

KNX IoT

KNX IoT Roadmap

KNX Association
2017

www.knx.org

KNX IoT Roadmap

Milestones



- **KNX current ecosystem**
KNXnet/ IP
- **KNX IoT 1.0**
Web services
- **KNX IoT 2.0**
Plug & Play internet connected web services
- **KNX IoT 3.0**
Direct IP devices within KNX ecosystem
- **KNX IoT 4.0**
Self learning adopting system

Technology Principles

KNX IoT Roadmap

Semantic definition



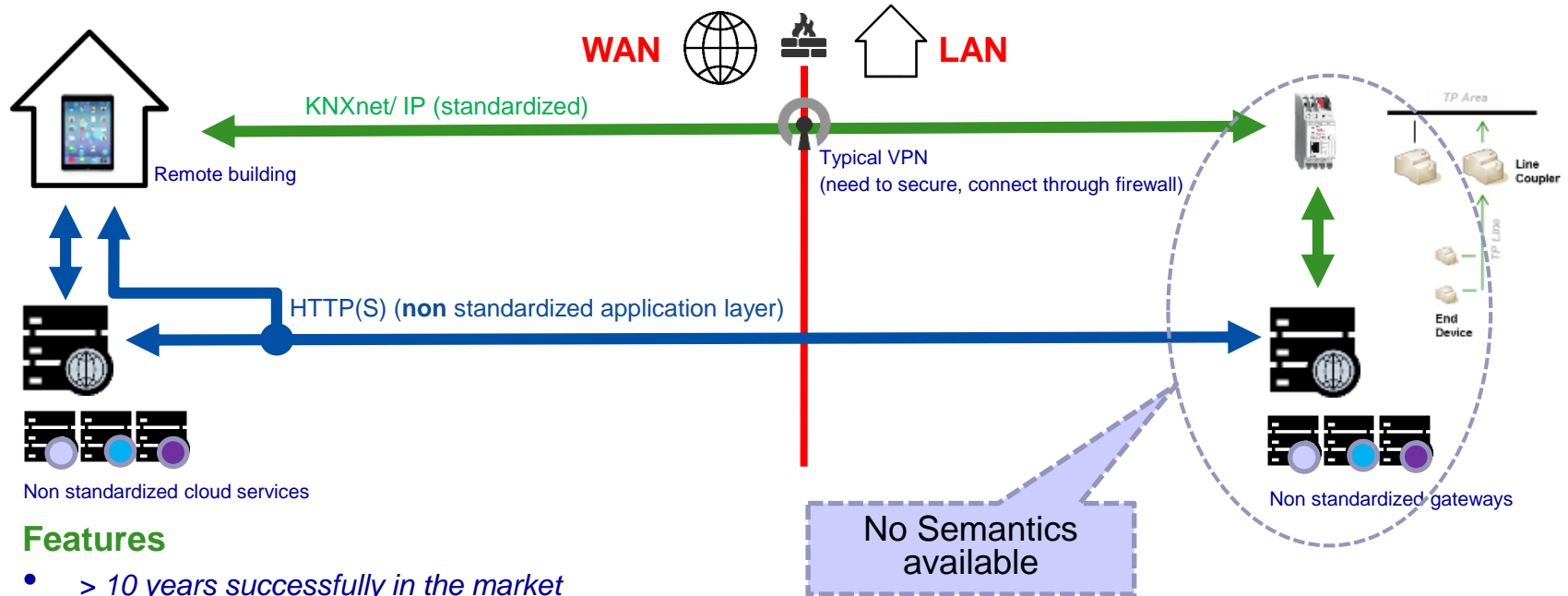
Benefits

Having a *semantic interoperability* between different systems allow to achieve (extract)

1. Extended interoperability of different systems in a *Foundation* (over different vendors)
2. Easier configuration processes and tools
3. Easier time to market for products when targeting a different domain
4. Reliability / future proof of the installed base

KNX IoT Roadmap

< 2016: KNX current ecosystem (KNXnet/ IP)

