

# 6WiN

## Native IPv6 Backbone

Christian Schild

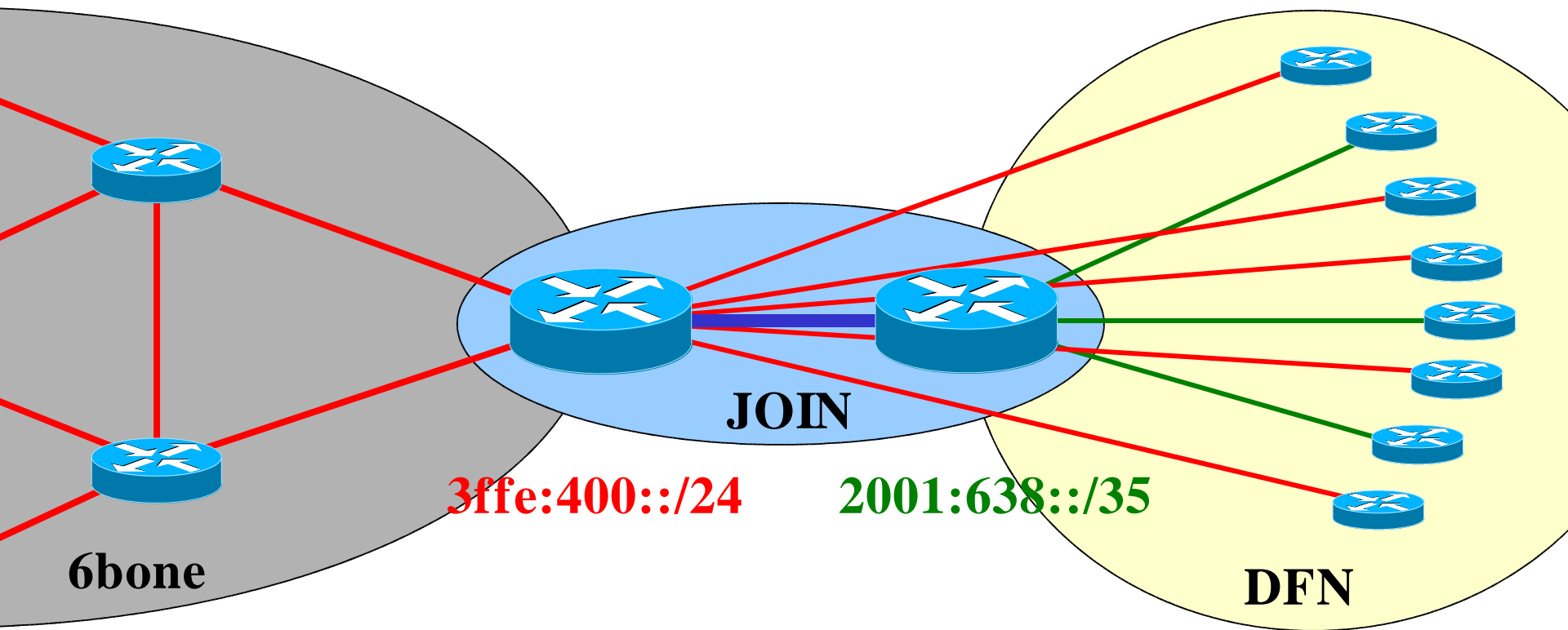
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# 6bone and 2001:: prefix separation



# Connected to JOINs 6WiN-Sim

## Tunel zu Mitgliedern:

- Universität Münster
- FHTW Berlin
- CCCLE
- FGAN e. V.
- Fachhochschule Regensburg
- Fachhochschule Kiel
- Universität Erlangen
- Universität Stuttgart
- Universität Karlsruhe
- Universität Oldenburg
- Universität Rostock
- KNF e. V.

