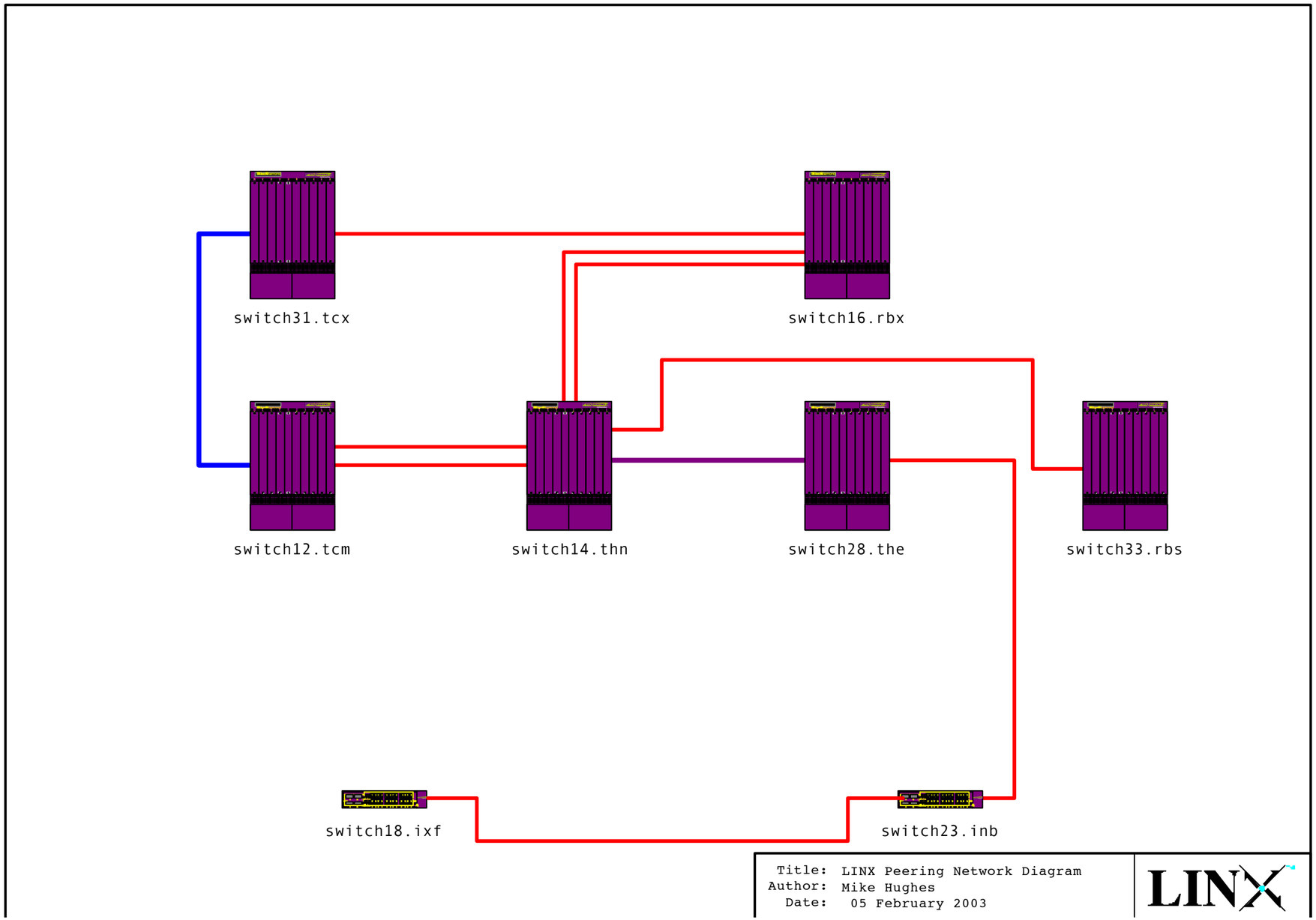
Re-engineering the second LAN and interim arrangements

Bartek Raszczyk

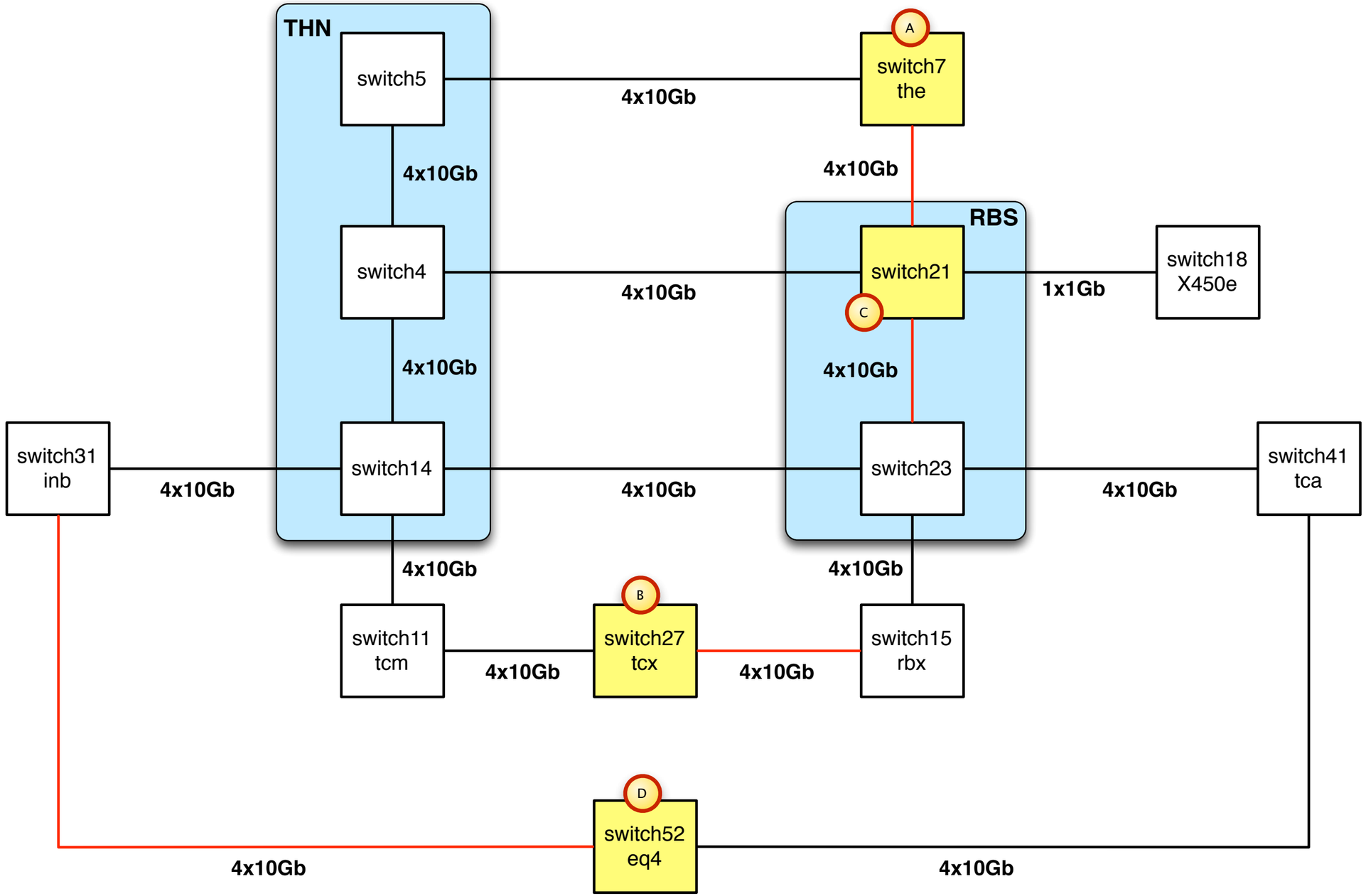
Agenda

- What have we done so far?
  - introduction of BlackDiamond 20800
  - simplified EAPS topology
  - software and ISL upgrades
- Interim arrangements
  - what are the main issues?
  - how do we solve them?
- What's next?
  - architecture refresh
  - Proof Of Concept with Extreme

