

IPv6 – A Content Provider's Experiment

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What's heise online?

- Major German IT site
- News, background articles, How-tos, online tools, ...
- Very active community
 - Technology savvy
 - Tend to complain, if somethings wrong
- Ad-funded

Why are we interested in IPv6?

- As a content provider we are not (yet)
- Learn, before the IPv6 tsunami hits
- Find address dependent parts of our site
- Be an Early Adopter
- heise has a business case:
Tell people about IPv6

heise and IPv6



Heise Events | 2011 | IPv6-Kongress - Mozilla Firefox

http://www.ipv6-kongress.de/

Meistbesuchte Seiten | Redaktionssystem c't | heise-Seiten | URL2QR | hN-Tools | Wind

Heise Events | 2011 | IPv6-Kongr... | heise Netze Netzwerk-Tools - My-IP - heise Netze | RIPE Welcome to RIPE.NET

IPv6 Kongress 2011

Der IPv6-Kongress

Eine Veranstaltung von heise Netze, iX und DE-CIX
Frankfurt/Main 12. und 13. Mai 2011

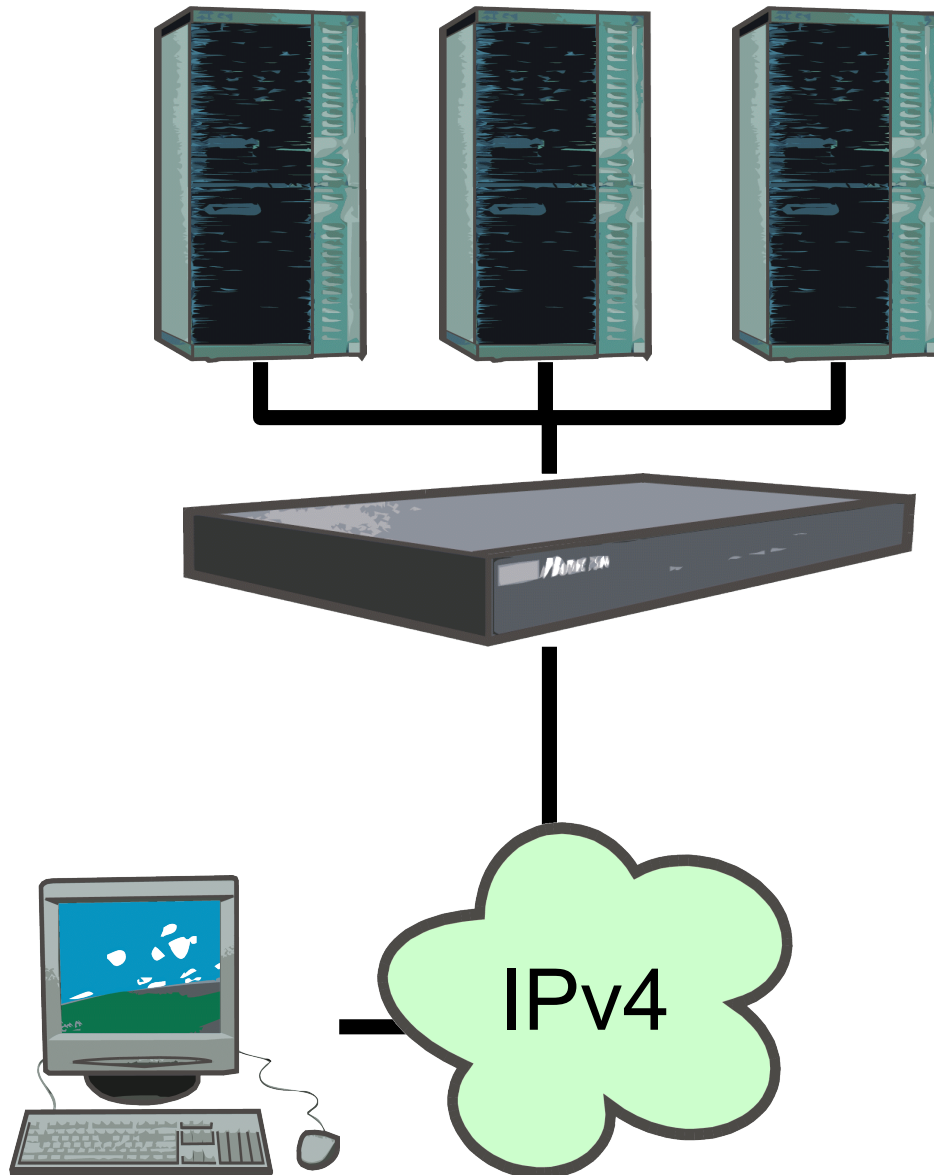
Home | Call for Papers | Sponsoren | Location & Hotels | Kontakt | Agenda 2010 | Rückblick 2009

