The Virtual Process

CAPE Software Fall 2000

VPLink® Rave Reviews at I/A Users Conference

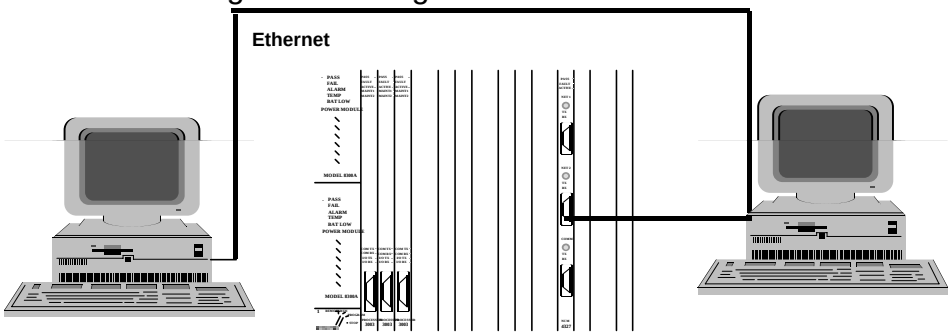
Thank you for your support, we are delighted by the feedback of our customers in the January 2000 Control Magazine Reader's Survey. Look for us to try harder in 2000 - we want to be the #1 supplier of simulation software to control system engineers.

Cape Software Automates Validation for ESD

These votes are more critical to our scorecard - before we become the most popular product, we want to be the best product. And providing first rate customer support is paramount here and we thank you for recognizing us. We will continue to improve our score.

TS1131 is connected to the Triconex system in the usual way.

VPLink passes values to the Triconex via TS1131, ie, VPLink is connected to the PC executing TS1131. Exact Download version is used during VPLink's logic validation and test scenarios.



VPLink Model and Validation Scenarios

Tricon System

Only one processor required for testing in addition to the NCM.

TS1131 executes while connected to system.

VPLink® Solves Triconex® Simulation Needs Using WindowsNT Interface

Cape has delivered solutions to plant sites implementing Triconex Systems for several years. What's new is the NT interface to TS1131. What's crucial to Triconex customers is that the program tested is the exact download as the program running in the field. VPLink delivers on this requirement. VPLink writes input values to the Tricon processor and validates the logic of the exact download running the plant.

Supported Systems

Honeywell FSC
Moore APACS
Foxboro I/A Series Systems
Honeywell TPS
Triconex
Honeywell Plantscape
Allen Bradley PLC5& SLC500
Siemens TI Series 5x5 PLC
GE Fanuc Series 6 and 90
Modicon 984 and Quantum
Rockwell Automation PLX
Rockwell Automation CLX
Bailey F&P System 6
ABB Mod300
Fisher Provox
ABB IMS Advant
Fisher - Rosemount DeltaV

Cape Welcomes ...

Union Carbide Corporation - Wilton, UK
Iron Ore of Canada - Labrador City
Bechtel - Houston, TX
James Mangan Associates -
Texaco - Bakersfield, CA
Dupont - Waynesboro, VA
BASF - Geismar, LA
Optimal - Kerteh, Malaysia
Los Alamos National Labs - NM
Wyeth Ayerst - Providence, RI
Ocean Spray - Bordentown, NJ
Unocal 76 - Kenai, AK
Kline Process Systems - Reading, PA
Hercules - W. Elizabeth, PA

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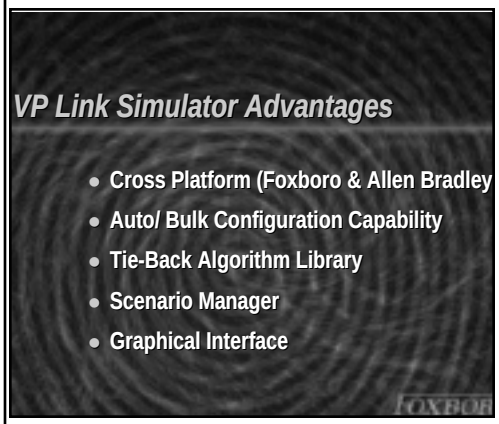
Call us for more information at: (713) 661-7100 (Sales); (281) 448-5177 (Tech Support); our fax number is (281) 448-2607. e-mail to : sales@capesoftware.com

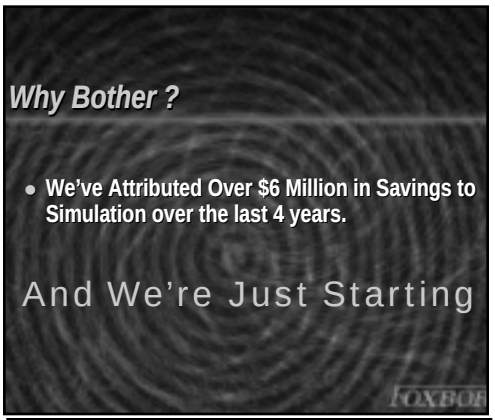
Visit our Web Site
http://www.capesoftware.com

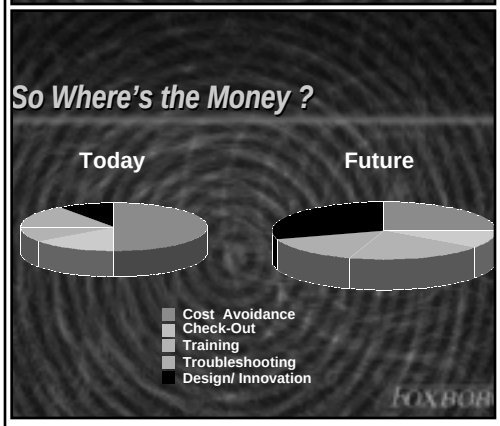
The Virtual Process newsletter is published for the benefit of friends and users of VP Link®. Edited by Michael Sullivan.

