TTN Conference 2020

TTN Conference 2020 in Amsterdam
30.01. -31.01.2020

THE THINGS NETWORK MUNICH

Announcements

THE THINGS NETWORK MUNICH

- Global Join Server Announcement by The Things Industries
- The Things (Enterprise) Stack - V3
- Announcing STM32 System on Chip
- Interoperability with Packet Broker
- LoRaWAN from Space

Global Join Server

https://www.youtube.com/watch?v=TJMUWyARYsw&feature=youtu.be

The Things (Enterprise) Stack - V3

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Youtube-Link: https://www.youtube.com/watch?v=UOnTO5NVWlU&feature=youtu.be

The Things (Enterprise) Stack - V3

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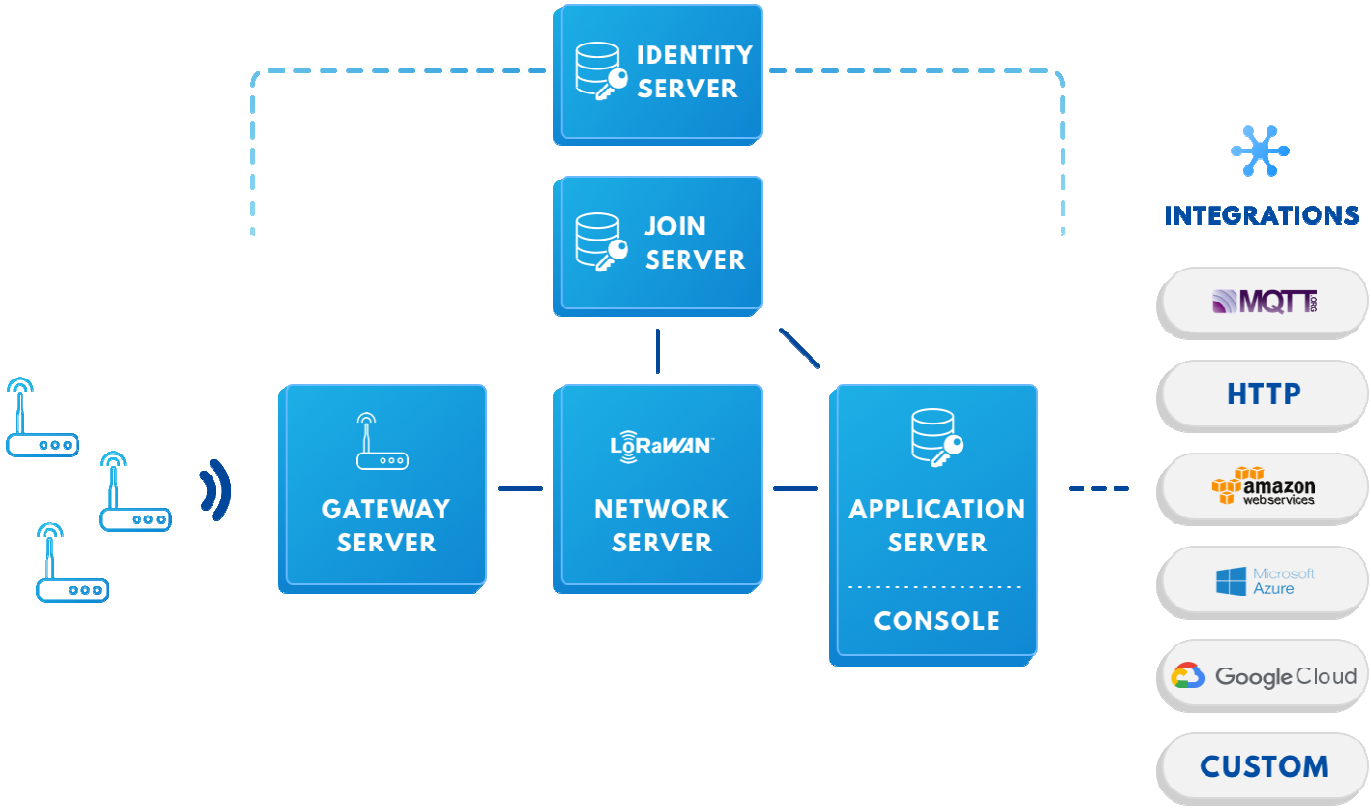

The Things (Enterprise) Stack - V3

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- **Identity Server**: stores applications, end devices, gateways, users, organizations, OAuth clients, API keys and collaborators. Also acts as a OAuth 2.0 server with login and consent screens
- **Gateway Server**: maintains connections with gateways supporting the UDP, MQTT, gRPC and Basic Station protocols, forwards uplink traffic to Network Servers, schedules downlink traffic
- **Network Server**: handles LoRaWAN network layer, including MAC commands, regional parameters and adaptive data rate (ADR)
- **Application Server**: handles LoRaWAN application layer, including uplink data decryption and decoding, downlink data encoding and encryption, downlink queuing and hosts an MQTT server for streaming application data, manages HTTP webhooks and pub/sub integrations
- **Join Server**: handles LoRaWAN join flow, including Network and Application Server authentication and session key generation
- **Console**: provides a web interface for managing the components
- **Command-line Interface**: provides a cross-platform interface for managing components through command-line
- Supporting components
  - **Gateway Configuration Server**: generates configuration files for gateways and manages gateway firmware updates
  - **Device Template Converter**: converts data to devices templates for migrating networks and importing vendor-specific data
  - **Device Repository** (in progress): stores devices brands and models, their capabilities, payload formatters and device templates

STM32 System on Chip

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Youtube-Link: https://www.youtube.com/watch?v=wZJ2SKG8VJ4&feature=youtu.be

