

# SAVE Network for IoT

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# About the Author

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Industry veteran, visionary and startup founder

Andreas is in telecom and microelectronics business since 1986 in various roles: development, concept engineering, standardization, innovation management, public funding, marketing, team leader. In 2010 he founded the startup InnoRoute to develop innovative routing solutions. The company has provided microelectronics solutions for telecommunication and industry. In 5G EU projects the company has developed an IoT optimized router based on a novel routing concept.



# IoT – Requirements & Solutions

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## Requirement

## Solution

Trillions of Devices

IPv6

Low Latency and low Jitter

Self-Routing, Hierarchical Routing  
Cut-through

High security

Source Address Verification, Whitelisting  
Separate Network

Easy operation

Phone number in IP address

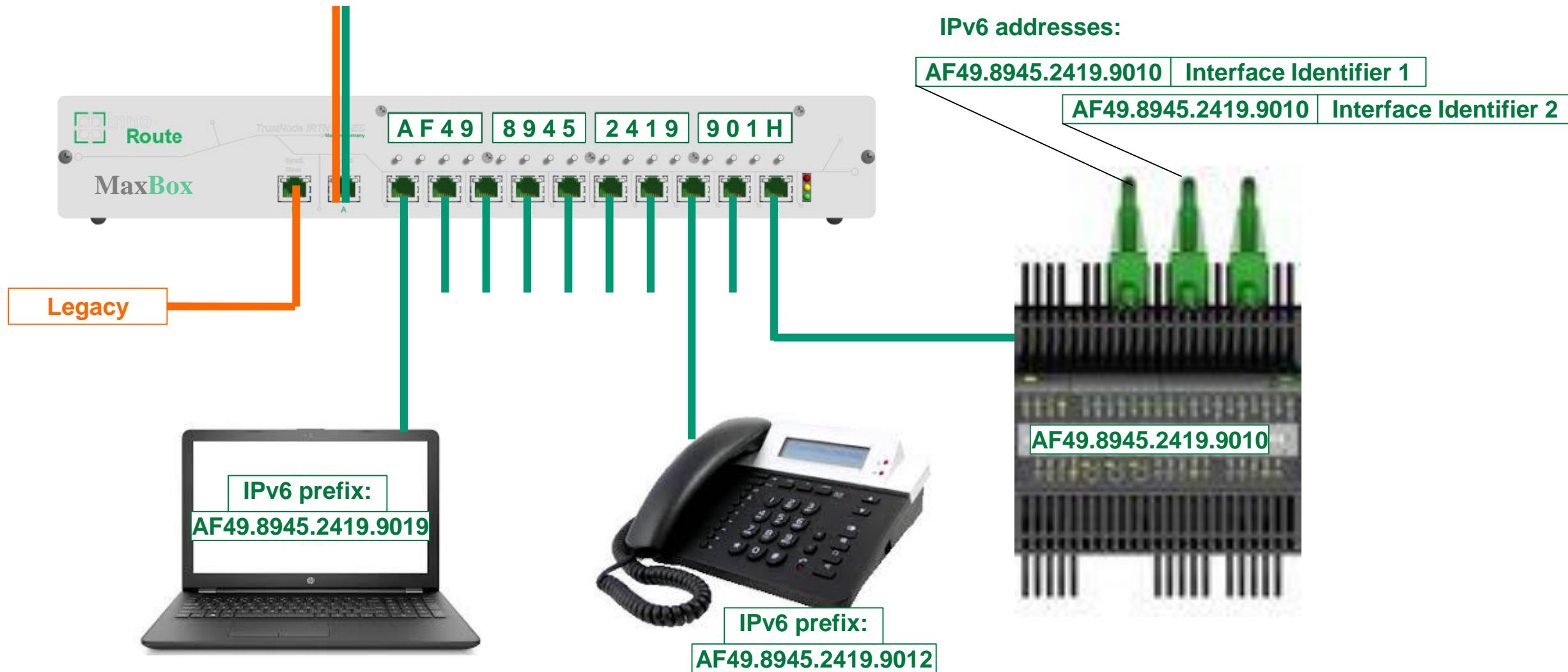
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# Phone number in IPv6 address prefix – example