Extreme LAN a decade ago



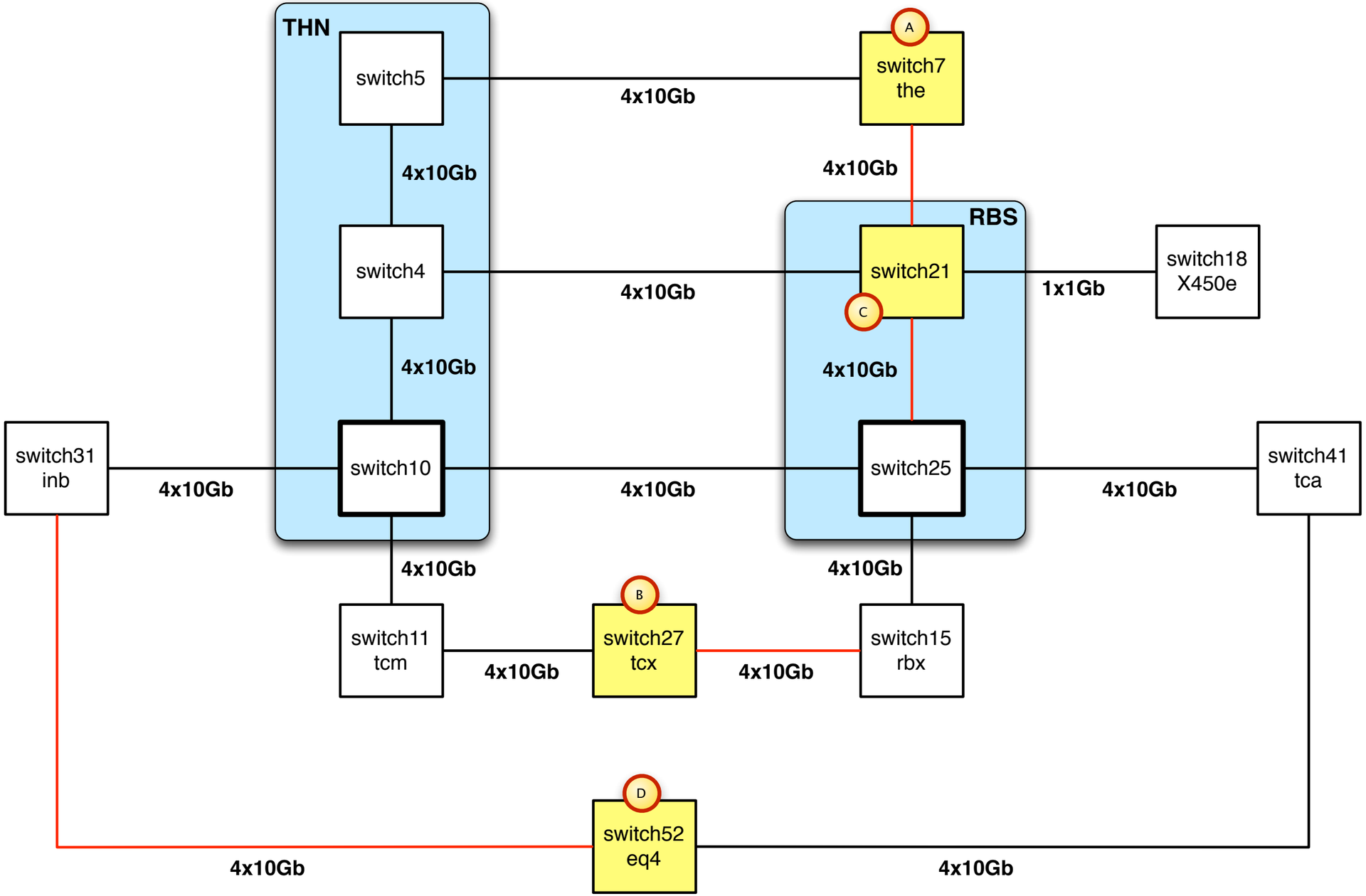
Extreme LAN - January 2011



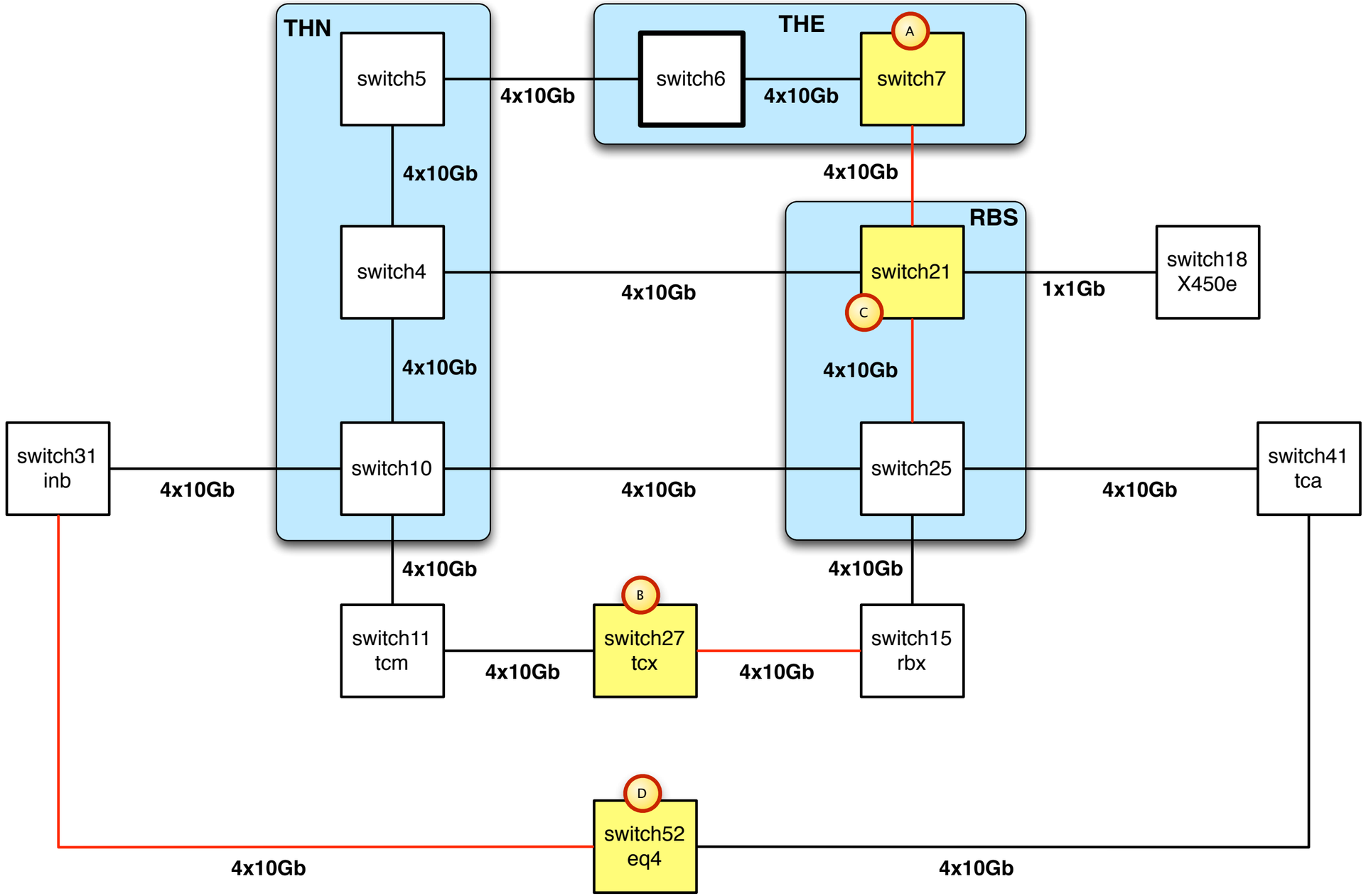
BlackDiamond 20800

- introduced at two largest sites (THN, RBS) to provide more 10GE member ports and room for ISL growth
- installed as a one-for-one replacement
- 8 slots supporting 8 x 10Gb cards
- capable of delivering 16 x 10Gb LAG's
- twice the capacity of BD8800 (64 x 10Gb ports)
- supports MPLS and MLAG