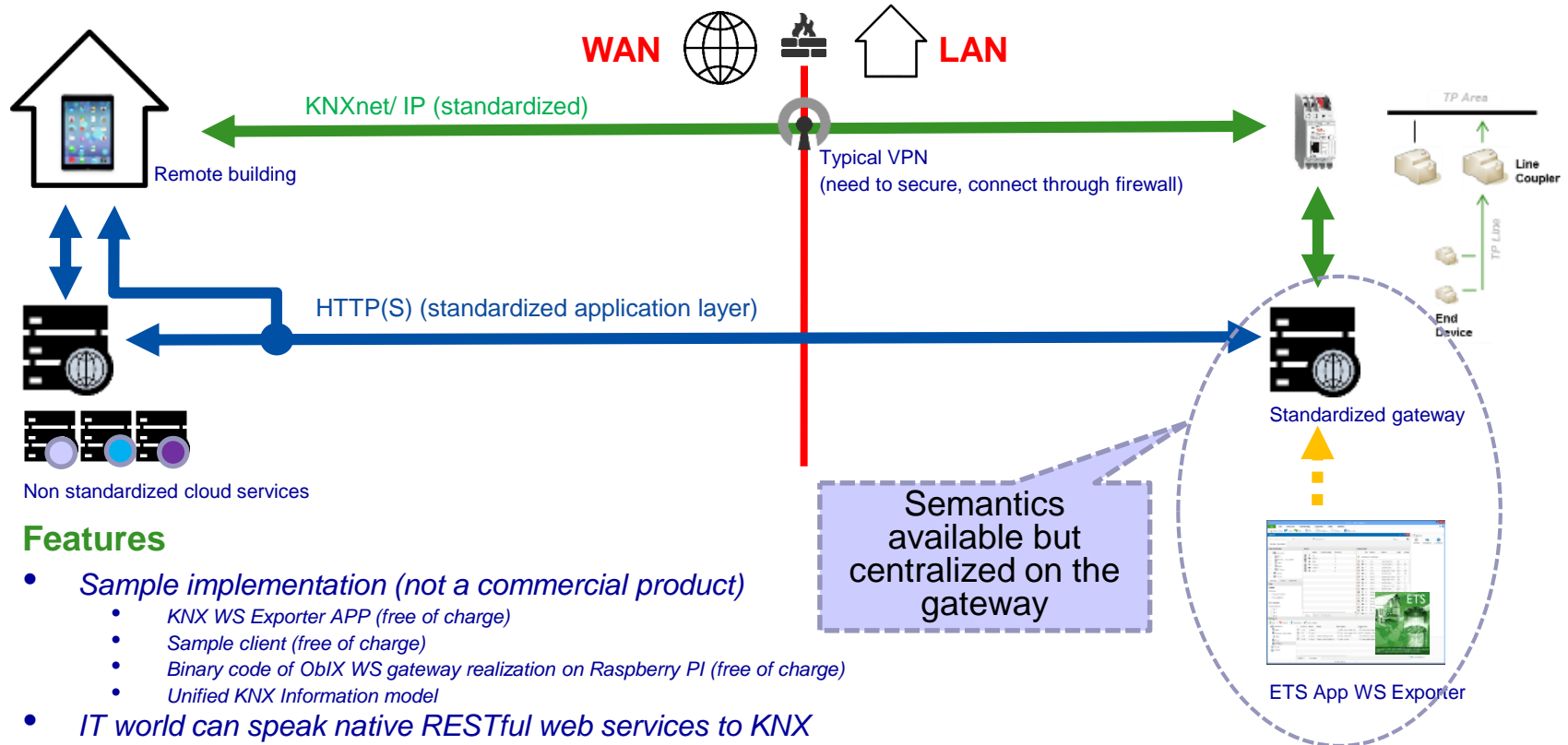


Features

- > 10 years successfully in the market
- Disadvantages: IT world must speak
 - KNX and not native IT services to KNX
 - Manufacturer specific IP protocol to IP gateway taking care of "translation" to KNX

KNX IoT Roadmap

2016: KNX IoT 1.0 (KNX Web Services)

