

Offline Computing (Tier-0) Monitoring

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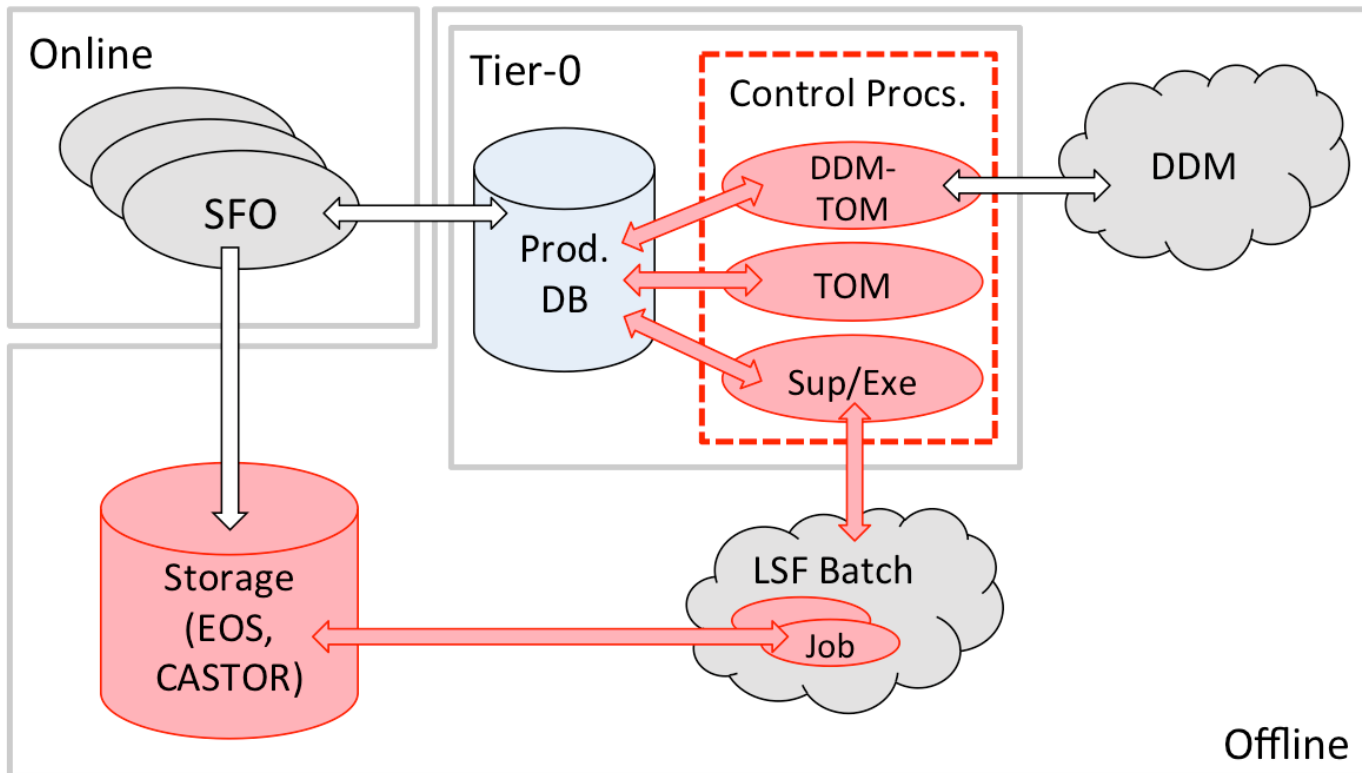
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Offline Computing (Tier-0) Monitoring

(Some) Tier-0 responsibilities:

- Archival of RAW data from the SFOs
- Management, orchestration, execution of first-pass processing
- Registration of all data products, preparation for export to Tier-1 centres



Offline Computing (Tier-0) Monitoring

The DQ shifter is asked to monitor the basic functionality of the Tier-0 and offline infrastructure by using one of the web pages

