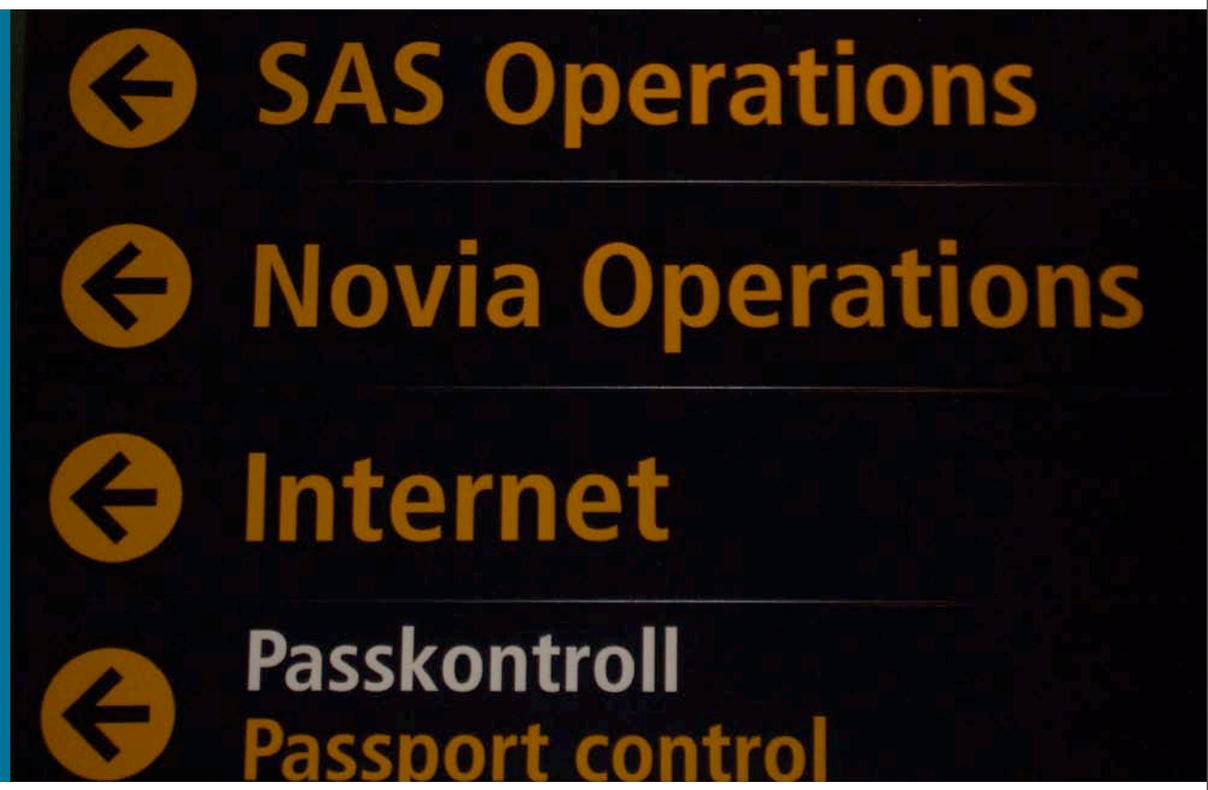
Improve or replace?



Patrik Fältström

Vinnare i kategorin
Årets svenska IT-Person
utsedd av Affärsvärlden och Computer Sweden

Patrik?

- Works with a major US company
- Has own small EU company
- Heavily involved in standardization
- Often working with governments
- Tries to have fun...

Computers and Internet?

- Everything is in the future a computer, a networked computer of course!
- At its simplest your TV, your phone, your address book, your agenda, your micro-wave, you car, your... and your laptop are all networked computers
- The Internet belongs to all of us - or at least we all own a bit of it
- Each of us has our own personal Internet and some of it we may choose to share
- Increasingly each of us runs part of the infrastructure

Convergence?

- Information = Software
- Anyone can create Information
- Anyone can create Software
- Anyone can distribute Information
- Anyone can deploy Services

- Question is who can install information on your computer, and who can access your part of the Internet

Convergence and regulation?

- Historically we know who can create information
- Historically we know who can create software
- Historically we know who can deploy services
- Historically we have known who to regulate!

- If anyone can create information
- If anyone can create software
- If anyone can deploy services
- Then regulation have to be “modern” as we do not know who to regulate!

