

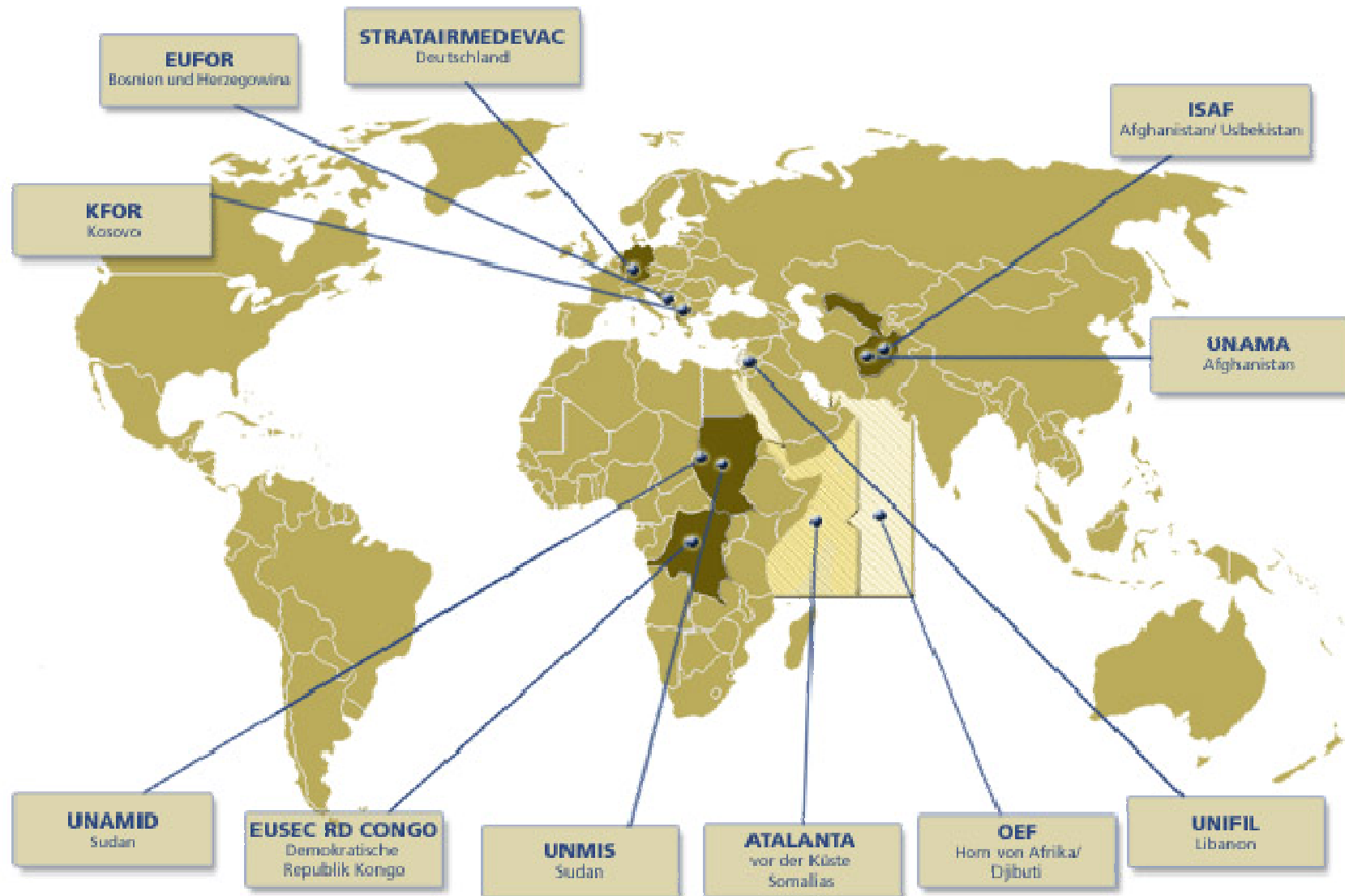


IPv6 Adress Policy for German Bundeswehr

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BMVg M II / IT 4

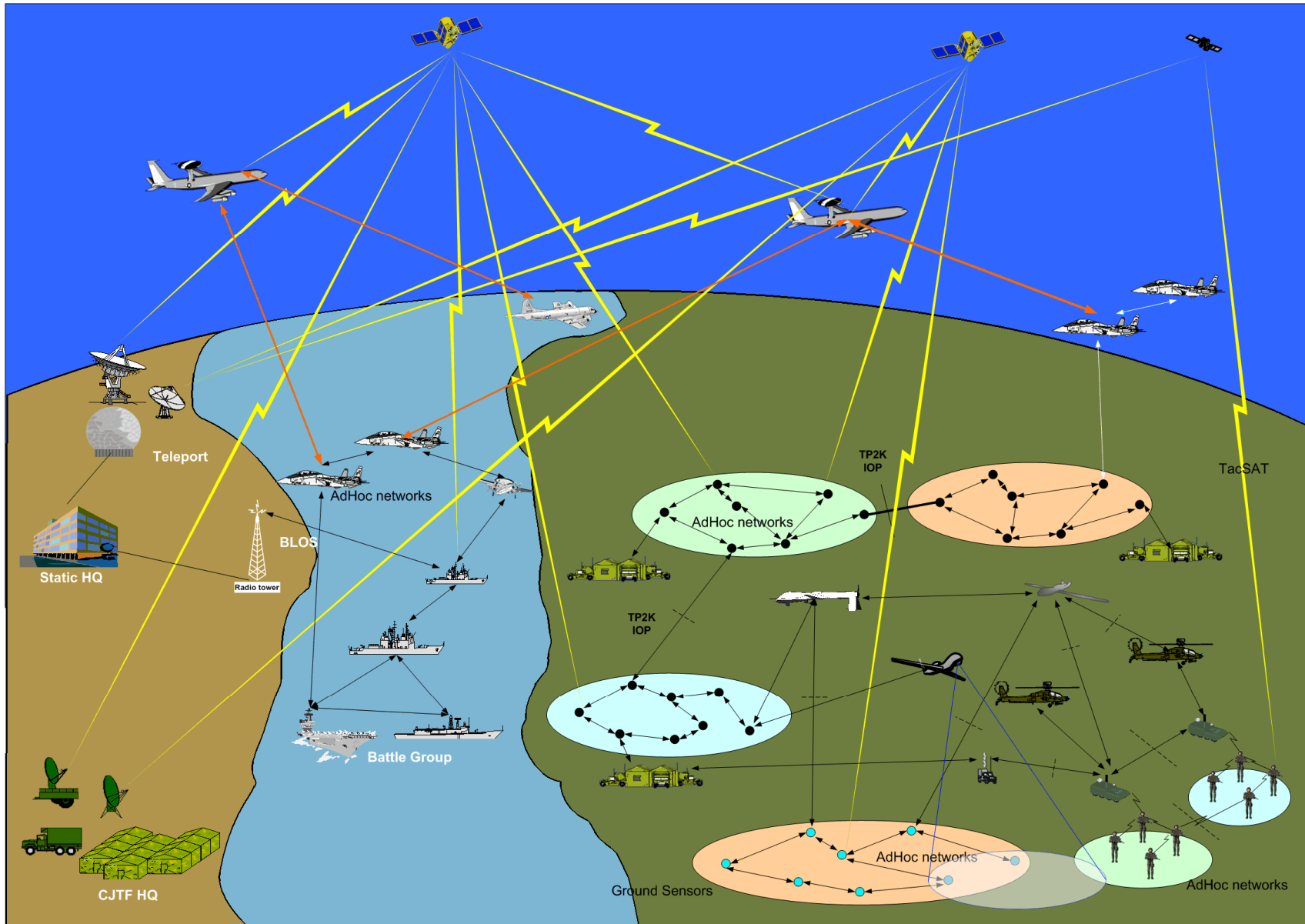


