

NANOG 51

THE EUROPEAN PEERING SCENE

SERGE RADOVCIC
EURO-IX

What is Euro-IX?

- European Internet Exchange Association
- Formed in May 2001
- The association's aim is to further develop, strengthen and improve the Internet Exchange Point (IXP) community
- Via meetings, information repositories, mailing lists and other inter-IXP cooperation activities

Current Euro-IX affiliates

- 56 affiliated IXPs:
 - ▶ Europe: 45 affiliates (26 countries)
 - Operating 65 separate IXPs
 - ▶ 11 IXPs from the rest of the world
- 10 affiliated patrons:

Arista
Extreme Networks
Juniper Networks

Brocade
Force10 Networks
MRV
Transmode

Cisco
Interxion
TelecityGroup

The IXPs

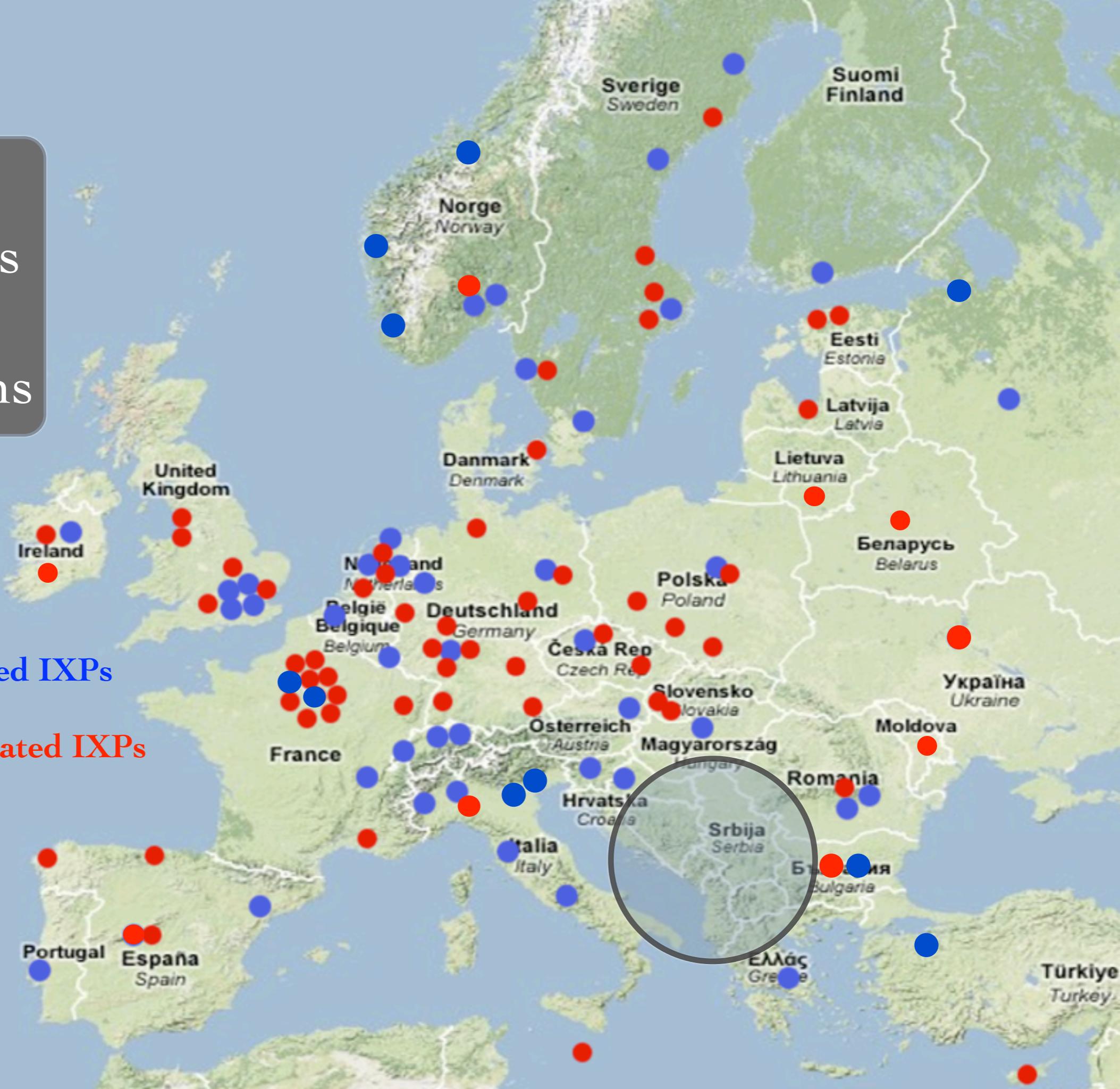
IXP Traffic

IXP Participants

A peek at 2015

127 IXPs
36 Countries
140 Cities
415 Locations

- Euro-IX affiliated IXPs
- Soon to be affiliated IXPs



How many IXPs are out there?

Region	Euro-IX count	Other sources
Europe	127	134
Asia/Pacific	51	73
Africa	21	22
Latin America	24	31
North America	78	85
Globally	301	345

The European IXP “community”

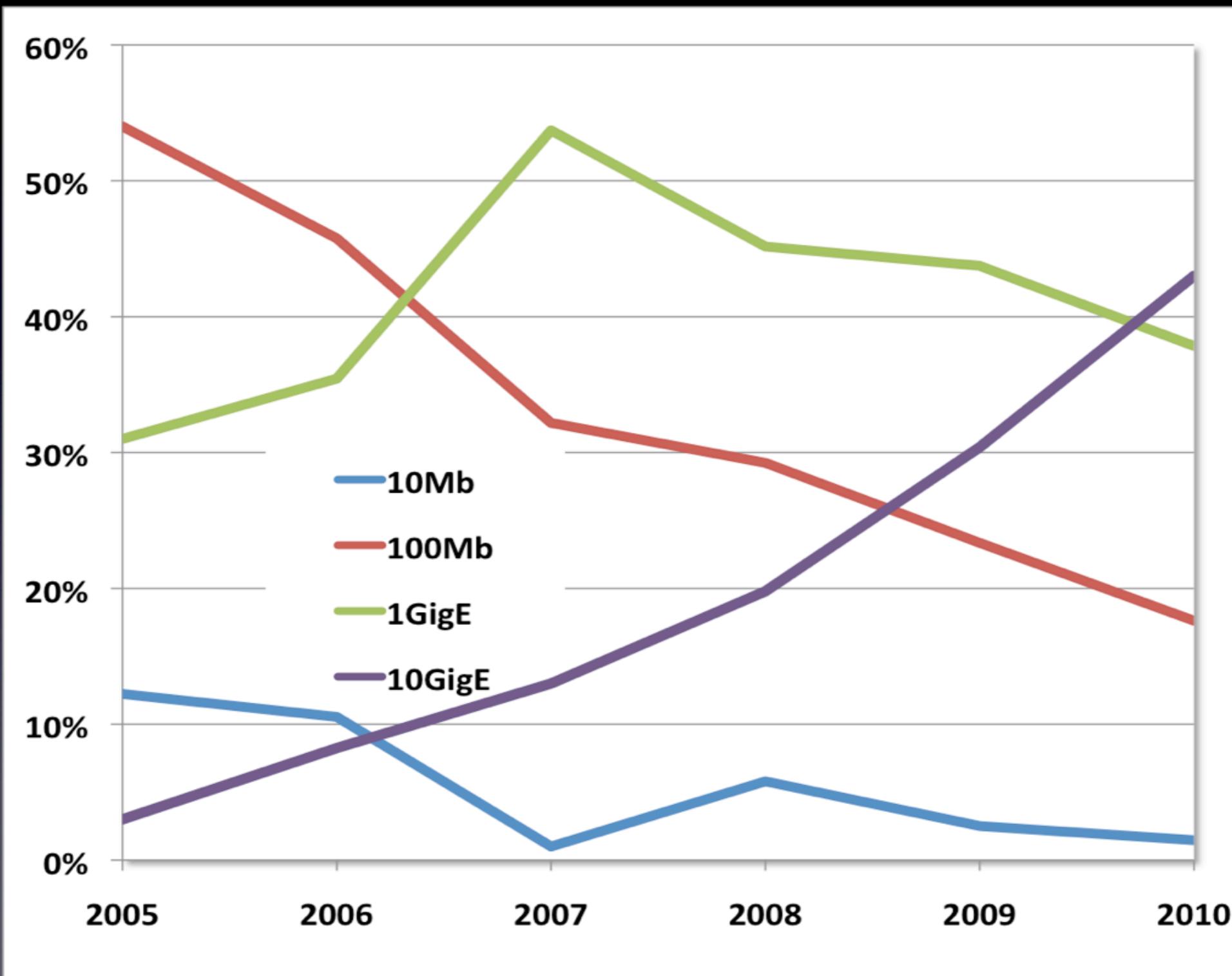
- Euro-IX (65 European IXPs)
- European Peering Forum (last 5 years)
- Partner programs between IXPs
- IXPs promoting each other
- Inviting each other to GM, anniversaries, etc.

