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Collaboration with ALICE O^2 Project

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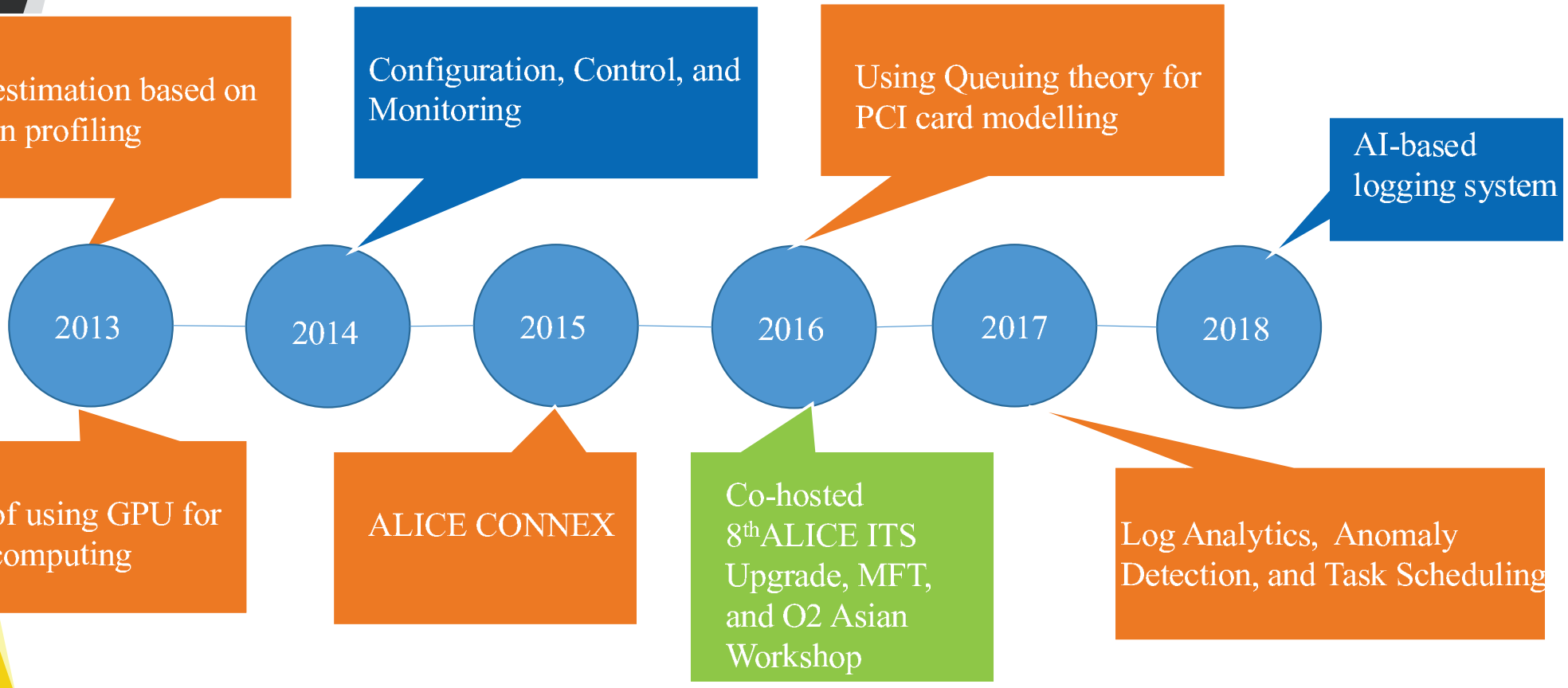
Big Data Experience Center

Overview about KMUTT collaboration



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Control, Configuration, and Monitoring System (CCM)

