



Using CompactRIO and LabVIEW in Advanced Logging Solutions

Anders Meister, Test Solutions Director



CIM Industrial Systems A/S

Danish Technology *Knowhouse*

Core Competences

- System Design
- Software Development
- Project Management

Primary Markets

- Test Solutions
- Green Engineering
- Medico Solutions (GMP, CFR 21 Part 11)
- Vision Solutions (test and industrial)



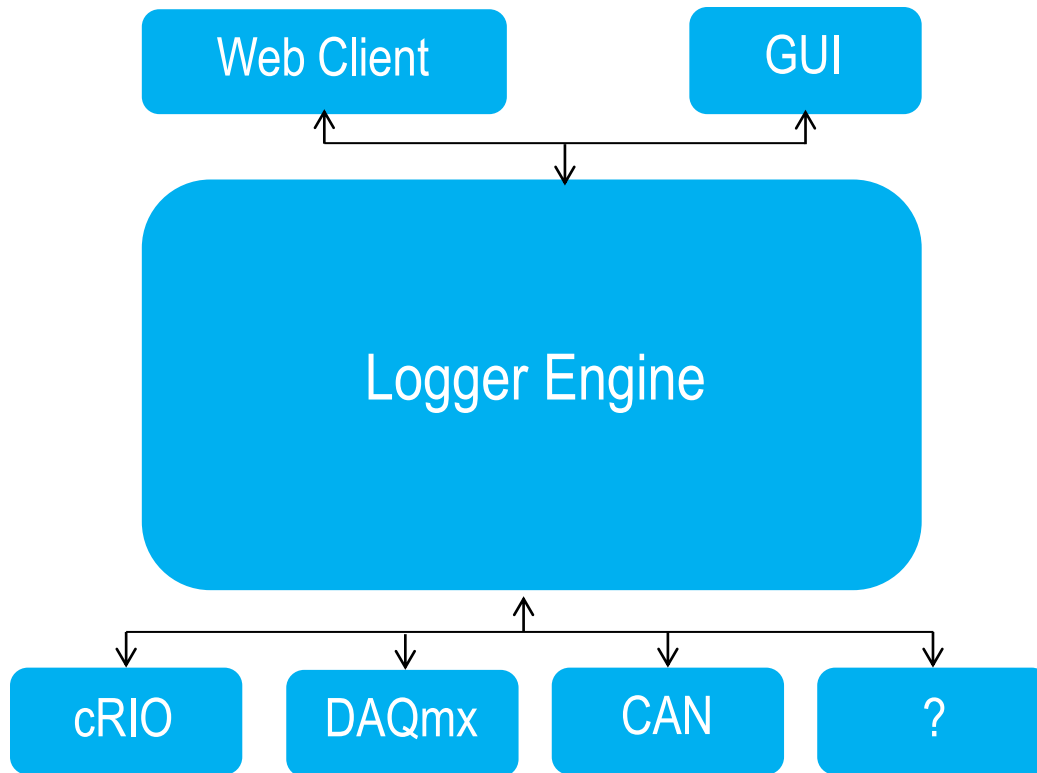
Agenda

- The Project
- System Requirements
- Demo
- Challenges
- Structured Development
- CIM FLEXStand Logger

The Project

- Risk Reduction
- Not “Just a Data Logger”
- CompactRIO Based
- Few Requirements vs Many Concerns
- 3500 Hours of Total Development Time

The Project



Options

User Modules

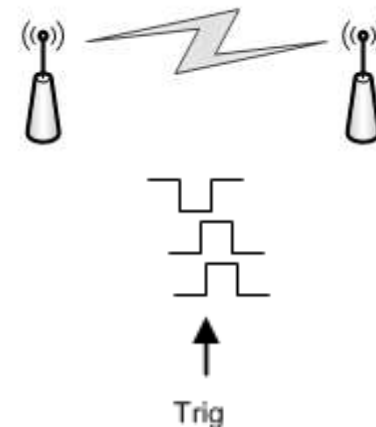
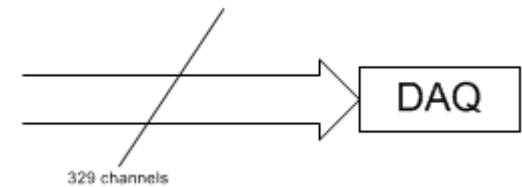
Engine Plug-ins
Algorithms

