A General Device Driver Simulator to help compare real time control systems

Martin Mohan
European Gravitational Observatory

Introduction
Advanced Virgo will be monitored by PLCs dotted along 3km tubes. PLCs will measure simple scalar values such as temperature and pressure via modbus or profibus.

SCADA Architecture
Test 3 SCADA

- Overview Tool (OT)
- Data Display (DD)
- Data Archiving (DA)
- Alarm Handler (AH)
- Program Interface (PI)
- Gui Builder (GB)
- Configuration Tool (CT)
- Comm Middleware (CM)
- Device Server (DS)
- Devices (D1,D2,D3,D4...)

Test Setup
Test SCADA using 4 signals similar to expected signals: small ramp, large ramp, error, timeout

Configuration Tool (CT)
Set alarm to go off when a signal reaches 100. As large ramp varies from 0 to 119.999999 every minute it should set of an alarm every 50 seconds for each SCADA.

Epics configuration uses custom "db" files. Tango configuration uses a Mysql database accessed by jive tool. Tine configuration uses csv files (or xml files or in code)

Data Display (DD)
Epics Device names (Channels) must be remembered whereas Tango and Tine device names are available from pull-down menus.

If no pre-written device driver exists: Default generated code for Epics and Tine must be modified to stop the timeout signal blocking the device server.

Alarm Handling (AH)
Tango operator must check states. Tine sets alarm after several seconds (avoids false alarms).

Other software available from the 3 SCADA: Overview Tool (OT), Data Archiving (DA), Program Interface (PI), Gui Builder (GB) and many Device Servers (DS)