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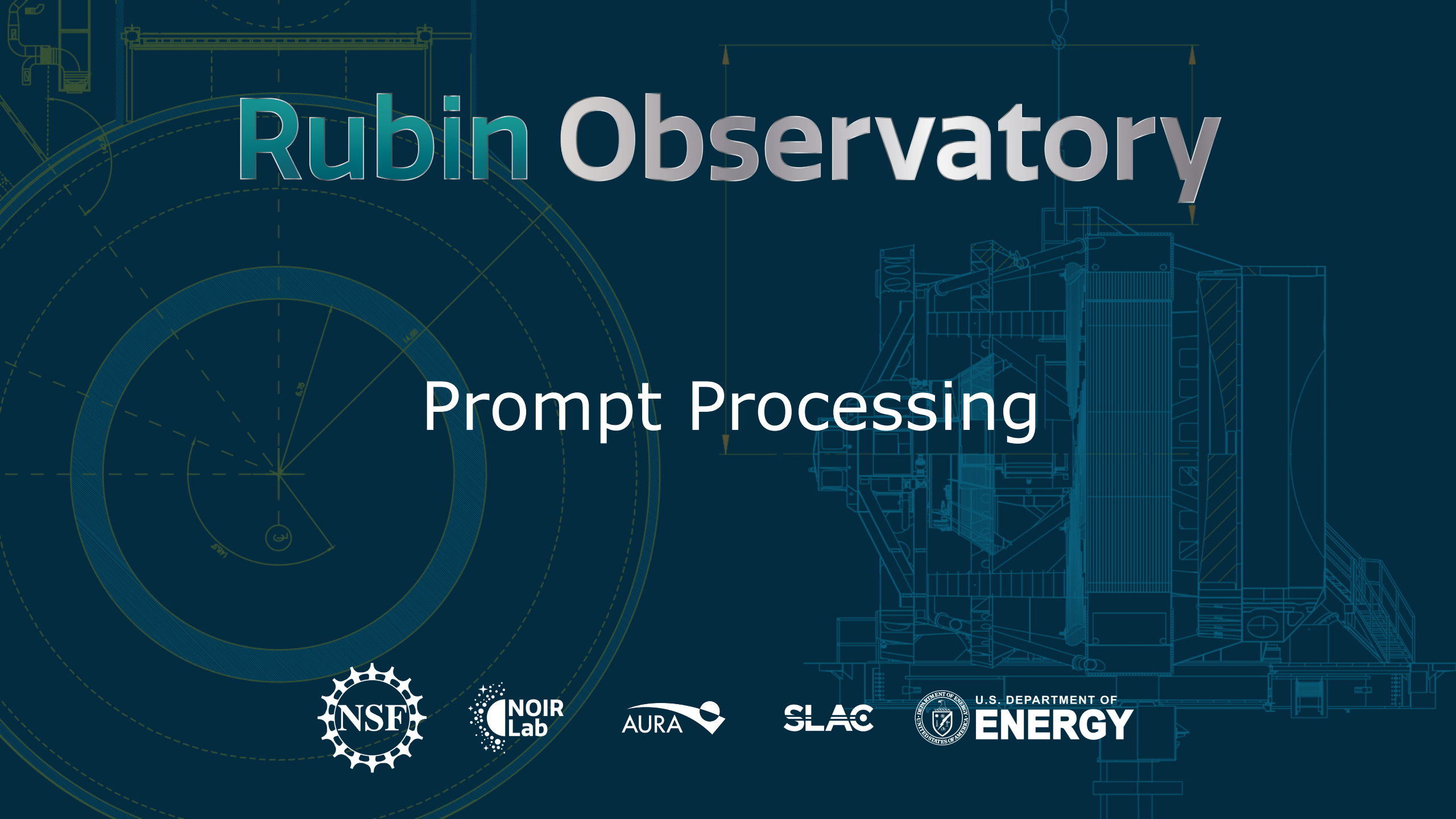
Prompt Processing



Prompt Services

Most relevant existing documents (LDM-148, DMTN-111, and DMTN-133)

- LDM-148
  - Section 5: Prompt Base Enclave
    - Archiving
    - Planned Observation Publication
    - Prompt Processing Ingest (currently still crosstalk-corrected images)
    - OODS (separate, short-term, for use w/ Commissioning Cluster and BASE Nublado)
    - OCS Driven Batch (for modest latency analysis)
    - Telemetry Gateway (Feedback from Prompt USDF)
  - Section 6: Prompt ~~NCSA~~ USDF Enclave
    - Prompt Processing (Alert Production, CPP)
    - Alert Distribution
    - Prompt Quality Control (feedback to observing team
- DMTN-111: DM Usage in Observatory Operations
  - confluence: Commissioning Compute Cluster (similar but not identical)
- DMTN-133: OCS Driven Data Processing

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Use Cases (Base)

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Base compute (e.g. Commissioning Cluster + OODS)

- Flavors
  - OCS Driven
  - LSP/Nublado instance driven investigation?
- Use Cases (from confluence page but mostly echo-ed in DMTN-111)
  - Full Focal Plane as a Wavefront Sensor
  - Assess Dome Flat and Collimated Beam Projector
  - Camera Characterization and Monitoring
  - Telescope Vibration/Tracking Diagnostics
  - System Diagnostic and Monitoring (EFD vs Image Properties)
  - Rapid Trials of ad-hoc software/algorithm changes (during a night)
  - Utilize Nublado to perform interactive analysis tasks
  - Isolate/protect commissioning activities from network or service outages

