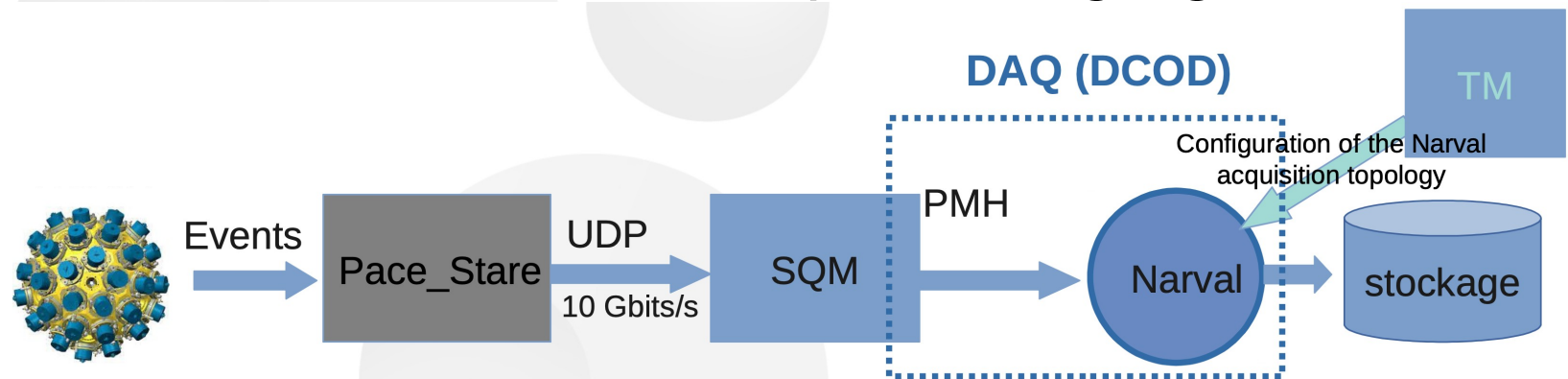


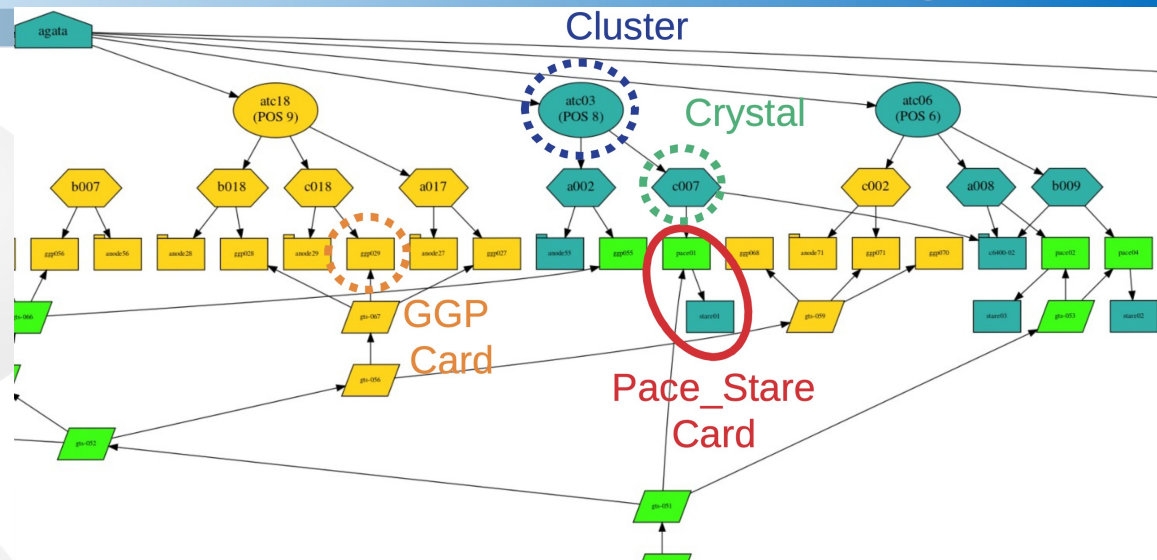
DAQ Status, Software Developments & Network Experience

IJCLab : SidAli CHERRATI - Nicolas DOSME - Souhir Elloumi - Patrick LE JEANNIC –
Nabil KARKOUR - Matias VECCHIO
IP2I : Guillaume BEAULIEU
IPHC : Christian BONNIN

