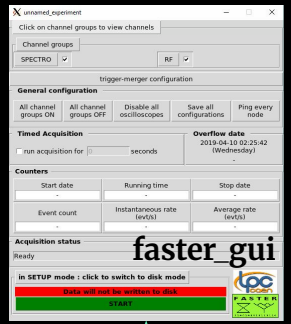
FASTER3 → Purpose of this presentation

1. The limitations of the solution proposed by FASTER2 in terms of control, monitoring and configuration

2. Understanding the overall structure of the FASTER3 management and monitoring system

David Etasse → etasse@lpccaen.in2p3.fr

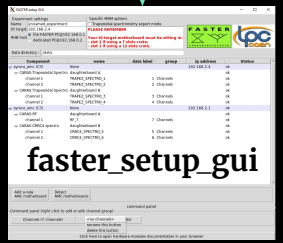
FASTER3 → FASTER2 control,monitoring and configuration limitations



faster_gui

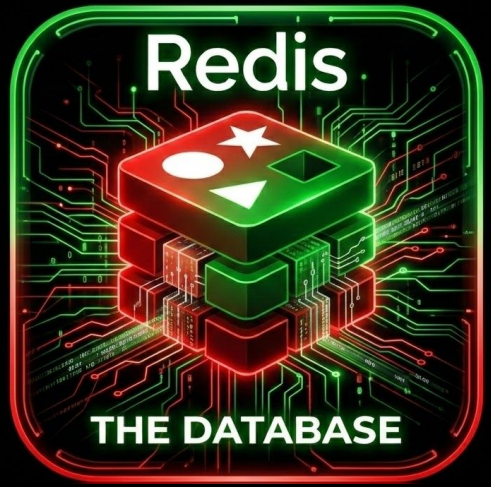

faster_daq_shell

Configuration Files


faster_setup_gui

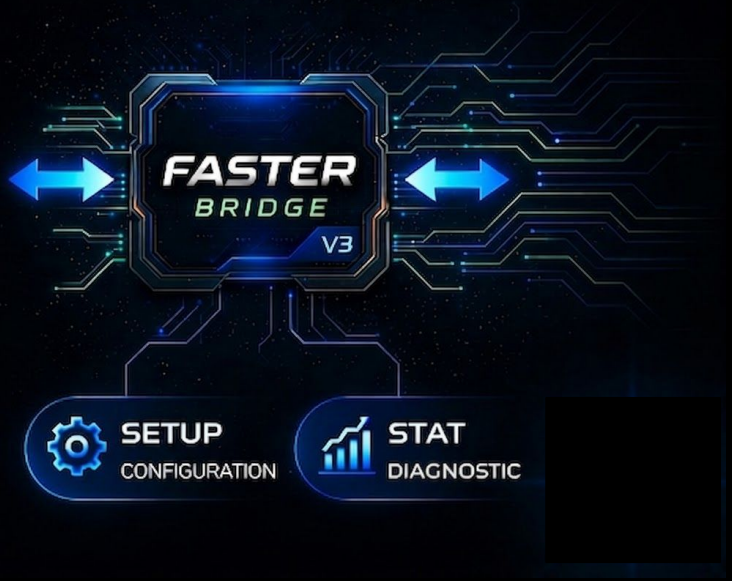
1. Lack of flexibility
2. Static system; does not support scripting
3. No logging functionality is provided
4. No automatic version management
5. Not suitable for large-scale experiments

FASTER3 → From Static Configuration to Dynamic Control Plane



1. **In-Memory Speed**: Sub-millisecond latency using RAM storage.
2. **Advanced Data Structures**: Beyond key-value; supports lists, sets, and hashes.
3. **Multipurpose Engine**: Acts as a cache, message broker (Pub/Sub), and queue.
4. **Optional Persistence**: Combines RAM performance with disk-based recovery

FASTER3 → Brigde concept



1. Interface between two entities
   a. Modules ↔ Redis
   b. Disk ↔ Redis
2. Redis registry (PID, name, start time, etc.)
3. 2 service channels (Configuration, Statistics)
4. Plugin framework → Interface extensions

