ACSys in a Box;

un-scaling the Fermilab Control System for standalone operation enabling collaboration and future enhancements.

Charlie Briegel
Fermilab Controls
Brian Hendricks, Charlie King, Rich Neswold, Dennis Nicklaus, Denise Finstrom, Sharon Lackey, Bill Marsh, Jim Patrick, Andrey Petrov, Carl Schumann, Jim Smedinghoff

Project X Control System Requirements

Susan Gysin, et. al. 1/14/2008

Chapter 7

Controls In A Box

"As prevously, stated, the Control System needs to scale to a large user community and a million properties. However, there is also a need for the control system to be available on a small scale for one user or a small group of users to test a small number of instruments in a relatively informal setting. We refer to this small control system as Controls In A Box."

Overview

- Control System Features
- ACSys in a Box Implementation
- ACSys Evolution
- ACSys Development
- Controls Seminars

Control System Features
(opinion)

- Operations-Centric

- Layered Protocols
- Layered Interface
- Layered Errors
- Middleware

- Device Properties/Attributes
- Client Defined Data Acquisition
  - Time (event, state, frequency, delay)
  - Length
  - Offset
- Data Errors
- Correlated Data (event number, time stamp)
- Track Settings

- Special Data
  - Real Time KHz
  - Snapshots MHz
  - Structured
- Alarms
  - Digital/Analog/Events
  - Unsolicited Announcement
  - Client Specified Notification
  - Multiple Alarm Limits

- Applications
  - C/C++
  - JAVA
- Frameworks
  - Front End
  - Client

ACSys in a Box

Accelerator Control System in a Box

Collaboration
Software and Hardware Development
Stand-alone

Not trying to be all things for all facilities (people)
Better than an Engineer with a scope on a Segway
LCD solution