- 3 outputs from each Stare cards / Servers / Network
- Software
 - Electronics control and command
 - Acquisition configuration and control (Topology Manager)
 - Acquisition (SQM, DCOD with call to processing algorithms)



- Development for Phase 2 integration and the test bench
 - Generation of scripts and configuration files (electronics configuration with SC, SC GUI, DAQ configuration, start/stop DAQ, back pressure)
- Technical and user documentation
- Ongoing cleanup to remove Phase 0 electronics
- VM version to facilitate deployment at Legnaro.



10.81.18.137:6095/tm_reduced?username=c806&summary_status=hide_carrier=OFF&expand_segment=OFF

Clusters	Position	Crystals	Color	Data From	Digitizer	GGP	Pace	Stare	Carrier Master	GTS	Carrier Slave	Anode
atc01	3	a019	A	FROMEMULATOR	xxx	xxx	pace06	stare029.9	xxx	156	xxx	snode037.11p1
		b011	B	FROMEMULATOR	xxx	xxx	pace07	stare039.9	xxx	157	xxx	snode037.11p2
		c009	C	FROMEMULATOR	xxx	xxx	pace08	stare011.9	xxx	158	xxx	snode037.11p3
atc03	5	b007	A	FROMEMULATOR	xxx	xxx	pace09	stare011.9	xxx	159	xxx	snode037.11p4
		c007	B	FROMEMULATOR	xxx	xxx	pace10	stare029.9	xxx	160	xxx	snode037.11p5
		a017	C	FROMEMULATOR	xxx	xxx	pace11	stare011.9	xxx	161	xxx	snode037.11p6
atc06	6	b009	A	FROMEMULATOR	xxx	xxx	pace12	stare029.9	xxx	162	xxx	snode037.11p7
		c002	B	FROMEMULATOR	xxx	xxx	pace13	stare039.9	xxx	163	xxx	snode037.11p8
		a008	C	FROMEMULATOR	xxx	xxx	pace14	stare029.9	xxx	164	xxx	snode037.11p9
atc07	4	b015	A	FROMEMULATOR	xxx	xxx	pace15	stare025.9	xxx	165	xxx	snode037.11p10
		c014	B	FROMEMULATOR	xxx	xxx	pace16	stare029.9	xxx	166	xxx	snode037.11p11
		a009	C	FROMEMULATOR	xxx	xxx	pace17	stare011.9	xxx	167	xxx	snode037.11p12
atc10	12	b008	A	FROMEMULATOR	xxx	xxx	pace18	stare031.1	xxx	168	xxx	snode037.11p13
		c012	B	FROMEMULATOR	xxx	xxx	pace19	stare007.1	xxx	169	xxx	snode037.11p14
		a012	C	FROMEMULATOR	xxx	xxx	pace20	stare007.1	xxx	170	xxx	snode037.11p15
atc12	0	b008	A	FROMEMULATOR	xxx	xxx	pace21	stare010.2	xxx	171	xxx	snode037.11p16
		c003	B	FROMEMULATOR	xxx	xxx	pace22	stare009.2	xxx	172	xxx	snode037.11p17
		a001	C	FROMEMULATOR	xxx	xxx	pace23	stare009.2	xxx	173	xxx	snode037.11p18
atc14	14	b010	A	FROMEMULATOR	xxx	xxx	pace24	stare031.1	xxx	174	xxx	snode037.11p19
		c016	B	FROMEMULATOR	xxx	xxx	pace25	stare031.1	xxx	175	xxx	snode037.11p20
		a013	C	FROMEMULATOR	xxx	xxx	pace26	stare009.0	xxx	176	xxx	snode037.11p21
atc15	10	b015	A	FROMEMULATOR	xxx	xxx	pace27	stare007.0	xxx	177	xxx	snode037.11p22
		c011	B	FROMEMULATOR	xxx	xxx	pace28	stare003.1	xxx	178	xxx	snode037.11p23
		a016	C	FROMEMULATOR	xxx	xxx	pace29	stare003.1	xxx	179	xxx	snode037.11p24
atc17	2	b017	A	FROMEMULATOR	xxx	xxx	pace30	stare007.2	xxx	180	xxx	snode037.11p25
		c013	B	FROMEMULATOR	xxx	xxx	pace31	stare007.2	xxx	181	xxx	snode037.11p26
		a017	C	FROMEMULATOR	xxx	xxx	pace32	stare007.2	xxx	182	xxx	snode037.11p27
atc18	9	b016	A	FROMEMULATOR	xxx	xxx	pace33	stare007.2	xxx	183	xxx	snode037.11p28
		c018	B	FROMEMULATOR	xxx	xxx	pace34	stare007.2	xxx	184	xxx	snode037.11p29
		a018	C	FROMEMULATOR	xxx	xxx	pace35	stare007.2	xxx	185	xxx	snode037.11p30

