



Your freedom.  
Your home.  
**Your FRITZ!**

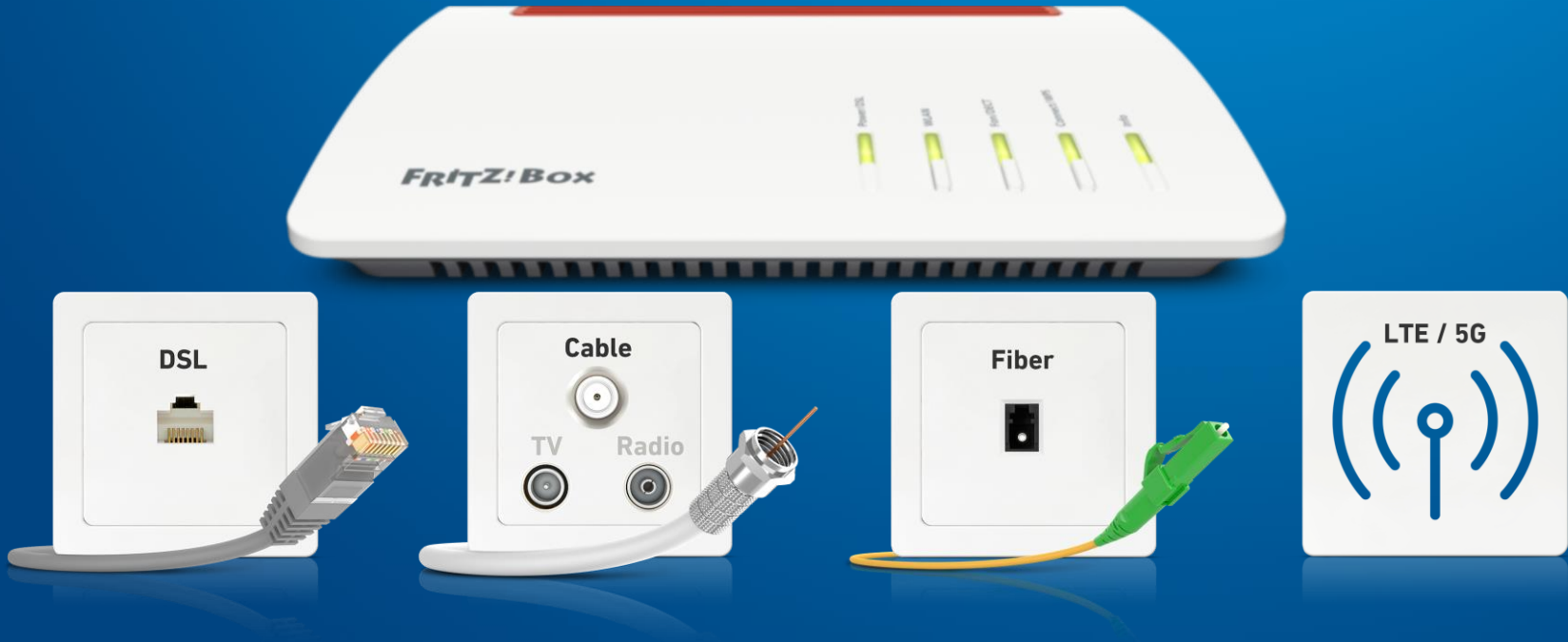
## BBF IoT Operator Activities

RIPE 88 Kraków  
AVM: AS203965

Eric van Uden



# FRITZ!Box for every connection

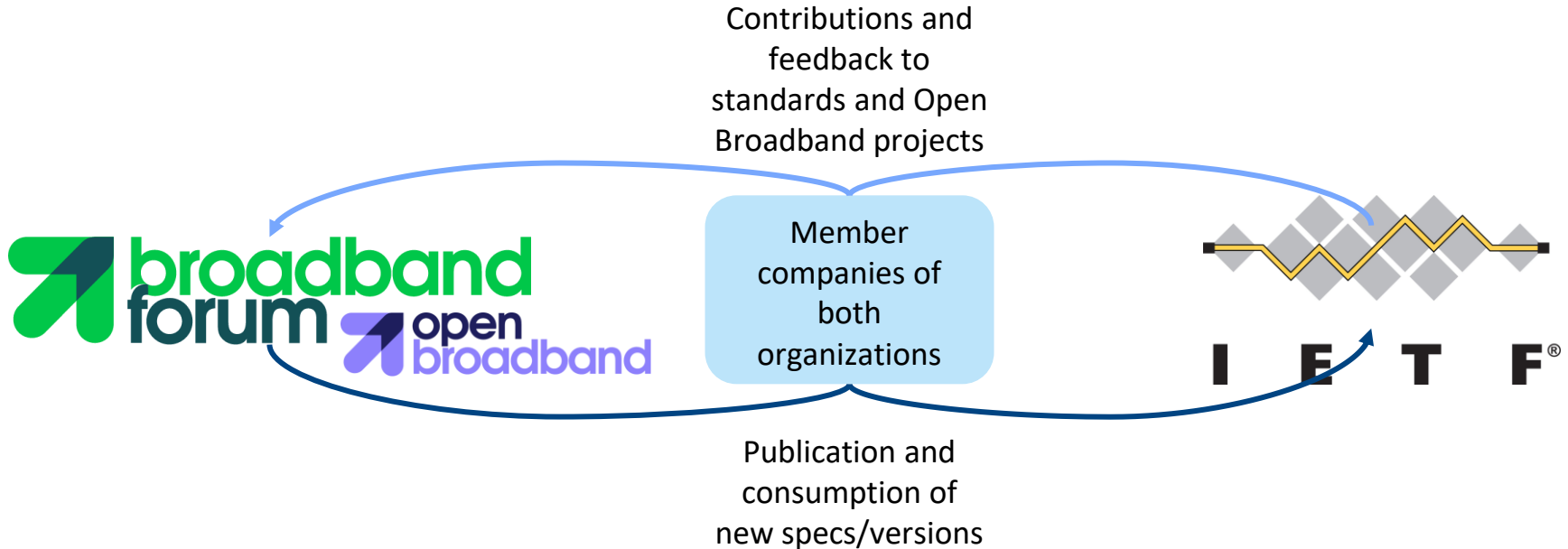


