Virtual Advanced Power Training Environments

2012 Crosscutting Research Kickoff and Review Meeting

Goals - FY2012

December 31	Initial integration of an open source process simulator
September 30	Demonstrate the integration of the open source simulator with a simplified energy system.

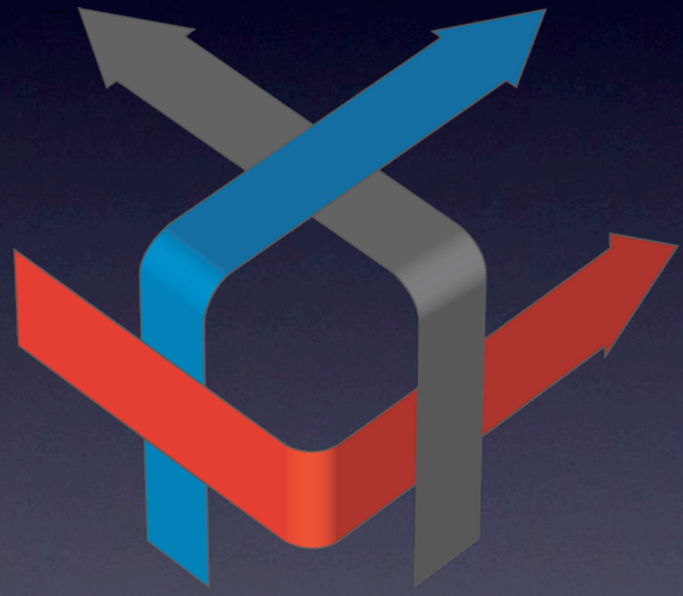
Accomplishments

Release of VE-PSI v3.0

Use of tools for the Hyper project

Support of internal NETL projects

Use of tools in the SBEUC facility



