

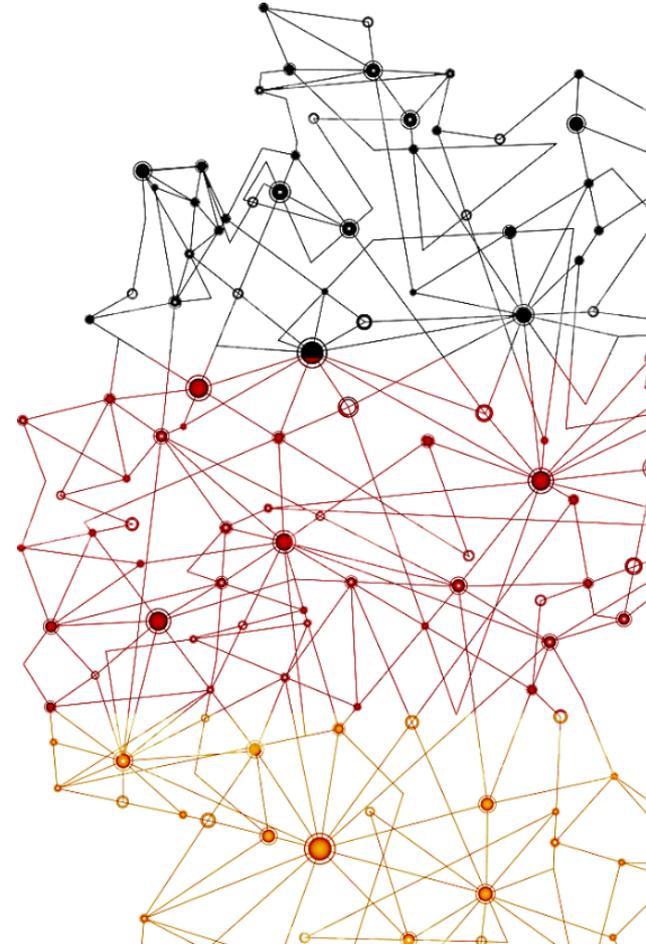


Federal Ministry  
of the Interior  
and Community

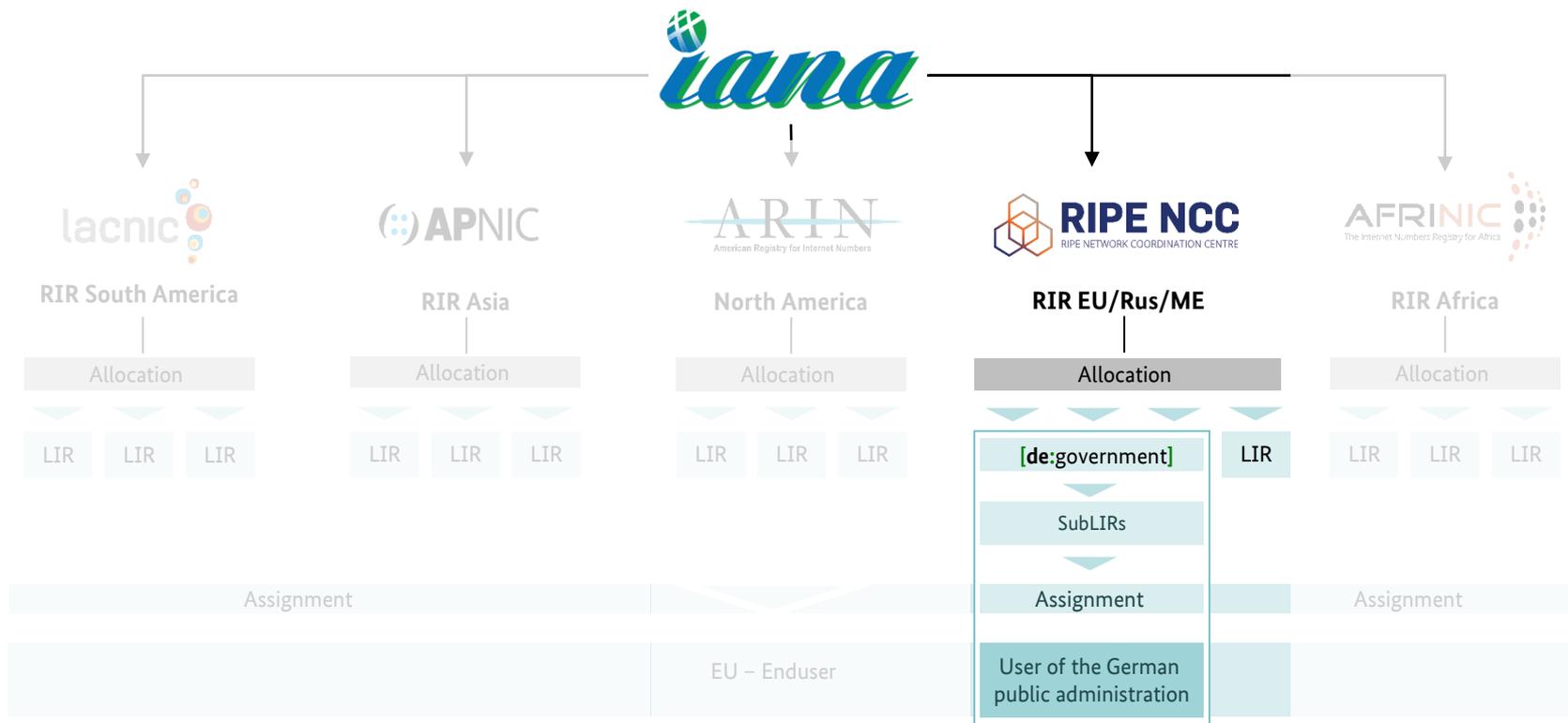
IPv6

In the Public Administration of Germany

RIPE 84 16-20 May 2022