Back to menu

- List only active items
- List all items
- Expand segment
- Collapse segment
- Hide carrier
- Generate Topology
- Build electronic configuration files

Save Items and Relations

Restore Items and Relations

select the data source

from_stare_all from_pace_all

from_digitizer_all from_emulator_all

from_crystal_all

Device Type : CRYSTAL

Device Name : c001

NAME	ID	COLOR	STATUS	DATA FROM
c001	1911	C	OFF	FROMSTARE

Off

FromStare

New relation

Replace c001

Cut link atc12 to c001

Clusters activated :

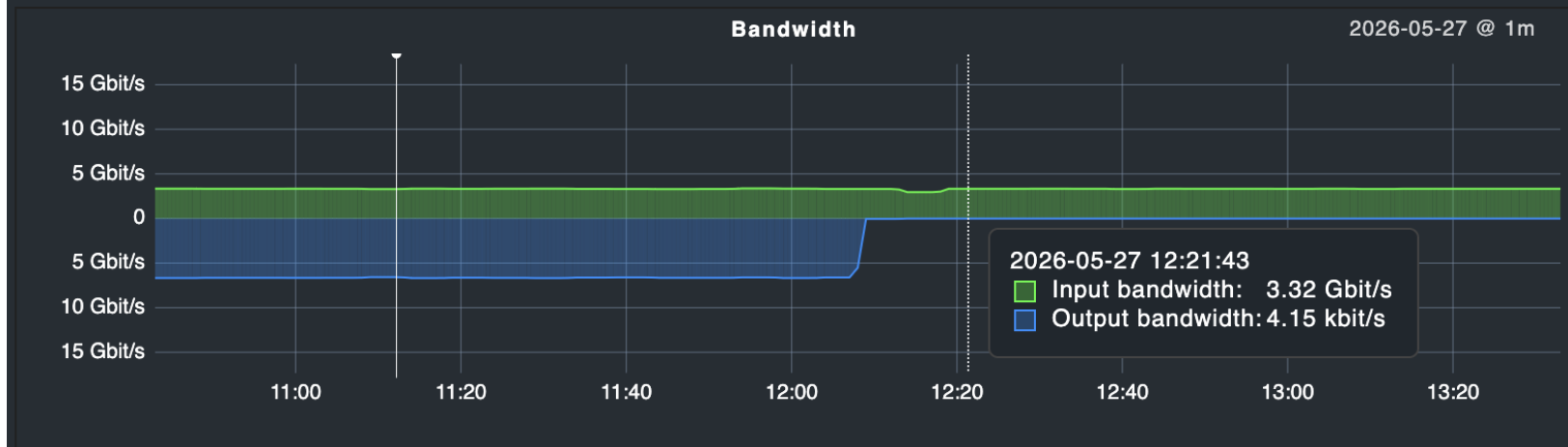
- atc07 - 04C
- atc10 - 12A 12B 12C
- atc12 - 00A 00B 00C
- atc14 - 14A 14B 14C
- atc15 - 10A 10B 10C

