

SOME PAST AND PRESENT GROWTH ISSUES AT IXPS IN EUROPE

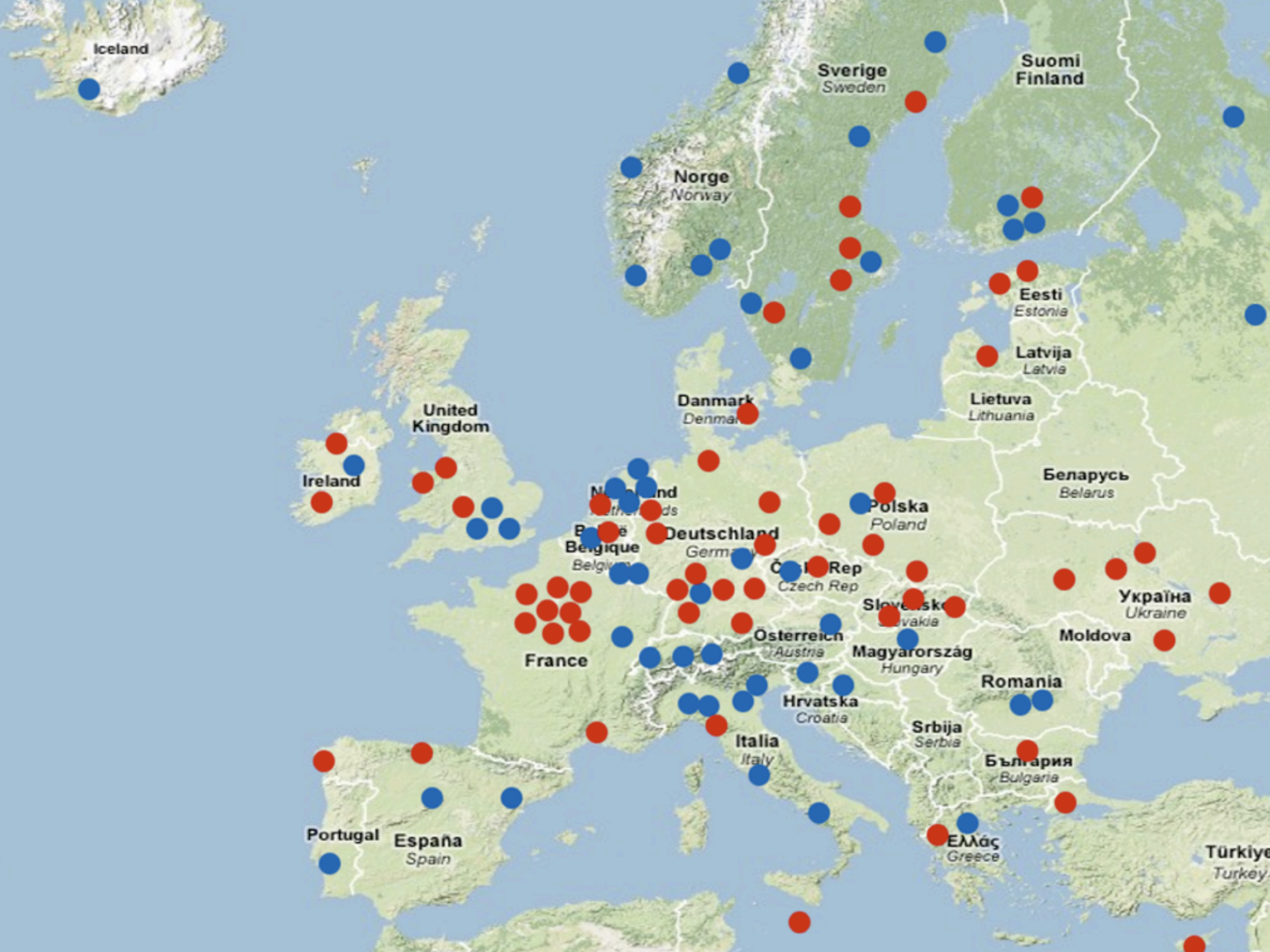
**.....AND HOW THEY
RESOLVED THEM**

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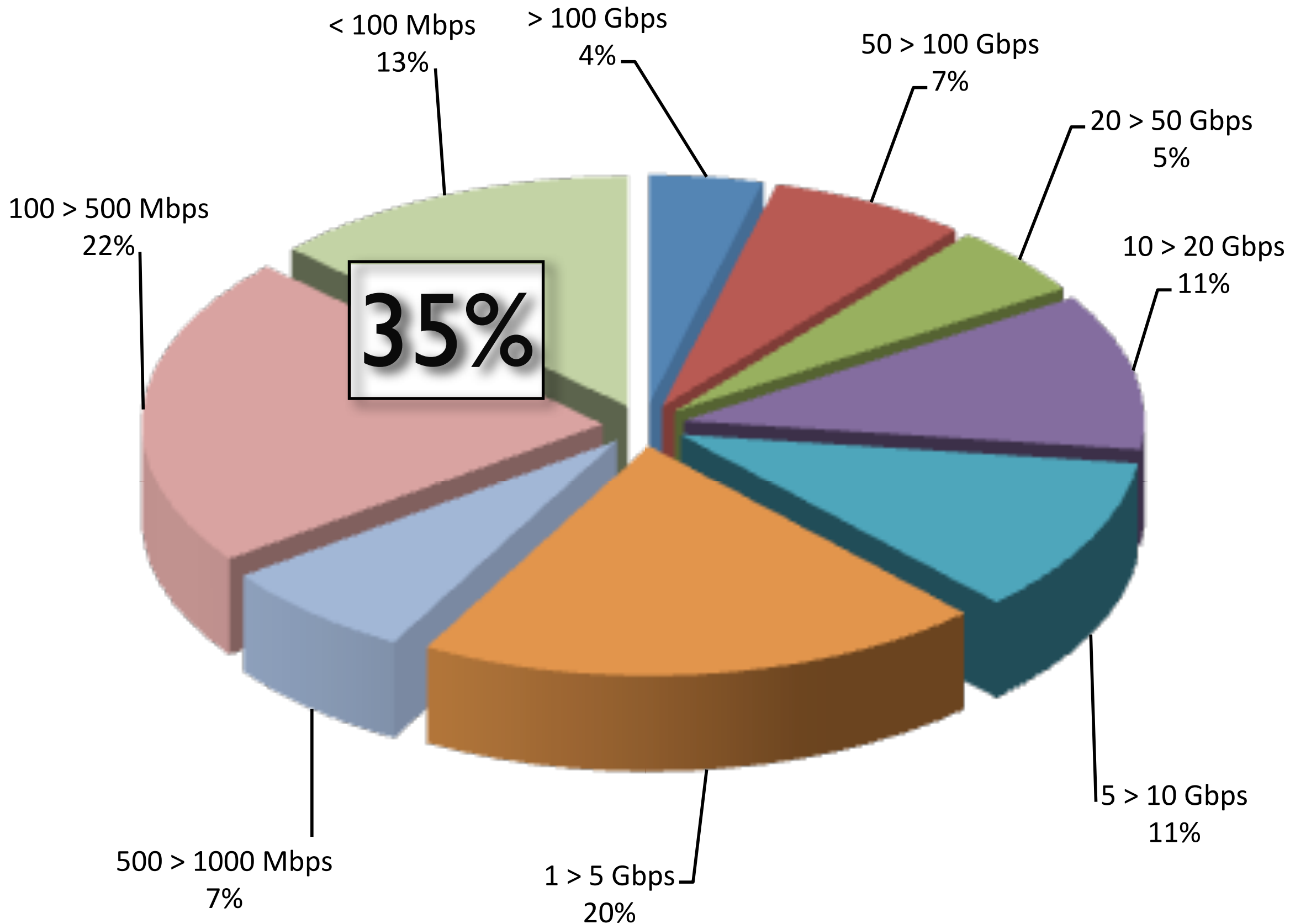
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The European IXP scene today

- Currently 121 active IXPs in Europe
- 390 locations in 115 cities across more than 30 different countries
- 3.2 Tbps of peak traffic (3 IXPs above 500 Gbps and another 5 around 100 Gbps)
- 5.200 IXP participants
- 800 ASNs present at multiple IXPs in Europe



IXPs and their peak traffic



A few notes.....

1. The following slides are observations and are not meant to be used as 'advice' for change at your IXP
2. Europe and ME are different from each other
3. Many different IXP models operate in Europe
4. I am focusing on participant & traffic growth

Growth issues (I)

1. *IXP personnel*: under staffed, volunteer based, unmotivated staff
2. *High joining fees*
3. *Restrictions at IXPs* e.g.
 - Only allowing local/national ASNs
 - Not allowing remote connections

Growth issues (2)