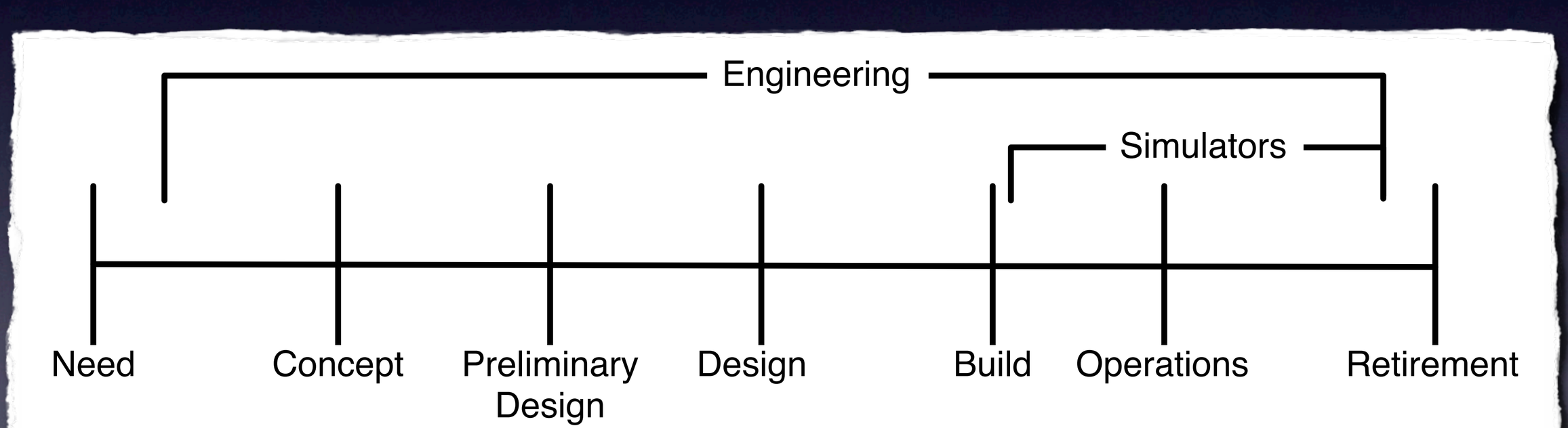
VE-PSI v3.0

Process Simulator Interface

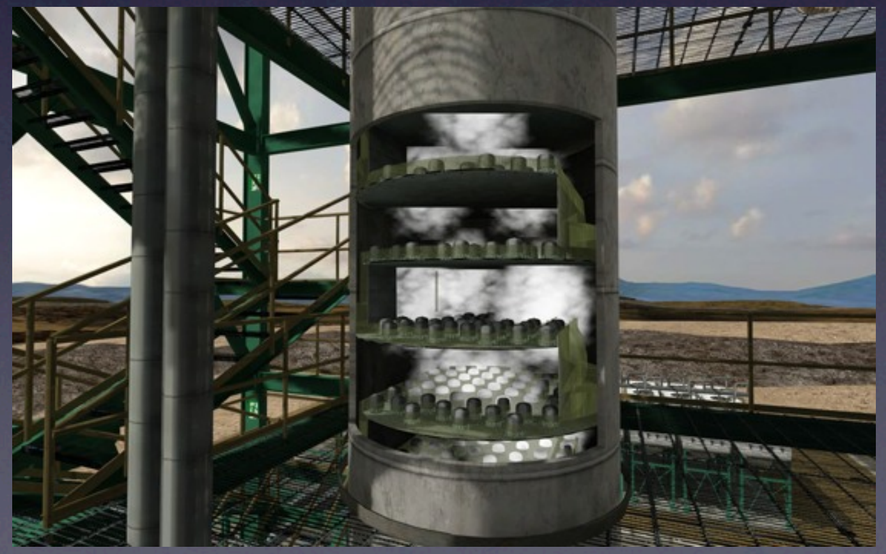
Rapid content creation

- Rapid creation of engineering and design environments
- Software tools to enable integration of graphics, simulation, and sensors and control data
- Track design project from birth to physical plant

Timeline


Engineering
Simulators
Need
Concept
Preliminary Design
Design
Build
Operations
Retirement

Simulators...