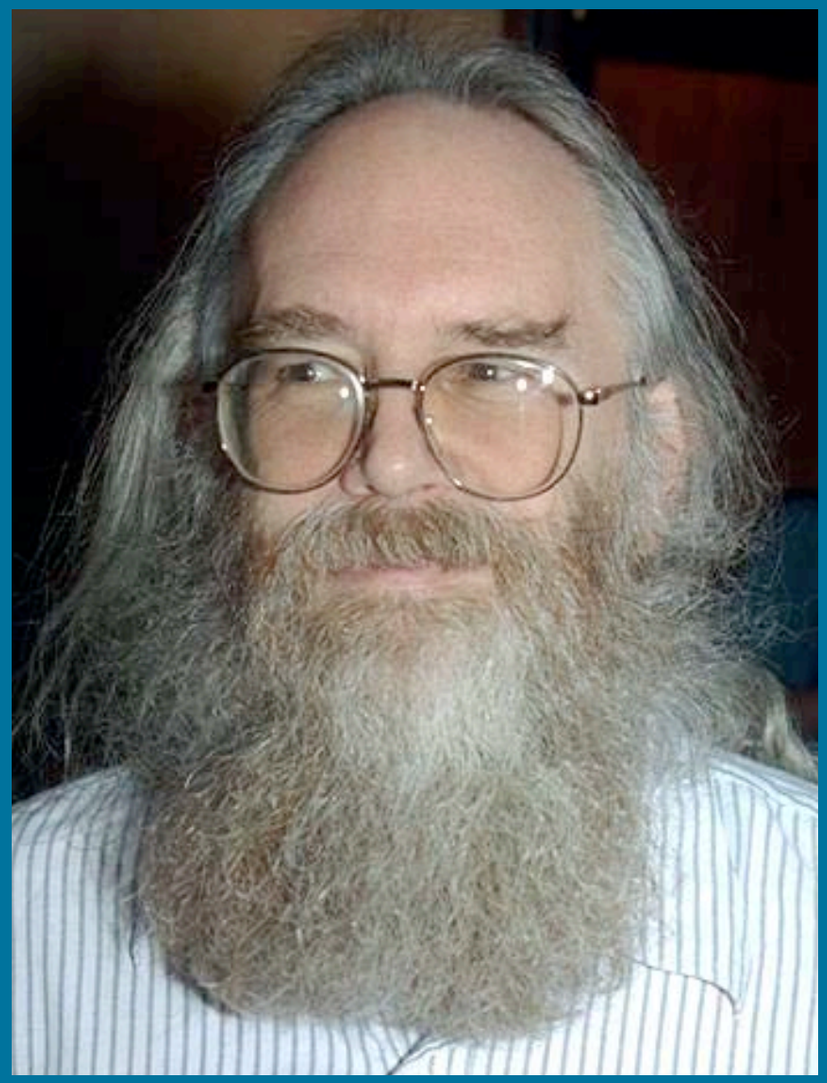
Everything is accessible all the time!

- Convergence implies that if one have one connection to the Internet, one can access any service
- We only need one connection at a time!
- We will connect wherever we are, whenever we want, with whatever device we happen to use at the moment!
- **This is mobility!**
- Cellphone technology make sure we are “always connected”, but there is nothing special with phones

Conclusions

- Everything will be a networked computer
- Everyone using Internet owns one piece of it
- No difference between information and software
- Regulation must work even if we do not know who we regulate
- One connection for any information and service make it easier to be “always connected”
- Rules like these must be included when planning for regulation, innovation and evaluation of effective competition

“Be liberal in what you accept, and conservative in what you send.”



Jon Postel, 1943-1998

RFC 793

Myth: Best effort is not good enough

- QoS, MPLS etc have never produced bandwidth
- If you have 5Gbps of traffic from your customers, you have to either:
  - have 5GBps of bandwidth available; or
  - throw away traffic, and acknowledge your SLA
- Of course different kind of traffic have different needs
- We do have bottlenecks here and there
- QoS are instructions on what traffic to throw away
  - If we do not throw away traffic, will we need QoS?