- <https://tzcontzole01.cern.ch/run2/monitor/>
- <https://tzcontzole02.cern.ch/run2/monitor/>
- Two redundant, equivalent implementations

The pages are accessible from the ACR DQ shift desk

- To be opened in browser (bookmarked)
- To be watched in addition to other DQ monitoring applications

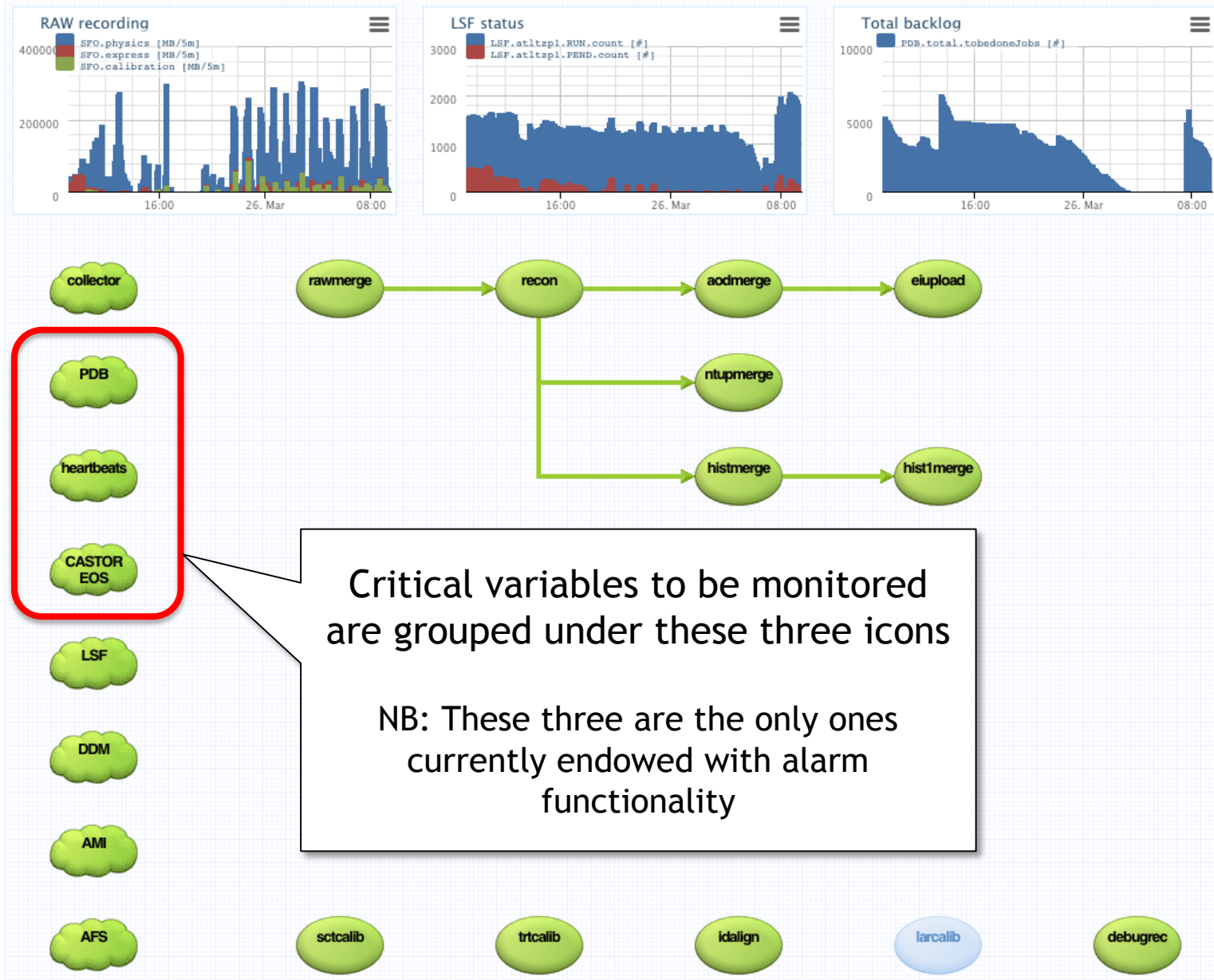
This may not be the “final version” of an offline/Tier-0 related monitoring page for P1

