

Stimulated Simulator System

Repair,
Replacement,
&
Automation
Services

Background

A stimulated simulator is integrated with the full-scope simulator to emulate Instrumentation and Control (I&C) systems installed in an online power plant. This simulator can be used for both operator and engineering training, for testing, as a live test facility, and to improve outage performance by closed-loop testing prior to installation.

Benefits

- Reduces the software effort required to emulate the I&C system
 - Controls maintenance costs associated with simulator upgrades—the software upgrade cost is minimized
 - Hardware modifications can be done in parallel with plant upgrades
 - Provides high-fidelity simulation by re-using actual system components and software
 - Provides absolute software reusability—identical to plants in both design intent and unintended features
 - Provides I&C time response consistent with the plant
 - Allows the simulator to be used for functional upgrade verification, control tuning, and operator training prior to introduction into the plant
 - Provides many benefits associated with its dual role as an engineering tool during initial project implementation
 - Allows open-loop or closed-loop testing of actual control/information system software, independent of the target hardware
 - Decouples hardware and software during production, allowing the two to proceed in parallel
 - Allows engineering test and vertical integration of software in a true system environment without incurring the cost/schedule impact of hardware signal injectors and input/output (I/O) gear attached to production equipment
 - Does not include software and hardware interfaces to physical plant I/O; these interfaces are provided via the communications interface between the SimStation™ workstation and the plant model computer
 - May or may not implement software and hardware interfaces to the control board equipment with Westinghouse I/O
- (Continued on back)

- Allows application software of the stimulated equipment to be largely re-used from the system application, saving time and money by application testing once for both the plant and simulator systems

Description

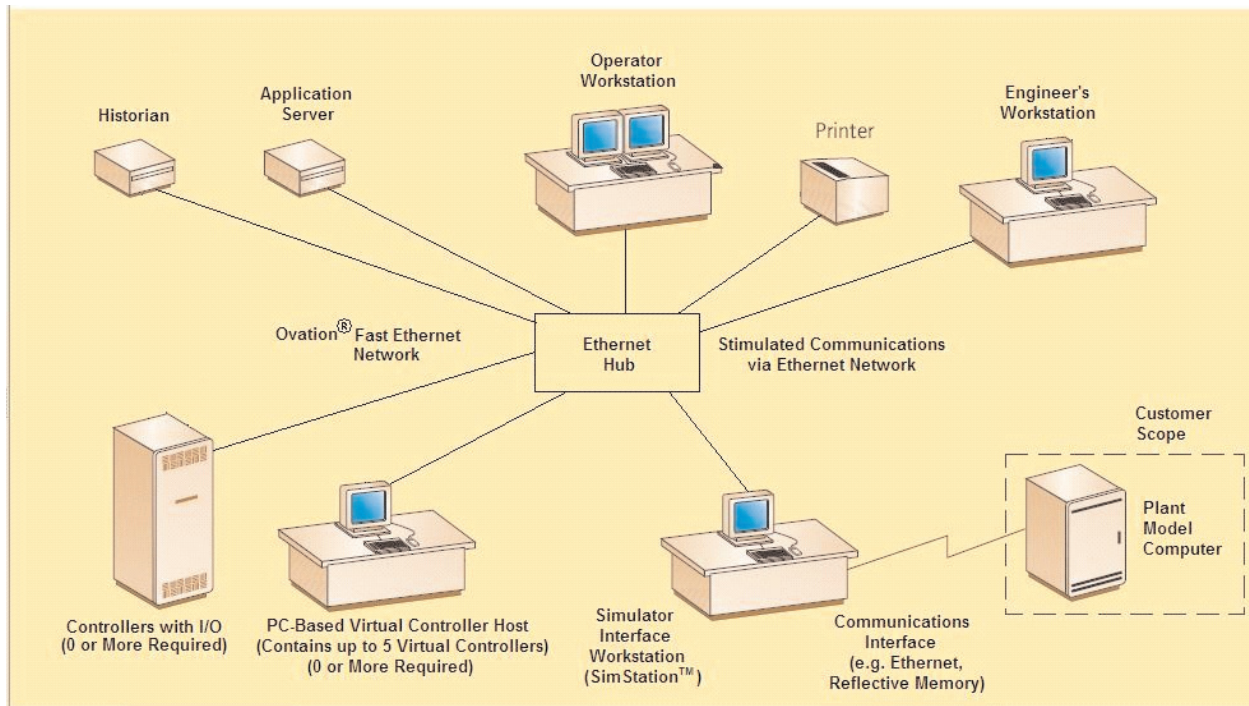
The stimulated simulator consists of simulator-specific functions added on top of the base functions of each of the standard drops in the system. The master simulator SimStation is a workstation drop that interfaces with the plant model computer.

The stimulated simulator includes hardware and software essentially identical to the corresponding elements of the base system, with the following exceptions:

- The simulator hardware is non-redundant and non-isolated.
- The simulator hardware is cost- and size-reduced via repackaging in commercial-grade enclosures.

Experience

Westinghouse has delivered over 20 Stimulated Simulator Systems.



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