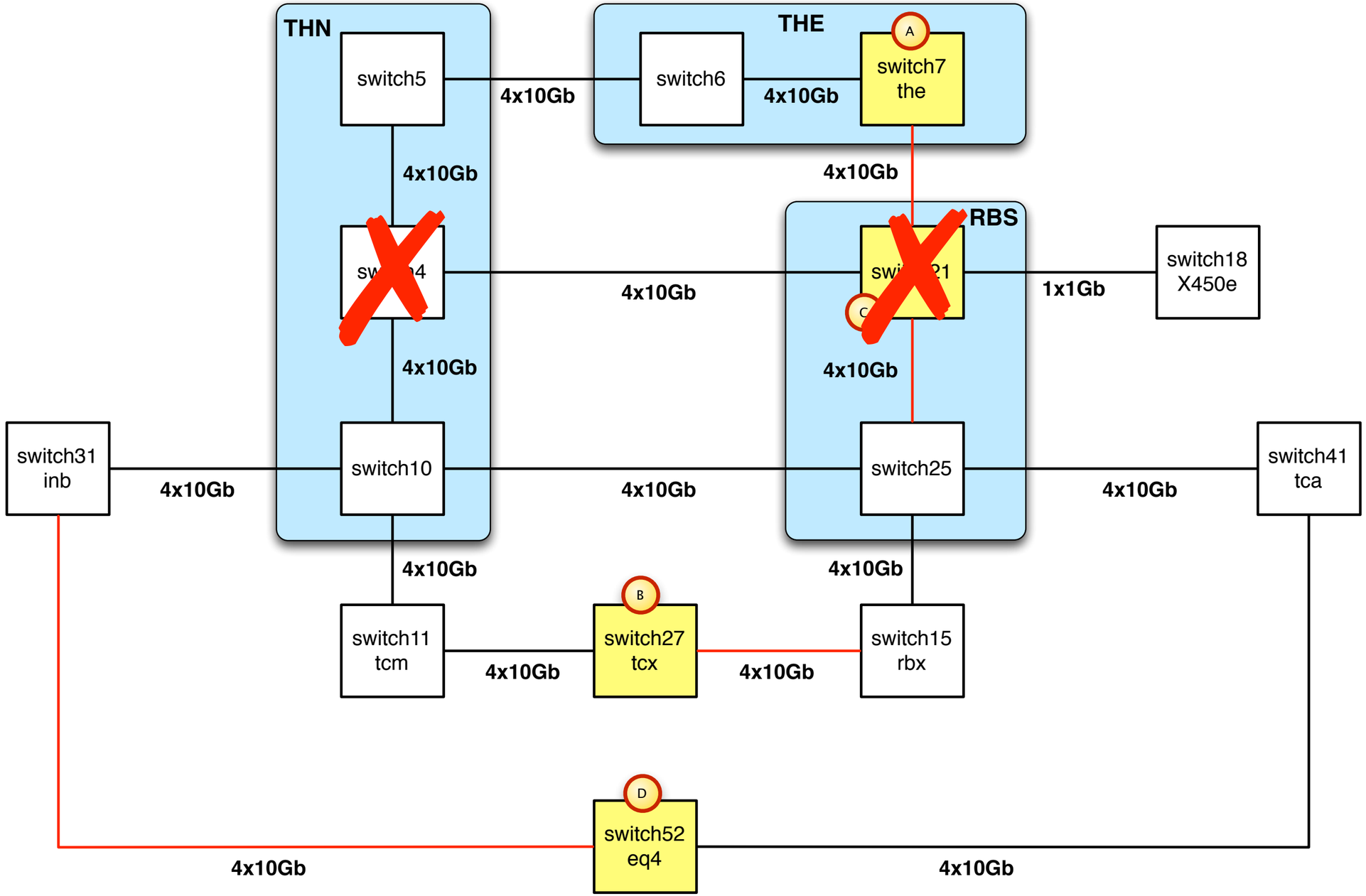
Introducing BD20k in THN & RBS



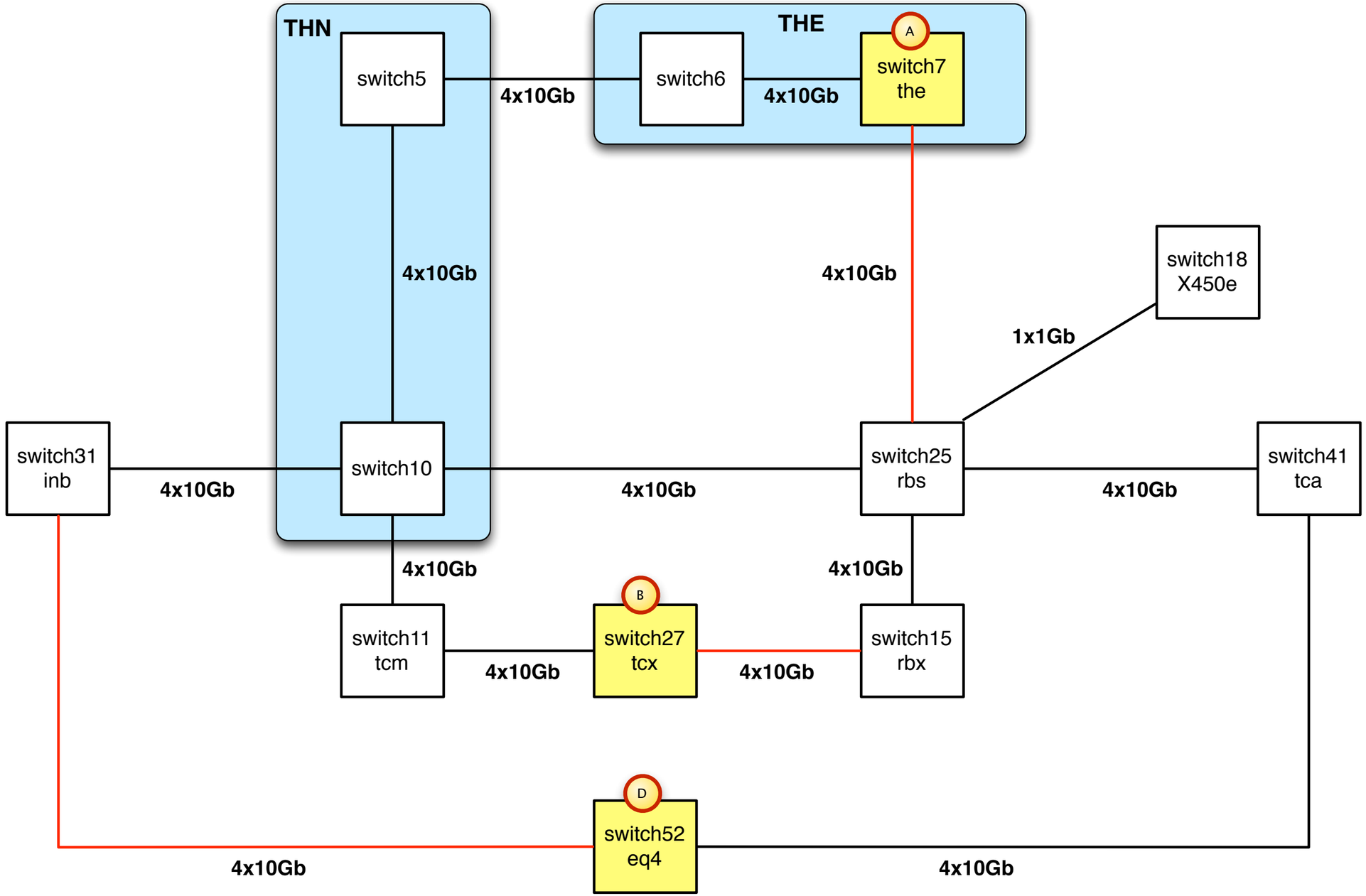
New BD8800 in THE



Collapsing ring C



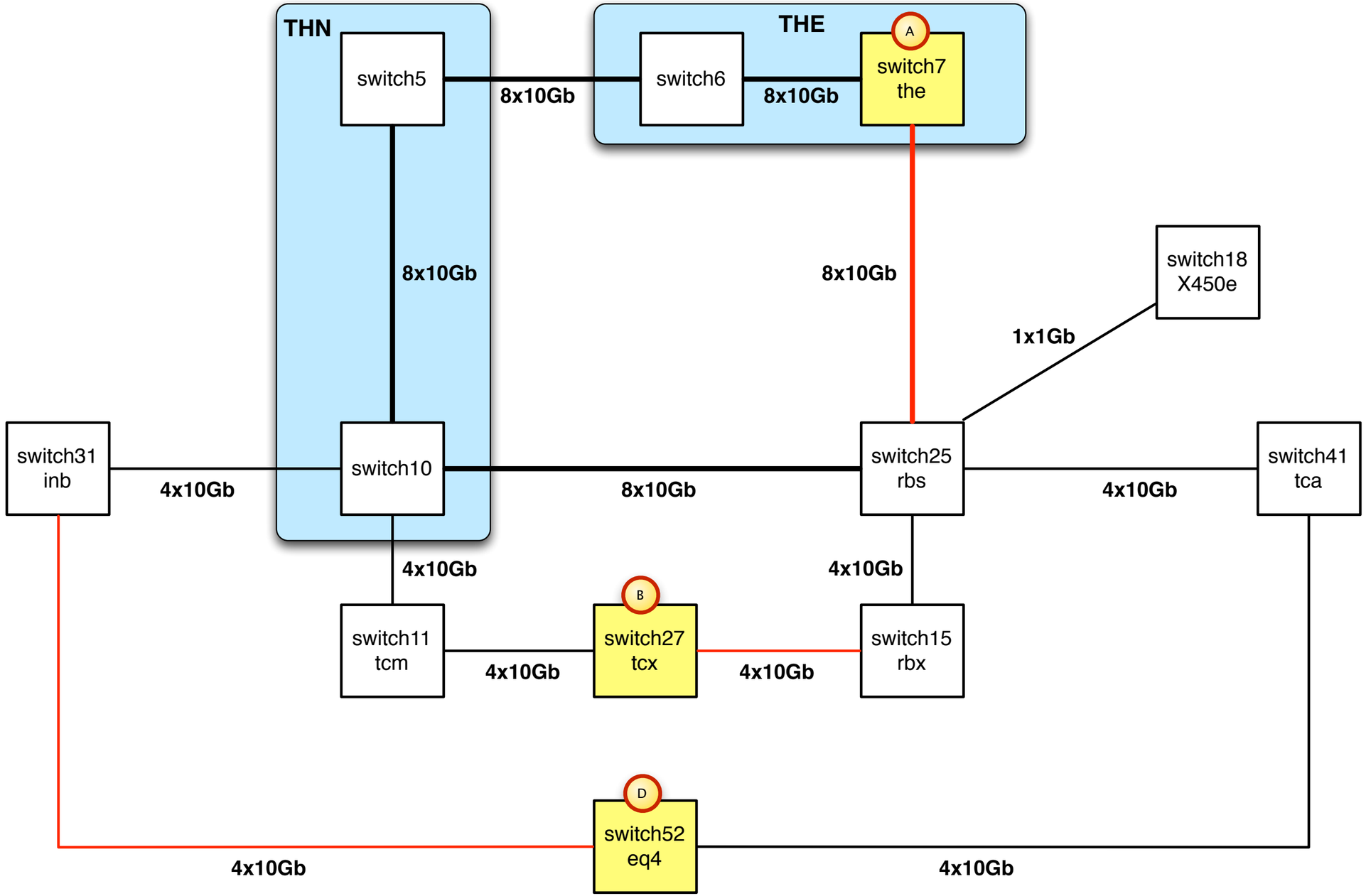
Simplified EAPS topology



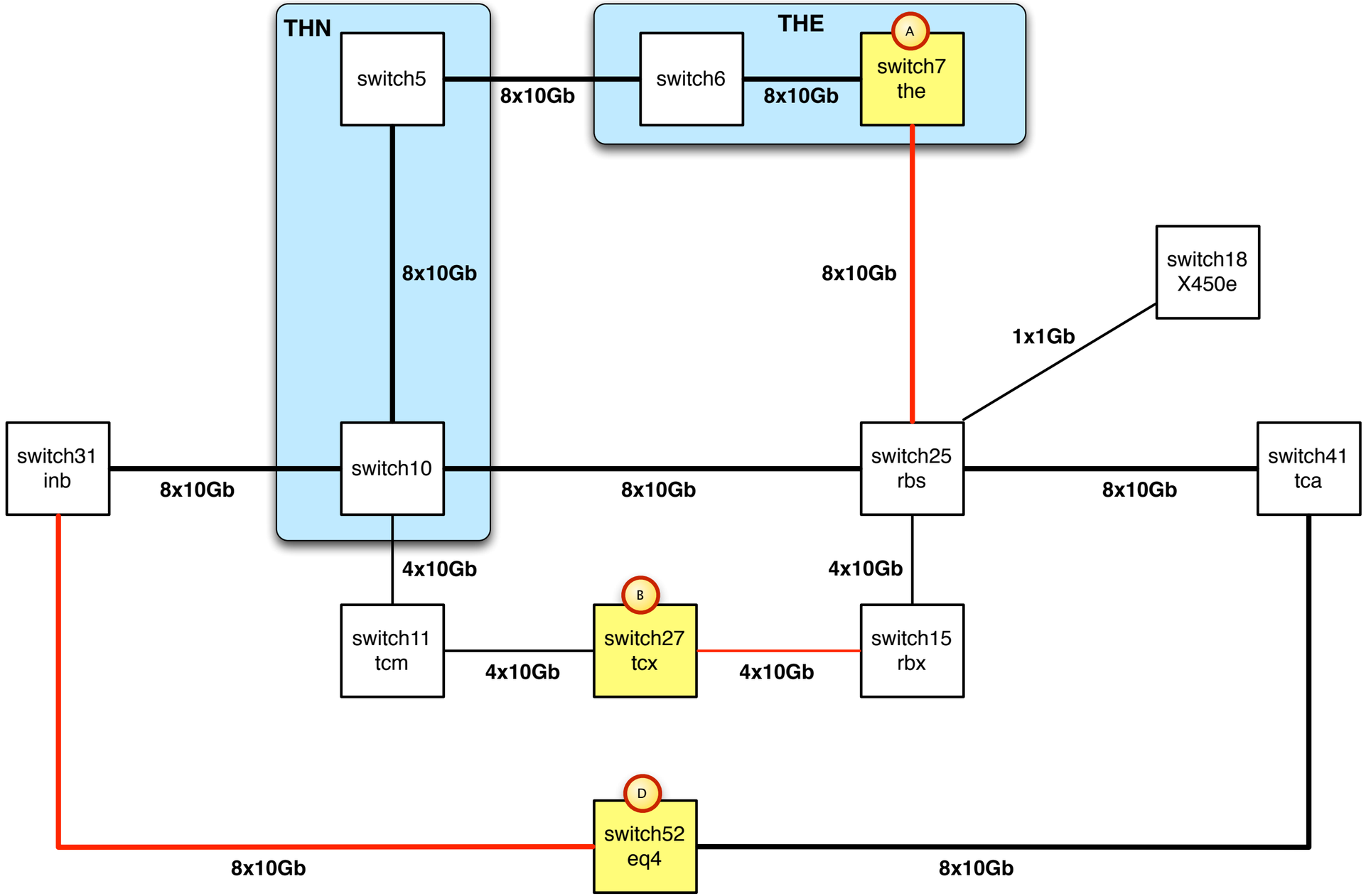
Software upgrades on BD8800

- XOS 12.2 is no longer supported by Extreme
- while preparing for the ISL upgrades we have identified a bug in 12.2, that caused traffic loss and uneven load distribution on 8 x 10Gb LAG’s
- we have internally qualified both 12.4 & 12.5 and upgraded to 12.5.3.9 as per Extreme’s recommendation
- this allowed us to start work on upgrading all EAPS rings to 8 x 10Gb

