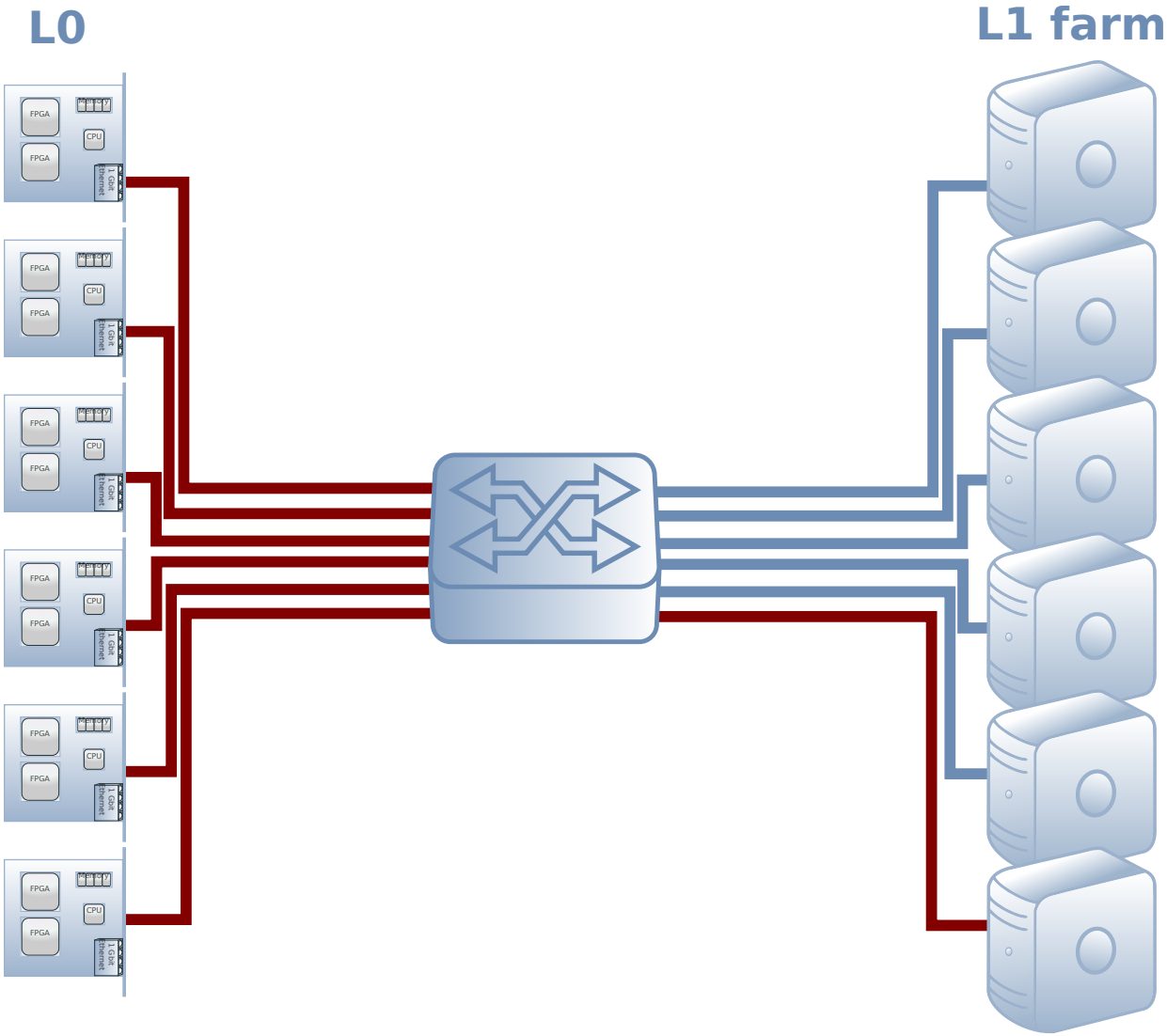
How to check Gianluca's remaining bottleneck



How to check Gianluca's remaining bottleneck

Check latencies

First idea: measure relative latency

- Let X PCs send N frames containing the sending time
- Calculate difference between timestamp in received package and the time of reception
- Forget about the accuracy as you cannot synch the clocks, but...
- This value should increase rapidly if you have problems with too big X and N

