RE-ENVISIONING THE OPERATOR CONSOLES FOR DHRUVA CONTROL ROOM
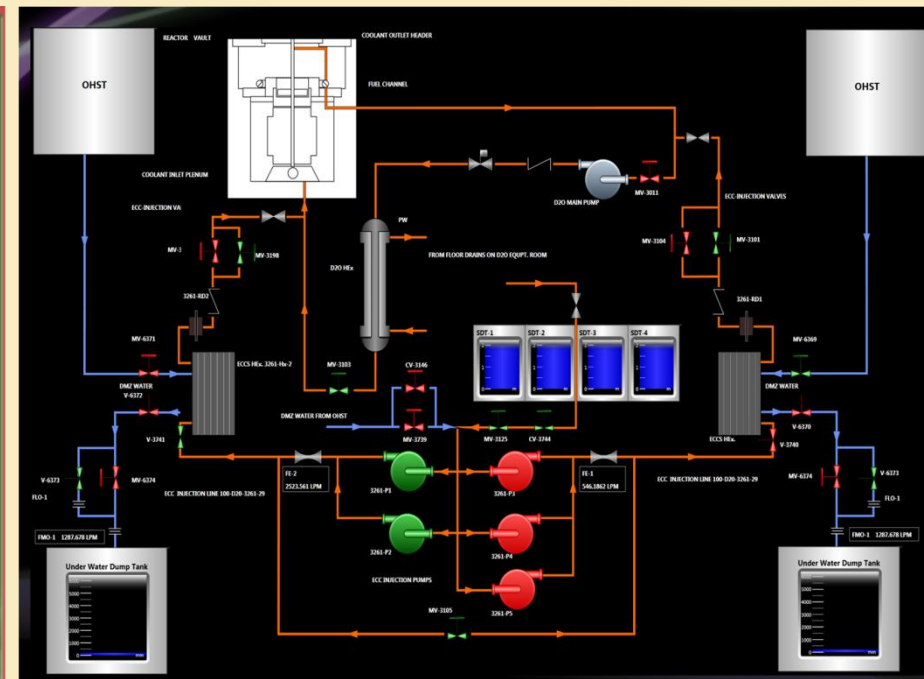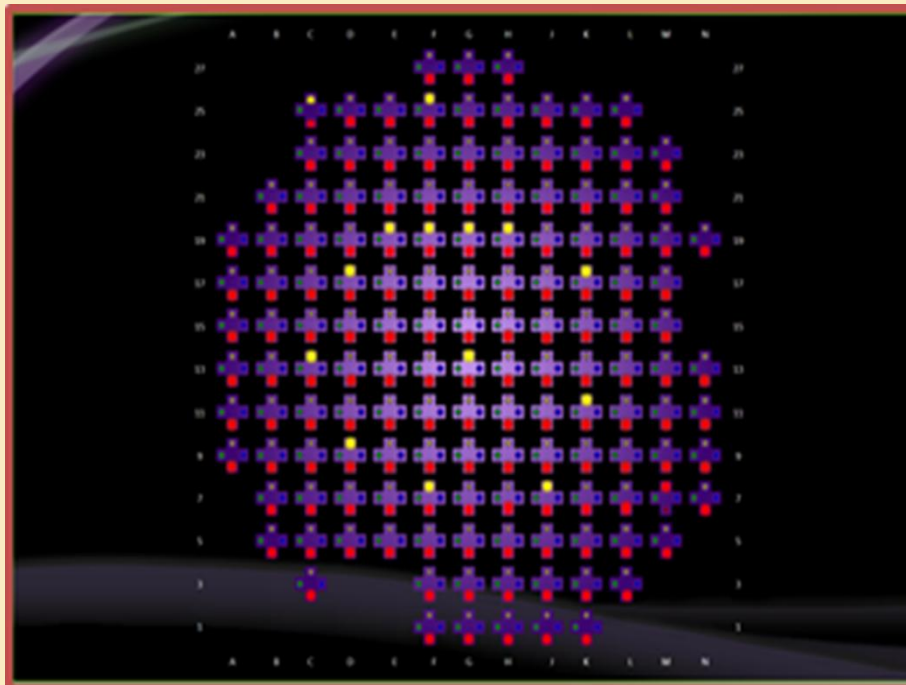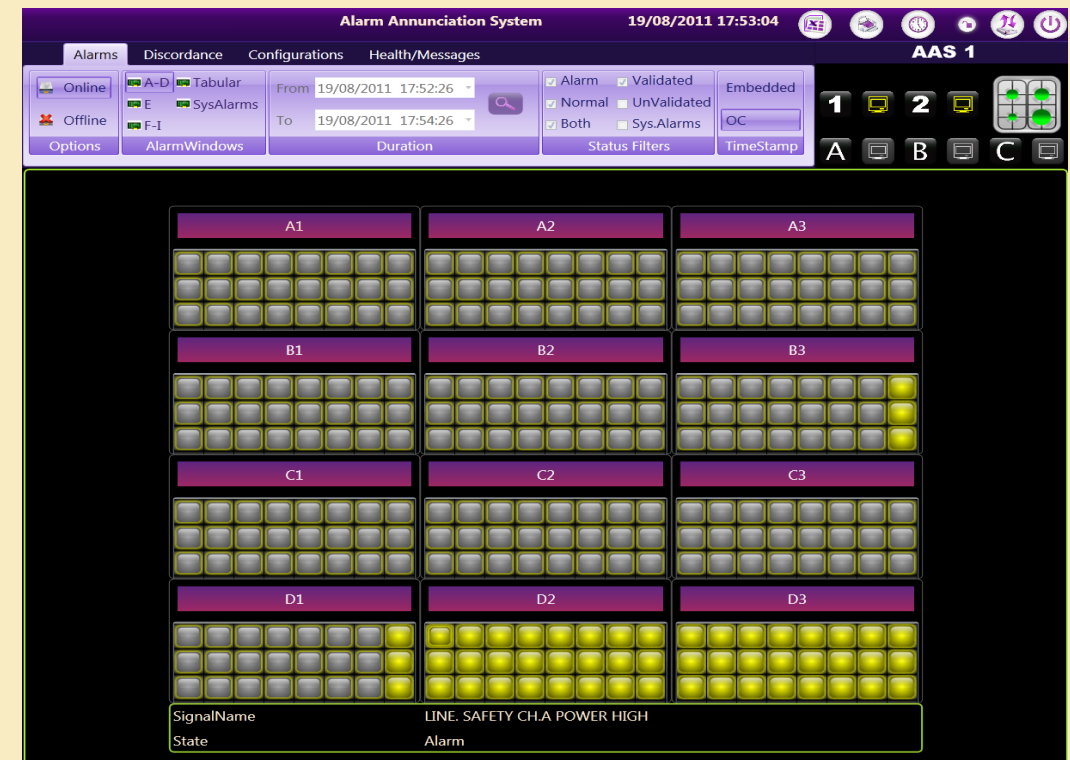
Swati Gaur, Padmini S., Preetha M. Nair, Nilesh Gohel*, M.P. Diwakar, C.K. Pithawa
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FEATURES OF OPERATOR CONSOLES

