



Rhythm for your stars

The test automation tool for control software



Test strategies – Development and motivation

yesterday



Test on the real system

- ▼ Can only be effected after completion of the system
- ▼ Prolongs the system's delivery time
- ▼ Risk of damages on the system
- ▼ Fault-prone due to the human factor

today



Test with real controls on virtual systems (HILS)

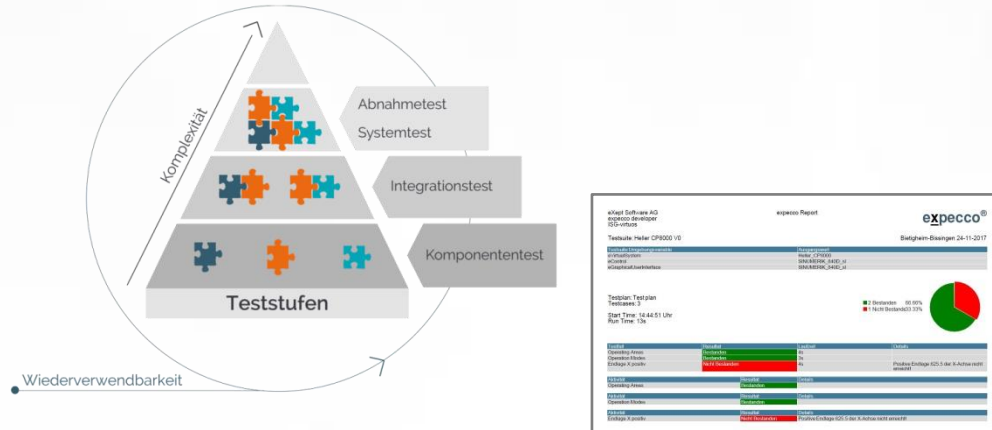
- ✓ Can be effected before delivery of the system
- ✓ Vast and risk-less tests also of failure situations
- ▼ High expenditure when effecting vast test scenarios
- ▼ Fault-prone due to the human factor

tomorrow



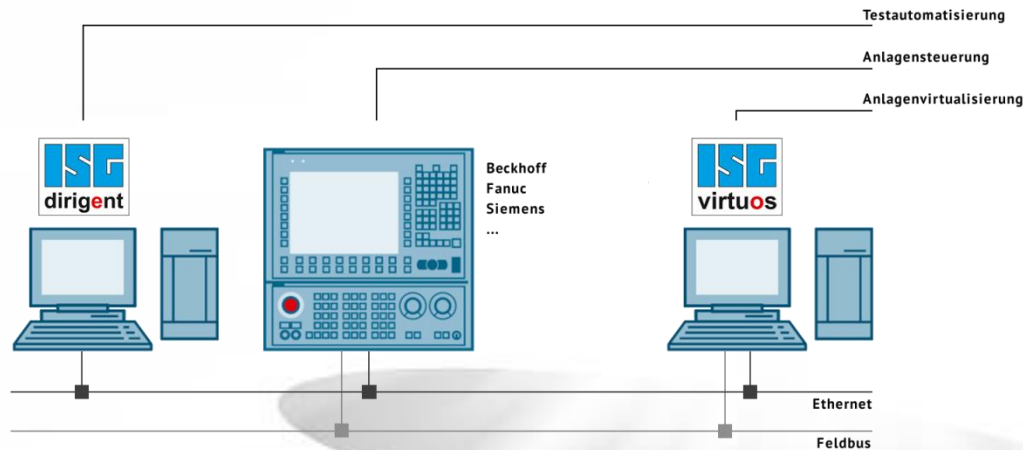
Automated test with real controls on virtual systems

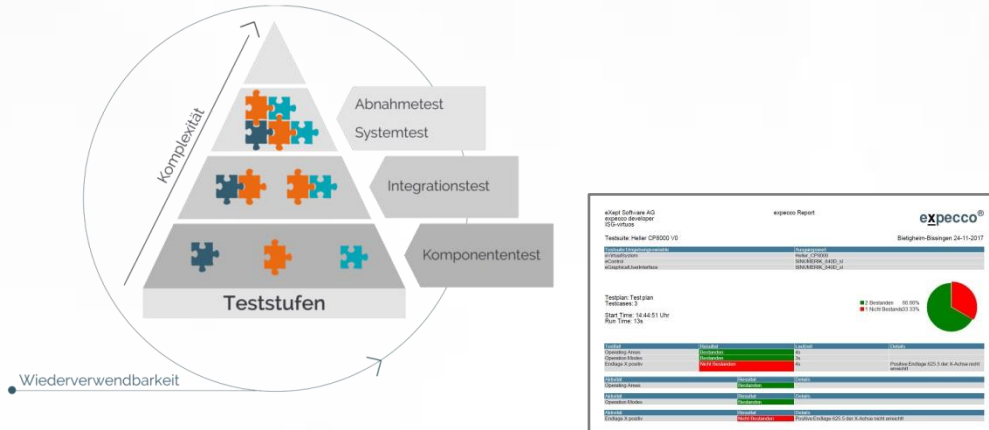
- ✓ Increased software quality thanks to increased test coverage
- ✓ Reliable results thanks to excluding the human factor
- ✓ Reproducible test results including protocolling
- ✓ Integrable into requirements management