No ancillary detectors active

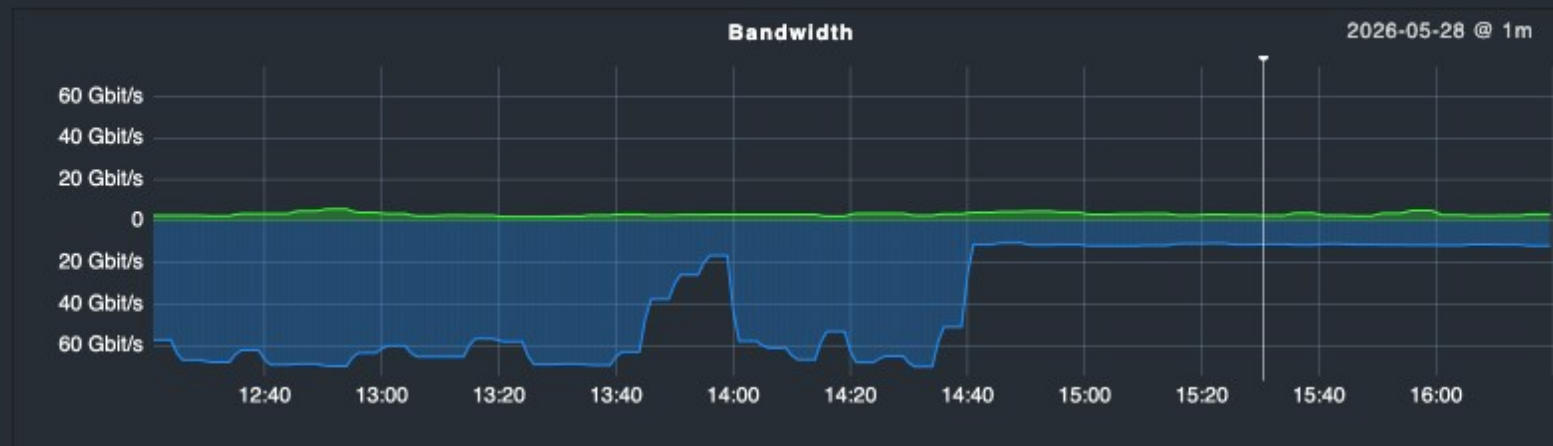
Modify Active Crystal

- AGATA VLAN Configuration :
 - Going through IJCLab active equipment
 - Limits impact on the lab network.
 - Deployable as-is at Legnaro.
- Network Overflow in the Lab:
 - Unknown destination machine (bad configuration)
→ saturation of IJCLab networks.
 - Unknown destination machine (good configuration)
→ saturation of IJCLab networks.
Suspected cause: ARP table of the switches (DHCP should resolve part of this issue).
- Intermittent blocked communications of Stare cards data port (disappear from network because no more ARP requests and answers) → resolved by a firmware fix.
- Network Equipment Monitoring Tools (Using IJCLab's monitoring tool)