Current Missions German Armed Forces



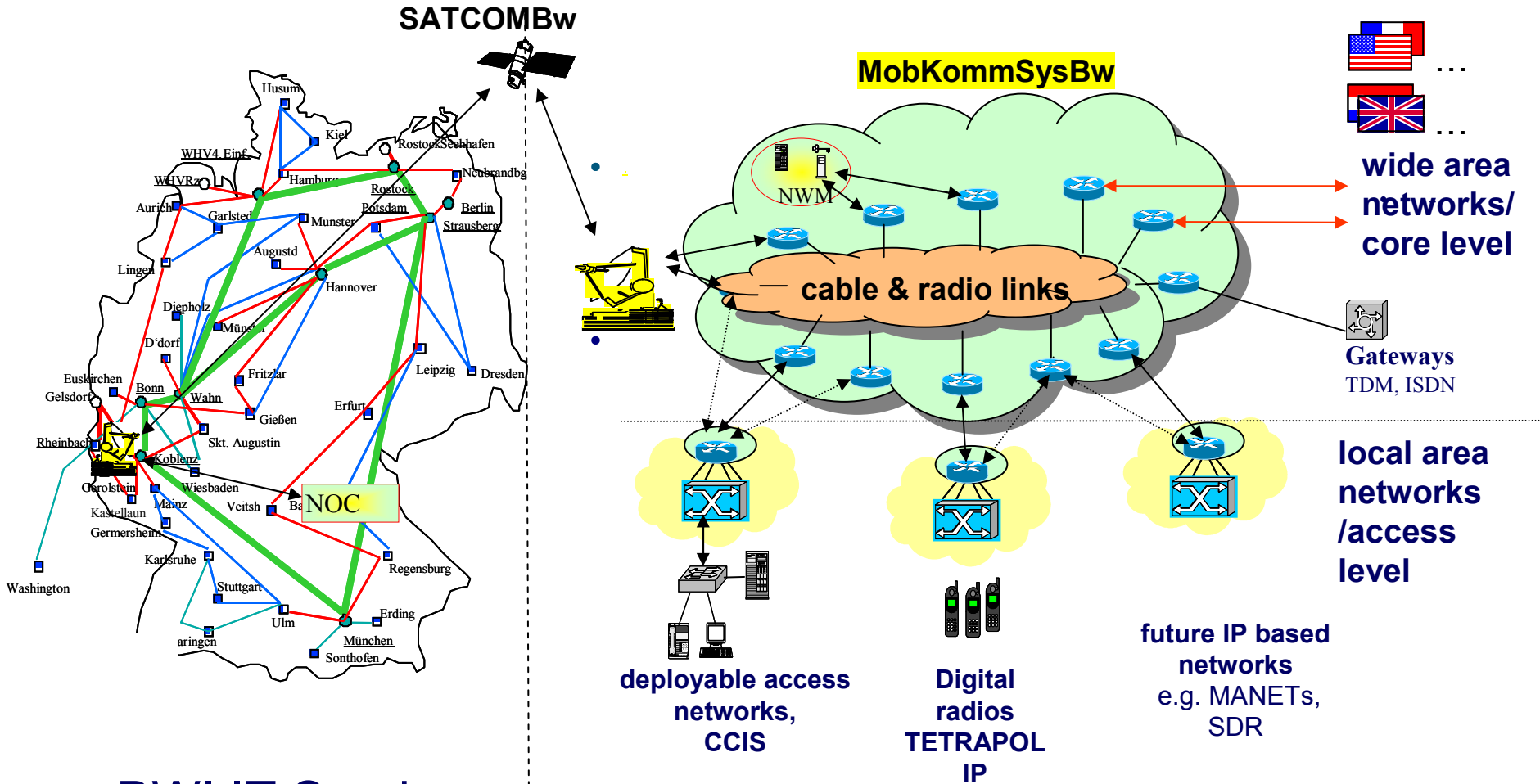


Network Centric Operations





Networking Responsibilities



BWI IT Service
(Contractor)

Bundeswehr



MobKommSysBw

is a complete deployable network solution,

which is the central element and enables network-centric operations of mobile, tactical networks to be carried out at all command levels, using links with the home country, allies and partners.