In general

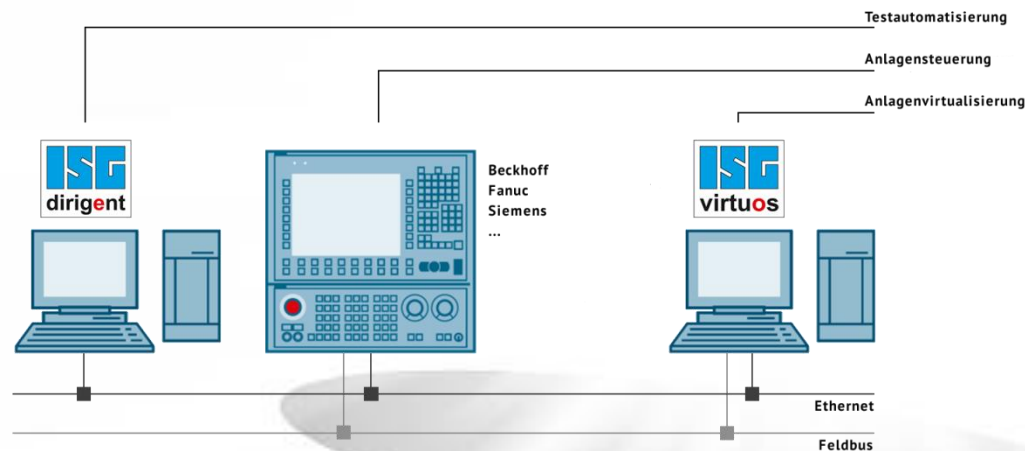
- ▤ Test execution **autonomously** and reliably **reproducible**
- ▤ **Enhanced control software quality thanks to** a higher willingness to test
- ▤ **Cost savings** with growing number of test repetitions
- ▤ Testing process is **protocolled in detail**
 - ▤ Error diagnosis
 - ▤ Documentation



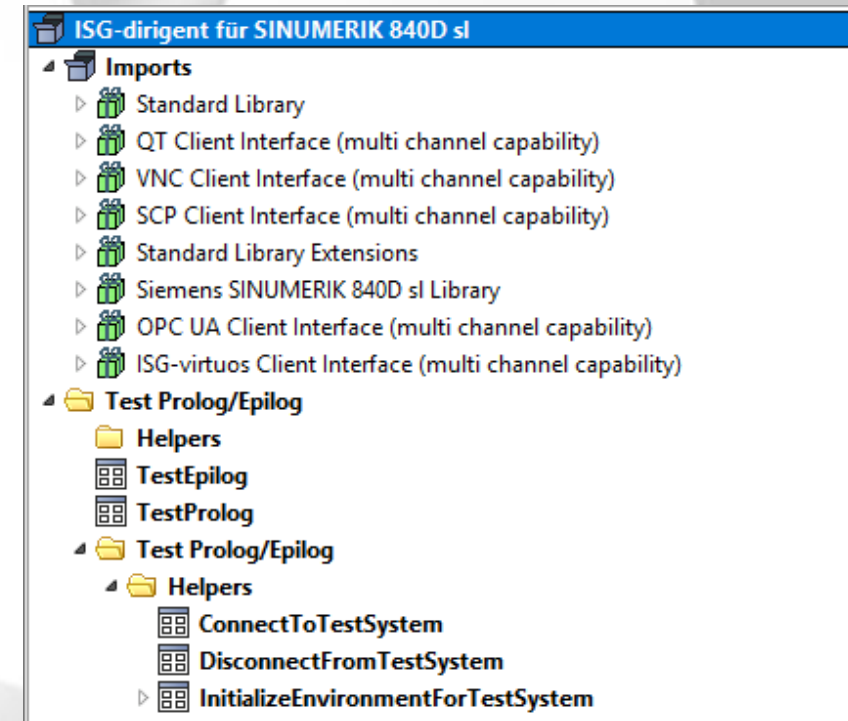
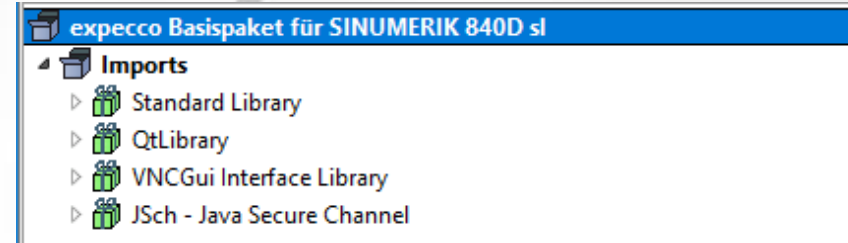