# Why I'm here?

- Manager International Portfolio Development @ AVM GmbH for ICT
- Member of EAB @ BBF
- AVM Build Integrated devices, including IoT
- Launch Matter at short notice
- TR-69 and TR-369 (TR-181)



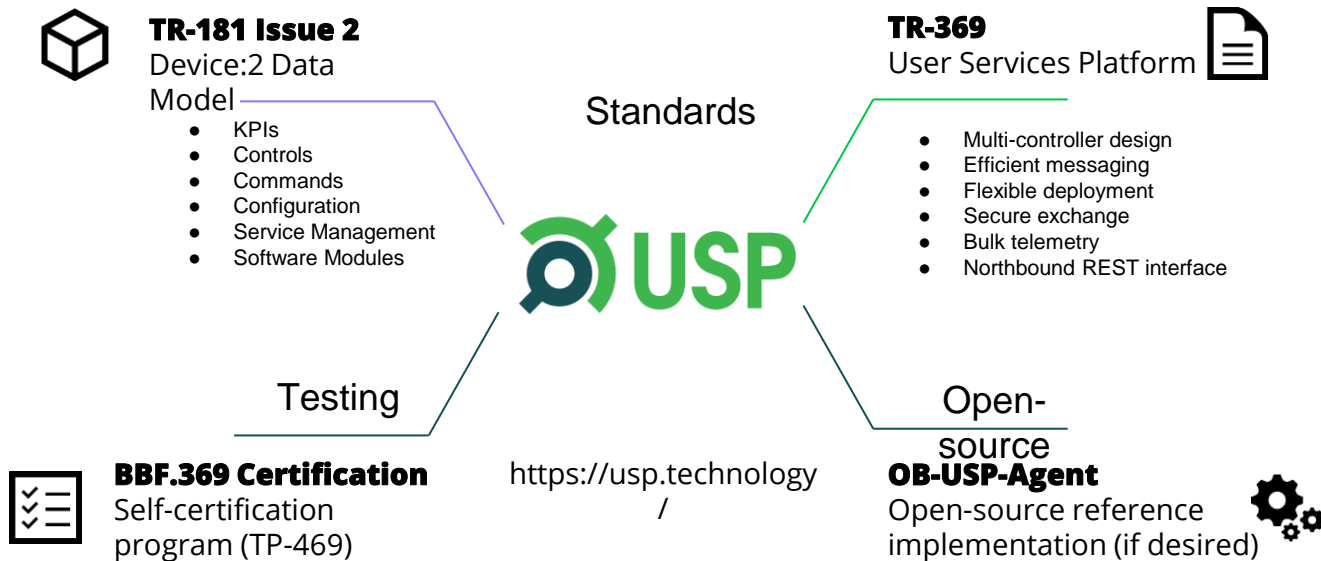
# How we work best with other groups



And vice-versa...



