DISCUSSION ON PLAN FOR FALL RUN

S. Yamada (KEK)
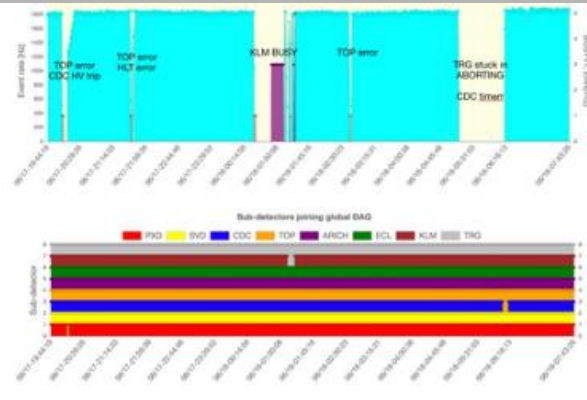
DISCUSSION AT TUESDAY SESSION

Improve DAQ efficiency

Reducing # of troubles

Reducing recovery time

Monitor and feedbacks

Each expert's talk

"Error diagnosis system"
"Toward Non-Stop DAQ operation" etc.
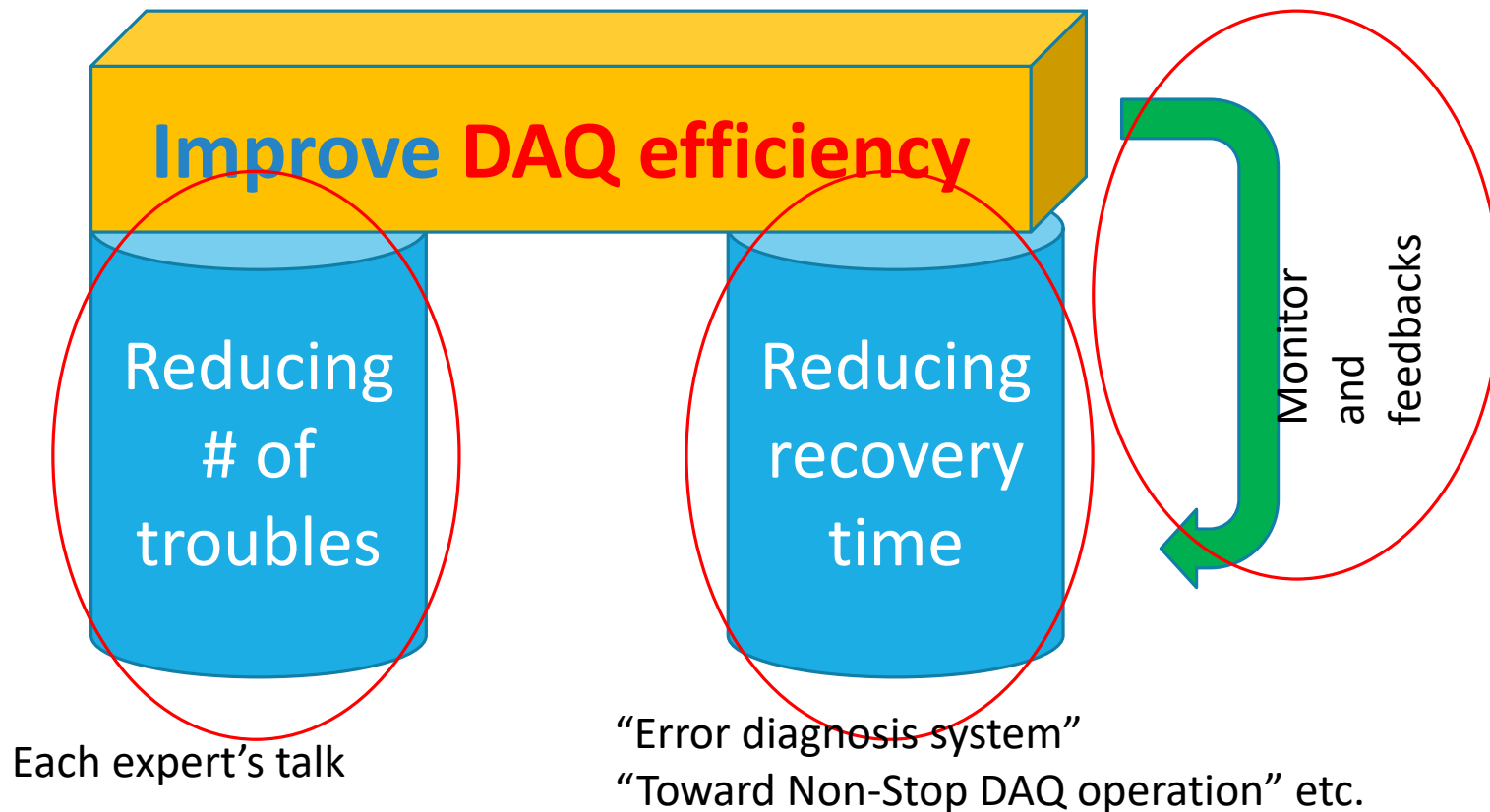
Not so concrete plan in the autumn run

