

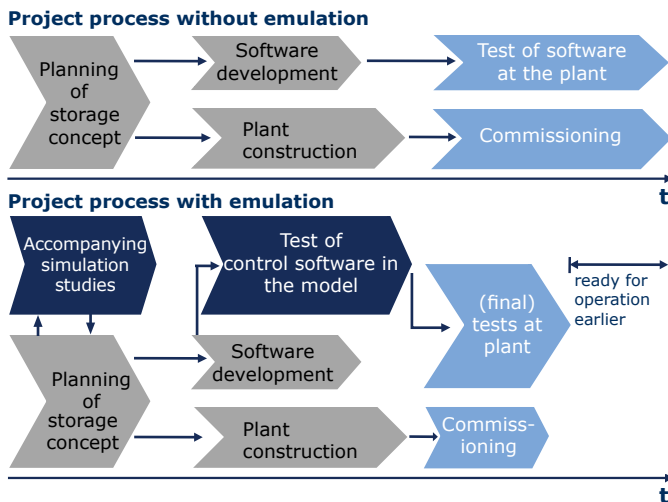
Software Testing with Simulation Emulation



Difficult commissioning of logistics systems

The commissioning of warehouse management computers and material flow control computers (WMC/MFC) as well as of programmable logic controllers (PLC) often causes problems due to untested software and the resulting troubleshooting in the real system. Finding and eliminating these software faults can cause extensive delays and time pressure.

Realistic tests before the actual commissioning are only possible to a limited extent or not at all. Operators, logistics planners and general contractors face this problem during almost every project.



Reduction of commissioning time for new plants by using emulation already during the software development phase (inventory control processor / material flow processor)

The technical implementation

The communication between the WMC, MFC or PLC and the simulation model is realized via an interface software.

This very flexible software is able to process different kinds of protocol and telegram formats. It can be used to investigate the individual interfaces as well as run complete tests of all control levels.

Since these tests are done independently of the real logistics system, test scenarios can be created within minutes and can be exactly replicated multiple times. The control software can be tested under extreme conditions, for instance by exceeding the capacity of the system.

This way, it is possible to optimise the interaction of the control level and the machine level. Additionally, the technology can be used later on to test planned changes to the site without interrupting operations.

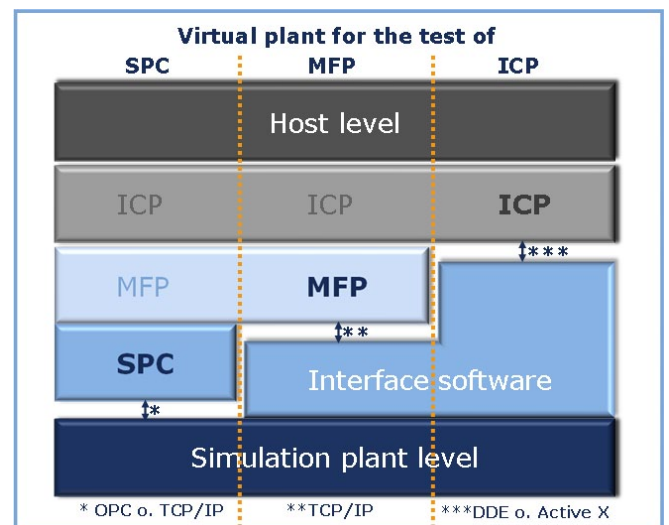
Virtual commissioning of control software

To decrease the cost- and time-intensive commissioning phase of the control software, a virtual link can be set up between the control software and a simulation model of the planned site.

SimPlan has developed a technology that facilitates data exchange between the two systems. Thereby the control software is tested under very realistic conditions even before commissioning.

The simulation model shows the interaction of all resources and, in contrast to conventional test software, makes it possible to test the behavior of the control software dynamically during the entire working period, like day/night and week time operation.

Possible problem areas can be recognized and fixed early on.



System configurations and communication for the different test levels

Aims and benefits

- Reduction of commissioning times
 - less on-site adjustment time
 - lower costs
 - high customer satisfaction
- Comparison of different programming variations
- Analysis of fault scenarios: simulation model produces test scenarios („stress tests“)
- Planning security
- Avoidance of difficult & time-intensive software testing on-site: initial test objects of communication (telegram transmission and database, routing instructions)

Fields of application

- Implementation of control software
- WMC/MFC test: Storage place allocation, order sequence planning
- Control software update during operation
- Comparison of programming by different software suppliers

References (operators / customers)

Audi, BMW, Ingram Micro / Viastore, Hermes Warehousing Solutions / Vanderlande, Beiersdorf / Dematic, Hella / Sitlog, Skylink Wien / Vanderlande, Kaufland / Vanderlande, Softcarrier / Unitechnik, Transpharm / Dematic, Zentis / Klug, E/D/E / Aldata, Stute / SSI Schaefer Noell

The SimPlan group

We consider ourselves to be a cross-sector full-range supplier with regard to simulation, accompanying you with extensive know-how, experience and modern methods in the optimisation of business processes. Our services range from process analysis and consulting to material flow and logistics simulation.

Furthermore we are a neutral distributor of simulation software, helping you select the most suitable software tools for your projects, providing trainings and implementing the software in your company. Of course we also provide all associated maintenance and support services.

Why SimPlan?

- Objective and independent analysis
- Detailed knowledge of logistics and production processes with over 25 years project experience
- Excellent resources for prompt response to your queries
- Close cooperation and project integration with high on-site quota
- Development of innovative solutions, efficiently solving challenges during project work

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