Monthly average IXP port

Port	2005	2010	Decrease
10 Mb	€248	€50	80%
100 Mb	€478	€214	55%
1 GigE	€881	€471	47%
10 GigE	€3.302	€1.456	56%

* Euro-IX European member average prices

Port usage trends



* Euro-IX European member port usage

The IXPs

IXP Traffic

IXP Participants

A peek at 2015

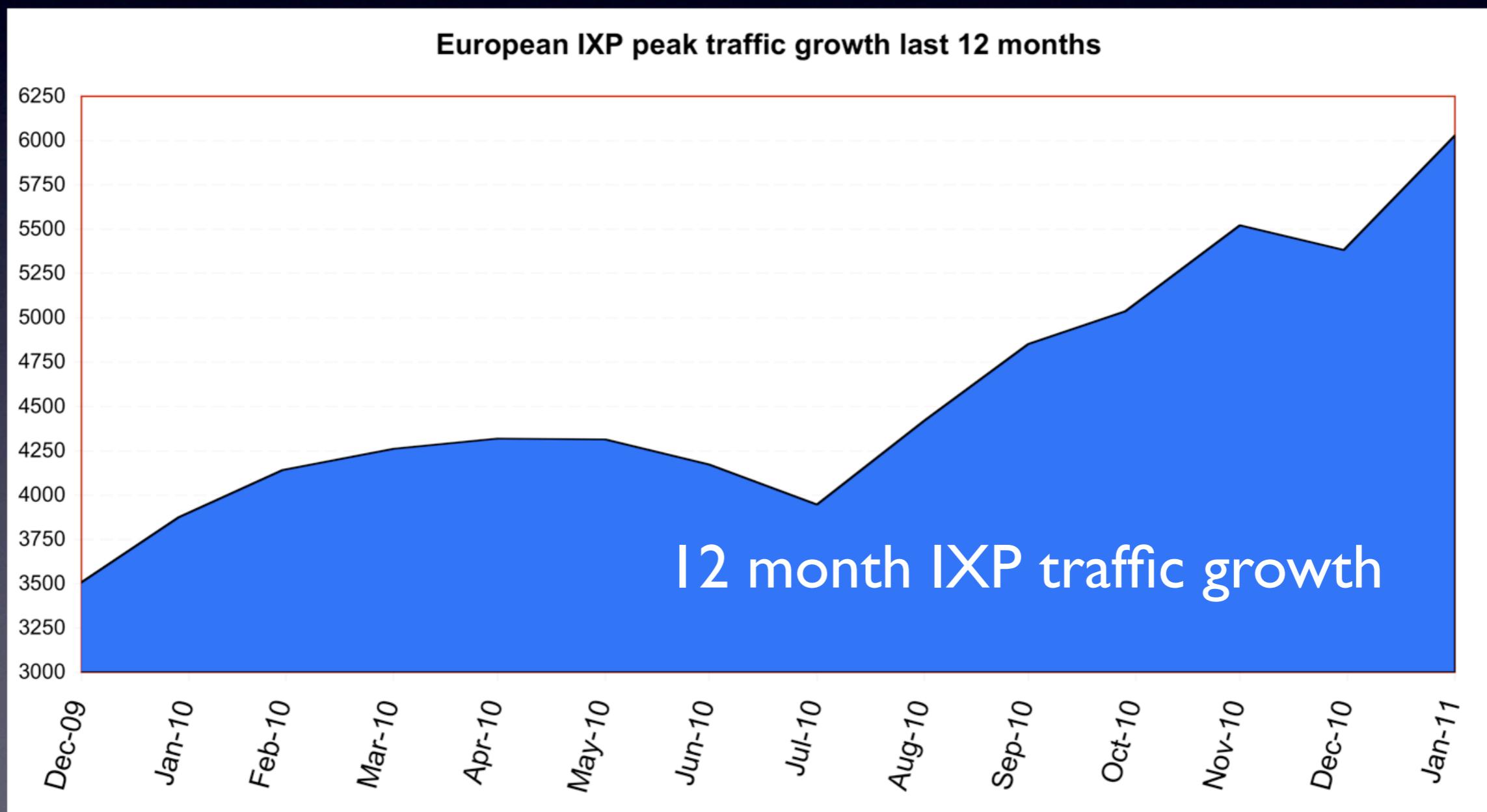
Some European IXP traffic 'hotspots'