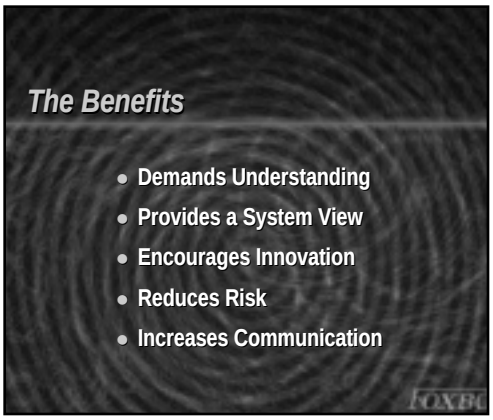
Technical Talk

During Foxboro's I/A User's Conference 2000, VPLink was showcased as the preferred simulation solution for I/A customers. Below is a summary of a presentation by Mal Beaverstock of General Mills describing some of the quantifiable benefits put to use within their plants worldwide applying VPLink.









General Mills is one of America's most admired companies. They do many things right. VPLink is used on their DCS as well as their PLC systems across the corporation. Many applications are hybrids: DCS performing regulatory control and higher level functions while PLC implements machine control and interlock logic. VPLink solves simulation needs across all major control platforms. For the complete PPT file, please contact Mike Sullivan at Cape Software. Additional reprints are available, let us know your control system of interest.

Case History... *VPLink Validation Procedure*

Cape Software has developed a methodology to ensure safety interlocks are functioning correctly prior to going online. This solution has been implemented during recent staging operations of several major chemical plants. Automation of cause and effect detection and documentation of results has enabled these plants to deliver the highest quality application software.

Test Descriptor	Test Algorithm
Initialize	1. Set INPUT 1 (PV_1) to Trip State 2. Set INPUT 2 (BP_BYP_1) and INPUT 3 (BP_NRM_1) to False 3. Set INPUT 3 True and then False 4. Confirm OUTPUT 1 (TRIP) and OUTPUT 2 (BYP_1) are False.
Bypass and Initiator Test	1. Set INPUT 1 (PV_1) to Safe State, confirm OUTPUT 1 (TRIP) goes to True. 2. Set INPUT 1 (PV_1) to Trip State, confirm OUTPUT 1 (TRIP) goes to false. 3. Set INPUT 2 (BP_BYP_1) to True, confirm OUTPUT 1 (TRIP) and OUTPUT 2 (BYP_1) go to True. 4. Set INPUT 2 (BP_BYP_1) to False, confirm OUTPUT 1 (TRIP) and OUTPUT 2 (BYP_1) stay True. 5. Set INPUT 1 (PV_1) to Safe State, confirm OUTPUT 1 (TRIP) and OUTPUT 2 (BYP_1) stay True. 6. Set INPUT 1 (PV_1) to Trip State and INPUT 3 (BP_NRM_1) to True, confirm OUTPUT 1 (TRIP) and OUTPUT 2 (BYP_1) change to false. 7. Set INPUT 3 (BP_NRM_1) to False, confirm OUTPUT 1 (TRIP) and OUTPUT 2 (BYP_1) stay False.

	A	B	C	D	E	F	G
3				tag/label	post delay	output1	output2
4			SCENARIO	initialize.sce			
5	Define output tagnames		OUTPUTS			OUTPUT_1	OUTPUT_2
6	Trip state is OFF		OFF	INPUT_1			
7	False is OFF		OFF	INPUT_2, INPUT_3			
8	True is ON		ON	INPUT_3	4		
9			OFF	INPUT_3			
10	make sure it worked		ASSERT			0	0
11	Read the output table and		END				
12	confirm the assertion						
13				tag/label	post delay	output1	output2
14			SCENARIO	BYPASS.sce			
15	Next Test		OUTPUTS			OUTPUT_1	OUTPUT_2
16	The Comment is inserted		COMMENT	"BEGIN BYPASS AND INITIATOR TEST"			
17	within the LOG file		ON	INPUT_1			
18			ASSERT			1	
19			OFF	INPUT_1			
20			ASSERT	INPUT_1		0	
21			ON	INPUT_2			
22			ASSERT			1	1
23			ON	INPUT_2			
24			ASSERT			1	1
25			OFF	INPUT_2			
26			ASSERT			1	1
27			ON	INPUT_1			
28			ASSERT			1	1
29			OFF	INPUT_1			
30			ON	INPUT_3			
31			ASSERT			0	0
32			END				

This example illustrates how your test plan can be implemented in an automated, documented, repeatable way. Above, your procedure is described in a WORD document. The algorithm prescribes how the logic could be manually validated; perhaps by a technician working at a hardware switch panel. VPLink's Test Compiler begins from an Excel spreadsheet - as shown to the left.

Comments are shown in ColumnA. In this simple example, the most commonly used functions are illustrated.

Note Well:

ON function performs two tasks: first the value of 1 is written to the processor, then the value within the processor is read back. That is, VPLink does not assume the Write was successful, rather, VPLink confirms that the Write was performed. Similar for OFF function.

Assert function not only compares the values within the output table to desired values, it documents the result within VPLink's Log File.

Plug in the Process...
...The Virtual Process

VPLink Solves Dynamic Simulation Needs for Engineers: Control System Validation and Software Verification and Operations: Board Level Certification for Console Operators.

Look Inside For:

Triconex Simulation Solution

ESD Validation Solution

Honeywell FSC

I/A User's Conference Technical Talk

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