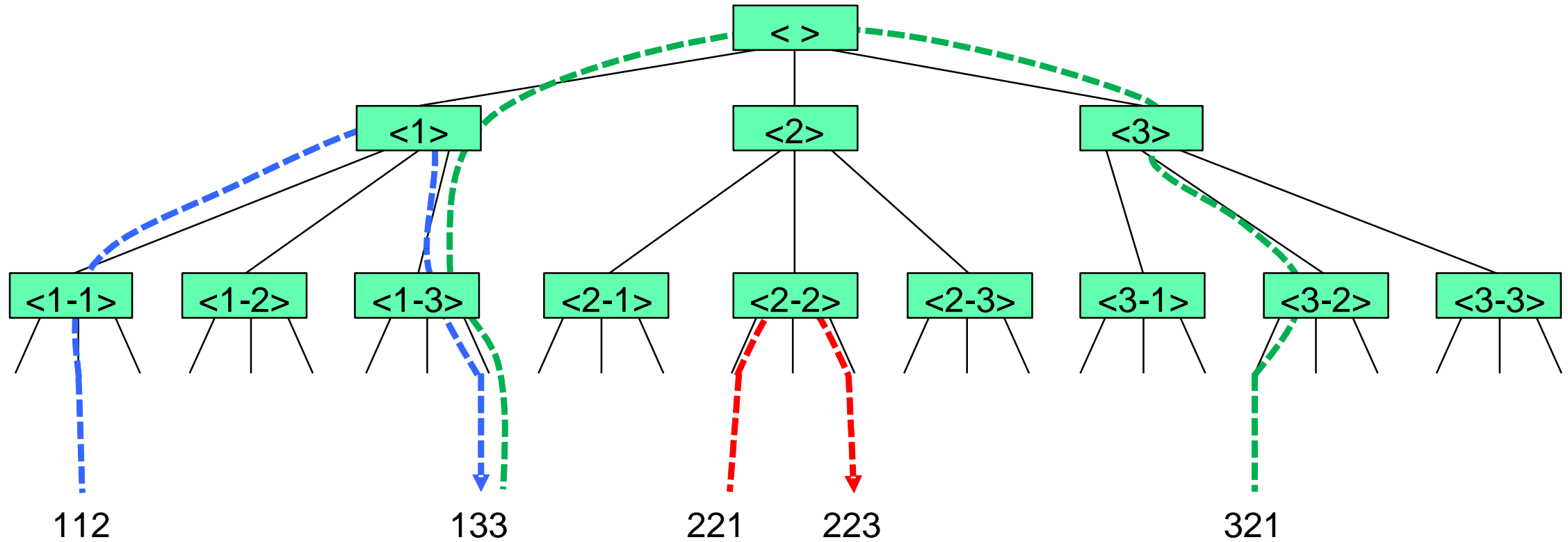
Code	Country Prefix		Area Code		Company / private Phone							Company extension			
A	4	9	8	9	4	5	2	4	1	9	9	0	x	y	z
Frozen constant	Germany		Munich		Company InnoRoute							Private Network			