⋮

Hardware Modules

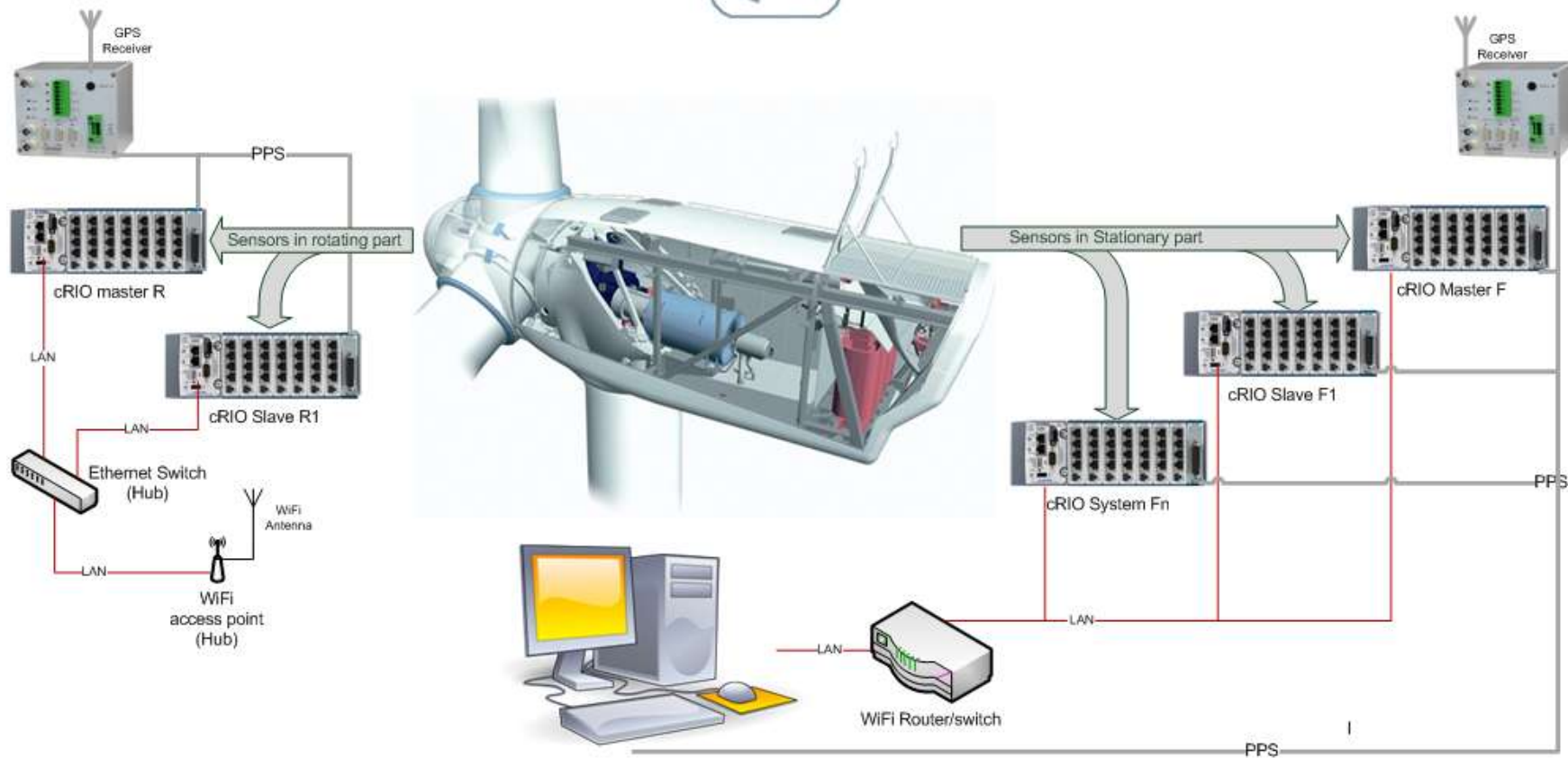
System Requirements

- 1000 Channels Maximum
- Temp, Strain, Voltage.. CAN, RS-232/485..
- Channels Synchronized at 10 kHz Maximum
- Distributed Measurements
- Wireless Data Transfer
- Triggered Data Collection
- Data Stored on Host PC
- System Disconnect Handling



