

# **Weyerhaeuser Hawesville-Operations**



**Basic Care and Condition Monitoring**

**via**

**PI**

# Introductions



- Dennis Waldroup -

- Senior Environmental Engineer for Hawesville Operations

- Gregg Jarboe -

- Environmental Engineer for Hawesville Operations

# Our PI System



- We have a PI 3.3 system
- It's ~24,000 tags.
- Most Users use the standard PI Process Book and PI -Datalink for 90% of their work.
- About 60% of the data is automatically retrieved from systems such as a DCS.
- The other 40% is manually entered data.

# What We Needed



- Our H2 Machine had several opportunities in the areas of Production and Maintenance.
  - Lessening Machine Down Time due to Equipment Failure.
  - Lessening Machine Slow Down Periods due to Equipment that is in less than Ideal Working Condition.
  - Lessening Maintenance Cost by fixing equipment before it enters a higher stage of repair.

# What We Needed



- Lessening Seal and Seal Water problems.
- Lessening Oil Related Problems.
- Lessening Scheduled Shut Down Lengths and Frequencies.

# What We Needed



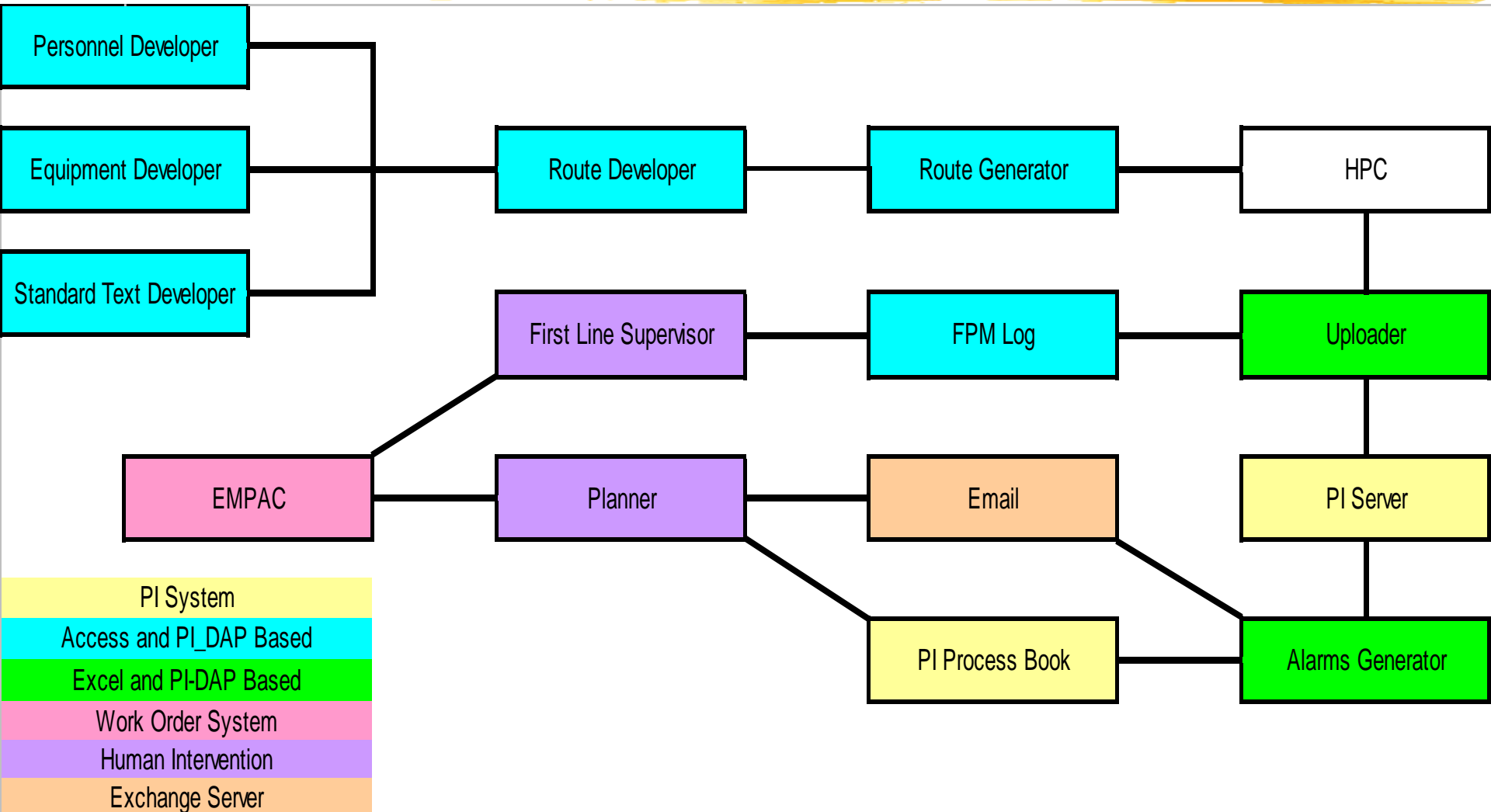
- All these opportunities revolved around the ability of keeping a great deal of equipment in its best working condition.
- In order to do this, it takes a great deal of Condition Monitoring and Analysis of the Collected Data.