Call for Papers

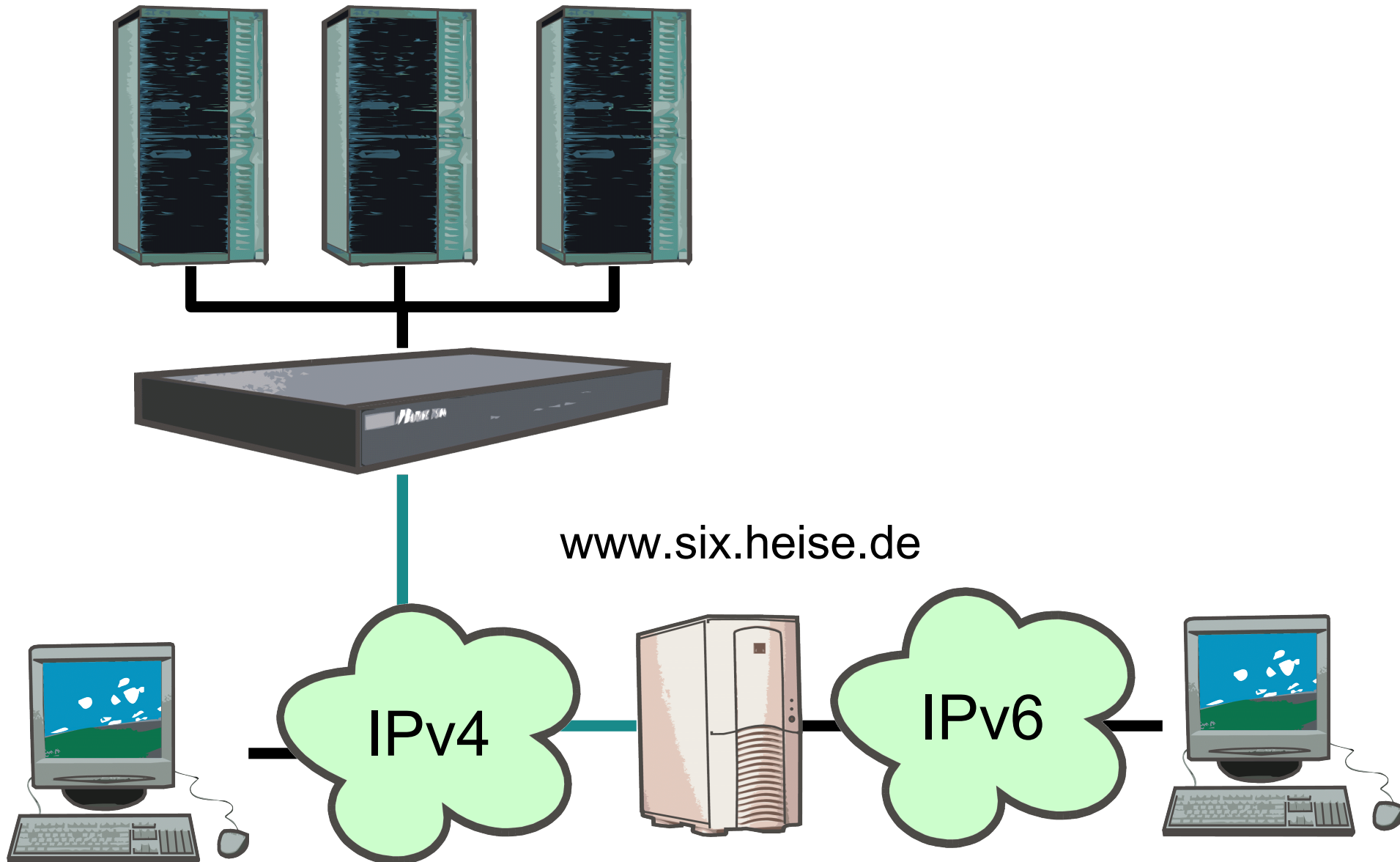
Hosted by:
DE-CIX

IPv6 ist seit 15 Jahren das Internet der Zukunft. Doch es ist wie bei manchem ewigem Talent im Fußball: Jeder will mit ihm spielen, aber wenn es bei Pflichtspielen ernst wird, stellt der Trainer es nicht auf.