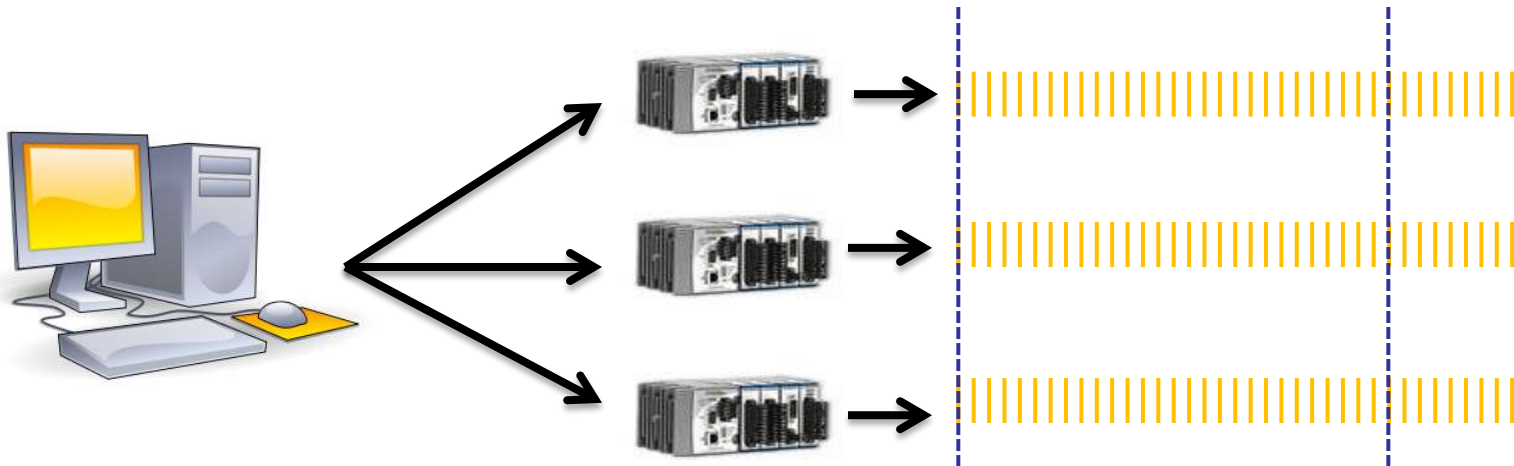
**Not available 'off-the-shelf'
– new design!!**