# IANA Structure



# IPv6 conception of public administration

## Address space (::/23) for public administration

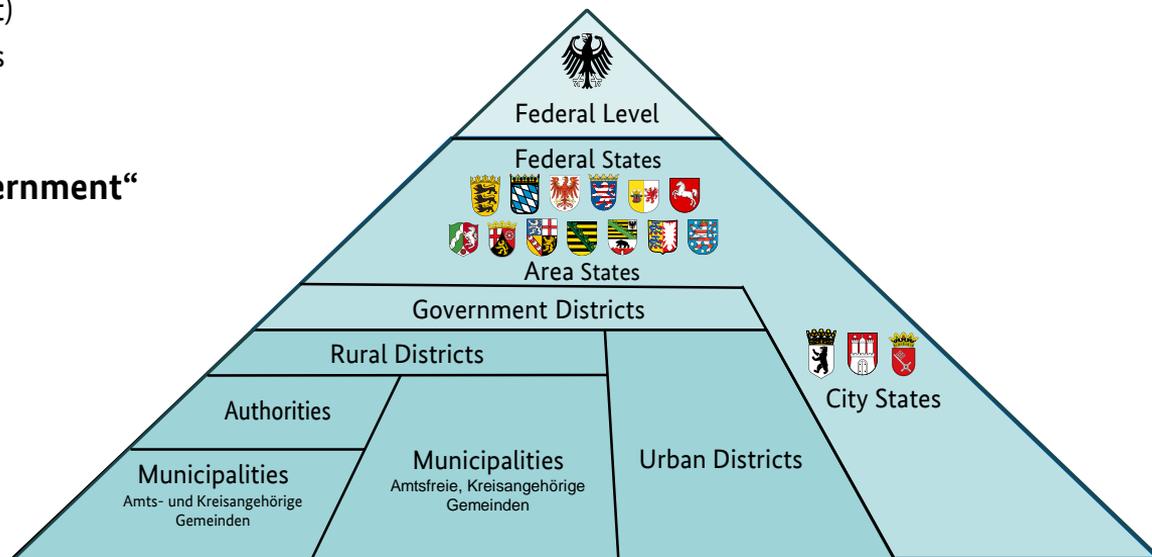
- Unique worldwide (Global Unicast)
- Independent of network providers
- Centrally and securely managed