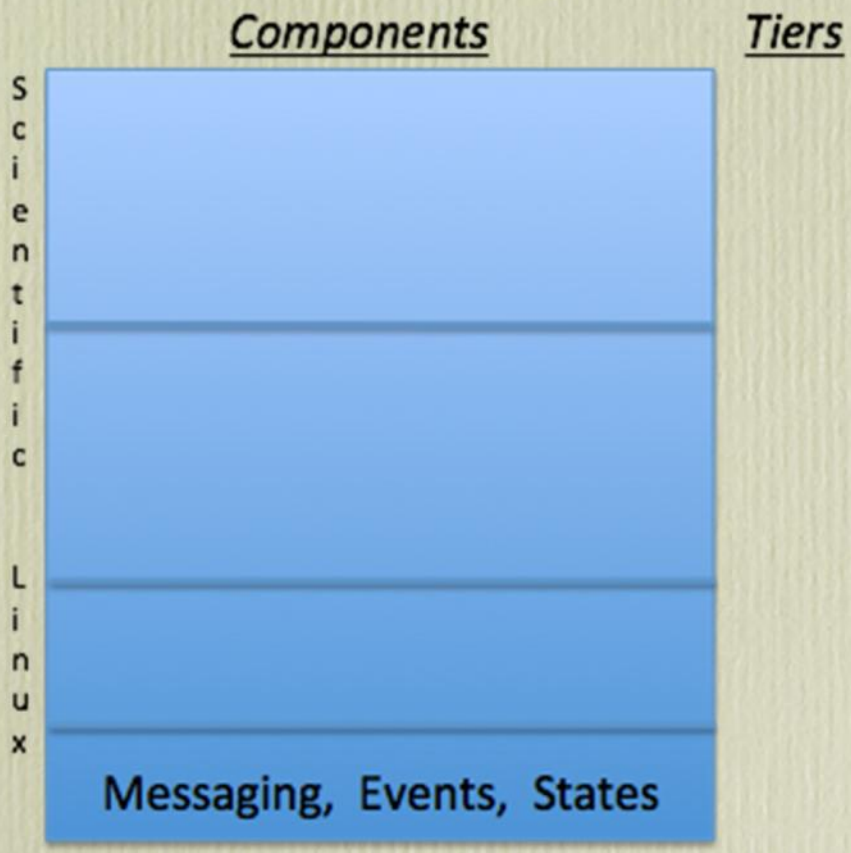
Full-featured Solution


SC-813


DELL
DELL
116920
Microsoft

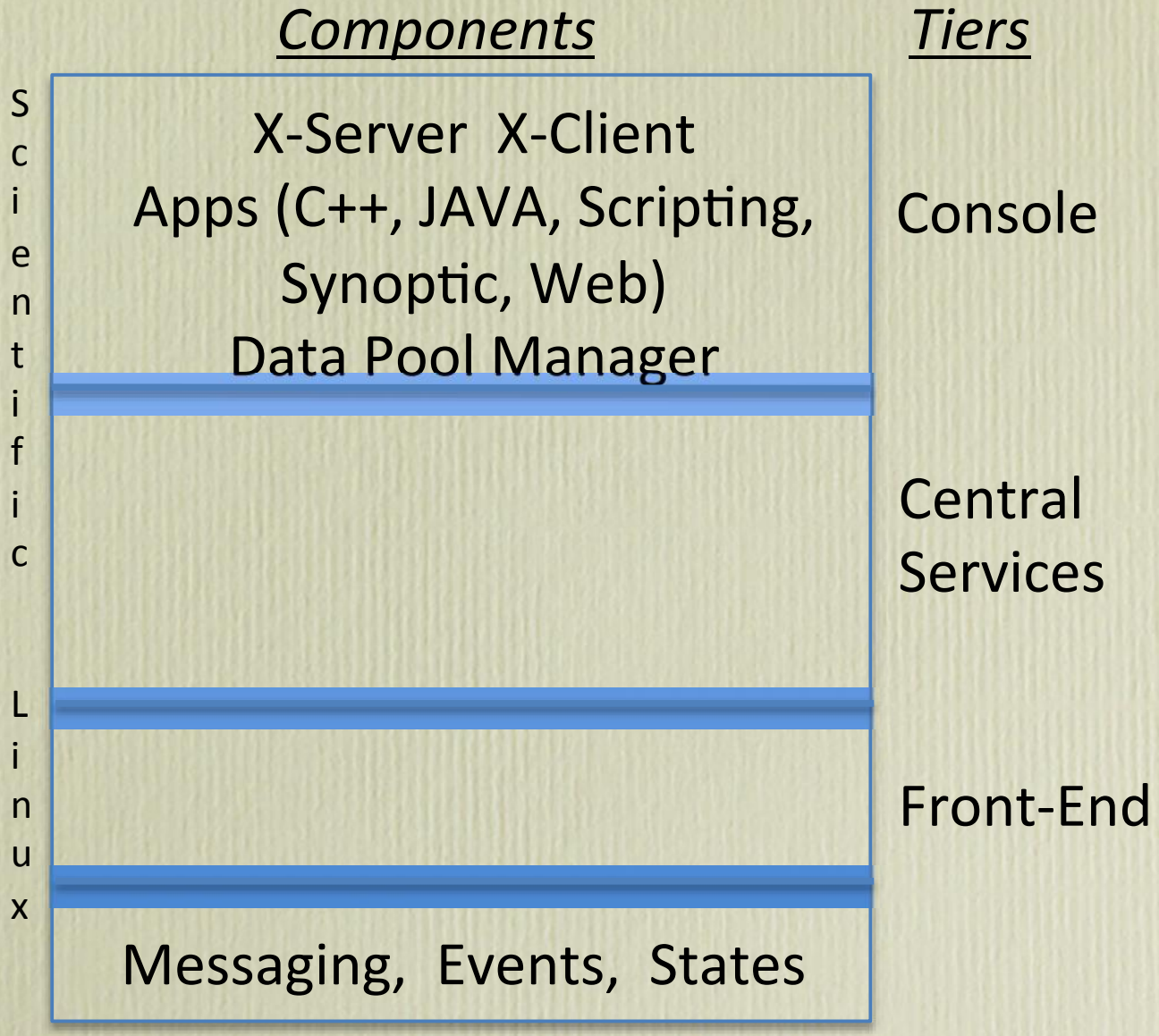
ACSys

(Accelerator Control System)

