



Simulation Services

PROVIDING INTEGRATED SOLUTIONS
ADAPTED TO CLIENT REQUIREMENTS



Company Information

More than 35 years of experience in simulator manufacturing, maintenance and upgrade together with being a worldwide expert in plant personnel training, make Westinghouse a unique company. This dual profile provides Westinghouse with an integral vision, allowing us to deliver global simulation solutions that support the safety, availability and economic effectiveness of our clients' facilities.

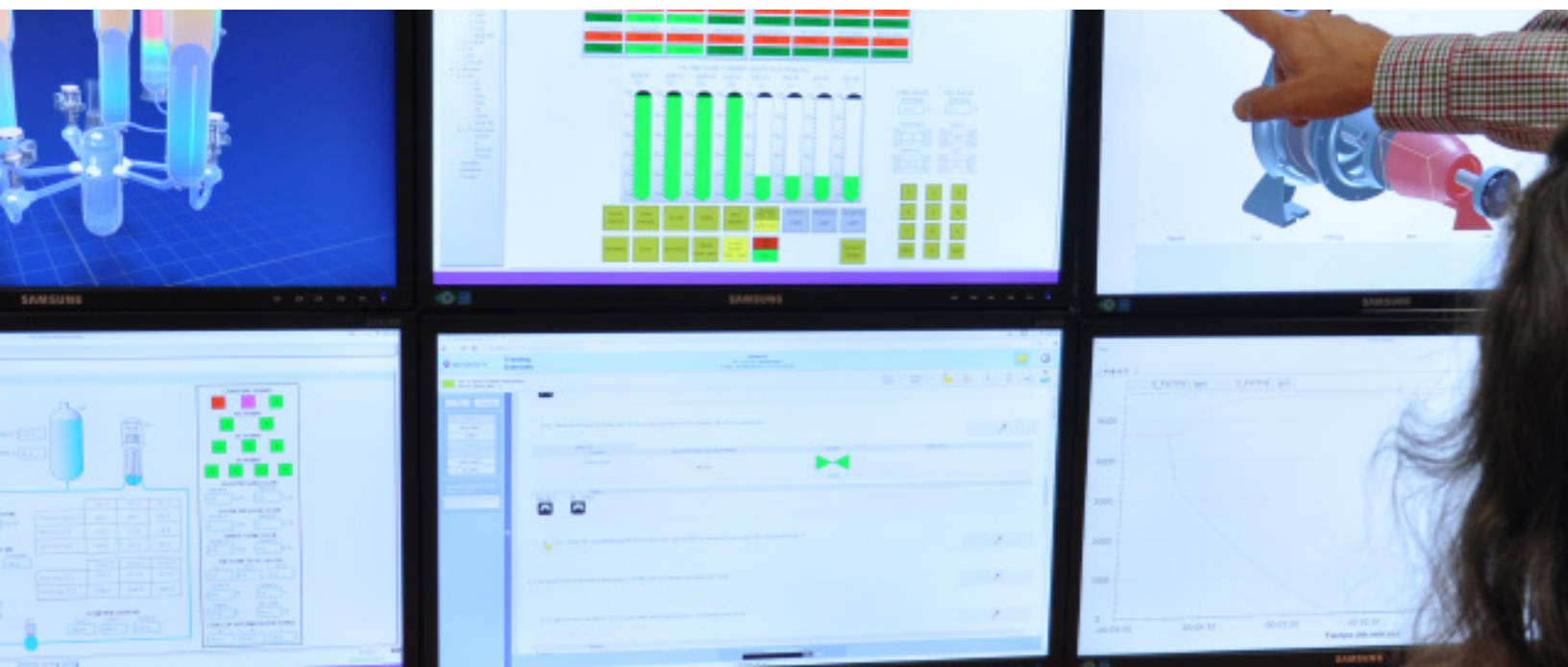
Our portfolio includes proven and upgraded full and partial-scope simulators for different power generation technologies as well as a wide range of Simulation Assisted Engineering (SAE) services.