# Amount of Data



- Hawesville Operations Monitors
  - ~700 pieces of equipment on H2.
  - An average of ~4 Points of data per piece of equipment.
  - ~2800 points of manual data collection on H2 every week.
  - 5 control levels (O-RATS) per point.
  - ~14,000 calculations to monitor every week

# Our Design





# The Results



- Initial Increase in WR Backlog
- Leveling of Problems
- Lessened Unscheduled Down Time
- Lessened Slow Down Periods
- Lessened Shut Down Lengths
- Lessened Shut Down Frequencies
- Lessened Maintenance Cost

# Example of Results



- System Cost  $\sim$  \$60,000
- A Pump Failure Cost (Down Time Only) = \$180,000
- System Paid for itself 3 times with 2 weeks worth of data.

# Environmental Issues



- Visual Inspections
  - Oil Leaks
  - Chemical Leaks
  - Water usage

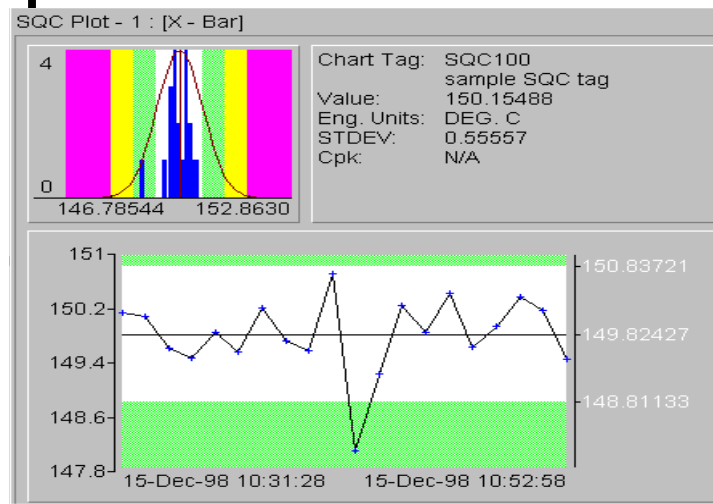
# Next Steps



- Using this type of system in other areas of the Mill Site.
- Need to lessen time of deployment
- Need to lessen cost of deployment
- Need to lessen Upkeep Time

# Future Development

- Currently Graphs are created in Excel with PI-Datalink.
  - Maintenance for Changes
  - Statistical Analysis Very Manual.
- Future Graphs will be made using PI-SQC.