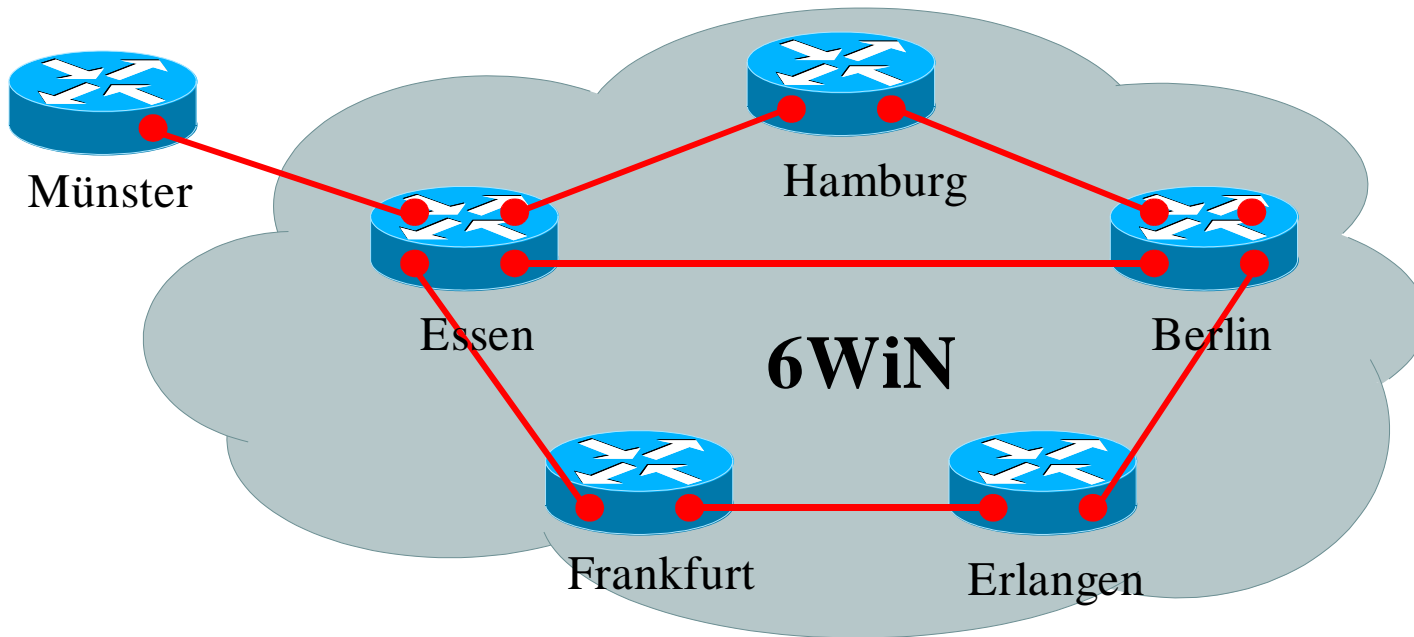
## Tunnel zu anderen Providern:

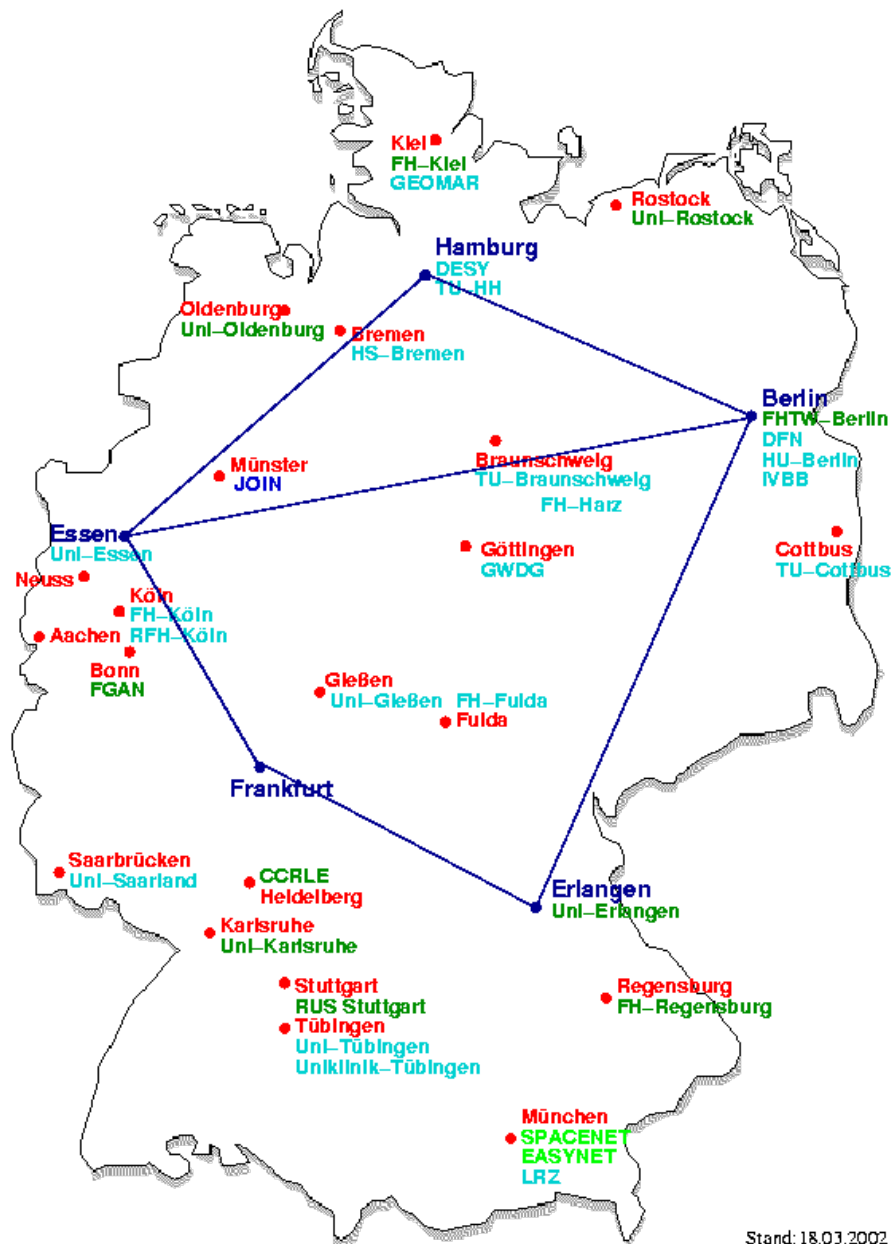
- Spacenet
- Easynet
- Renater (Frankreich)
- Surfnet (Niederlande)

# Assigned prefixes (march '02)

2001:0638:0100::/48	LRZ	2001:0638:0700::/48	DESY
2001:0638:0200::/48	Universität des Saarlandes	2001:0638:0701::/48	GEOMAR
2001:0638:0201::/48	Universitae Europe Ltd CCRLE	2001:0638:0702::/48	TU Hamburg-Harburg
2001:0638:0202::/48	Universität Stuttgart	2001:0638:0703::/48	Hochschule Bremen
2001:0638:0203::/48	Universitätsklinik Tübingen	2001:0638:0704::/48	Fachhochschule Kiel
2001:0638:0204::/48	Universität Karlsruhe	2001:0638:0705::/48	Universität Oldenburg
2001:0638:0205::/48	Universität Tübingen	2001:0638:0800::/48	DFN GS Berlin
2001:0638:0300::/48	Universität Giessen	2001:0638:0801::/48	FHTW Berlin
2001:0638:0301::/48	Fachhochschule Fulda	2001:0638:0802::/48	HU Berlin
2001:0638:0400::/48	Rheinische Fachhochschule Köln	2001:0638:0803::/48	IVBB BUND
2001:0638:0401::/48	FGAN e.V.	2001:0638:0804::/48	Universität Rostock
2001:0638:0402::/48	Fachhochschule Köln	2001:0638:0900::/48	TU Cottbus
2001:0638:0500::/48	Universität Münster	2001:0638:0A00::/48	Universität Erlangen
2001:0638:0501::/48	Universität Essen	2001:0638:0A01::/48	Fachhochschule Regensburg
2001:0638:0600::/48	GWDG	2001:0638:0A02::/48	Kommunikationsnet Franken e.V.
2001:0638:0601::/48	Fachhochschule Harz		
2001:0638:0602::/48	DFN Braunschweig		

# 6WiN core





Stand: 18.03.2002

TF-NGN 8, Berlin, Germany, 01.-02. Juli 2002,  
 Christian Schild, JOIN Projekt Team, WWU Münster



