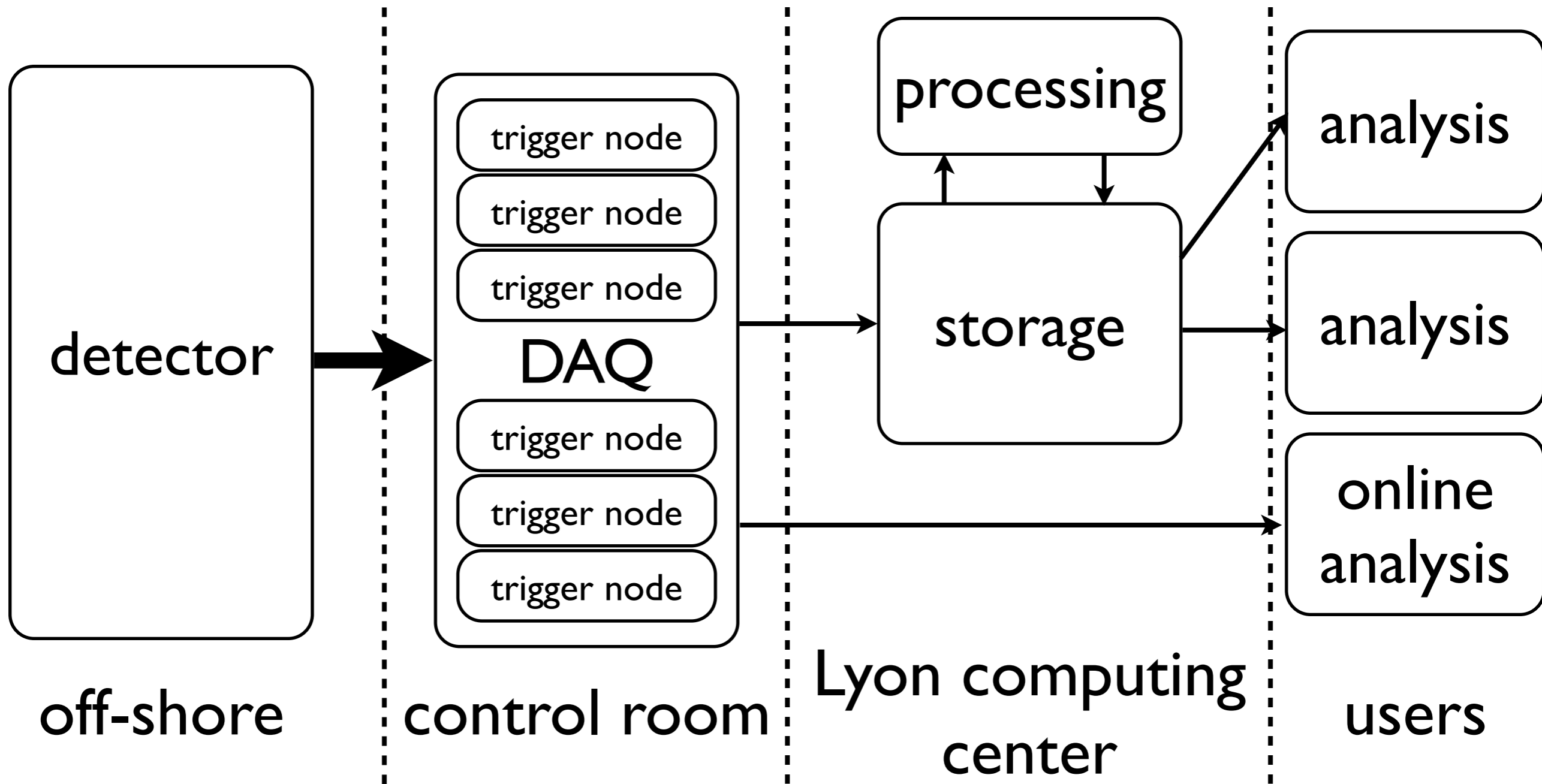


ANTARES

computing

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overview



detector

- runs on vxWorks
- sends all data to shore (TCP)

DAQ

- receives all detector data -> trigger/filter
- custom design
- hybrid C++/Java implementation
- communication using a simple TCP-based subscription protocol
- output in “ROOT” format

storage

- .root files (“runs”) are copied to a computing center (CC Lyon) periodically
- stored on “HPSS” system (tape/hard-drives/ etc.)

(offline) processing

- @ CC Lyon
- batch jobs are scheduled
- read .root runs, convert to .i3 format
- perform analysis using software framework (IceTray)
- output in “n-tuple” or “DST” files

(offline) processing (2)

- only a single “standard” processing level
 - perform offline calibration
 - apply most common track, energy, ... reconstructions
- save to .i3 output file format for further processing
- write DST/n-tuple files

(offline) processing (3)

- processing runs are done approximately every 6 months
- if an analysis group needs a special algorithm applied, they (should) start from the output of the standard reco

framework

- use “IceTray” to link calibration&reconstruction modules that work on data
- Antares calls this distribution “SeaTray”
- compatible to IceCube data/modules

framework

- supports constantly changing detector geometries, calibrations, ...
- easy to merge code from different groups into a single processing script

simulation

- currently undergoing (re-)construction
- is done (used to be done) outside the framework
- uses framework / modules for reconstruction

online analysis

- a real-time data stream of triggered events is available for online reconstruction
 - at the shore station
 - anywhere [using a tunnel (e.g. ssh)]
- some buffering -> delay of a few minutes

online analysis

- live event display!

analysis

- currently three different output formats for analysis
 - framework format (.i3)
[for further processing]
 - .root/.hdf5 files (“tableio”)
 - “antDST” format (.root files)
[based on Auger code]

analysis

framework format (.i3)

- contains *all* data
- can be used to apply further filters/
reconstrcutions/...

analysis

antDST

- writes .root files
- comes with tools to quickly perform a set of standard analyses

analysis tableio

- also used by IceCube
- can write to .root and .hdf5 files
- extensible [can be applied to new output data with minimal work]

summary