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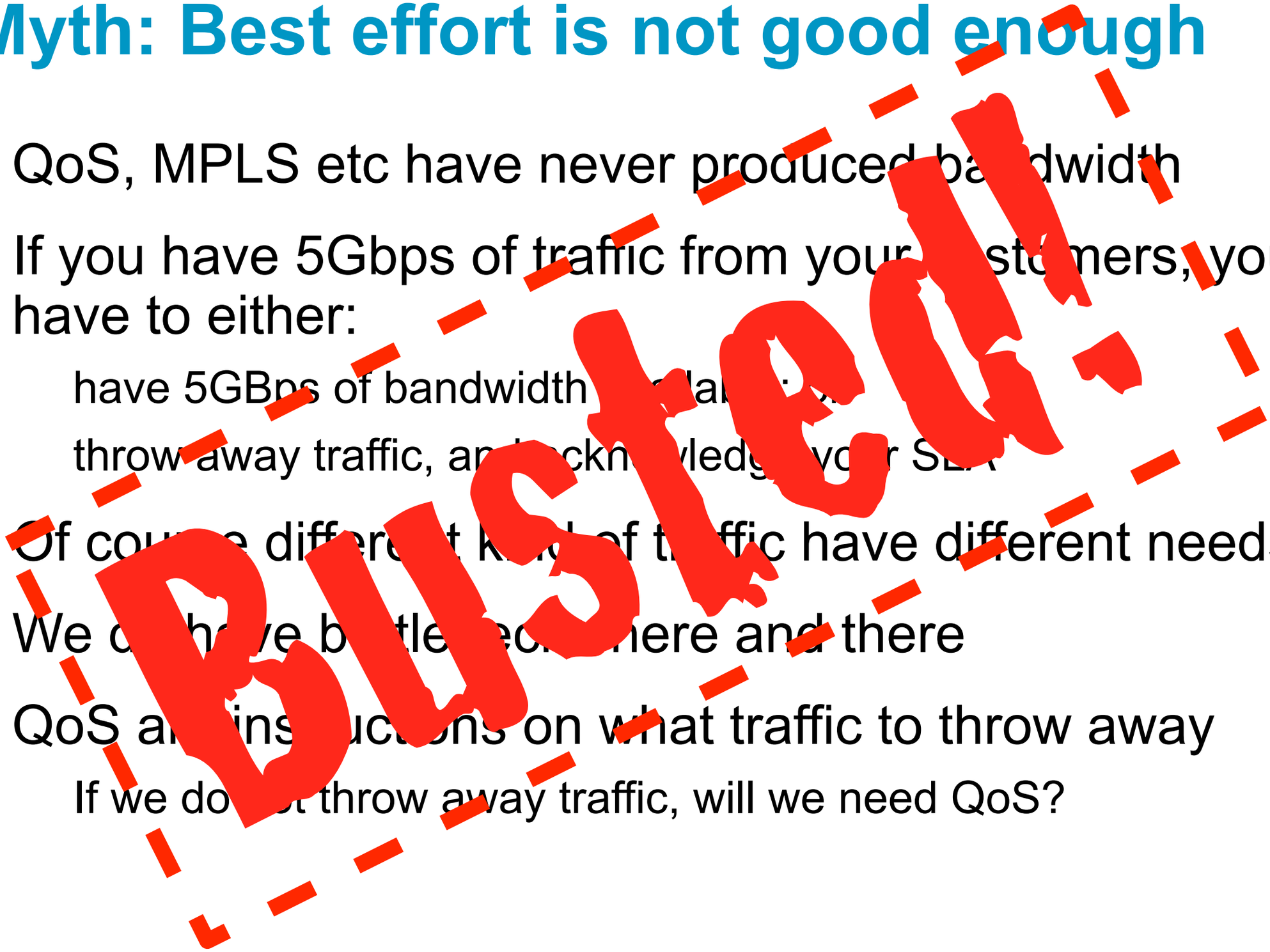

Myth: NGN will solve all our problems

- In the NGN world, as originally specified, operators does not exchange IP traffic, but instead “services”
- Each operator has at its border a “session border controler” (SBC)
- The only traffic that passes is the approved traffic, according to explicit agreements with peers
  - Implication is of course that customers can only send and receive traffic related to the services the operator peer with
- But, NGN is a buzzword, so other people have redefined the term NGN to include “agreed QoS on peering interconnects” and similar things