Large drift

Even miliseconds after an NTP-synchronization with a stratum 3 the drift between L0 clocks and L1 clock is much too large (about 50μs per second)

How to check Gianluca's remaining bottleneck

Check data rate and packet loss

Better idea: measure the packet loss

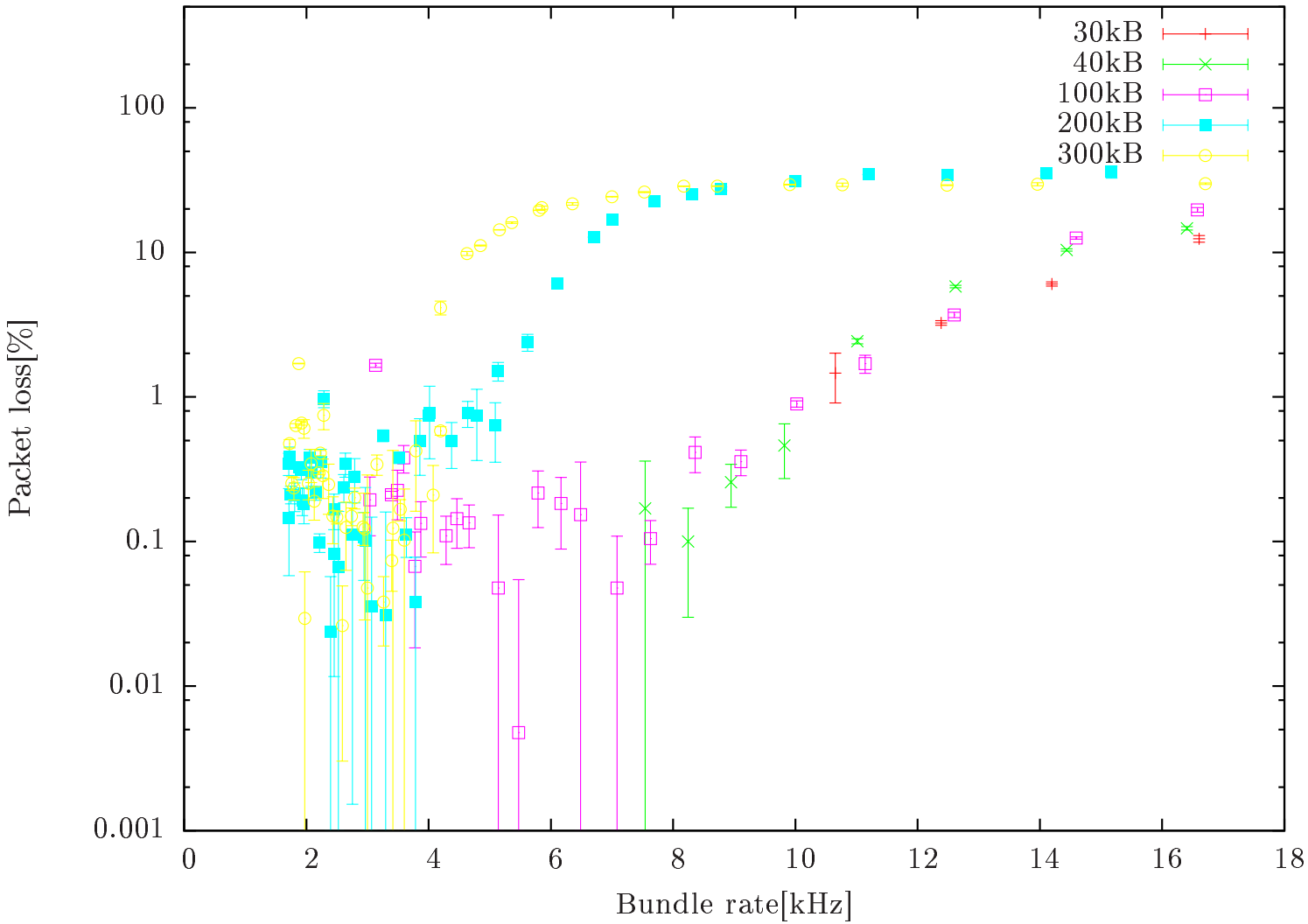
I used 21 simulated L0-Machines (on 12 PCs, 21*1G links) and one big L1-Machine (one 10G link) on on HP PC6248 switch for following procedure:

- L0TP sends broadcast (frame size X and number of frames N)
- L0-Machines send N frames of size X to one L1 PC
- Now we have a bundle of 21*N frames going to L1
- L1 counts the frames $\rightarrow$ calculates packet loss and data rate
- L1 can separate the bundles by numbers in the frames (frames are not ordered!)