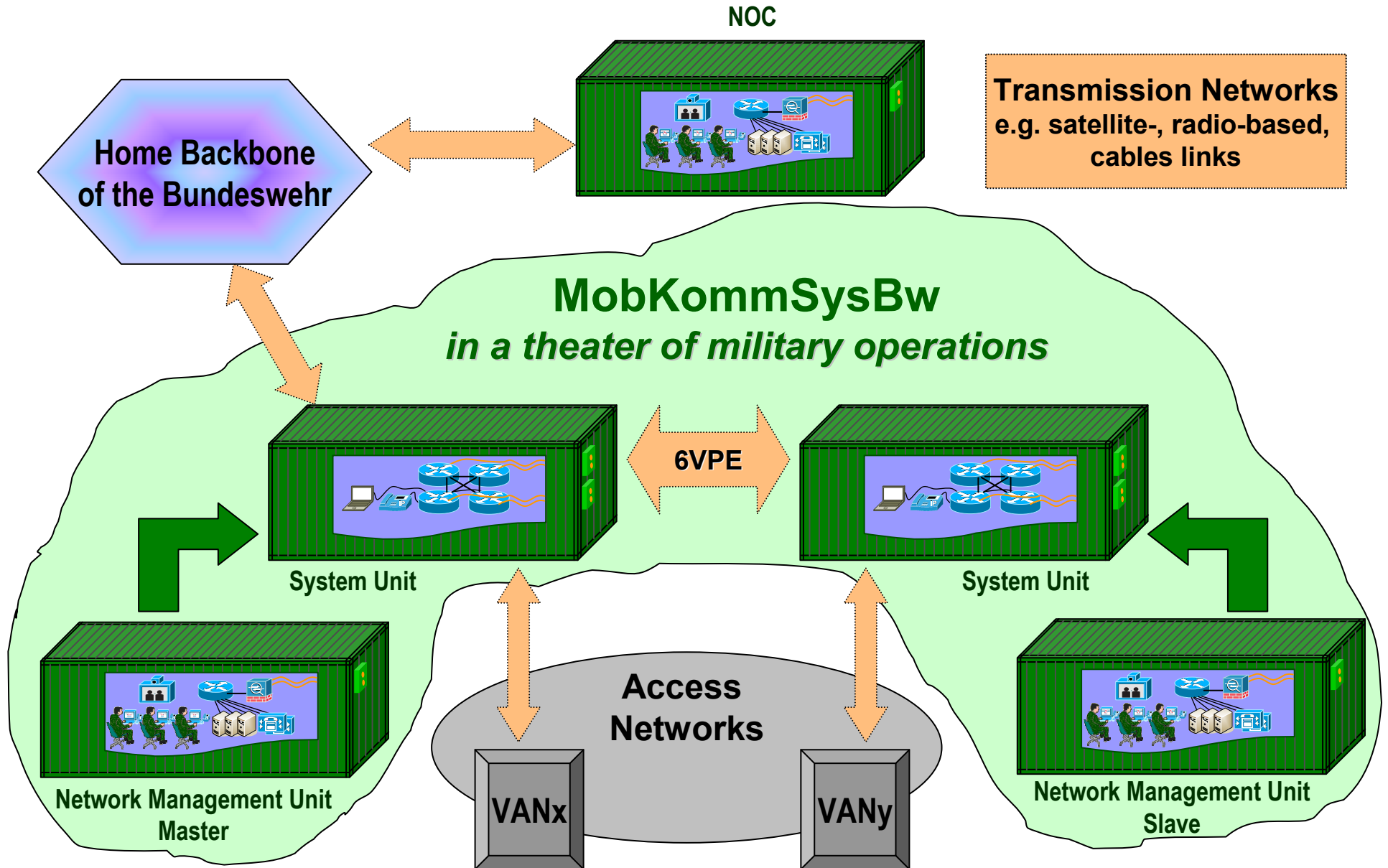
Nowadays, the MobKommSysBw solution is extremely important for Bundeswehr abroad missions. In a theater of military operation MobKommSysBw provides with services which are usually delivered by ISPs in civilian and industrial sectors.

Consequently, this military solution is for the first time relying entirely on IP-based civil communications standards, e.g:

- IPv4, IPv6 (**dual stack approach**)
 - ✓ ISIS, BGP
 - ✓ MPLS (**6VPE**, VPLS)
- VoIP (SIP, SRTP, CUBE)



MobKommSysBw - Overview





Address Concepts 1(3)

