Karlsruhe Institute of Technology

Making it all Work for Operators

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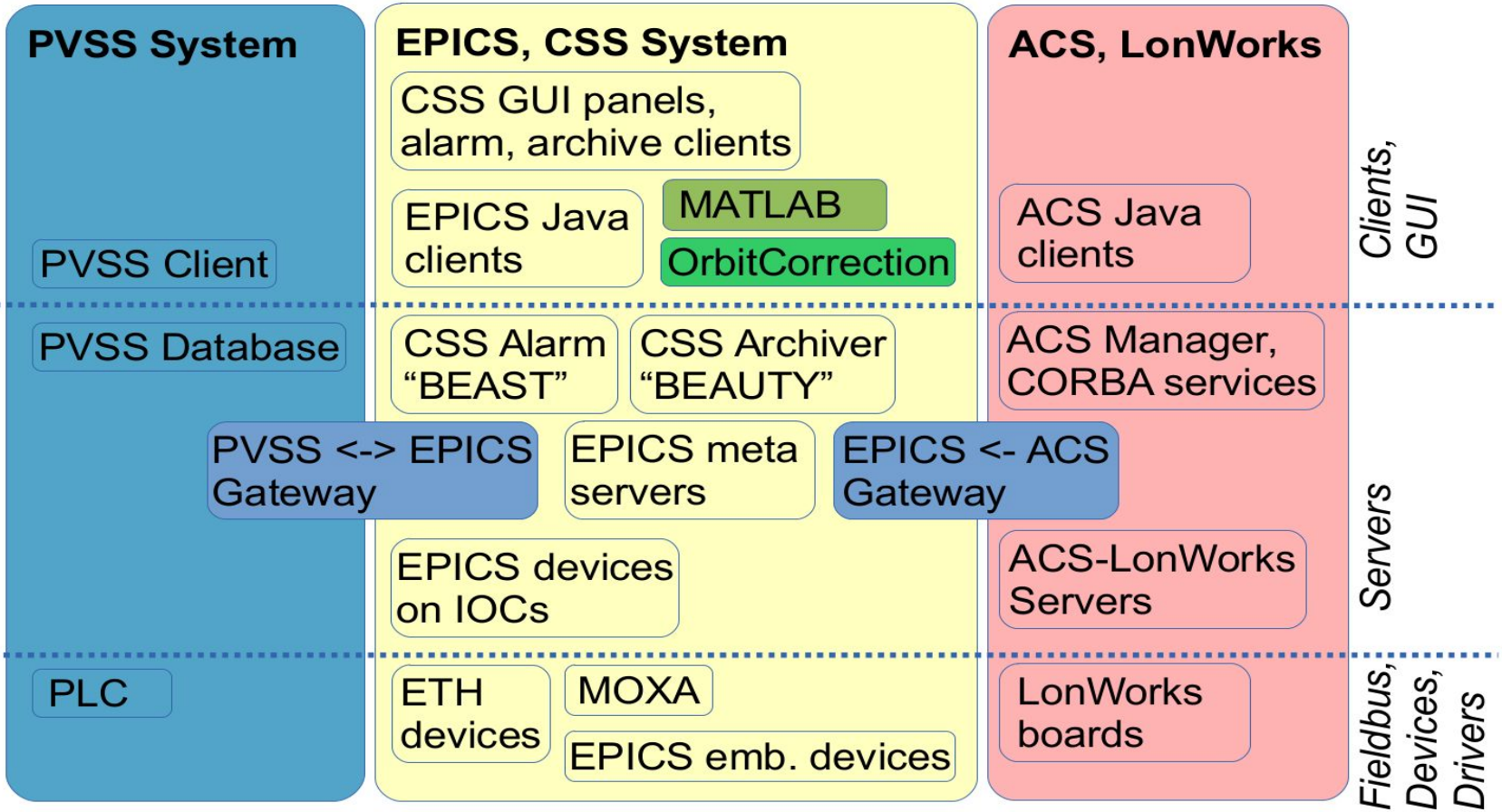
Introduction

- Situation in development, ongoing machine upgrade efforts



Operation Considerations

- No full-time operators, they primary work in engineering and technical support
- Operators are active in control room during injection time twice a day for approx. one hour in the morning and one in the evening
- Individual operator active time about 10 hours in two months
- Intuitive, simplistic, predictable, standardized GUI design
- Long period in which changes are accepted
  - Reluctance to accept changes (each time something new for individual operator)
- Mostly Windows users of various computing skill level
  - Operators computers almost exclusively run Windows, in classical mode
- Influences priority in tools development and design choices how panels are presented
  - Common Launcher, Distribution bundles, CSS Panels