STM32 System on Chip

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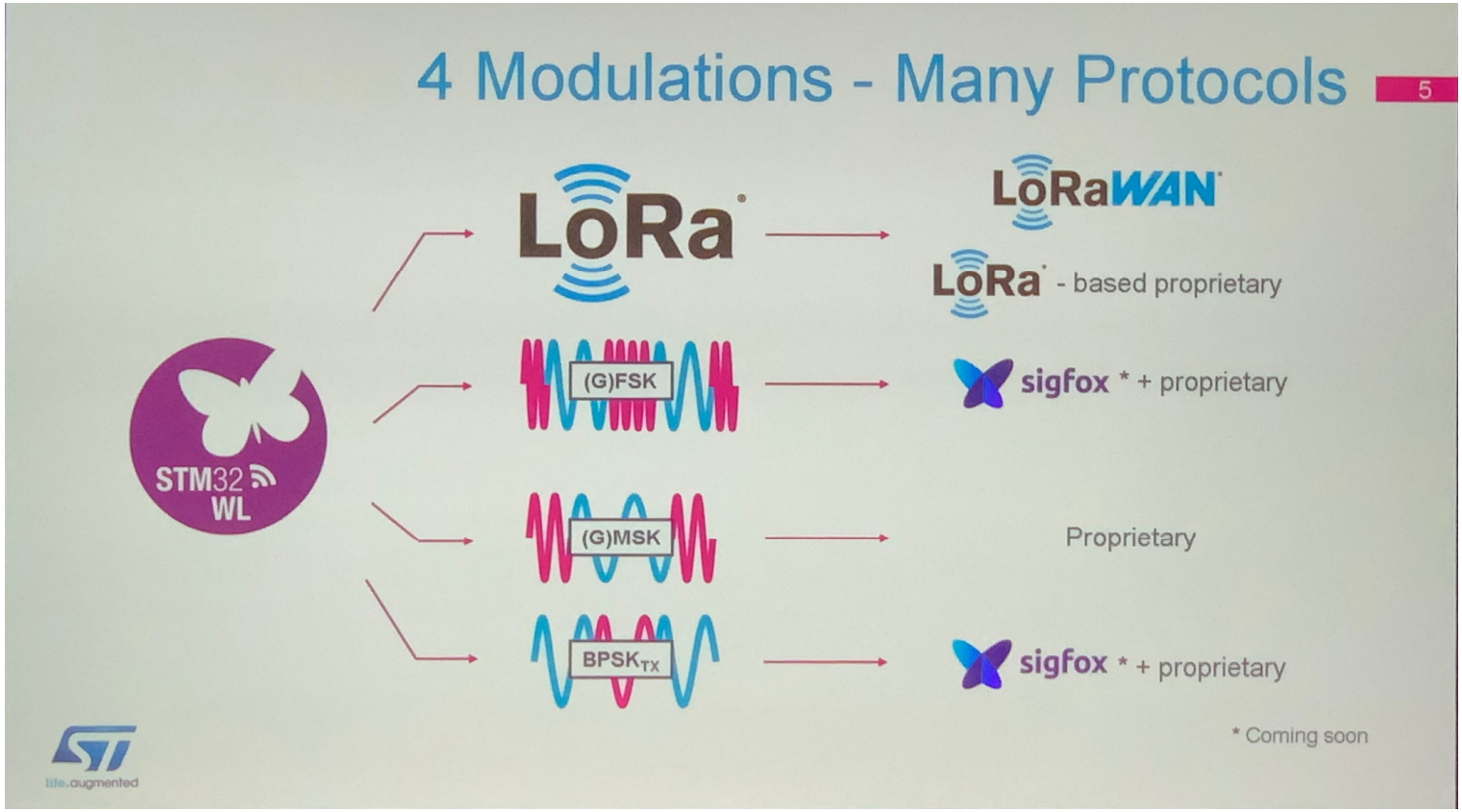
- Integrates STM32 microcontroller IP and enhanced Semtech radio (based on Semtech SX126x)) on one chip
- Ready to connect to LoRa® and other low-power Wide-Area Networks worldwide
- Supported by ST's rolling 10-year longevity commitment for industrial products
- available in a **5mm x 5mm UFBGA73** package

