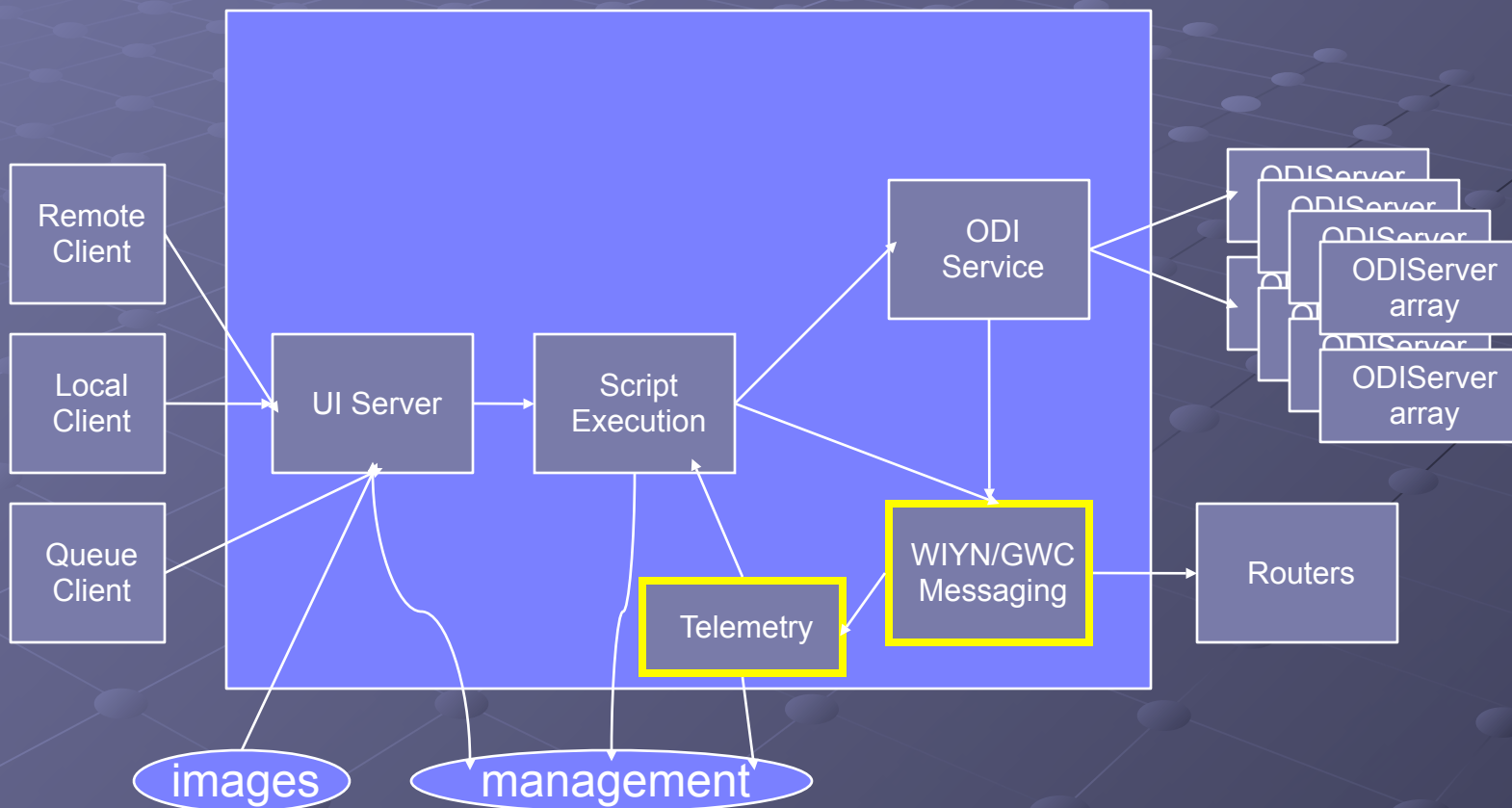


Instrument Controls

ODI Services



Instrument control and telemetry



ODI WIYN/GWC Clients