Demo

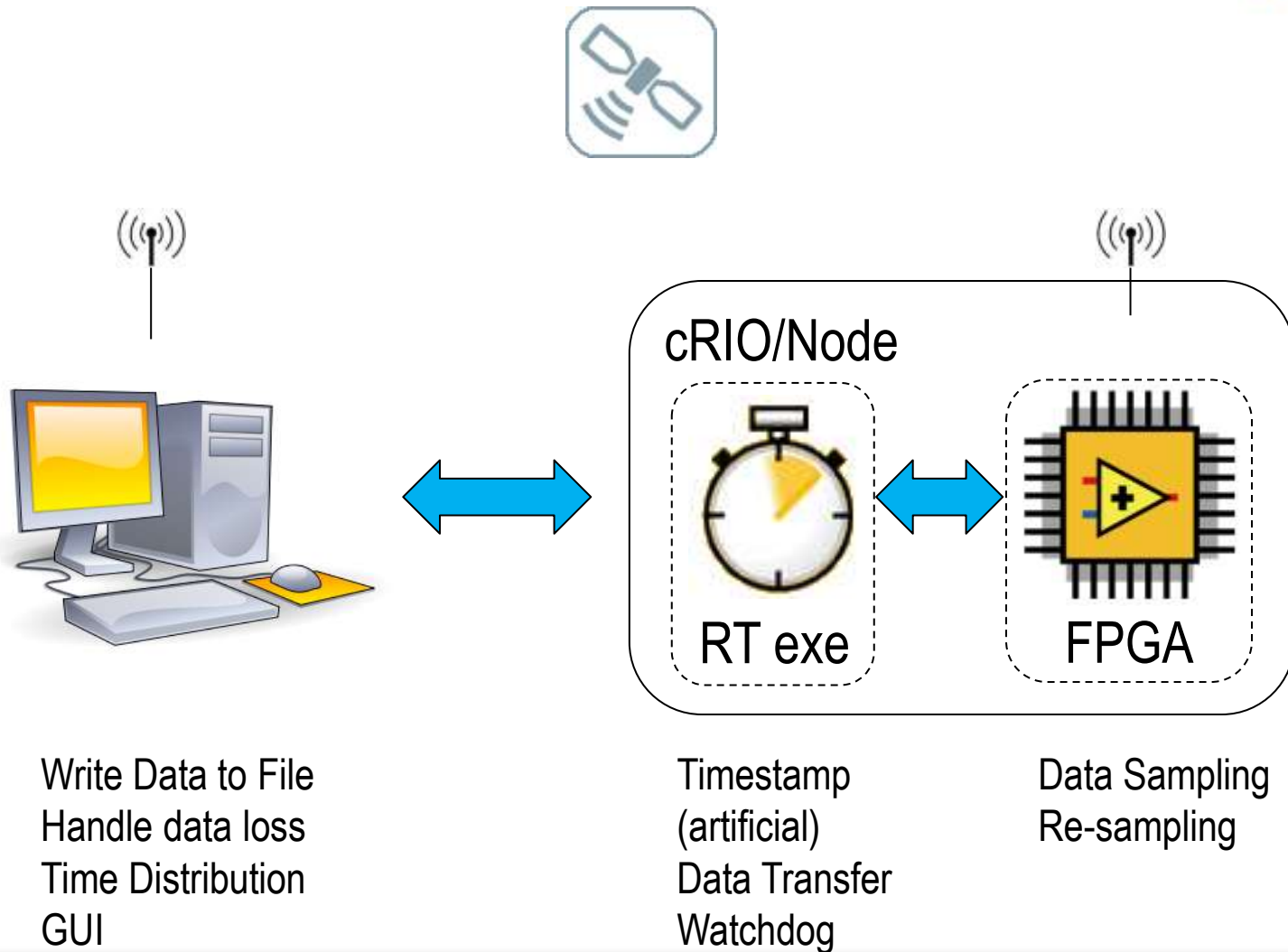


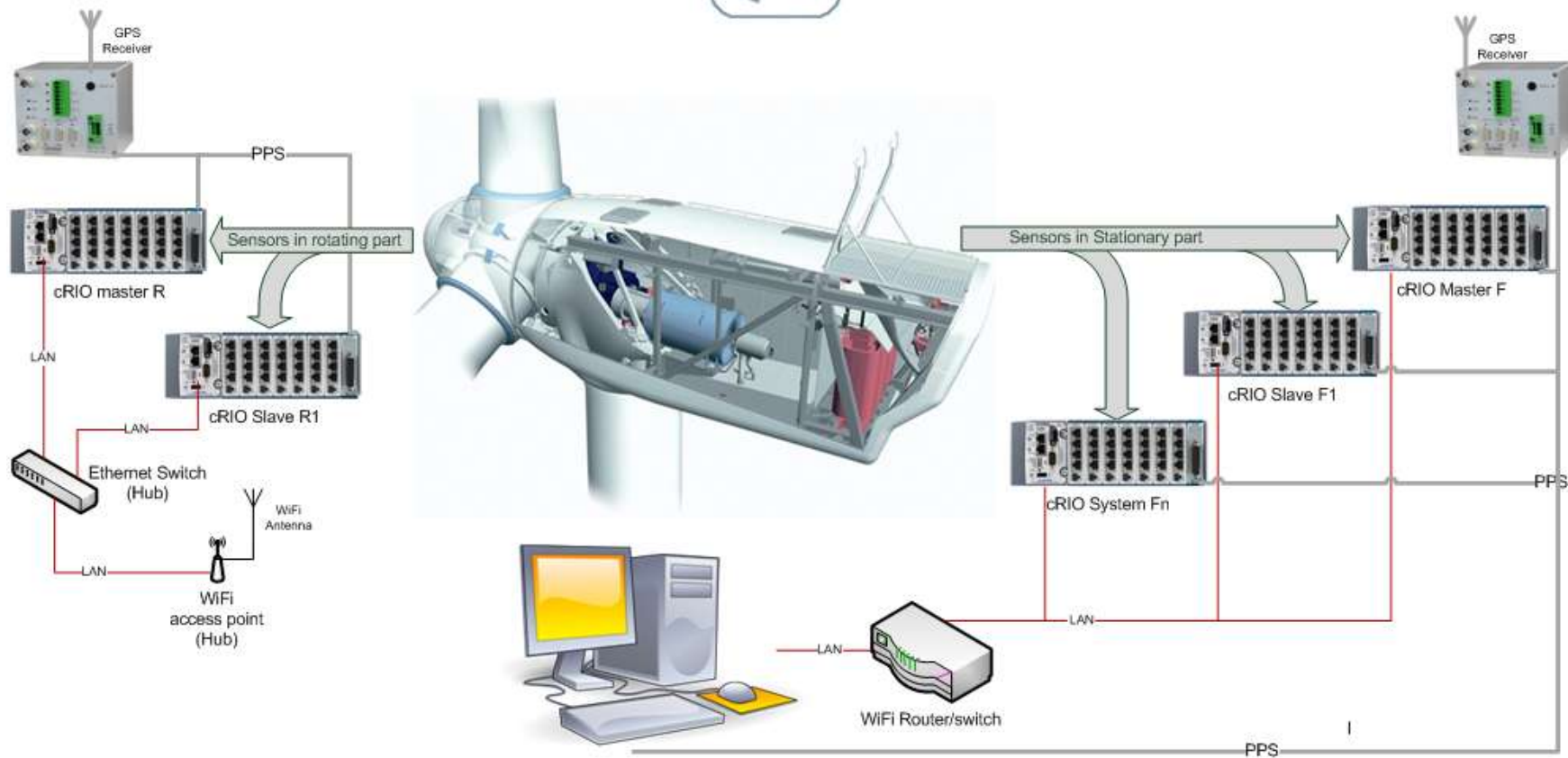
Challenges

- Distributed Nodes
- Wifi “Connection” – Choosing The Right Equipment
- System Disconnect and Reconnect (CIM TCP/IP LINK)
- Synchronization
Time, Node, Sample