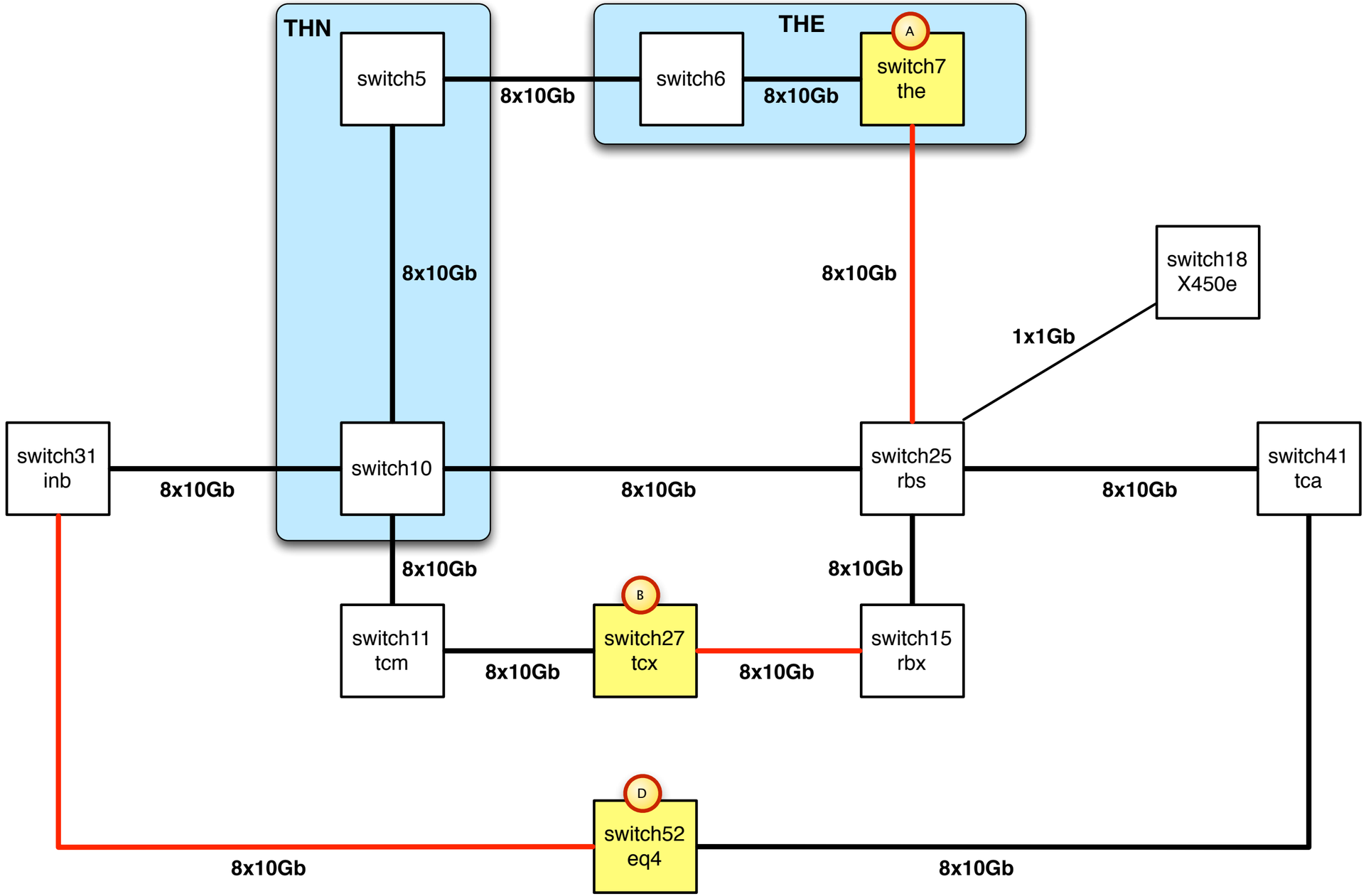
Upgrades on ring A



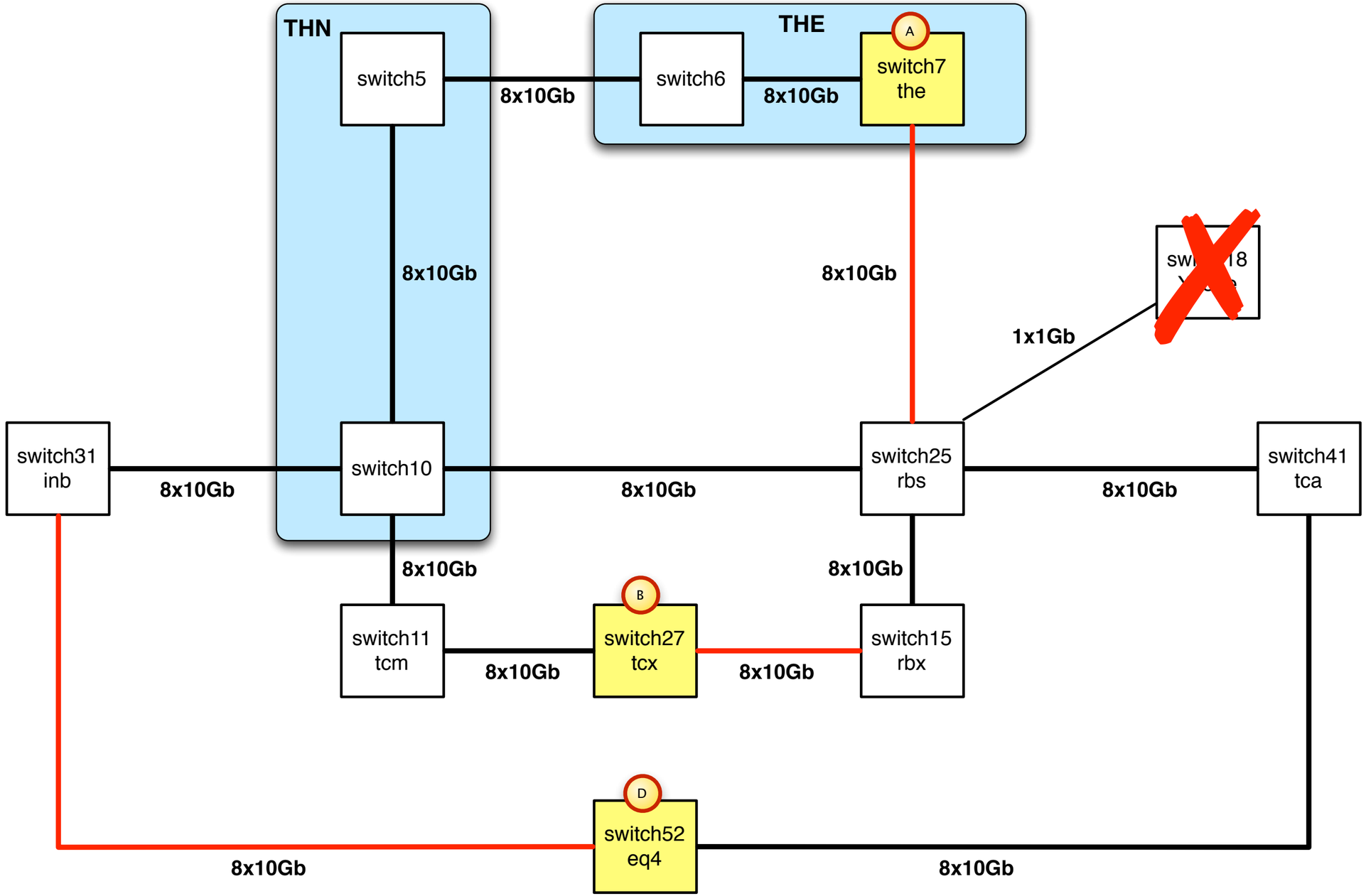
Followed by ring D...



...and finally ring B (ongoing)



Removing switch18 (RBM)