# What makes up the User Services Platform?



Complemented by:



**Wi-Fi Data Elements Certification**

QuickTrack certification method

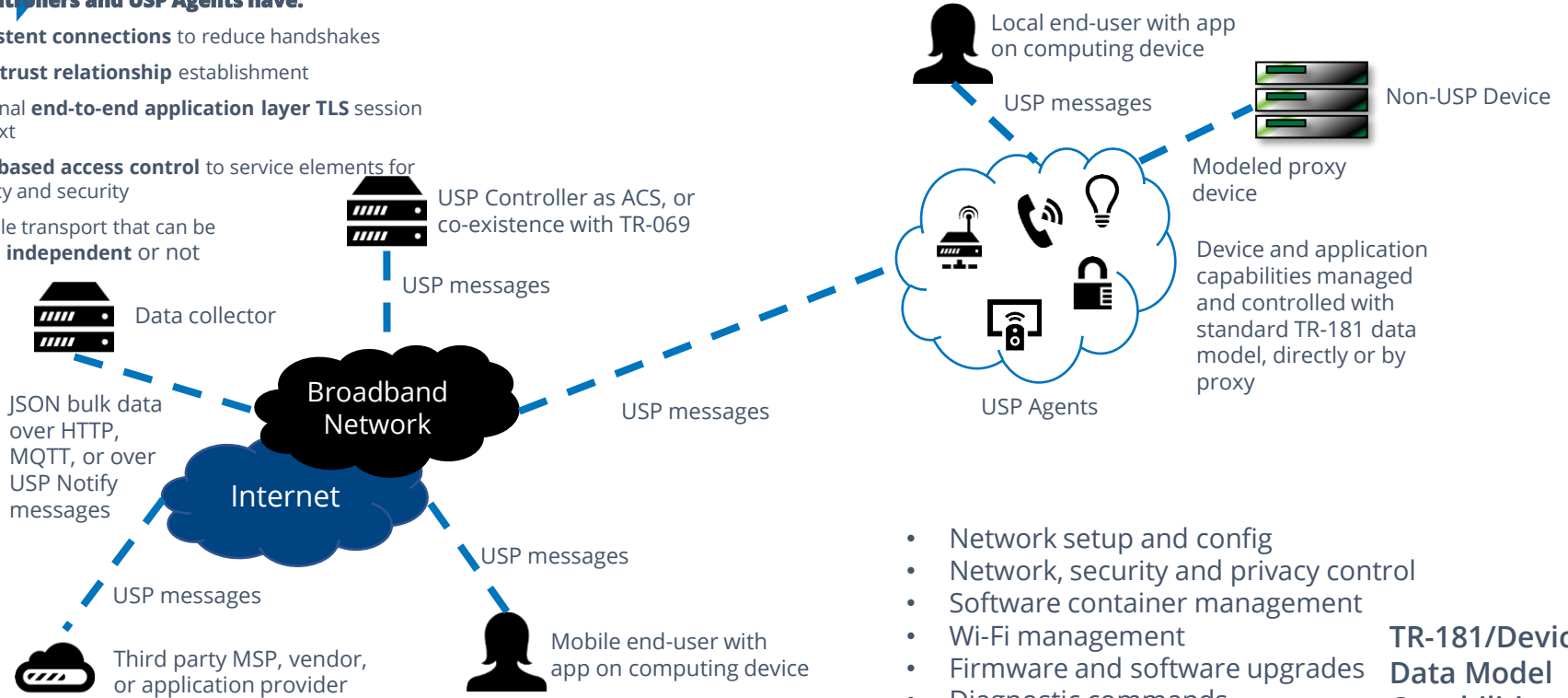
<https://www.wi-fi.org/discover-wi-fi/Wi-Fi-Data-Elements>



# USP enables all uses to coexist within single ecosystem

## USP Controllers and USP Agents have:

- **Persistent connections** to reduce handshakes
- Clear **trust relationship** establishment
- Optional **end-to-end application layer TLS** session context
- **Rule-based access control** to service elements for privacy and security
- Flexible transport that can be **cloud independent** or not



- Network setup and config
- Network, security and privacy control
- Software container management
- Wi-Fi management
- Firmware and software upgrades
- Diagnostic commands
- Bulk data telemetry
- Custom commands & events
- IoT sensors and controls

TR-181/Device:2  
Data Model  
Capabilities



# Smart Home Project Stream

- Needs for an operator grade Smart Home
- Smart Home in the context of TR-181 and USP (TR-369)
- Device requirements
- Security requirements and Theory of Operations
- Test plan
  
- Additional related work
  - Network topology mapping
  - Quality of experience delivered (QED)
  - Application services gateway (ASG)

