

ONSEN system, issues and plan

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ONSEN „problems“ during testbeam?

- Onsen running stable for $\sim 10^9$ events per run up to ~ 15 hours, 1500 sroot files, 3.5 TB, few kHz trigger rate final hardware, ROI selection online (2 parallel), re-mapping o.k. during whole testbeam
- 2 issues observed (only): both related to run start

ONSEN issue #1: socket monitoring

- Local RC needs ~1 min until ONSSEN status READY.
- Then global RC needs additional ~10 min.
- Confusion during testbeam
 - For several cases wrong sequence: HLT and EB2 try to connect to Onsen, although ONSSEN was not initialized.
 - For several cases global DAQ operator became impatient and hit repeatedly run start and stop within 2-3 min (example: run 373–377)
- Approach for solution:
 - introduce another ONSSEN state („pre-ready“)
 - permanent socket „keep alive“ status monitoring by global RC requires a „backdoor“ technique (additional UDP socket, RBCP protocol).
 - note: does not work for epics.

ONSEN issue #2: „cold start“ required

- ONSEN gets some corrupt data in or before the first event
- Not always, but often.
- Source is not identified yet.
- Requires a cold start. Sometimes even 2 cold starts (indicating that problem may be in a buffer outside Onsen).
- This was never observed at Persy, never at any other testbeam and never in any lab test (e.g. KEK) before.
→ what is different?
- Approach to solve:
 - ~100 testbeam "fork" files, which contain ONSEN un-processed data
 - can be re-processed quasi-online on a test system at Giessen

Why problems not observed at PERSY?

- Many things different.
- No „real“ PXD data (only DHP test patterns).
- No „real“ SVD data (only COPPER dummy data).
- No HLT (only 1 night, after moving to testbeam area).
- No optical links yet (arrived only after Persy unmount).
- No global RC (systems started "by hand", local RC).
- No Poisson triggers.

- Problem could be related to any of them.
- May all be different for new 2017 PERSY

- Note: PERSY was enormously useful for re-mapping (otherwise no small ROIs in testbeam)

Plan for Onsen

- At Giessen
 - test system for re-process „fork“ data (04–05/2017)
→ solve „cold start“ issue. PRIORITY.
 - finish hardware mass production check (04-10/2017)
 - address socket monitoring (04–06 ? /2017)
- At PERSY
 - ONSEN back online: April 5, then remote support
 - DATCON tests at DESY, April 5–7, maybe few days longer (?)
 - Goals of Persy from ONSEN point of view:
 - test runs for global run control
(when socket monitoring is ready, 06/2017 ?)
 - test runs with Poisson triggers for higher than 2.1 kHz (?)
(maybe solved, but still on Itoh-san's list)
 - test with DHC carrier boards (when ?), as next major change of DAQ
 - otherwise PERSY not urgently required for ONSEN
- At COSMIC test setup (MPI or DESY)
 - Data rate will be so low that we will try to use pocket-ONSEN
- Plan 11/2017: Delivery of complete ONSEN to KEK

BACKUP