Processing – Tests and Developments

New test cluster : description and goals
First tests
Future

G. Baulieu
and the AGATA Data Processing Group

Test cluster set up at Orsay (see P. Le Jeannic talk) :

- 22 computers
- 10 to 25 Gb/s network
- Different CPUs
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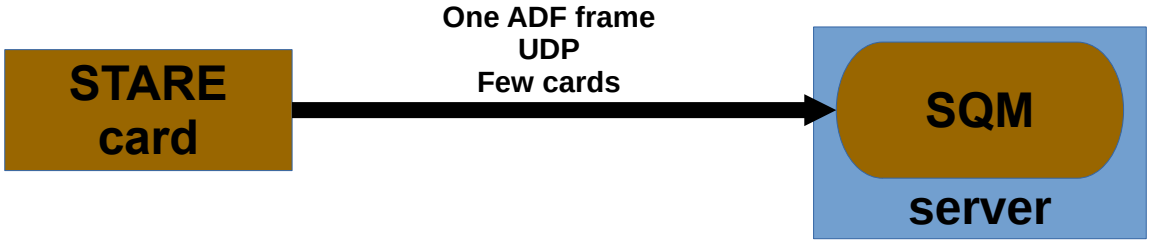

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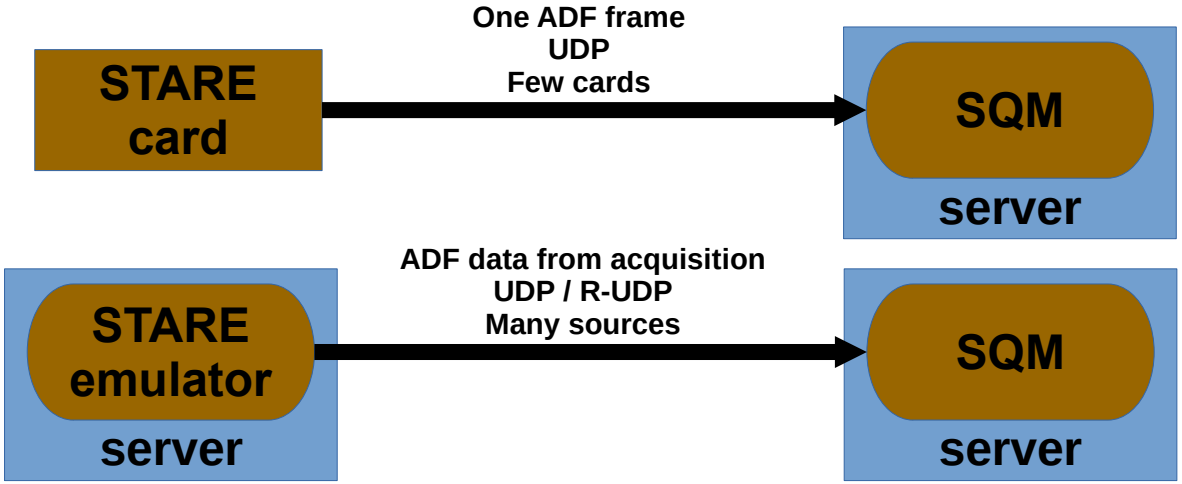

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(Emulation, but cheaper and more flexible)

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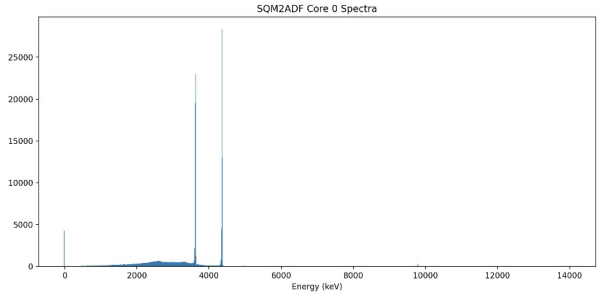
  - Histogram management (under development, to be supported by Agaspy)
    - *Avoiding duplication of actors*
    - *Stop relying on GRU (hard to maintain)*
    - *Activation/Deactivation at runtime*

