



# IPv6 deployment at eCG

Why 96 bits matter to us

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# Agenda

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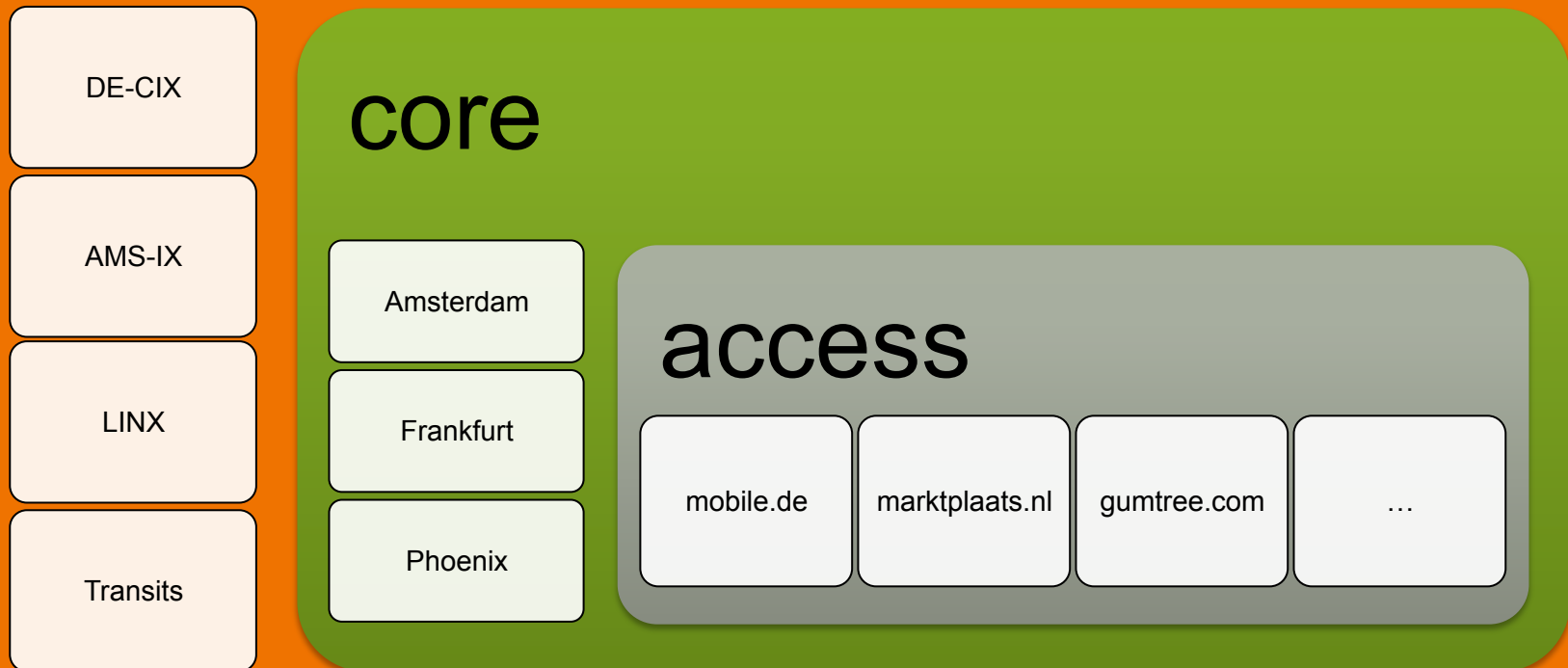
- Who is eCG?
- Why do we want IPv6?
- IPv6 implementation at eCG
- World IPv6 launch – mobile.de participation
- Summary
- Q&A

