Laboratoire de Physique de Clermont-Ferrand

D. Calvet

ATLAS France CAF-PAF meeting
21st November 2023

Team

Composition of the team

→ *5+1 CNRS, 1 Prof, 1 CPJ, (1 Post-doc), 3 PhD*

→ *ttbar resonances, di-Higgs search, BSM with ML, Long Lived Particles*

Involvement of the team in computing

→ *local T2 (staff IR)*

→ *upgrade MC production*

→ *PMG software tools (CrossSectionTool, CrossSectionDatabase...)*

Involvement of the team in software

→ *analysis frameworks development/maintenance*

→ *general software development (pyBumpHunter in SciKit-HEP)*

→ *monitoring framework (Tile) maintenance (staff IR)*

→ *calibration framework (HGTD) development*

Computing resources in 2023-2024

« Grid » pledged resources in 2023

- storage = 2188 TB in 2023 (will not increase in 2024)

(2825 TB should have been installed in 2023, complex issue...)

- computing = 24000 HS06 in 2023 (will not increase in 2024)

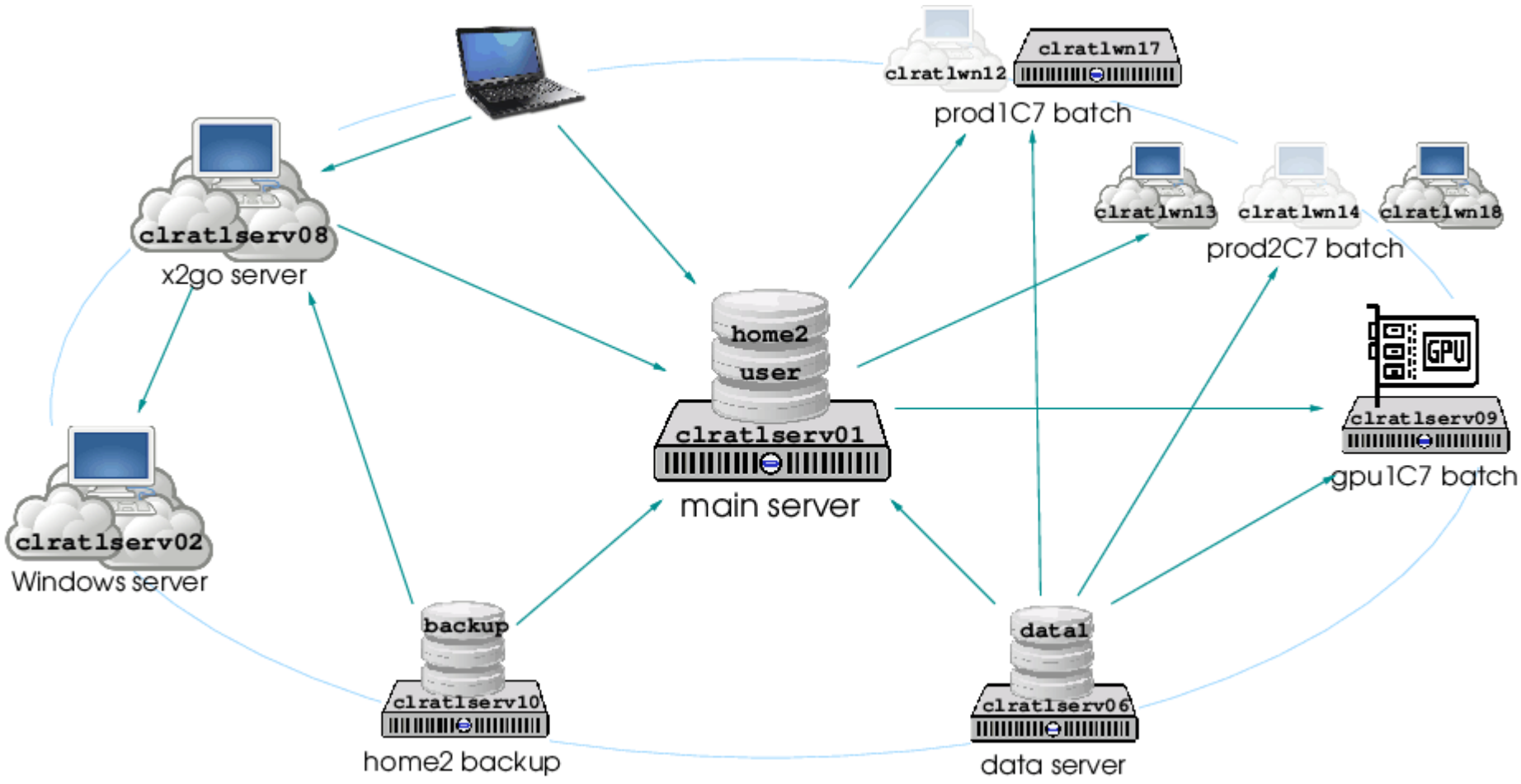
Other « grid » resources *(if available, correspond to non pledged resources)*

- storage = 22 TB i.e LOCALGROUPDISK in 2023 (will not increase in 2024)
- computing = 3500 HS06 in 2023 (not used)

Other local (lab, university) resources *(whatever is non grid)*

- storage: 180 TB
- computing: servers+batch cluster (312 cores / 700 GB RAM)
- high performance computing : 1 server with V100 GPU

Local computing resources in 2023-2024



Analysis and needs (1)

Analysis hh measurement

→ contribution in analysis framework and grid job submission
→ flow : DAOD -> nutple ~3TB (EOS)
→ up to 3 weeks to process one version
→ mostly grid-based
→ good points: centralized production

Analysis ttbar resonances

→ signal production, ntuple production
→ grid, local cluster

Analysis and needs (2)

Machine Learning-based analyses

→ BSM agnostic searches using novel ML approaches, jet tagging perfs
→ GPU: local cluster (Nvidia V100)
→ GPU CC-IN2P3: difficult to define what is needed but would like to test
→ will use grid next year

Long Lived Particles

→ contribution in analysis framework, custom derivations and user tools
→ flow : DAOD_LLP1 -> FactoryTools -> nutples -> user tools
→ up to 3 weeks to process one version
→ mostly grid-based, DAOD_LLP1 will be produced centrally but augmentation R&D requires a few manual grid runs on a small list of samples

Near future

Activities of the team

→ *no evolution*

Resources and needs

→ *local resources stable*

→ *maybe try GPU at CC-IN2P3*

Details on Software involvement (1)

Total software involvement = 0.70 FTE

Name	OTP	Activity	System	Task	FTE
S. Binet	X	Computing/Software	TileCal	HV monitoring software development	0.15
A. Burger	C3	Computing/Software	General tasks	Reconstruction	0.10
A. Burger	X	« Analysis support »	VLQ analysis group	Analysis group framework, ntuple production	0.10
O. Perrin	X	« Analysis support »	Hh multilepton analysis group	Analysis group framework, ntuple production	0.10

Details on Software involvement (2)

Total software involvement = 0.70 FTE

Name	OTP	Activity	System	Task	FTE
L. Corpe	C3	Analysis support	General tasks	General software (user tools)	0.05
L. D'Eramo	C3	Analysis support	General tasks	MC sample request for physics and CP groups	0.20

Details on Computing involvement

Total computing involvement = 0.70 FTE

Name	OTP	Activity	System	Task	FTE
J.-C. Chevaleyre (not in OTP)	C4	Computing/Software	General Tasks	FR LPC, Clermont	0.70