The First Step



The First Step



www.six.heise.de

- Started 2009
- 1% of traffic
- Sharp drop on second day
- Some parts of www.heise.de don't work
- Go dual stack

Management concerns

- Family owned business
 - Had to convince a very small number of persons
- No immediate ROI
 - Infrastructure investment like firewalls
- Low budget project
- IPv6 only is an Ad Blocker
- Dual Stack Brokenness



Broken Dual Stack

- Timouts are the smaller problem
 - One AAAA record
 - People suffer in silence
 - or fix their problem
- Users cut off by dual stack problems
- 75 seconds (Mac OS X + Black Hole) means "cut off"
- iOS 4 seems not to fall back to IPv4

Why not measure?

- Excellent research is done already
- Implementation problems
 - Commercial CMS
 - Logging
- Management can't interpret the number
 - Where does the long tail start?
- Doesn't tell us why things break

What did we do?

- Try it for a day
- Inform users a month before
 - Postings
 - How-To articles
 - Press release
 - Countdown
- E-Mail address for problem reports
- Add Virtual Host on www.six.heise.de

Preparing Readers



heise online - IT-News, c't, iX, Technology Review, Telepolis - Mozilla Firefox

http://www.heise.de/

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heise online

IDF: Core-i-Prozessoren mit Video-Transcoding-Beschleuniger

 Konzernchef Paul Otellini und Dadi Perlmutter, Chef der Intel Architecture Group, sprachen gleich zu Beginn des Intel Developer Forums (IDF) über das wichtigste neue Produkt des Unternehmens: die 2011 kommende Core-i-Prozessorgeneration mit dem Codenamen Sandy Bridge. mehr...

- [Details zu Intels Prozessorgeneration Sandy Bridge](#)
- [Infineons Handysparte geht an Intel](#)
- [Intel kauft McAfee](#)

Spielregeln für den Cyberwar
Die internationale Gemeinschaft müsse sich dringend Spielregeln für Angriffe auf Netzinfrastrukturen geben. Zentrale Teile des Netzes wie DNS-Rootserver oder Unterseekabel sollten internationalen Schutz genießen, auch wenn sie von privaten Unternehmen betrieben werden, hieß es im Vorfeld des Internet

Biometrie: Finger für Europa
Das europäische Visa Information System (VIS) soll 2011 oder 2012 starten. Dann wird die biometrische Verifikation von Personen mit einer europäischen Aufenthaltsgenehmigung die Konsulate wie die Grenzbehörden in Atem halten. Experten warnen u.a., dass sich mit zunehmender Sammlung biometrischer

IPv6-Tag
auf www.heise.de
in 1 Tag 13 Stunden 18 Minuten 07 Sekunden

heise Netze
iMonitor - Internet-Störungen
Unser Tool zeigt mit Ihrer Hilfe, an welchen Orten welche Zugänge nicht funktionieren.

c't
Netzspeicher mit Extras
Netzwerkspeicher ersetzen mit ihren Zusatzfunktionen wie Webserver, Maildienst, Virens Scanner, Tauschbörsenprogramm oder Webcam-Ansteuerung einen kleinen Server.

Technology Review

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Wir feiern 15 Jahre online!
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IPv6 Day

- Thursday, September 16th 2010
- Add AAAA-Record
 - DNS TTL was minimal already
- Monitor reaction on the Net
 - Twitter, Blogs, ...
 - Heise watcher sites
- Wait for Reports

What happened?