# Who are we ?



## Our architecture

# AS41552 – RIPE LIR



# Our technology stack

## Hardware



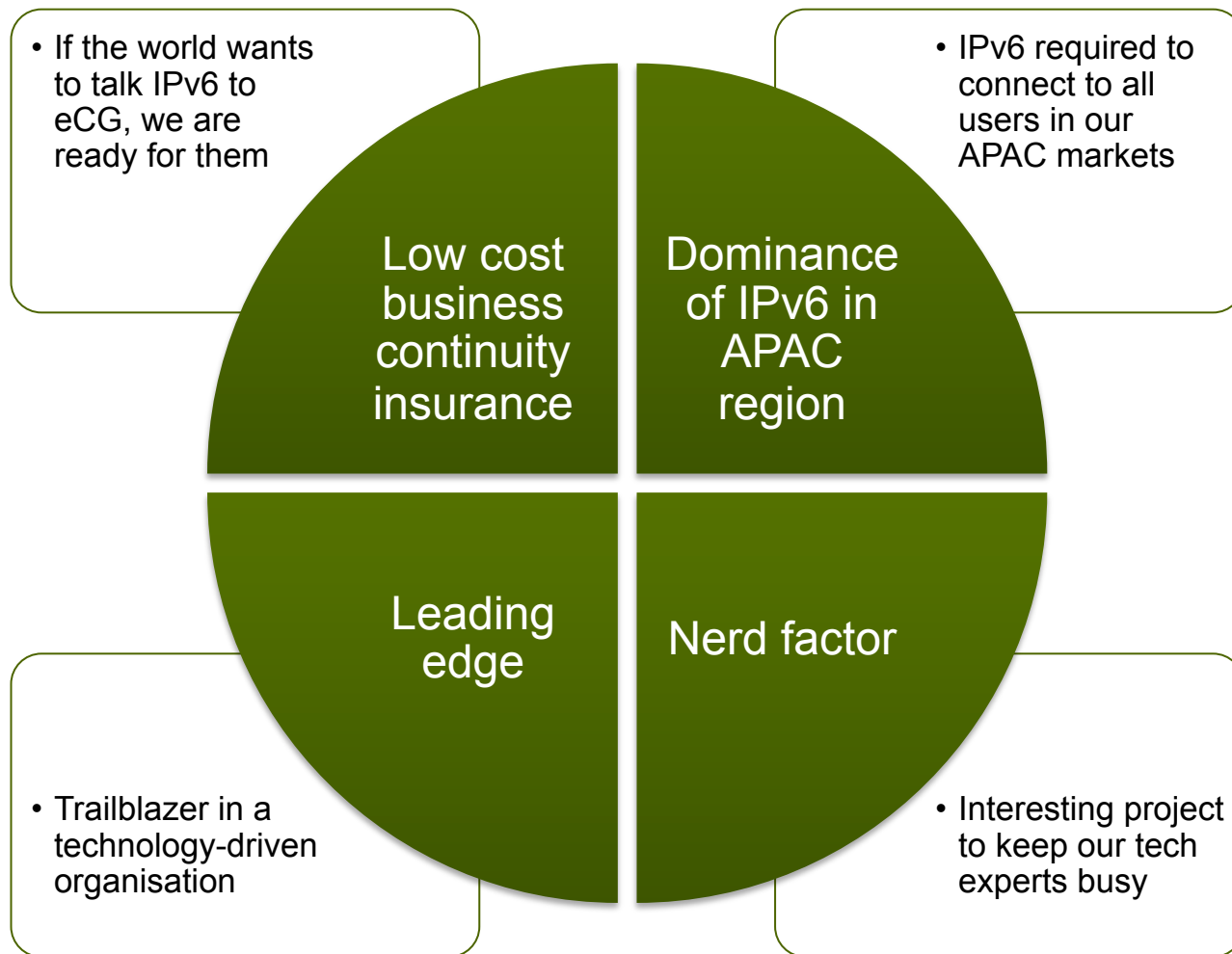
## Application



## Tools

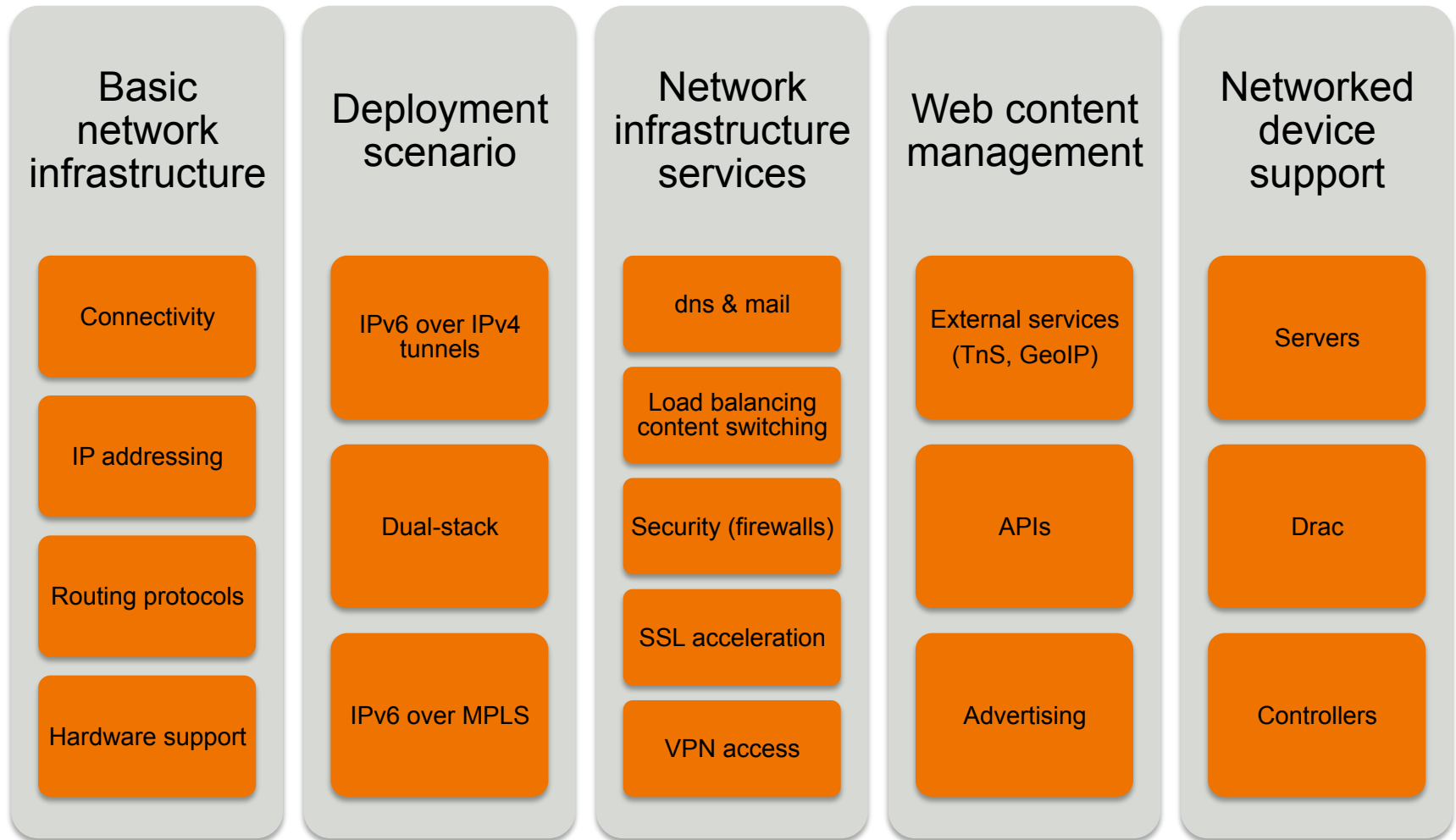


# Why do we care? – Our motivation



2012 is the year when IPv6 really happens

# The scope of IPv6 deployment



# What did we do ?

- Enabled loadbalancer VIPs in IPv6
  - Netscaler V9.x supports it natively
- Deployed new GSLB loadbalancer to support IPv6
- Adapted postfix for new “mynetworks” config