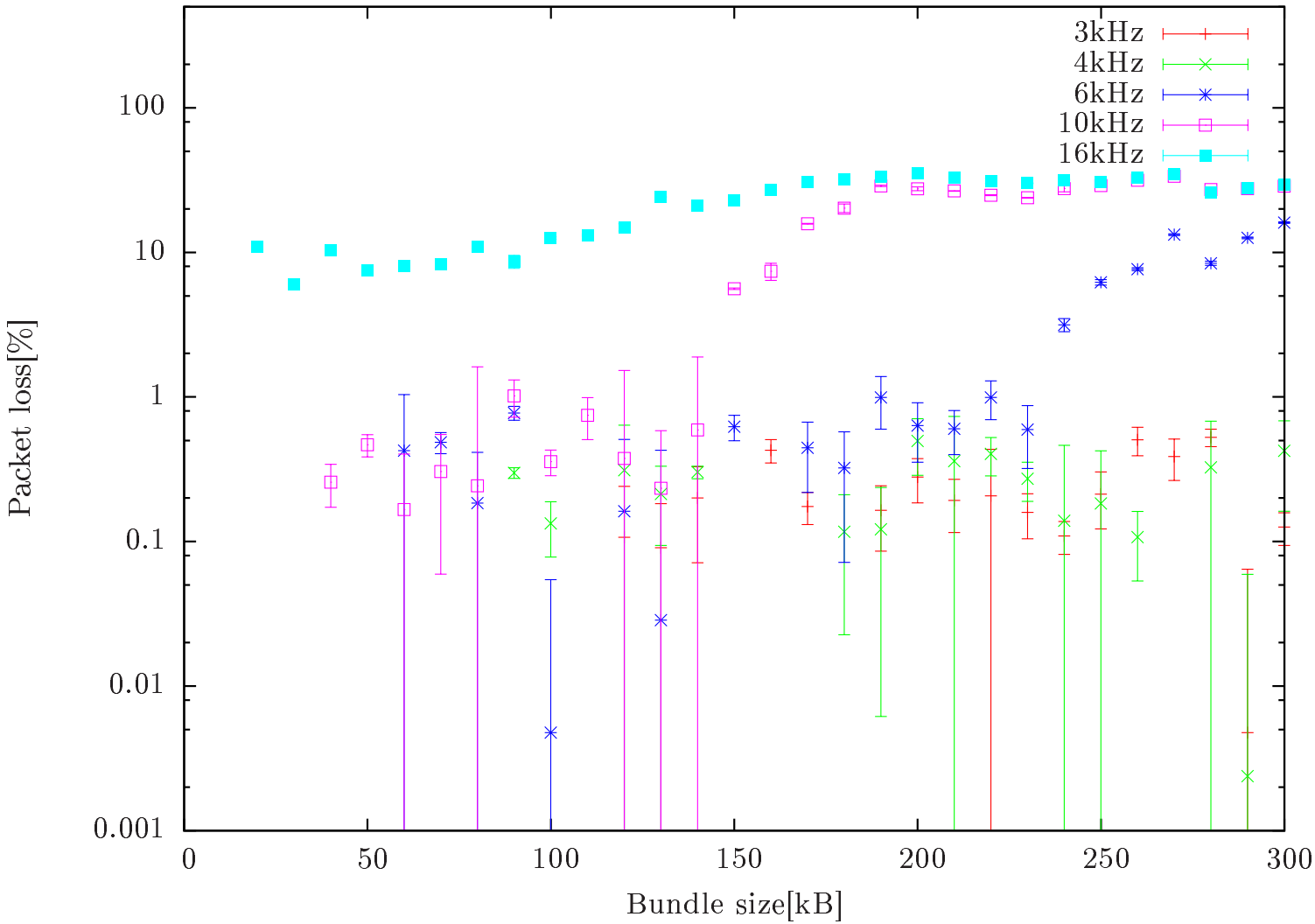
What I will show

I will only show results with a data rate higher than 300MBps.