- Off-Site problem reports: 0
- Comments on www.heise.de: 1232
- Calls to our Hotline: 0
- E-Mails with dual stack problems: 4
 - off by 1

Major Mistake

- Called it "IPv6 Day at www.heise.de"
- Actively ignored even by our audience

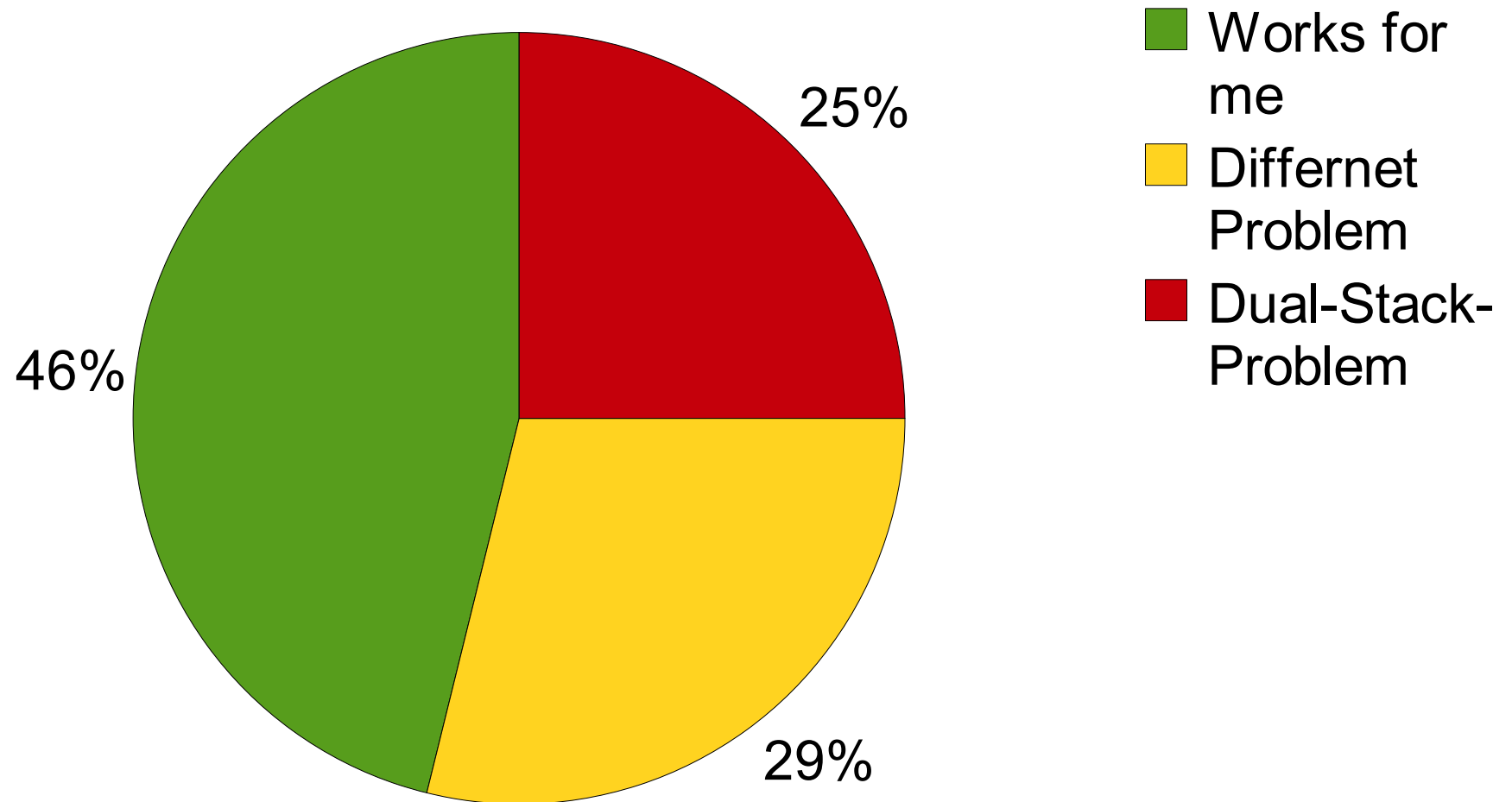
Dual Stack in production

- Dual Stack since 9/29/10
- Started silently
