Light-weight Web-based Control Applications with the Web2cToolkit

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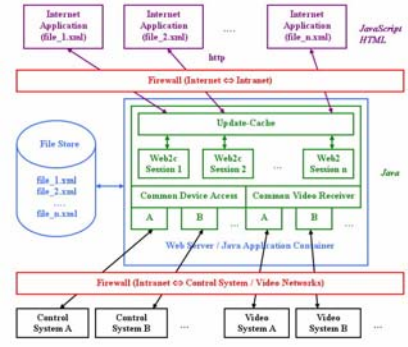
Web2c Overview

- **Web2c:**
  - Acronym for **Web**-based **c**ontrols **c**lient
  - Framework for internet control system applications
- **General features:**
  - Browser-hosted, interactive, graphical
  - User-friendly look-and-feel
  - OS platform independent
  - Runs without additional specific software installation
  - Secure user authentication and authorization
  - Access allowed from everywhere if not explicitly restricted, no firewall constraints
  - Common device access (live and archived data) interface for various accelerator control systems
  - Common video receiver interface for various video transmitting standards
- **Implemented tools:**
  - Synoptic display viewer **(Web2c)**
  - Graphical synoptic display editor **(Web2cEditor)**
  - Archive viewer **(Web2cArchiveViewer)**

Web2c System Architecture

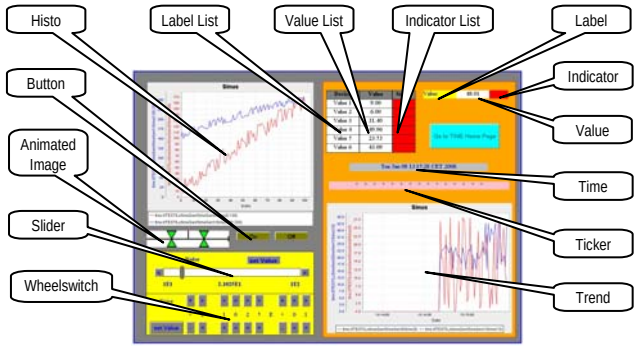
- **Client:**
  - Dynamic Web page, runs in web browser
  - Contains only HTML tags and JavaScript code snippets
  - Compatible with all major browsers (including mobile versions)
  - Asynchronous communication with web application server (Java servlet) via XMLHttpRequest / XMLHTTP method, no page re-load
  - MD5-encrypted password transmission
- **Server:**
  - Database-driven user sessions (.xml)
  - Multi-user session management
  - Update cache with n to 1 mapping
  - User name registry



- **Interfaces:**
  - **Accelerator control systems:**
    - TINE
    - DOOCS
    - TANGO (via DOOCS)
    - EPICS (via DOOCS)
  - **Video systems (protocol / format):**
    - rtp / jpeg
    - TINE / jpeg

Web2c Synoptic Display Viewer

- **Features:**
  - Configurable data update interval (typically 1 - 3s)
  - Access restriction (optional)
    - IP number specific
    - user role specific
  - Multi-language support
  - Supports different user roles (layman, expert and supervisor)
  - Automatic reconnect after server restart
- **Implemented GUI widgets:**
  - Web2cSection
  - Web2cEmbeddedPage
  - Web2cLabel
  - Web2cLabelList
  - Web2cValue
  - Web2cValueList
  - Web2cIndicator
  - Web2cIndicatorList
  - Web2cText
  - Web2cTextList
  - Web2cImage
  - Web2cAnimatedImage
  - Web2cButton
  - Web2cSlider
  - Web2cWheelSwitch
  - Web2cInput
  - Web2cTicker
  - Web2cTime
  - Web2cTrend
  - Web2cHisto
  - Web2cVideo
  - Web2cChat



Web2c Synoptic Display Editor

- **Features:**
  - Browser-hosted
  - Page preview
  - Simple input consistency check
  - Magnification option of design frame (200%)

Web2c Archive Viewer

- **Features:**
  - Browser-hosted
  - Configurable channel lists
  - On-line zoom option
  - Multi-line plots
  - Plot types:
    - Linear y-scale
    - Logarithmic y-scale
    - Gantt-chart like

http://web2ctoolkit.desy.de