Bundle rate

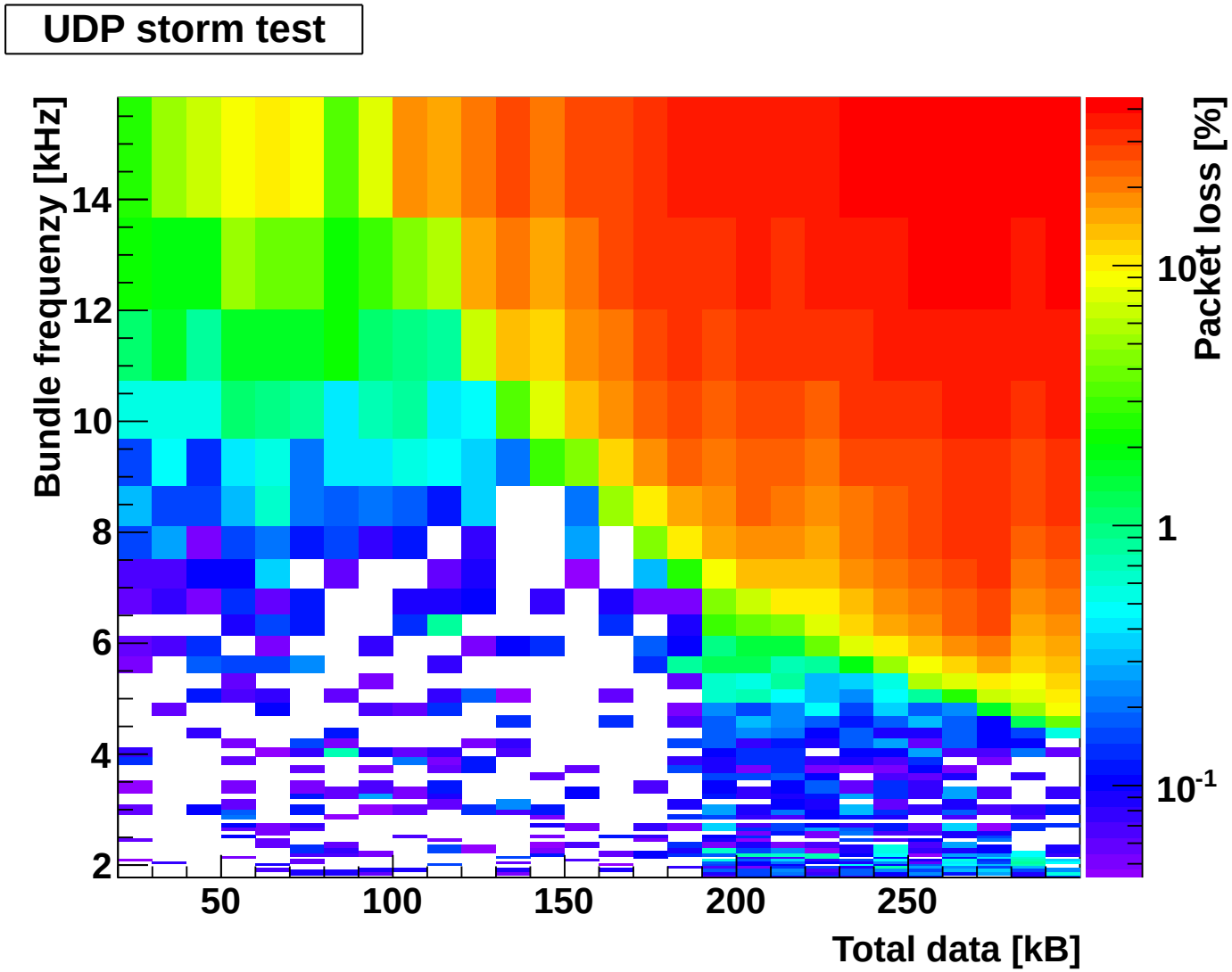

30kB
40kB
100kB
200kB
300kB
Packet loss[%]
100
10
1
0.1
0.01
0.001
0
2
4
6
8
10
12
14
16
18
Bundle rate[kHz]

