Digital Twin Technology Using An Integrated Control and Simulation Platform

Simulators are important tools for operator training, control validation and engineering testing. A simulator is significantly more effective when the process models are kept in synch with plant equipment and control system changes.

Use of outdated models hinders realistic training and prevents accurate control logic testing, both of which can reduce operator proficiency and plant efficiency.

Yet, simulator upgrades can be both costly and time consuming.

You have an existing simulator, but is it becoming expensive to maintain and operate? Not trusted by your staff? Can you afford to suspend training and control testing while waiting for model updates, which may be quickly outdated shortly thereafter?

Think about your training and control validation needs...

Can you adequately train new and experienced operators to handle abnormal situations?

Is your existing simulator difficult to maintain and keep in synch with your plant control system?

Do you have a reliable platform for testing control logic without disrupting plant operations?

You need a solution that provides accurate operator training, keeps pace with process changes and validates control logic without affecting plant operations.
Ovation™ simulation is seamlessly integrated with the Ovation platform using Ovation-based models embedded into virtual controllers, eliminating the complexity and cost of maintaining separate modeling software. Standard Ovation engineering tools are used to create and manage accurate high-fidelity or empirical models. In-house staff familiar with Ovation can update plant models and training scenarios to remain in sync with the Ovation plant control system.

Ovation embedded simulation software provides the ability to mix model fidelities to meet budget or schedule constraints. Empirical-based models can be upgraded to high-fidelity models as time and finances permit. As a replica of the plant’s Ovation control system, the simulator can be used as a non-production test bed to validate control logic and security patch updates in a risk-free environment.

Ovation embedded simulation is the enabling technology for the virtual power plant of the future that will run in parallel with the live Ovation control system.

- **Validation**: Control logic and ‘what-if’ scenarios can be easily modified and validated without disrupting the plant control system.
- **Training**: Realistic training provides new and experienced operators with the confidence to quickly recognize and react to abnormal situations.
- **Lifecycle**: Standard Ovation engineering tools are used to manage simulator models which saves time and costs associated with service calls to third-party vendors.
- **Testing**: A non-production simulator platform addresses cybersecurity best practices for testing control and security updates in a risk-free environment.

For more information: [www.Emerson.com/Ovation](http://www.Emerson.com/Ovation)