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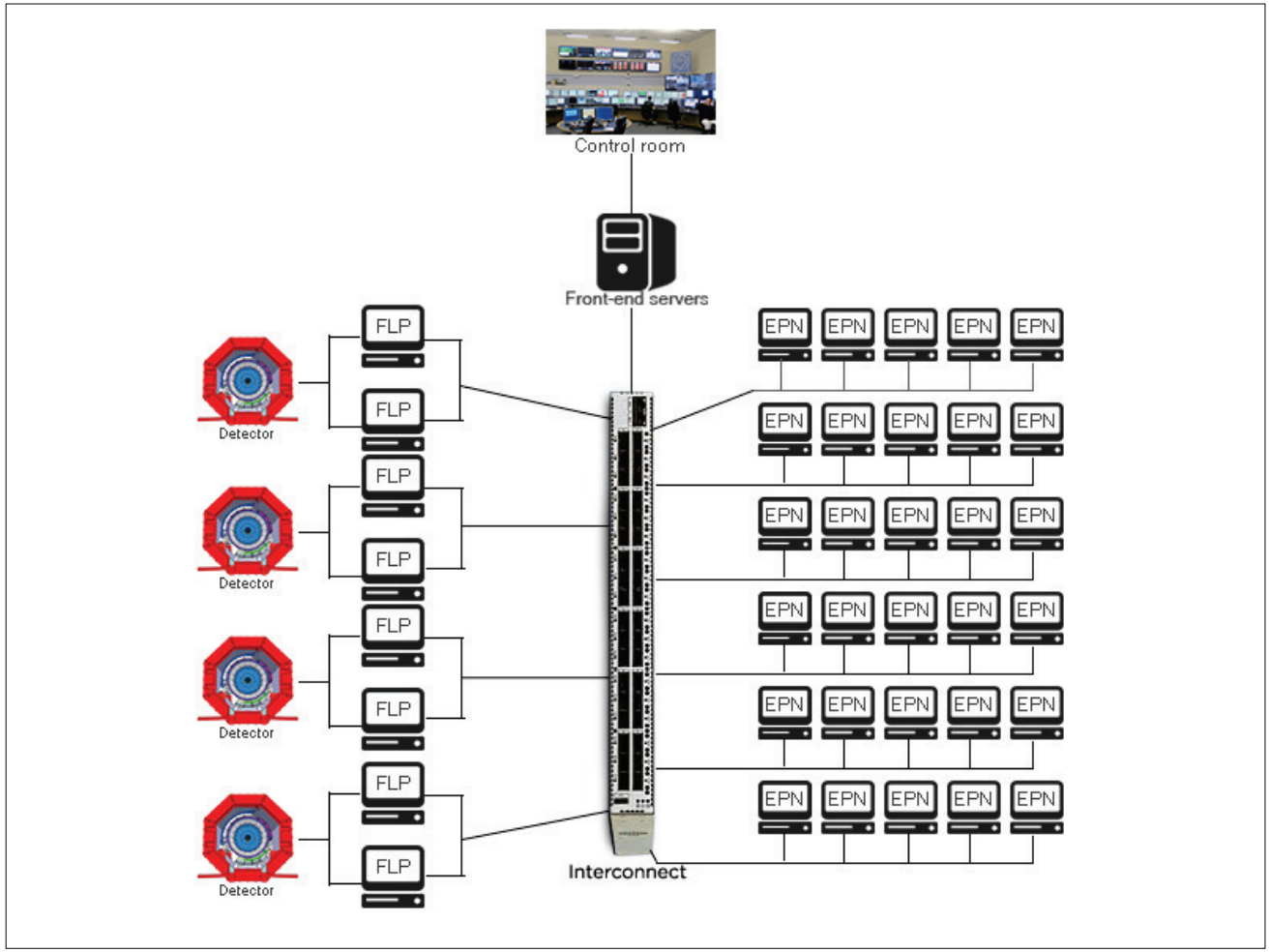
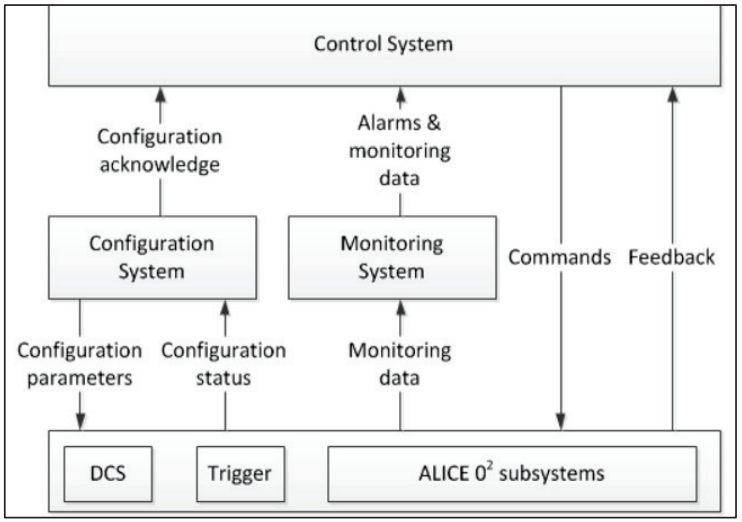
O2 Environment