Continue feedbacks about downtime like during phase 3

https://b2rc.kek.jp/channel/daq_commissioning_status
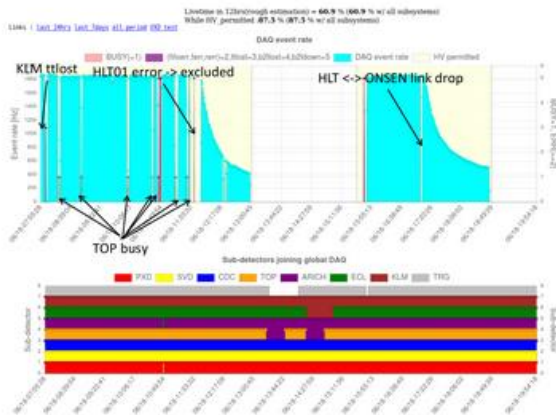
> ➢ DAQ expert shifters report the downtime and reason.
> ➢ Those plots has been useful to explain the current status.

MORE DETAILED INFORMATION

➢ The previous plots are not enough to know which part needs to be fixed/improved soon.
➢ It is better to have more detailed information
  ➢ But currently it takes hours to make summary tables in a week like below…
  ➢ Considering what is an easy way to do this kind of thing.

Ranking of downtime this week
1. sub-system A : 10hrs
2. sub-system B : 3hrs
3. Sub-system C : 10min.
4. …

date	Downtime (min.)	Error(Sometimes, occurred due to other sub-system's trouble)
06/18-01:24:13	55.7	Cpr7001 froze
06/21-04:26:37	45.9	SLC daemon died on SVD ROPC
6/21-08:25:52	18.8	SLC daemon died on TOP COPPER
06/18-11:47:04	15.0	HLT error
06/21-19:08:25	13.5	HLT stuck
	12.8	Other minor troubles x3
	161.7	

When errors occur, currently we check;

1, log message from DAQ processes
2, output of statft
3, status indicator of SLC system
->
Diagnose these info. and provide shifters what to do.

② COPPER unreachable
- SLC daemon down
- Network queue in serves

Not yet Done,

Message windows to shifters ?

Notice :
- CR shifters will not check many outputs -> must be only one output
- The main purpose of the system is to ask CR shifters to do something
  -> The output needs to include what to do.

2019 BELLE II TRIGGER AND DAQ WORKSHOP AT YONSEI UNIVERSITY   3

Auto-restart (auto-SALS)

(M. Nakao)

Towards auto-restart

- **ttctrld**
  - should send something to master RC, but RCCommand::STOP is not the right one. Probably need to add RCCommand::ERROR or something?

- **runcontrold**
  - it is a very passive process, and probably not a place to add many conditions such as infinite loop check
  - still some locking mechanism is needed in runcontrold

- **another app?**
  - Probably we need a process to check status of many things and tell master runcontorld what to do next (i.e., replacement of CSS GUI)
  - Who is in charge?

non-stop DAQ — Mikihiko Nakao — p.5

(M. Nakao)