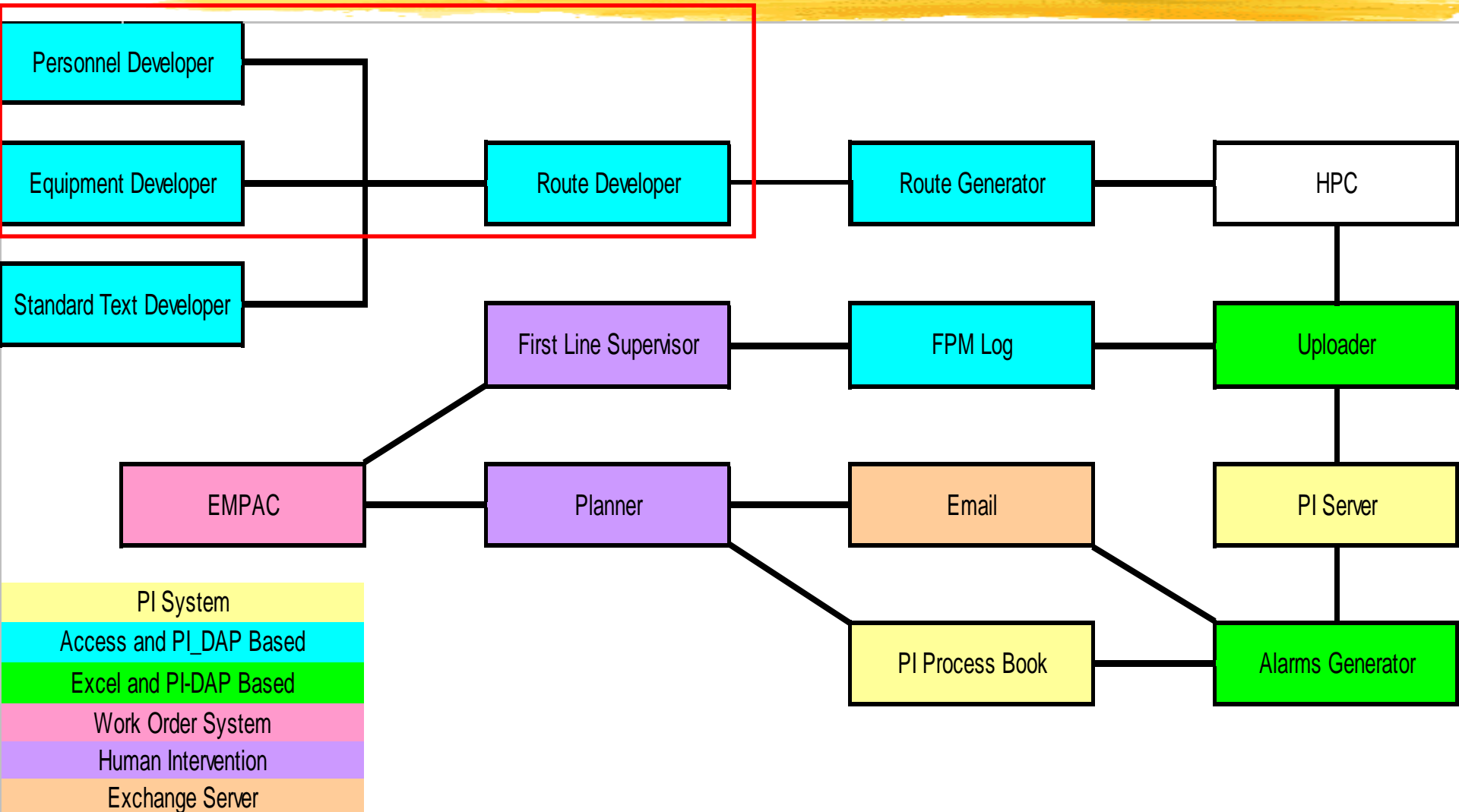


# Future Development

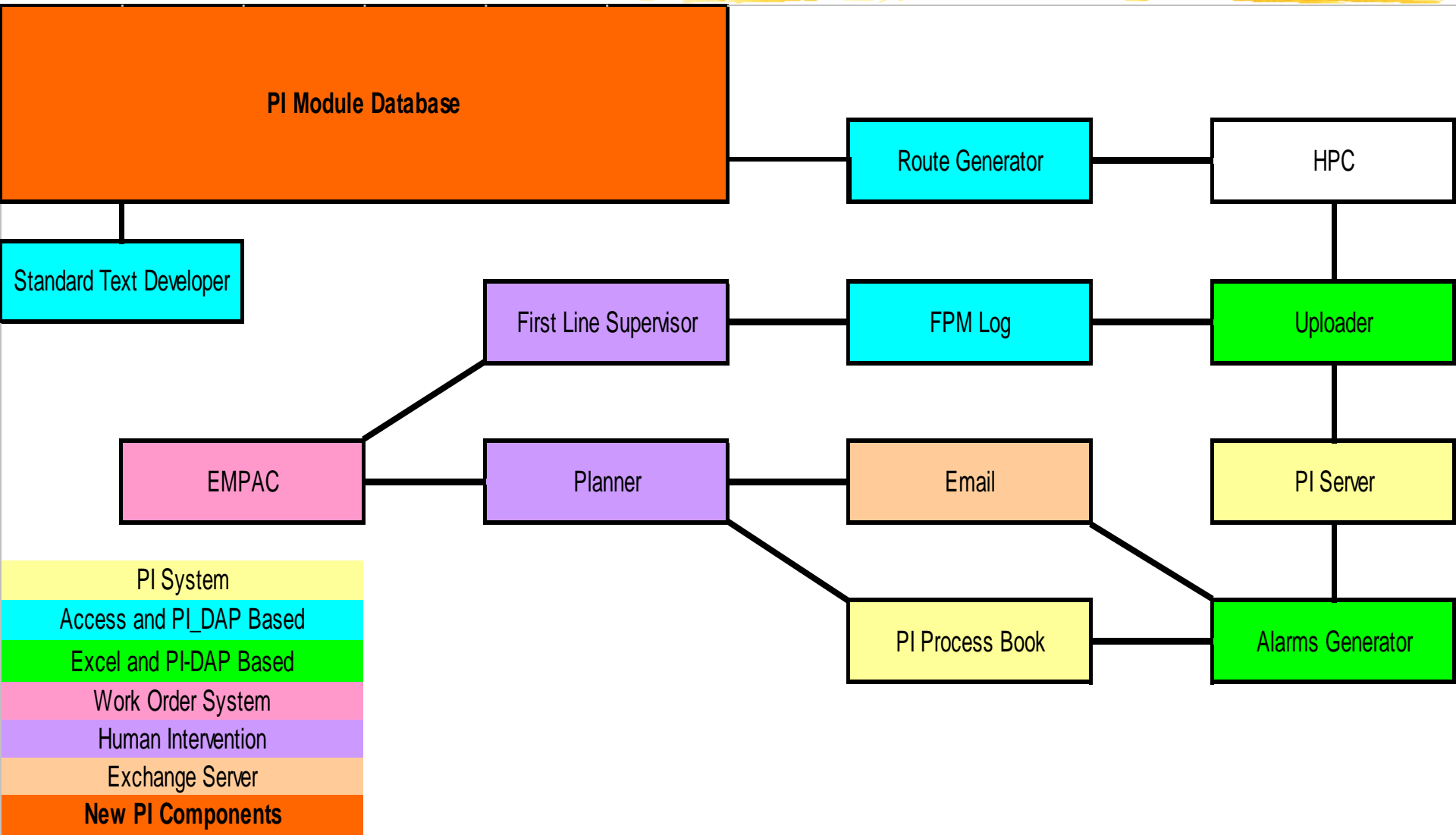


- Current Database is in Access and stores a lot of the data such as:
  - Equipment Name, Location, Model, Picture
  - Personnel Information
  - Routing Information: Frequency, Personnel, Route Path
- Ideal for PI Module Database

