XDAQ Framework and SOAP Messaging

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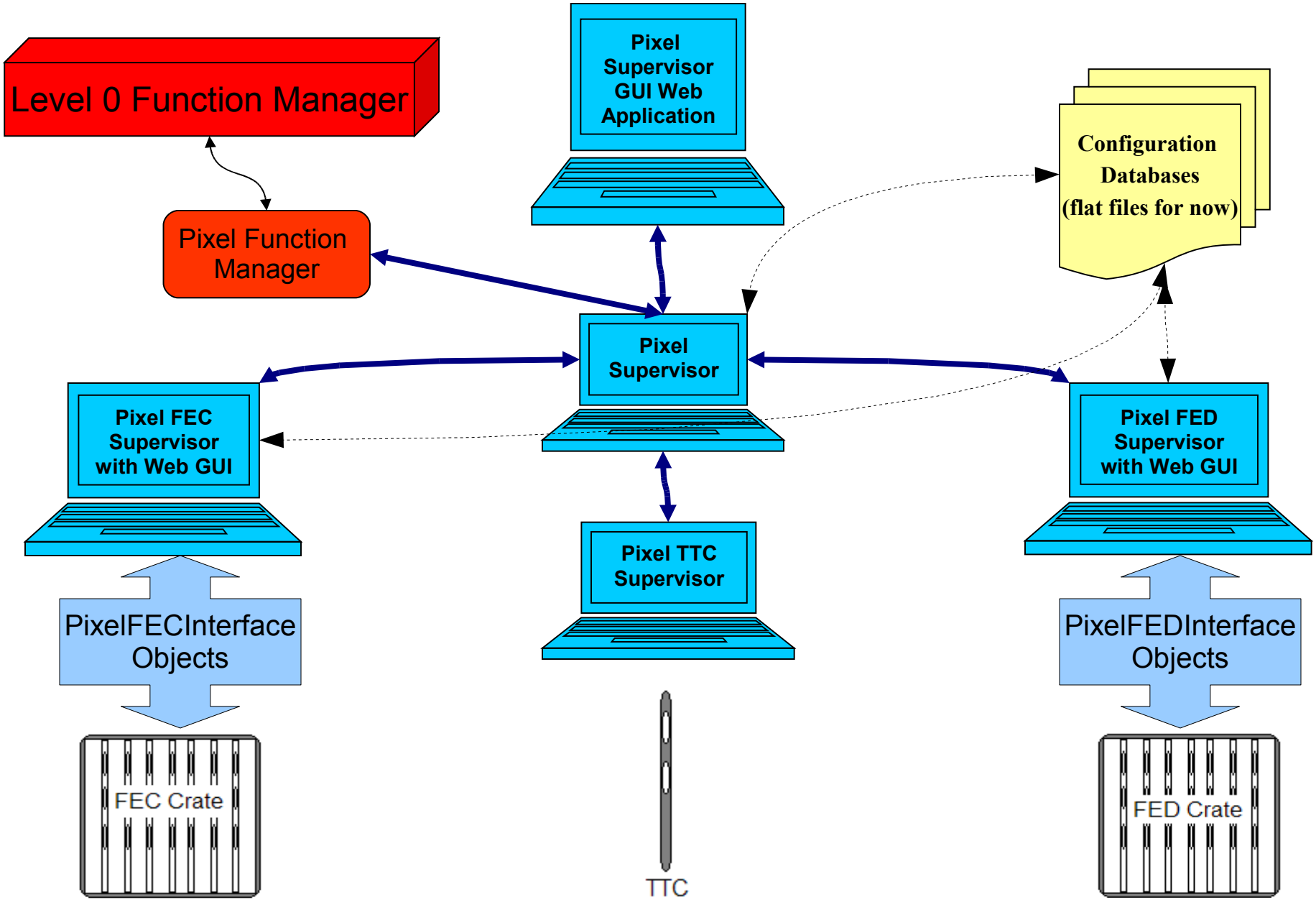
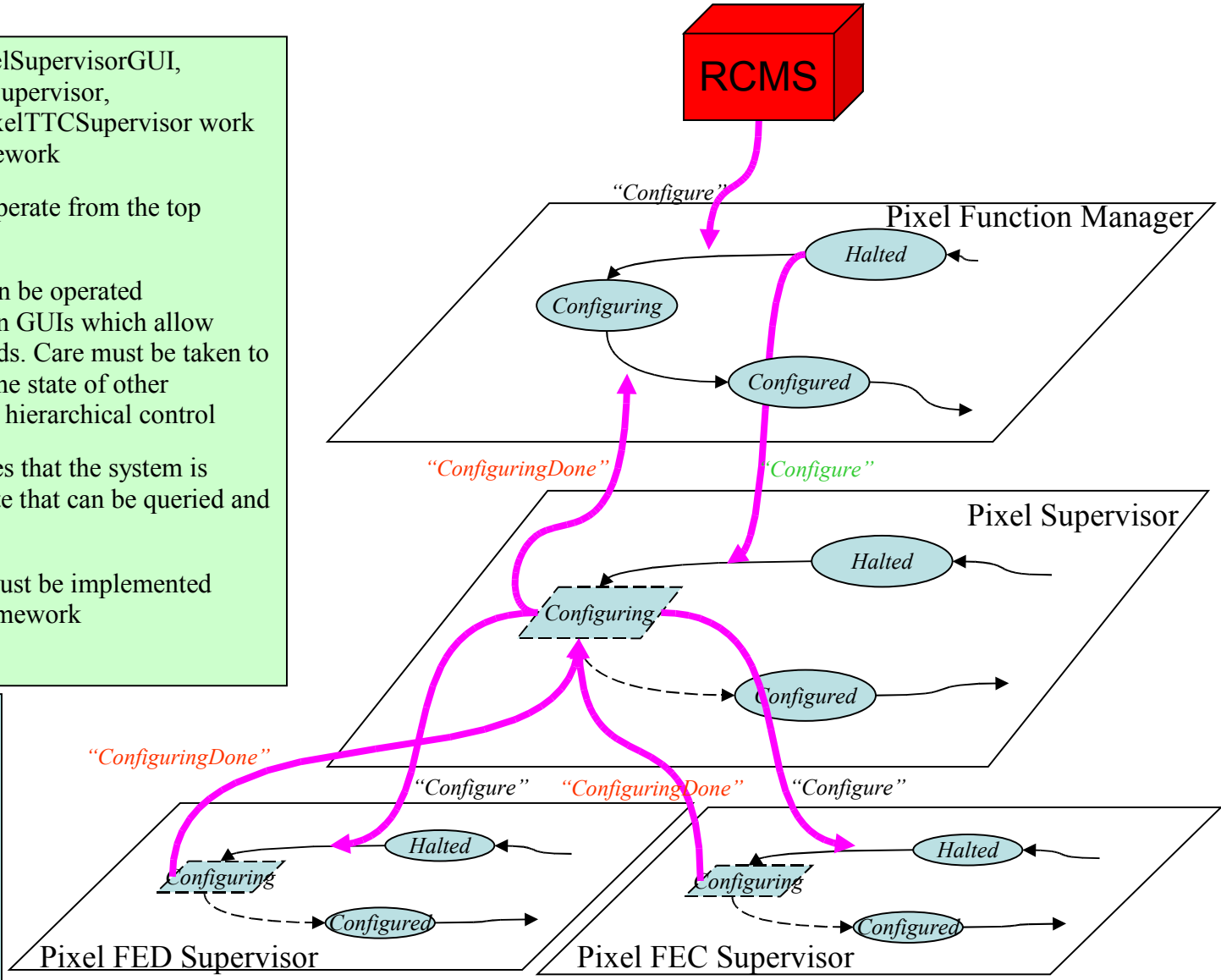
Overview of Present XDAQ Framework