EB recovery
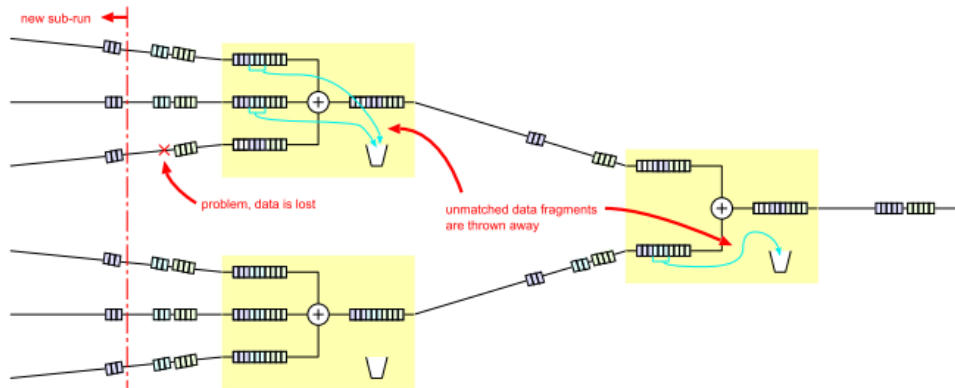
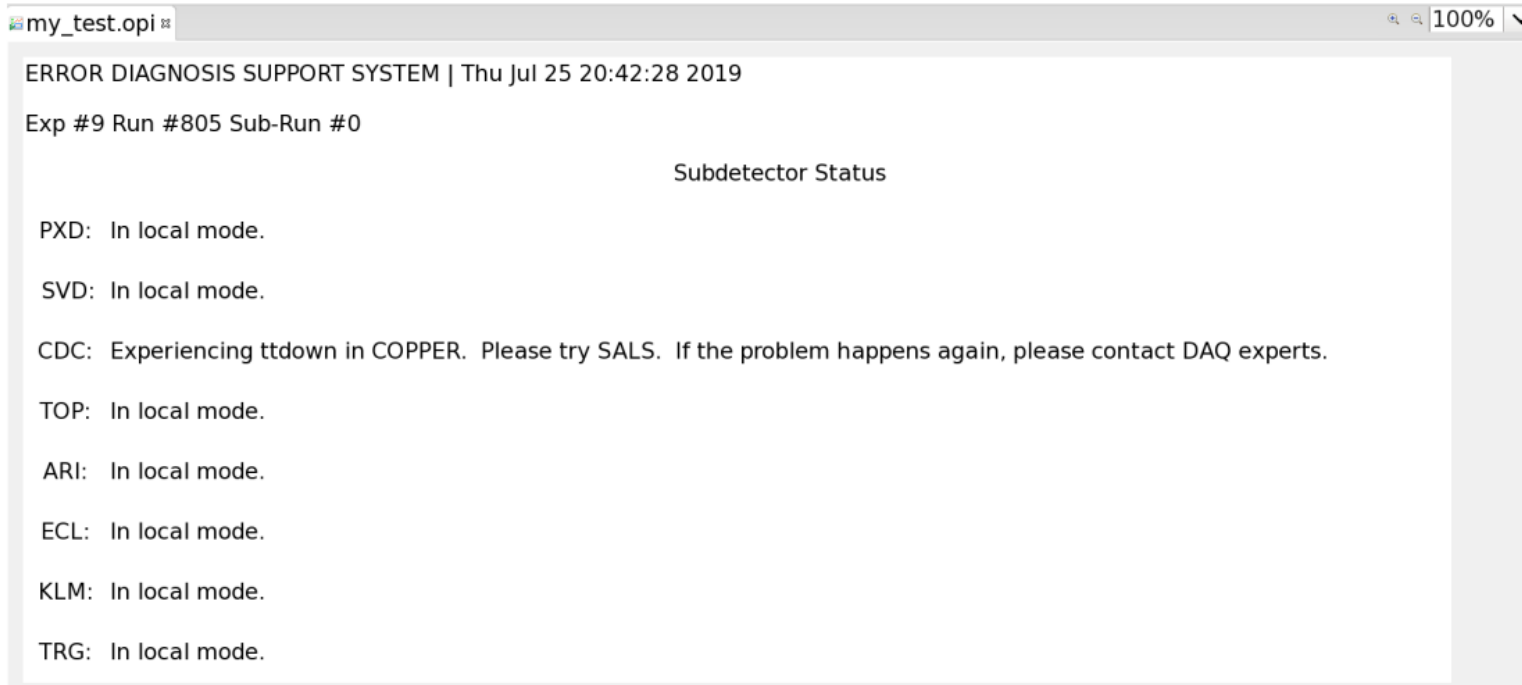| #1	#2	#3	EB		
Run 638 sub-run 0 - run reset					
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	x	5	(throw away)		
6	x	6	:		
7	x	7	:		
Run 638 sub-run 1 - sub-run reset					
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
:	:	:	:	:	:
:	:	:	:	:	:
9700	9700	9700	9700	9700	9700
9850	9850	(lost)	(throw away)		
10000	(lost)	(lost)	:		
Run 638 sub-run 0 - run reset					
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3