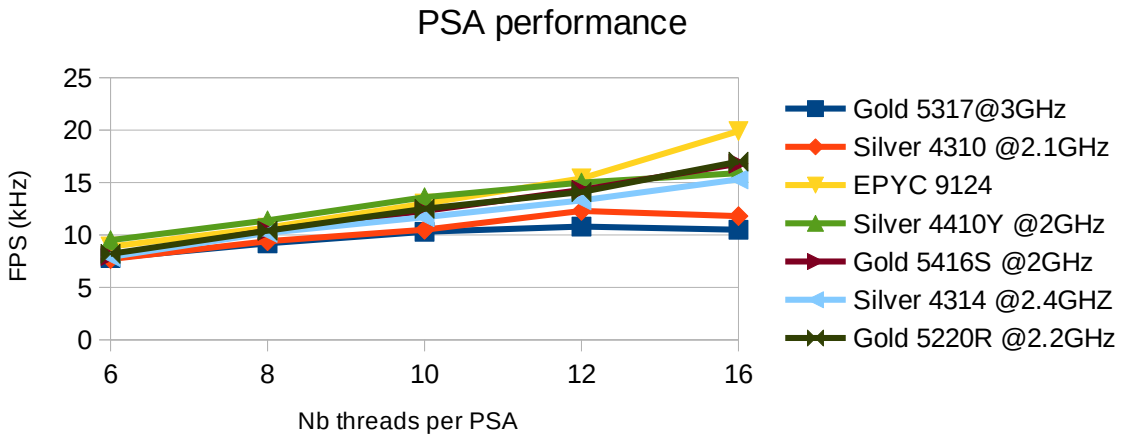


4) Testing new topologies

- New actors for electronic V2 :
  - *Stare Queue Manager (SQM) : reception of UDP paquets*
  - *SQM2ADF : ADF formatting and consistency checks*
- New functionalities :
  - *Parallel PSA*

First Tests on cluster

- *Running offline PSA on different CPUs*
  - From ~8 to ~10 kHz using 6 threads
  - From ~10 to ~14 kHz using 10 threads
  - **Efficiency depends more on cache size than frequency**



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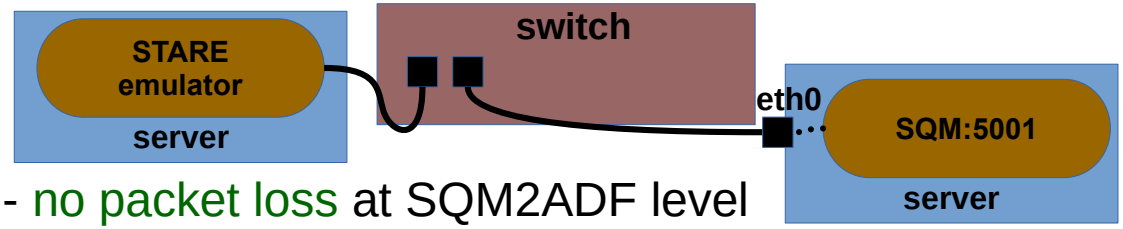
  - Increasing the sockets buffer size to 25M :
    - 10 Gb/s : no packet loss
    - 2 x 5 Gb/s on same interface : 0.8% of lost packets
    - 2 x 4.8 Gb/s on same interface : no packet loss
      (… was 2 x 3.5 Gb/s before server reboot...)

- *UDP transfers between Stare Emulator and SQM+SQM2ADF emulator (DCOD not yet available on Debian 12)*

  - **1 x 50 kHz** data stream :

    - UDP : ~7x10^{-4} %
    - R-UDP : packets re-sent - no packet loss at SQM2ADF level



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    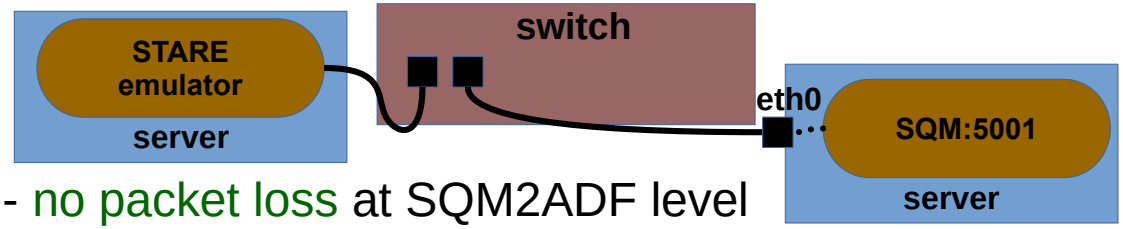