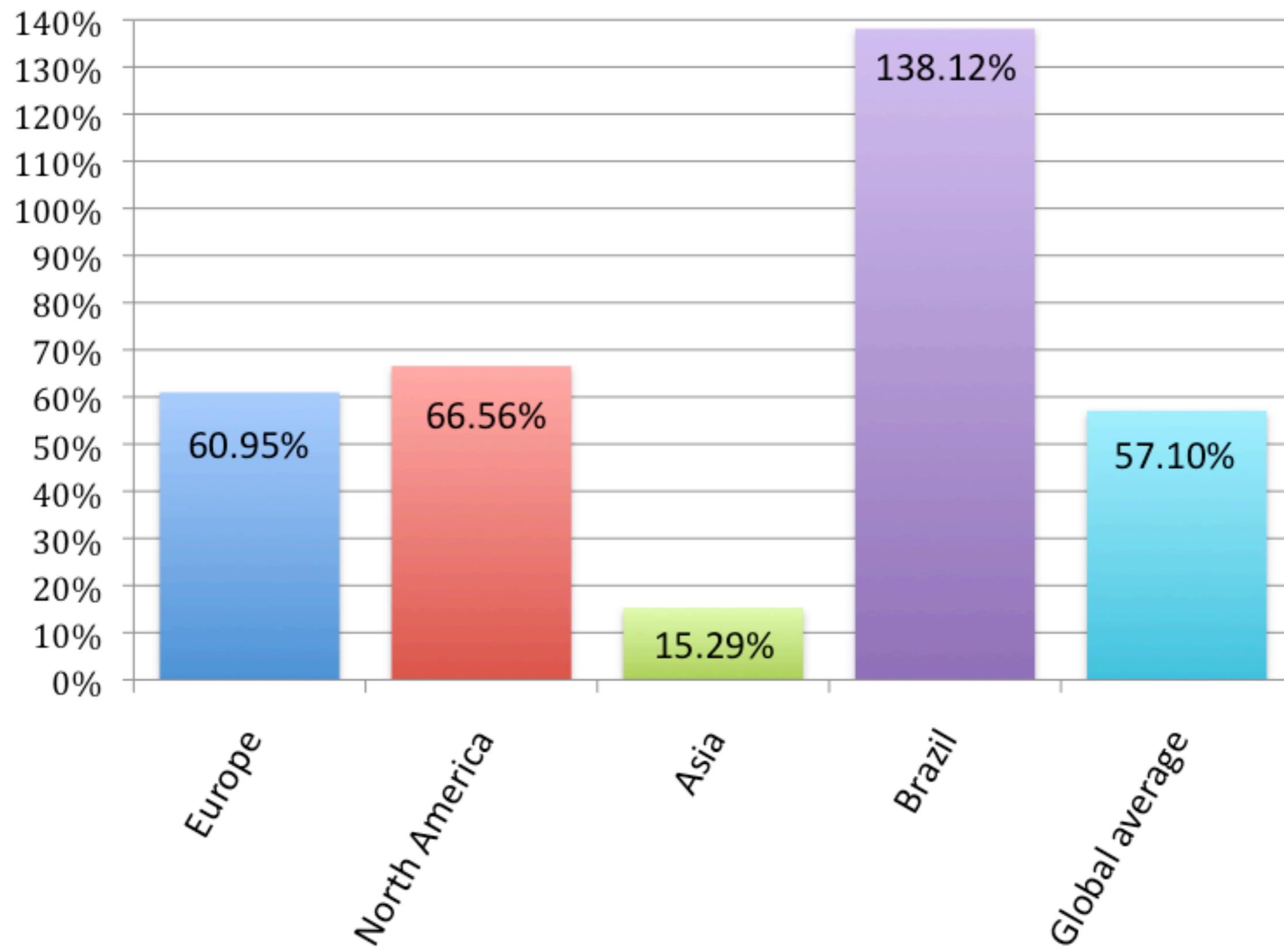
*January 2011 peak traffic figures

European IXP traffic

- Combined European IXP peak traffic has risen from:
 - 3.875 Tbps end Jan '10 to 6.030 Tbps end Jan '11
 - 2.155 Tbps or 56% increase in the past 12 months



Global annual IXP peak traffic growth rates 2010



The IXPs
IXP Traffic
IXP Participants
A peek at 2015

European IXP participants

- 5.880 participants at 127 IXPs
- 3.197 with unique ASNs
- 938 ASNs present at > 1 IXP in Europe
 - Average of 45 participants per IXP
 - Average of around 1.054 Gbps/participant

“Estimated” IXP participants globally

Region	Participants	Unique
Europe	5,880	3,197
Asia/Pacific	1,121	649
