PRS muon meeting

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Status of MC production

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Since the last meeting:

- new massive production with $|\eta| < 5.5$ and $p_t > 0$
- filter during ooHitFormatting applied at PU events,
- large digi reprocessing,
- new datasets.

Datasets Single muon:

Dataset	num of events	$\mathcal{L}dt$ [nb^{-1}]	where	note
mu_MB1mu_pt1	161899	0.0173	LEGNARO	
mu_MB1mu_pt4	54345	0.2052	LEGNARO	
mu_MB1mu_pt10	40995	2.81	BOLOGNA	
mu_W_1mu	42853	2856	PADOVA	to do Tk Digis
mu_Z_1mu	50000	2336	BOLOGNA	
mu_tt1mu	11000	41843	BOLOGNA	

- LEGNARO
  `cmsfarmgw.lnl.infn.it::/gwdata/MuonFed/MuonFed.boot`
- PADOVA `lxcmsgw.pd.infn.it::/data/MuonFed/MuonFed.boot`
- BOLOGNA `cmsfarm2ds.bo.infn.it::`
  `/dspool/data/cmsdata/db/MuonFed/MuonFed.boot`

Datasets Di-muon:

Dataset	num of events	$\int \mathcal{L} dt$ [nb^{-1}]	where	note
mu_MB2mu_pt1	16570	0.1514	LEGNARO	other $\sim$ 22000 FZ
mu_MB2mu_pt4	10000		BOLOGNA	only Pythia!
mu_MBmix_mu2	18542	0.0093849	LEGNARO	
mu_WZ2mu	50000		BOLOGNA	only Pythia

Datasets Signal:

Dataset	num of events	$\mathcal{L}dt$ [nb^{-1}]	where	note
mu_gg_bbh200_2tau_muX	9997		LEGNARO	with TK digis!
mu_HWW2m ($m_H = 120$GeV)	10000		PADOVA	finishing FZ, soon ava
($m_H = 140$GeV)	10000		PADOVA	”
($m_H = 160$GeV)	10000		PADOVA	”
($m_H = 180$GeV)	10000		PADOVA	”
($m_H = 200$GeV)	10000		PADOVA	”
mu_HZZ4m ($m_H = 130$GeV)	10000		PADOVA	”
($m_H = 150$GeV)	10000		PADOVA	”
($m_H = 200$GeV)	10000		PADOVA	”
($m_H = 300$GeV)	10000		PADOVA	”
($m_H = 500$GeV)	10000		PADOVA	”

Problems:

- Much higher CPU time requested for CMSIM phase!! A factor up to 3 wrt previous processing ($|\eta| < 2.5$ and $p_t > 150$ MeV), plus problems in CMSIM: seg faults and hanging jobs (maybe $\sim$ infinite particle tracking)
- Eg: mu_MB1mu_pt1: for 500 events $\sim$ 25 h, (was $\sim$ 9)
- For 10^5 events, ($\sim$ $2 * 10^5$ events needed, to account for cmsim suppression), $\sim$ 400 days: At LNL $\sim$ 80 CPUs $\sim$ 5 days at full power.
- Even worse for the signal sample (e.g. $H \rightarrow WW \rightarrow ll\nu\nu \sim 30$ hours with frequent crashes $\sim$ 1 jobs every $10 \div 20$ crashes, often after several hours of processing and some very long running time $> 70h$!!!)
- Can we improve it in the future? Do we really need $p_t > 0$ MeV?

ORCA news:

- Now filtering is possible during ooHitFormtting (CARF modification, committed in COBRA 530): applied filter to reject events with no muons.
- PU sample filtered to reject all events which could give trigger.
- Corrupted problems NOT solved We still have corrupted SimTrack and Calo hits in the DBs: apparently no more RPC and DT.
- some loss of statistic, and problems during analysis: but no solution as usual.

Tracker digis:

- So far only done only for mu_gg_bbh200_2tau_muX
- Memory leak and/or huge memory usage reported when accessing TkDigis
- Problems in adding Tk digis to our owner: we need a new owner, but it seems that also the calo and muon digis are redone/cloned.
- Magical behavior:
  - you do dataset A with mu+calo
  - you do dataset B with mu+calo+tracker in the same owner
  - you do sample C with mu+calo in the same owner and ORCA do also traker!! even if your BuildFile does not contain TrakerDigiWriter libraries...