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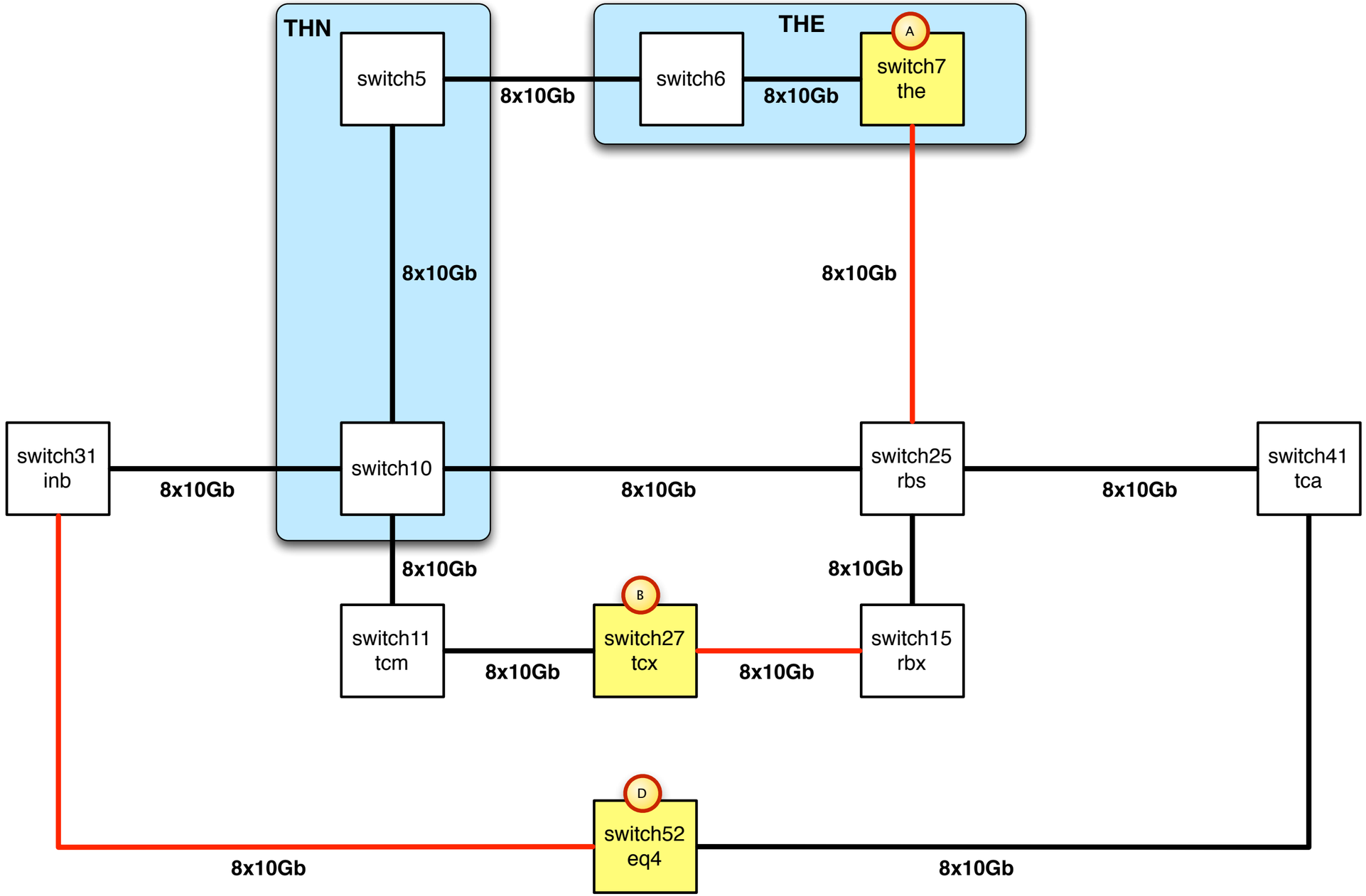
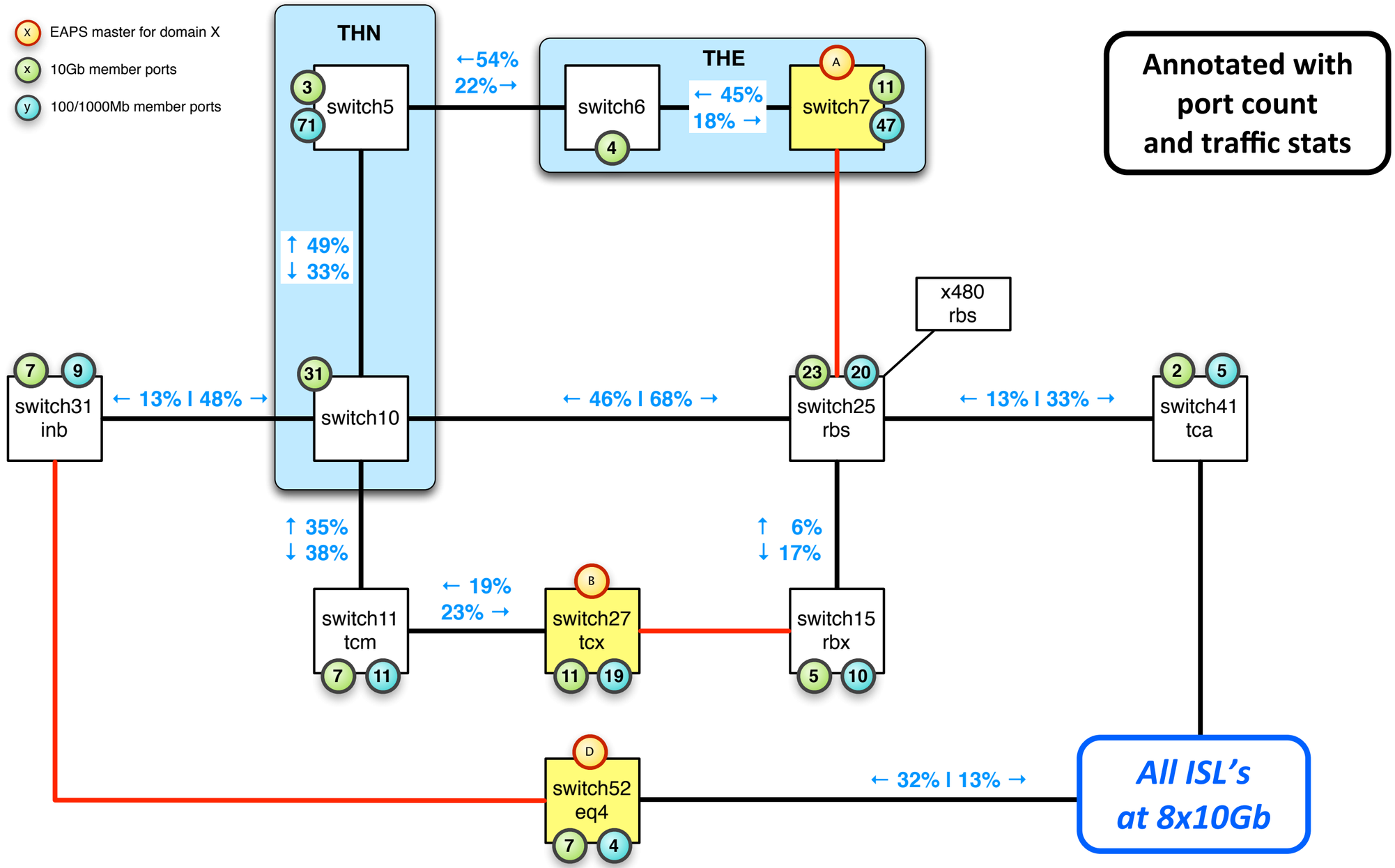


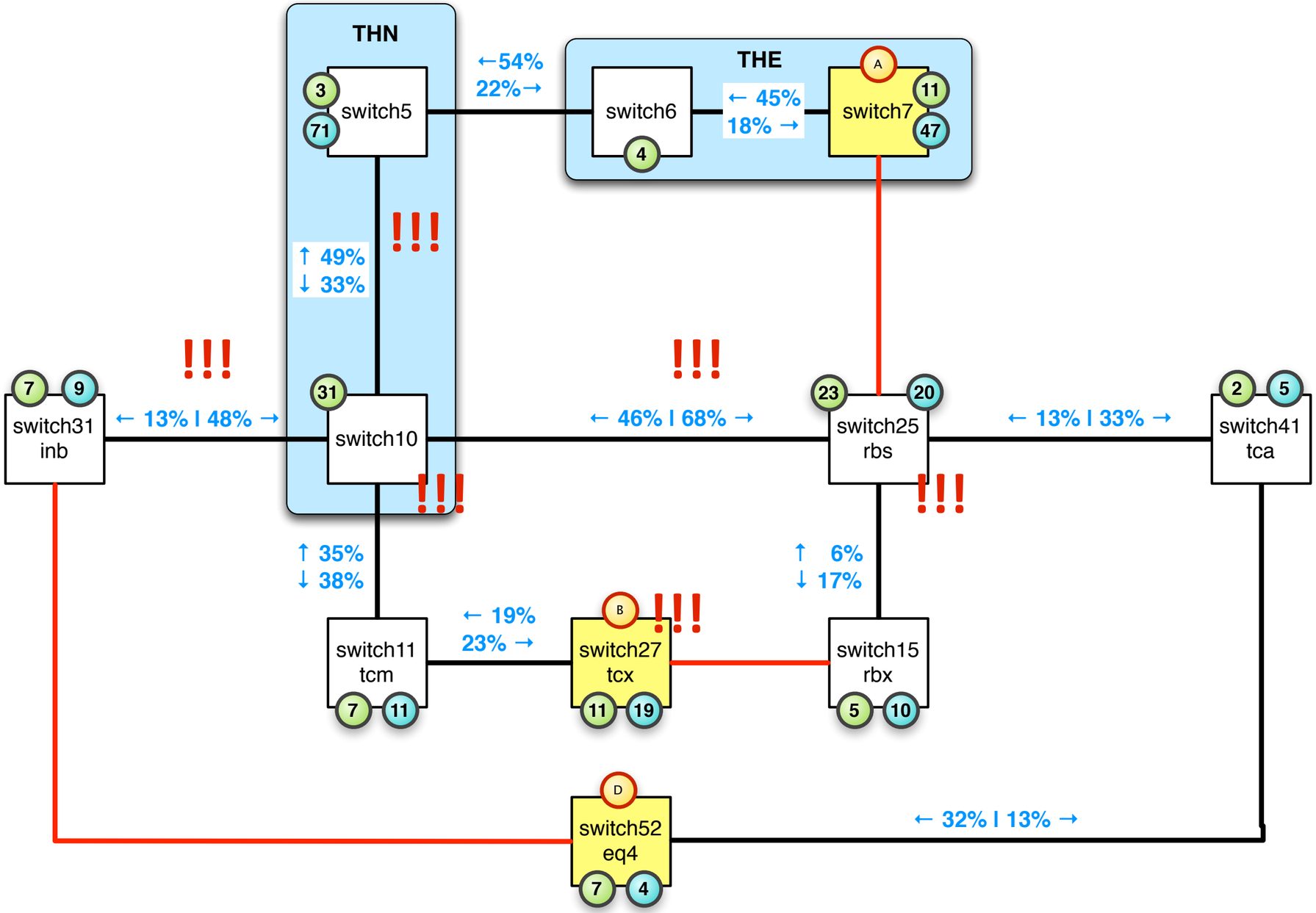
Extreme LAN - end of 2011



Interim arrangements
What are the main issues?