ZENTRUM FÜR  
 INFORMATIONEN  
 VERARBEITUNG



# equipment

## router:

- Cisco 7206
- FE interface
- Dual port E3 interface(s)
- IOS 12.2(8)T3

## connectivity:

- 34 Mbit point-to-point connections
- Native IPv6-only

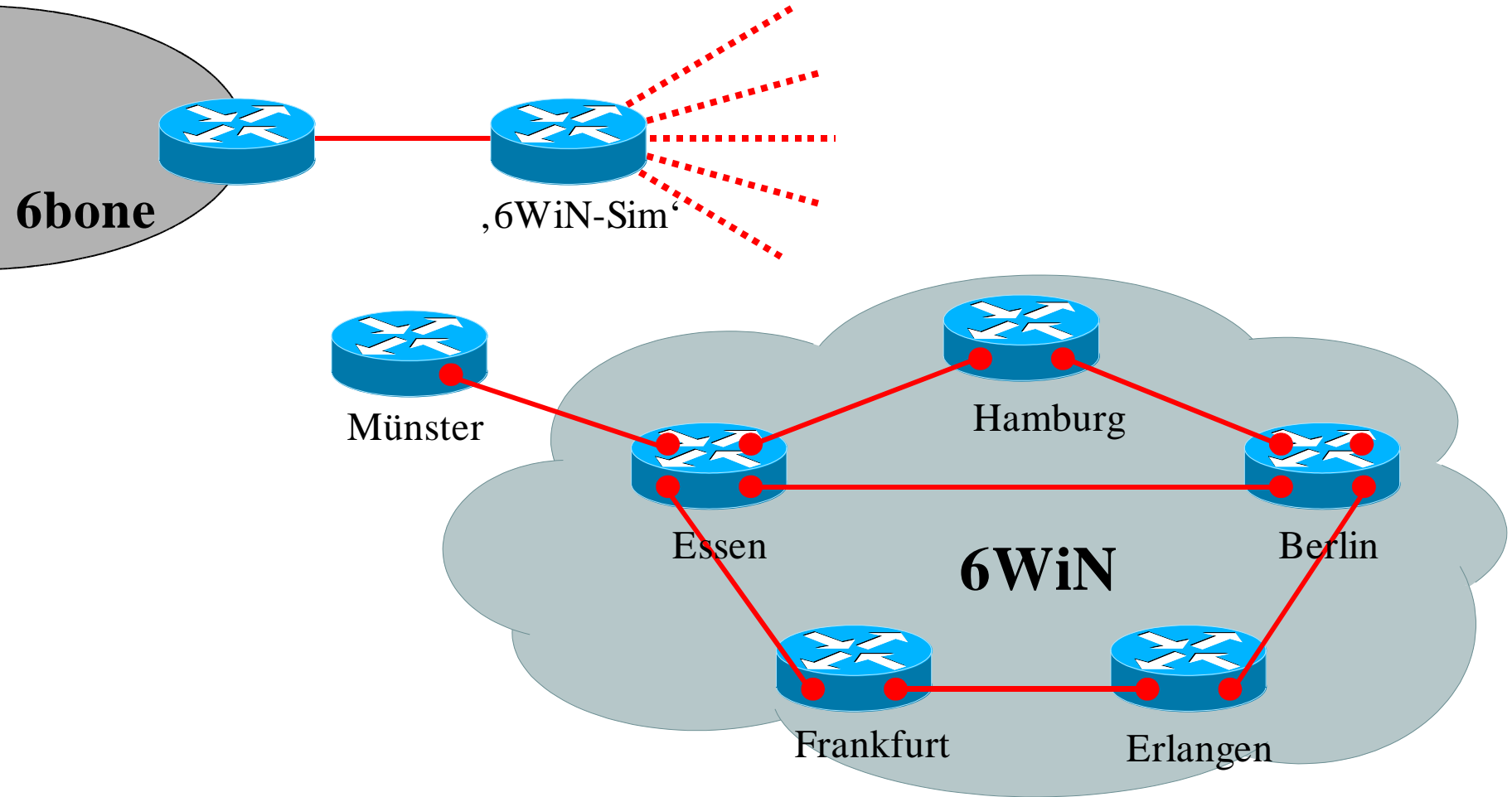
# Connections to the 6WiN

- Connection of DFN members with IPv6-in-IPv4-Tunnel through G-WiN or native (if possible)
- 6bone at JOIN (Münster)
- Other similar networks
  - Deutsche Telekom (IPv6-Showcase project)
  - european NRNs (6NET)
  - Other (commercial) IPv6 providers (DECIXv6, Tunnel)
- ‚short‘ ways (local):  
native or DFN (IPv4) peering partners