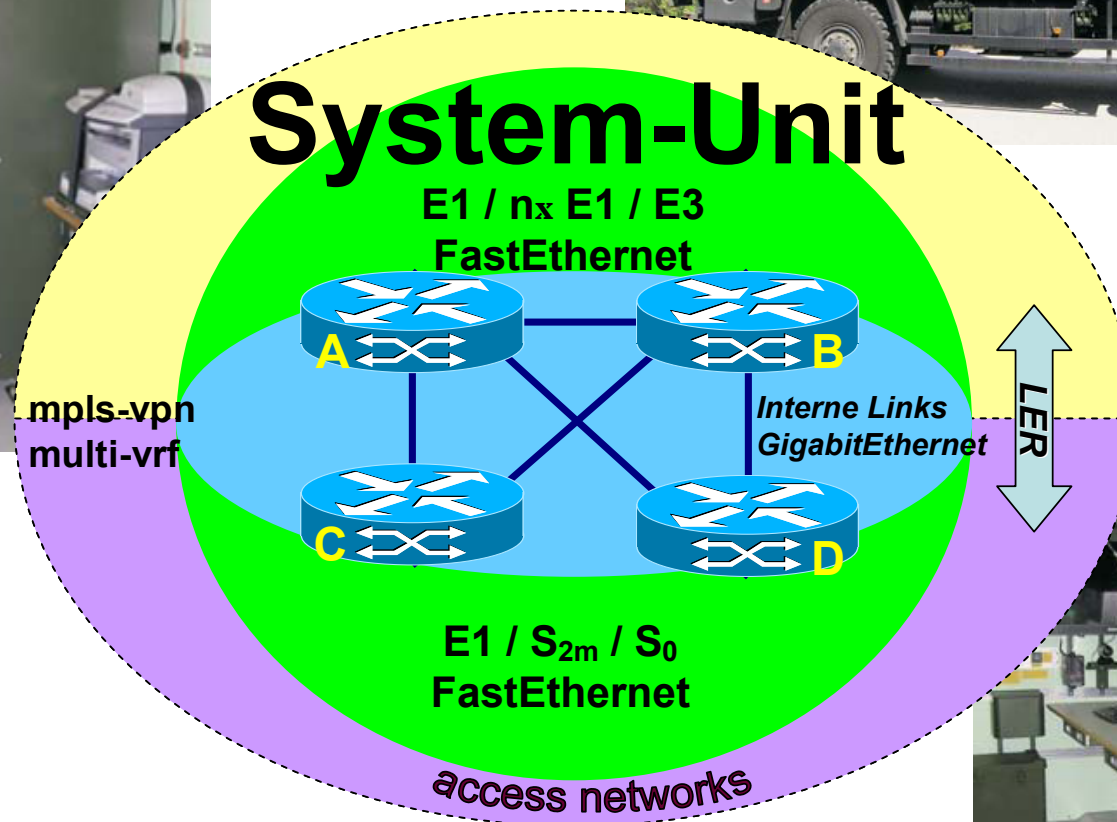


- Basic Requirements for Deployment
 - at least 8 strategic missions (*theaters of military operations*)
 - long-term coexistence (*dual stack*)
 - centralized and concurrent management from the NOC in the Homeland
 - no NAT on Edge/Peers
 - **Special Access Networks**
 - numbers of Access Networks is not specified (>>10)
 - Scalability and Transparency
 - varying amount of addressable end-devices (up to 4000 in one Access Network)
 - varying amount of addressable sensor- and special-segments (small independent networks)
 - autarchy as fallback
 - each Access Network could demand an own (MPLS-)VPN



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Address Concepts 2(3)



- Landmark decisions
 - Reserved BGP 2-Byte-AS #
 - $64500 + Mi * 100$ ($Mi = 1..8$)
 - 6xN01-6xN59 Access Networks German Army
 - 6xN60-6xN89 Access Networks & Peering partners
 - 6xN90-6xN99 reserved
 - IPv4 from RFC1918
 - 10.x/12 for KommSysBwEins
 - $10.128 + Mi.0.0/16$ for each mission → MobKommSysBw
 - $10.128 + Mi.x.x/20$ for internal / core structures
 - $10.128 + Mi.y.y/20$ or /22 for each Access Network

IPv4 to IPv6 \equiv 1:1 „Transition & Translation“



```
ipv6 general-prefix GenPref   xxxx:xxxx::/32
```

```
ipv6 general-prefix Mission  xxxx:xxxx::/40
```

```
! P2P Dual-Link                /64        /128
```

```
ipv6 address Mission::"ipv4-net"::xxxx
```

```
! P2P IPv6 only
```

```
ipv6 address Mission::"ipv6net"::x/126
```

```
! Loopbacks
```

```
ipv6 address Mission::"ipv4"::"identity"/128
```