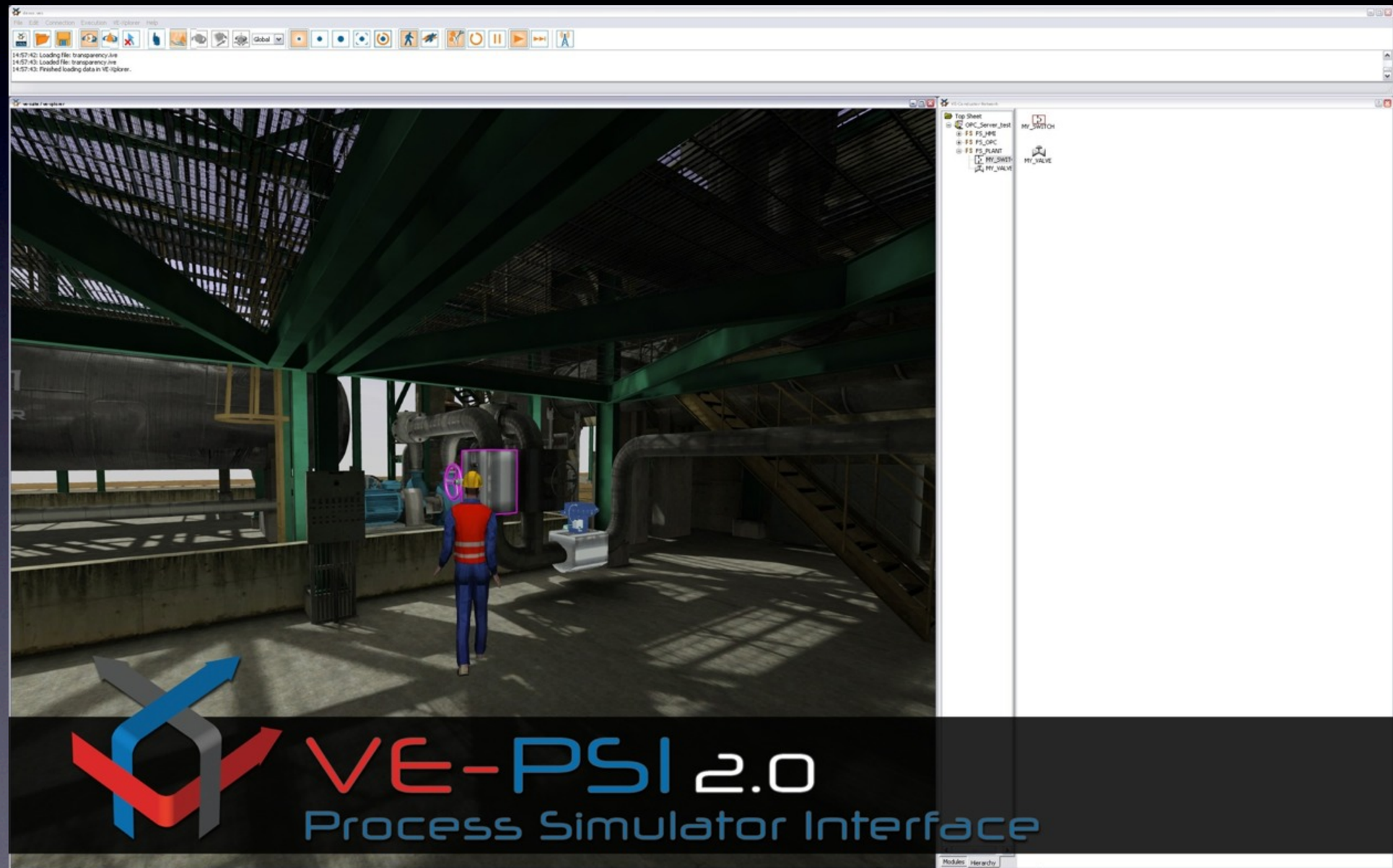
Photos courtesy of NETL

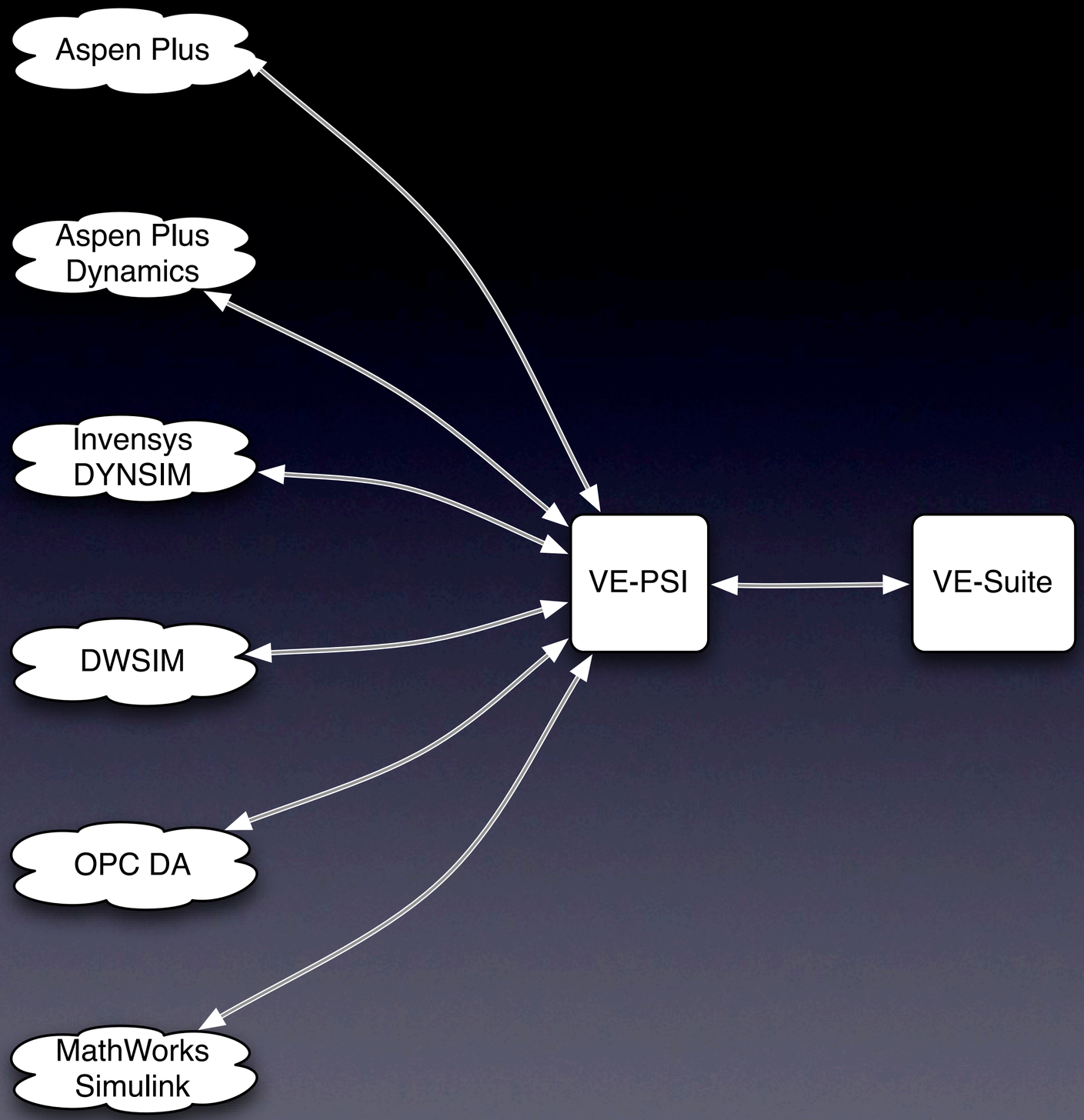
...and design tools

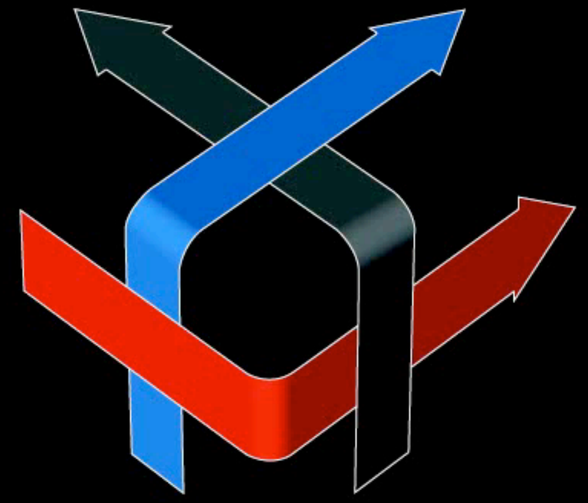
You cannot engineer it
unless you can see it

What is VE-PSI?

Interface between ves and process simulators and streaming data




Aspen Plus
Aspen Plus Dynamics
Invensys DYNSIM
DWSIM
OPC DA
MathWorks Simulink
VE-PSI
VE-Suite