- Full scope replica nuclear simulators
- Partial-task and generic nuclear simulators
- Multi-unit simulator for generic Small Modular Reactors
- Nuclear plants analyzers (RELAP-based)
- Full scope fossil simulators
- Full scope solar thermal simulators
- PV Simulators
- Virtual power plant simulation tool
- Hybrid Systems Simulators
- Models for performance and condition monitoring
- Simulators for isolated systems
- Electrical systems/cabinets simulators



Our Clients





Westinghouse provides a range of products and services, bringing the highest added value in terms of efficiency and safety:

- Supply of full-scope simulators
- Classroom simulators with learning support applications
- Simulator upgrade and modernization
- Operation & maintenance of full-scope simulators
- Simulation assisted engineering systems and services
- Extensive experience in stimulating, emulating and simulating DCS & translators development, owned or from third parties.

These activities are supported by our own simulation technology and provided by a simulation staff with over fifteen years of individual experience on simulations projects, including the development of a large number of simulators and the operation and maintenance of six proprietary nuclear full-scope simulators.



**Simulator
Development**



**Simulator
Assisted
Engineering**



**I&C
Modernization
Services**



**Simulator
Operation**



**Simulator-
Based
Training**



**Maintenance
& Upgrades**



**Consulting
Services**

Our Technology

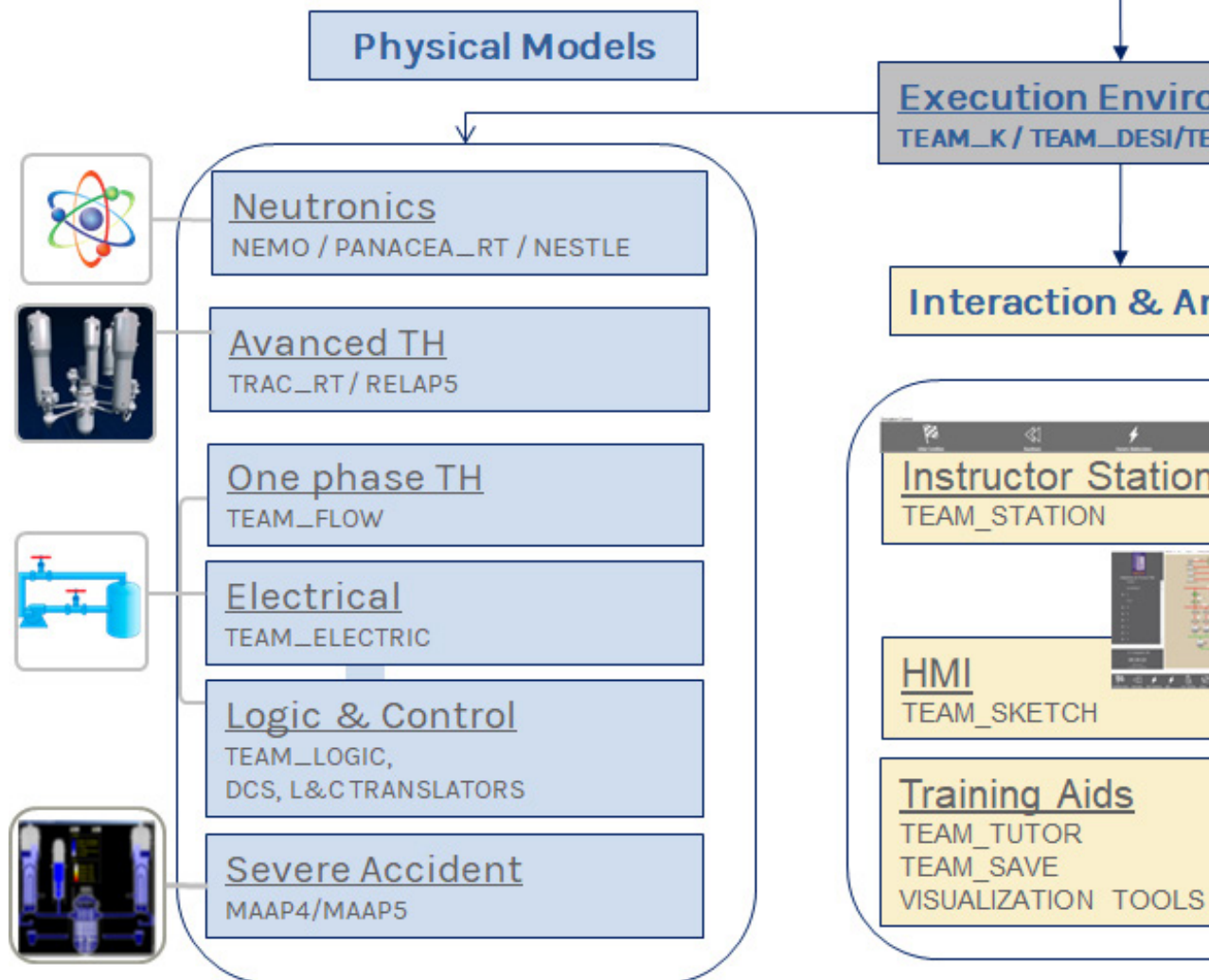
Using the latest consolidated technology enables us to develop the best simulation solution for our customers. Westinghouse's simulations suite provides high-precision power plant simulators to address both engineering and training needs.