3. Lack of community 'education'

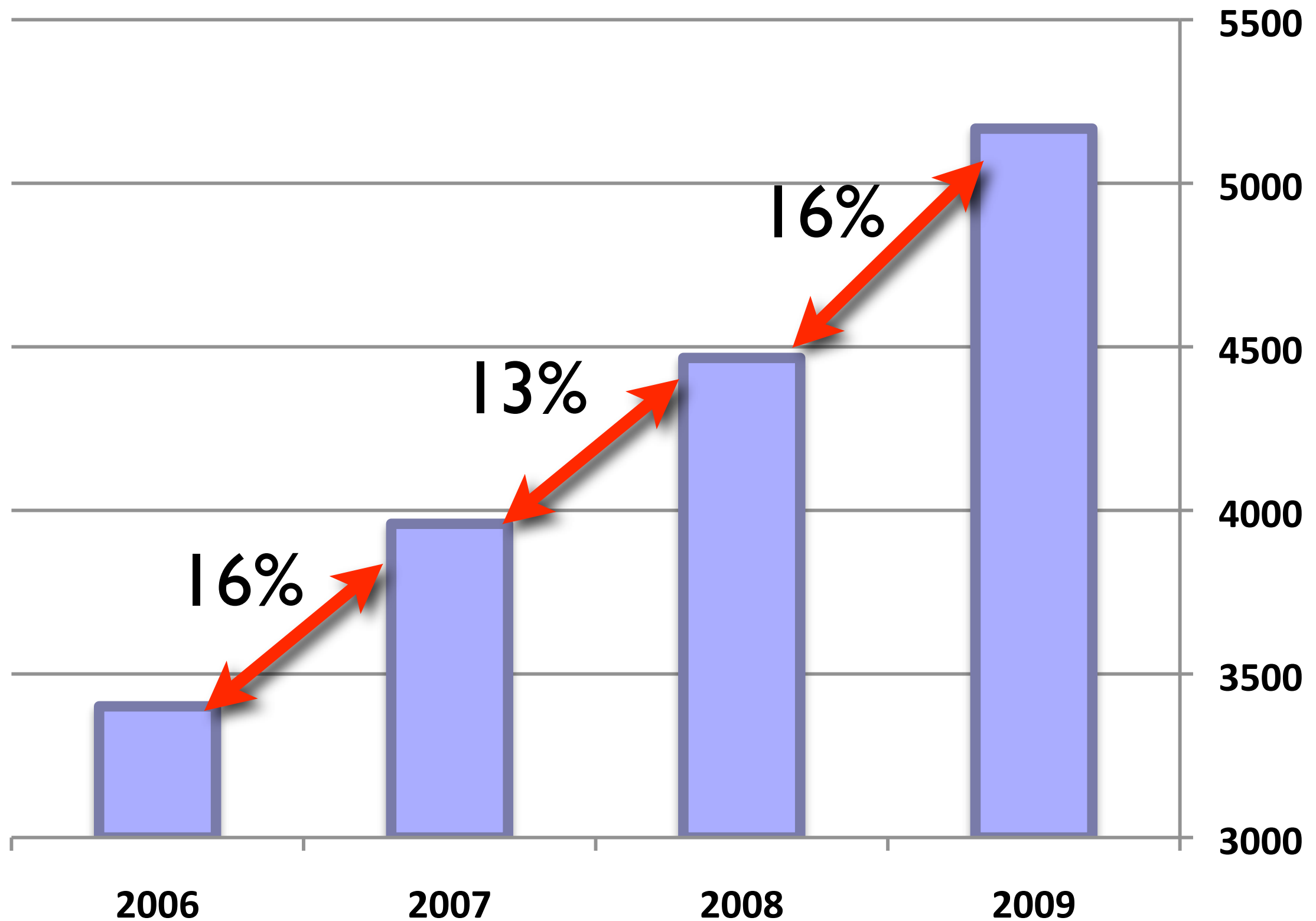
- Some ISPs simply don't know what an IXP is or that your IXP even exists

4. Non 'neutrally' run IXP

5. Local/regional competition

- Other IXPs or low local transit prices

European IXP customer growth



Resolving growth issues (I)

People: There must be a 'want' or drive from the IXP staff and participants

- At a certain point, possibly consider getting some sales/marketing personnel
- Encourage 'human' peering: participants **need** to get to know each other to better facilitate peering!

Resolving growth issues (2)

Build inter-IXP relationships:

- Learn and share experiences with other IXPs in your region and globally
- Potentially exchange participants
- Invite and get invited to other IXP's general or annual meetings
- Organise events with other IXPs

Resolving growth issues (3.1)