Bundle size


3kHz
4kHz
6kHz
10kHz
16kHz
Packet loss[%]
100
10
1
0.1
0.01
0.001
0
50
100
150
200
250
300
Bundle size[kB]

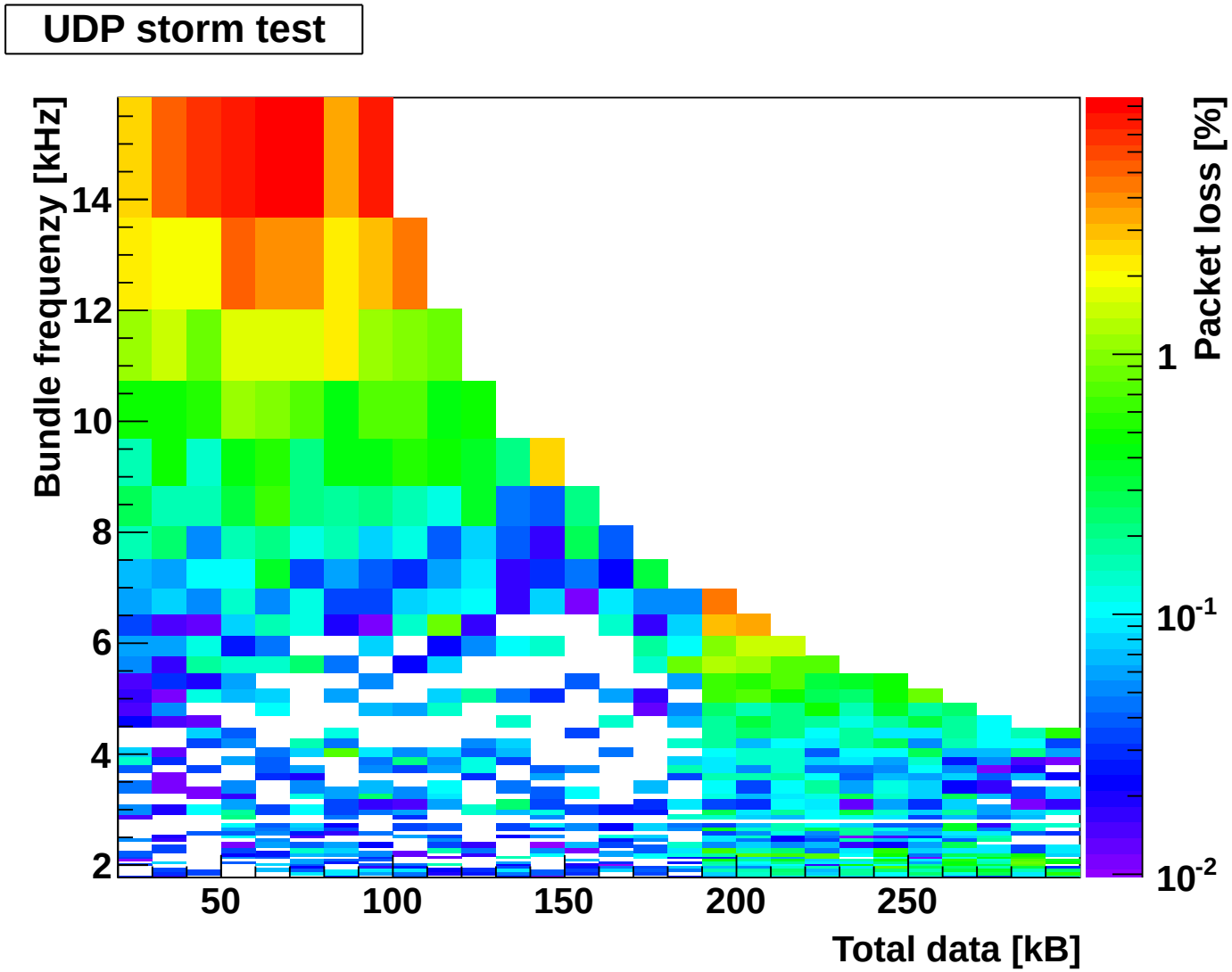
Overview heat map

All rates



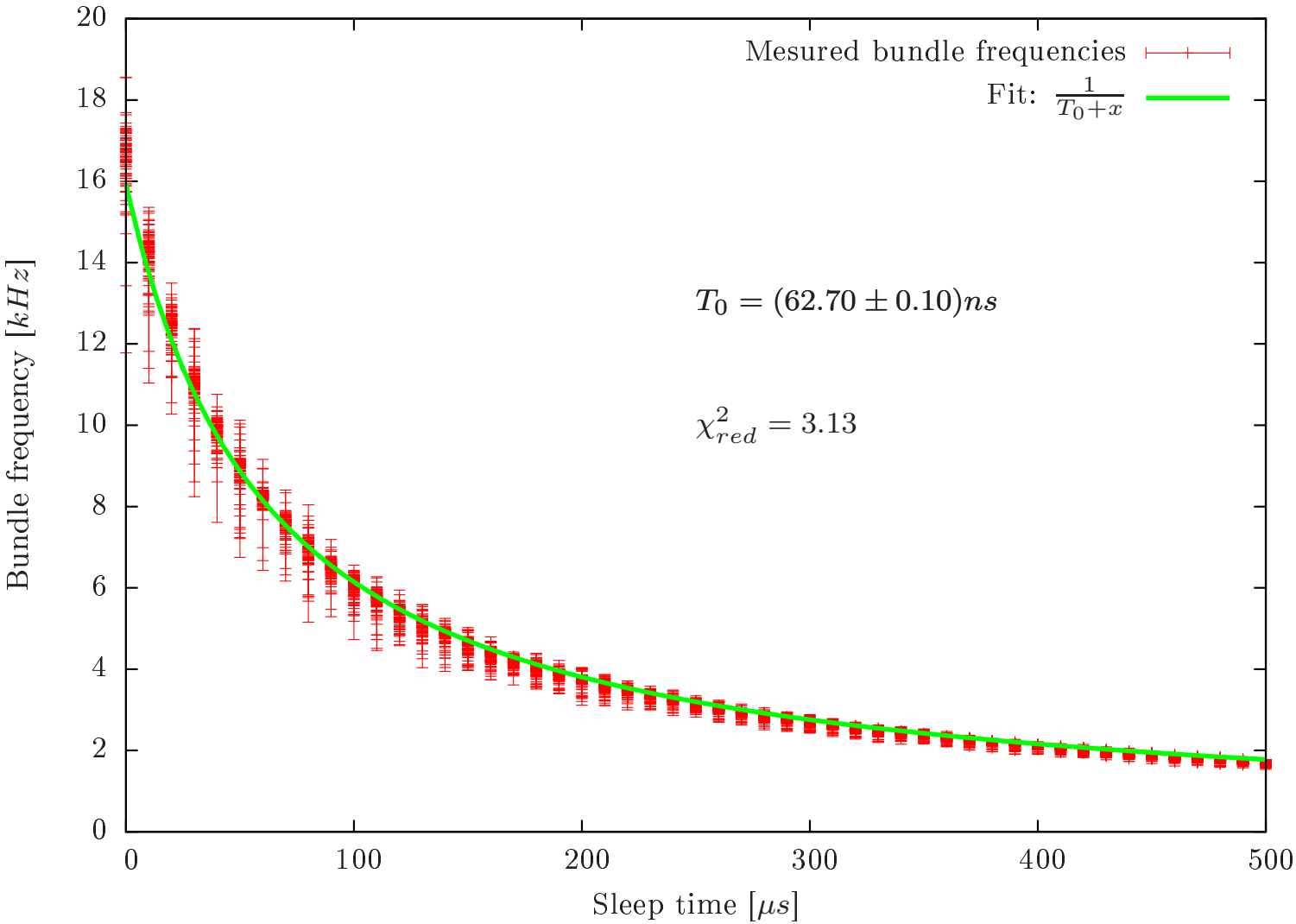
Overview heat map

Only 10Gbps