STM32 System on Chip



Packet Broker

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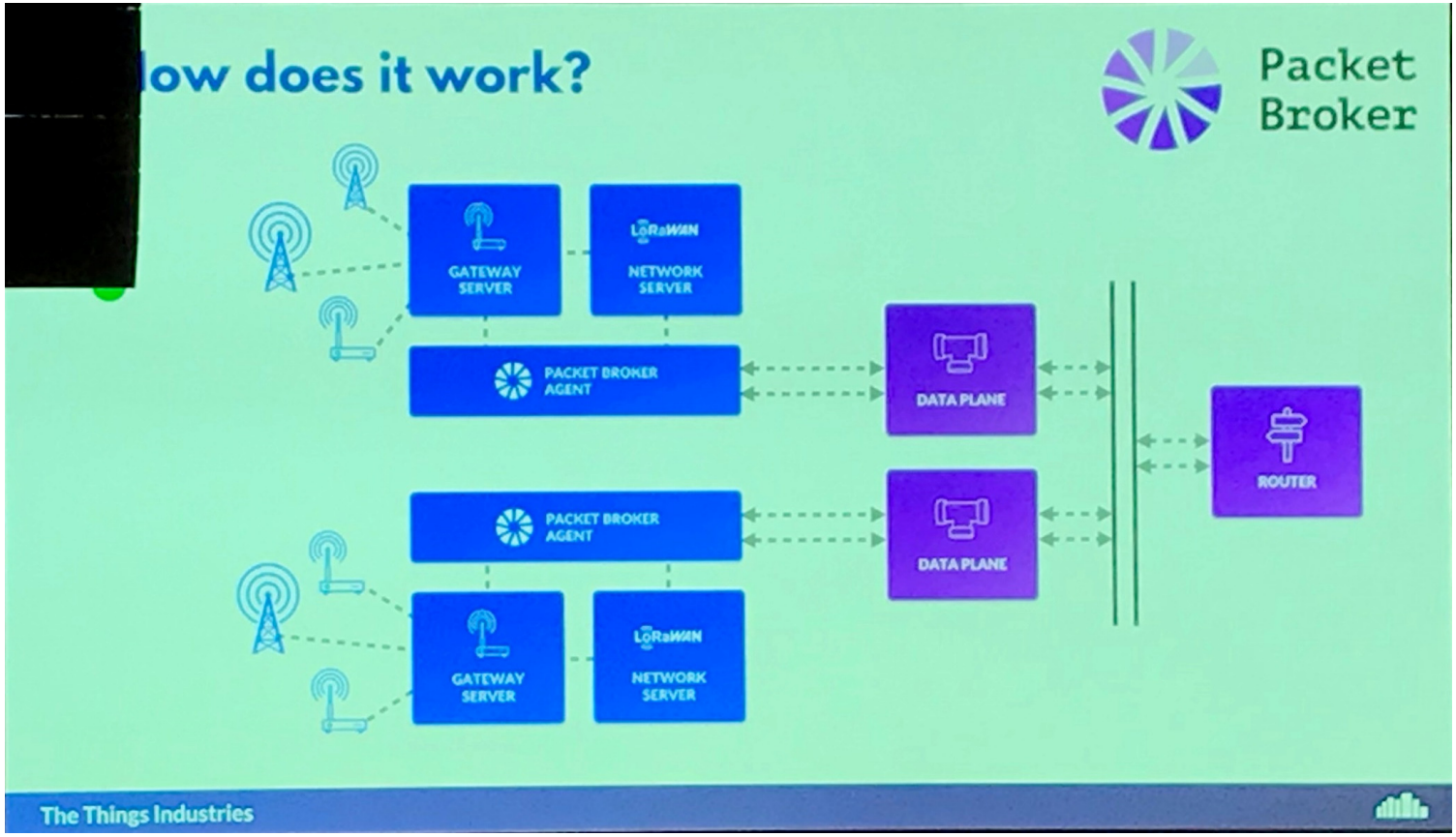
Youtube-Link: https://www.youtube.com/watch?v=YeezL6tQ3Qs&feature=youtu.be

Packet Broker



LoRaWAN from Space

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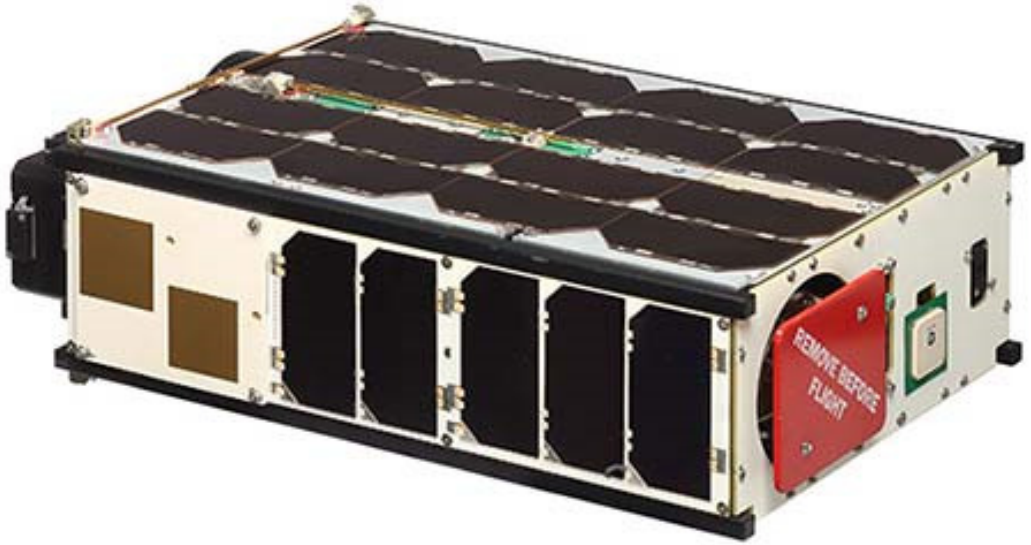
Youtube-Link: https://www.youtube.com/watch?v=iwocSYupdIQ&feature=youtu.be

LoRaWAN from Space

- https://lacuna.space
- Zirkular polarisiert
- Spezielle Antennen notwendig!



Tiny Machine Learning

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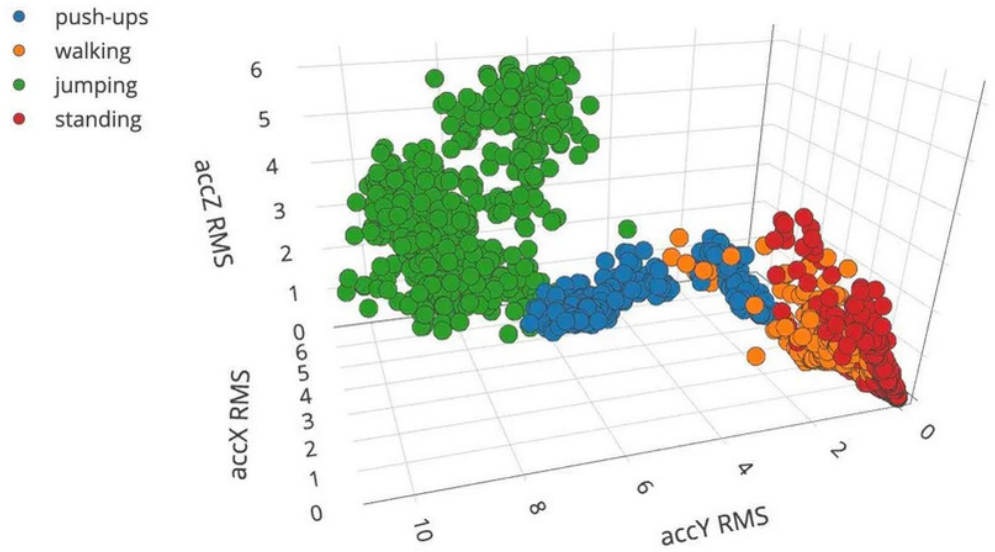
Tiny Machine Learning

TinyML for All Developers with Edge Impulse

Edge Impulse launches TinyML as a service to enable machine learning for all embedded developers with open source device SDKs.