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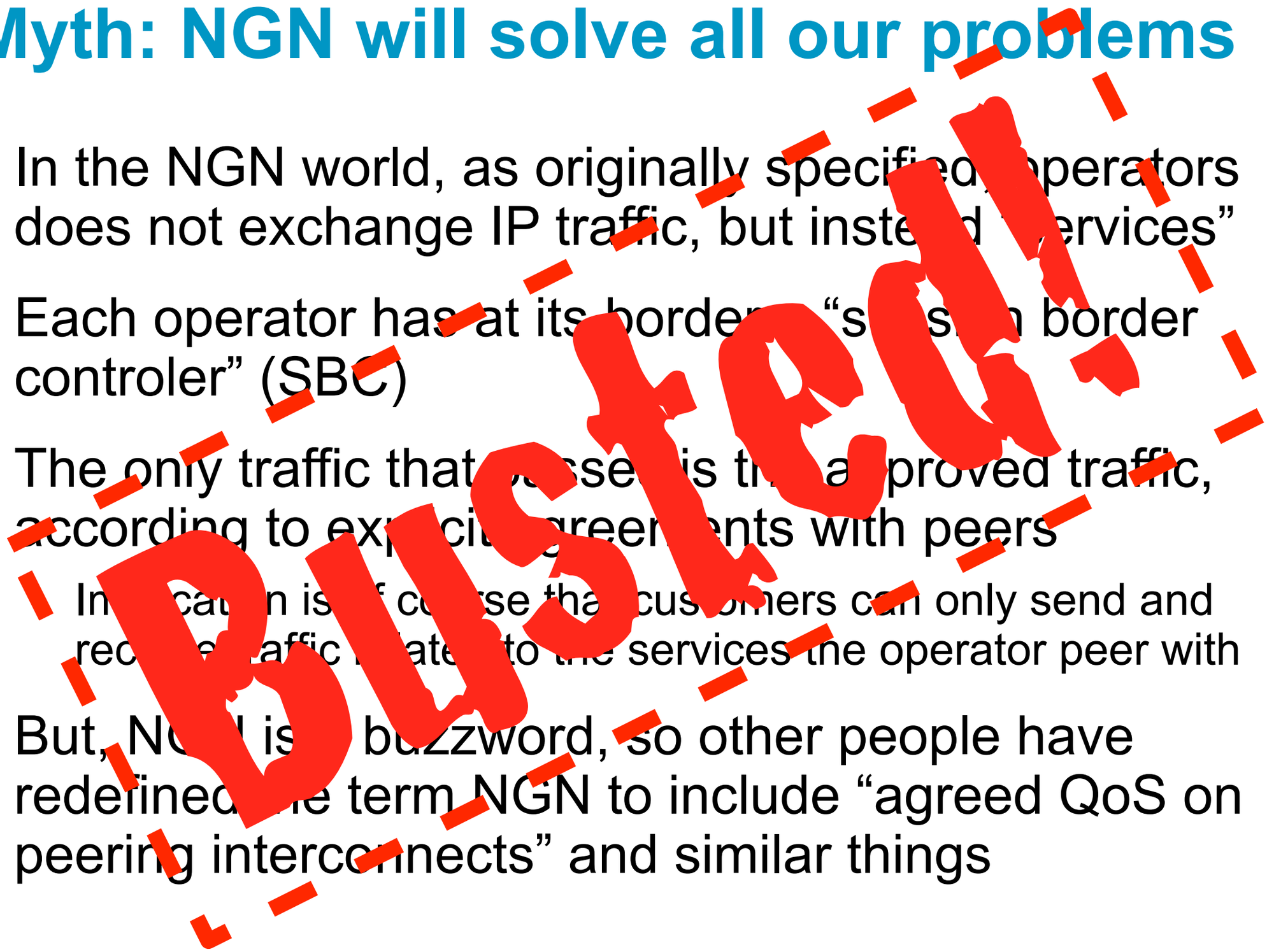

Myth: Vertical integration is the future

- An operator have...
  - ...the need to get back investments, and one way of doing it is to also sell services
  - ...to control what services the users uses, because otherwise the “user experience is not good enough”
  - ...to get paid by the service providers for the increase in traffic from the customers
- In the reality...
  - ...the “local services” compete with over the top services like Skype, Hotmail, Google and similar
  - ...the “local services” are often hard to reach from outside of the operator, so “roaming” is difficult for the customer
  - ...all services, including Google, are customers of operators
- Bundling is of course ok!