## Local Internet Registry (LIR) „de.government“

- BMI
- BDBOS

## IPv6 address frame concept for

- Federal Level
- Federal States
- Municipalities



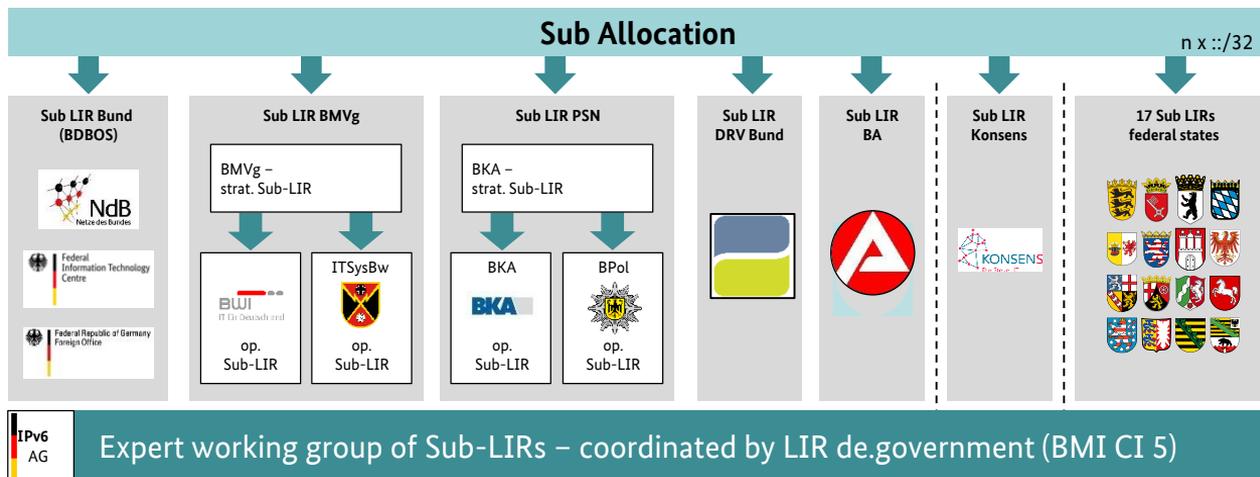
# LIR de.government

## Provisioning and management of internet resources

BMI CI 5 – Strategic LIR de.government



BDBOS – Operative LIR de.government

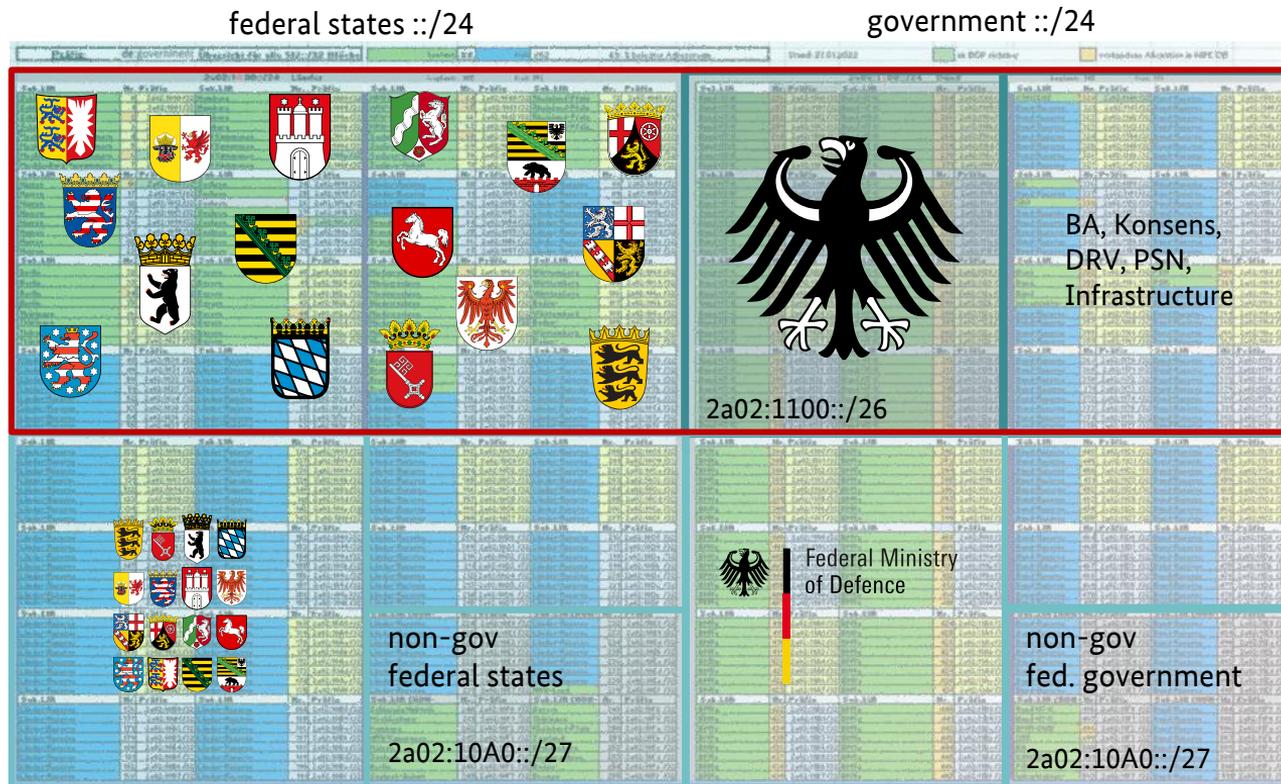


# Address Range 2a02:1000::/23

## IT-NetzG

### (German Basic Law)

The exchange of data between the federal government and the states takes place via the **interconnection network**.



■ Area framed in red is subject to a special *German Basic Law*: Section 91c Paragraph 4: "Law on the connection of the information technology networks of the federal and state governments" (IT-NetzG)

# Heterogenous IPv6 deployment

## Federal Government

- Federal program for IT and network consolidation
- Timeline for core infrastructure transition to dual-stack by 2025 and IPv6-only by 2030

## Federal States

- The federal structure leads to increased complexity and variability of the network infrastructure
- The IPv6 migration status at state level ranges from very far to not yet started

## Municipalities

- IPv6 migration in municipalities comparable to federal states, due to a high degree of complexity and fragmentation

**Public administration has to provide IT-services for everyone,  
everywhere, without discrimination.  
This makes IPv6 mandatory.**