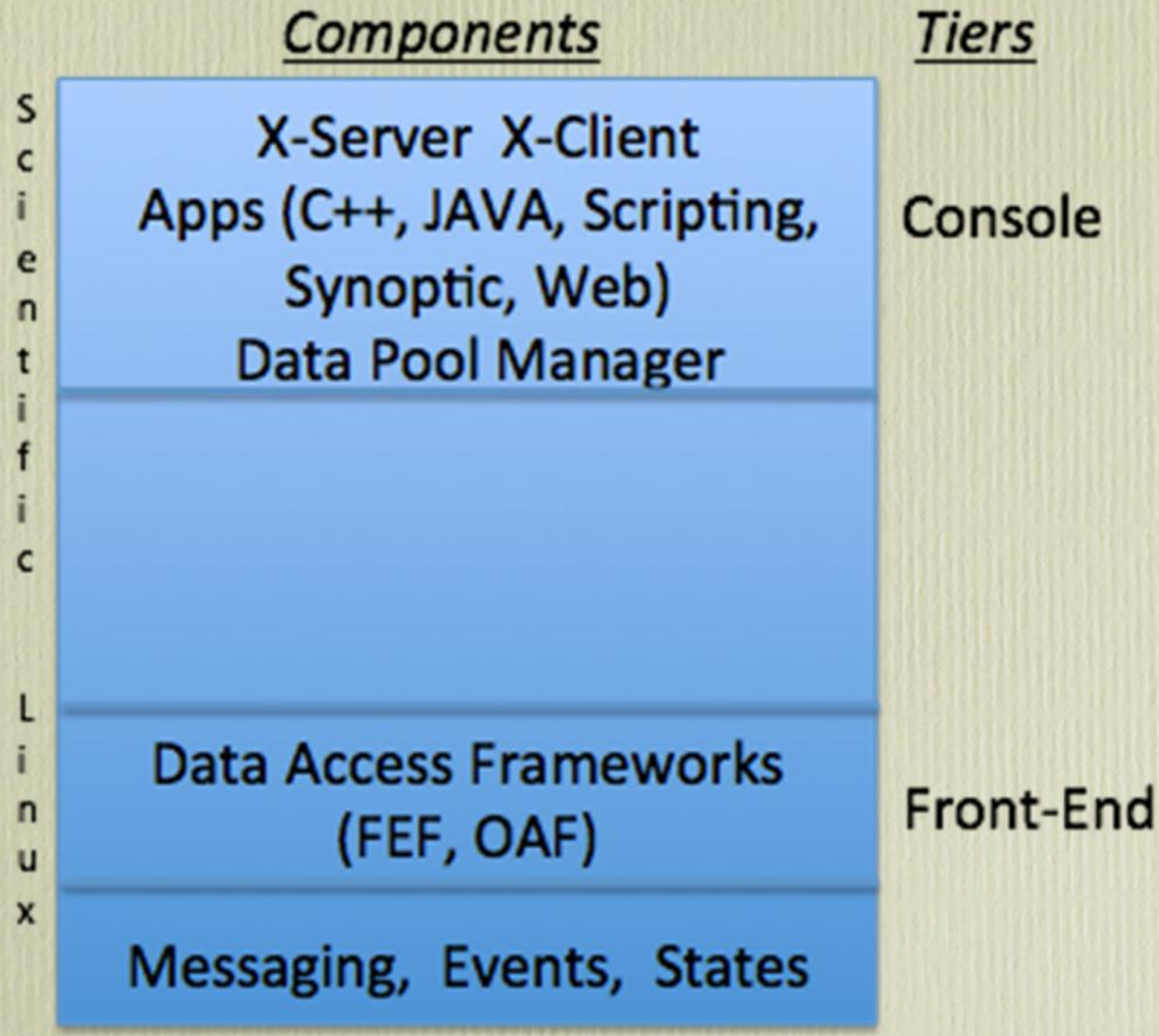


ACSys

(Accelerator Control System)