Sponsored by Edge Impulse

24 days ago • Machine Learning & AI / Sensors

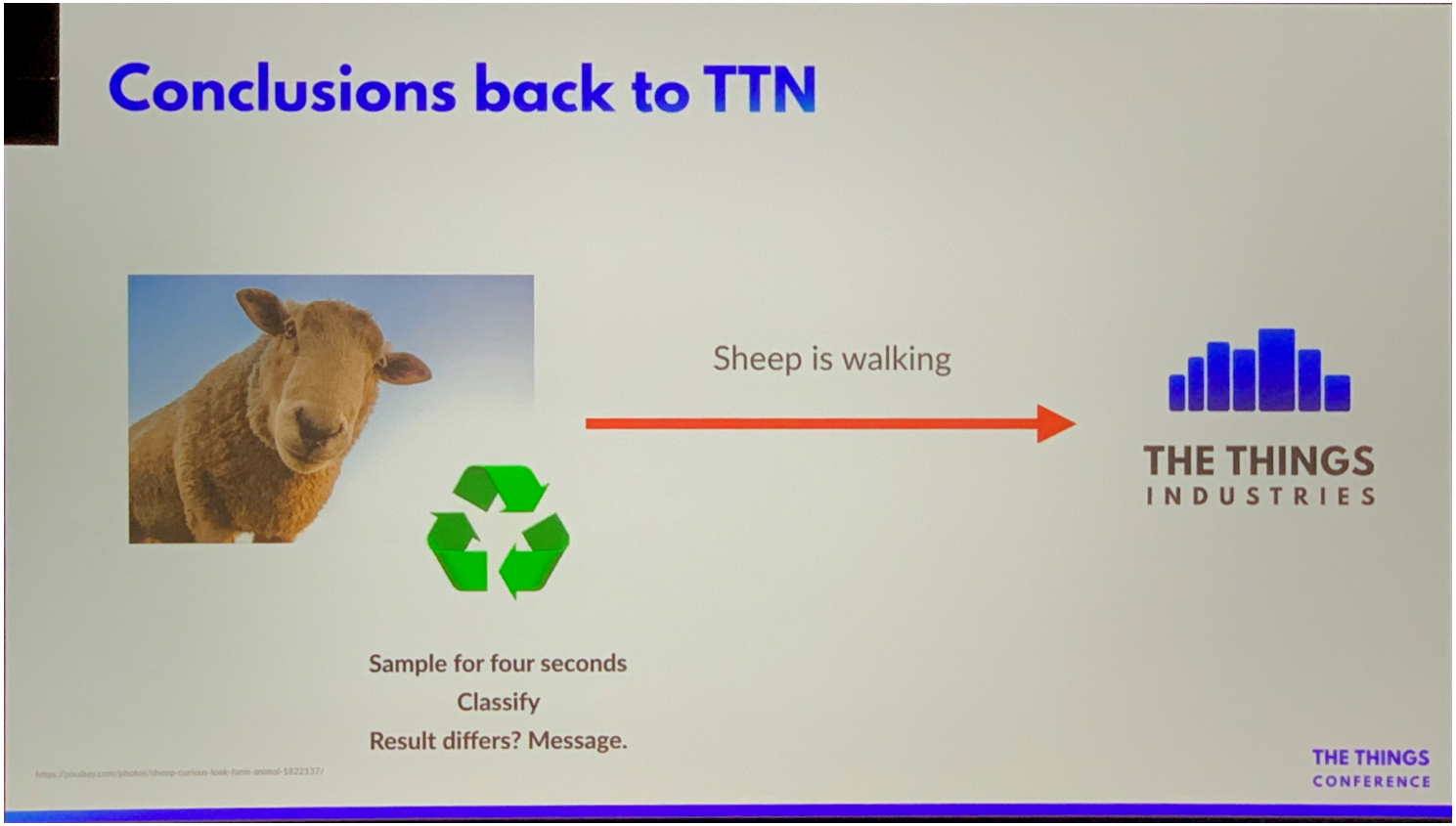


Tiny Machine Learning

Tiny Machine Learning

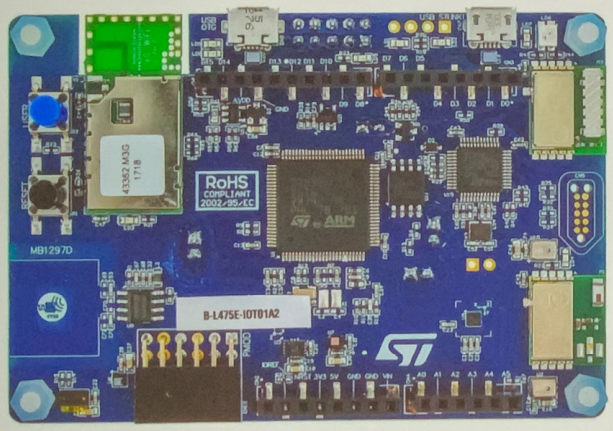
Tiny Machine Learning

Tiny Machine Learning



Tiny Machine Learning

Device



80MHz Cortex-M4F processor

128 KiB RAM

SX1276 LoRa radio

Time to analyze 1 second of activity data (classification + anomaly):