North America	2,065	849
South America	328	196
Africa	202	114
Global	9,586	4,726

* Data captured on 26 January 2011

10 most common European IXP participants

Participant	ASN	# of IXPs
Akamai	20940	23
E4A	34695	22
Google	15169	21
Leaseweb	16265	21
Interoute	8928	20
RETN	9002	19
Verizon	702	19
AT&T	2686	18
Colt	8220	18
Cogent	174	17

40 ASNs peer at 10 or more IXPs

* Data captured on 26 January 2011

10 most common IXP participants “globally”

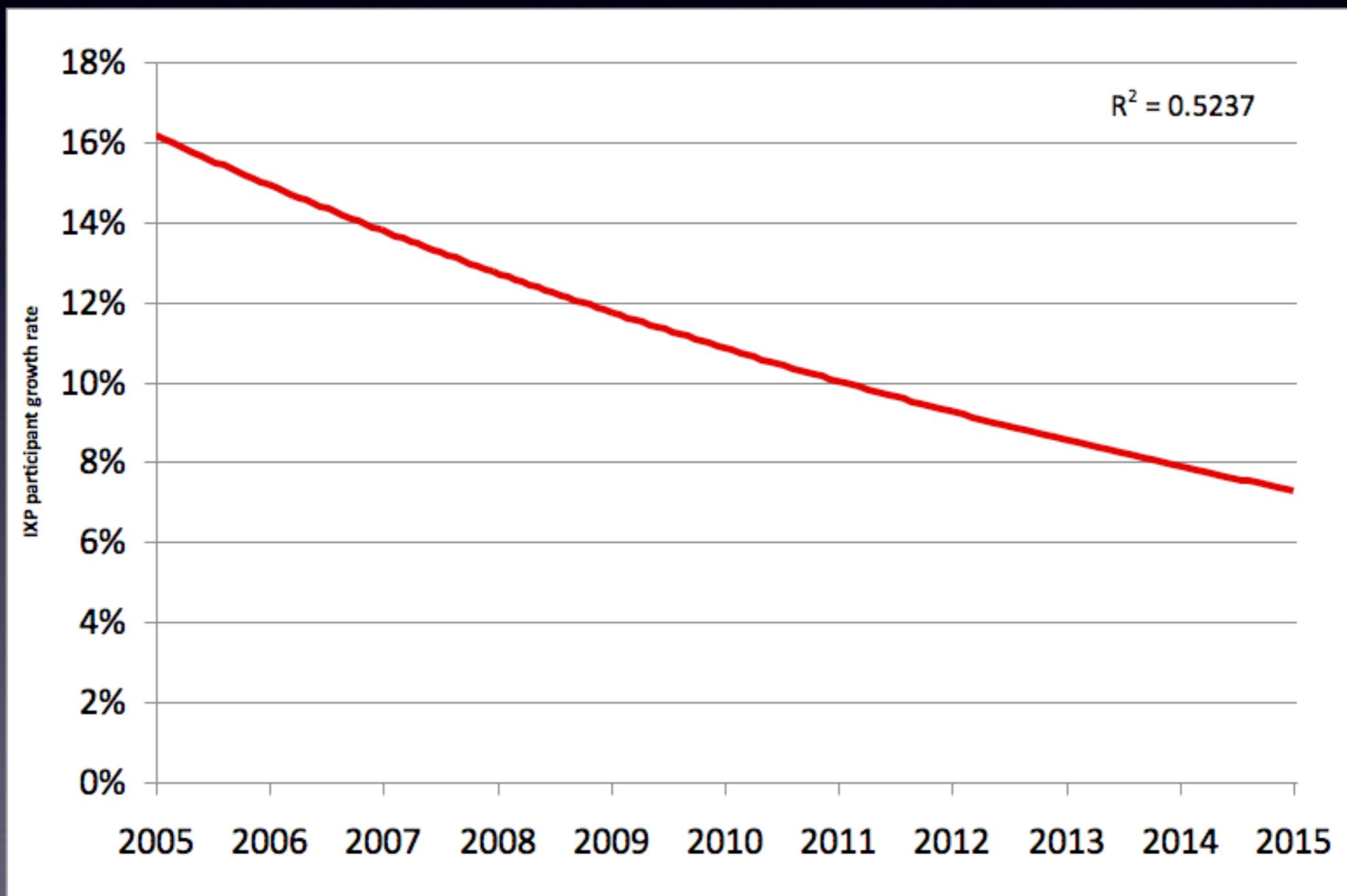
Participant	ASN	# of IXPs
Google	15169	52
Akamai	20940	48
Limelight	22822	42
HE	6939	36
Yahoo	10310	28
E4A	34695	27
WVFiber	19151	25
RETN	9002	24
Mzima	25973	24
TATA	6453	24
92 ASNs peer at 10 or more IXPs		