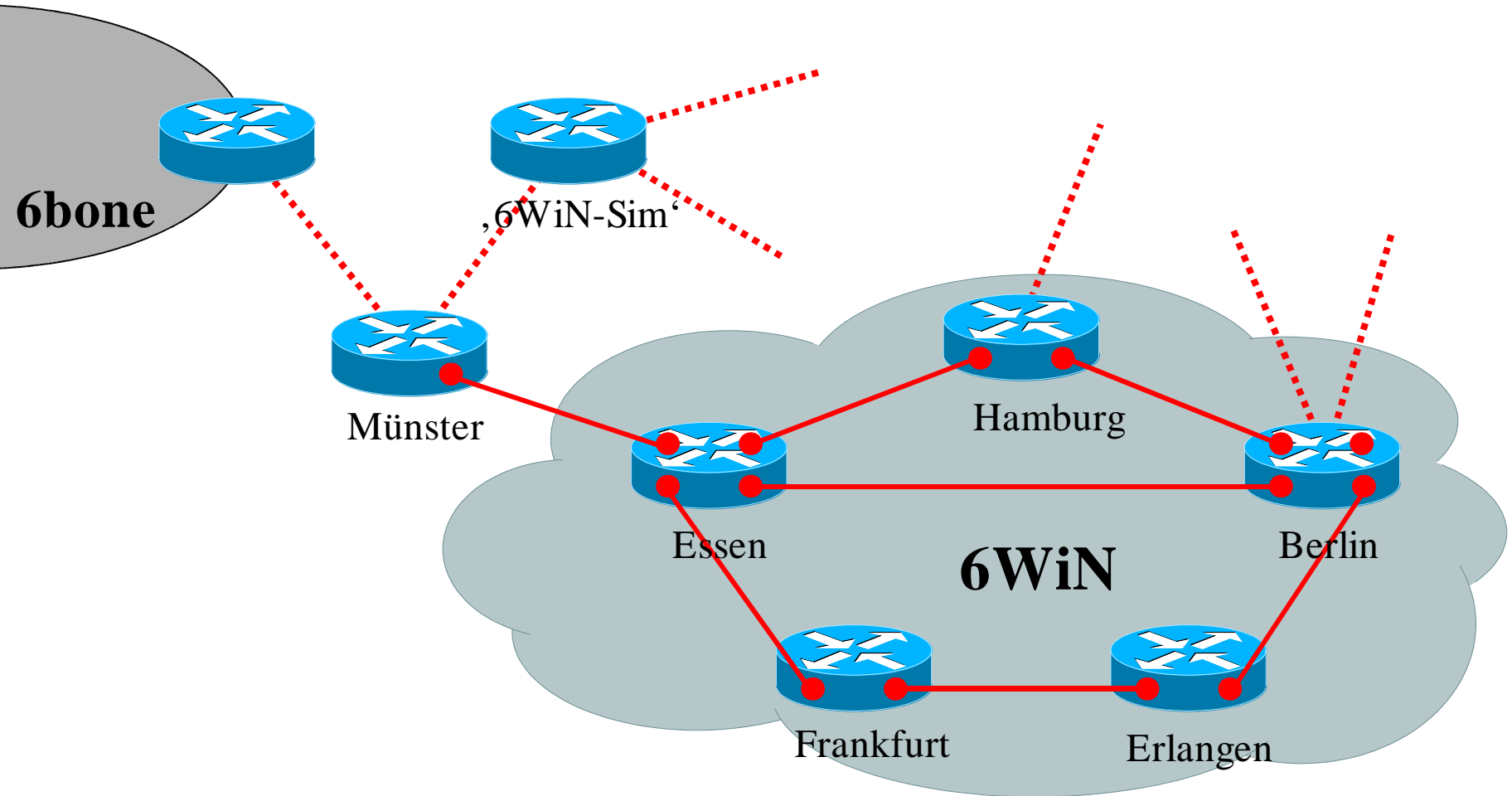




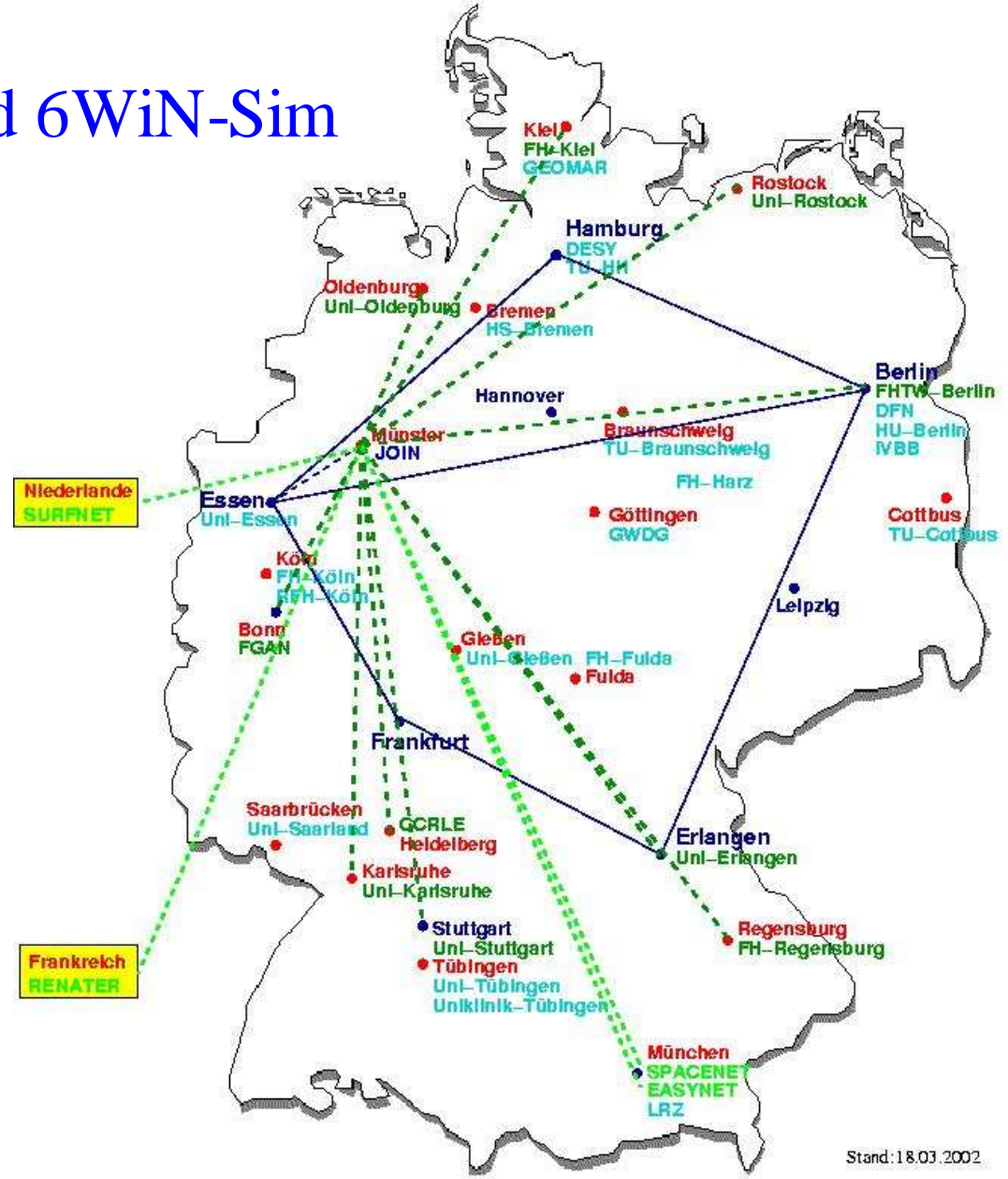
# Integration of old structures



# Connection to the 6bone

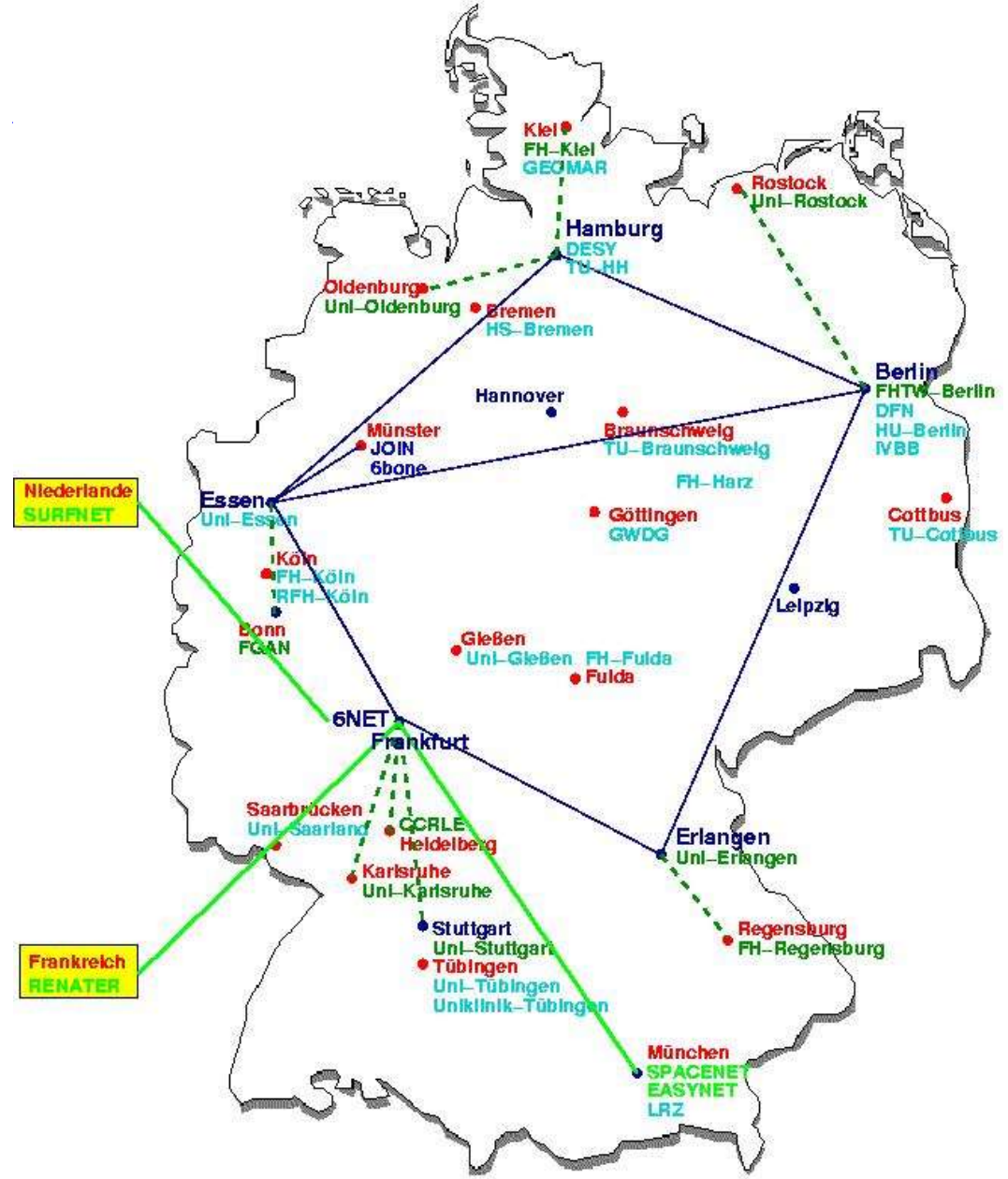


# Connections with old 6WiN-Sim



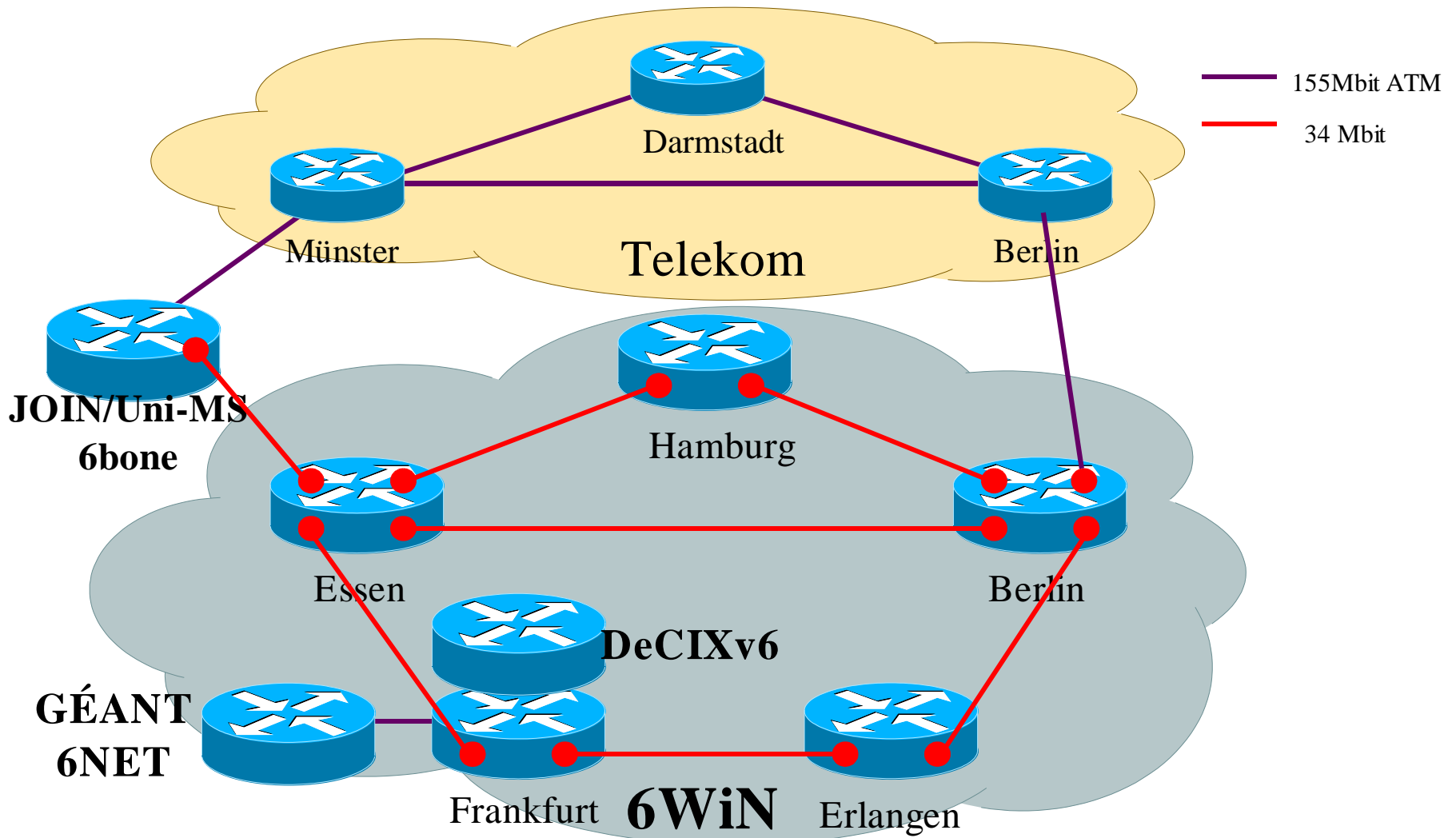
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# Connections directly