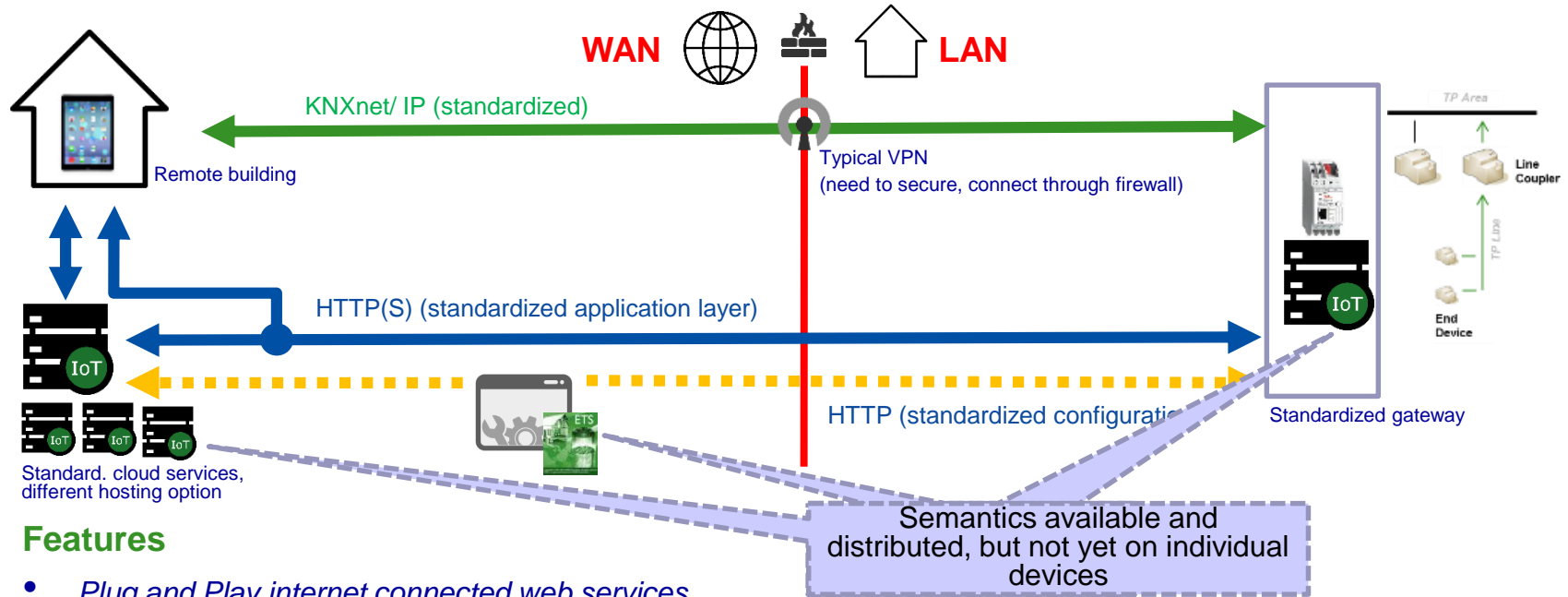


Features

- *Sample implementation (not a commercial product)*
 - *KNX WS Exporter APP (free of charge)*
 - *Sample client (free of charge)*
 - *Binary code of ObIX WS gateway realization on Raspberry PI (free of charge)*
 - *Unified KNX Information model*
- *IT world can speak native RESTful web services to KNX*

KNX IoT Roadmap

2018: KNX IoT 2.0 (Plug and play internet connected web services)