# Current Design



# Future Design



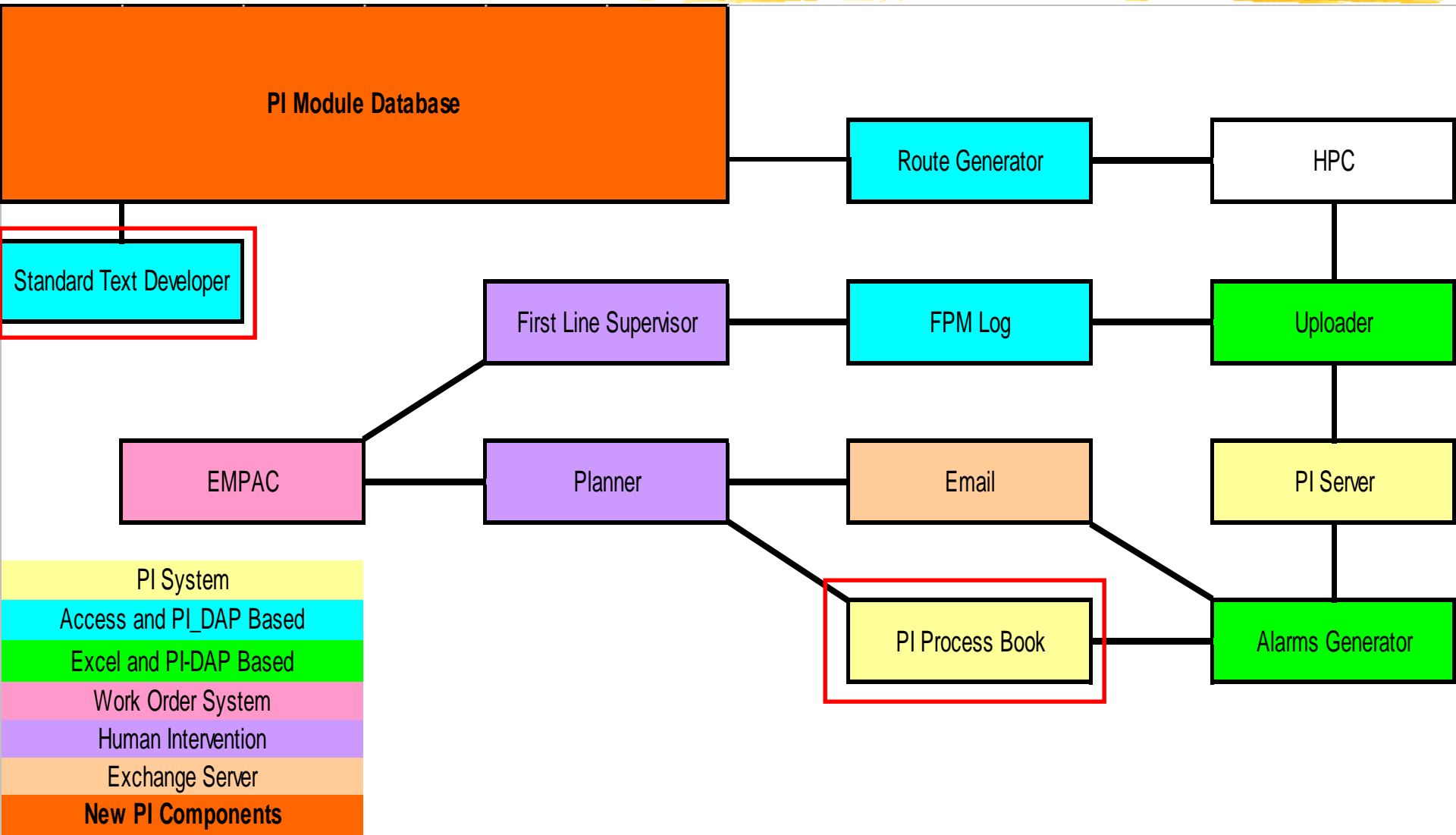


# Future Development

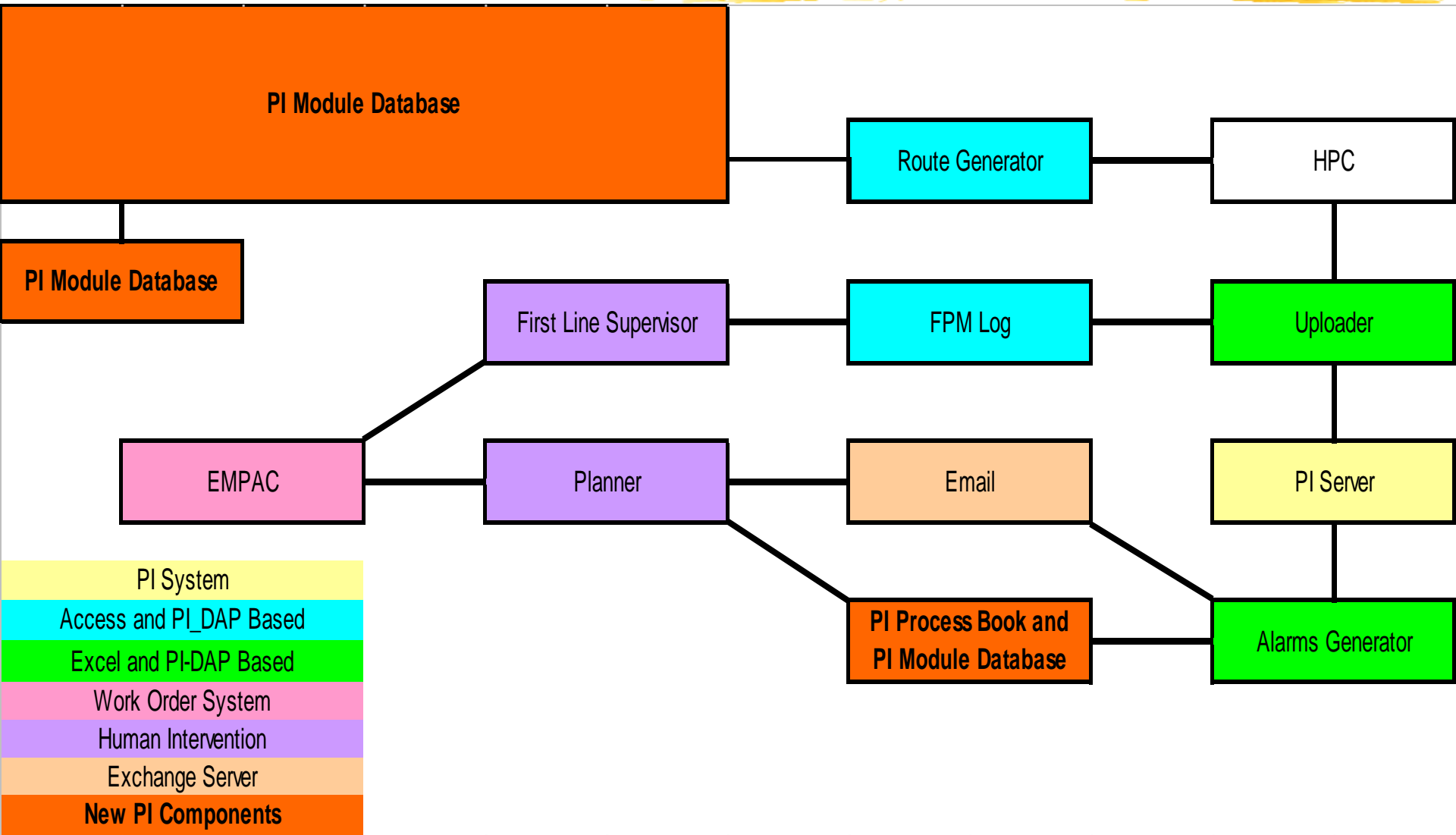


- Current Alarm Settings and Alarm Statuses are kept in PI.
- These PI Tags are named via convention, but still hard to navigate through.  
(Manual)
- Ideal for PI Module Data Base Aliases.