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# 6WiN to rest of the world



# Today's status

- 6WiN is active since mid-June
- Status of connections:
  - 6bone and migration of old tunnels since June 22nd
  - 6NET since June 28th (incl. BGP)
  - Telekom in Berlin active but no routing (possible link to Euro6IX)
  - Telekom in MS not ready yet
  - DECIXv6 in planning stadium

# Internal routing

- Cisco IOS 12.2(8)T3
- IPv6-only
- IS-ISv6 (Level-2 cloud of 5 core routers + MS)
- iBGP4+ (Full meshed network of 5 core routers, MS included with route reflector in Essen)
- No multicast so far

# External filtering

- All routes accepted from 6bone (2001:: and 3ffe::)
- All other exits accept/advertise 2001:: only
- 6NET exit advertises 2001:638::/35 (DFN) and 3ffe:400::/24 (JOIN) and accepts everything



# Addressing

- 2001:638:0::/48 reserved for backbone addressing
- Every router has own 2001:638:0:x00::/56 prefix (aggregated in IS-IS)
- Loopback address always 2001:638:0:x00::1
- PtP- and tunnel interfaces use /112 prefixes
- Customers receive address from 2001:638:x00::/40 block (aggregated in iBGP)
- Exits advertise /35 prefix to external peers

# Current overview