Market and educate

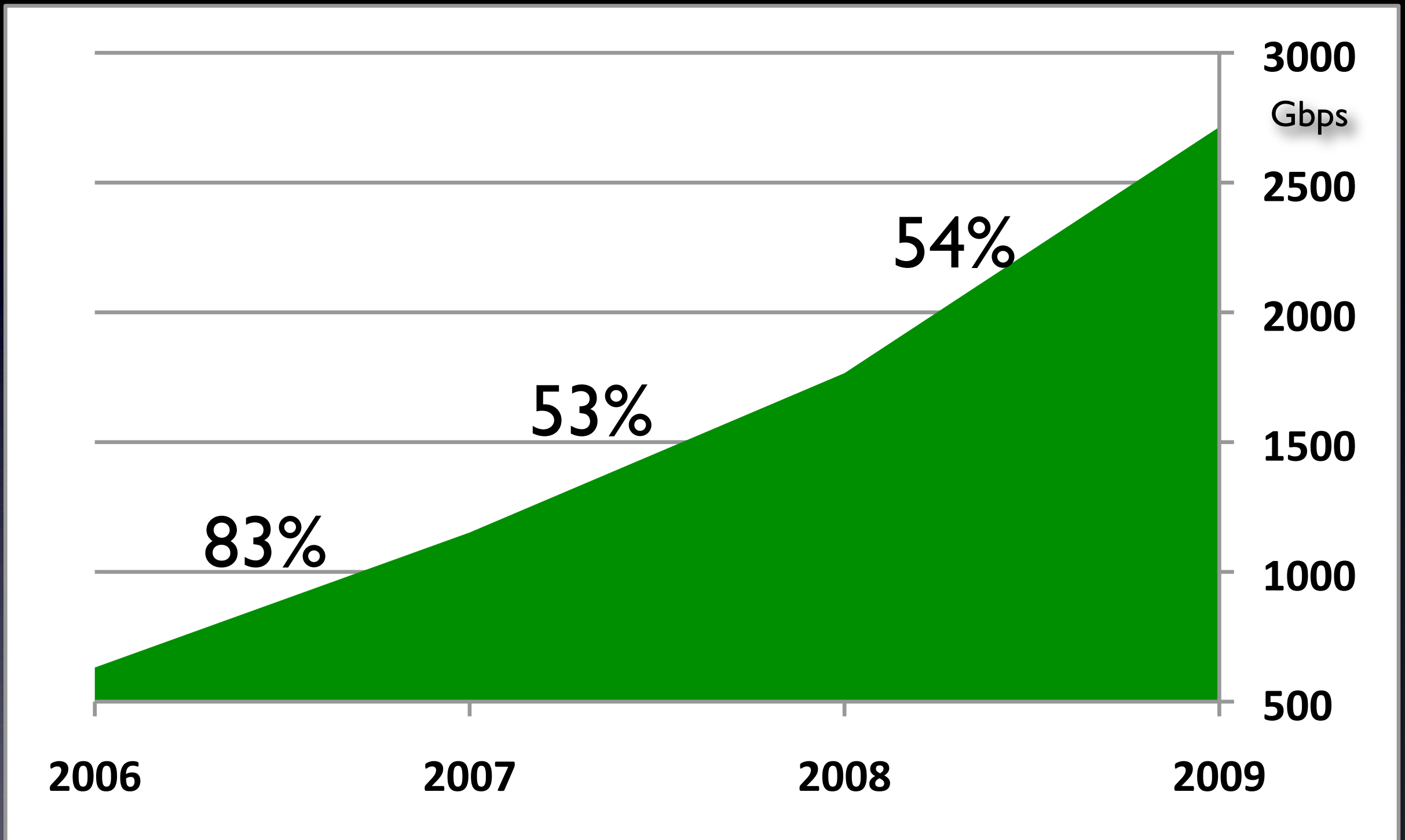
- Present and participate at relevant Internet related events wherever you can
- Get your participants to spread the word of your IXP to others (“Connected to \$IX”)
- Work with your colocation operators
- Hold local IXP/peering workshops

Resolving growth issues (3.2)

Market and educate

- Make information about your IXP clear and easy to find
 - List Your IXP participants (name & ASN)
 - How to contact them
 - Their peering policies
 - Amount of traffic being exchanged

European IXP traffic growth



5000

5001

5008

5009

200

Resolving growth issues (4)

Make it easier to join/reach your IXP:

- Ease up on joining restrictions
- Reduce paper work and ease joining procedure
- Abolish or reduce joining fees
- ‘Try before you buy’ policy (3 months free)
- Be present at multiple colocations
- Allow remote peering

Resolving growth issues (5)

Additional services at your IXP:

- Hosting Root-DNS servers and TLD name servers
- Private Interconnection assistance
- Private peering VLANs
- Route-servers
- Allow the selling of services by members over the IXP (possibly on a separate VLAN)

Resolving growth issues (6)

Give away free or reduced priced ports to those that you are trying to attract!!

- Those with high traffic volumes or expensive to reach ASNs
- Will this help your current participants? or your IXP as a whole? Ask your participants!

A few fast growing IXPs

IXP	City	Traffic Gbps	12 month Growth	Members	12 month Growth
MSK-IX	Moscow	142	300%	274	20%
NIX.CZ	Prague	97	95%	92	10%
PLIX	Poland	73	130%	111	80%

Resolving growth issues (7)

So what can MENOG do for IXPs?

- Pretty much what it has been doing.....
- Bring IXPs together: Physically or via mailing lists. Build the IXP community
- Assist IXPs to get in contact with one another
- Educate the community via IXP/peering workshop and presenting on IXP development

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