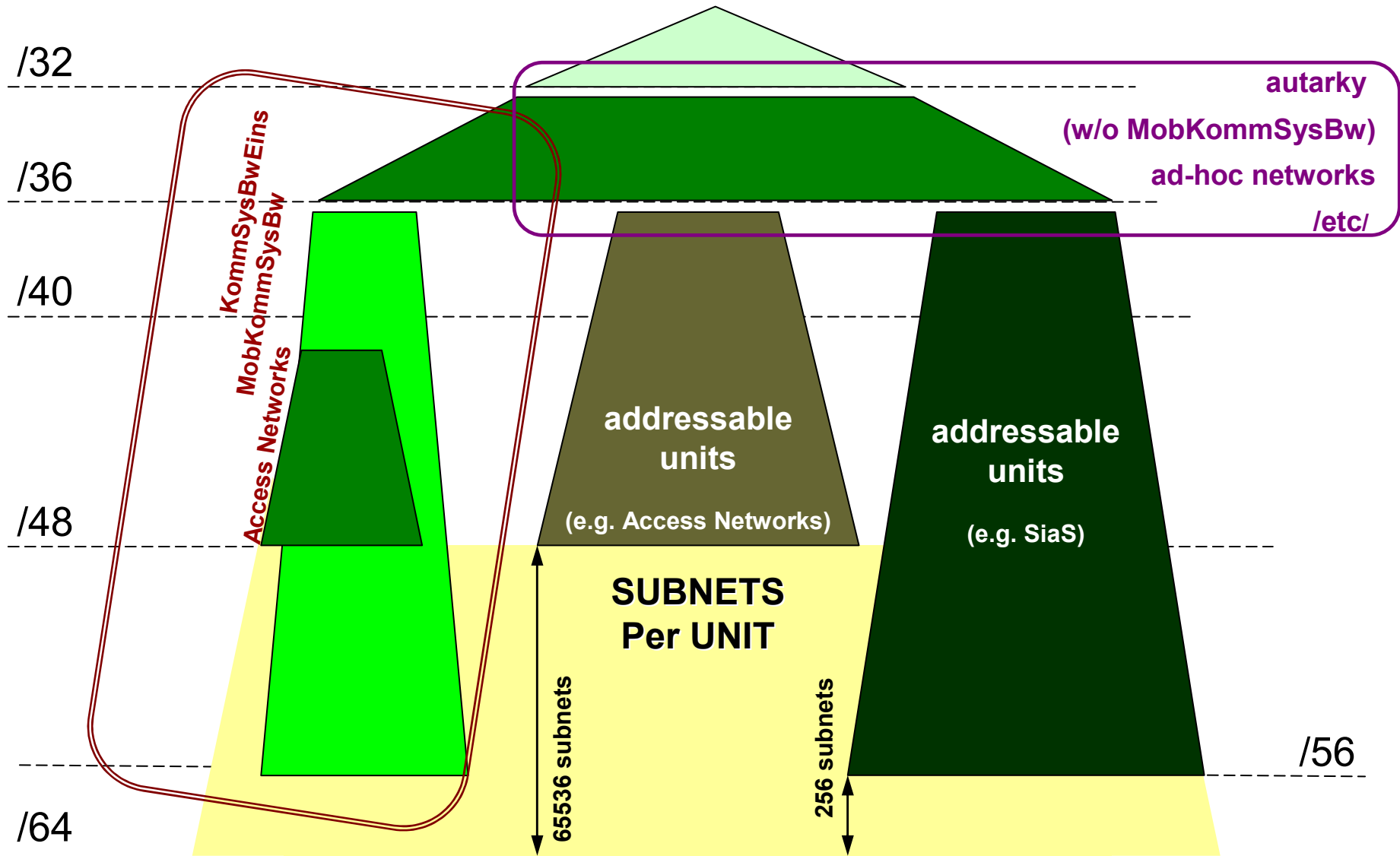
```
! Populated segments (e.g. VLANs)
```

```
ipv6 address Mission::"ipv4-net"::/64 eui-64 SLAAC + DHCP
```

```
! static addresses for SERVERS only (analog ipv4)
```