0.008 seconds

THE THINGS CONFERENCE

Tiny Machine Learning

LORIX OS

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- Reactive and intuitive web interface compatible with PC, smartphone and tablet
- Command line interface equivalent if it's your preferred taste
- Simple choice of the LoRa® forwarder among:
  - Wifx packet-forwarder based on the Semtech packet-forwarder
  - ChirpStack Gateway Bridge
  - LORIOT packet-forwarder
- Management and monitoring of the forwarder to ensure maximum uptime
- Secure and reliable remote system update
- Performance diagnostic and anomaly tracking tools
- ***https://www.lorixone.io/de/news/new-lorix-os-release-candidate-ready-testing***

LORIX OS

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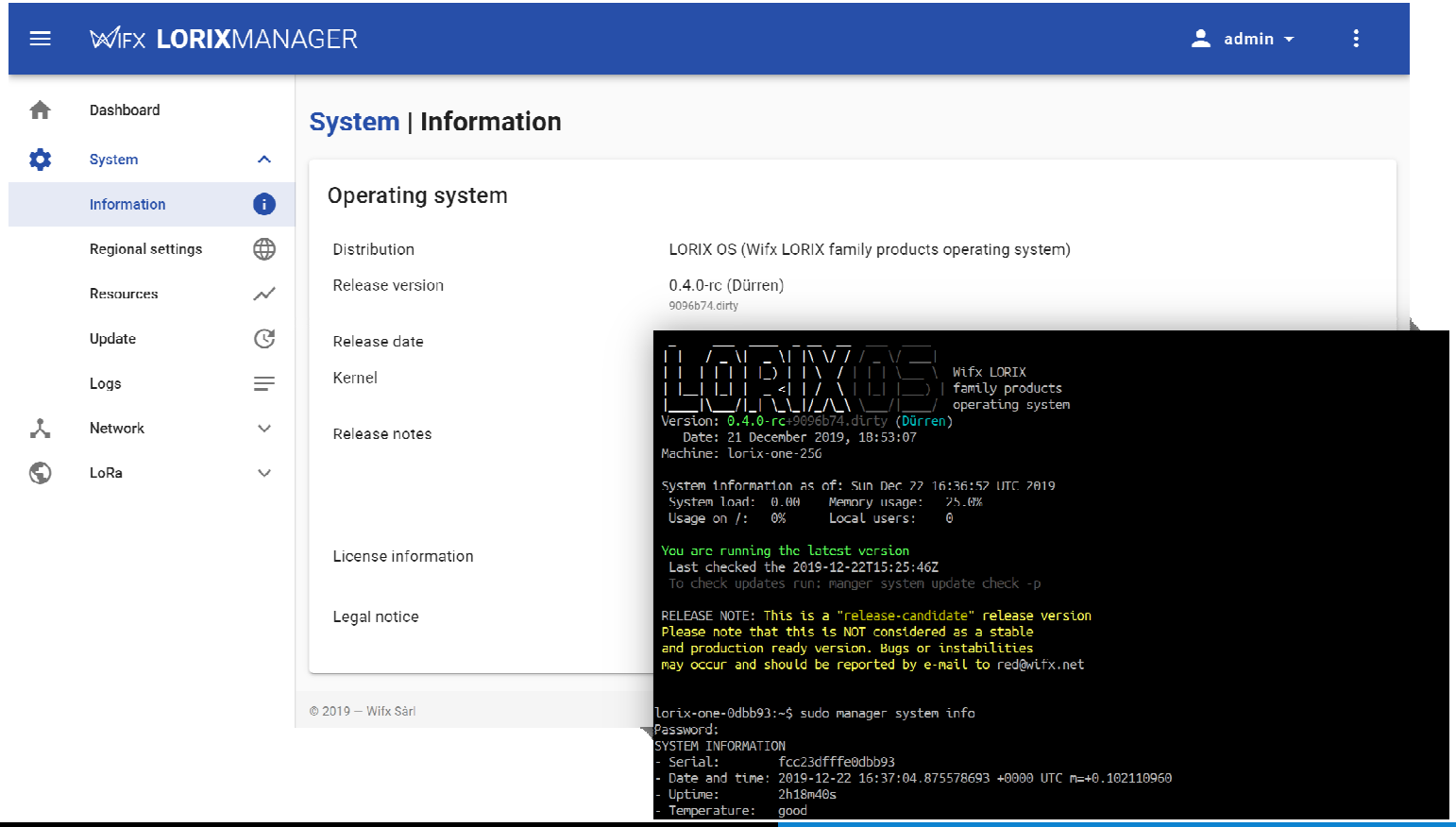
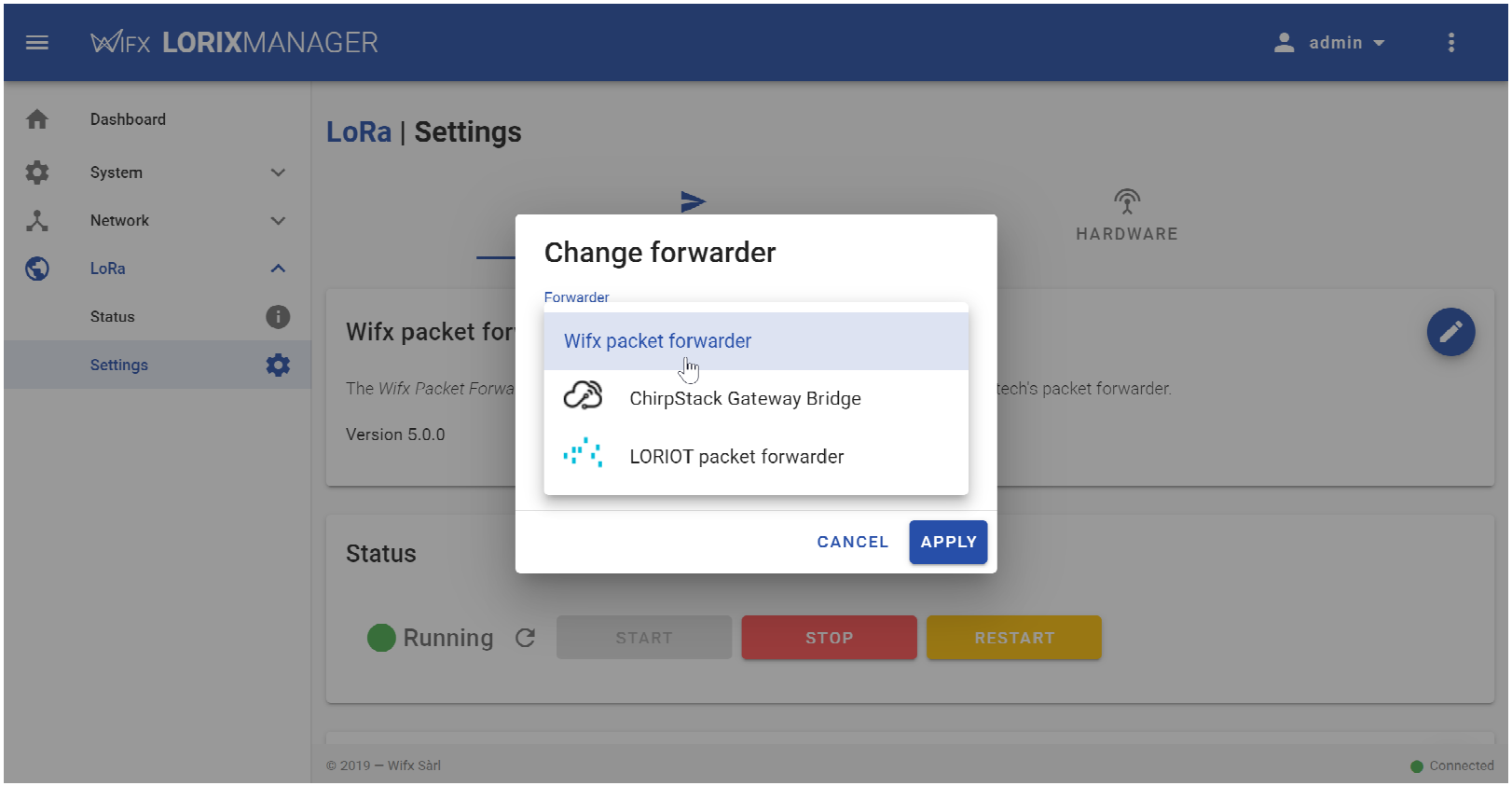
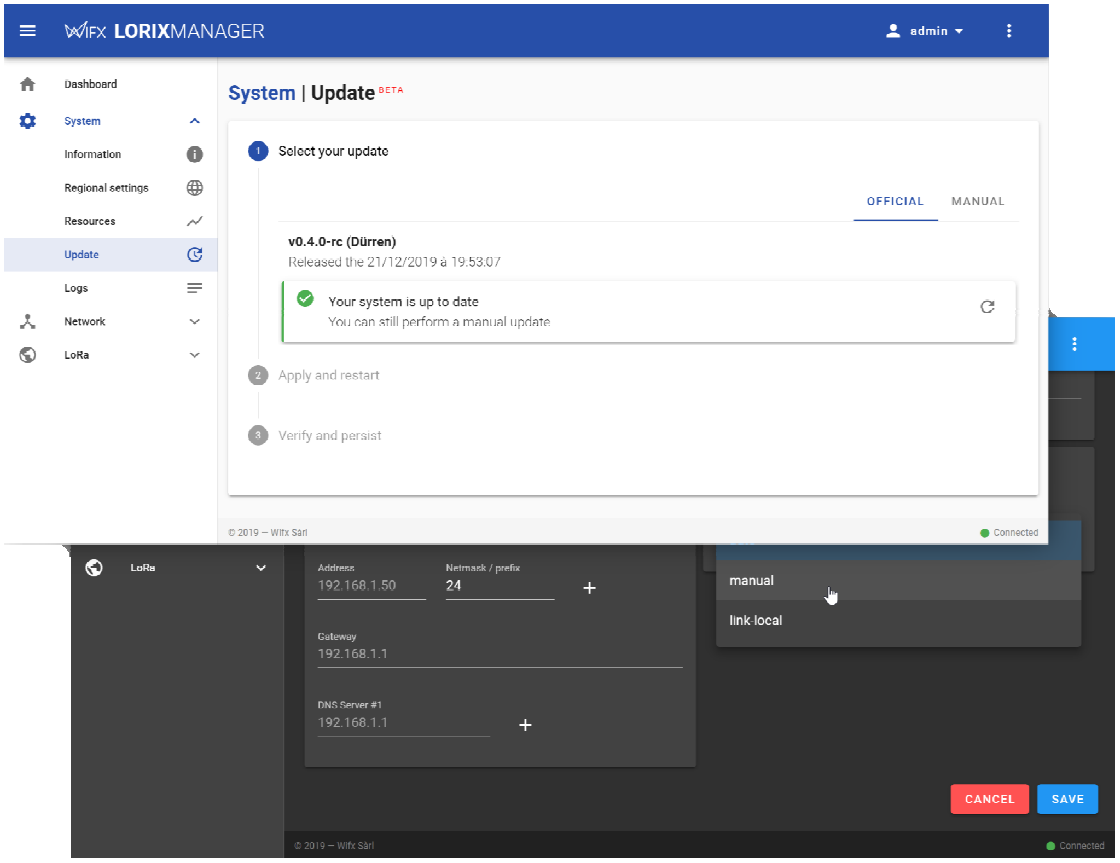