The Common Launcher

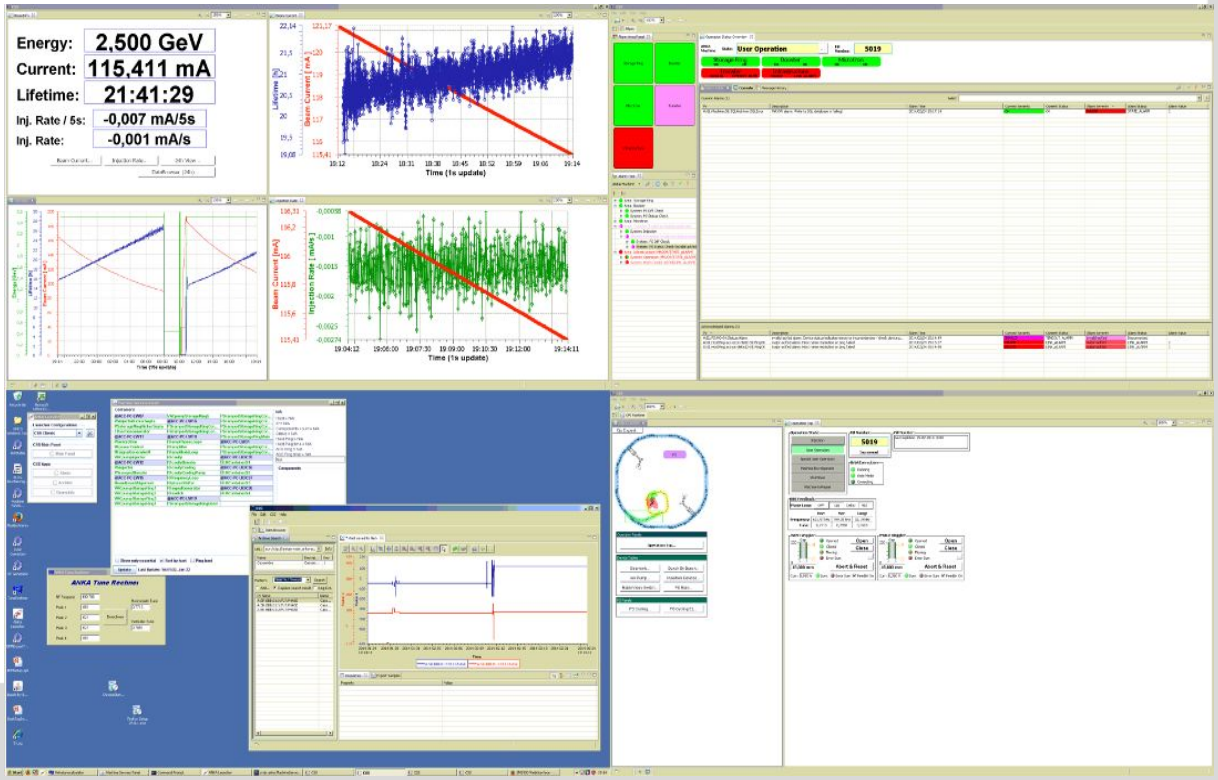
- Entry point for starting control applications
  - Convenient directory for official applications, script
- Standalone, configurable, runs from icon on desktop
- Group of shortcuts organized in “Configurations”
  - Configured in own XML file
- Shortcut configures in XML
  - Execute local executable
  - Execute remote executable over SSH
  - Locally opens remote X11 window
    - Needs local X11 server (e.g. Exceed)
  - Configurable Icon, label, description (EN and DE), conformation pop-up, exit code conformation, further grouping
- Opens local CS applications (Java,CSS), open remote Linux applications (Matlab,EDM), start/stop Linux servers, open VNC clients.

Software Distribution Bundle

- “Only two” OS: Windows and Linux
  - lib versions, Java versions, compiler versions, standard software packages, new graphical card bugs, new desktop managers
- Distribution bundles with well controlled execution environment
  - libs, executables, resource files, executional configurations
  - Distribution channels in Subversion
    - distribution tools, version control with logging, rollback
    - Mostly one-way commit&update procedure, only one local base copy
  - Channels/bundles: Servers, ACS clients, PVSS, CSS clients (ANKA-Clients)
- Mains ANKA-Clients bundle
  - Common Launcher, CSS main panels, Alarming (CSS) panel, Archiving (CSS) panel, CSS Development, BeanInfo, special CSS panels
    - Own Workspace for each CSS shortcut
    - For production CSS instances Workspace is reverted to template
  - Two branches in SVN: main (production), work (development)

