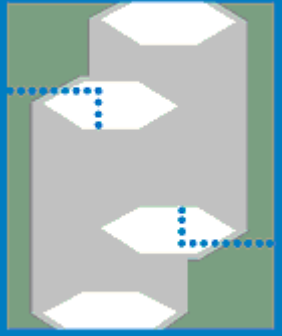


C A P E



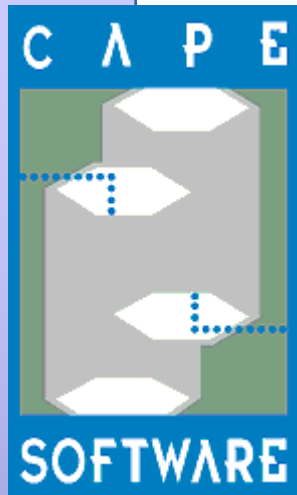
SOFTWARE

A collage of images related to industrial processes and virtual simulation, including a green field with white circles, a glowing industrial structure, a person at a control panel, and various industrial equipment.

# *The Virtual Process Overview and Applications*

Cape Software Inc.

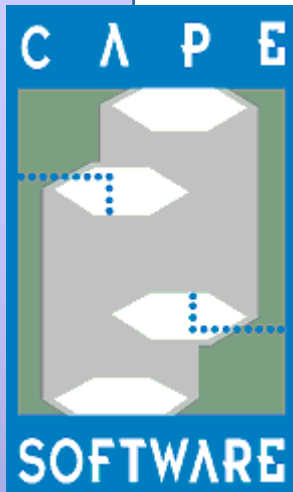
Houston TX



## *What is VPLink ?*

- A **representation** of the process **inputs** to an **offline control system**
- What does VP Link do?
  - **Read** control system **outputs**
  - **Calculate** the Virtual Process State – ie, Process Model
  - **Write values** for Process Variables
  - **Offer GUI** for engineer or instructor to present scenarios such as equipment fault, process upset, or transmitter drift (failure)





## *Some of our customers...*

**BASF** – many plants across several sites W/W

**GE Fanuc**–Europe

**Eastman** – several systems within Kingsport, TN

**Air Products & Chemicals** – several systems W/W

**ConocoPhillips** –San Francisco,CA

**Phillips Refining** – Several Sites Licenses



**Lubrizol** – several licenses within Deer Park, TX

**BP** – several licenses Worldwide

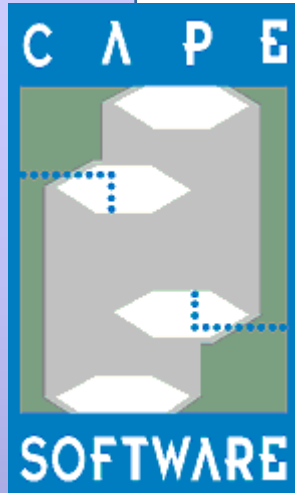
**Shell Deepwater / Shell Chemicals,UK**

