DE-CIX German Internet Exchange

Technical Update

November 2010
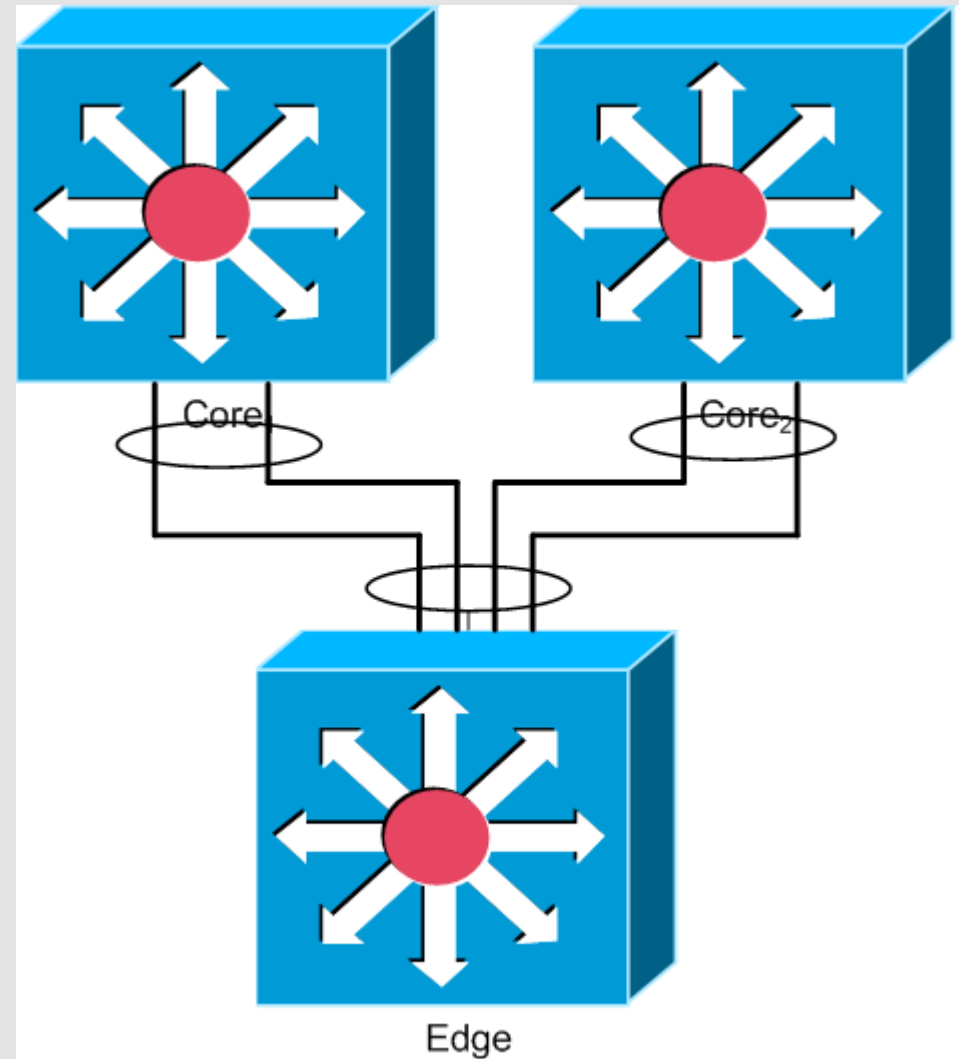
Agenda

- Upgrade to twin switch cores
- Upgrading the edge
- Technical Issues
- Routeservers
- Re-Launch of sFlow Portal
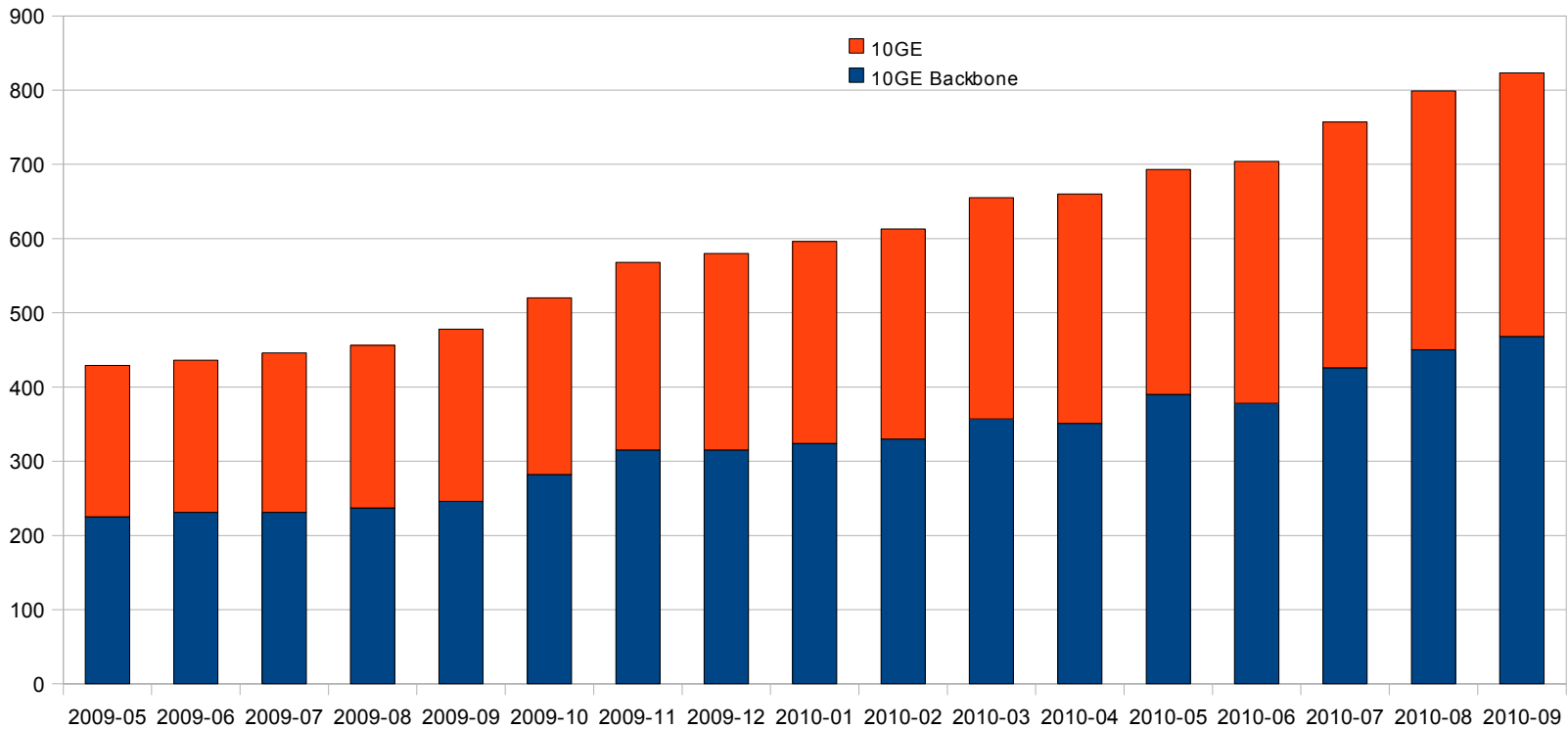- New Website: first facts
- News from the remote IXes

Twin switch core

- MLX32 runs out of interfaces
- Still want to keep setup simple
- Simply split each EtherChannel in two halves
- Next upgrade perhaps leads to redesign

Port growth (customer vs. backbone)

DE-CIX 10GE customer vs. backbone ports

Upgrading the edge

– Replacing 56-port 10GE TeraScale by 140-port 10GE ExaScale

– Next step is to combine two ExaScale by Virtual Switch feature

– Still not considering Brocades in the edge due to instabilities

– But keep in mind: port-density has to

Technical Issues

– DDoS attack in January and February 2010

- Targets: gateways, webserver, firewall

- Phasing in a SRX3400 did help

- Finding: big upstream pipe helps

- Re-design of upstream network ongoing

Technical Issues

- Cores (Brocade MLX32)
  - Defective linecard/sfm blackholes traffic
  - Switchover to hot-standby reveals that LC's installed since last switchover don't work

  - Bitflip in ARP frames
  - Still unresolved
  - Perhaps upgrade to IronWare 5.0 fixed the problem

  - Rapidly flapping interfaces leads to unresponsive CLI
  - Only rebooting solves the problem

Technical Issues

– Edges (Force10 ExaScale)

- 10-port 10GE XFP linecards fail constantly
- First analysis lead to bad capacitor
- Have to swap out all LC's!
- Still unusually high failures
- Again swapped all LC's!
- Finally SW upgrade fixed the problem

