DCOD
status & future developments

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Compilation toolchain upgrade

- Few issues with this upgrade

  - A librarie is no longer available (libasis)

  - The compiler is more demanding.
    « `error: nondispatching call to nonabstract subprogram of abstract type with nonstatic class-wide pre/postconditions` »

- Expected Outcome:

  - Better compatibility with current distributions (Debian 12)

    - GCC 7.3 → GCC 12.3

  - Performance improvement

- Used for test (See G. BEAULIEU slides)

- First tests done on a Debian 13 (security support until august 2028)

API & Deployment

- Docker (Matias) :
  - Easier deployment
  - Dev environment for Narval Actor
  - Cloud
  - Kubernetes ?

- DaaS : DAQ as a Service

API & Deployment
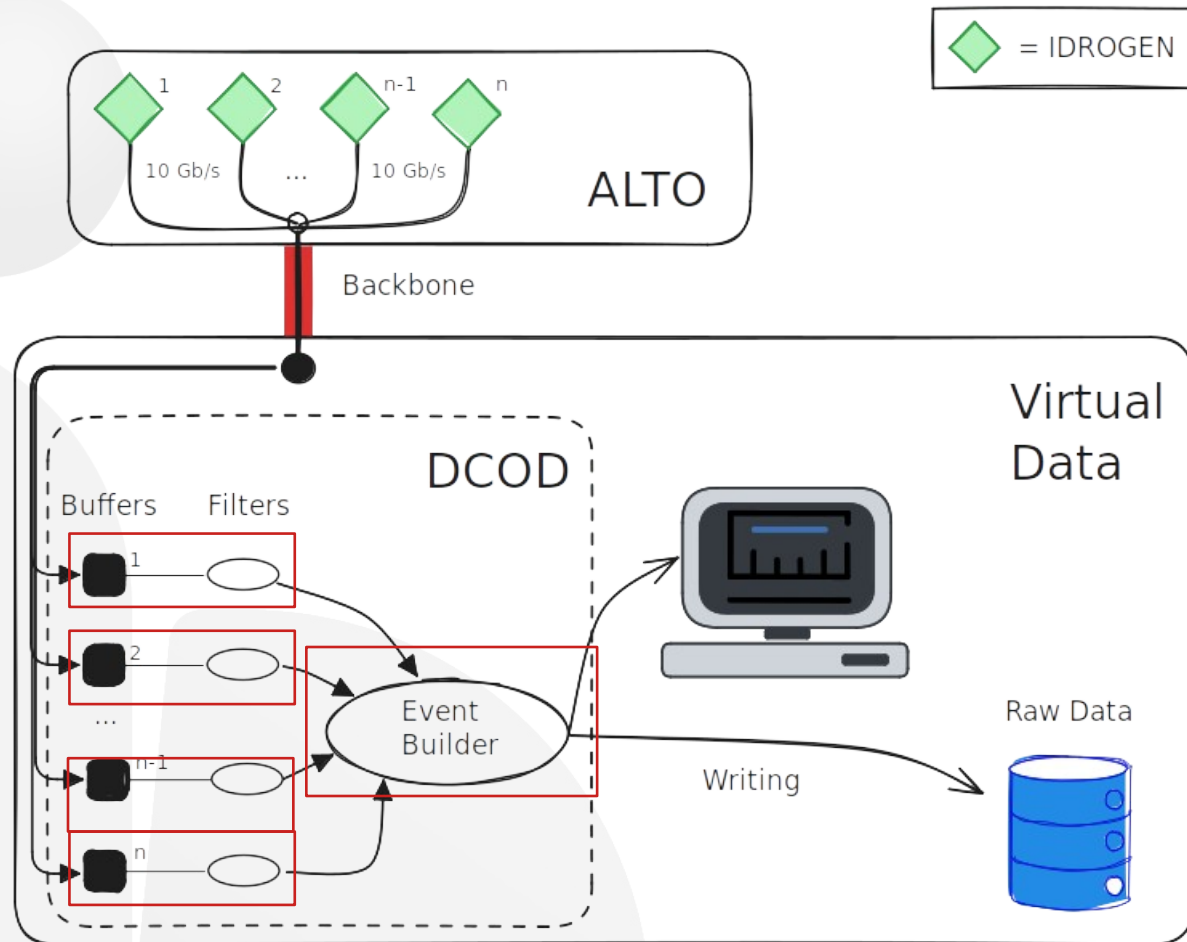
- Work in progress with GANIL DAQUP (Souhir & Matias)

  - Debian Packages

  - New API (REST instead of SOAP)

  - Log centralization (considering GELF - Graylog Extended Log Format)

- CI/CD (Matias):

  - Building Docker images

  - Building Debian Packages

  - PEM replacement ?

    - Used to deploy others codes than DCOD

Performance enhancement

- (SidAli)

- Open-source library (Intel)

- Need to enable IOMMU in kernel

- Complex network configuration

  - ARP, IP, Ping,...