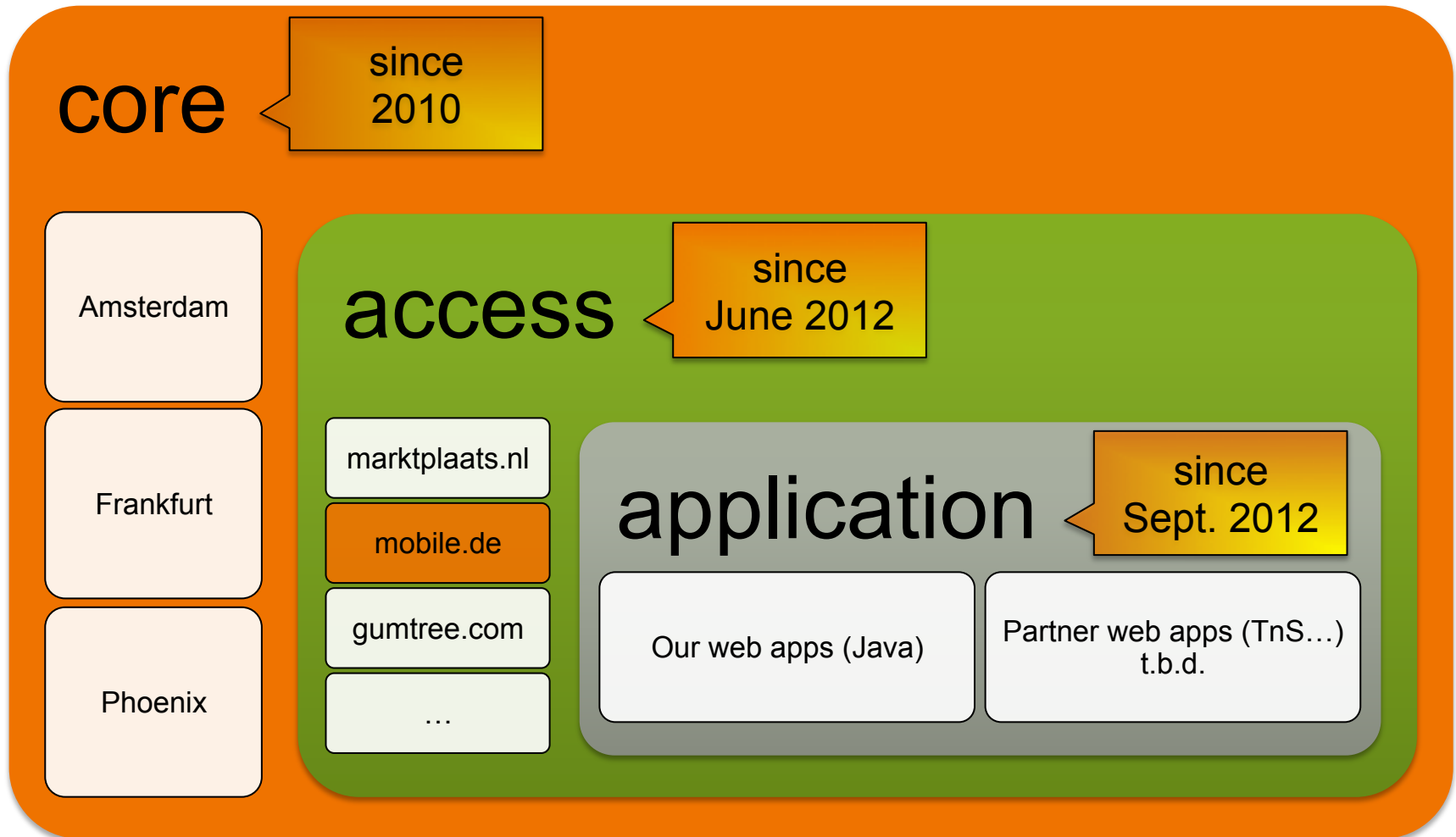
```
% postconf mynetworks  
mynetworks = [::1]/128 [fe80::]/10 [2001:76c:2d0::]/64
```