Our simulation environment (TEAM K) allows full integration of the simulation tools, including third party software, to achieve a real-time, high-fidelity simulation.

- **NEMO and PANACEA_RT:** Core fuel design codes adapted to real time to serve as neutron kinetic modeling technology. NESTLE, APA and other codes can also be utilized on demand. Automated generation of new core life cycles is enabled through "wrap-up" files provided by the fuel vendor.

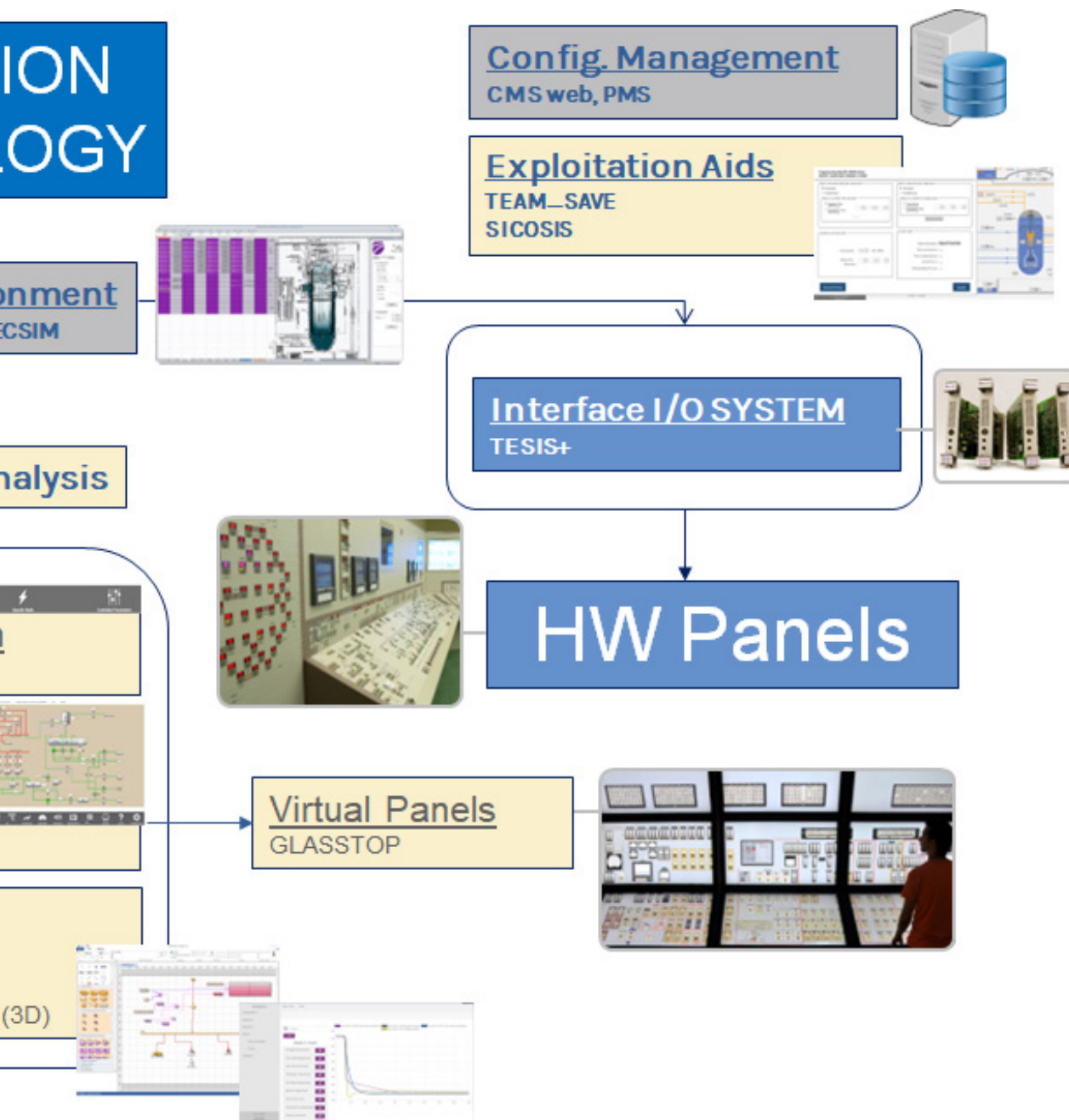
- **TRAC_RT:** Real time version of the TRAC best-estimate code series. Engineering grade thermal-hydraulic code with full six equation formulation of steam-water behavior, covering the whole range of plant operation conditions. We also offer thermal-hydraulic models based on other codes, such as RELAP5.