FASTER3 → CLS and MLS mode

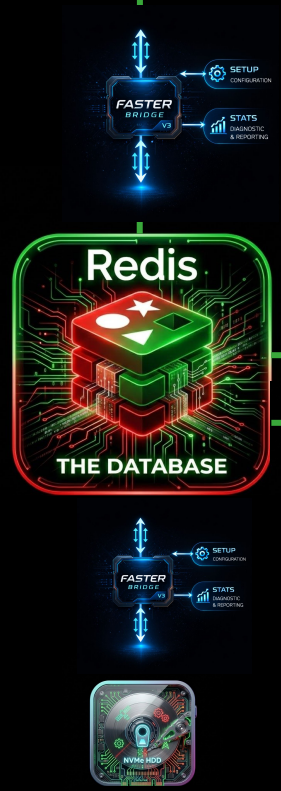
CLS
Compact Laboratory System

1 Digitizer Box

MLS
Mid-scale Laboratory System

2 Digitizer Boxes

Digitizers



TUI programs
(Control, Monitoring, logger, Configuration)

FASTER3 → CLS and MLS mode

CLS
Compact Laboratory System

1 Digitizer Box

MLS
Mid-scale Laboratory System

2 Digitizer Boxes

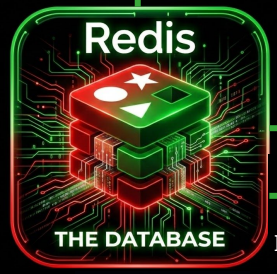
Digitizers

TUI programs
(Control, Monitoring, logger, Configuration)

FASTER3 → CLS and MLS mode

Digitizers

Digitizers to Redis Bridge



Periodic binary backup

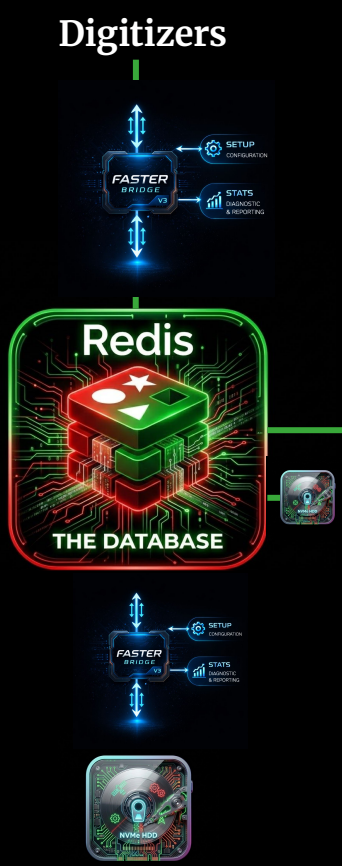
Disk to Redis Bridge

Files become archival snapshots,
Not the core of the system.

Archival Snapshot files

TUI programs
(Control, Monitoring, logger, Configuration)

FASTER3 → CLS and MLS mode



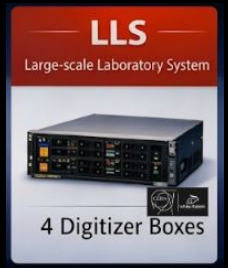
TUI programs
(Control, Monitoring, logger, Configuration)

Specific Scripts

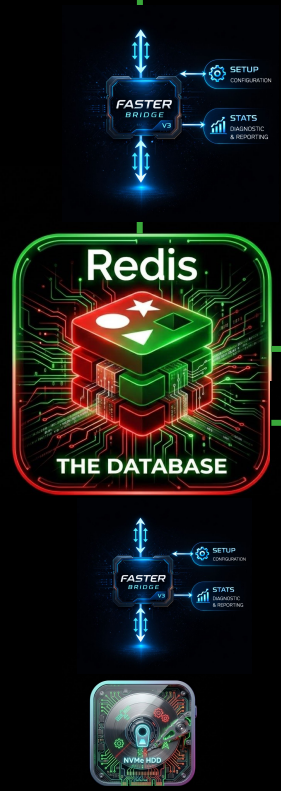
Specific Scripts :

1. Threshold adjustment
2. Energy calibration
3. Optimizing “shaping time”
4. User scripts

FASTER3 → LLS and XLS mode



Digitizers

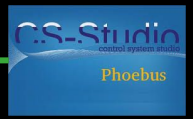


TUI programs
(Control, Monitoring, logger, Configuration)

Specific Scripts

GUI Monitoring
Graphana platform

Epic to Redis
Bridge (IOC)



GUI Control
Phoebus framework

FASTER DAY

(2006-2008-2011-2019)

31 March 2026

- 11:30 a.m. – Session 3 : Synchronization and control of FASTER3

  1. Sub-Nanosecond Synchronization Using the White Rabbit Protocol (Daniel Charlet IJCLab)
  2. Management and monitoring (David Etasse)
  3. Development planning and deployment (David Etasse)

- 🍴 BUFFET

- 2:00 p.m. – Session 4 → SINAPSE, the FASTER3 simulator for large-scale system