Panel Development Guidelines

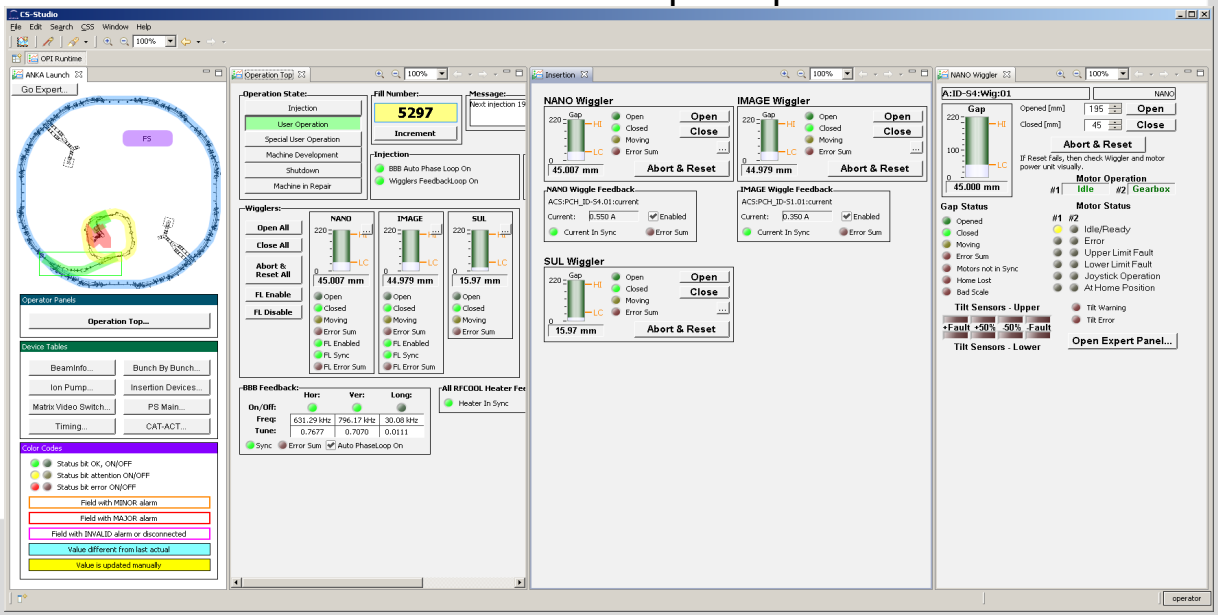
- Two distinct user types
  - **Machine operators**: a stable and a predictable environment, go through an reliable procedure which should give a reproducible end result.
  - **Experts and scientists** (students): vague procedures, all options open and tools available, tools or procedures during work, not used again.
- As consequence...
  - Different panels or sets of panels of the same application or device
  - operation oriented panel organization in CSS
  - Standardized components and tools for same kind of devices



Main CSS Application Panels

- One CSS application instance per computer screen, full-screen mode, applications/tools/device panels in tabs.
- Hierarchy
  - panel launcher
    - two modes: operator and expert
  - process oriented
    - Top panel
    - Widgets in Top.opi

      ...
  - ...
  - overview oriented
    - Groups and tables of devices
    - Widgets in Row.opi or Overview.opi
  - device details panel
    - operator friendly
      - Operator.opi
    - Expert... button
      - Expert.opi



Standardized Device GUI Elements

- Standardized GUI components for same type of device or operations
  - device model, actual capabilities might be vary, but they are same from operation perspective
  - require standard PV names
- Channel (PV) Naming Convention
  - `<Domain>:<Location>:<Device Type>:<[<Name>-]Number>:<Property>`
- Device Type Convention
  - Devices of same type displayed in same widgets and OPI files, device prefix of PV delivered with macro
  - Common, mandatory for all
    - `<Prefix>:Status:ErrorSum`
    - Status LED, Alarm system
  - General recommendations:
    - `:Cmd:` commands (pref:Cmd:On, pref:Cmd:Off)
    - `:Info:` information about the device. (pref:Info:IDN)
    - `:Status:` status of the device (pref:Status:ErrorSum)
  - Device Type Mandatory
    - Example Wiggler: Cmd:Abort , Cmd:Close, Cmd:Open, Info:Beamline, Position:Closed, Position:Open, Position:Setpoint, Position:Readback, Status:Closed, Status:Moving, Status:Open

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Thank you for your attention!

Any questions?