- Working on a tailored page and/or eventual integration into existing P1 monitoring applications

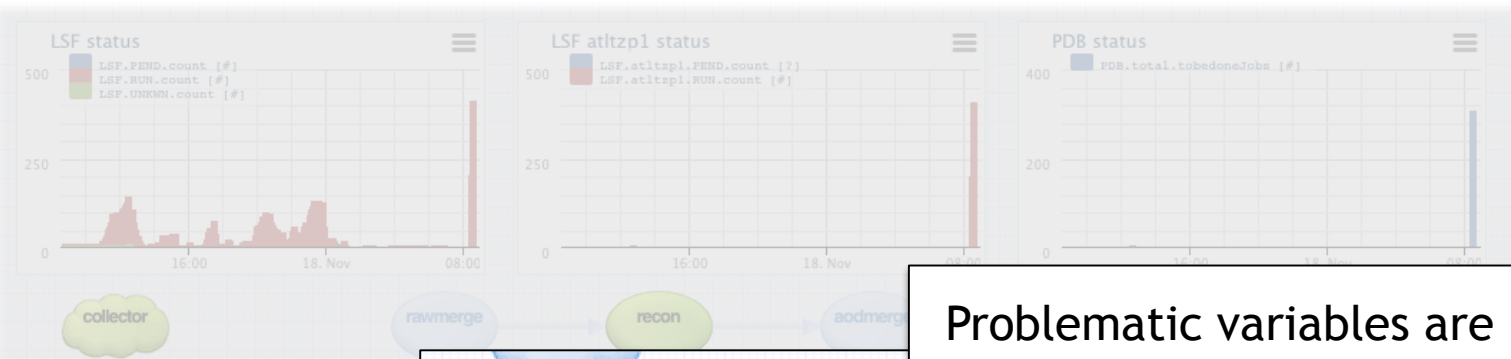
Monitoring Page



Monitoring Page



Monitoring Page



Icons are clickable, pop-up window shows the list of monitored variables

Icons will change green → amber → red in case of problems

Inactive icons (no update in last 5 min) get blue

Problematic variables are shown in red

Clicking on variables displays the corresponding graph

heartbeats
id: heartbeats
last update: 10:27
Main EOWYN process 9 s
Main TOM process 85 s
DDM TOM process 2354 s

heartbeats DDM TOM process[s]



General Instructions

Please have a regular look at the monitoring page
every 60 minutes

The page updates automatically every 5 minutes, but still
make sure that it is up-to-date

- Application in the browser can get stuck
- CERN SSO credentials may expire
- Watch the time labels on the graphs or the last-update timestamp on the pop-up windows
 - NB: time zone on the graphs is GMT (-1h)
- If necessary, refresh the browser window

In a case of emergency (cf. following slides) **call the Tier-0 expert phone**

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Uptime of Tier-0 Processes

There are three critical Tier-0 “control processes”