- Buggy ACL handling leads to loops

Technical Issues

– Routeserver

- Quagga under heavy load

- Replaced by BIRD

Routeserver

- Old Quagga had come to its end
  - Loading the config took >30 minutes
  - Sessions crashed every now and then
  - No per customer prefix table

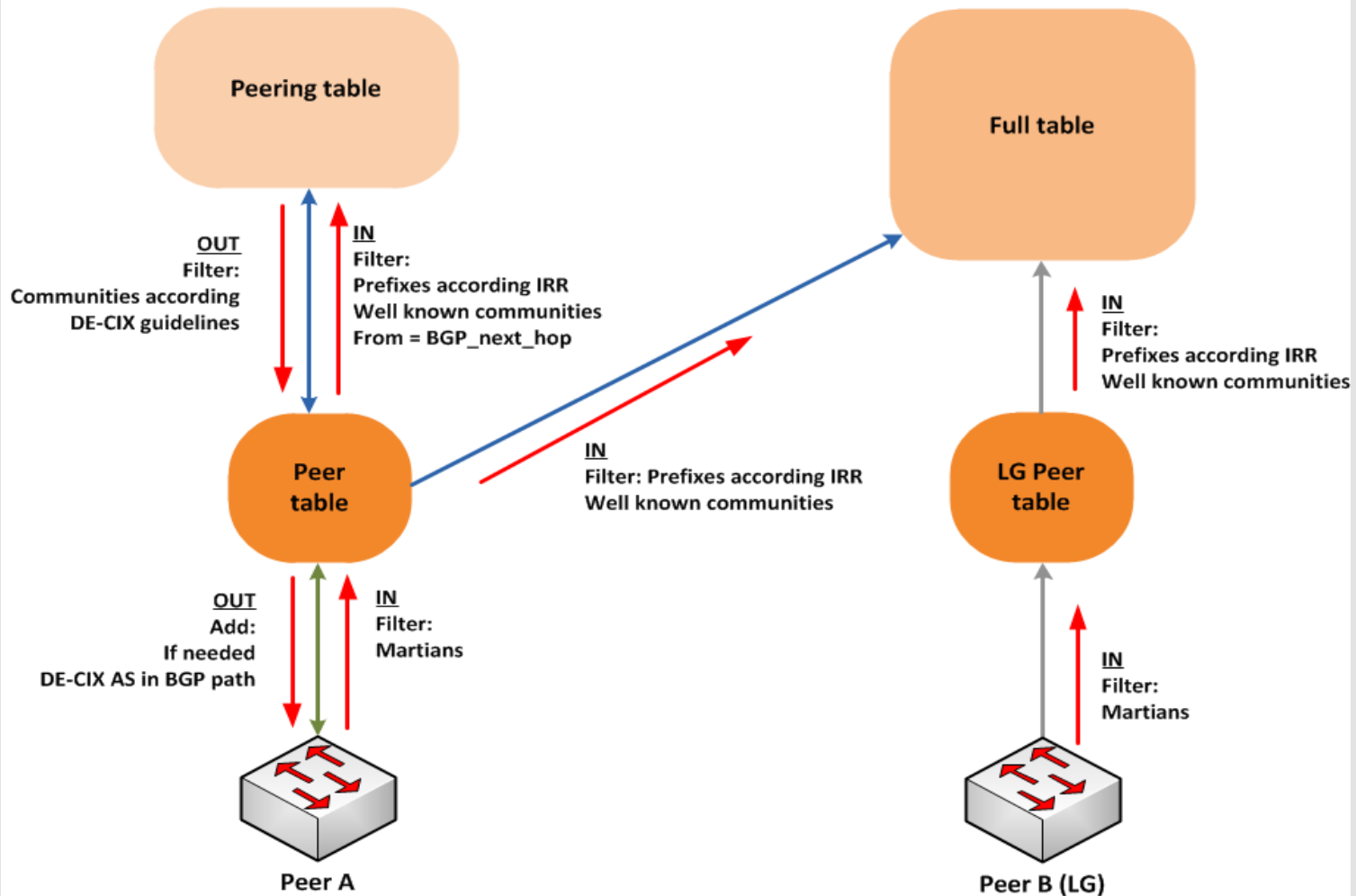- Replaced by BIRD
  - Amazingly fast (loads config in 10s)
  - Per customer prefix table
  - Only one crash
    - Problem fixed within 24h