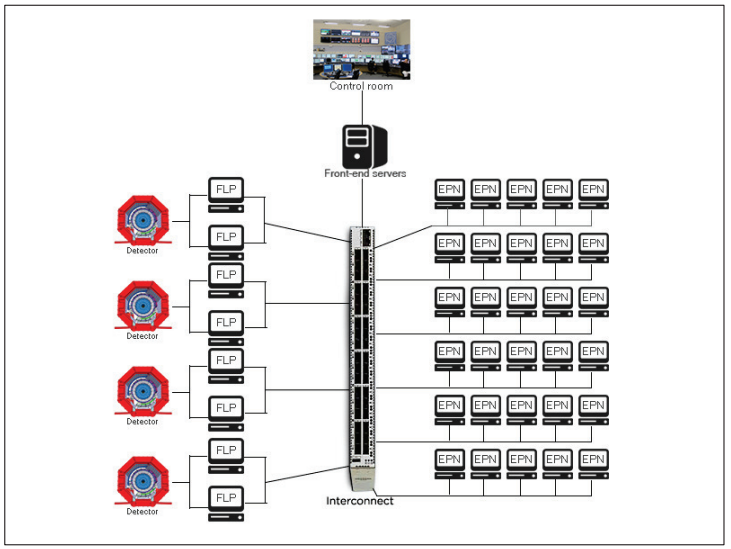


In Brief, what are CCM?

- **CCM** are components act as a tightly-coupled entity that support users and automate day-to-day operations.
  - **Control system**: responsible for coordinating all the O^2 processes.
  - **Configuration system**: ensures that both the application and environment parameters are properly set.
  - **Monitoring system**: gathers information from the O^2 system, identifying unusual patterns and raising alarms.



Relationship between the CCM components



O^2 environment

Outputs

- Publications
  - 5 conference papers
  - 1 journal paper
  - 1 submitted journal paper with minor revision.
- 5 Graduated Students
  - 3 of them working in Companies in Thailand
  - 2 of them studying in Ph.D. in the United States

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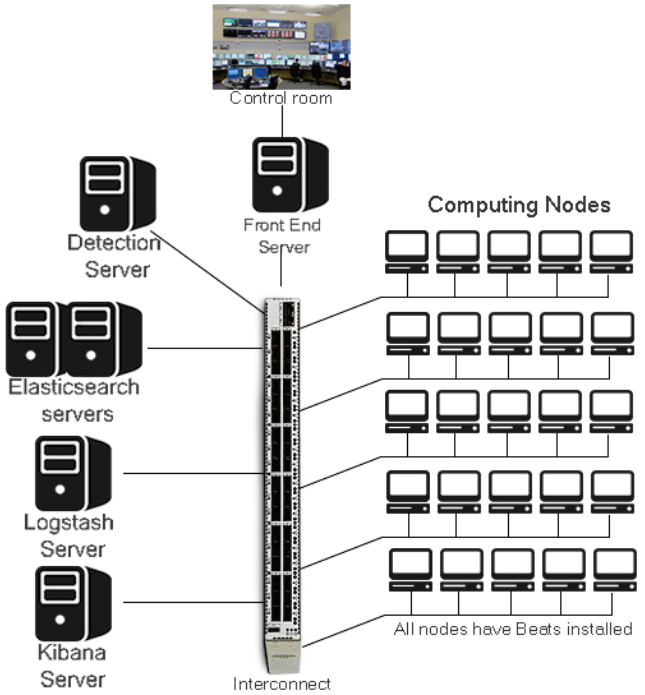
Our Current Collaboration with CERN

Current Contributions of KMUTT

- AI-based logging System for the O2 facility
  - To collect, process, store and visualize the relevant information of the vast amounts of system logs that will be generated by the O2 hosts and services (~2000 nodes).
  - To detect abnormal situations and alarm to the subsystem experts
  - To analyze the survival period of the cluster and recommend the pre-maintenance in order to reduce the cost and time of maintenance
  - More advance analytics within the domain of data analytics