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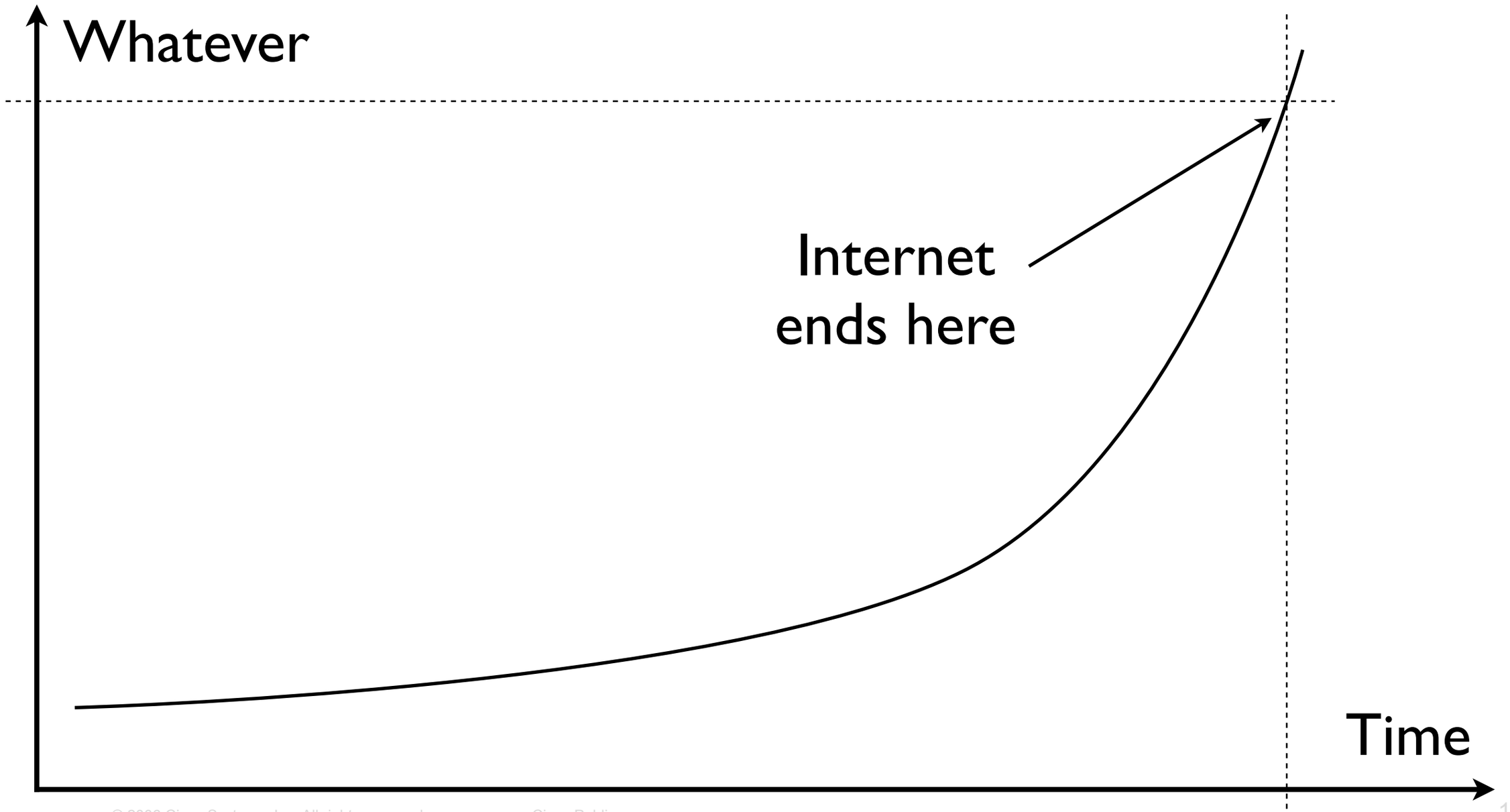
Myth: Whatever...