Idea proposed 1999 by Korean telecommunications authority

# SAVE Service – CPE example



# Hierarchical routing concept



-  Path from 112 to 133
-  Path from 133 to 321
-  Path from 221 to 223

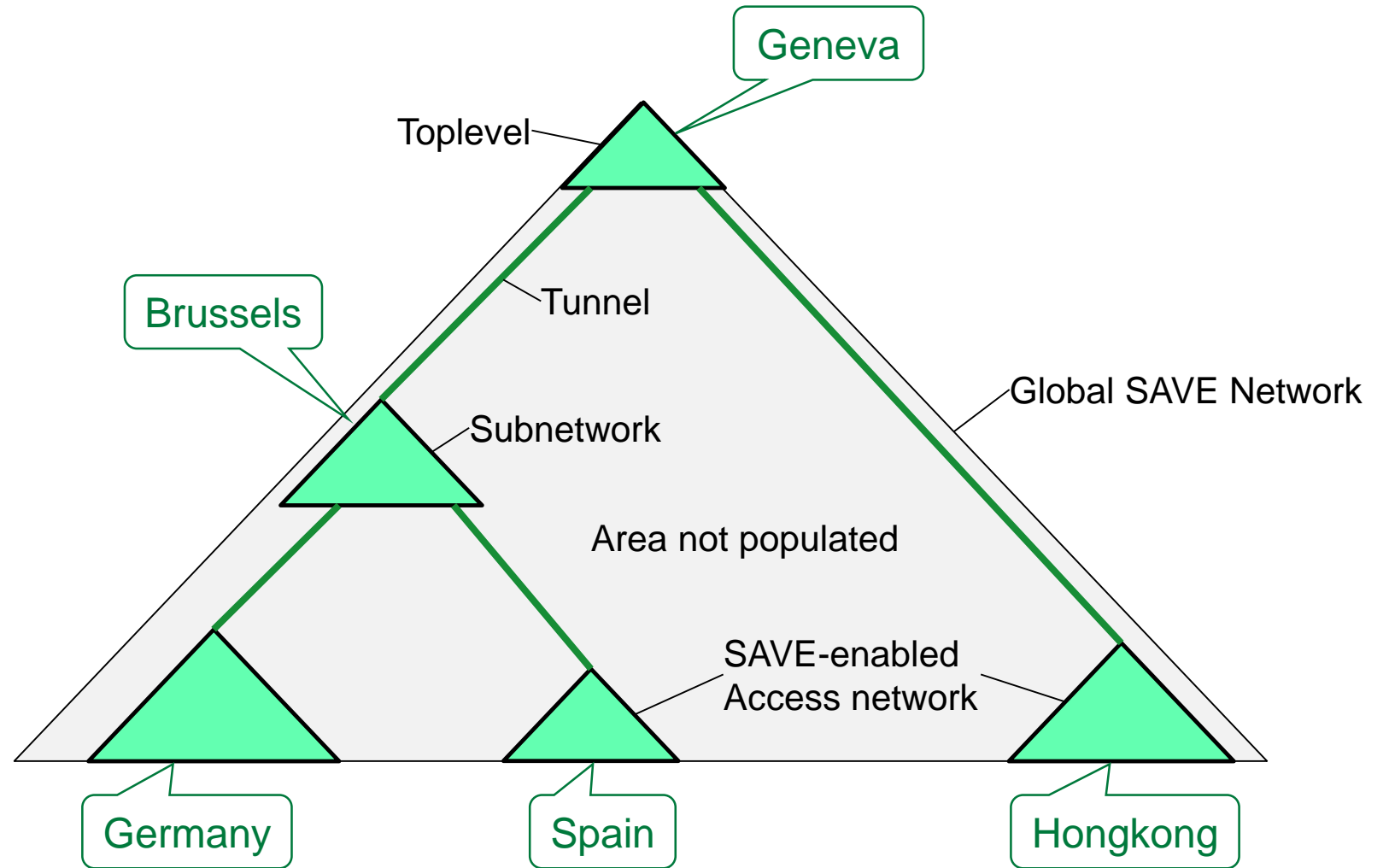
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SAVE Router

- Evaluates one digit only, depending on hierarchy level

# Global hierarchical network

- Start local – grow global
- Any partial configuration possible
- Use existing links:
  - SDH/SONET/OTN
  - Dark fiber
  - MPLS
  - VLAN
  - VPN Tunnels



Example Sites

# SAVE Router Features

## Data plane

- Cut-through forwarding
- Upstream source address check
- Downstream hierarchical forwarding
- Multiple redundancy with 2 (4) Uplink ports

## Control plane

- Address autoconfiguration  
Prefix delegation  
>> Plausibility check by user
- Error signalling and port disable in case of misconfiguration



# IPv6 Source Routing for ultralow Latency

draft-foglar-ipv6-ull-routing-02

Status [IESG evaluation record](#) [IESG writeups](#) [Email expansions](#) [History](#)

Versions [00](#) [01](#) [02](#)



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## [359-GEN] Information relative to 5GPPP SAVE

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**Document :** ITU-T SG 2 (Study Period 2017) Temporary Document 359-GEN