* Data captured on 26 January 2011

The IXPs
IXP Traffic
IXP Participants
A peek at 2015

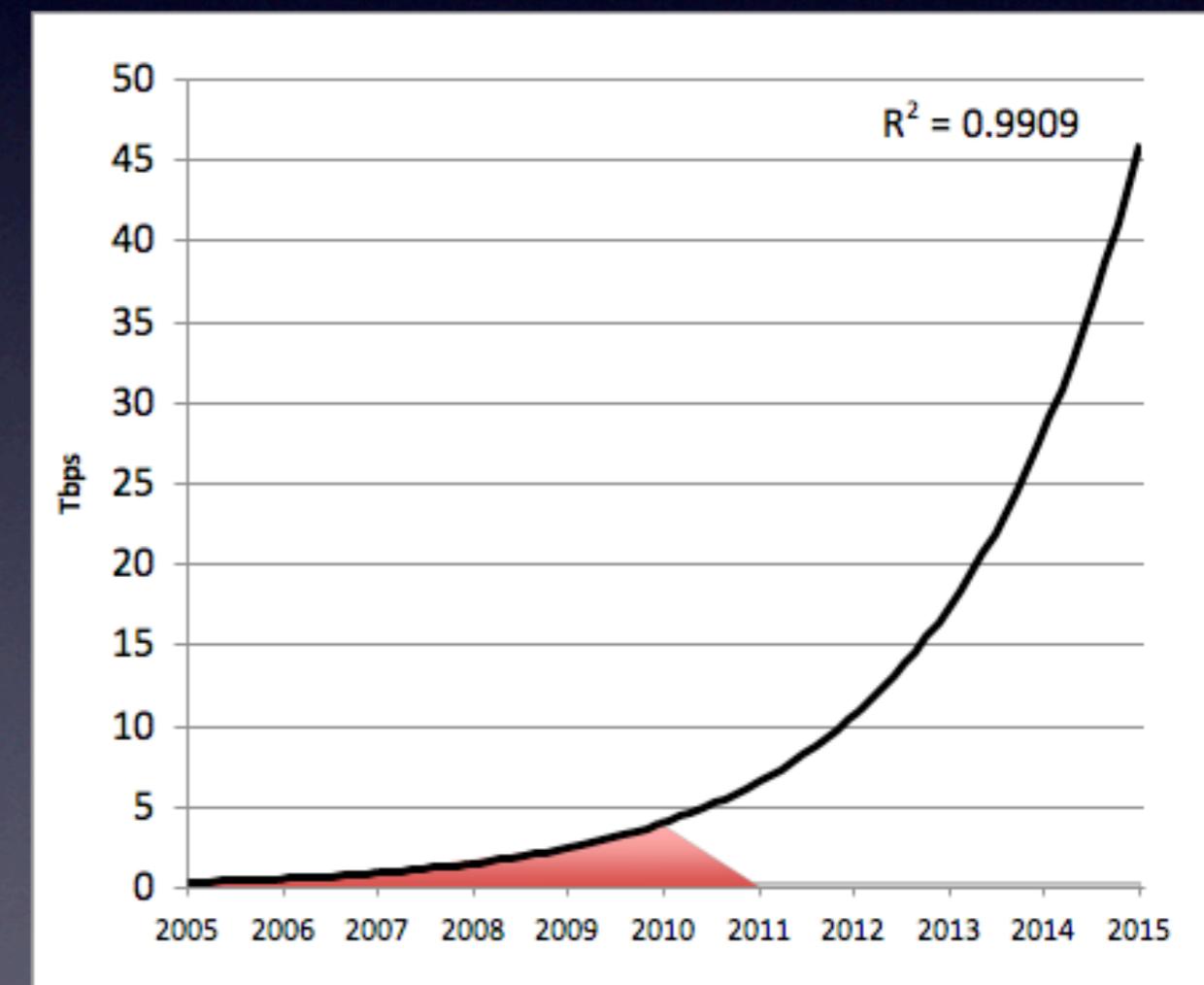
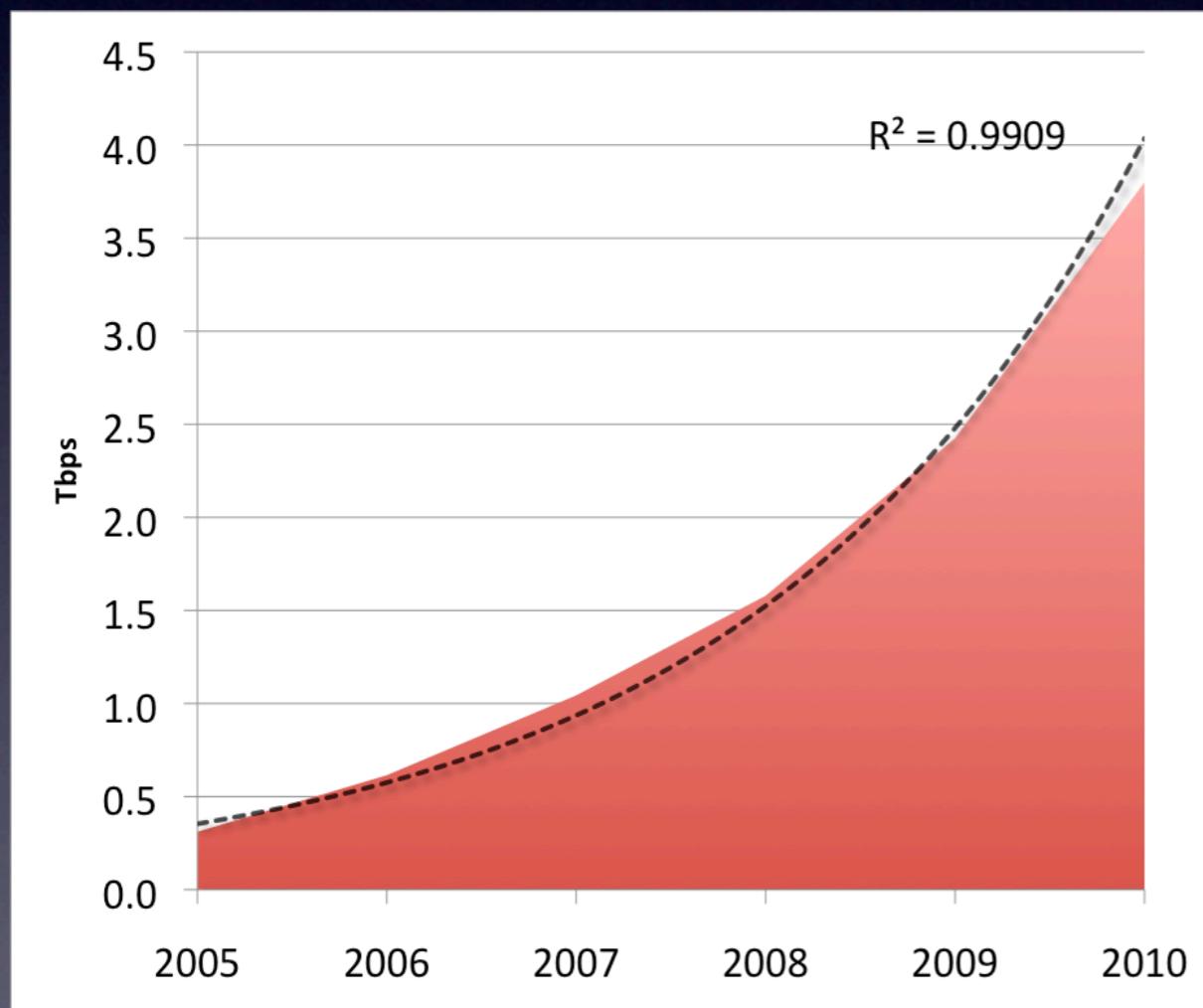
European Participant growth