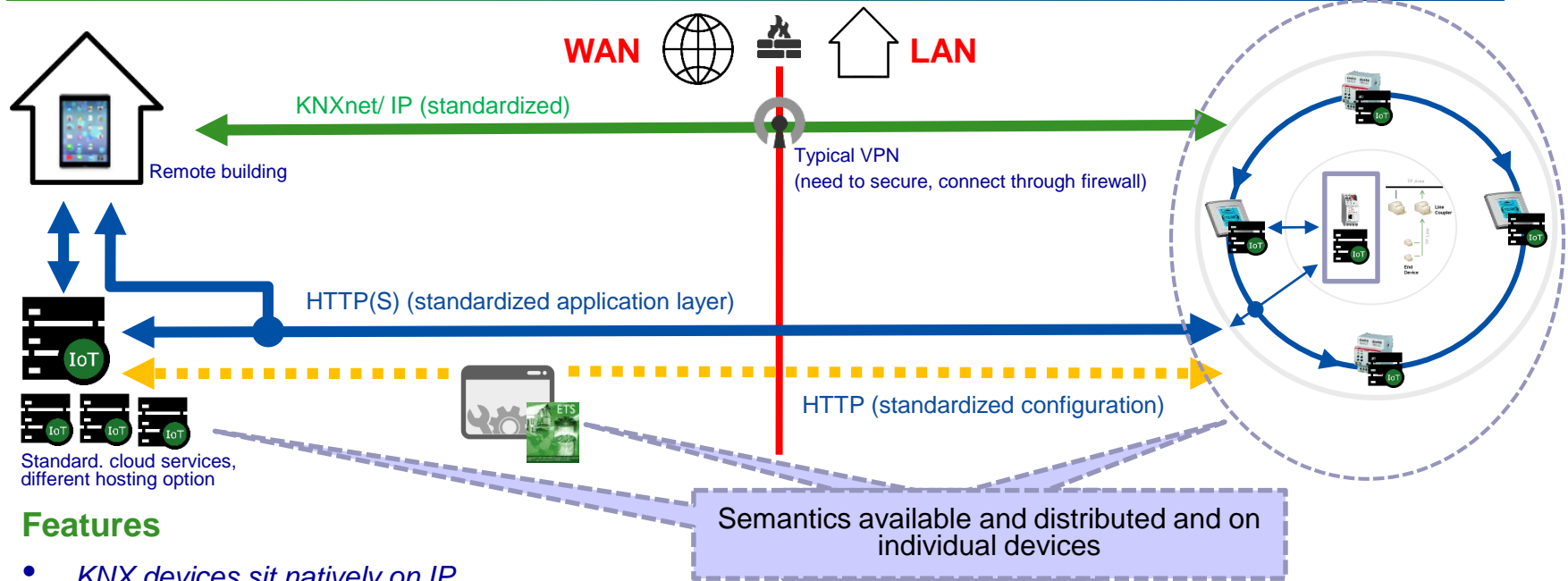


Features

- *Plug and Play internet connected web services*
 - *No port forwarding, no setting IP addresses of WS gateway, no VPN tunnels*
- *Extended semantics info model*
- *Combination with ETS Inside – extra web based tool for extra semantics input on gateway*

KNX IoT Roadmap

2020: KNX IoT 3.0 (direct IP devices within KNX ecosystem)

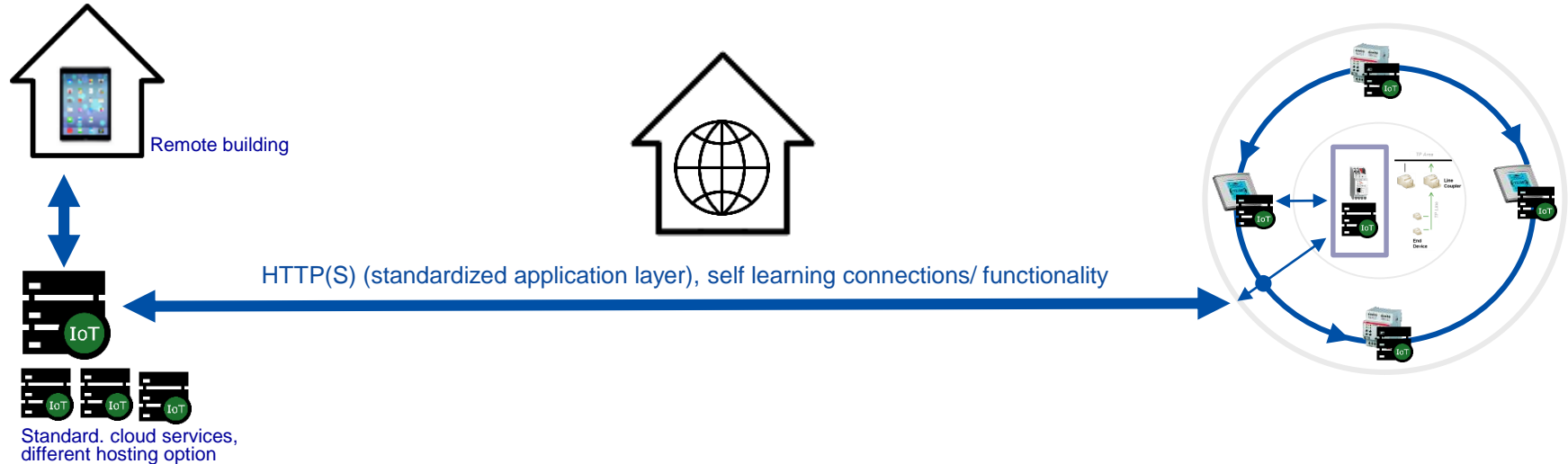


Features

- *KNX devices sit natively on IP*
→ use IP to exchange their data, address legacy devices through gateway
- *KNX semantic descriptions completed*
→ much easier handling of devices during runtime and configuration
- *Extended security model*

KNX IoT Roadmap

> 2020: KNX IoT 4.0 (self learning adopting systems)



Features

- *KNX devices have also auto learning/configuration features*

Deliverables

KNX IoT Roadmap

Deliverables: KNX IoT 1.0 (KNX Web Services)



Technical

- Specification with information model (tag/value based)
- HTTP bindings
- oBIX, BACnet/WS, OPC/UA