Local site ijclab, sw-104-agata.switch.lan, Interface 0001



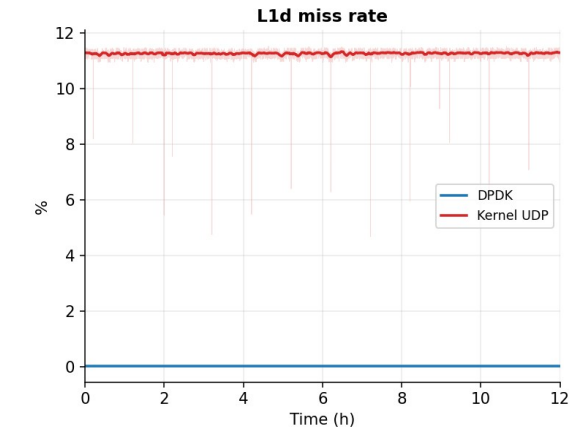
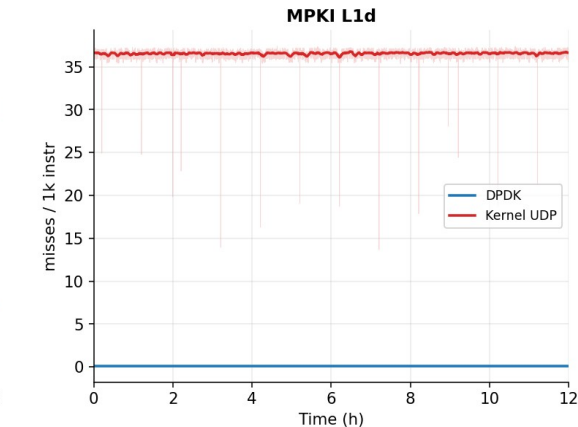
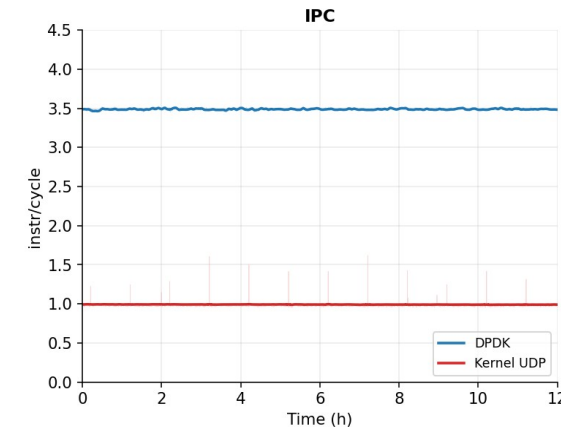
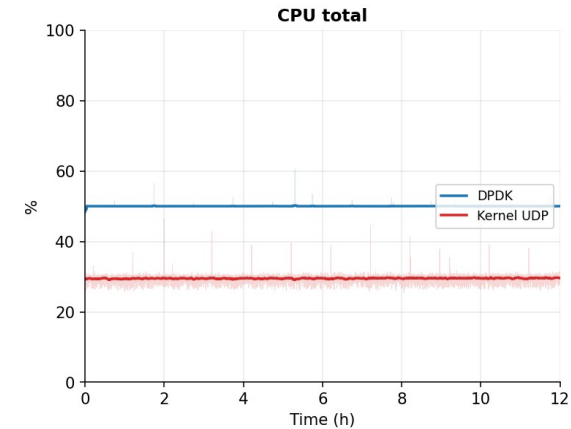
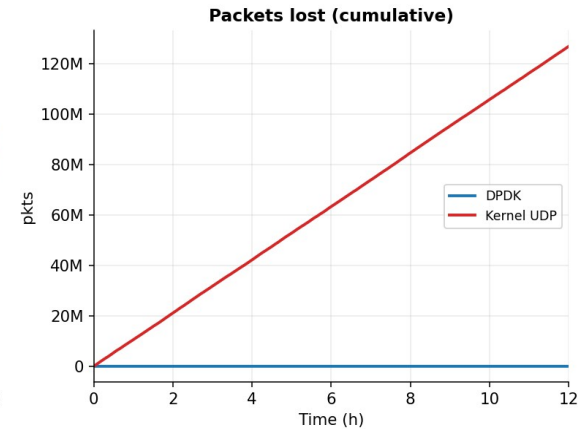
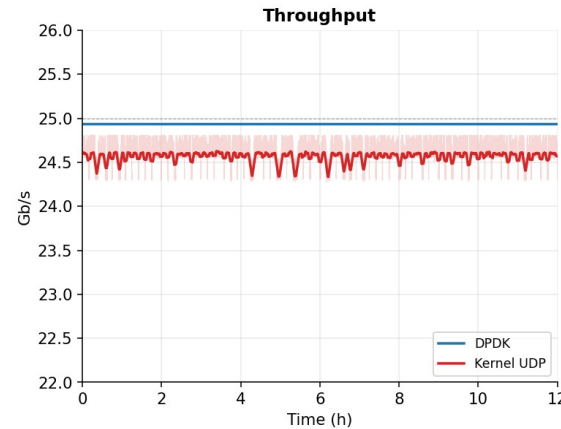
Local site ijclab, sw-01-10-13.switch.lan, Interface 000000051



- Code takeover this summer (following Monique Taurigna's retirement).
- Identified bugs in SQM to fix:
 - Loss of initial packets at startup (fixing one bug introduced this issue).
 - Abnormal behavior when the application is abruptly terminated (network issues on Stare).
- RUDP is not necessary, even though it is available in SQM.