Accessing data:

LNL Still corrupted objects, reproducible crashes: less than before (ORCA4).

LNL Problems with Obj error:

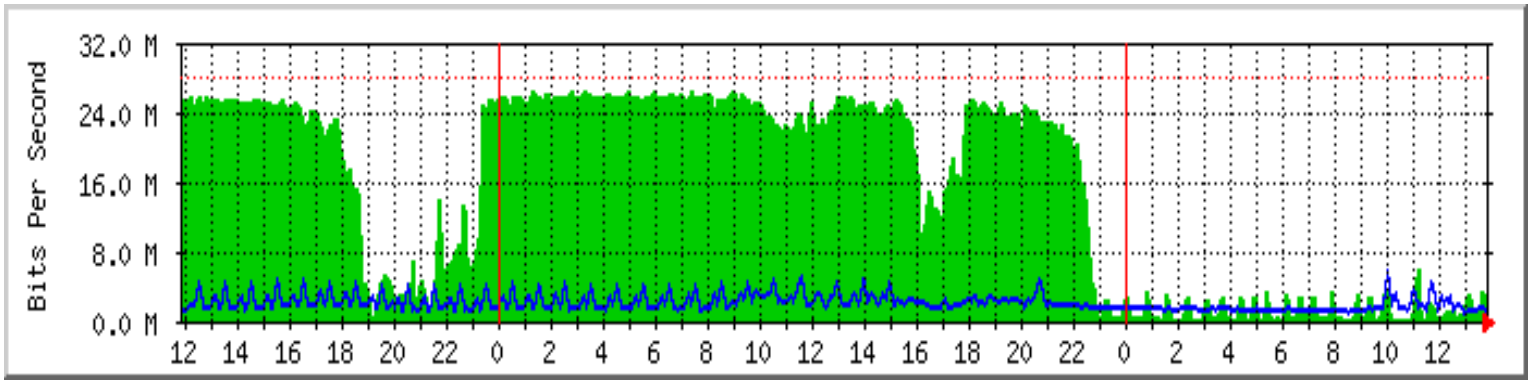
```
CARF ERROR - Fatal from Objy/7011 Unable to open the Boot File for
read access.  produced by unknown object
```

Problem with journal server? (actually the gw, I will try to move it).

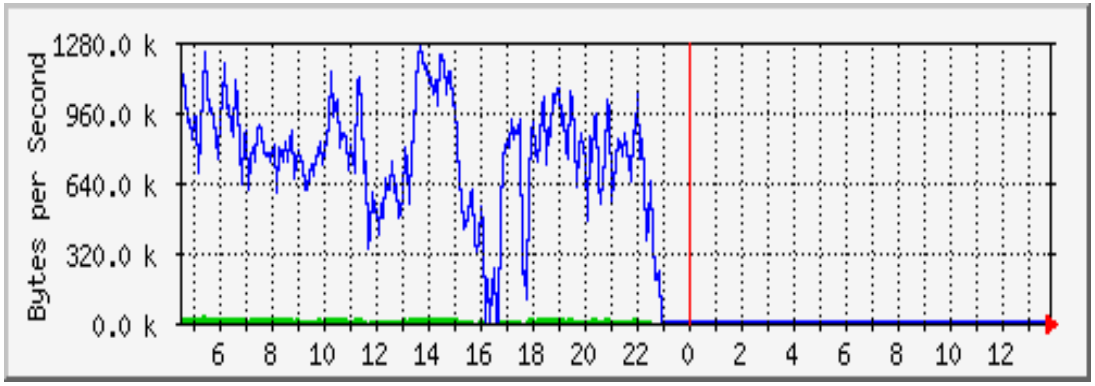
LNL Problem with users!!

- ◇ Unsuccessfull attempt to delete all the DB's,
- ◇ Partial success in use all FARM memory (swap included),
- ◇ Job sharing policy needed among users and production

Accessing data CERN $\longrightarrow$ PADOVA:



Outgoing traffic from Padova to GARR-net (bit/s)



Outgoing traffic from one of the four PileUp server in PD (Byte/s)

Average CPU usage at CERN $\sim 25 \div 30\%$.