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Control Center at CERN

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Log data

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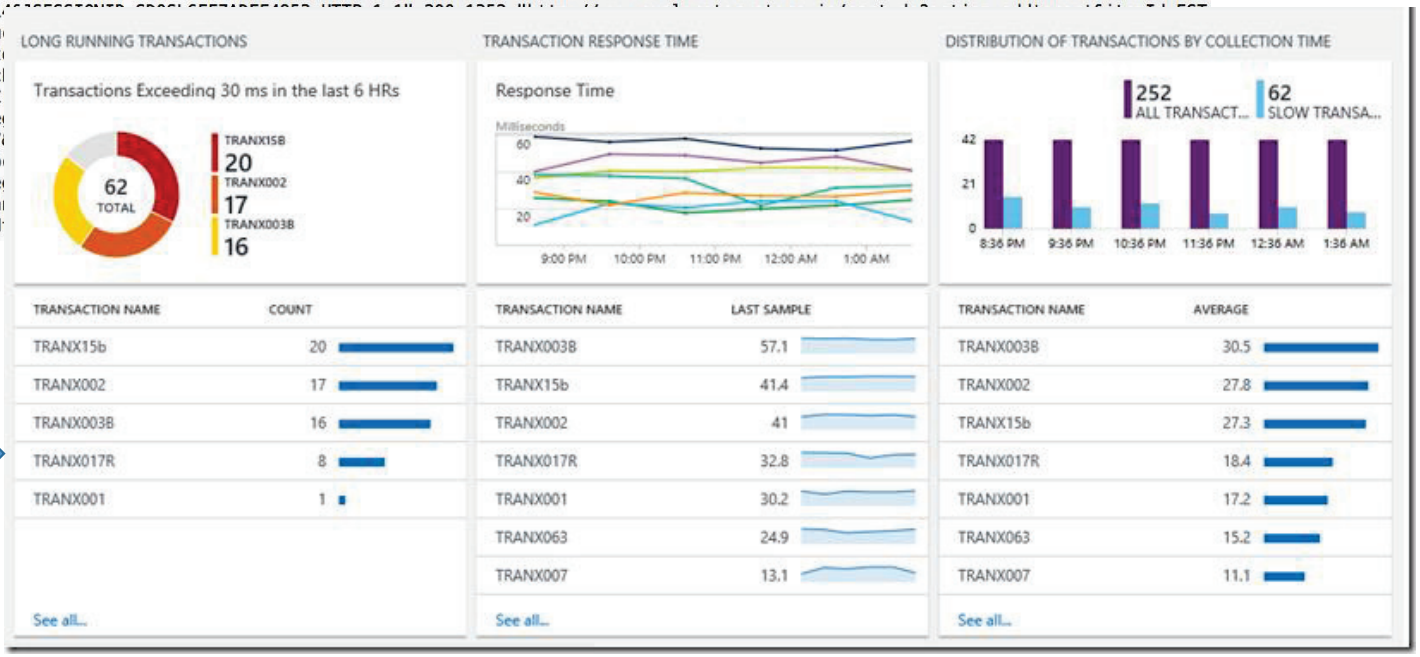

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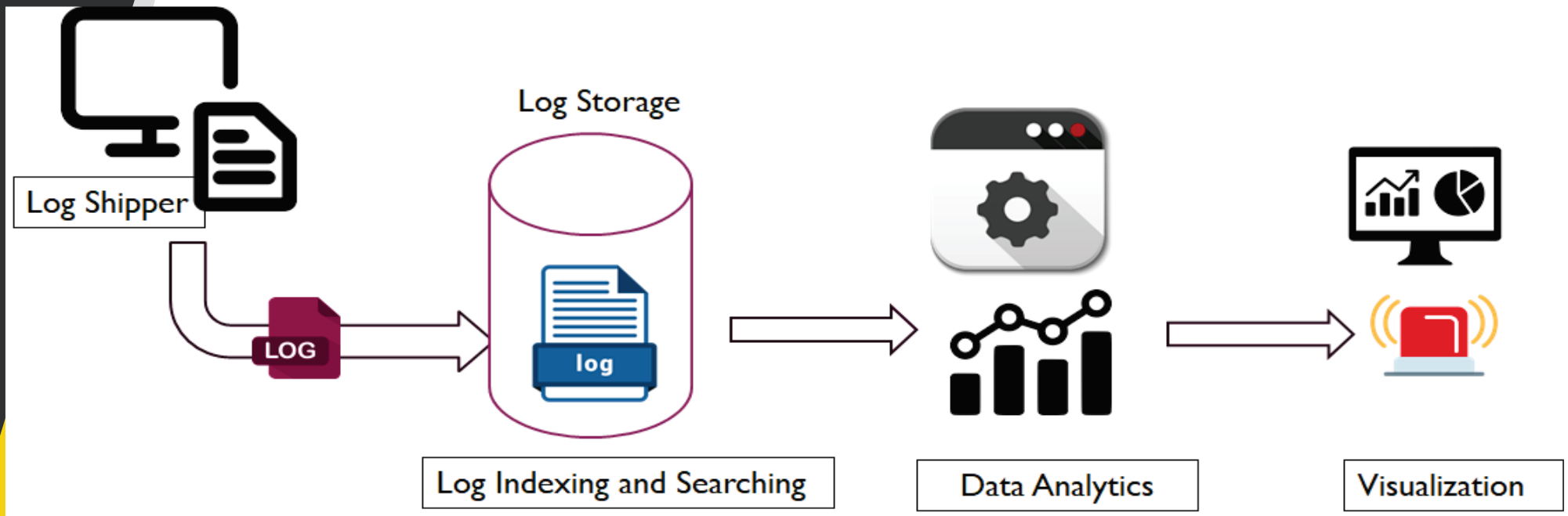
Log Analytics system



Current Collaborations of KMUTT (CONT)

- Our team will take an ownership of the AI-based logging system in the full stack of software engineering activities:
  - Collecting the requirement from CERN
  - Designing
  - Implementing
  - Testing
  - Deploying
  - Maintaining
  - Data Analytics

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Thank you!!