- Implemented reverse DNS for mail – “nibble”

```
domain: 0.d.2.0.c.7.6.0.1.0.0.2.ip6.arpa  
descr: Marktplaats B.V.  
org: ORG-MA199-RIPE  
admin-c: MPCR1-RIPE  
tech-c: MPCR1-RIPE  
nserver: dns46-2.mobile.de  
nserver: dns47-2.mobile.de
```



# IPv6 implementation timeline




# Problems

- Equipment upgrades required
  - Buggy OS causes core router crashes due to malformed ipv6 packets (SRE2)
  - Still not all IOS features available for v6
  - Programme of software updates in core network to enable ospf for IPv6
  - Cisco GSLB firmware did not support ipv6 until Q4/2011
  - New hardware and software evaluation and deployment
  - Non-RFC implementations by OEMs (see next slide)
- Application upgrades
  - Size and type of DB fields
  - User input validation
    - Educate our developers

# Vendor idiosyncrasy

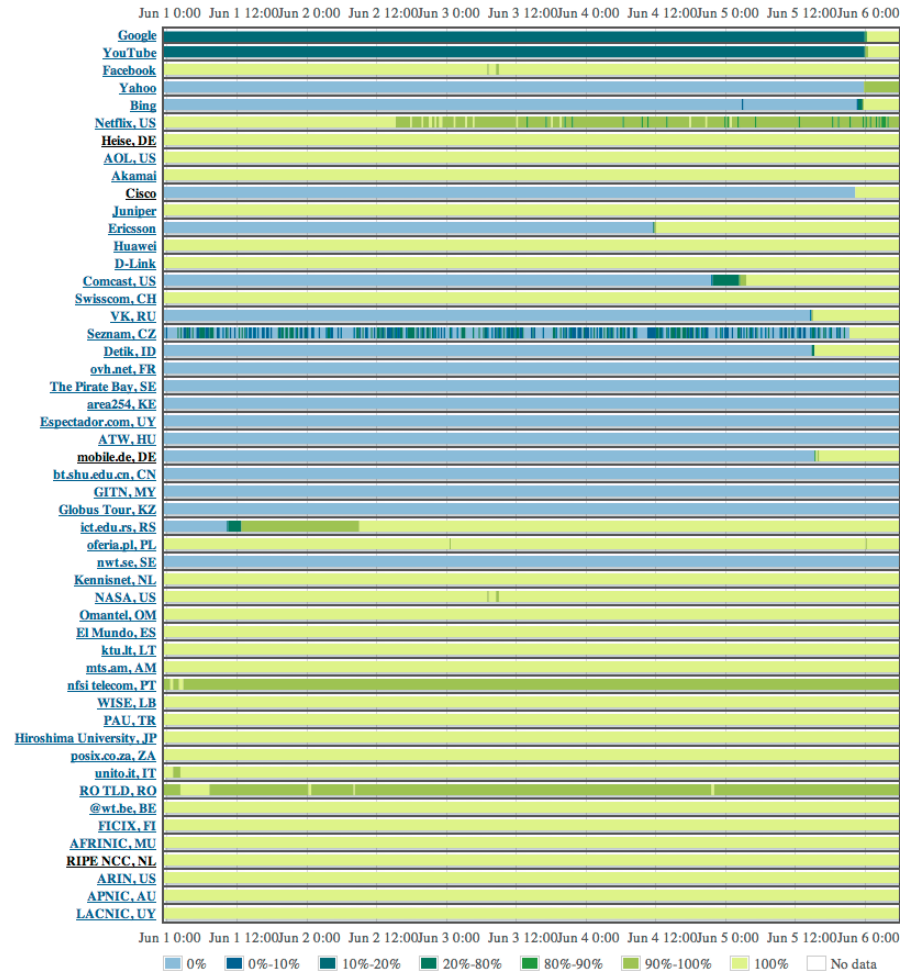
```
Transmission Control Protocol, Src Port: 43023 (43023), Dst Port: http (80)
Hypertext Transfer Protocol
  GET /testsite/ HTTP/1.1\r\n
    User-Agent: curl/7.15.5 (i686-redhat-linux-gnu) libcurl/7.15.5 OpenSSL/0.9.8
    Host: [2090:2::160]\r\n
    Accept: */*\r\n
    client-ip: [2090:2::129]\r\n
    \r\n
```