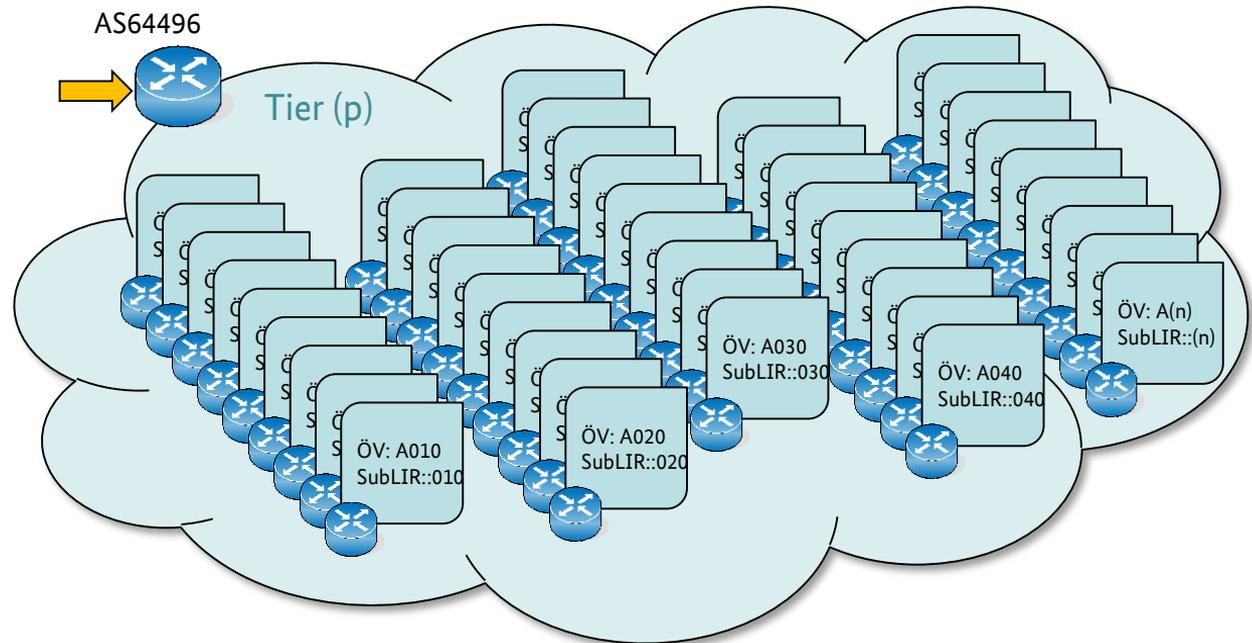
# Example for a challenge

Ideal situation: routing by one single provider

## AS Entries

- n public administrations with different prefixes (/34 - /56) provider aggregated in one address space

Worldwide one AS entry is expected.



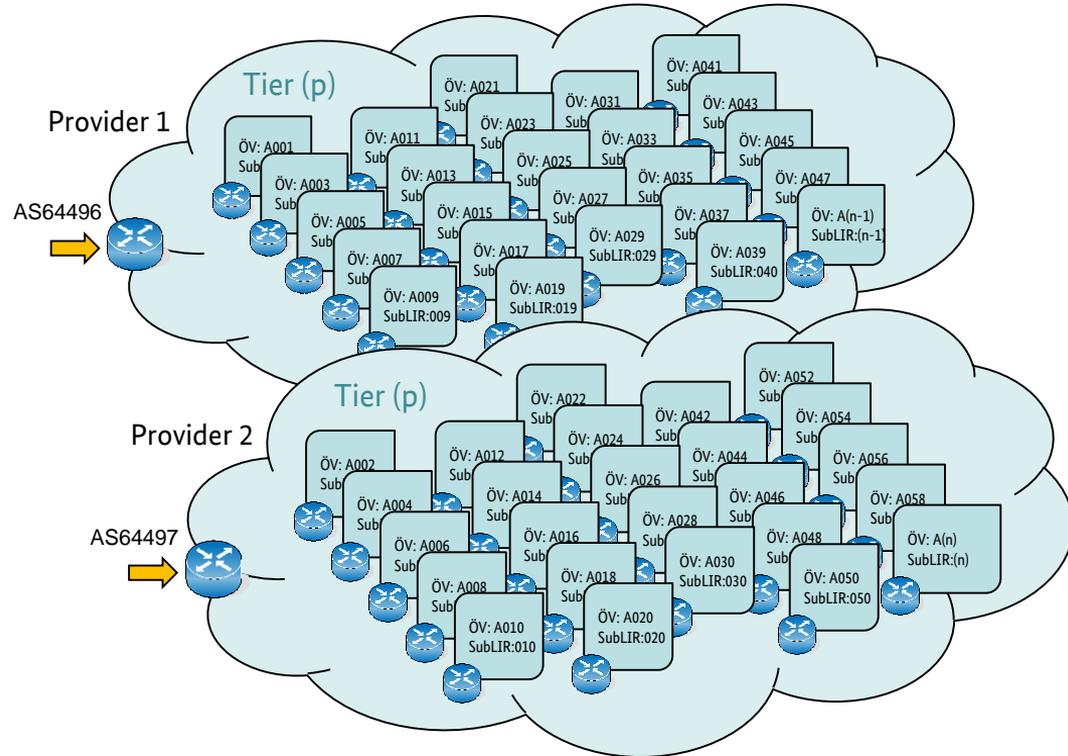
# Example for a challenge

Worst case: Two providers and maximum deaggregation

## Theoretical fragmentation

- All odd PA's assigned to provider 1:  
ÖV:A001, A003, A005, A007 ... A(n-1)
- All even PA's assigned to provider 2:  
ÖV:A002, A004, A006, A008 ... A(n)

Worldwide (n) additional AS entries expected.