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    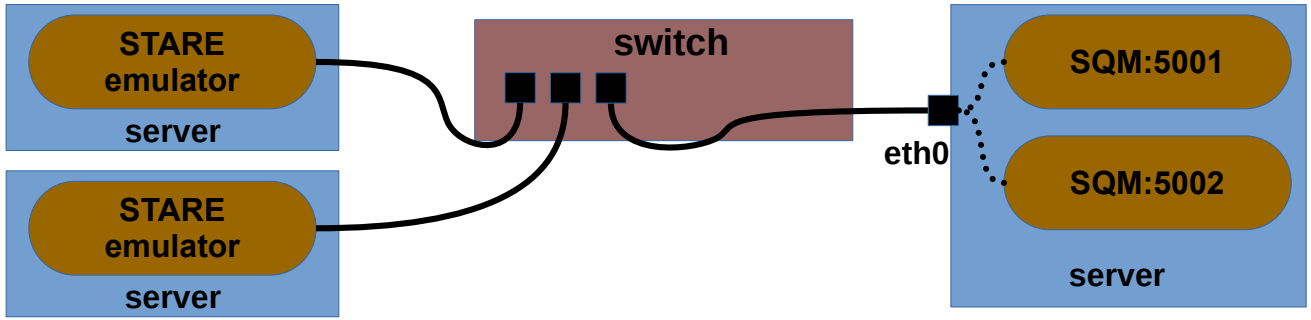

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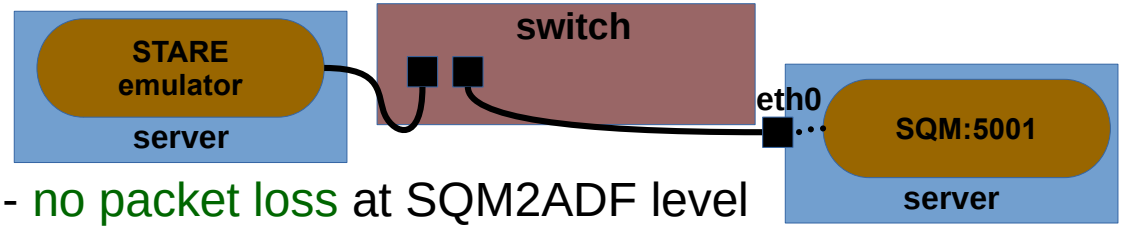

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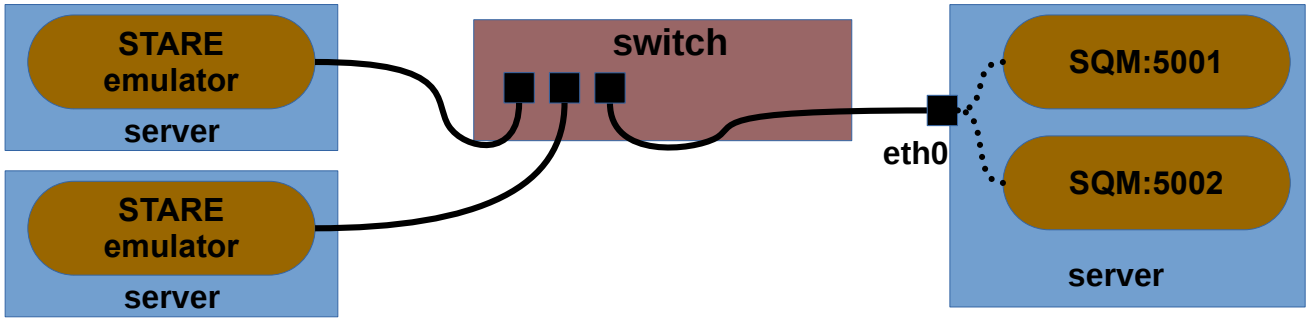

- Very preliminary results, need to explore other parameters and hardware configurations