- LINX has essentially outgrown ring topology advantages (i.e. simplicity) and will eventually face the same crossroads it has with the primary LAN
  - we need to increase port availability in core sites
  - rings force suboptimal traffic distribution and require a lot of idle (and expensive) resiliency
  - we can’t deliver >4 x 10Gb member LAG’s with current ring-based topology

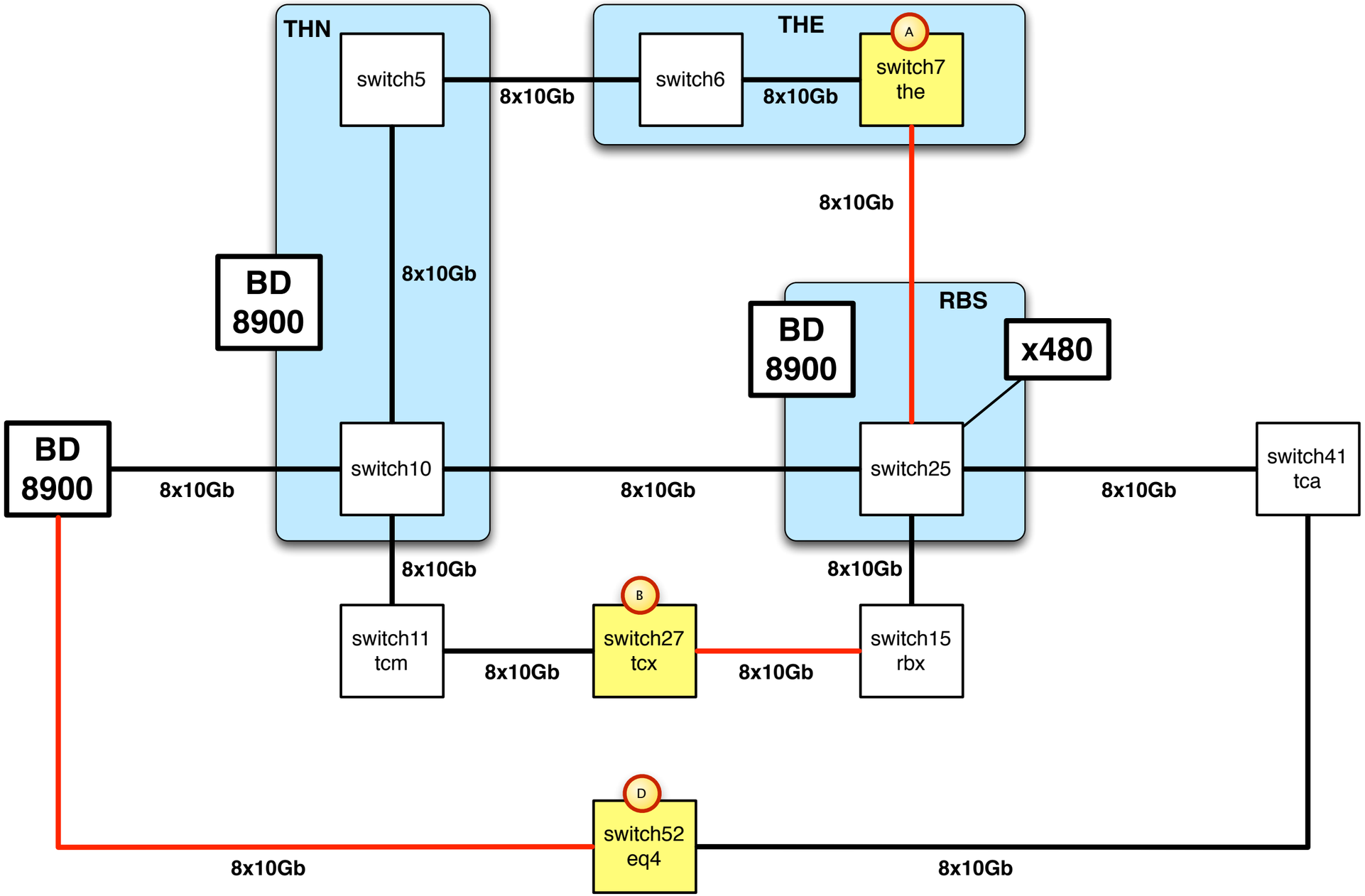
Possible future hot-spots



Interim arrangements
How do we solve the issues?

- upgrade/add switches at the densest sites (INB, TH & RBS) to provide additional port and ISL capacity
  - introduce BlackDiamond 8900
    - 8 slots capable of supporting 8 x 10Gb cards
    - supports 16 x 10Gb LAG's and MPLS
- move FE/GE ports to a 1U pizza-box switch
  - introduce SummitX 480
    - 1U pizza-box solution supporting 24x SFP+ ports with 2x XFP uplinks
    - also supports MPLS, MLAG
- it works as an interim solution, but where do we go from there?

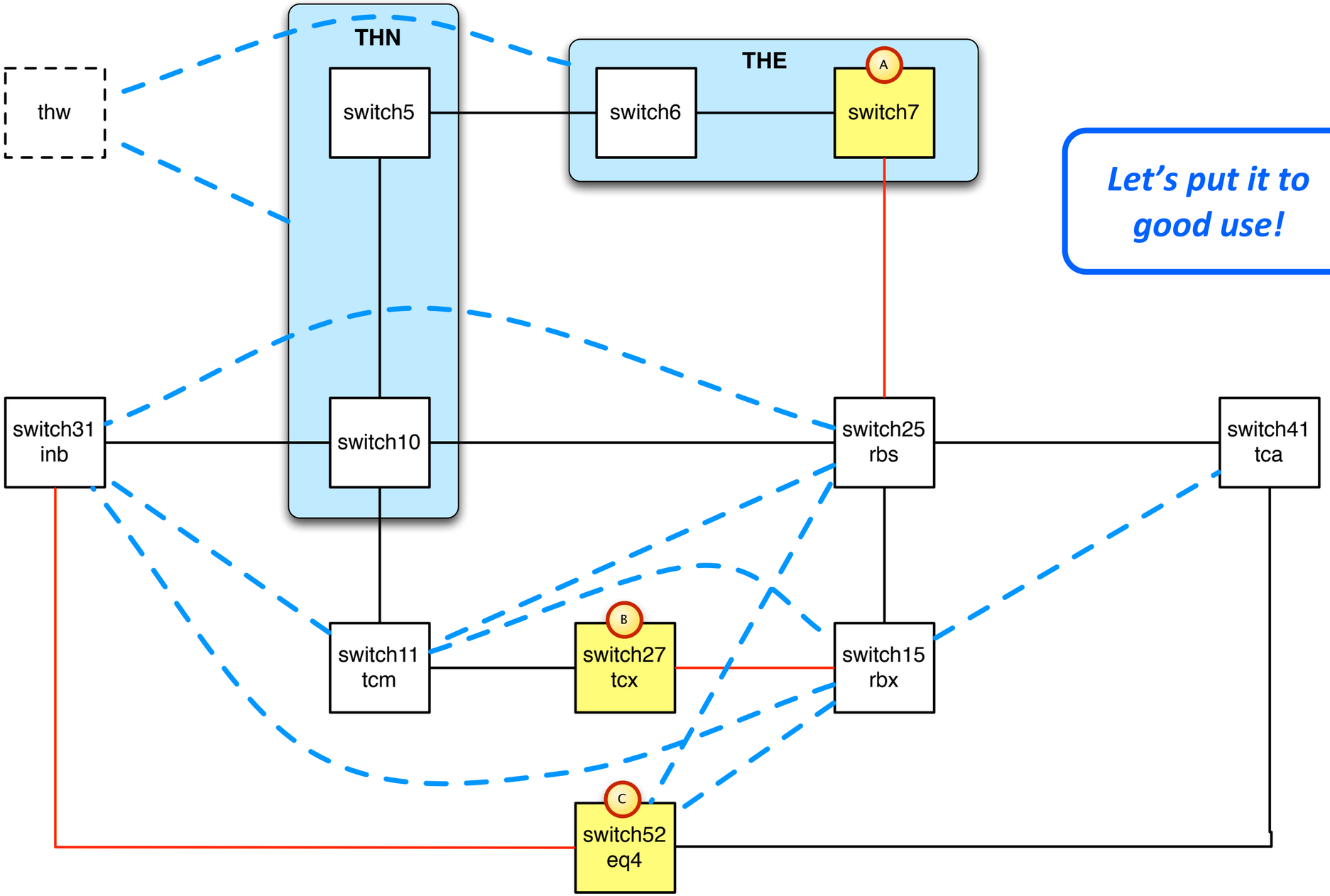
Interim arrangements - proposal



Architecture refresh

- needs to take place before 2012 Games start (May ’12)
- we have received an offer from Extreme Networks and are in the process of reviewing the commercials, this also depends on the results of a Proof of Concept exercise
- we are also speaking to few other vendors and reviewing their solutions
- we haven’t yet committed to a particular vendor or technology and aim to present more on the subject during next LINX meeting in February