Layers of State Machines

- PixelFunctionManager, PixelSupervisorGUI, PixelSupervisor, PixelFEDSupervisor, PixelFECSupervisor and PixelTTCSupervisor work within a state machine framework
- Hierarchically arranged to operate from the top (PixelFunctionManaer)
- However each supervisor can be operated independently with their own GUIs which allow access to low level commands. Care must be taken to restore its state machine to the state of other supervisors before resuming hierarchical control
- Why state machines? Ensures that the system is always in a well-defined state that can be queried and recovered
- All calibration algorithms must be implemented within the state machine framework



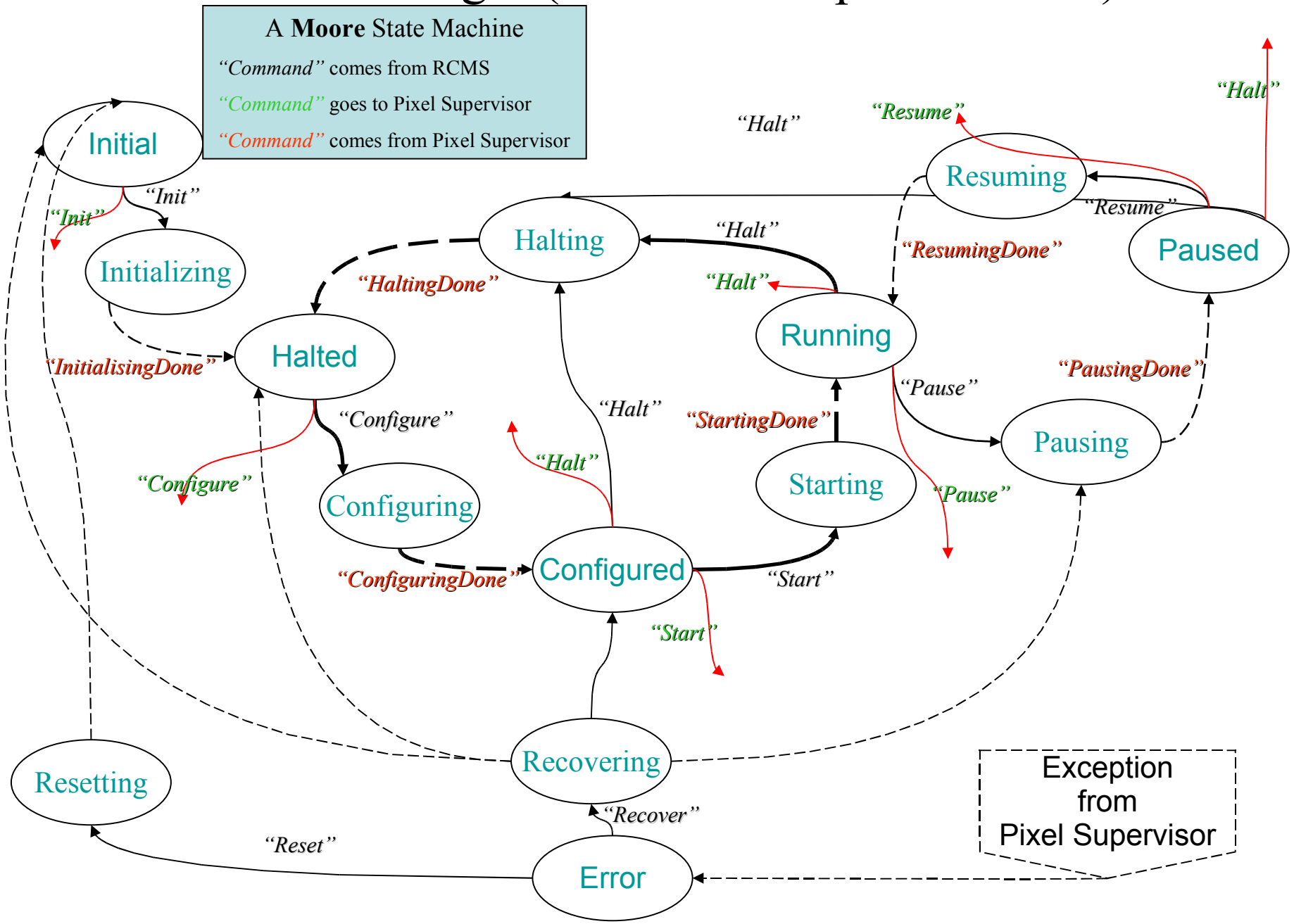
Legend

SOAP message

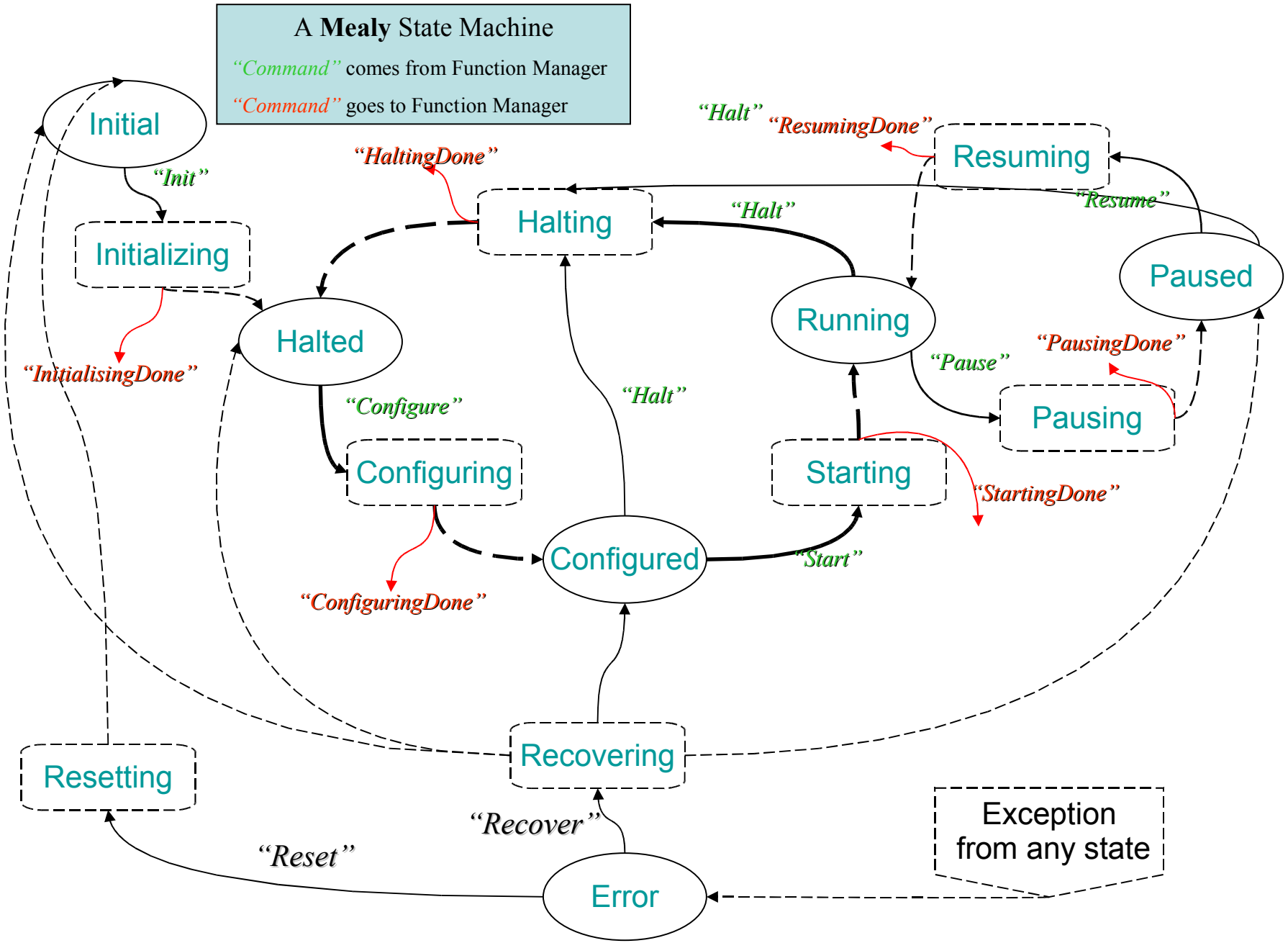
Configuring — State

Configuring — Transition (Entry) Function

Function Manager (Also PixelSupervisorGUI)



Pixel Supervisor



Summary and To Do List

Status

- PixelSupervisorGUI, PixelSupervisor, PixelFECSupervisor, PixelFEDSupervisor and PixelTTCSupervisor have been **tested on the '07 Detector** at Fermilab. **Committed to CVS** repository in the TriDAS/pixel area.
- **Baseline Calibration**, **Address Level Calibration**, **Pixel Alive Test**, **Gain Calibration** and **S-Curve Calibration** have been implemented and tested as far as the Supervisors are concerned.
- PixelFECSupervisor and PixelFEDSupervisor offer **independent GUI**s to issue low level commands to the FEC and FED. This replaces the "Manual Running" mode we had in addition to "Calibration" and "Physics".
- Instead of a database we use flat files to store configuration information
- hypernews.cern.ch/HyperNews/CMS/get/pixelOnlineSW.html

To Do

- We need a **PixelTrackerFECSupervisor**. (We need to be able to set AOH settings for Baseline Calibrations.)
- Process Gain Calibration and S-Curve Calibration data (using root scripts?), iterate the configuration files accordingly and thus close the calibration loop.
- Integrate with the **database**.
- Integrate with **RCMS**. We have a Pixel Function Manager, but haven't tested it.
- Incorporate Reset and Recover states in PixelSupervisor. See how **error handling** fits in.

Sample Screenshot of the GUI