# Future Design



# Future Design



# Future Development

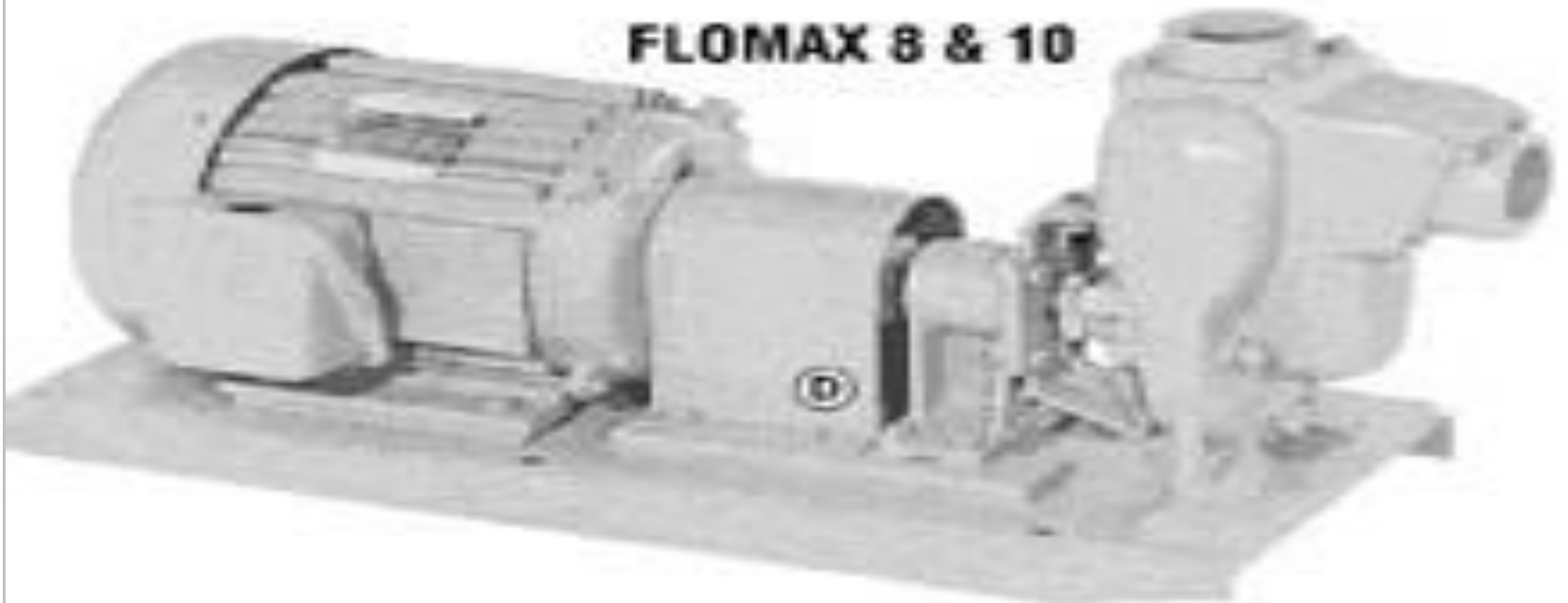
Equipment Number 913-2420

Vibration  
0.015  
Temperature  
100

Vibration  
**0.100**  
Temperature  
**200**

Vibration  
0.015  
Temperature  
110

Vibration  