**Eli Lilly** – Corporate licensing

**Genentech** – several licenses at different sites

**General Mills** – W/W licensing

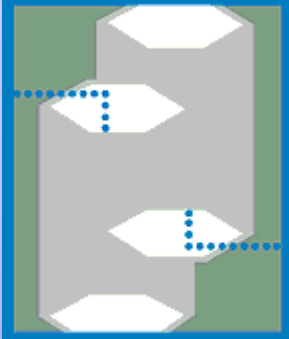
**Tetrapak** - several sites worldwide



## *Some Supported Systems*

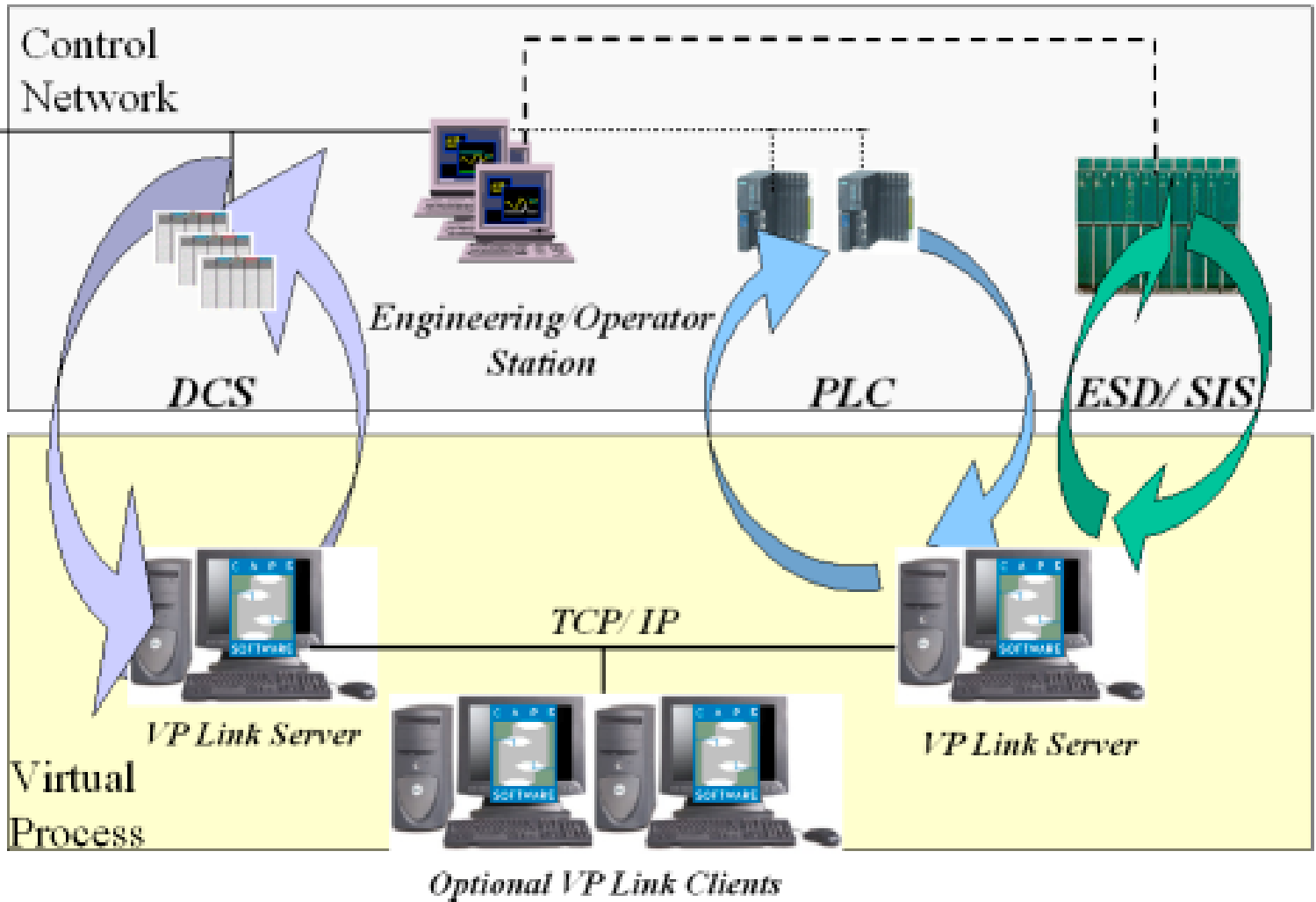
- GE Fanuc 90xx/ Machine Edition
- Triconex:Tricon/Trident
- Siemens Quadlog
- Foxboro I/A,Archestra
- Honeywell Plantscape / Rockwell ProcessLogix
- Honeywell TPS Honeywell FSC,PKS
- A-B PLC5/SLC500,CLX, Modicon,Siemens-Ti 505
- Emerson DeltaV,PROVOX
- Siemens APACS, PCS7, S7
- Yokogawa CS3000/R3/ ProSafe
- Etc...

