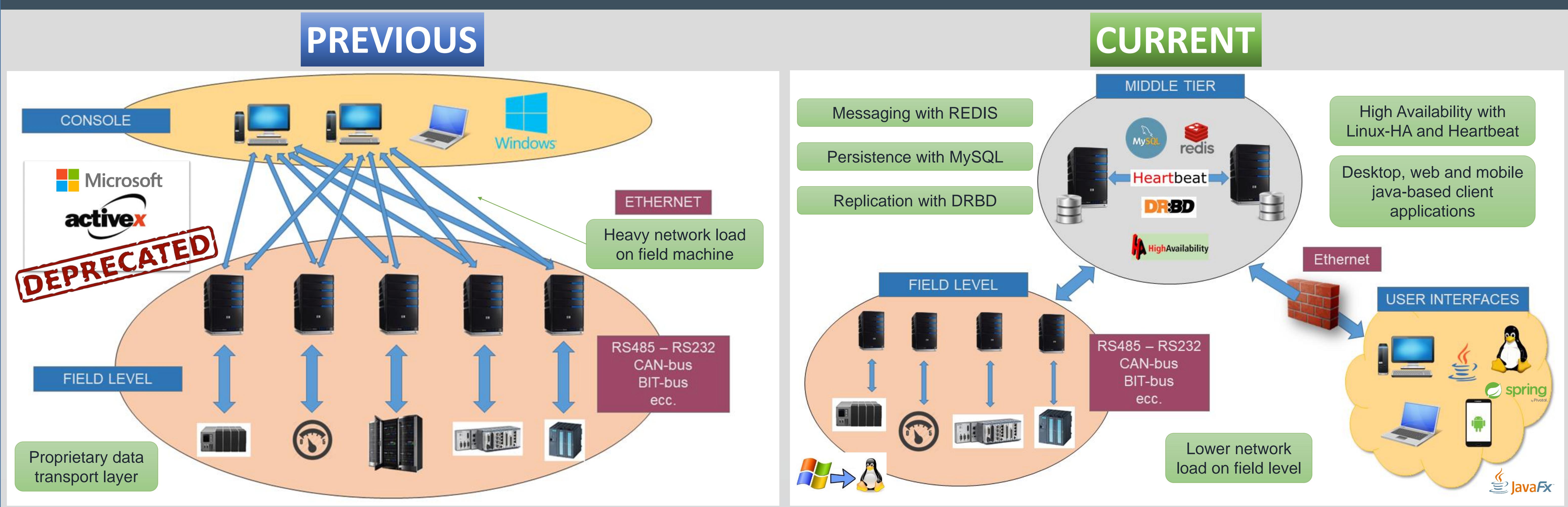


Management Software and Data Exchange Protocol for the INFN-LNS Accelerators Beamlines

G. Vecchio¹, S. Aurnia¹, S. Cavallaro¹, L. Cosentino¹, B. Diana¹, E. Furia¹, S. Pulvirenti¹
 1) INFN Laboratori Nazionali del Sud, via S. Sofia 62, 95123 Catania

SYSTEM ARCHITECTURE



The screenshot shows the 'SYNOPTIC GUI' interface developed using the JavaFX framework. It features a main panel with a plant diagram of the beamlines (MAGNEX, CHIMERA, CATANA, CICLOPE, MEDEA, ECR, TANDEM, PREINJECTOR) and a detailed configuration window for a 'TRANSPORTO QUADRUPOLE' component. The configuration window includes fields for Name, SupplyAxialCyclope_ZDQPS, CURR - ADC (A), and various status indicators like COMMUN ERROR, ERROR, REMOTE, and STATION -> REMOTE. The JavaFX logo is visible in the bottom right corner.

SYNOPTIC GUI:

- The local console GUI queries the in-memory REDIS database and shows the data coming from the field.
- Developed using the JavaFX framework.
- The main panel contains the plant of the beamlines, where the operators can navigate to manage and monitor all the parameters needed for beam tuning operations, with an interactive approach.

- SEVERAL TOOLS**
- MySQL database to save and recall a specific system configuration.
 - Indication of beam intensity measured by each Faraday Cup.
 - Real-time beam profiling.
 - List of Power Supplies along the beamline (setting, status, etc.).
 - Electronic logbook for beamline parameters.

The screenshots show five different tools used in the beamline management:

- A configuration interface for power supplies (ADC ZDQPS) showing a list of elements and their settings.
- A Faraday Cup diagnostic interface showing real-time data for a Faraday Cup (DiagAxialIn_AFC2) with a graph of current over time.
- A beam profile visualization titled 'MATRIX SALA CS' showing a circular pattern.
- A real-time beam profiling interface showing a grid of Faraday Cup data (EXSTx, EXSTy) with color-coded status.
- An electronic logbook table showing experimental data for various beamline components (AXFC2, AXSTTx, AXSTTy, AXSO1, AXSO2, AXFC3, DIP90S, AXFC4, AXSO4, AXSO5, AXSO6, AXFC5, AXSO7, AXQP1, AXQP2, AXQP3, AXQP4, AXSO8, AXFC6, AXDP2, AXSO9, AXST2y, AXSO10, AXFC7, AXSO11, AXSO12, EXSTTx, EXFC1).

CONTACTS

Ing. Gianfranco Vecchio: vecchio@lns.infn.it

Salvatore Aurnia, Salvo Cavallaro, Luigi Cosentino, Benedetto Diana, Enrico Furia, Salvatore Pulvirenti

ISTITUTO NAZIONALE DI FISICA NUCLEARE
LABORATORI NAZIONALI DEL SUD
Via S. Sofia, 62, 95123, Catania, ITALY