🟡 **Data-driven recovery of EB buffers**

🟡 Data flow is blocked by a failure at one point

🟡 By finding new "sub-run" event fragment, read out data from the previous sub-run will be simply discarded

🟡 **events are realigned at EB**

🟡 Done by throwing away events from previous (sub)run at EB input

Message to CR shifter in this example

```
my_test.opi                                                    100% ∨

ERROR DIAGNOSIS SUPPORT SYSTEM | Thu Jul 25 20:42:28 2019

Exp #9 Run #805 Sub-Run #0

                              Subdetector Status

  PXD:  In local mode.

  SVD:  In local mode.

  CDC:  Experiencing ttdown in COPPER.  Please try SALS.  If the problem happens again, please contact DAQ experts.

  TOP:  In local mode.

  ARI:  In local mode.

  ECL:  In local mode.

  KLM:  In local mode.

  TRG:  In local mode.
```
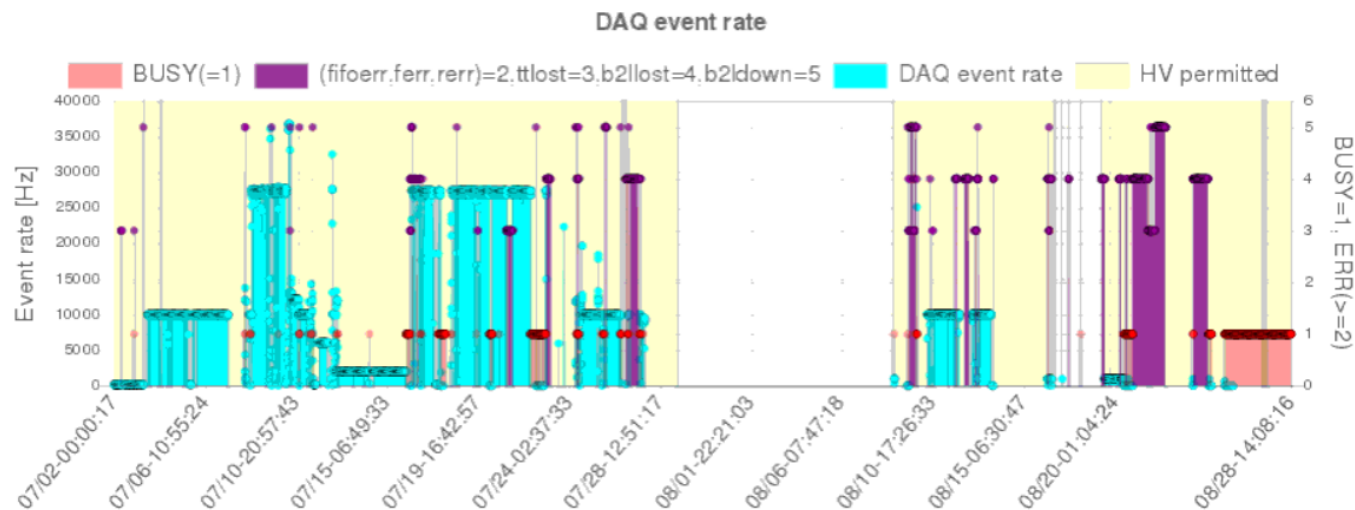
Still, it will answer "I don't know" for the majority of troubles.

DAQ operation schedule

Global DAQ status during this summer shutdown

Livetime in the whold period(rough estimation) = **38.4** % (**1.7** % w/ all subsystems)
While HV_permitted : **49.6** % (**2.2** % w/ all subsystems)

DAQ event rate

Sub-detectors joining global DAQ

Dress rehearsal before autumn run ?

- Control room shifters start working on Sep. 24
  - From Sep. 16 ?

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

CR shifters are available.

DAQ core members

Extended DAQ core members

Asia/Pacific	R.Itoh, M.Nakao, Q. Zhou and S.Yamada (IPNS, KEK)
	T.Konno (Kitasato)
	O.Hartbrich (Hawaii)
	SH.Park (Yonsei)
	C.Li (Liaoning Normal University)
	Y. Guan (Cincinnati) (during Phase III)
	M. Remnev (BINP) **New !**
Europe/US-mainland	K.Lautenbach (Giessen)
	S.Reiter (Giessen) B.Spruck (Mainz)
	N. Braun (KIT)