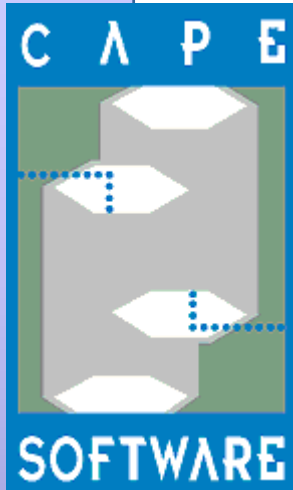
C A P E



SOFTWARE

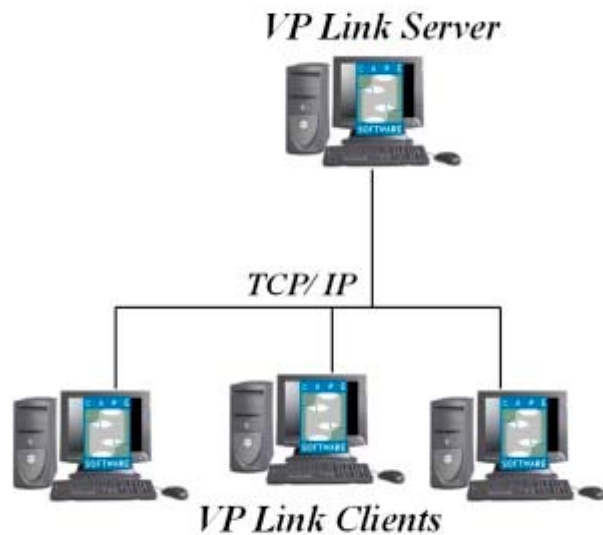
# VP LINK 3.0 Sample Network





# *Different Architectures for different Applications*

## **Staging Floor Setup**

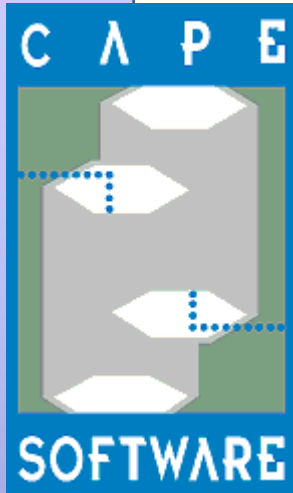


Several engineers share a simulation during FAT

## **Training Setup**



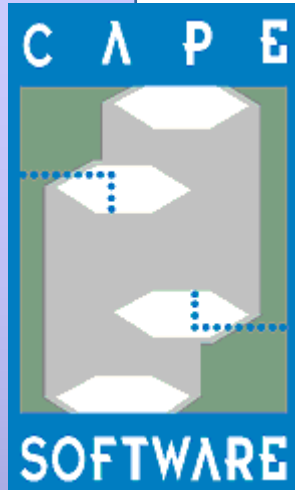
Several Operators are trained using parallel simulation servers



## *VP Link Advantages*

- **Safer**, off the critical path, many more events can be **examined without damage** to actual equipment
- **No I/O required**, no wiring necessary, eliminate panel devices.
- **Easy to create** scenarios and/or automate the model  
→ Valuable for repeated testing (**Off Line Test Bed**)
- **No changes to logic**, ie, test code which will execute in the field – fits **FDA and ESD** needs in particular
- **Flexible environment** specifically designed to create process response models and complete validation
- **Minimal** implementation time
- Improved Test quality ( “**6  $\sigma$** ” objectives)

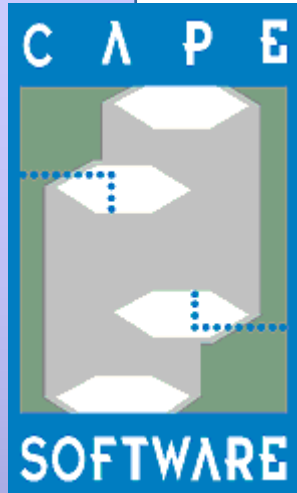




## *VP Link 3.0*

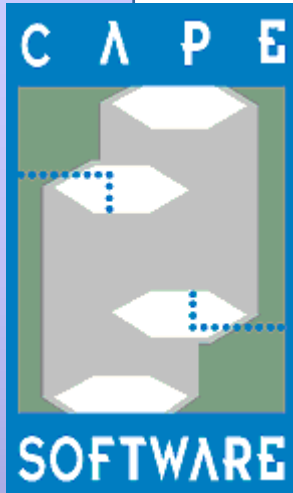
### *5 steps to simulation*

- Extract the I/O image, using built-in platform specific tools
- Import the image in VP Link
- Model the process, using loop templates, algorithms and CalcBlock
- Write tag based failure scenarios
- Connect to Controller(s)