- Posted some days later

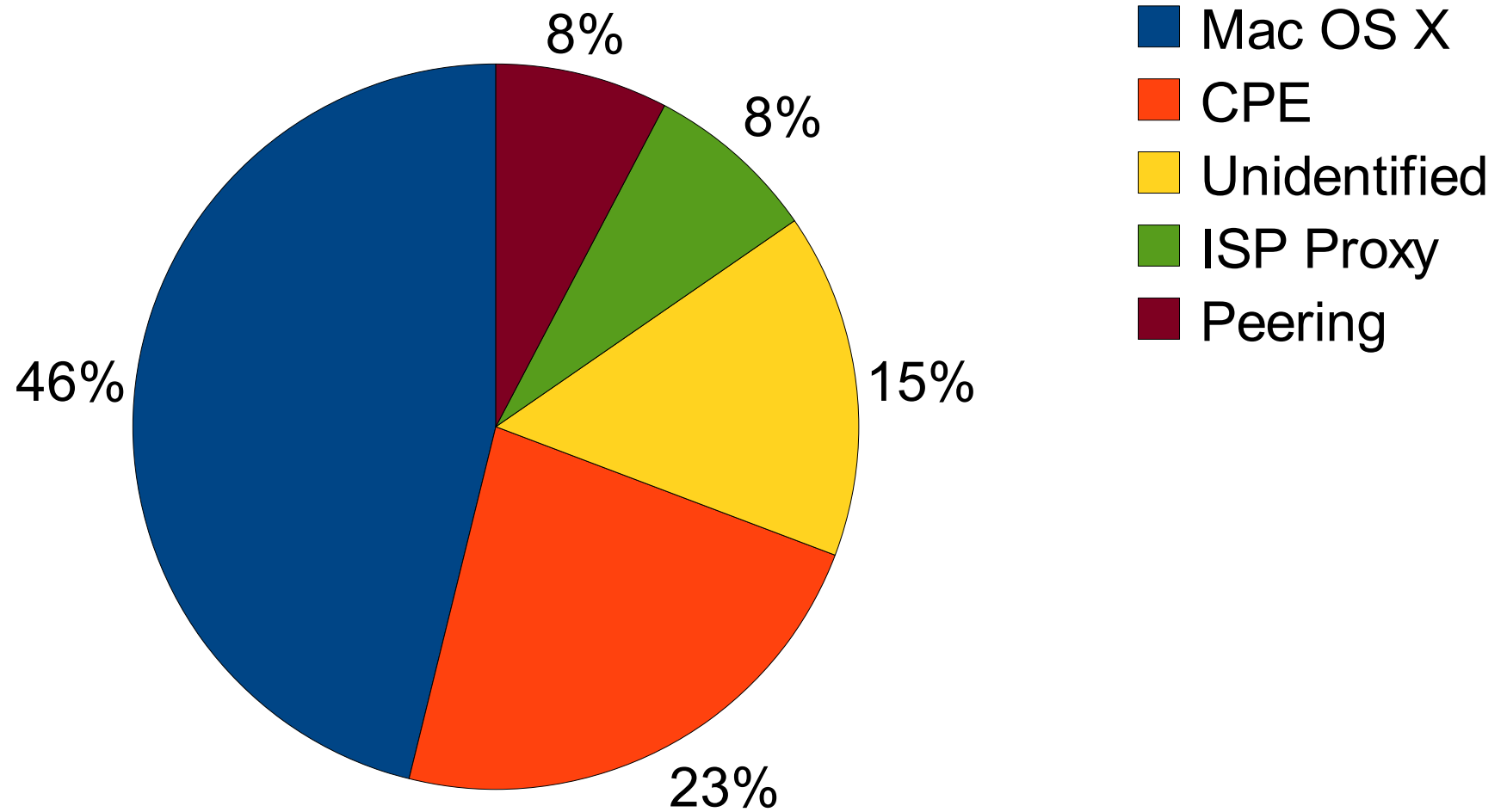
Dual Stack in production

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Reports by E-Mail



Problem distribution



Mac OS X problem

- Not the 6to4 bug Tore sees
 - Due to 70% market share of CPEs by AVM
 - Even Mac users have Fritzboxen
- Rogue RAs
 - From university campuses