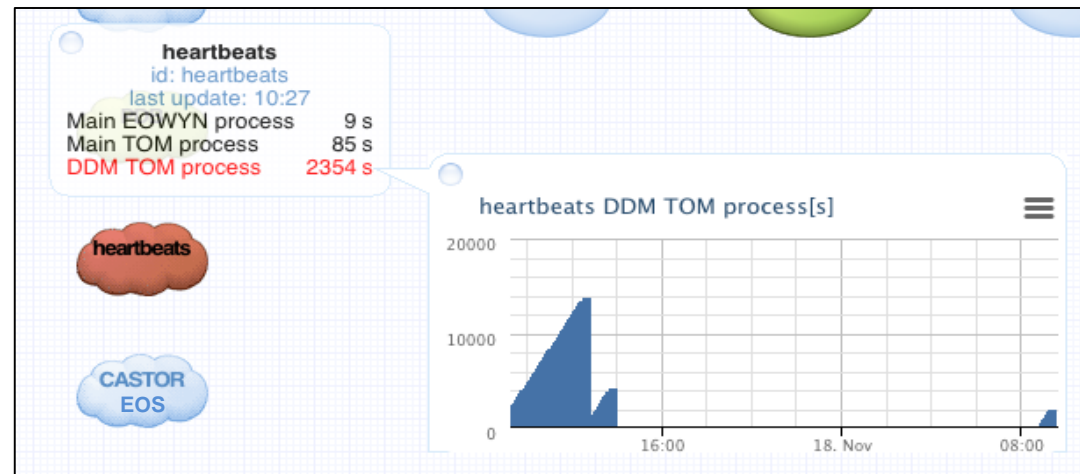
- Supervisor & Executor (“Eowyn”): responsible for submission/running of jobs, associated bookkeeping
- Tier-0 Manager (“TOM”): responsible for handshake with SFO database (at arrival of new data), definition of tasks, jobs, i/o datasets
- A separate TOM instance (“DDM TOM”) responsible for data registration in DDM, AML, data replication inside CERN (CAF)

The processes send regular “heartbeats”

Time since the last heartbeat is monitored

Alarm if no heartbeat for >30 minutes

- Process may have stopped and need restarting



Action:
call Tier-0 expert

Transfer Errors

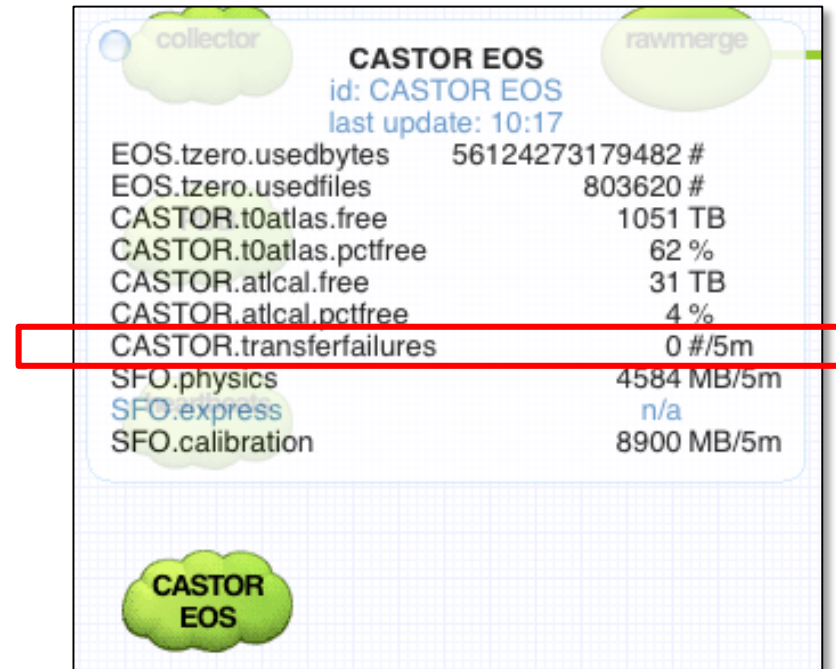
Tier-0 system logs failed transfers from/into storage (CASTOR, EOS)

- Indirect monitoring of storage service status

There can be glitches leading to transient spikes in the failure rate

Extended periods may indicate service outage and become dangerous both for Tier-0 and DAQ

Action:
if alarm situation persists
for >60 minutes,
call Tier-0 expert



Job Failures

Jobs may fail due to many reasons

- Relevant here are problems of the computing infrastructure
- Software-related issues fall into other domain

There can be glitches leading to transient spikes in the failure rate

Extended periods may indicate batch service outage and result in processing backlog at Tier-0

Action:
if alarm situation persists
for >60 minutes,
call Tier-0 expert



“PDB” =
Production DB