- Features depending on the network card model

Performance enhancement

DATA PLANE DEVELOPMENT KIT
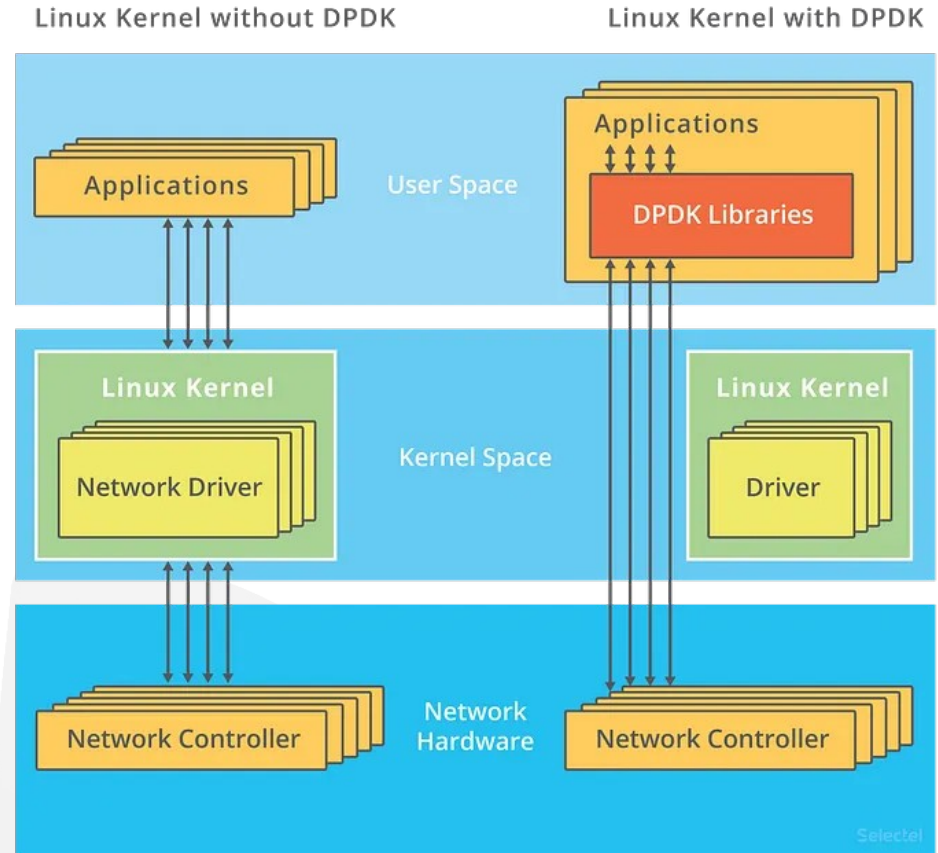
- DMA (Direct Memory Access)
  - Network card → CPU RAM
  - Network card → GPU RAM (need RDMA)
- Tests
  - 10Gb/s → OK
  - 2*10Gb/s sur 25Gb/s→ OK
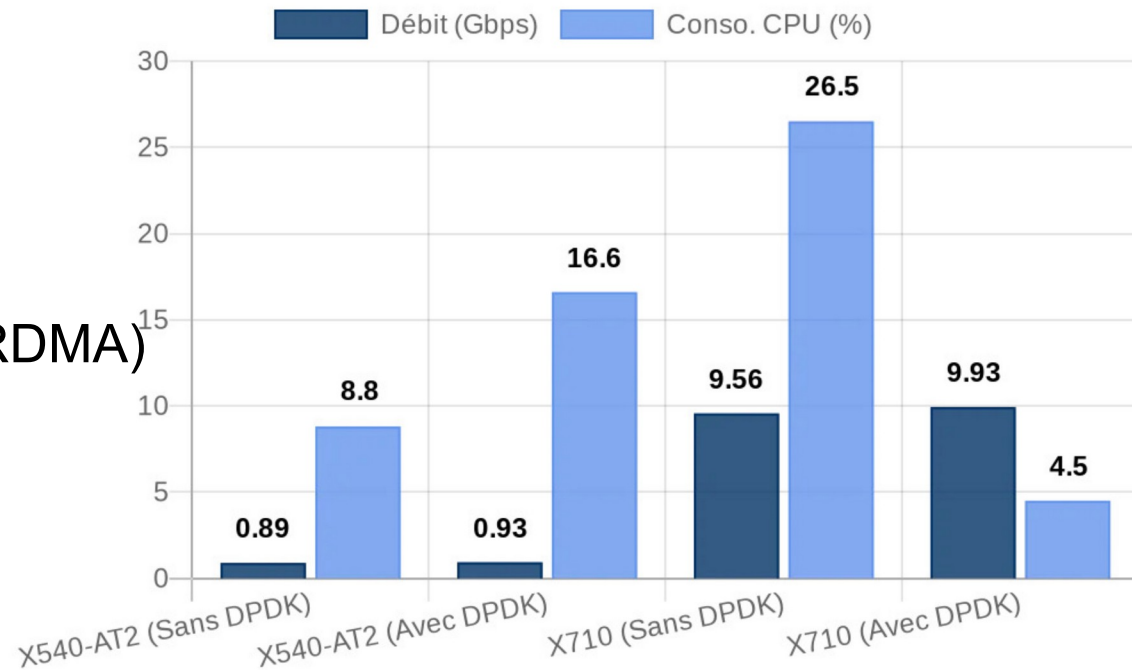 - 25Gb/s →
  - 40Gb/s →

Figure: Serveur Dell PowerEdge R430

- Debian 13 is released since August → new tests to do

- New Compiler is released since July → new tests to do

- DCOD API evolution → no modification for AGATA

- Docker → OK but need to do performance tests

- DPDK → seems promising (limitations on hardware selection)

- Docker + DPDK → maybe

- Docker + DPDK + Cloud → not easy...