A red horizontal line with vertical end caps is positioned below the 'client-ip' header value. The word 'Padding' is written in red text above this line, indicating the extra space added to the header to reach a fixed length.

- 42byte fixed-length field
- Padding added for RFC addresses
- Square brackets added (non RFC)!!
- Our solution: Apache rewrite rule to strip brackets

# mobile.de IPv6 visibility on 6<sup>th</sup> June





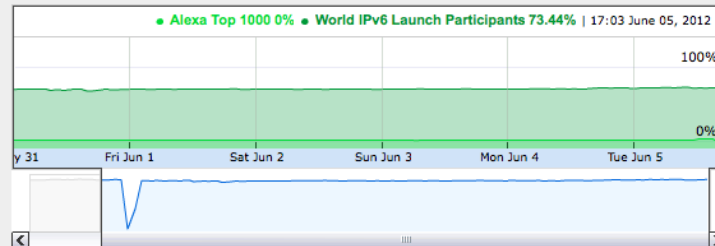
# THE FUTURE IS FOREVER

## WORLD IPv6 LAUNCH • 6 JUNE 2012

### MEASUREMENTS

Percentage of participating websites currently reachable over IPv6. Measurements every hour from

United Kingdom (AS35425)



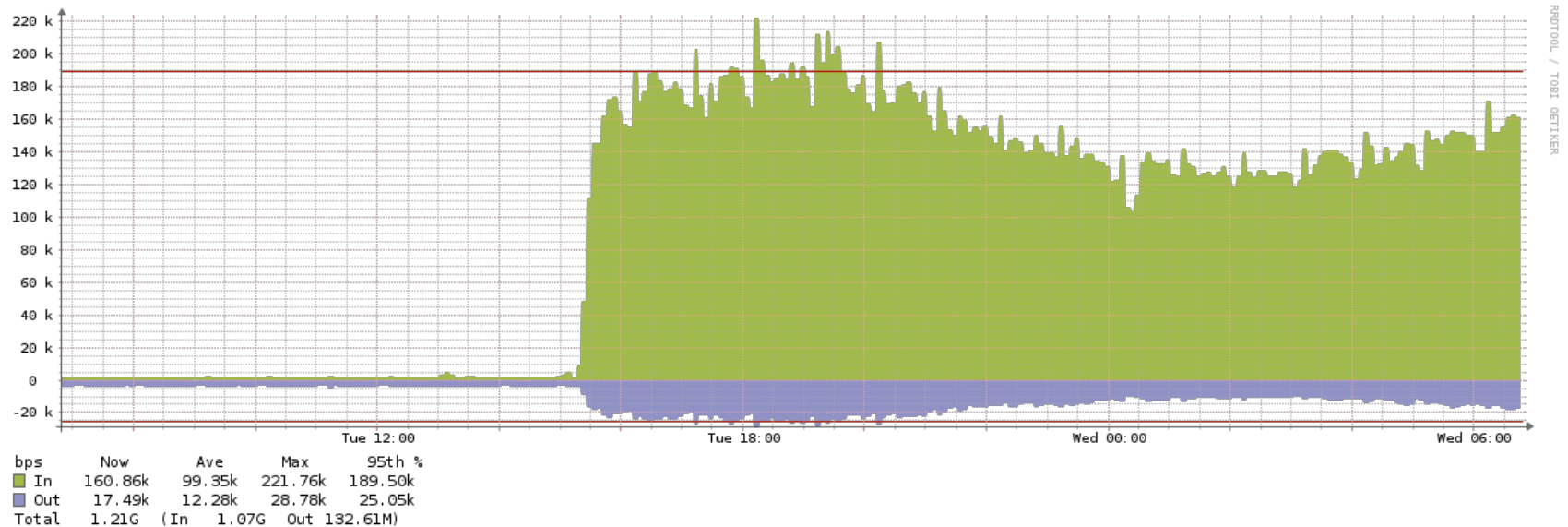
### Participating websites

Show 10 entries Search: mobile

Participating Website	Global Alexa Ranking	Local Alexa Ranking (Top 500)	Country Code	Transfer Time
<a href="http://www.mobile.de">www.mobile.de</a>	537	36	DE	0.117
<a href="http://mobilen.no">mobilen.no</a>	109722	-	NO	0.223
<a href="http://www.imobile3.com">www.imobile3.com</a>	1742815	-	US	0.634
<a href="http://www.satxmobile.com">www.satxmobile.com</a>	-	-	US	0.665
<a href="http://www.vipmobile.rs">www.vipmobile.rs</a>	-	133	RS	0.593







Showing 1 to 5 of 5 entries (filtered from 2,941 total entries) First Previous 1 Next Last

# www.mobile.de - IPv6 traffic



Loadbalancer VIP – www.mobile.de in 1 DC

# www.ip6.nl test result – tell it as it is

results for <b>mobile.de</b>						
	IPv4	IPv6				
DNS servers	91.211.75.18 194.50.69.18	 2001:67c:2d0:4202::3:1 No fallback server available.				