- Redundant, robust, high-performance and scalable systems

- Multiple views of plant state for quick assessment of situation

- Alarm Visualization(Analysing, organizing, filtering, viewing alarms)

- Archival of Periodic Data, Alarms, Diagnostics with a data life cycle of 5 yrs

- Data collection, logging and reporting

- Real-time and historical data trending

- Intuitive 2D and 3D visualization

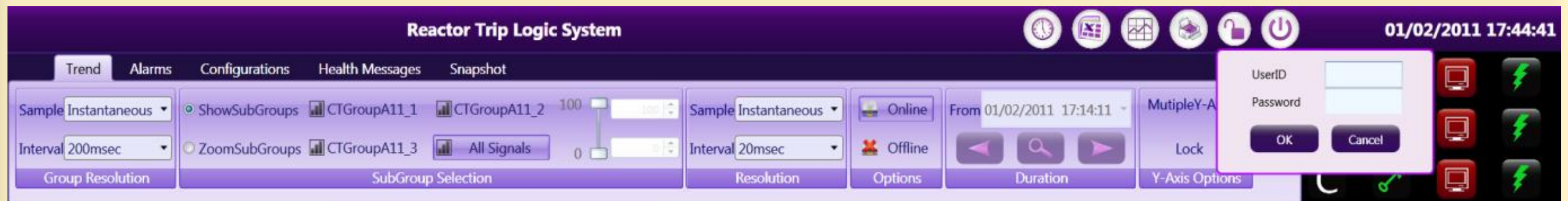- Agreement checks to ensure health of the embedded systems/sensors