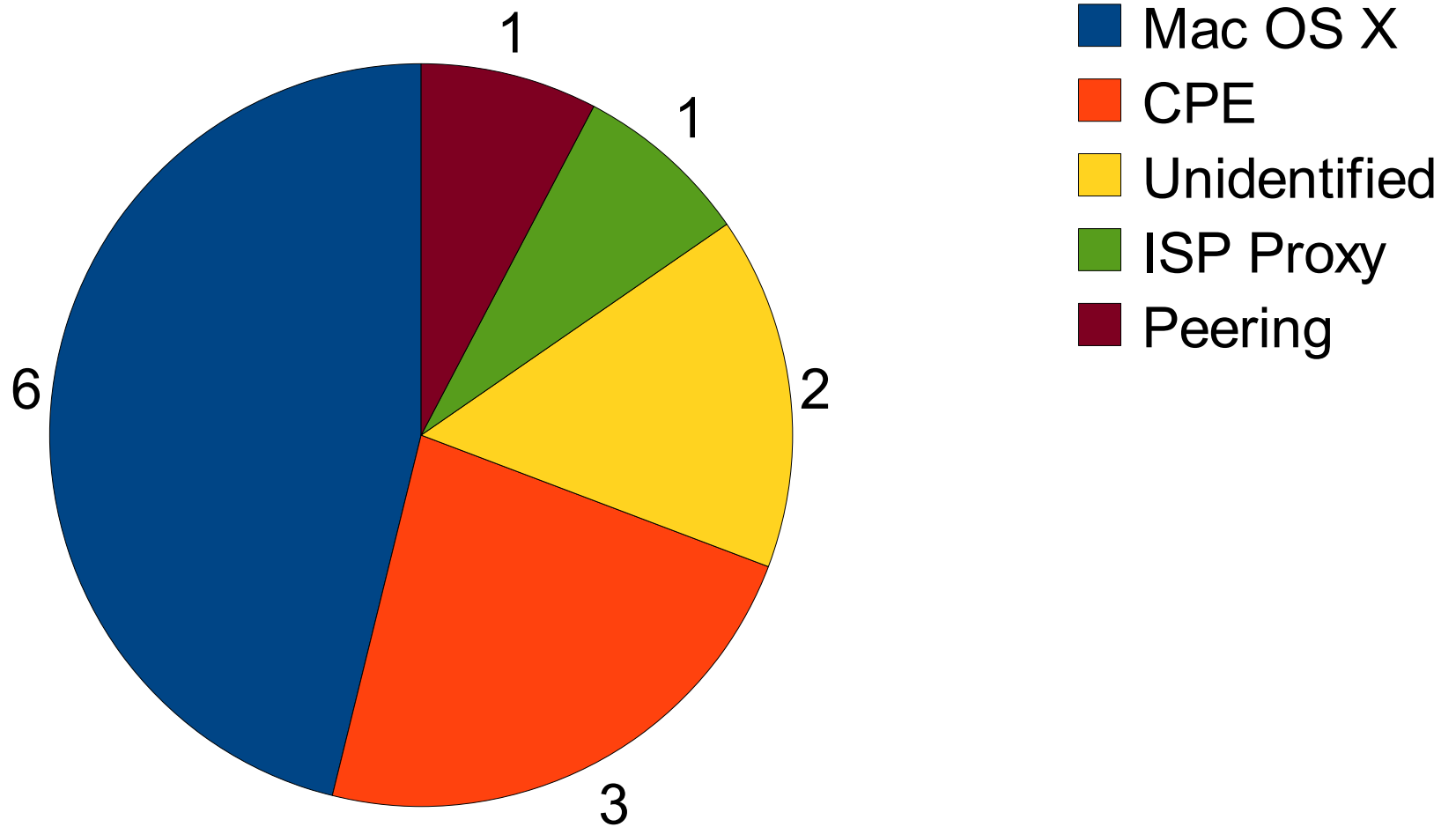
Broken CPE

- One product line by one manufacturer
- DNS cache stores everything as an A
- Ancient devices
- Bug last seen in our reviews in 2006

