The FINUDA
Slow Control System

present status
and
future plans

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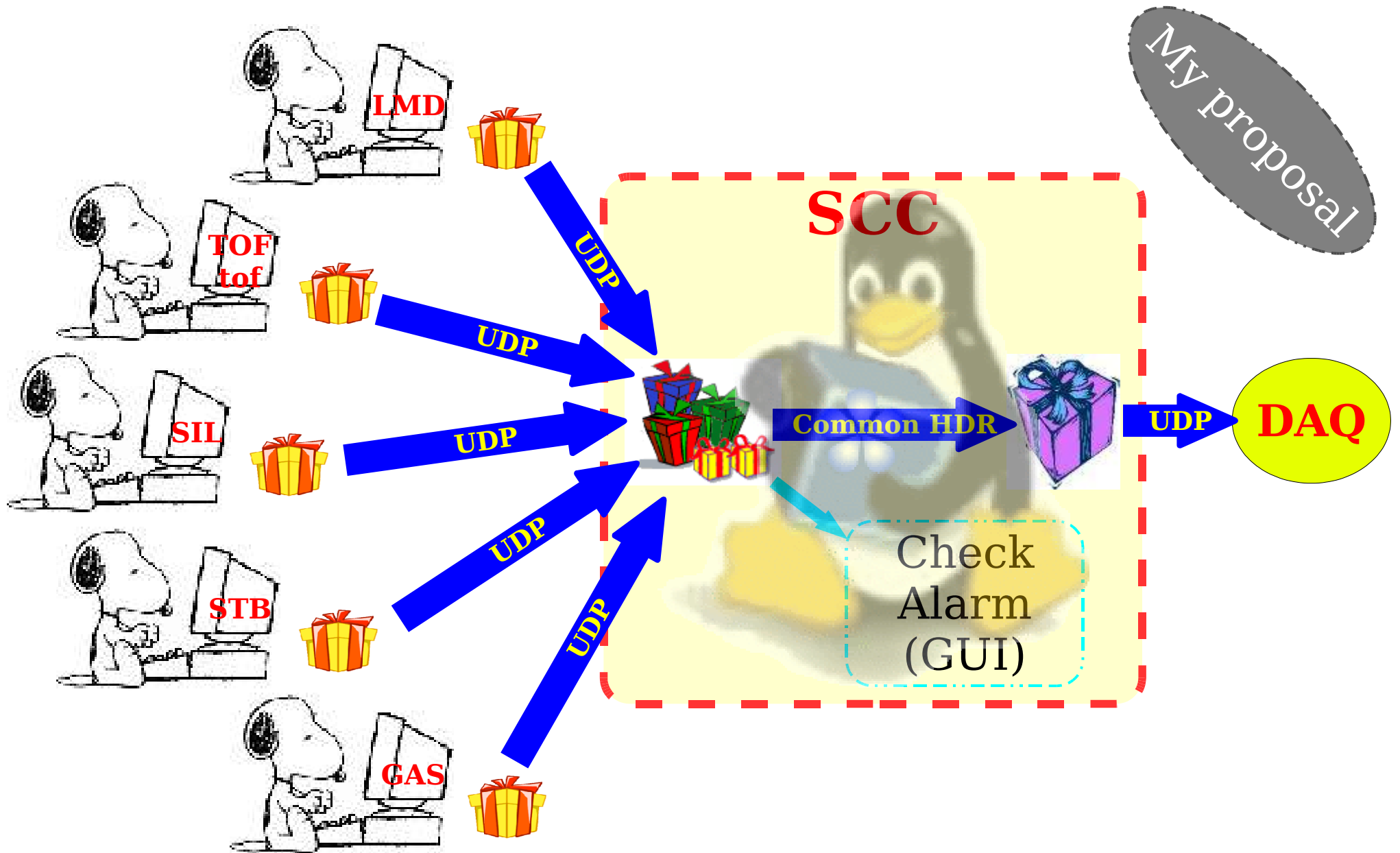
Main requirements

Every single detector:

- Online fast monitoring of supplied voltages, currents and trips.
- Check for dangerous/anomalous situations (losses of gas, overcurrents, …)
- **<u>FEGUI</u> (Friendly – Easy – Graphical User Interface).**
- **Fast and User-friendly TRIP RECOVERY** (automatic in some cases)

Communication with DAQ (my proposal):

- Each Slow Control machine sends informations about its own state via UDP socket to a single machine (Slow Control Center).
- **The Slow Control Center should:**
  - Receive all UPD packages (notice that they are asynchronous!)
  - Read the content of every package and inspect the current status of every detector
  - Show any warning message (trips, communication problems, …)
  - Build a single package including all received informations (with a common header)
  - Send the single package to the DAQ (via UDP socket)
    (it will be added to the raw event without changing the binary structure)
    (the FINUDA raw-event header contains the offset of the Slow Control main header)

SCC (Slow Control Center)

LMD

TOF
tof

UDP

UDP

SIL

UDP

UDP

STB

UDP

GAS

My proposal

SCC

Common HDR

UDP

DAQ

Check
Alarm
(GUI)

SCC (Slow Control Center)

Why LINUX?

1) It could be developed within the froot package, thus:
   - ROOT facilities could be exploited
   - TThread would be available (to handle asynchronous incoming informations)
   - Code duplication would not be necessary (socket communication, headers structure,...)
   - The same structure could be used to monitor incoming informations and to inspect the Slow Control Status from saved raw-files.
   - Informations could be saved into compressed root files
   - We would not need a dedicated CVS repository.

2) **C++ provides more facilities than labview concerning the handling of:**
   - Binary data
   - Socket communication
   - Strings

3) **Future upgrades of the code would be less time consuming...**
   (GUI is not the most important issue: LabVIEW could bring more complications than facilities...)

Present Status

tofino / TOFONE:

- Automatic trip recovery (completed: April 2005)
- Arrangement for the PCI CAENET controller (software ready but drivers still missing: May 2005)
- Arrangement for the new TOFINO Slow-Control (software structure prepared: May 2005)
- new TOFINO Slow-Control (to be developed)
- Installation and test of the PCI CAENET controller (to be done)
- Definition of the Slow-Raw-Event-Structure: header+data (completed: June 2005)
- Real-time Slow-Raw-Event encoding. (completed: August 2005)
- Slow-Raw-Event sent to the SCC (SlowControlCenter) via UDP socket. (completed: August 2005)

LowMassDrift chambers:

- Installation and upgrade of the workstation (completed: April 2005)
- Test of the ISA board drivers on Windows-XP (completed: April 2005)
- Arrangement for the PCI CAENET controller (software ready but drivers still missing: May 2005)
- Old Tofino/Tofone components removal (completed: May 2005)
- Log files removal (completed: May 2005)
- Automatic trip recovery (in progress: August 2005)
- Installation and test of the PCI CAENET controller (to be done)
- Definition of the Slow-Raw-Event-Structure: header+data (completed: June 2005)
- Real-time Slow-Raw-Event codification. (completed: August 2005)
- Slow-Raw-Event sent to MegaConsolle via UDP socket. (completed: August 2005)

Present Status

- **SIL**icon microstrips

    Further upgrades/changes are not foreseen.
    Information about currents are already sent to DAQ: we only need to re-address them to the SCC

- **S**traw**TuB**es: ?

    Is it possible to send informations to the SCC, keeping the header structure used for TOF/tof/LMD?
    Labview Vis used to build the SlowControl raw-event include the STB flag.

- **GAS: ?**

    Is it possible to send informations to the SCC, keeping the header structure used for TOF/tof/LMD?
    Labview Vis used to build the SlowControl raw-event include the GAS flag.

- **Low voltage controller (LMD-STB): ?**

    Is it possible to send informations to the SCC, keeping the header structure used for TOF/tof/LMD?

Required upgrades...

- **ISA ===> PCI**
  We can not hope our machines will last forever...
  New machines are available, but no ISA bus is installed...

- **Software for the NEW TOFINO**
  To be integrate into the Labview TOF/tof software.

- **Voltage supplier for the NEW TOFINO ?**

- **More?**