DHRUVA OPERATOR CONSOLES

- Reactor Trip Logic System

- Coolant Flow Monitoring System

- Alarm Annunciation System

- Start-up Logic System

- Emergency Core Cooling System
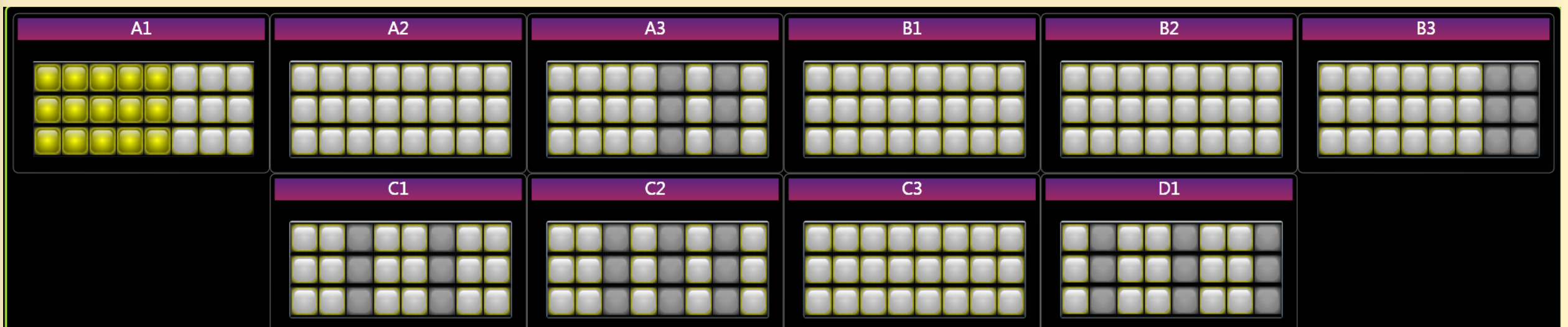
- Radiation Monitoring System
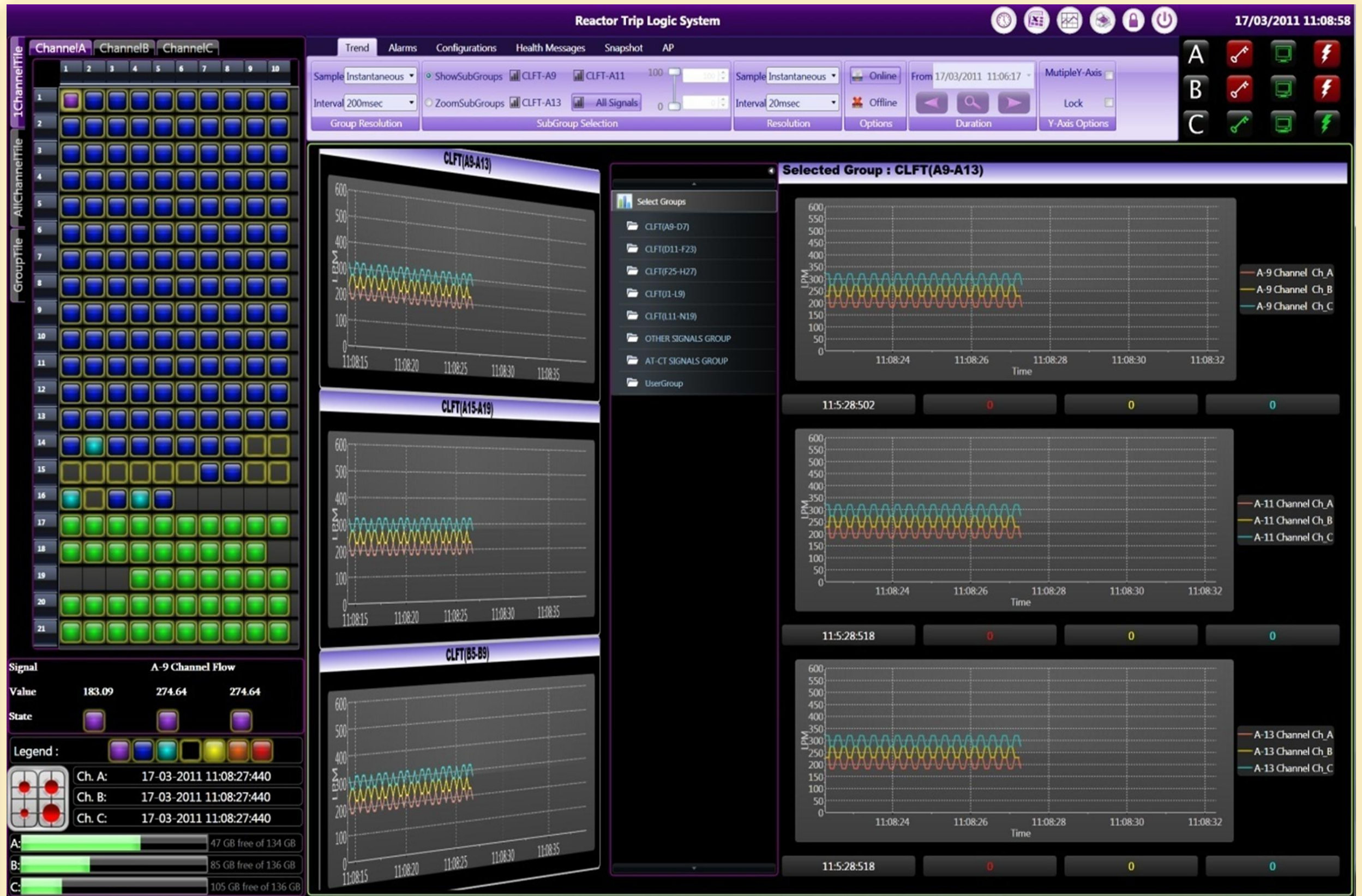
USER INTERFACE SALIENT FEATURES

- Info Graphics

- Laser focus

- Context sensitive navigation

- Collapsed Content

- Content chunking

- Attachment Boxes

Ribbon View / Attachment Box for Login

Info Graphics : Control Room Alarm Windows

RTLS Operator Console

UI DESIGN AND DEVELOPMENT

- Separation of Concerns with Model-View ViewModel (MVVM pattern)

- Configurability using XML and LINQ

- Declarative programming with Extensible Application Mark-up Language (XAML)

- Resolution Independence, Hardware Acceleration, Data Binding, Rich composition and customization with Windows Presentation Foundation (WPF)

PERFORMANCE

Supports 70,000 data points per second obtained by acquiring data at the rate of 20 msec simultaneously from three embedded nodes and refresh rate of 1 second.