Way forward - new fibre deployed for Juniper LAN

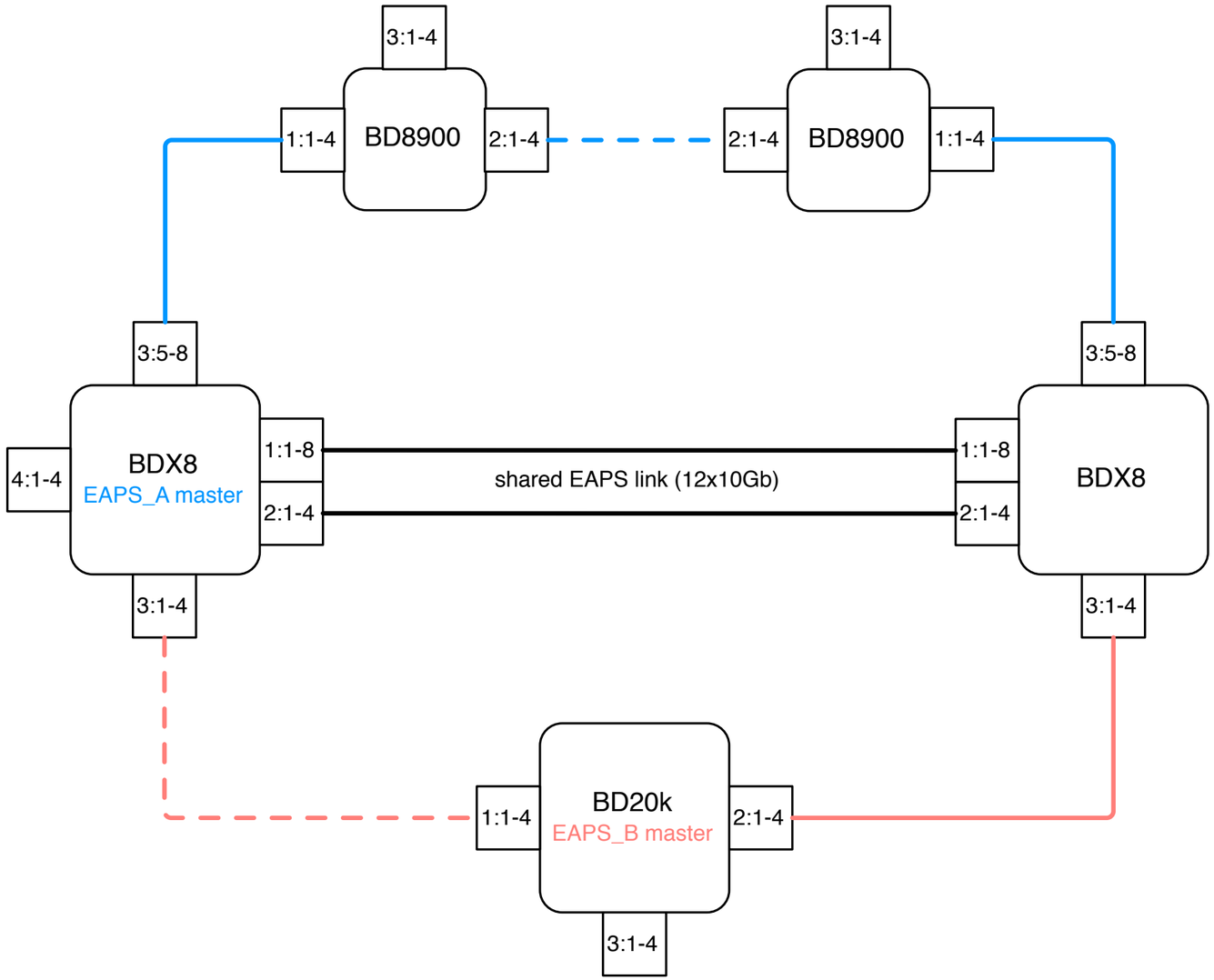


Let's put it to good use!

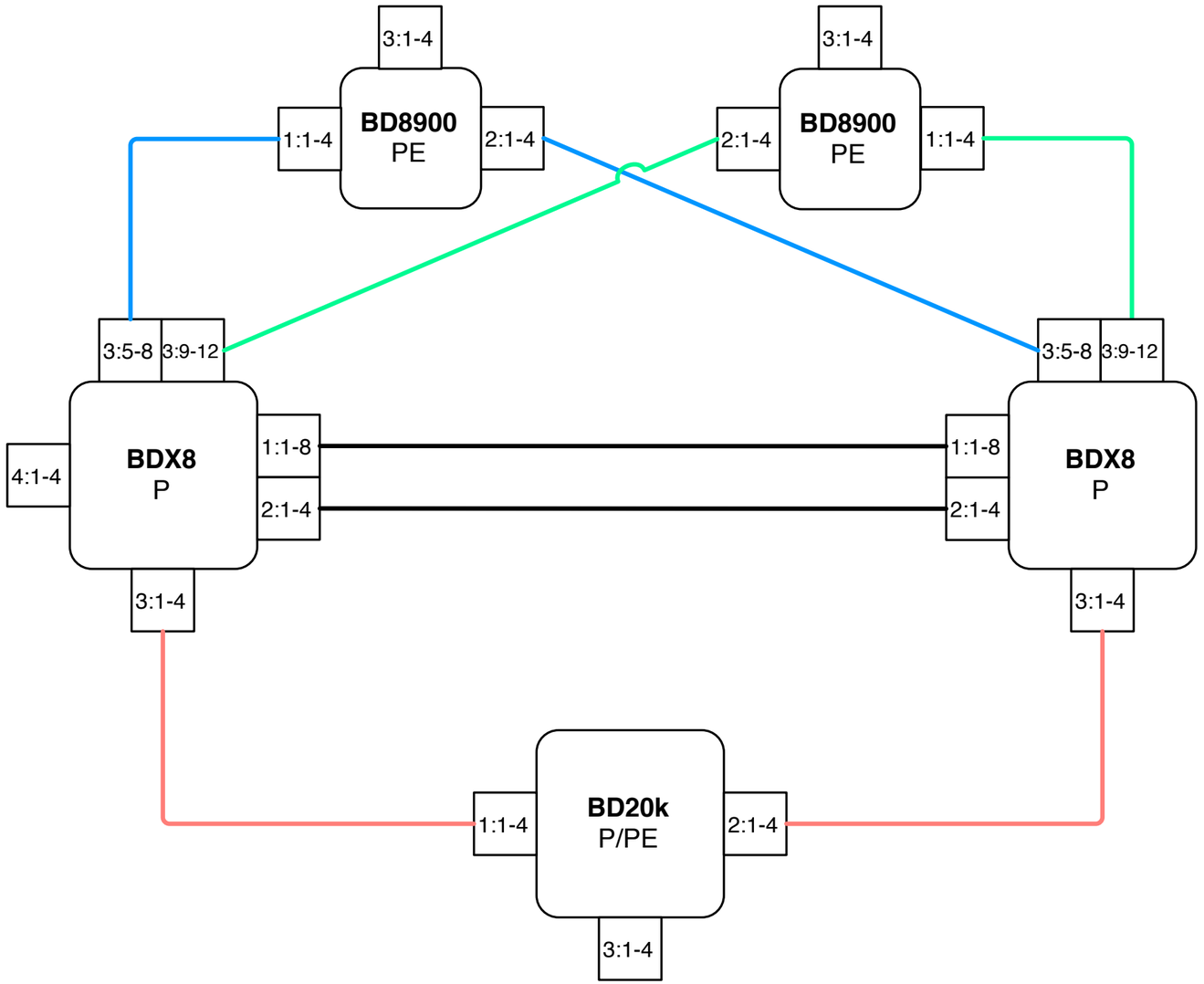
Proof Of Concept with Extreme Networks

- Owen and I are going to visit Extreme 2nd week of December to test the new BlackDiamond X8 switch
  - BlackDiamond X8
    - 8 slots capable of supporting 48 x 10Gb cards (no GE support!)
    - offers 40/100Gb ports, 1.28 Tbps capacity per slot, 1/3 of rack
    - MPLS, MLAG support
- one week with Extreme team, during which we want to:
  - get to know the new platform, test BD8k/20k interoperability
  - try out various EAPS->MPLS migration strategies
  - test VPLS convergence modes, operational aspects etc.
  - get familiar with reporting, monitoring and instrumenting tools

BlackDiamond X8 POC
EAPS to VPLS migration



BlackDiamond X8 POC
EAPS to VPLS migration



¿Questions?

Thank you!