Growth is slowing but not all that much.
Predicting a 7.6% increase in 2015



5 year peak IXP traffic projection

- Increase in IXP peak traffic from the end of August 2005 to the end of August 2010 was 12 fold
- Exponential trend line suggests 47 Tbps+ in 2015



The peering scene in 2015?

- Number of IXPs: 145 (127)
- 8.000 (5.880) participants at these IXPs
- 4.400 (3.197) unique ASNs
- Aggregated European IXP traffic: 52 Tbps (6 Tbps)
- Average IXP peak traffic: 360 Gbps (47 Gbps)
- Average number of IXP participants: 55 (45)
- Average participant traffic: 6.5 Gbps (1 Gbps)

A few useful tools

Euro-IX ASN tools

- The ASN DB lists IXP participants from about 280 IXPs in five regions (9.586 DB entries)
- ASN DB search interface
- IXP-ASN filter tool (and ASN matrix)
- Most common ASNs (those at 10 or more IXPs)
- Latest entries in ASN DB (available as a RSS feed)

Euro-IX ASN tools

 European Internet Exchange Association

Contact | Site map | Search | IXP directory
16th Euro-IX Forum

Serge Radovcic | Last login: March 30, 2010 | Sign out

Home | News & Events + | Euro-IX + | For IXPs + | For ISPs + | Patrons + | Resources + | Members | Euro-IX Meetings + | Your Web Updates | Mailing list Archives | Document Archive | Route Server DB | Switch Database | Regulatory Issues | Resources + | Sign out | Glossary | Links | Contact Webmaster

You are here: Home

Welcome to Euro-IX!

Europe's leading Internet exchange points, which connect the networks of Internet service providers (ISPs) to permit the exchange of Internet traffic, have set up the European Internet Exchange (Euro-IX).

Latest NEWS

Since the 1st of July 2006 Euro-IX has invited IXP industry related parties to become affiliated with the association as Patrons. Currently Brocade, Cisco Systems, Extreme Networks, Force10 Networks, Glimmerglass, Interxion, Juniper and TelecityGroup have all affiliated themselves with Euro-IX joining our membership of 48 IXPs from 25 European countries, Egypt, India, Japan, Nepal and the United States.

[More News](#)

For IXPs

If you are looking to start an IXP or your IXP needs a helping hand then go through to the [IXP section](#).

For ISPs

If you are an ISP looking to peer at an European IXP then we are here to help guide you. Take a look at the [ISP section](#).



Tools

- [ASN Filter \(New!\)](#)
- [Peering Matrix](#)
- [Service Comparison Matrix](#)
- [List of European IXPs](#)
- [Euro-IX ASN database](#)
- [Newest ASN DB entries \(New!\)](#)
- [Most common ASNs \(New!\)](#)

ASN tools

All tools are reachable from the right hand side of the home page: www.euro-ix.net

EUROPEAN INTERNET EXCHANGE ASSOCIATION

HTTP://WWW.EURO-IX.NET

SERGE@EURO-IX.NET