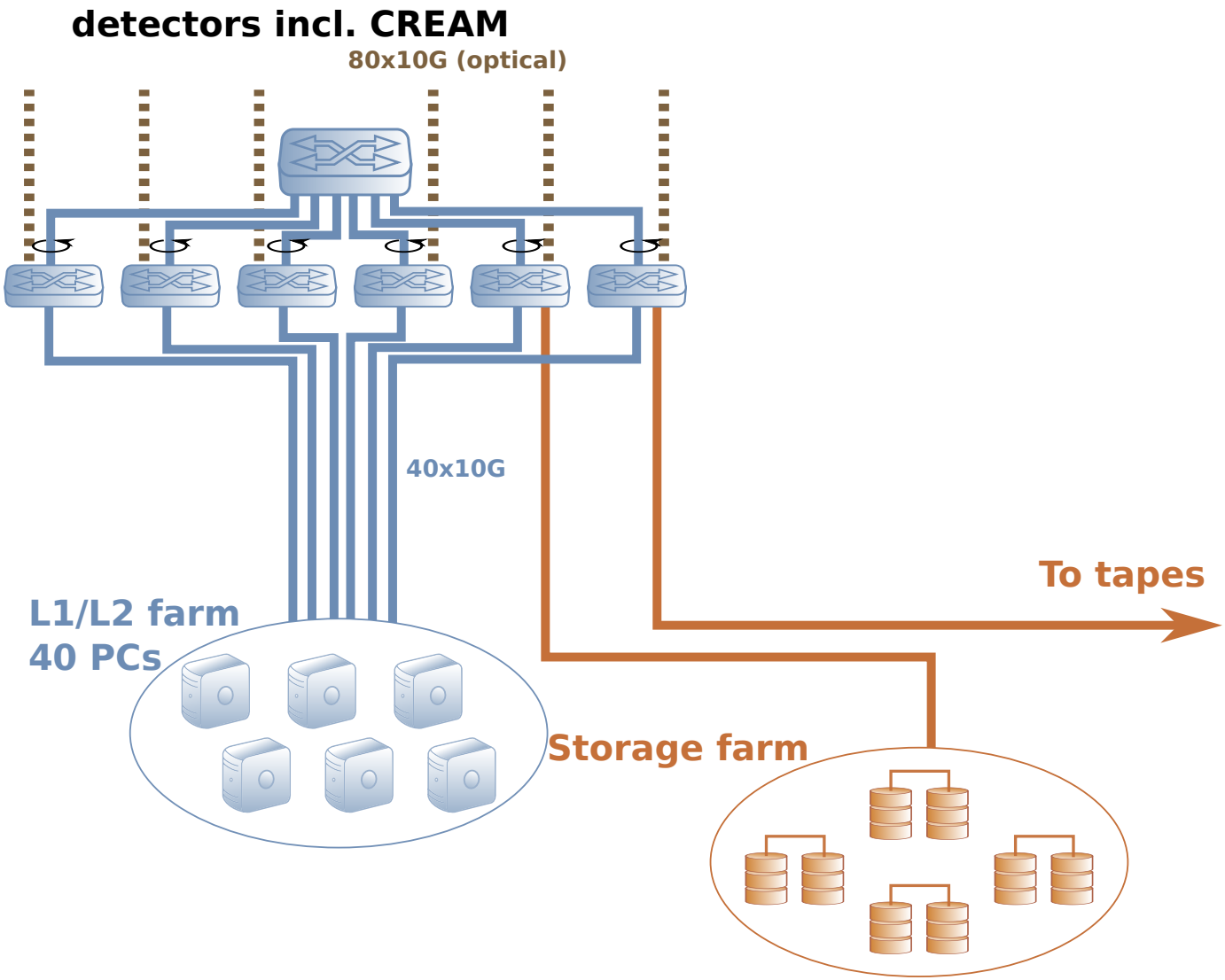


Overview heat map

Bundle frequency vs sleeping time at L0



HP: Distributed trunking



Hexapus topology