# The New Smart Home Protocol



matter





# What is Matter?

- A new smart home protocol
- Developed by Amazon, Apple, Google, IKEA, Samsung, and more
- Aims to simplify the use of smart home devices
- Matter also works without the Internet, but cloud services are required for remote control



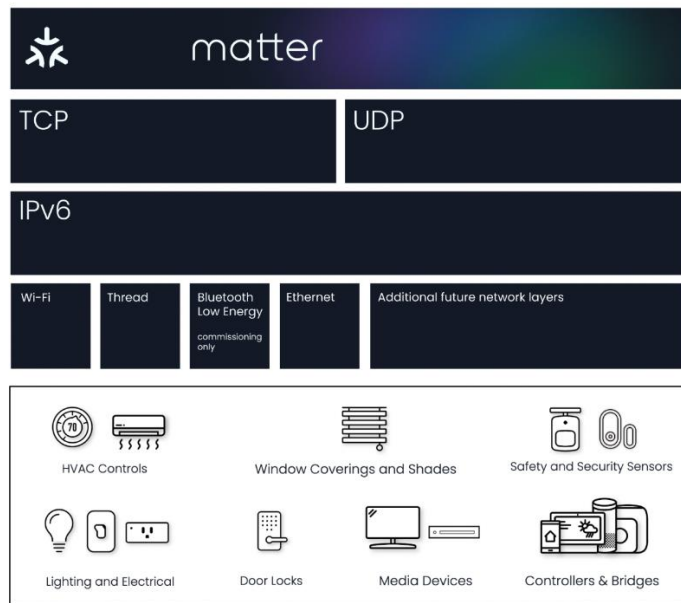
# Benefits of Matter

- Unity: Matter devices work together, regardless of manufacturer
- Security: Matter is based on secure standards, such as WPA3 and TLS 1.3
- Energy efficiency: Matter is energy-efficient
- Matter is designed to be interoperable with existing smart home devices.
- Matter is expected to be widely adopted by smart home manufacturers in the coming years.



# Technical

## How Matter Stacks Up



### Common application layer

Interoperability, simplified setup & control

### IP-based

Convergence layer across all compatible networks

### Secure

Comprehensive, Layered, Resilient, Agile  
AES-128-CCM encryption with 128-bit AES-CBC

### Common protocol across devices

Extendible to cloud

### Common data model

Core operational functions, multiple device types

### Low overhead

MCU-class compute, <128KB RAM, <1MB Flash

Source: CSA Matter Components Technical Introduction



# Matter and USP (TR-369)

- A standard for the configuration of Matter devices
- Defines a set of APIs that developers can use to configure Matter devices
- Working progress between BBF and CSA
  - Modelling Matter lightning endpoints and capabilities into the SP data model
  - Matter controller object (that is normally in the home) versus a proxied controller approach
  - Recognizing a matter device just like USP recognizes other managed smart home devices

# Incorporating Matter - Initial Plans

- Ability to install and onboard Matter functionality in the home
  - Matter as an ASG service
- Ability to map, monitor, and control Matter fabrics and nodes
  - Current thinking: making Matter interface its own space in the data model
- Adding additional network interface objects where needed, i.e. Thread
- Continuing IoT Capabilities data model for other use cases/extensibility

## Since then...

- Primary work around adding Matter interface and related dependencies to the TR-181 data model
- Adding Thread interface and a few other wireless technologies not currently modeled
- “Modeling Matter as Matter is Modeled”: working to make sure that the data model can be readily understood and correlates with the Matter Data Model, possibly with programmatic updates in the future
- Additional work on non-Matter use cases and allowing the configuration of data paths between IoT devices and services, and onboarding
- Working closely with prpl Foundation

# What about Matter and the Northbound Interface?

- No big consensus at CSA about how to interface with Matter networks
- Fragmentation of control applications
- USP is well suited to solving this problem, as an open standard cloud interface for Matter
- Working with joint members of CSA/BBF, mainly through Home Router working group (many operators)

# Upcoming opportunities

- Come to the Summer BBF meeting in Incheon, South Korea!
- Guest passes available
- Submissions still open for Smart Home Town Hall Innovation Series session Monday



## More info:

- [https://csa-iot.org/wp-content/uploads/2022/11/22-27349-001\\_Matter-1.0-Core-Specification.pdf](https://csa-iot.org/wp-content/uploads/2022/11/22-27349-001_Matter-1.0-Core-Specification.pdf)
- <https://developers.home.google.com/matter/primer>
- <https://www.broadband-forum.org/testing-and-certification-programs/usp-tr-369-training-sessions>
- <https://device-data-model.broadband-forum.org/>
- <https://avm.de/service/schnittstellen/>

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