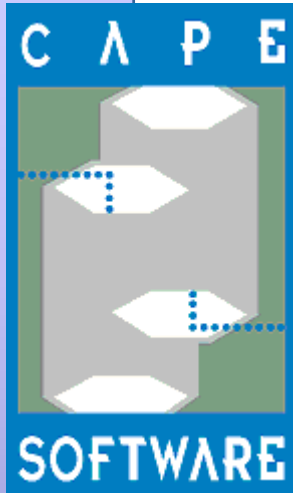
## *VP Link Specifics for GE PLCs interface*

- Fast TCP-IP, Ethernet based interface
- Robust OPC based connectivity for machine edition platform
- Automated scripts to generate simulation database from PLC project file



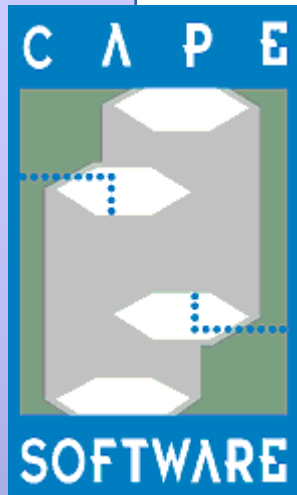
## *I - Logic Validation*

- **Graphics** verification
- **Logic** checkout
- **Automate** repetitive testing task (ie resets etc...)
- Facilitate Testing with practical graphics
- **Interlock** schedule approval
- **Mapping** to DCS and interaction between DCS/PLC logic ( gateway points tests)
- Thoroughly debug prior to online download, ie, **Management of Change** and periodical testing
- Available *Test Compiler* complies with **IEC61508/61511**

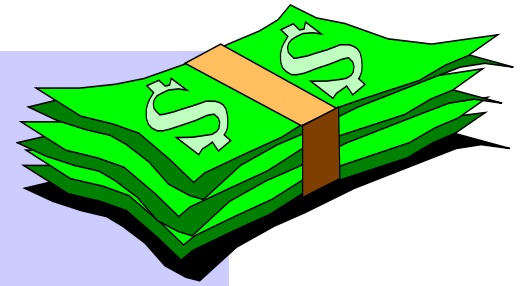


## *II-Operator Training*

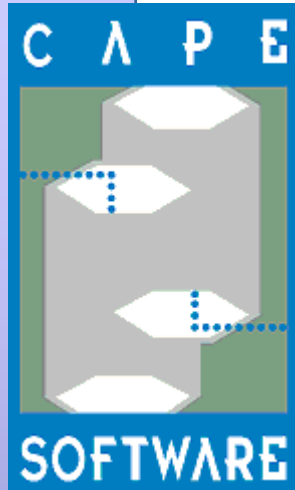
- **Familiarize** staff with HMI, Overlays, Navigation, Alarm Pages, Trend Displays
- **Exercise Startup / Shutdown** Procedures
- **Test Emergency** Responses to Faults / **Malfunctions / Upsets** (Real or Instrumentation)
- Refresher Training or Re-certification
- **Track** trainee's **proficiency** (**Scoring Engine**)
- **Knowledge Transfer** Tool



## *Resulting In...*



- **Reduced start-up time**, due to thorough off-line testing of start-up logic.
- **Reduced down time**, due to on-going logic testing
- **Reduced Factory Acceptance Test Time**
- **Reduced Risk of Equipment Damage.**
- **Reduced Risk of Personnel Injury.**
- **Reduced Risk of Wasted Product.**
- **Reduced Risk of Environmental Release.**
- **Documented, Validating Operator Sessions Logs**



## *Conclusion*

- VPLink solves simulation needs from **simple to sophisticated** modeling.
- Scenario Manager makes it **easy to** generate Failure scenarios for Operator Training.
- Modeling environment is **flexible, easy to learn and maintain**
- **Cost Effective** simulation package, for **OTS** And engineering **validation** needs
- **Cross platform** functionalites makes it an **evolutive investment**