# Example for a challenge

A solution approach: Two providers with maximum aggregation

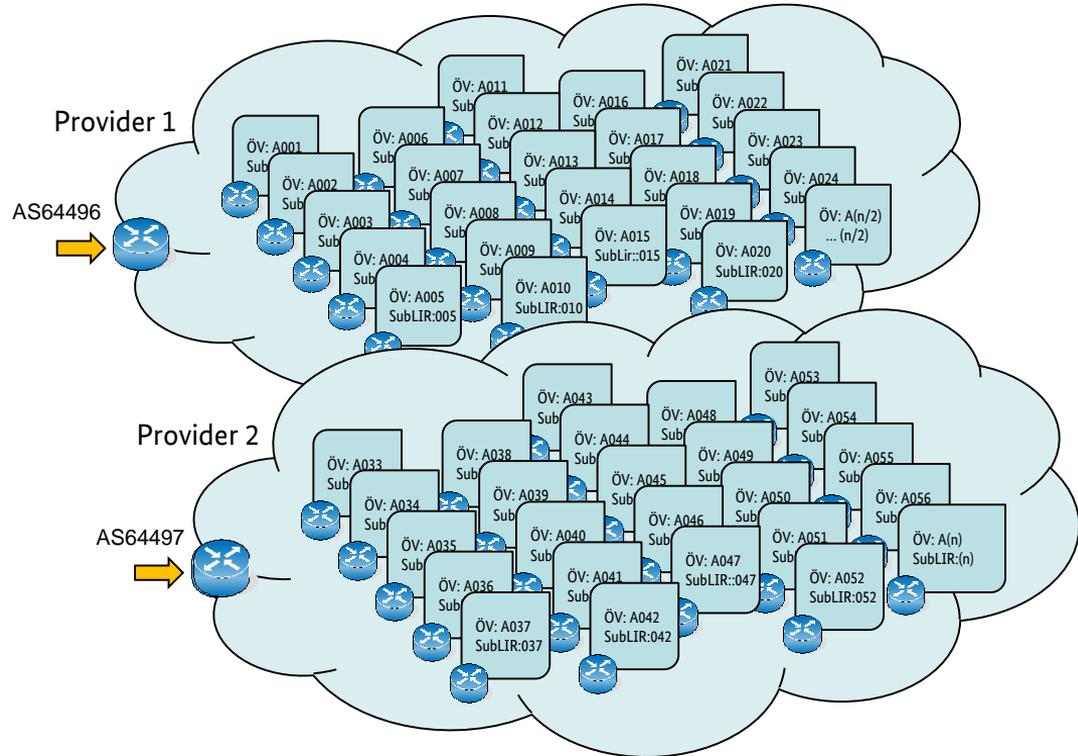
## Aggregation

One solution:

Identify strategic aggregatable addressspaces: police/finance/schools etc.  
**prior** prefix allocation.