Routeserver

– Still working on further routeserver implementation

- Supporting Quagga Improvements

  – Partly complete rewrite

  – HW w/ new Quagga already deployed

  – Looking for Beta Testers

- Sponsoring OpenBGPD Hackathon

  – More efforts in 1Q2011

DE-CIX Routeserver
Table & filtering implementation guideline

Peering table

Full table

OUT
Filter:
Communities according
DE-CIX guidelines

IN
Filter:
Prefixes according IRR
Well known communities
From = BGP_next_hop

IN
Filter:
Prefixes according IRR
Well known communities

Peer table

LG Peer table

IN
Filter: Prefixes according IRR
Well known communities

OUT
Add:
If needed
DE-CIX AS in BGP path

IN
Filter:
Martians

IN
Filter:
Martians

Peer A

Peer B (LG)

Routeserver Connectivity

RS7 (Dell R510, GC, G16)

eth0 Gi1/0/22

sw404

sw401

Gi13/46
VLAN 11

Gi1/0/1

Vlan 111

Gi1/0/7

Fa1/0/34
VLAN 11

Vlan 112

DX4 sw005

Gi13/47
VLAN 12

Gi1/0/2

Gi1/0/8

Fa1/0/35
VLAN 12

DX1 sw011

VLAN 2

VLAN 2

Gi1/0/12
VLAN 12

Fa1/0/22

Vlan 112

Fa0/3

Fa1/0/44
VLAN 12

Vlan 111

DX3 sw015

Gi1/0/11
VLAN 11

Fa1/0/21

sw403

Fa0/2

Fa1/0/43
VLAN 11

DX2 sw013

VLAN 111

VLAN 112

sw402

eth0 Fa1/0/6

[999]

eth0 Fa0/21

[999]

VLAN 111

VLAN 112

Toggle VLAN/shutdown

RS6 (Dell R510, TC, 1S11 D)

RS5 (Dell R510, IX Fra4, 5a, C10)

[999] Park unused in VLAN 999

Re-Launch sFlow Portal

- Findings from DE-CIX meeting in fall 2009 lead to looking into legal aspects in depth

- Result: all but IP based statistics are Ok

- Planned to integrate sFlow portal into new DE-CIX portal
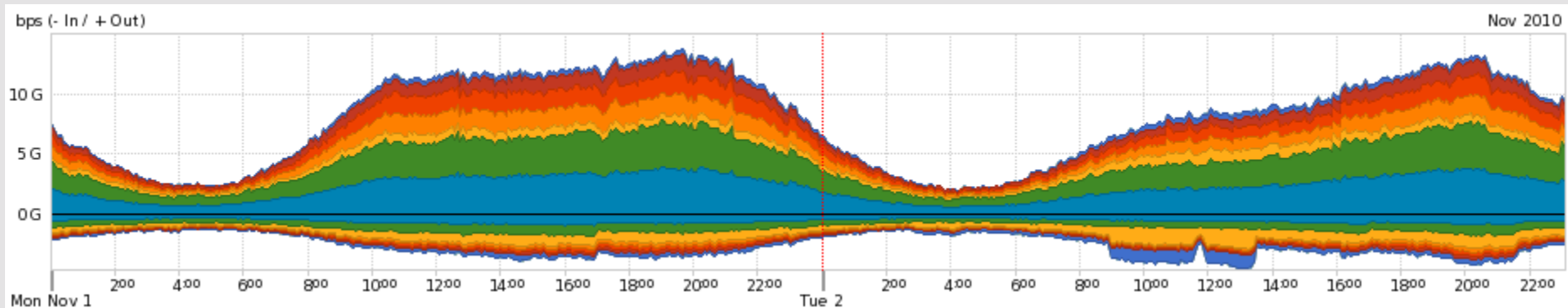
New Customer Portal

- New Corporate Design is a good idea to also completely re-design the portal

- Current usability is very poor
  - Improve usage and comfort
  - Get more feedback from customers
- Use open-source Typo3
- Hired full web developer (Eric Dorr)
  - Supported by Alexander Summa (intern)
- Lot of new self-services
- Remote IXP's will be integrated

News from Remote IXP's

- Added 2nd ALP-IX site in Landsberger Str. 155
  - Colocated at SpaceNET, next door to INXS
  - Installed Arista DCS-7124S
  - Resilient fibres to 1st ALP-IX site
    - Currently 20Gbps
    - Easily upgradable to multiple 10Gbps

- Upgrading WORK-IX switches in 1H2011

- Planning 3rd remote IXP for Düsseldorf

Thanks !

Join DE-CIX now.

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