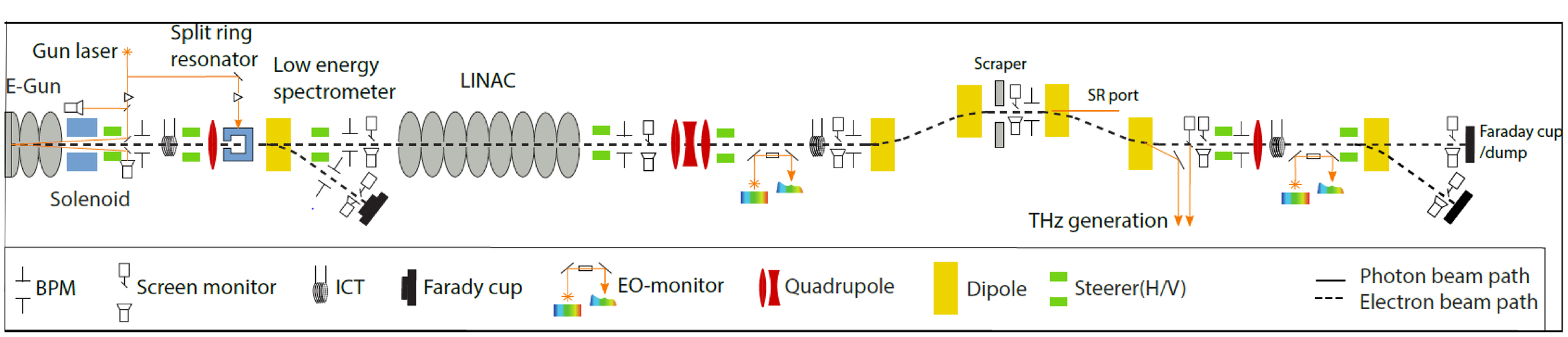
UPDATE ON THE STATUS OF THE FLUTE CONTROL SYSTEM

W. Mexner, E. Bründermann, C. Fehlinger, M.Schuh, S. Marsching, R. Ruprecht, N. Smale,
I. Kriznar, T. Schmelzer, E. Blomley, A.-S. Müller

Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Motivation and Introduction



FLUTE is a new R&D linac accelerator offering beam energies of 7 to 41 MeV for the development of accelerator technology, new diagnostics and instrumentation for fs bunches. It will be used as a test facility for the study of bunch compression with all related effects and instabilities like space charge, coherent synchrotron radiation (CSR) as well as the different generation mechanisms for coherent THz radiation. Furthermore it will serve as a broad band accelerator-based source for ultra-short and intensive THz pulses e.g., for time- & frequency-domain spectroscopy of kinetic processes. First electron bunches has been detected with the FLUTE diagnostics for 7 MeV in May 2018, the first user's experiment is foreseen in 2019 within the ARIES Transnational Access program funded from the European Union's Horizon 2020 R&I program under GA No 73 08 71.

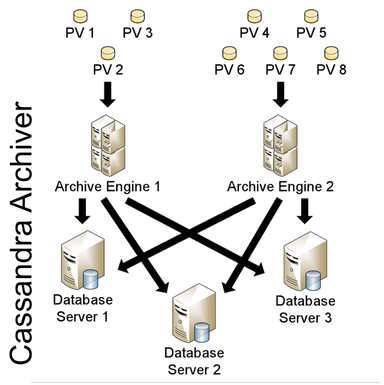
Control System

Hardware

- PCs with x86_64 architecture
- SIEMENS S7 PLCs
- MicroTCA
- Ethernet

Software

- Linux (Ubuntu 14.04 LTS)
- EPICS 3.15
- Control System Studio
- Apache Cassandra Archiver (10Hz Snapshots)



Stepper Motor Control

- OMS (ProDex) MAXNET 5 Axis
- Middex BCD130.x Driver
- Adapted OMS AsynDriver

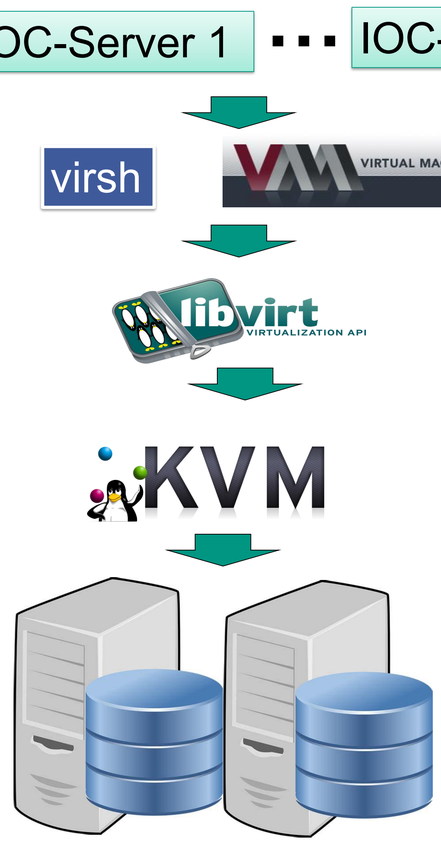
Timing System

- Micro Research Finnland
- EVG/EVR VME form factor
- Controlled via Ethernet UDP/IP
- Own Epics Device Support

RF System

- 4 µs 3GHz Burst of 45MW
- Splitted between Gun and Linac
- Slow Control S7 PLC /EPICS
- Feedback Loop MTCA controlled via DOOCS/JDDD

Virtualized Infrastructure



All IOC´s running on virtual machines

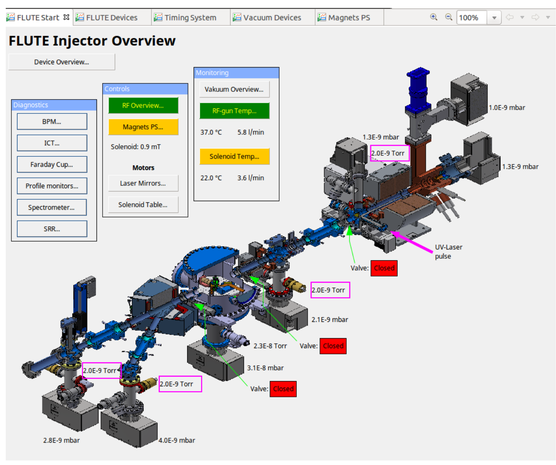
Stable operations since 4 years

2 servers with
- 32 GB RAM
- Xeon E3 3.5 Ghz CPU
- 16 TB raid 6

NoSQL cluster on native hardware

Operator GUI Concept

- Synaptic 3D approach
- Sub panels linked to 3D model



CSS Client Deployment

Keeping CSS and panels up to date everywhere

- Shortcut for starting CSS is updating everything
  - Checking installed CSS version (curl)
  - Update local panel copy with SVN
- Python 3 scripts, works for Linux and Windows

Acknowledgement

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