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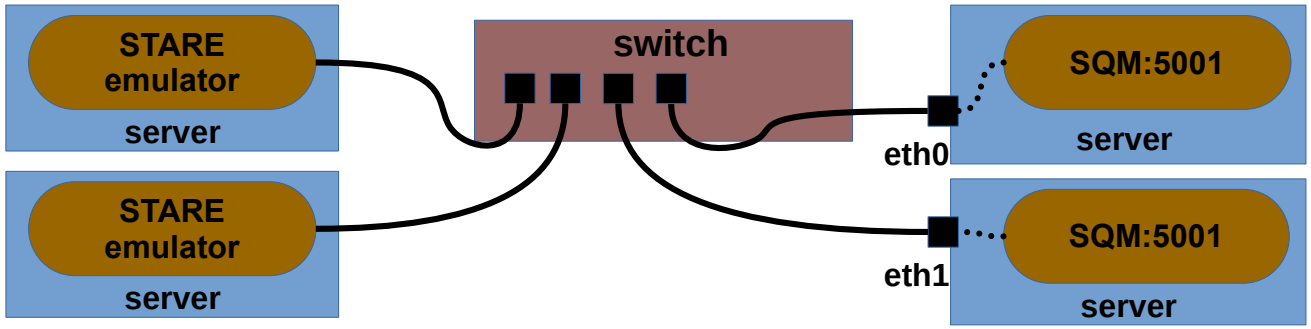

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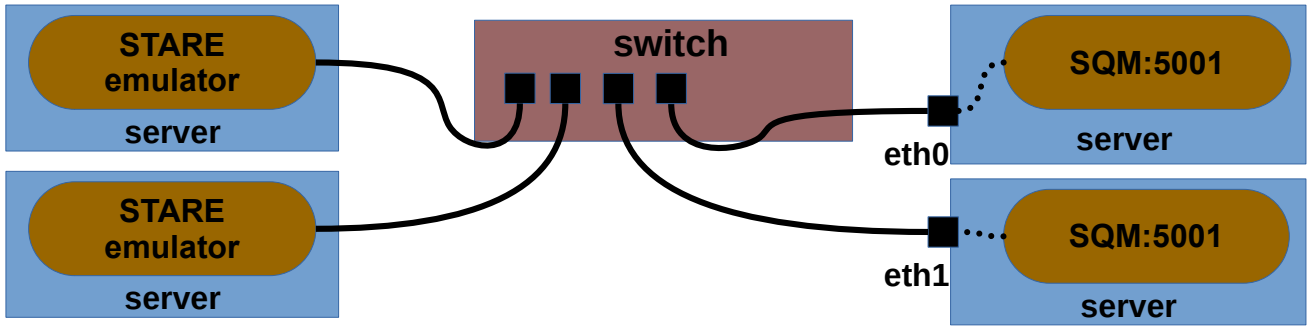
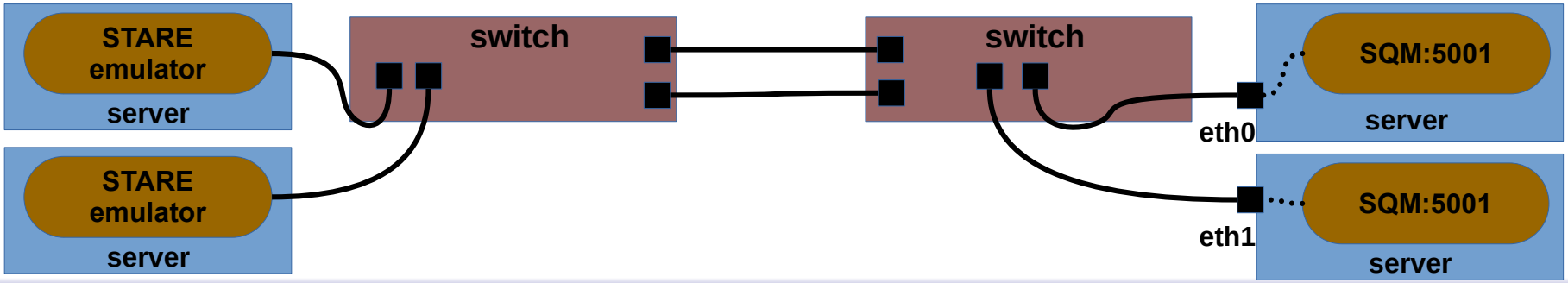


  - Transport of data between switches



Conclusions

- Test cluster ready : will allow lot of real conditions network and software tests.
- DCOD on Debian 12 coming soon to have a real DAQ Box.
- New hardware should boost PSA performances.
- Currently R-UDP support seems to be needed to avoid data loss but further tests are needed.