IPv6-only DNS		 Doesn't work ( <a href="#">Why?</a> )				
Mail exchangers	194.50.69.1 91.211.75.1	 2001:67c:2d0:4201::1:1 No fallback server available.				
mobile.de	91.211.75.154 194.50.69.154	 2001:67c:2d0:4200::25				
www.mobile.de	91.211.75.154 194.50.69.154	 2001:67c:2d0:4200::25				

**mobile.de is almost IPv6 ready.**

3 out of 5 stars.

## results for mobile.de



### IPv4

### IPv6

#### DNS servers

91.211.75.18  
194.50.69.18



2001:67c:2d0:4202::3:1  
2001:67c:2d0:4302::2:1

#### IPv6-only DNS



Works

#### Mail exchangers

91.211.75.1  
194.50.69.1



2001:67c:2d0:4301::1:1  
2001:67c:2d0:4201::1:1

#### mobile.de

91.211.75.176  
194.50.69.176



2001:67c:2d0:4200::25  
2001:67c:2d0:4300::25

#### www.mobile.de

91.211.75.176  
194.50.69.176



2001:67c:2d0:4200::25  
2001:67c:2d0:4300::25

**mobile.de is ready for IPv6.**

5 out of 5 stars.



# Summary

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- The internet did not break on June 6<sup>th</sup>
- Painless introduction for basic services on mobile.de
  - 4% of incoming mail
  - 8% of outgoing mail
  - 2% of users via IPv6
- Challenges
  - Vendor support
  - RFC compliance
  - Availability of services
- Migration of all services will take some time
- Next steps
  - Enable IPv6 on more platforms (Kleinanzeigen already done on 11<sup>th</sup> June)
  - Get partners to support IPv6 (e.g. advertising)

<http://www.ebaycareers.com>

**WELCHER IST DEIN NÄCHSTER?**



Deutschlands größter Fahrzeugmarkt

**We are hiring!**



# Thank you – Questions?