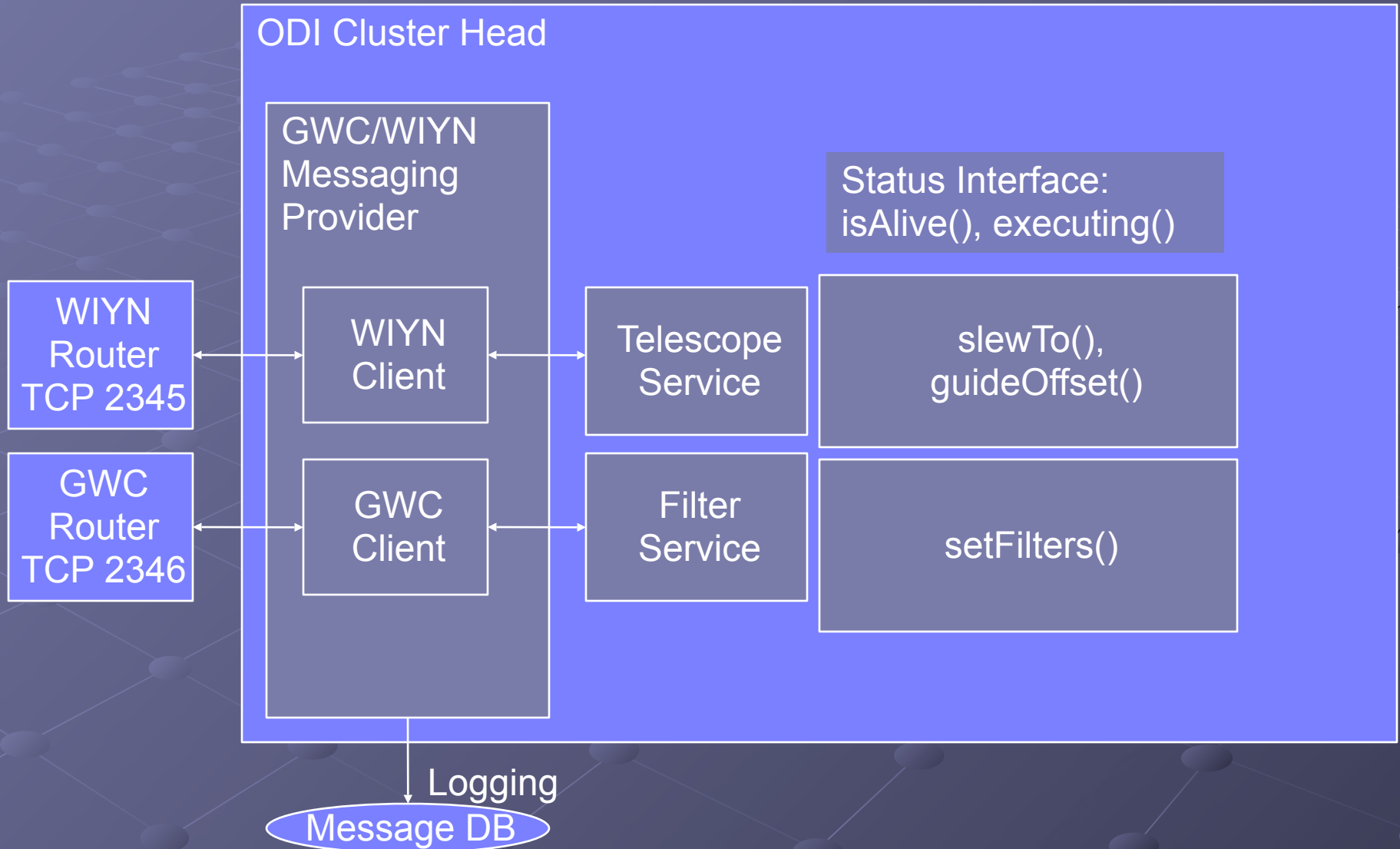
● Telescope

- Position
- Send offset
- Handle timeouts, errors

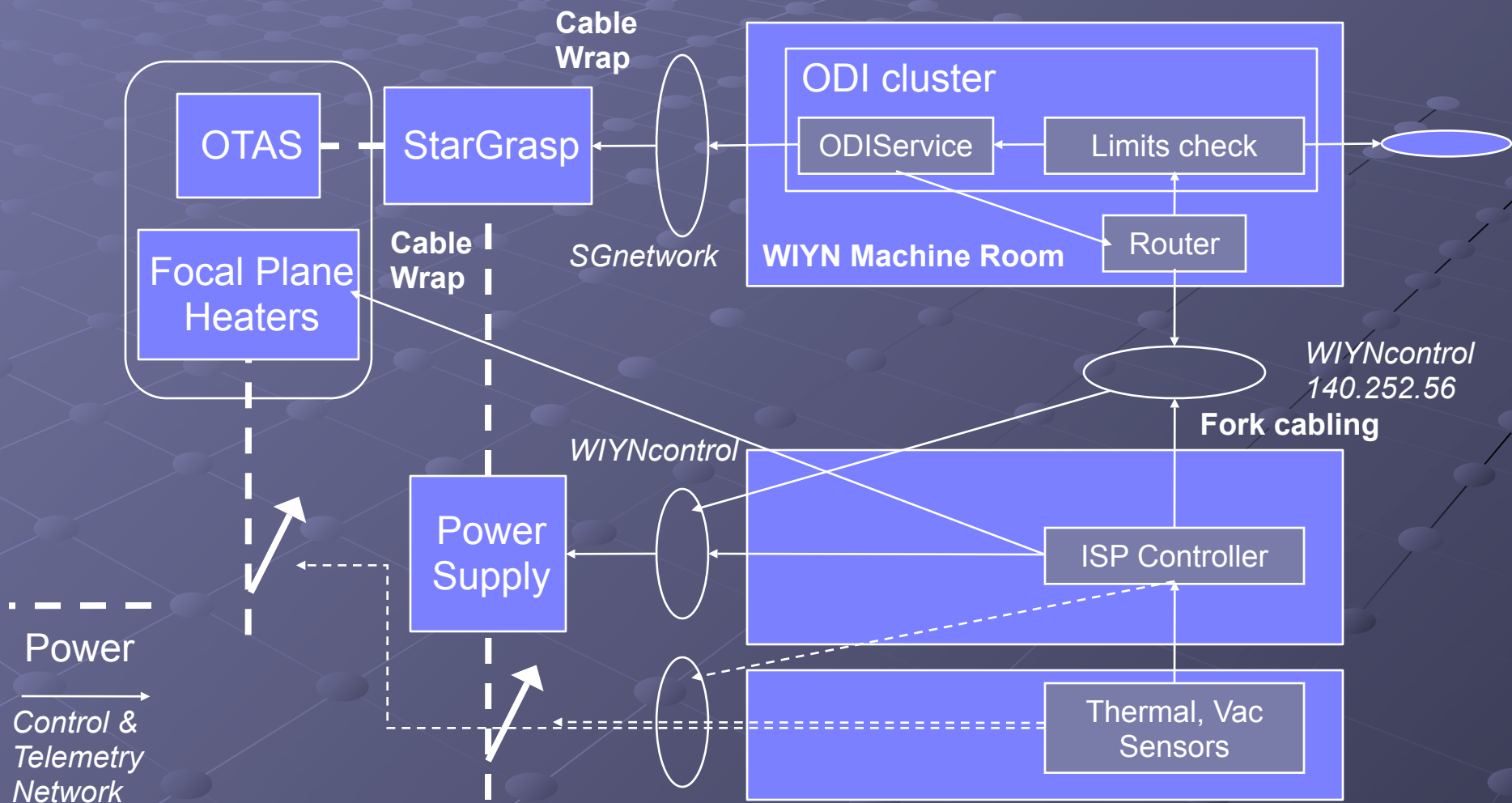
● ISP

- Filter, ADC – set, get, timeout, errors
- Shutter, LED – set, get, timeout, errors
- Thermal, Vacuum – regulation setpoint set, get telemetry, out of range, timeout