0.020  
Temperature  
100



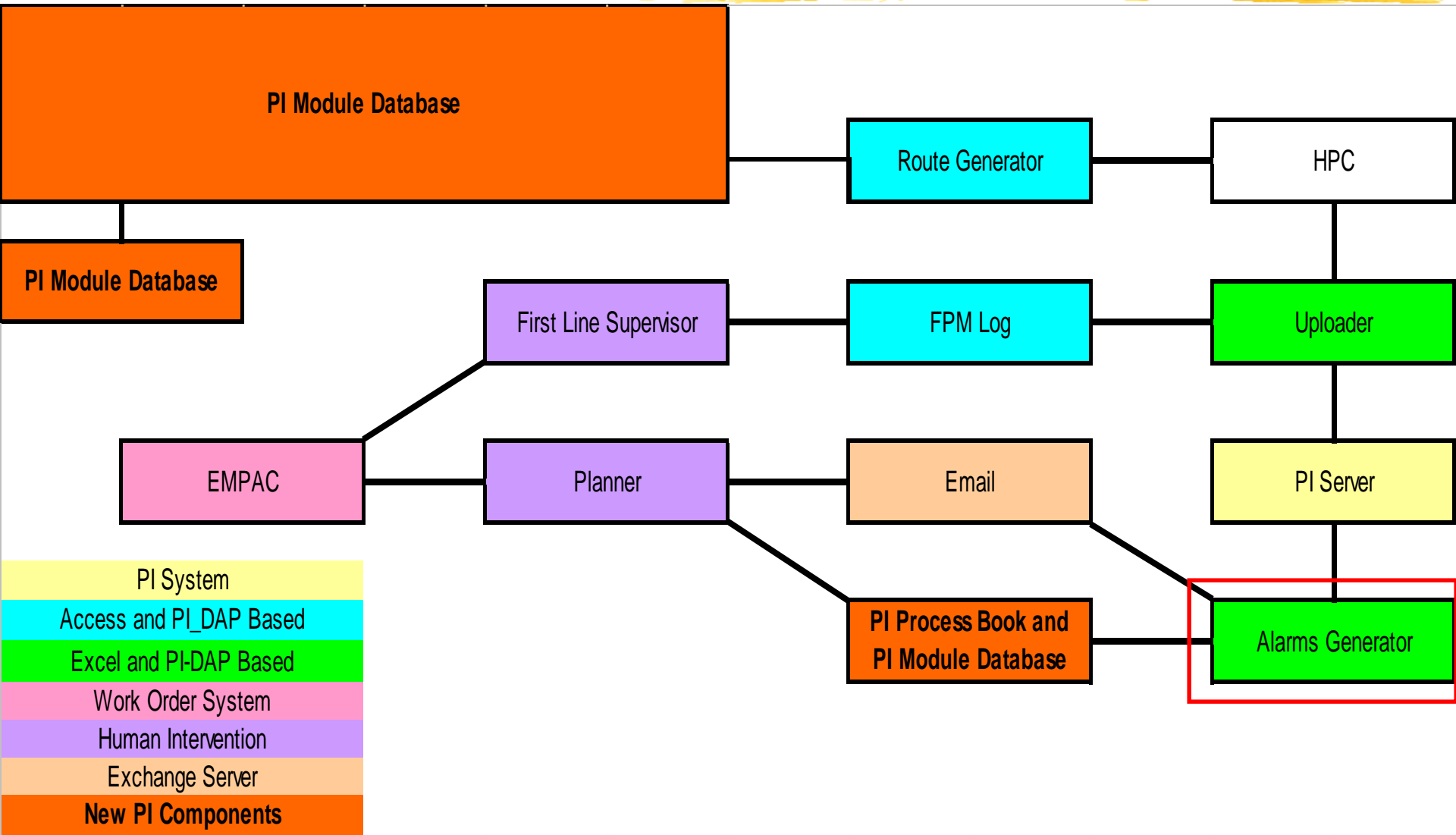
Seal Cond.  
Good

# Future Development



- Calculations are all done via Excel Sheets (Manual)
- Ideal for PI-ACE and PI Module Data Base Aliases

# Future Design



# Future Design