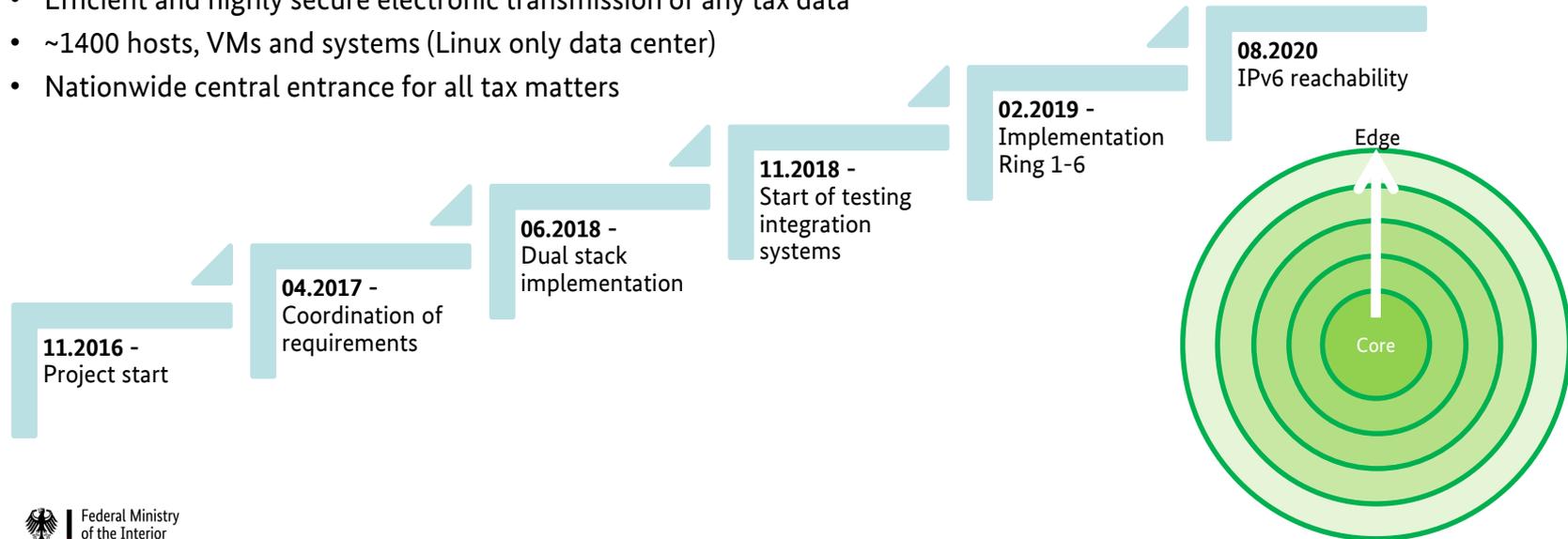
- Entries for AS64496:  
PA: A001-A032
- Entries for AS64497:  
PA: A033-A064

**Worldwide two additional new AS entries expected.**



## Successful implementation of an IPv6 migration

- ELSTER stands for the German electronic tax declaration
- 46 million taxpayers, tax consultants, companies, employers and associations
- Efficient and highly secure electronic transmission of any tax data
- ~1400 hosts, VMs and systems (Linux only data center)
- Nationwide central entrance for all tax matters





# Connection Statistics for October 2021: ~52% IPv6, ~48% IPv4

# IPv6 is more than a technical issue

## Fields of action



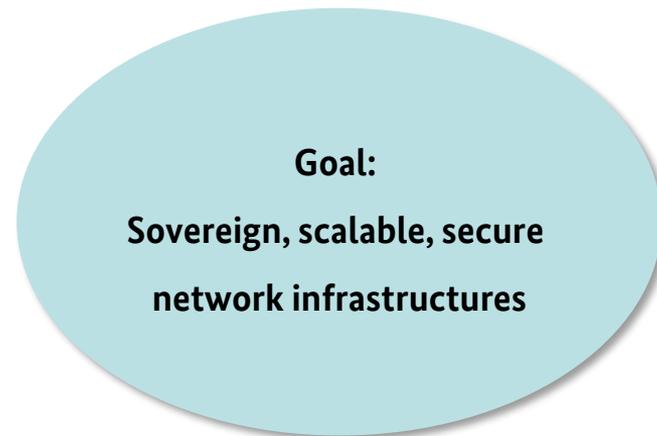
**Organisation & Process:** IPv6 forces us to think beyond our organisation and our process



**Multistakeholder approach:** We have to engage within the open multistakeholder groups developing Internet standards and policies



**Standardisation:** IPv6 leads to new fields of action in the standardisation of IT networks for regulatory authorities as well as administration and politics



# Thank you for your attention!

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BMI  
Referat CI5