Business

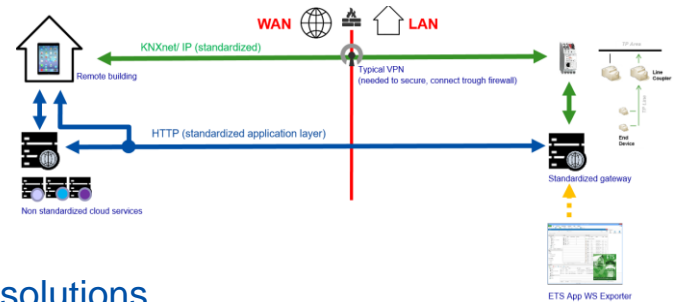
- Towards integration of existing KNX solution into more IT solutions
- Strengthen the KNX ecosystem and boost current KNX market

Prototype

- KNX demo gateway on oBIX
- KNX ETS Exporter App (to create information model)

Releases

- July 2016 towards KNX manufacturers
- September 2016 on request for anyone



KNX IoT Roadmap

Deliverables: KNX IoT 2.0 (Plug and play internet connected web services)



Technical

- Specification for plug and play connectivity including configuration (by ETS)

Business

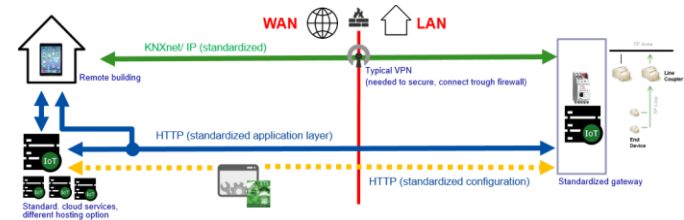
- Lower barrier to other markets
- Increase software solutions interacting with KNX

Prototype

- Reference implementation for gateways, usable in a cloud and as a standalone product (product quality software implementation)

Releases

- End 2016 specification documents on connectivity, subscriptions, semantics update
- End 2017 prototype (see above) and cloud gateway by KNX integrated in **MyKNX** customer accounts



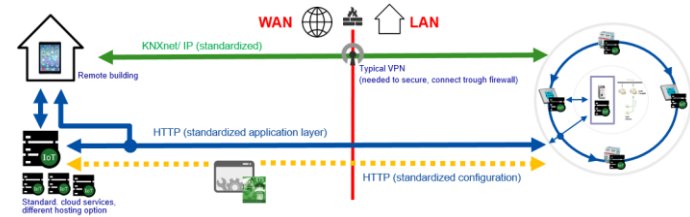
KNX IoT Roadmap

Deliverables: KNX IoT 3.0 (direct IP devices within KNX ecosystem)



Technical

- Updated specification for plug and play connectivity including configuration (by ETS) **and** direct (IoT 3.0) IP devices
- New type of (ETS) configuration tool, to configure direct (IoT 3.0) IP devices



Business

- Completely new type of KNX product, compatible with current KNX ecosystem

Prototype

- Currently not planned, implementations in devices task of manufacturers

Releases

- End 2018 specification documents on direct IP devices
- End 2019 updated KNX IoT gateway stack implementation with IoT 3.0 features