**Title :** Information relative to 5GPPP SAVE

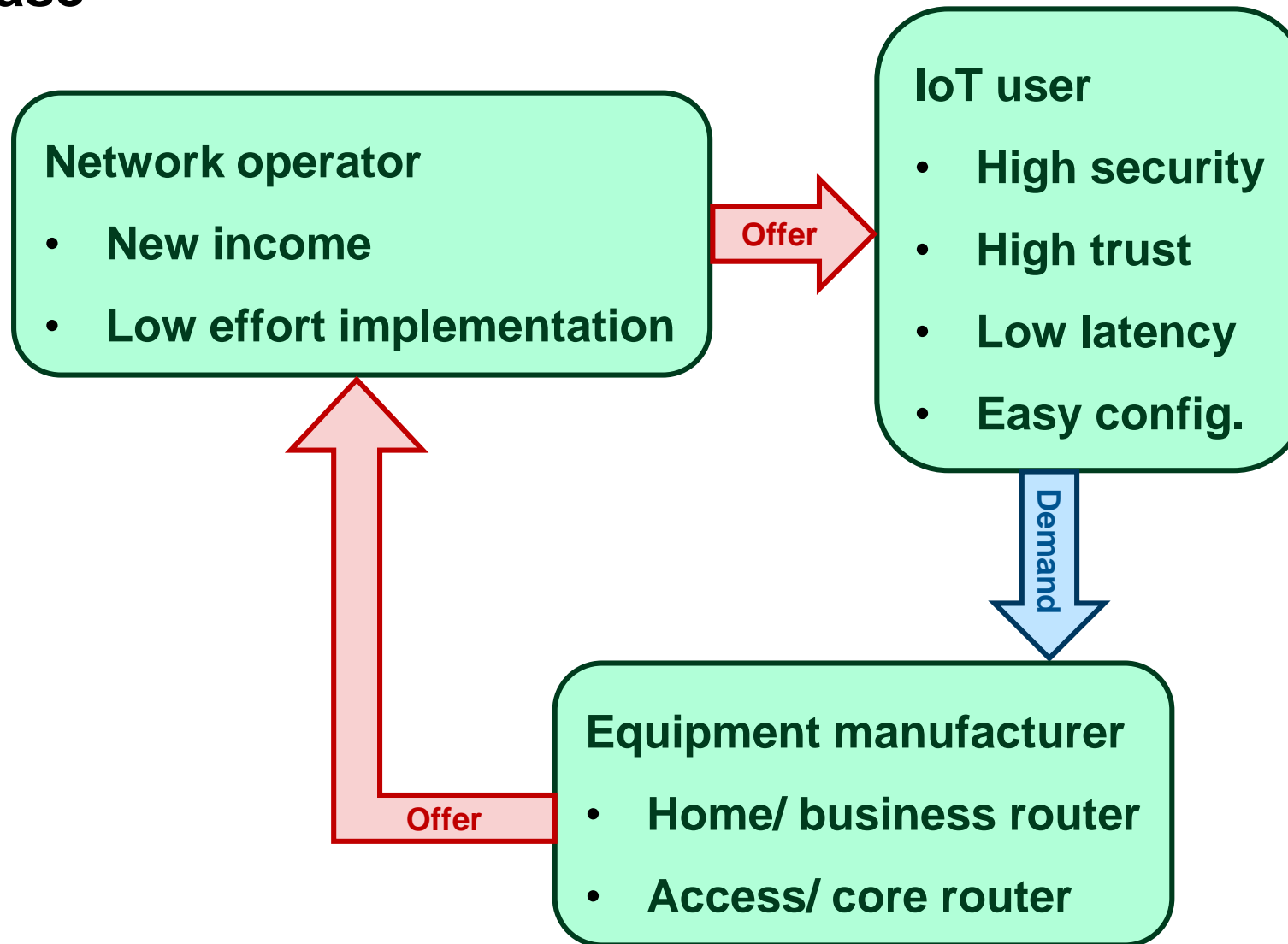
**Date :** 2018-03-05

**Source :** Rapporteur, Q1/2

**AI/Question :** Q1/2

**Access :** Restricted to [TIES users](#) [ITU-T]

# Business Case

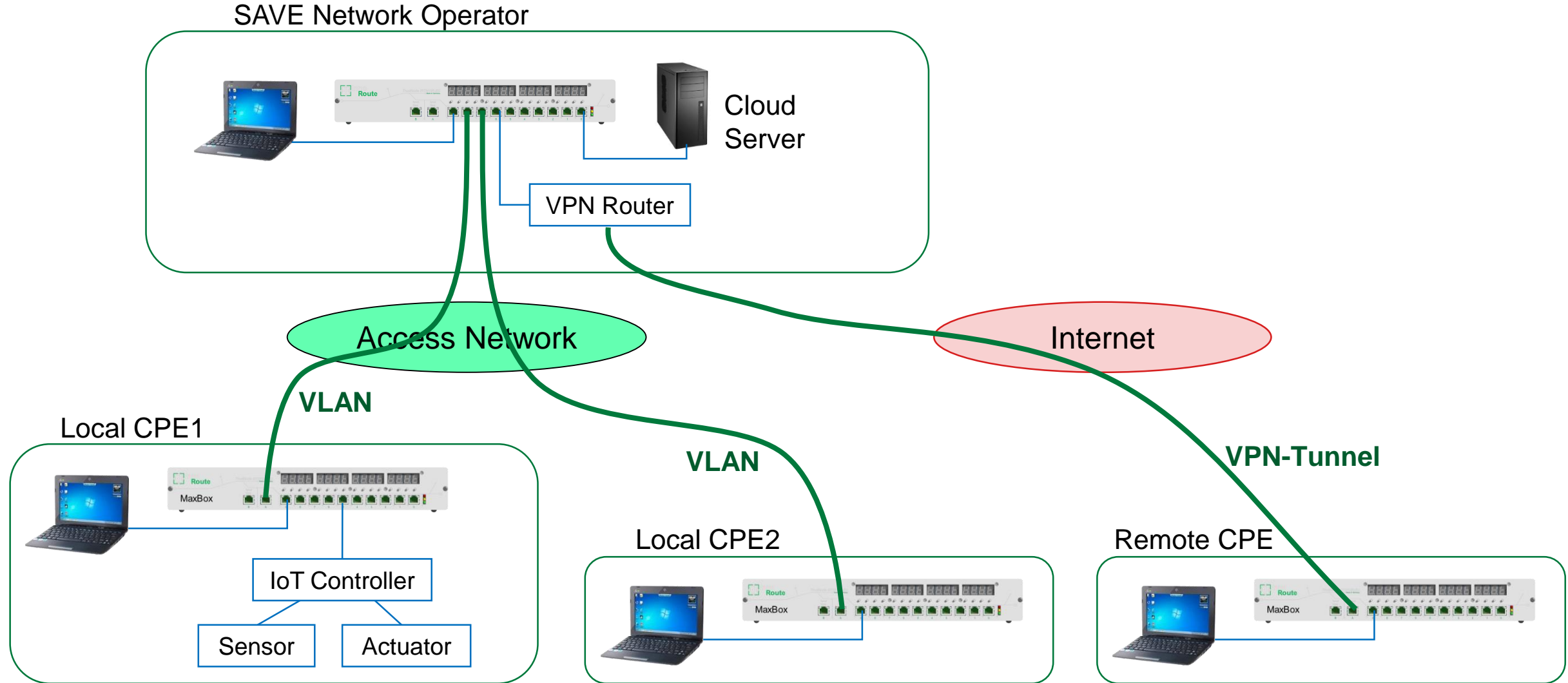


# SAVE Field Trial partners



Partner and users welcome!!

# SAVE Field Trial



## Summary and key message

“IPv6 Address Prefix based on ITU E.164 telephone number ideal for IoT”

- Ultra-low latency routing
- High intrinsic security thanks to source address verification
- Whitelisting configurable by non-experts
- Business case for network operators
- Standardization initiated
- Routers available from 1<sup>st</sup> manufacturer
- Technology is ready for implementation



# Thanks to



# Interested in SAVE? – Contact Us!

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