We are currently integrating TRACE in our simulation environment.



- **TEAM_SUITE:** Graphical mode builders for the automated generation of the following systems:
 - Logic and Control diagrams (TEAM_LOGIC)
 - Hydraulic networks (TEAM_FLOW)
 - Electrical circuits (TEAM_ELECTRIC)
 - Human Machine Interface (TEAM_SKETCH)

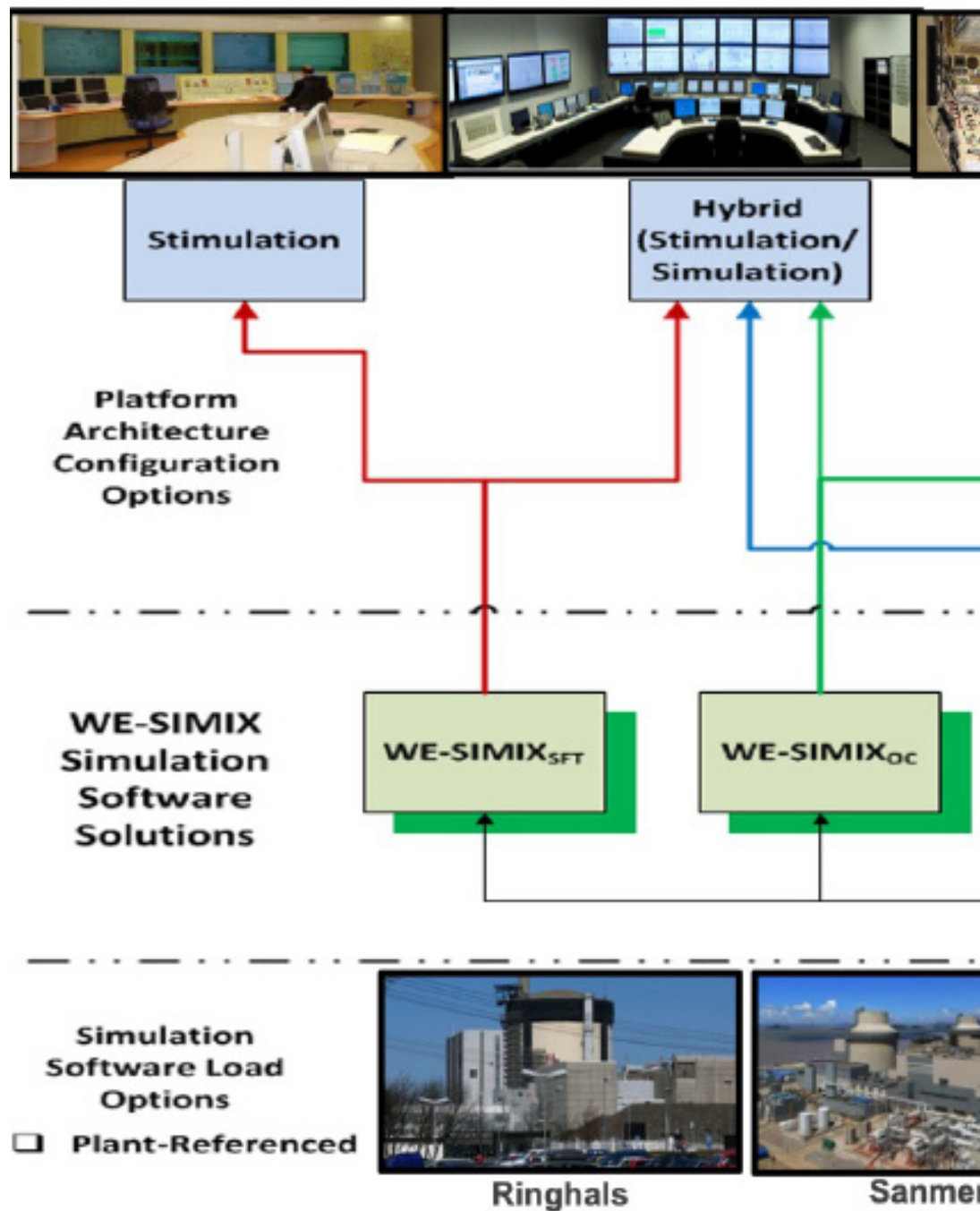
- Others tools such as the Instructor Station (TEAM_STATION) and the tutoring system (TEAM-TUTOR), facilitating the instructor's work and session recording, and our Configuration Management System (SICOSIS), controlling and supervising the simulation and the configuration control meeting requirements of the standards. TEAM_SAVE is our simulation automatic validation environment used for automatic tests execution, non-regression tests and initial condition generation.



