update of migration towards IPv6 at DE-KIT
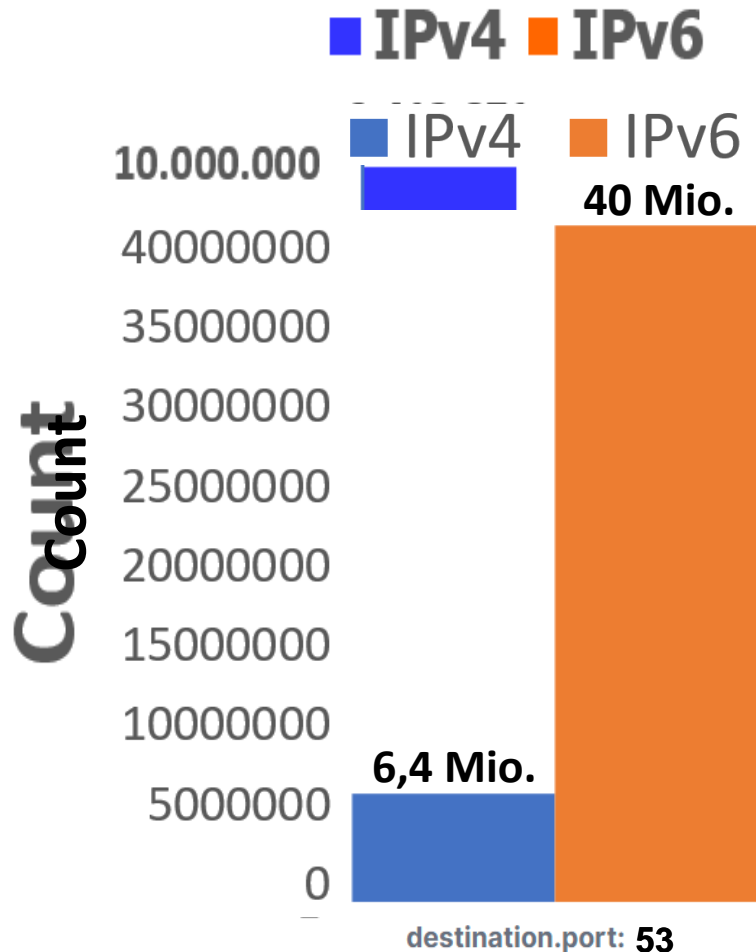
update of migration towards IPv6 at DE-KITupdate of migration towards IPv6 at DE-K

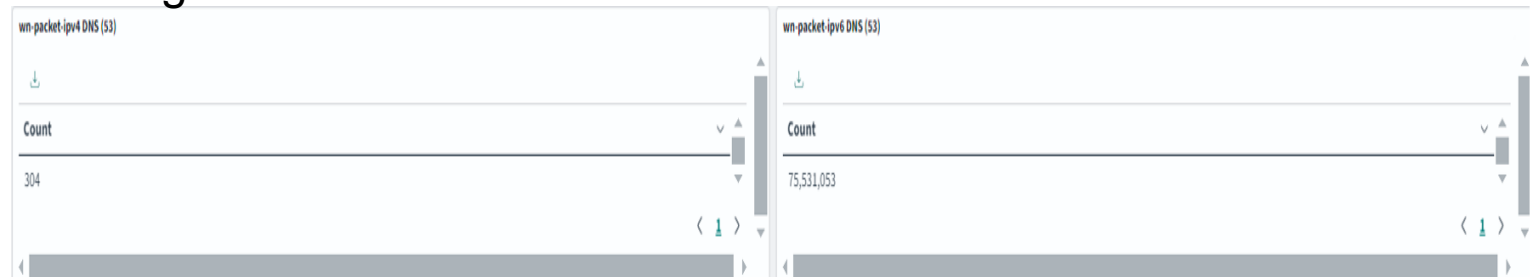**www.kit.edu**

Closer look at DNS

- **GridKa DNS:**
  - IPv4 only count : 9,412,871 (24 hours)
  - DNS (Bind) Server and WN is already dual-stack
  - at WN resolve.conf first lines IPv4
    - Make sure IPv6 DNS server addresses listed and
    - place it before IPv4

current figure:

SQUIDS migrated all to dual-stack

During the second half of 2022 all SQUIDS migrated to dual-stack deployment
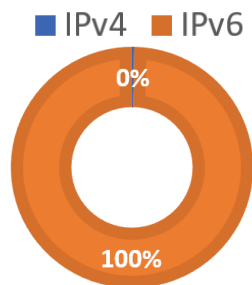
CVMFS now
- manly IPv6 but:
- on WorkerNodes uses IPv6 (with deployed flag: CVMFS_IPFAMILY_PREFER=6)
- CVMFS frontier uses still IPv4 even while both systems dual-stack
- but switching of IPv4 → froniters will operate over IPv6
- the CMS CVMFS frontiers offers in site-local-config.xml the Option:

```
<frontier-connect>
...
        <prefer ipfamily="6"/>
...
</frontier-connect>
```

25-10-2023

IPv4 :   64 k   IPv6: 22 mio.

■ IPv4 ■ IPv6

0%

100%

current figure:

wn-packet-ipv4 CVMFS (3128/3401)

Count

26,020

⟨ 1 ⟩

wn-packet-ipv6 CVMFS (3128/3401)

Count

37,857,898

⟨ 1 ⟩

Batch-Processing -- LRMS (HT-Condor) all dual-stack

- LRMS (**Local Resource Management System**) HTCondor at GridKa (all dual-stack and set to **prefer** the protocoll **IPv6** (Port 9618/9)

  - percentage increased toward IPv6 at 28-06-2022→ IPv4: **895k** to IPv6: **255k**
  - 1,2% IPv4   28-07-2022 → IPv4:   27k, IPv6:   2,17 mio.
  - **4,3%** IPv4   04-04-2023 → IPv4: 767k, IPv6: 17,8 mio.
  - 1,6% IPv4   09-23-2024 → IPv4: 104k, IPv6:   6,46 mio.

  Less then 50% of IPv4 is internal traffic

  (communication with home → the LRMS demons uses protocol of Home-Institution)

XRootD

A view statistics:

XrootD (port 1094) IPv4: → starting from (beg. 2022): 234k -- IPv6: 905k

→ 02-14-2024: XrootD (port 1094) IPv4: 294k -- IPv6: 5.6 Mio.

local (192.108.x.x) 100k (approx. 33%)

→ 03-20-2024: XrootD (port 1094) IPv4: 1,5 Mio. -- IPv6: 4 Mio.

local (192.108.x.x) 500k (approx. 33%)

→ today: XrootD (port 1094) IPv4: 3,6 mio. -- IPv6: 13,5 mio.

local (192.108.x.x) 1 mio. (approx. 33%)

Still to do:

WorkerNode overall count 580 mio. (24 hours)

IPv4: 345 mio. IPv6: 235 mio.

field	value	
destination.port: Descending	Other	271,347,428 (79.34%)
destination.ip: Descending	127.0.0.1	258,344,445 (94.09%)

/etc/hosts

::1   localhost localhost.localdomain localhost6 localhost6.localdomain6
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4

Changes are not tested jet,
but will get arranged within the comming days/weeks