- One day the Whatever will reach a point when the network breaks completely



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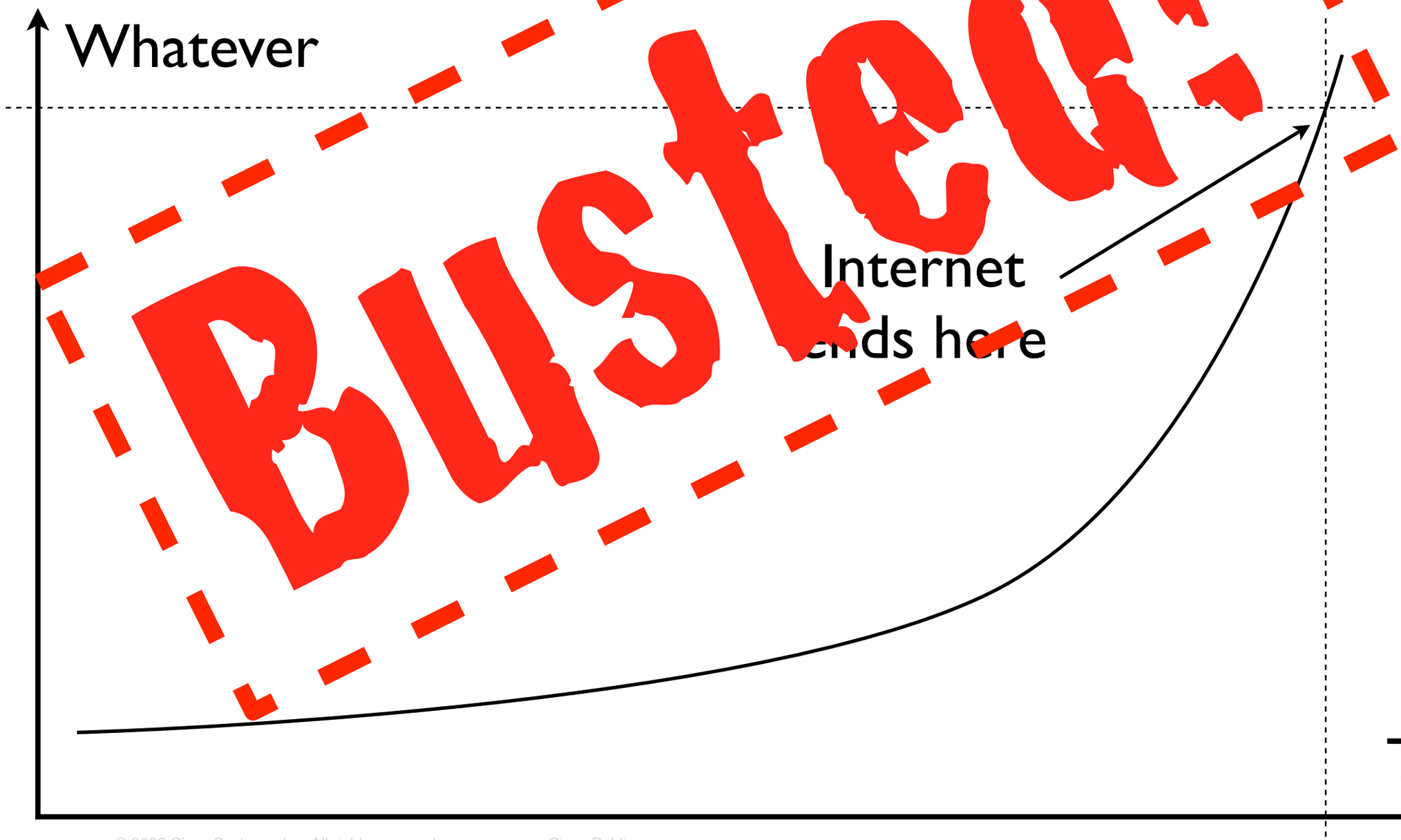

What world will we get?

- We have today the Internet world
  - Bill and keep
  - Majority of traffic is “best effort”
  - Peering and transit agreements between operators
  - Customers pay fixed fee
  - IP level routing solves robustness issues
- We can not ignore the last 15 years of solutions
  - People have tried to apply the “bell head model” on Internet for years, and it has failed every time
- Patches to this model is the future
  - Lambda management + routing for more robust network
  - Simple QoS (like diffserv) at known bottlenecks

Report on broadband in Sweden

- Report (so far only in Swedish) from the working group on IT Infrastructure and Broadband released yesterday:
- http://www.regeringen.se/sb/d/7273/a/71401

Q and A

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Email: paf@cisco.com

http://www.regeringen.se/sb/d/7273/a/71401