VE-PSI v2.0

Process Simulator Interface

NETL

THE Ames Laboratory

Creating Materials & Energy Solutions

U.S. DEPARTMENT OF ENERGY

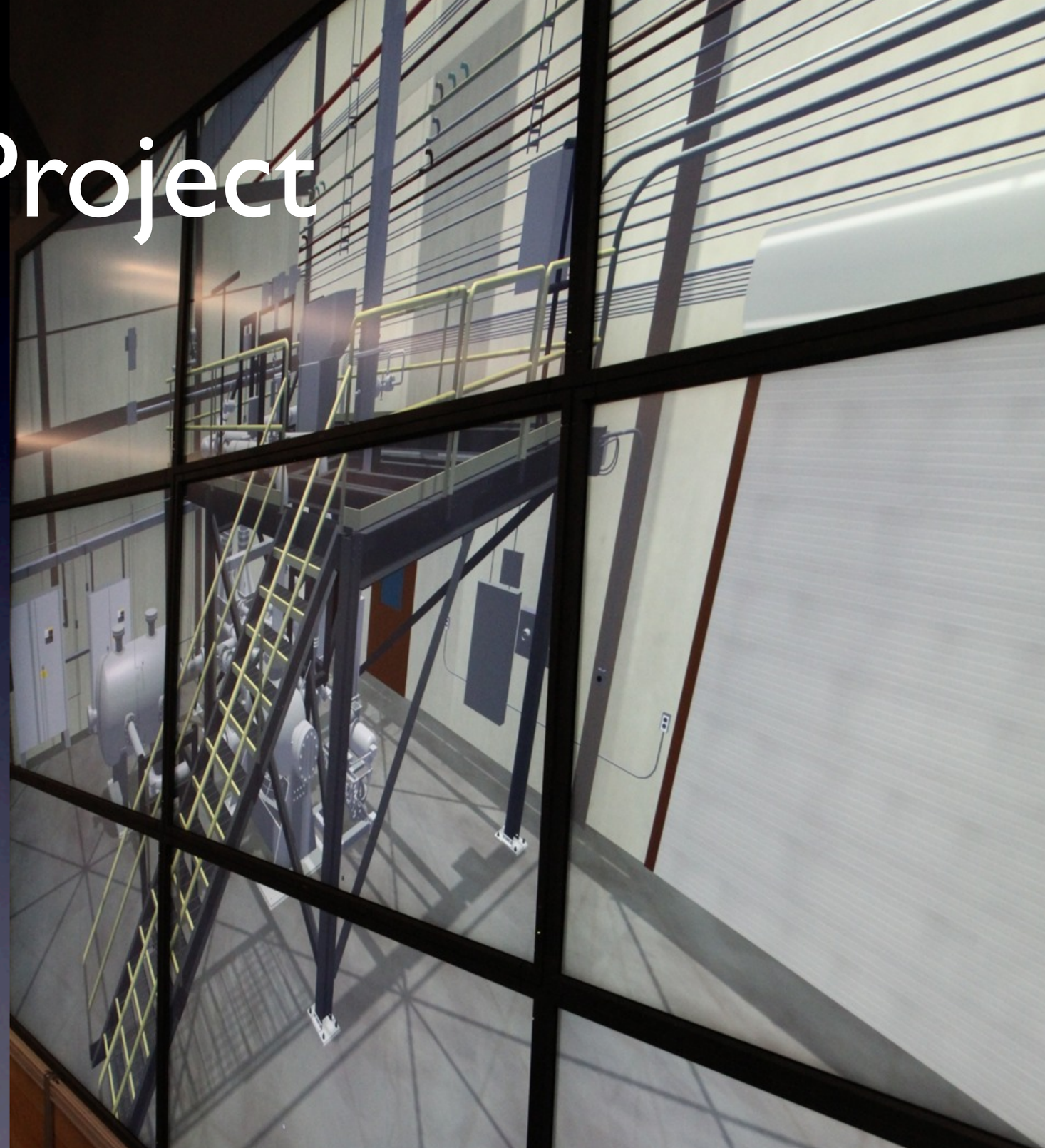
Hyper Lab Project

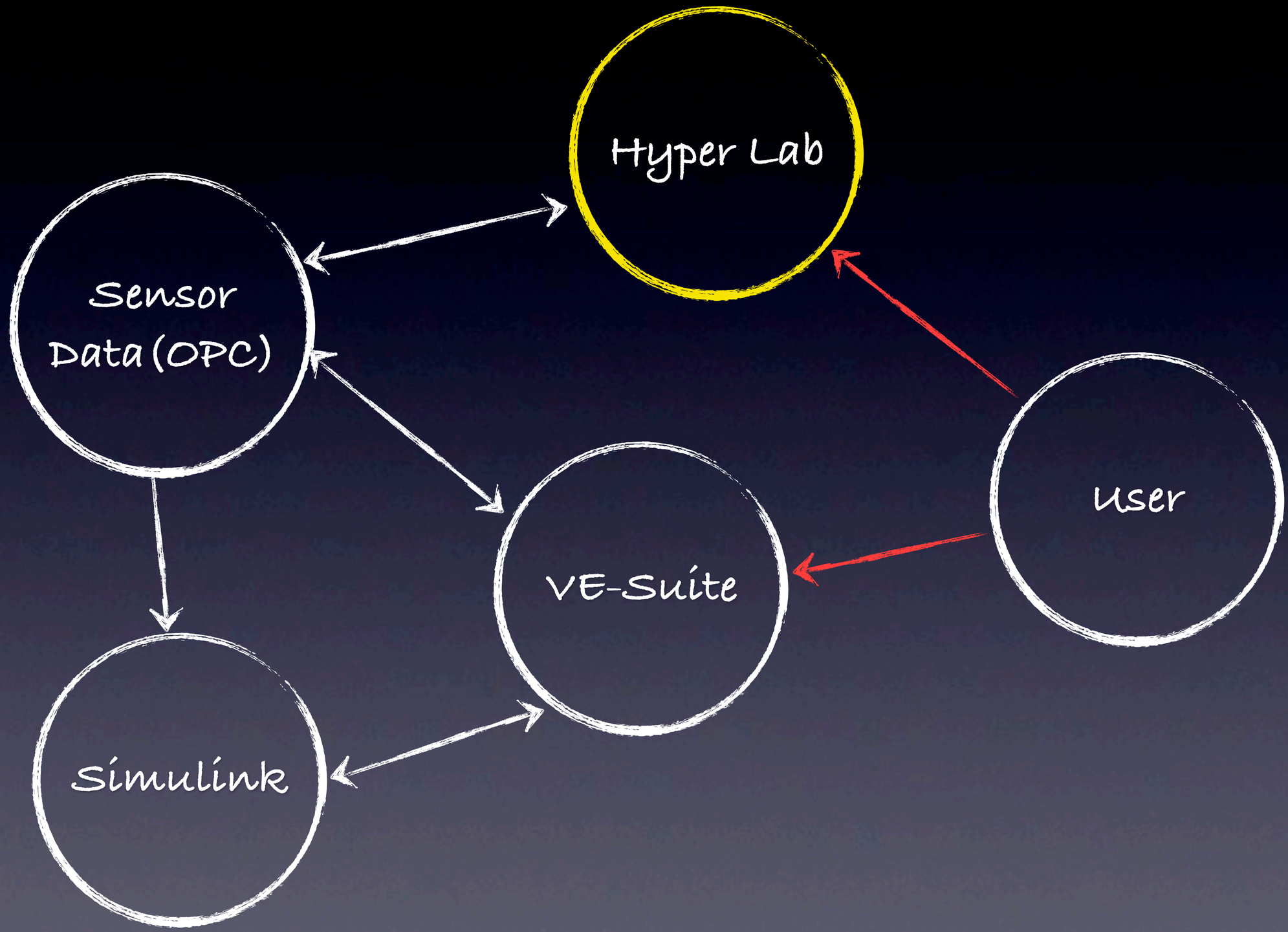
As built 3D geometry

Sensor data - OPC DA

Control - OPC DA

Simulation data - Simulink




Hyper Lab
Sensor
Data (OPC)
VE-Suite
user
simulink

Future...

- Tools to enable the rapid development of merged environments through the use of models, sensor data, and test hardware
- Tools to handle the real-time storage, retrieval, and interaction with the volumes of data coming from these merged environments
- Provide new avenues for data integration

Questions?