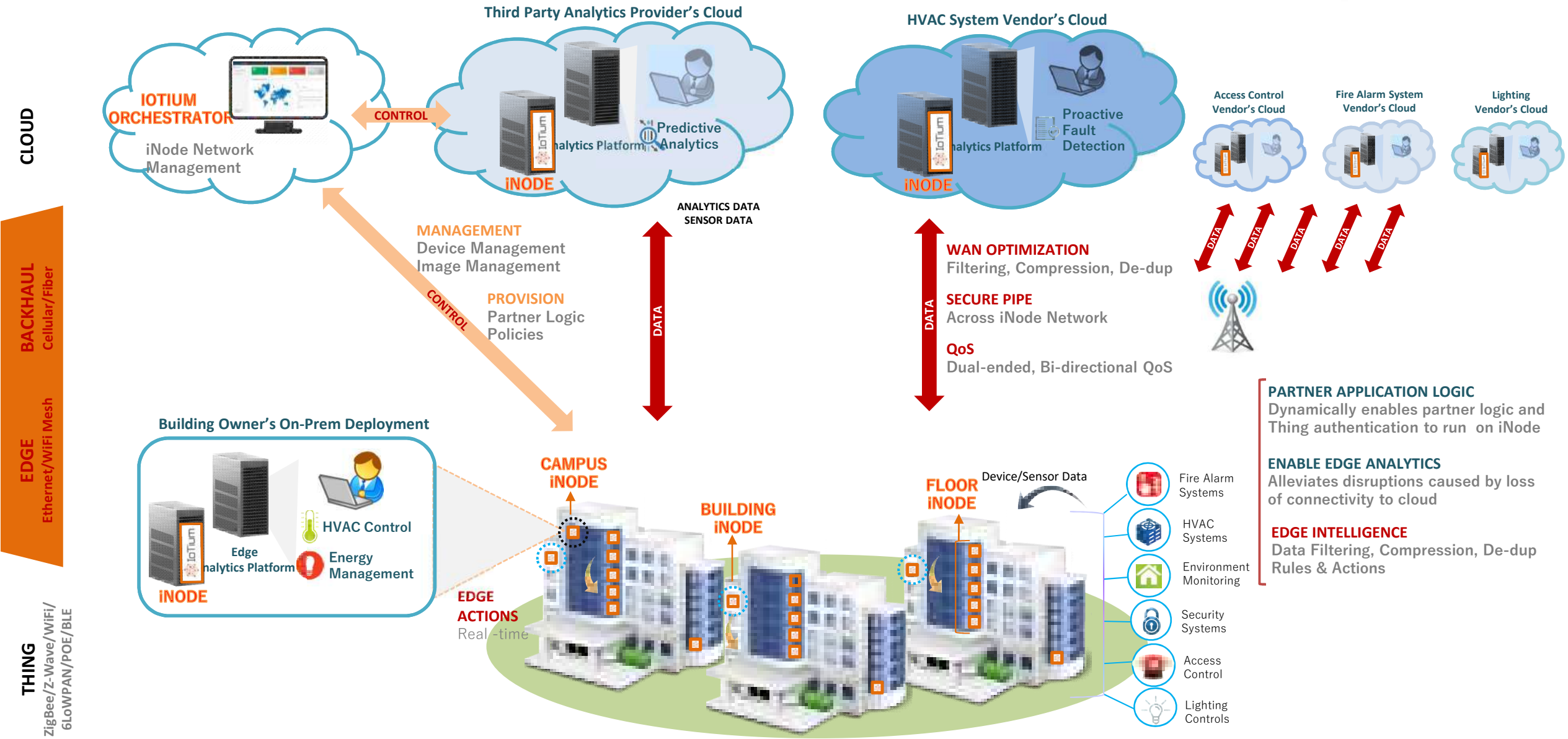
Edge Intelligence Enabled Smart Building



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Edge Intelligence Enabled Scalable Smart City

IoTium

CLOUD

BACKHAUL Cellular

EDGE WiFi Mesh

THING WiFi, ZigBee, Z-Wave, BT

IOTIUM ORCHESTRATOR

iNode Network Management

CONTROL

Third Party Analytics Provider's Cloud

Traffic Analytics

Analytics Platform

iNODE

Street Light Vendor's Cloud

Proactive Maintenance

Analytics Platform

iNODE

Parking Meter Vendor's Cloud

Video Camera Vendor's Cloud

DATA

CONTROL

CONTROL

MANAGEMENT
Device Management
Image Management

PROVISION
Partner Logic
Policies

ANALYTICS DATA
SENSOR DATA

DATA

DATA

WAN OPTIMIZATION
Filtering, Compression, De-dup

SECURE PIPE
Across iNode Network

QoS
Dual-ended, Bi-directional QoS

City Operations Center

Edge Analytics Platform

iNODE

Traffic Signal Management

Street Light Monitoring & Control

DATA

EDGE INTELLIGENCE
Filtering, Compression, De-dup
Rules & Actions

Millions of sensors uploading terabytes of data

iNODE
Cellular Gateway

PARTNER APPLICATION LOGIC
Dynamically enables partner logic and Thing authentication to run on iNode

ENABLE EDGE ANALYTICS
Alleviates disruptions caused by loss of connectivity to cloud

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Edge Intelligence Enabled Scalable Smart Energy

IoTium

CLOUD

BACKHAUL Cellular

EDGE Ethernet/WiFi Mesh

THING Fiber Optic

Utility Company's/Third Party Analytics Provider's Cloud

IOTIUM ORCHESTRATOR

iNode Network Management

CONTROL

Production Monitoring

Analytics Platform

iNODE

Wind Turbine Vendor's Cloud

Predictive Maintenance

Analytics Platform

iNODE

Solar Panel Vendor's Cloud

Generator Vendor's Cloud

Anemometer Vendor's Cloud

DATA

DATA

DATA

DATA

DATA

MANAGEMENT
Device Management
Image Management

CONTROL

PROVISION
Partner Logic
Policies

ANALYTICS DATA
SENSOR DATA

DATA

WAN OPTIMIZATION
Filtering, Compression, De-dup

SECURE PIPE
Across iNode Network

QoS
Dual-ended, Bi-directional QoS

DATA

On-Prem Control Center

Edge Analytics Platform

Operational Analytics

Equipment Monitoring

iNODE

EDGE INTELLIGENCE
Filtering, Compression, De-dup
Rules & Actions

Sensors reporting terabytes of data on turbine units and control points

iNODE

EDGE ACTIONS
Real -time

iNODE

PARTNER APPLICATION LOGIC
Dynamically enables partner logic and Thing authentication to run on iNode

ENABLE EDGE ANALYTICS
Alleviates disruptions caused by loss of connectivity to cloud

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The IoT Network done right!

IoTium

Zero Touch Provisioning & Management

Secure Pipe

Enables Edge Analytics & Actions

Interconnect Devices, Edge Servers and Multiple Data Centers

WAN Optimization

Quality of Service

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Thanks

www.IoTium.io

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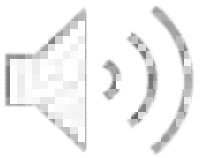
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