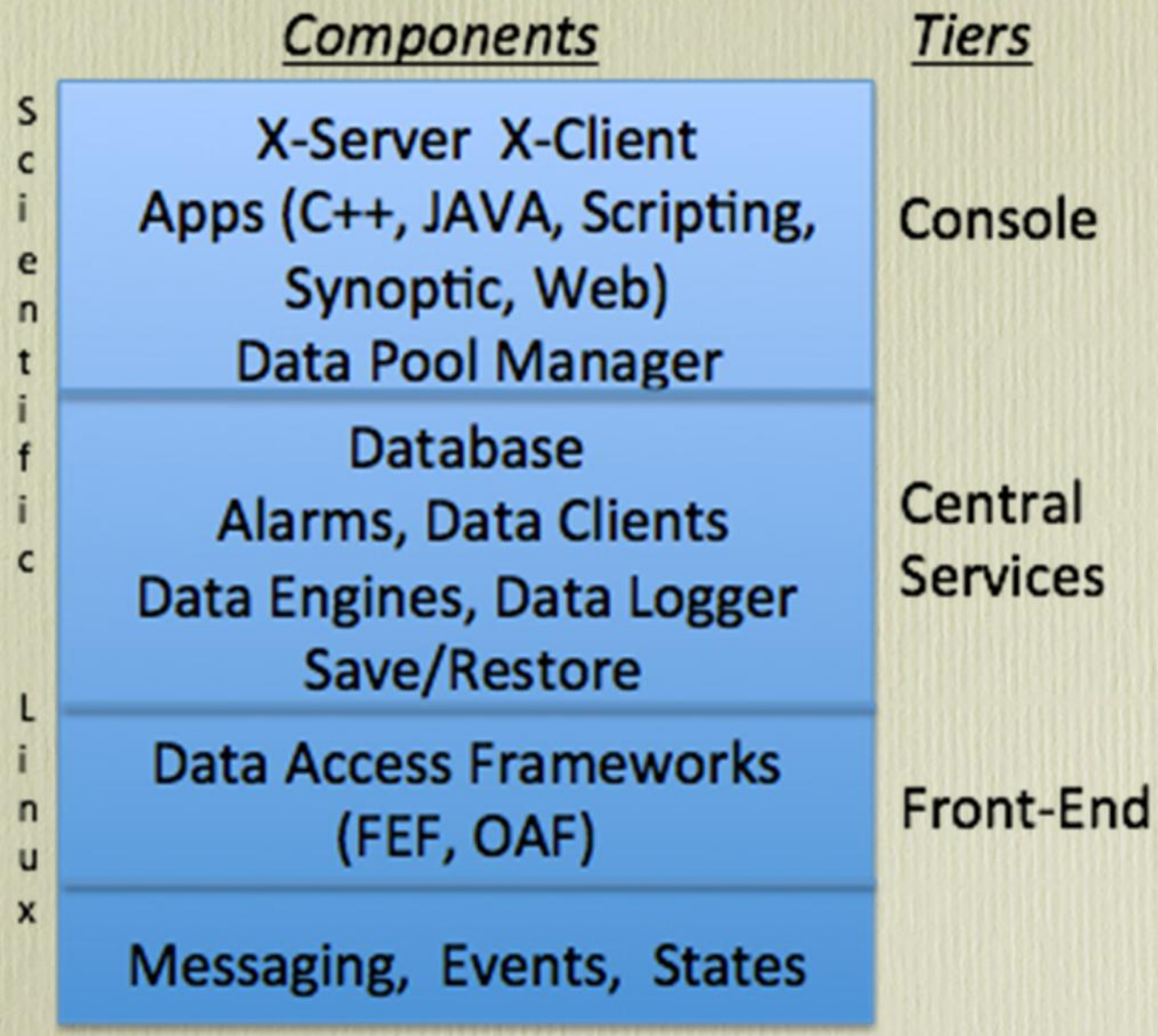


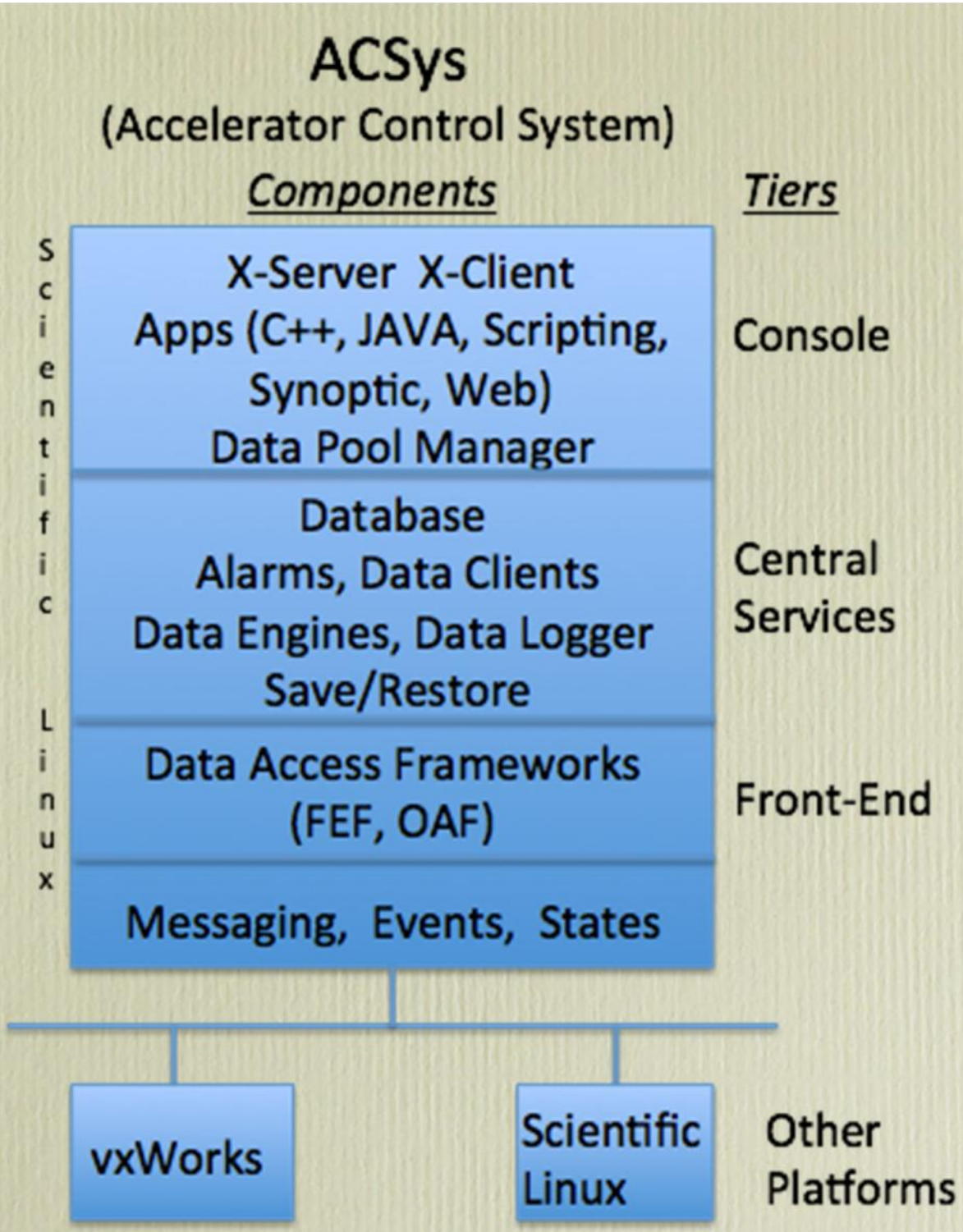
ACSys
(Accelerator Control System)



ACSys

(Accelerator Control System)




ACSys
(Accelerator Control System)
Components
Tiers
Scientific Linux
X-Server X-Client
Apps (C++, JAVA, Scripting,
Synoptic, Web)
Data Pool Manager
Console
Database
Alarms, Data Clients
Data Engines, Data Logger
Save/Restore
Central
Services
Data Access Frameworks
(FEF, OAF)
Front-End
Messaging, Events, States
vxWorks
Scientific
Linux
Other
Platforms

ACSys Evolution

- Packaging
- Documentation
- Facilities/Users
- Developers

ACSys Development

- Data Pool Manager
- Lite Client Server
- Front End Framework
- Database
- GUI
- NoVA Slow Controls

Controls Seminars

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- Targeting Technical Users
- Talks
  - Synoptic – Andrey Petrov
  - ACL (Accelerator Control Language) – Brian Hendricks
  - FEF (Front End Framework) – Dennis Nicklaus

DEMO