rare.freertr.net BIER implementation

P4 BMv4, TOFINO & DPDK dataplane

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GN4-3 WP6T1 – RARE Lead core developer

IETF#110 Virtual meeting –BIER-WG

March 9th 2021

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RARE project : Group focus

- WP6-T1 sub-task: RARE
    - Control plane software
    - Multiple data planes
    - Interface them and the result is …

- Fully functional router
    - Running at hardware line rate
    - DIY "hackable/extensible" router
    - Control plane independence

One familiar platform
⬇
Multiple solutions
⬇
Each solution addresses
⬇
R&E
use case

GÉANT

RARE latest news (M27)

- RARE p4 targets
  - bmv2 software switch
  - **NPU** on WEDGE-BF100-32X, APS-BF2556-T1, others
  - **under study**
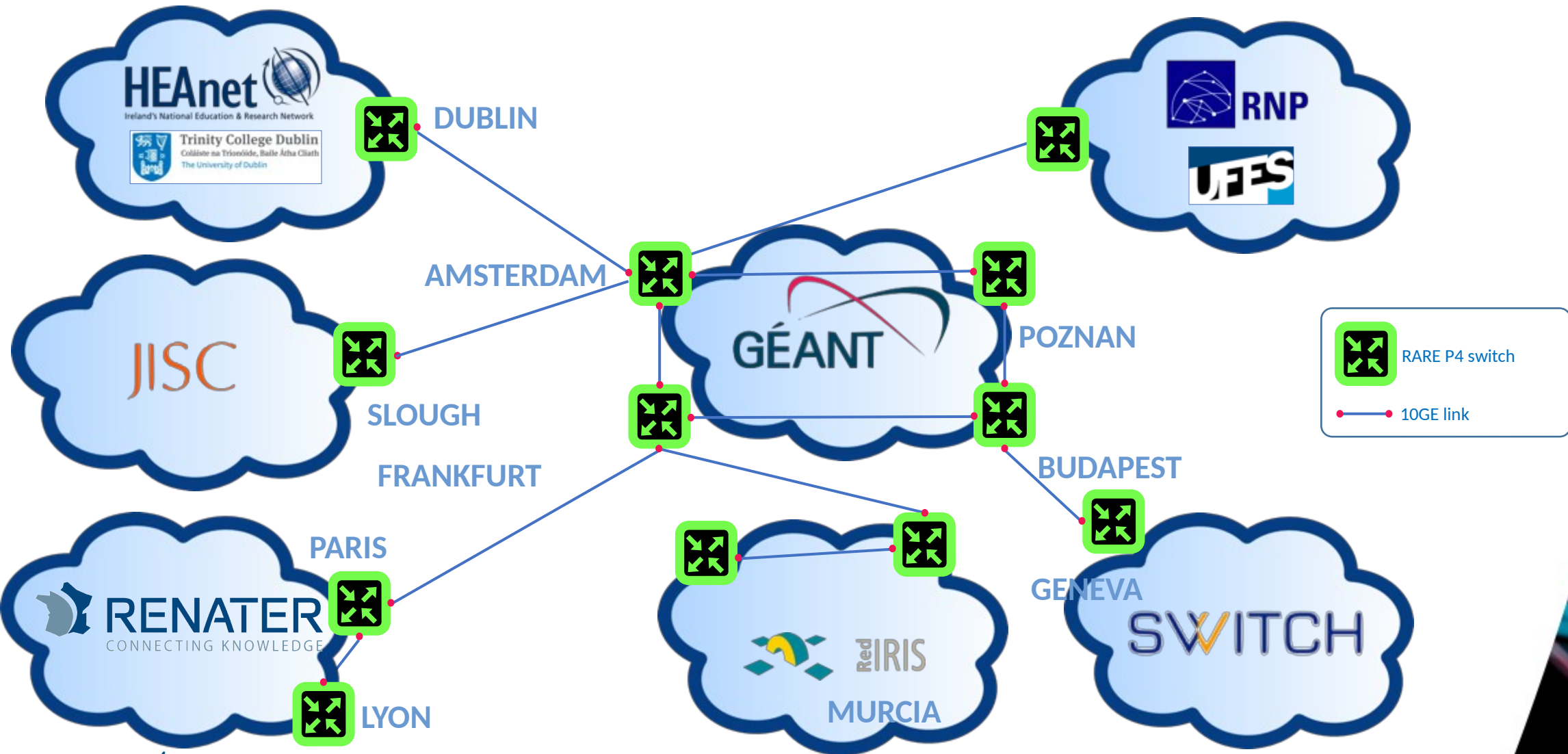
- RARE "p4" emulation targets

- RARE Network Programmable targets
  - Broadcom **under study**

RARE P4 european testbed

What we have

- BIER in MPLS - RFC8296
  - All the BitString lengths in software
  - 256bit mode in all the dataplanes
- BIER ISIS – RFC8401
- BIER OSPF – RFC8444
- BIER IDR draft
- BIER PIM draft

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Experience

- wwwin.nop.hu/trackMap.tcl - a live net running dpdk dataplane and sometimes a tofino node

- lg.nop.hu - an isp like setup

- inf.nop.hu/mtrack.tcl - measured from multiple endpoints talking to each other 0-24

- Regular streaming to loudspeakers with vlc

- All over BIER, initially in sw, nowadays in the dataplane

- ECMP pitfall with BIER

Key take-way – We are ready to roll into production

- Automated testing: www.freertr.net/tests.html
- 3rd party testing via Spirent usage
  - (thanks PSNC@WB team)
- P4 profile calibration
- DPDK is in operation
- Candidate deployment for production

Thank you

Any questions?

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