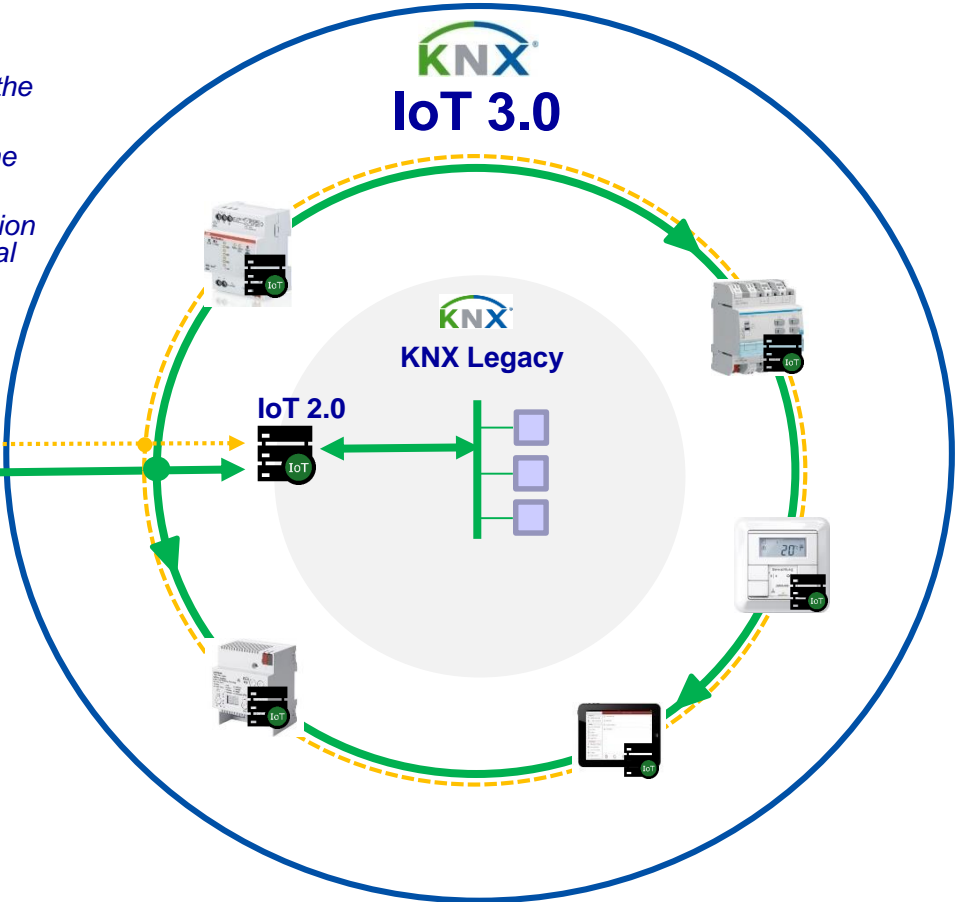
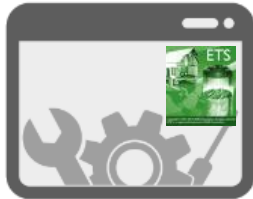
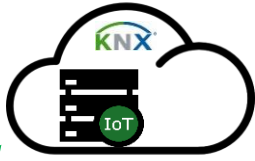
The global view

KNX IoT 3.0 Perspective



Main Features

- *KNX Legacy is a (compatible) part of the KNX IoT 2.0/3.0 version*
- *KNX will provide for all IoT versions the configuration tool*
- *KNX will provide a cloud hosting solution which can be replaced with a individual solution of a KNX member*



KNX IoT 1.0 (Web Services)

Solution implementation

Example

Distributed municipal facilities

KNX IoT 1.0 (Web Services)

Solution implementation

- Case Setting

- Status monitoring and event reporting in distributed municipal facilities, consisting of:
 - Monitor in a set of municipal facilities (schools, museum, educational institutions) the operational state of the building and of all devices, which are important for the building security.
 - For each building, consumption counters provide current information on water consumption, electrical consumption and other

- Application Objectives

- The application covers the following objectives:
 - **Failure Detection**
Find out in which buildings irregular conditions or alarm events occur
 - **Monitor Operation Mode**
Find out which buildings are working as expected, by verifying the building and “normal” operation vector

KNX IoT 1.0 (Web Services)

Solution implementation

- Tablet Client

Distributed Municipal Facilities DE EN

Monitoring of energy consumption
KNX IoT web services

Gateway requests (samples):

Find all energy meter with current effective power higher than W

Find all energy meter with current reactive power higher than W

Find all water meter with flow higher than m³

Results (5.3.2016 14:10:52):

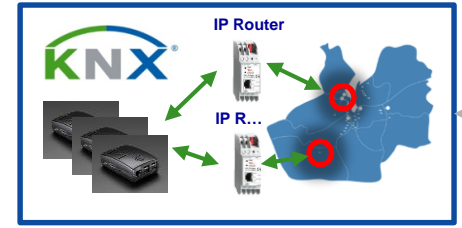
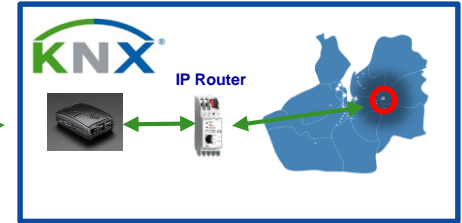
No.	Building	Value
1	Schiffahrtsmuseum	3700 W
3	Jugendaufbauwerk	5400 W
5	Käte-Lassen-Schule	7900 W

Previous Next

X- times KNX WS PoC OBIX gateway with

- Querying capabilities (SPARQL → RDF language)
- Import WS *Information Model* from ETS App WS Exporter

- Button with predefined **query** (and adjustable value)
- Query is a combination of KNX (building - plural) data and external (power) data (== power of WS *Information Model*)



Thanks for your attention!