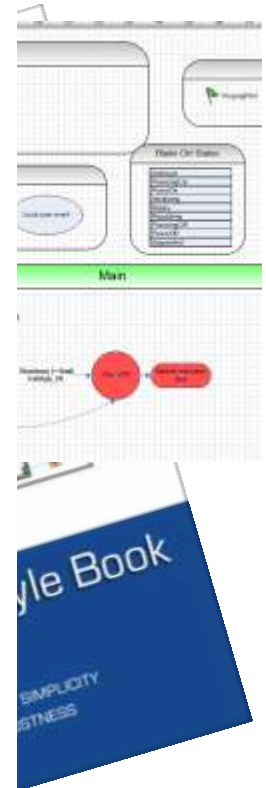
System Overview



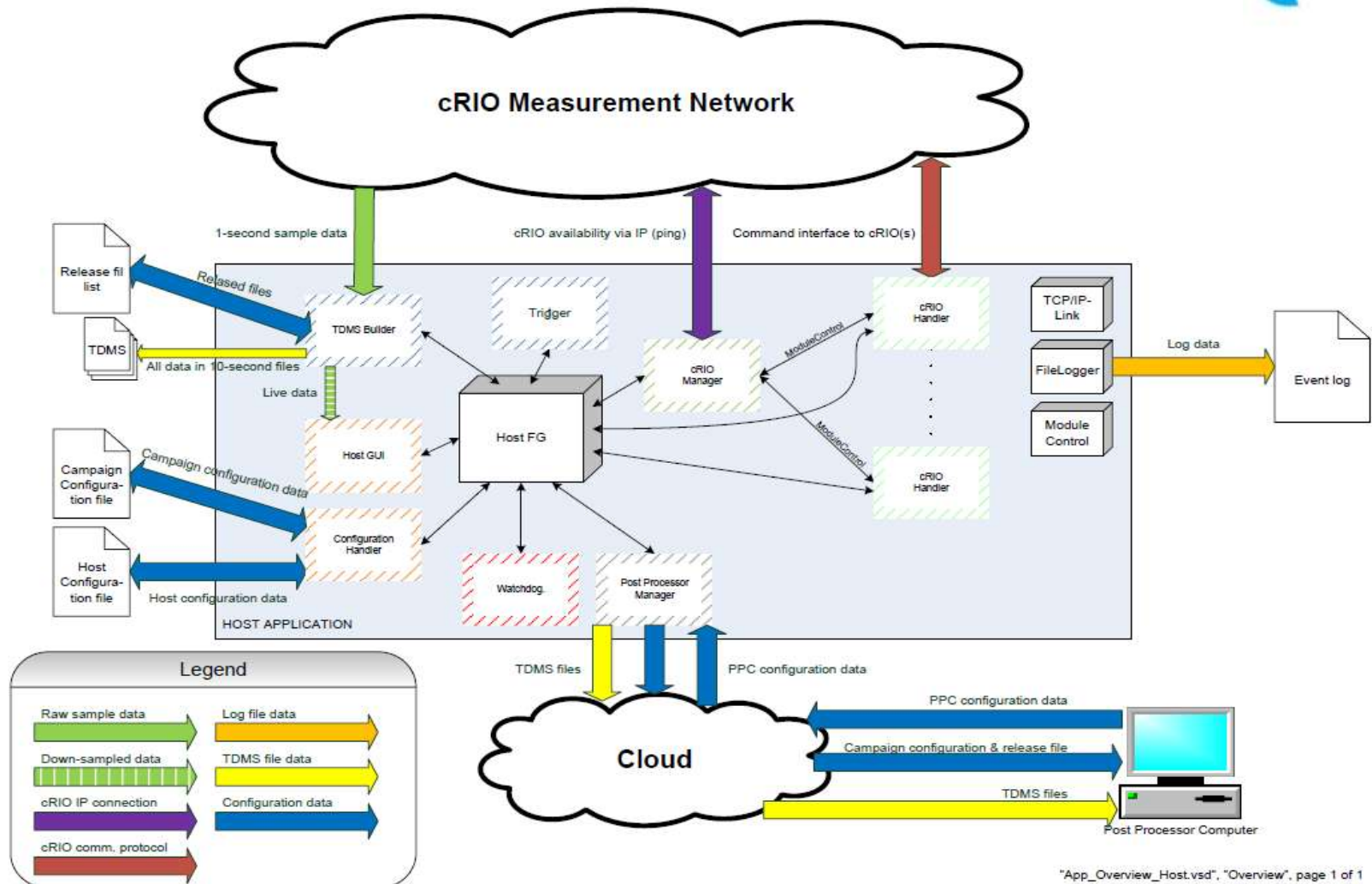


Structured Development

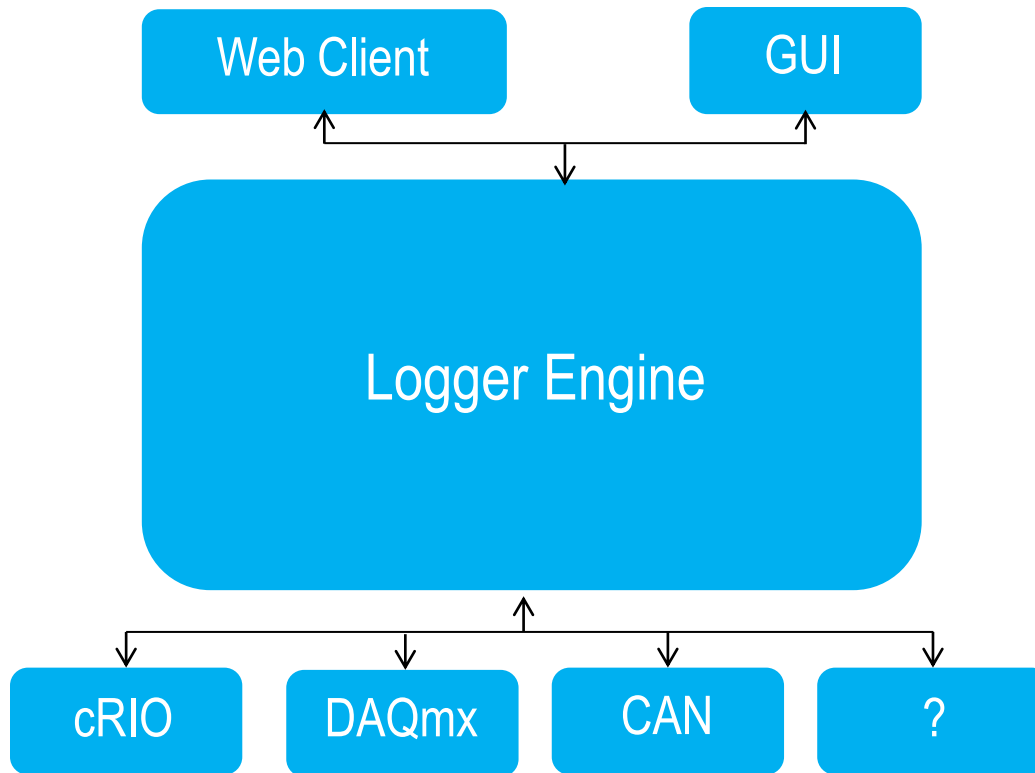
- Project Challenges
 - Big project, Full Documentation, Multiple Developers
- Enforce LabVIEW Style Guide
- Design Standard (VISIO and EXCEL)
- Module/Plugin Architecture
- Expect Customer Changes!

[illegible]

Structured Development



Summary



Options

User Modules

Engine Plug-ins
Algorithms

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Hardware Modules

FLEXSTAND Logger

One application,
multiple targets

Modules

The hardware connection

Plug-ins