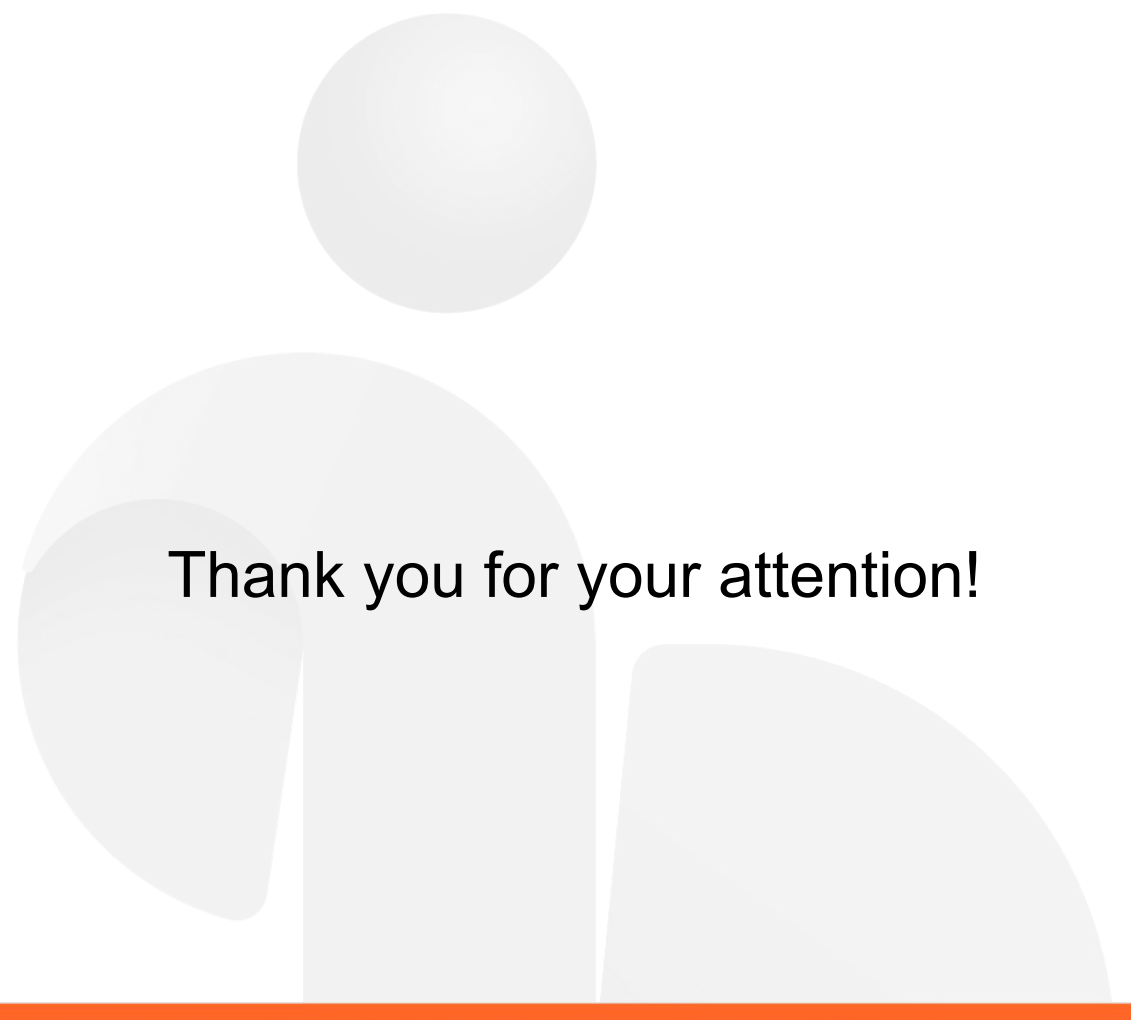
- Adaptations in DCOD: Handles machines with different interface names (due to varying servers configuration).
- REST API available in the development version (Narval control).
- Restored all features in DCOD (lost in the last major update to provide AGATA with a version using a more recent compiler).
- Software Generation: Generated for Debian 13 (released in August 2025). In use for several months.
- TODO List:
 - Planned migration from Mercurial to Git → CI/CD integration.
 - Distribution of DCOD and its libraries via Debian packages → Potential phase-out of internal tool (PEM)?
 - Docker support.

DPDK vs Kernel UDP — 12h @ 25 Gb/s, 3 flows AGATA



- 25Gb interface
→ 24,84 Gb/s
- 100Gb interface
→ 98,03Gb/s
- GPUDirect for AGATA ?
- RDMA/RoCEv2 ?
(Study planned outside AGATA)

- Successful integration of Phase 2 hardware available at Orsay
- Network experience gained through troubleshooting
- All developments can be deployed almost identically at Legnaro
- Developments for the « temporary solution »:
 - TM: Card configuration, card control, DAQ configuration
 - DAQ: Data reception



Thank you for your attention!