USDF Compute

- Flavors
  - OCS Driven Prompt Processing (CPP + specialized calibrations + image health)
  - Alert Processing/Distribution
  - Prompt Quality Control (provides feedback to observers)

Use Cases (USDF)

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USDF Compute

- Flavors
  - OCS Driven Prompt Processing
  - Alert Processing/Distribution
  - Prompt Quality Control (provides feedback to observers)
- Use Cases
  - Calibration Production Pipeline
  - Specialized Calibrations (Collimated Beam Projector, StarFlat?, PCA Background?)
  - Alert Processing
  - ISR (quality control when not exercising Alert Processing)
  - Specialized production (e.g. construction/AI&T tests for wavefront, pointing, jitter, tracking)

Problems/conundrums/boundaries

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- Prompt services explicitly do not include AuxTel/LATISS processing
- OCS Driven Processing
  - DMTN-133 describes a basic method but it is not restrictive
  - Currently unclear how “nimble” this can be made to behave
    - Must be bound to what is expressible as a stack
    - While it is easy to want, it is unclear whether it is reasonable to expect this to perform any arbitrary reduction
    - Should be restricted to a set of pipelines with only modest room for configuration
  - Need to decide how to respond to processing with limited resources?
    - FIFO (queue, w/catchup capability?), kill current jobs as new requests arrive, only process when resources available
  - Strawman path forward:
    - Define a few pipelines with minimal configuration options and get this to work
    - Determine whether there is room for broader capabilities
  - Can it drive Base and USDF (separately, mirrored? Either/or)
- Currently products derived in the Base Enclave are not generally accessible elsewhere (repeat as batch production at USDF as needed)?

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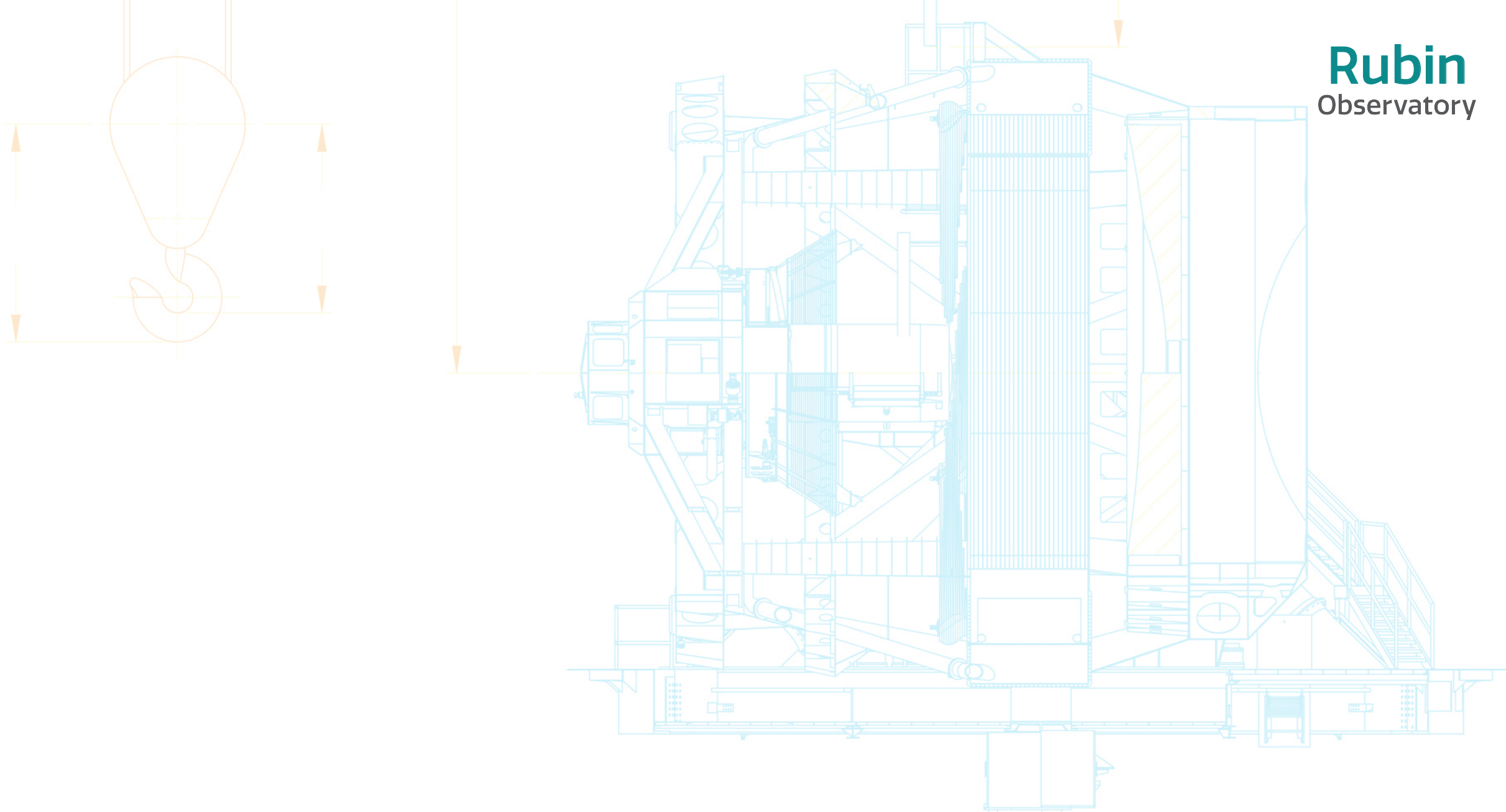

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