WE-SIMIX I&C Software Solutions

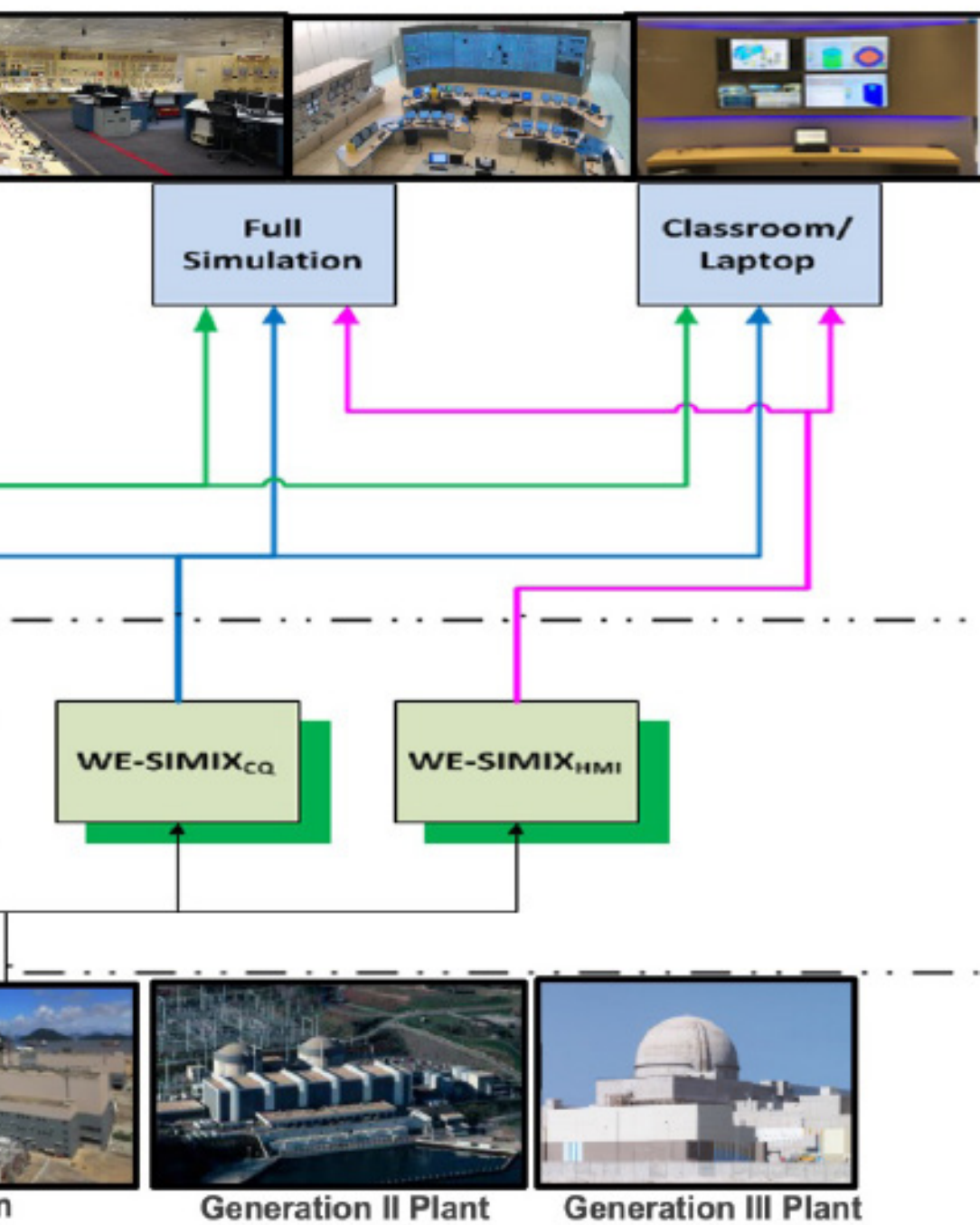
Westinghouse Simulator MIX of products compatible with all major model vendor platforms. We offer three different high-fidelity simulator Instrumentation & Control (I&C) solutions for Ovation® and Common Q™ control systems : Full Simulation/Emulation, Stimulation and Hybrid.

- WE-SIMIXSFT – Used with Stimulated Ovation Simulator Systems
- WE-SIMIXoc – Used to Simulate the Ovation Control Logic
- WE-SIMIXCQ – Used with Stimulated Ovation Simulator Systems
- WE-SIMIXHMI – Simulates the Ovation Operator Interface Applications



Platforms with WE-SIMIX

Platform*	Plant	Type	Ovation
SimExec	AP1000	Stimulation/Simulation	3.3.1
OpenSim	Byron/Braidwood	Stimulation/Simulation	3.6/3.5.1
T-REX	Catawba	Virtual Stimulation/Simulation	3.0.4
L3-MAPPS	Koeberg	Stimulation/Simulation	3.1.3
Orchid	M ² Guine	Virtual Stimulation/Simulation	3.0
3KeyMaster	Barakah	Simulation	3.5.1
GENUS	Lufeng	Stimulation/Simulation	3.5.1
TeamK	Vandellios	Stimulation/Simulation	3.5.1
Chattanooga	Limerick	Simulation	3.3.1
OpenSim	Nine Mile Point	Simulation	3.6
Tecnatom	Almaraz	Simulation	3.2
3KeyMaster	Shin Kori	Virtual Stimulation	3.2





Why Westinghouse?

Unique expertise involving development, operation and maintenance of power plant simulators.

Training-oriented point of view endorsed by worldwide experience as a training center.

State-of-the-art power plant simulation technology.

Different cost-effective solutions depending on customer needs.

Active corporate R&D policy to continuously upgrade simulation technology.

Application of our own concepts and methodology supported by leadership in Human Factor Engineering, Operations and our user's experience.

Proven track record of long-term customer relationship and lifetime simulation support.

Extensive experience in simulator fleet management, enabling optimization, efficiency and cost reduction.



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