WIYN & GWC Listeners



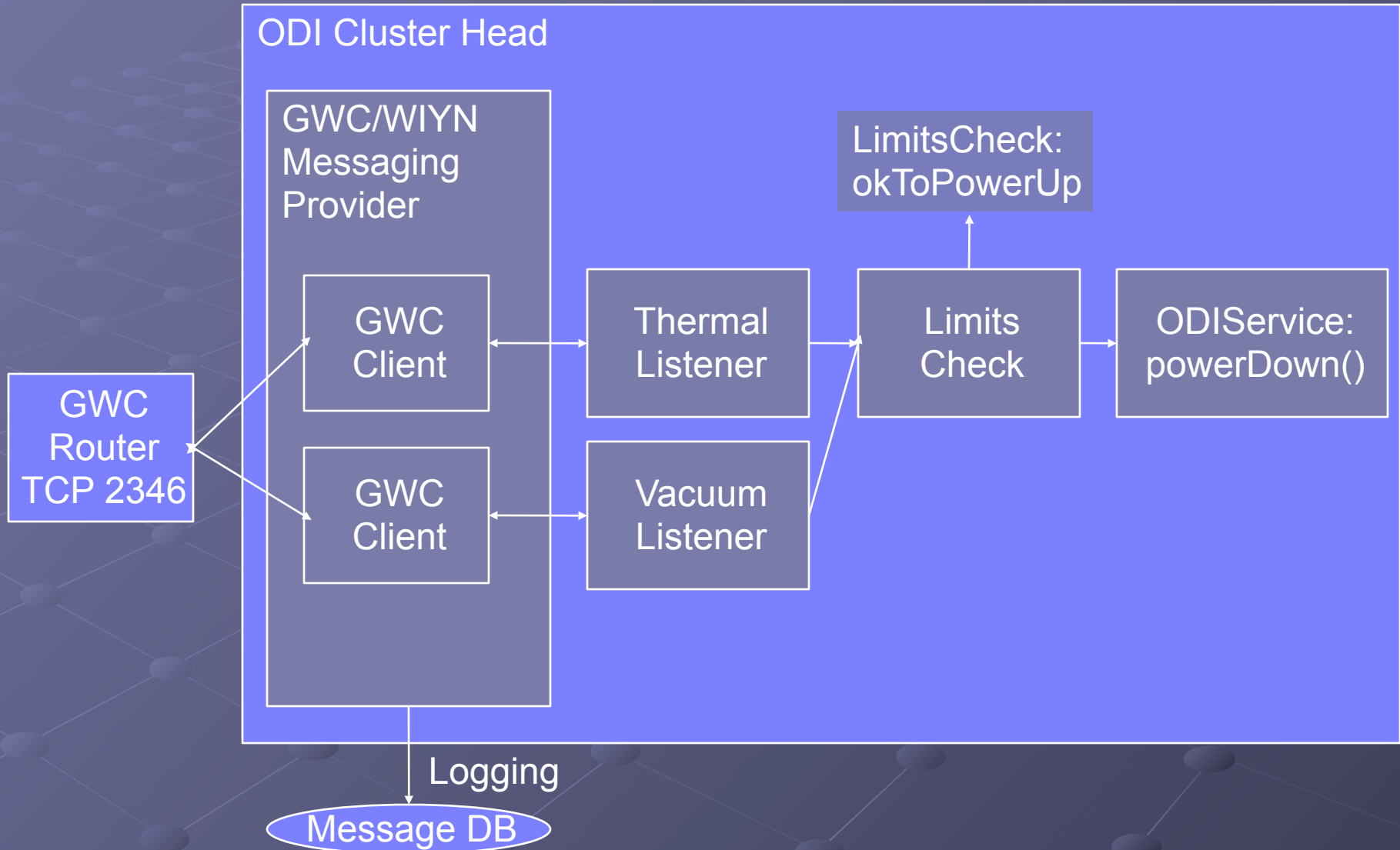
Dewar Control



Dewar Monitoring and Safety

- Avoid focal plane and dewar damage from overheating, overcooling
- Inputs
 - Thermal sensors on focal plane
 - Vacuum sensors
- Outputs
 - Heaters on focal plane
 - OTA Device power
- Controls
 - Heater resistor levels – steady state control
 - Setpoints via GWC router messaging
 - Device power on/off – high level command
 - ODIService interface
 - Controller power on/off – network level
 - Agilent SCPI interface
 - Heater power on/off and controller power supply on/off
 - Relay and thermostat

Dewar Monitor Listeners



Dewar Control Tiers

- WIYN Router feedback, high level control
 - Lowest thermal limits
 - Can alert, record, interact with operator
 - Powers down devices via StarGrasp commands
 - Could also power down Agilent if need be

- ISP Local controller
 - Unaffected by network partition
 - Powers off StarGrasp controllers via Agilent or relay control

- Hardware interlock
 - Highest thermal limits
 - No CPU involved
 - ISP controller unresponsive
 - Power for StarGrasp controller power supplies cut

Integration with WIYN

INFORMS system

- Database, Web application to track
 - DIQ
 - Telescope utilization
 - Science, overhead, weather, idle, etc.
 - Operations
- Driven from GWC messages

Camera and operations messages

- Focus info
 - Star id, fwhm, flux,
- Exposure begin/end
 - Exposure type, id, time, limited metadata
 - Shutter open/close
- Power up/down Dewar
- Camera power up/down
- Video stream begin/end
 - Type, id, time, etc.
- StarGrasp status info

- Published to GWC from ODI server