GUI Objects, FFT etc



USB



CompactDAQ
Modular USB



PXI / PXIe

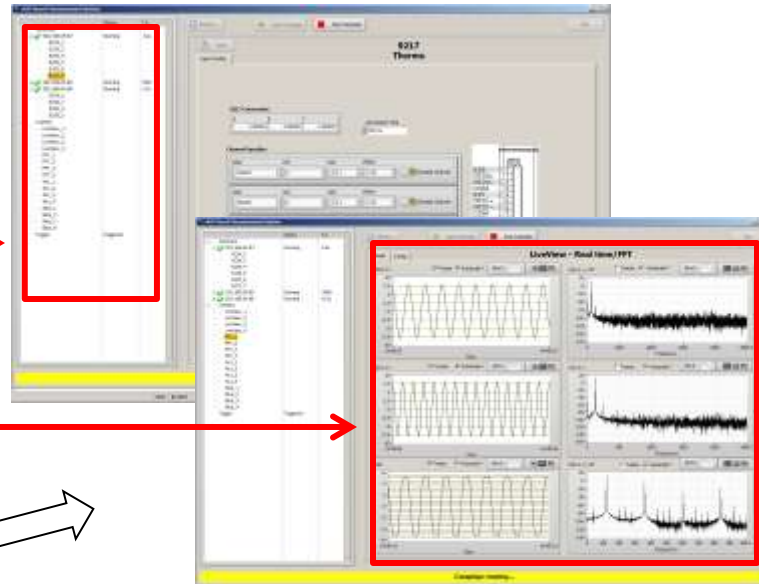


RealTime

Modbus-IDA
the architecture for distributed
EtherCAT
CAN
PROFIBUS



Other
HW/protocols



FLEXSTAND Logger

One application,
multiple targets

Modules

The hardware connection

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Plug-ins

The GUI Objects



USB



CompactDAQ
Modular USB



PXI / PXIe



RealTime

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Other
HW/protocols

Contact Info

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Thank You!

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