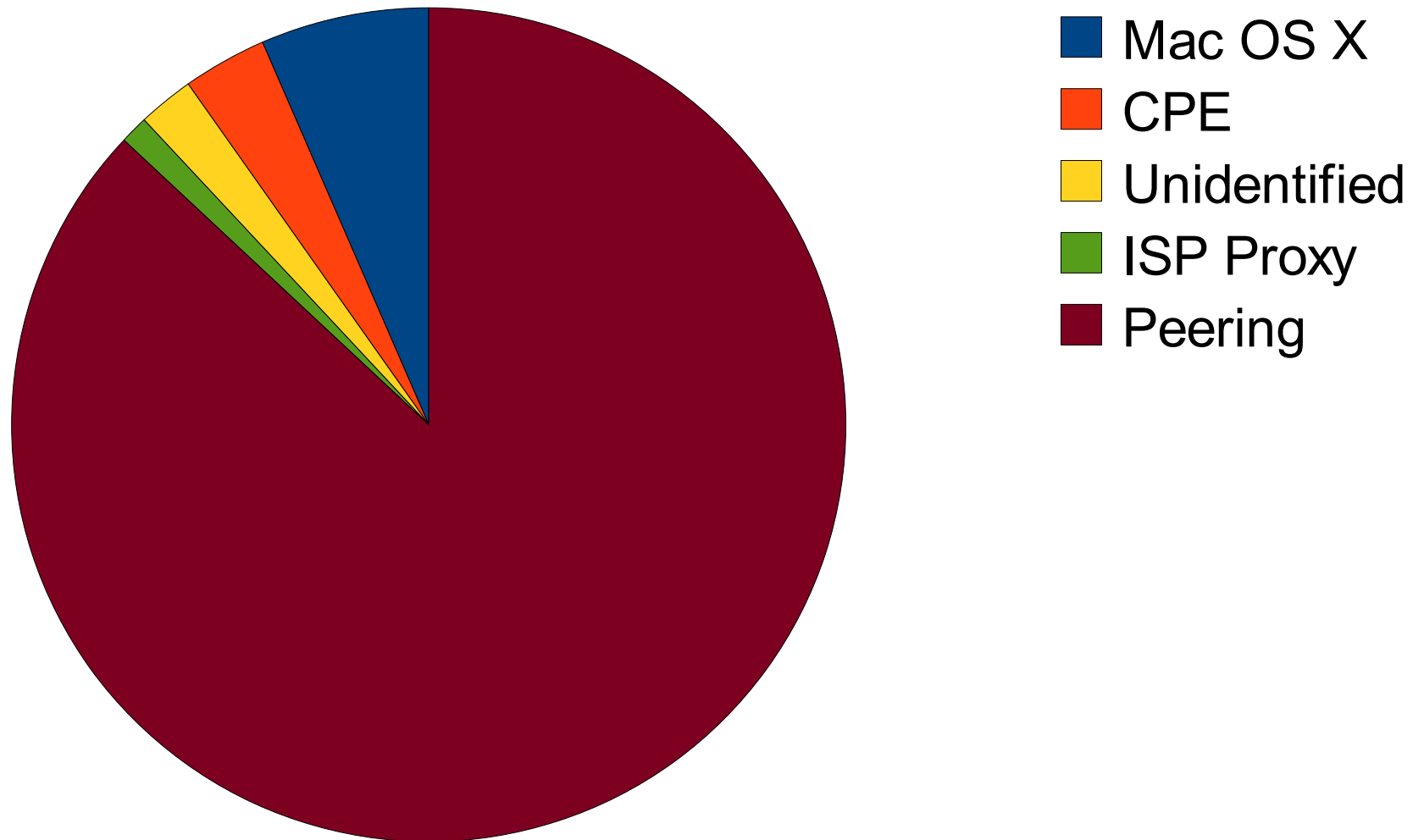
Mobile ISP

- In Spain
- Transparent proxy with broken dual stack
- User opened ticket, lets see

Error reports



Users affected



Broken peering

- User buys IPv6 connectivity from major carrier
- Traceroute: IPv6 towards www.heise.de doesn't leave AS
- Opened ticket, waited
- Asked for our help after two days
 - Mail storm
- Peering fixed

Broken peering

- User buys IPv6 connectivity from major carrier
- Traceroute: IPv6 towards www.heise.de doesn't leave AS
- Opened ticket, waited
- Asked for our help after two days
 - Mail storm
- Peering fixed
- After 9 days

Black holed again

- Black hole close to us
- Three day now
- IPv4 was fixed within hours
- Worst case
 - Affects almost all IPv6 users (~2%)
 - Cuts off many Apple devices

iPad



- Hope for publishing companies (like heise)
- Will have iOS 4 soon
 - Might choke on Black Holes
 - Can't switch off IPv6

Going Dual Stack

- It was easy
- Needs somebody pushing it
- Routing Black Holes are the worst problem we experienced
- "Offer the same service over IPv4 and IPv6"

Questions?

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