LORIX OS


WIFX LORIXMANAGER
admin
Dashboard
System
Network
LoRa
Status
Settings
LoRa | Settings
HARDWARE
Wifx packet for
The Wifx Packet Forwa
tech's packet forwarder.
Version 5.0.0
Change forwarder
Forwarder
Wifx packet forwarder
ChirpStack Gateway Bridge
LORIOT packet forwarder
CANCEL
APPLY
Status
Running
START
STOP
RESTART
© 2019 — Wifx Sàrl
Connected

LORIX OS


WIFX LORIXMANAGER
admin
Dashboard
System
Information
Regional settings
Resources
Update
Logs
Network
LoRa
System | Update BETA
1 Select your update
OFFICIAL
MANUAL
v0.4.0-rc (Dürren)
Released the 21/12/2019 à 19:53:07
Your system is up to date
You can still perform a manual update
2 Apply and restart
3 Verify and persist
© 2019 – Wifx Sàrl
Connected
LoRa
Address
192.168.1.50
Netmask / prefix
24
Gateway
192.168.1.1
DNS Server #1
192.168.1.1
manual
link local
CANCEL
SAVE
© 2019 – Wifx Sàrl
Connected

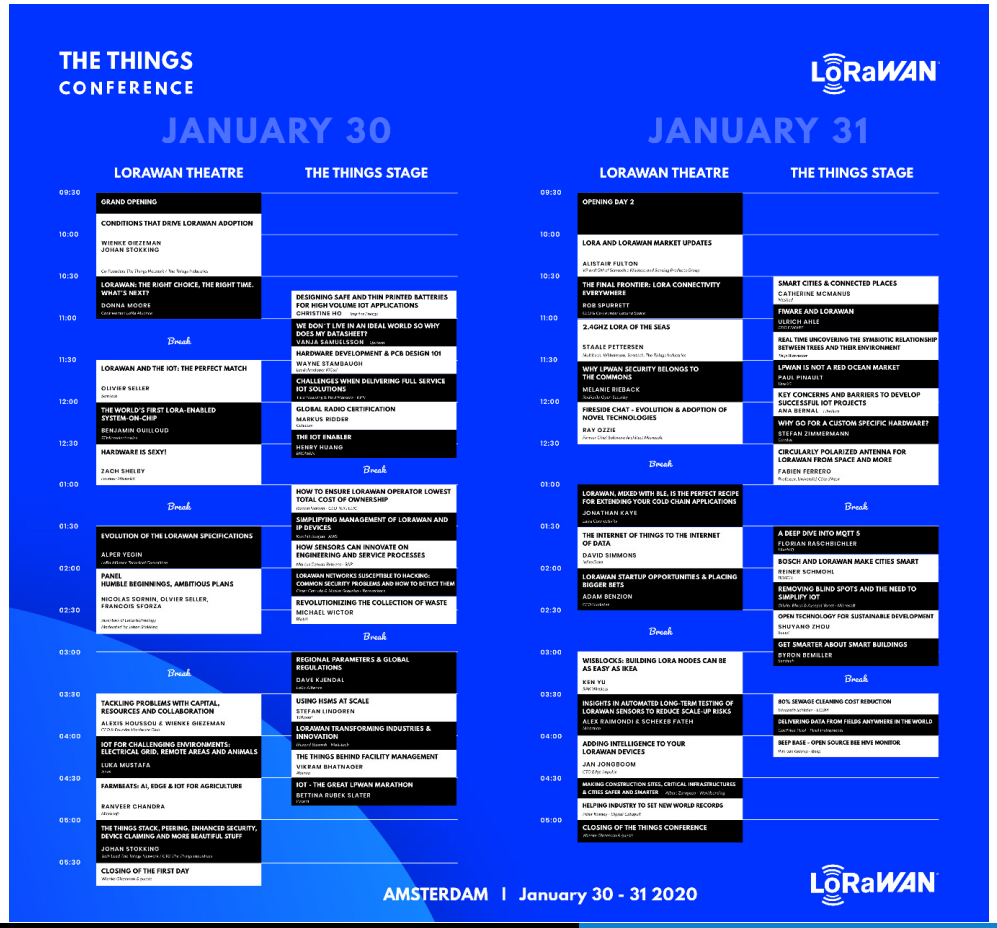
2.4 GHz LoRaWAN

SKU = Stock Keeping Unit
= Artikelnummer

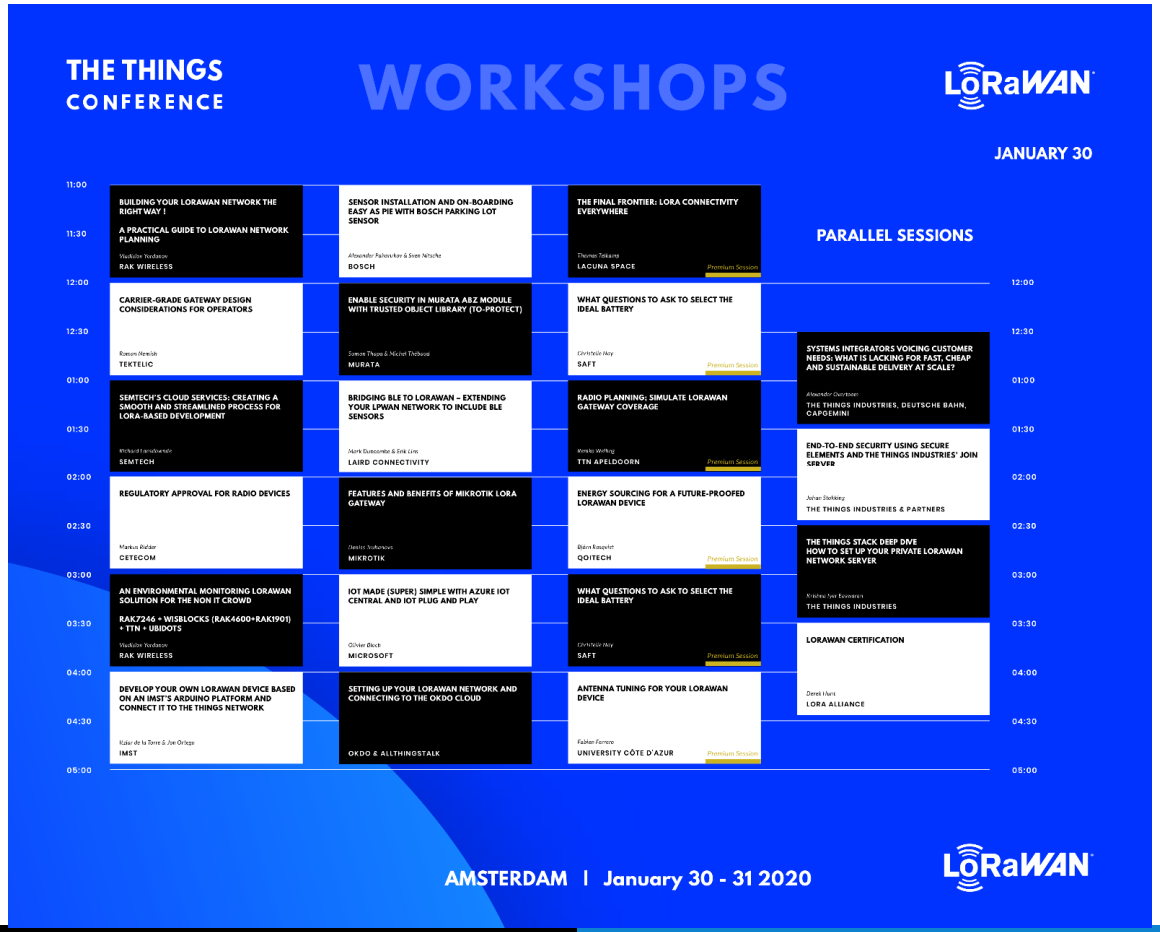
2.4 GHz LoRaWAN

2.4 GHz LoRaWAN

TTN Conference Program



TTN Workshops I



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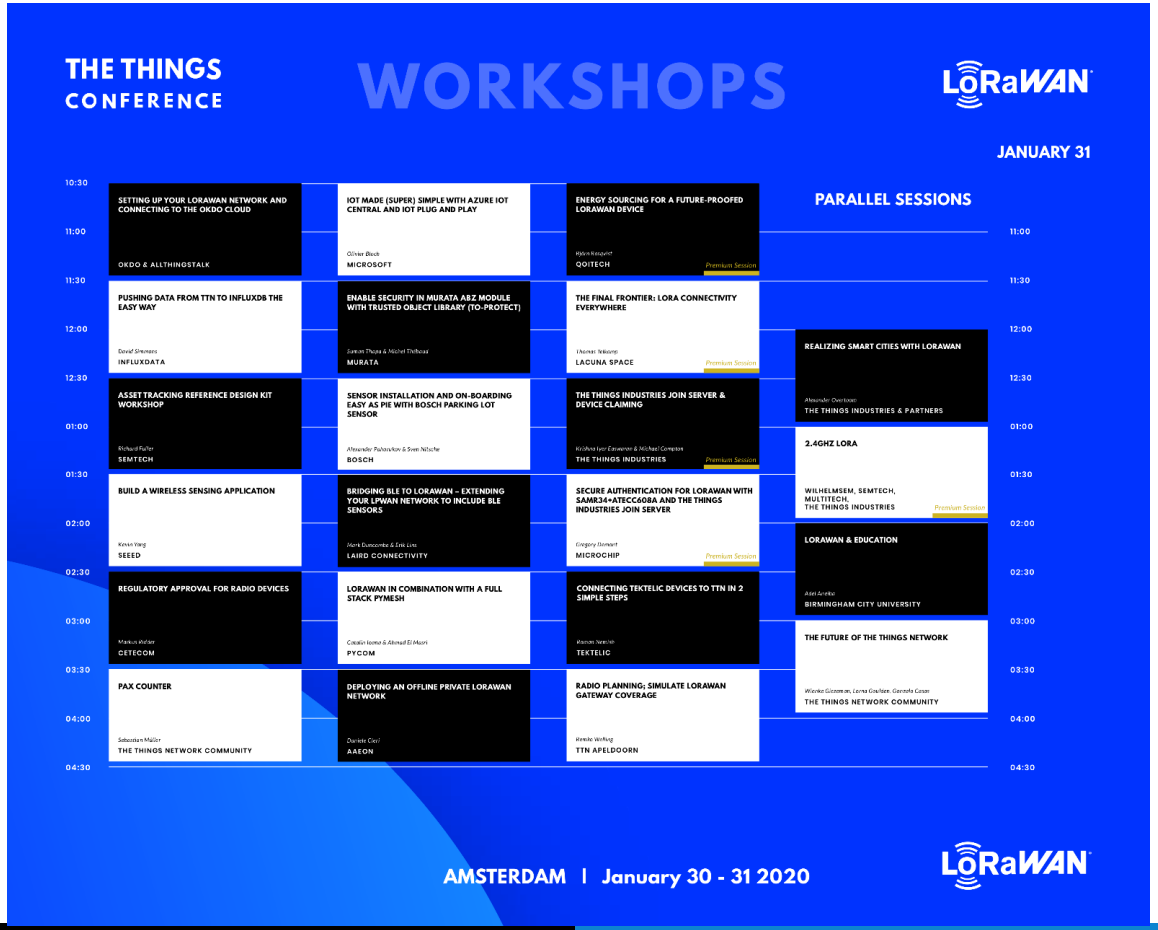
TTNWorkshops II



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Quellen

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  #5 - LoRaWAN from Space
- https://www.thethingsnetwork.org/
- https://www.lorixone.io/de
- Eigene Fotos