ISG-dirigent

- First commercially available tool for the automated test of machine and plant control software
- Vast – if necessary easily expandable and/or alterable – module library for often-used control systems
- Basic tool in use for many years in diverse fields of business → **reliable basis** for the module library
- Short initial training period thanks to intuitive graphic modelling → From the very beginning, user can concentrate on the **creation of test processes**



- /// **Expecco basic package of eXept AG**
- /// **ISG-dirigent – Modules**
 - /// Connection to ISG-virtuos
 - /// Connection to CNC-/PLC controls
 - /// Siemens SINUMERIK 840D sl (available)
 - /// Siemens SIMATIC S7 (available)
 - /// Fancu (in preparation)
 - /// Beckhoff (available)
 - /// ...
 - /// Libraries for CNC-/PLC controls
 - /// Siemens SINUMERIK 840D sl (available)
 - /// Siemens SIMATIC S7 (available)
 - /// Fancu (in preparation)
 - /// Beckhoff (available)
 - /// ...
 - /// Producer-independent library for CNC controls (in the planning)





Test automation – Test report

Industrielle Steuerungstechnik GmbH
Testautomatisierung
Dr.-Ing. Gerhard Krebser

Testreport



Testsuite: SINUMERIK 840D slClient

Stuttgart, Germany 26-10-2018

| Testsuite Umgebungsvariable | Ausgangswert | Aktueller Wert |
|-----------------------------|--|--|
| TestSystemCsv | D:\Ksr\Testbench\expecco\ConfigurationFiles\TestSystem.csv | D:\Ksr\Testbench\expecco\ConfigurationFiles\TestSystemc. sv |
| ConnectionParametersCsv | D:\Ksr\Testbench\expecco\ConfigurationFiles\ConnectionParameters.csv | D:\Ksr\Testbench\expecco\ConfigurationFiles\ConnectionParameters.csv |
| KeysValuesCsv | D:\Ksr\Testbench\expecco\ConfigurationFiles\KeysValues.csv | D:\Ksr\Testbench\expecco\ConfigurationFiles\KeysValuesc. sv |
| DefaultSubsystemId | S1 | S1 |
| DefaultEpsilon | 1.401298E-45 | 1.401298E-45 |
| DefaultSleepDuration | 100ms | 100ms |
| DefaultTimeLimit | 5s | 5s |
| KeyPressDuration | 200ms | 200ms |
| SubsystemId | S1 | S1 |

Action Name: Test/Demo

Start Time: 16:42:31

Execution Time: 0s

| Aktivität | Resultat | Details |
|---------------------------------|-----------|---------|
| Test/Demo | Bestanden | |
| 840D.Start | Bestanden | |
| 840D.CheckModeGroupAutomatic | Bestanden | |
| 840D.GetDbNumberChanCtrlSignals | Bestanden | |
| 840D.CheckChannelActive | Bestanden | |
| 840D.Plc.WriteValueNative | Bestanden | |
| 840D.Plc.WaitValueNative | Bestanden | |



Test automation – Contact us

sps ipc drives 2018
(Nov 27-29, Nuremberg):

Booth 6-340

Your contact person:

Gerhard Krebser



Industrielle Steuerungstechnik GmbH
STEP, Gropiusplatz 10, D-70563 Stuttgart
www.isg-stuttgart.de

Dr.-Ing. Gerhard Krebser
Testautomatisierung und Applikation Simulationstechnik
Test automation and application simulation technology



Dr. Gerhard Krebser
Testautomatisierung und Applikation
Simulationstechnik

T: +49 711 22992 14
F: +49 711 22992 25
E: gerhard.krebser@isg-stuttgart.de