General (hierarchical) IPv6-structure KommSysBwEins

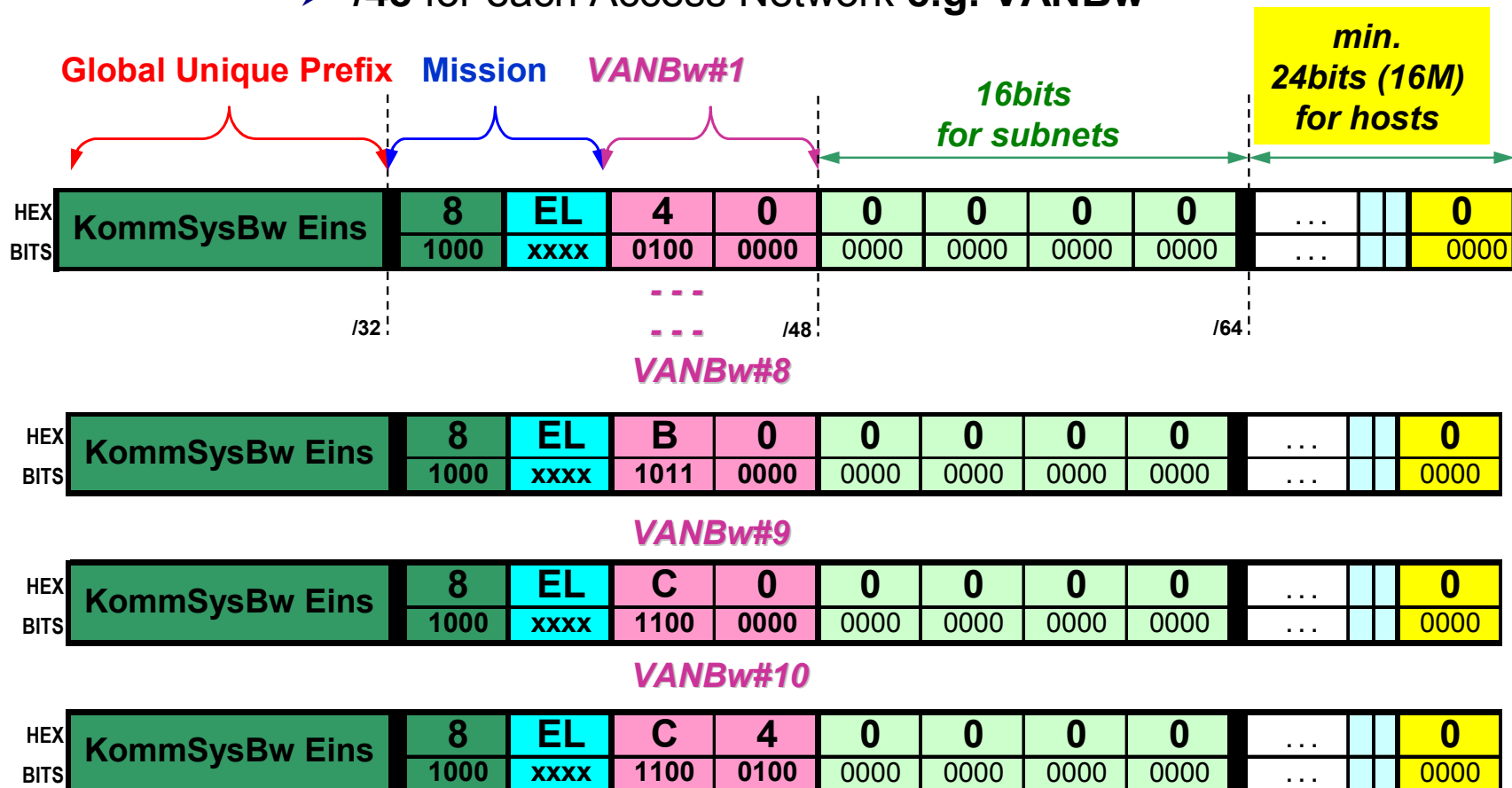




Address Concepts 3(3) VANBw example



- IPv6 Global Unique Prefix /32 for KommSysBwEins
 - /36 for MobKommSysBw
 - /40 for each mission
 - /48 for each Access Network e.g. VANBw





Question and Answer

