



# A Stab at Modeling Network Flows

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SLAC

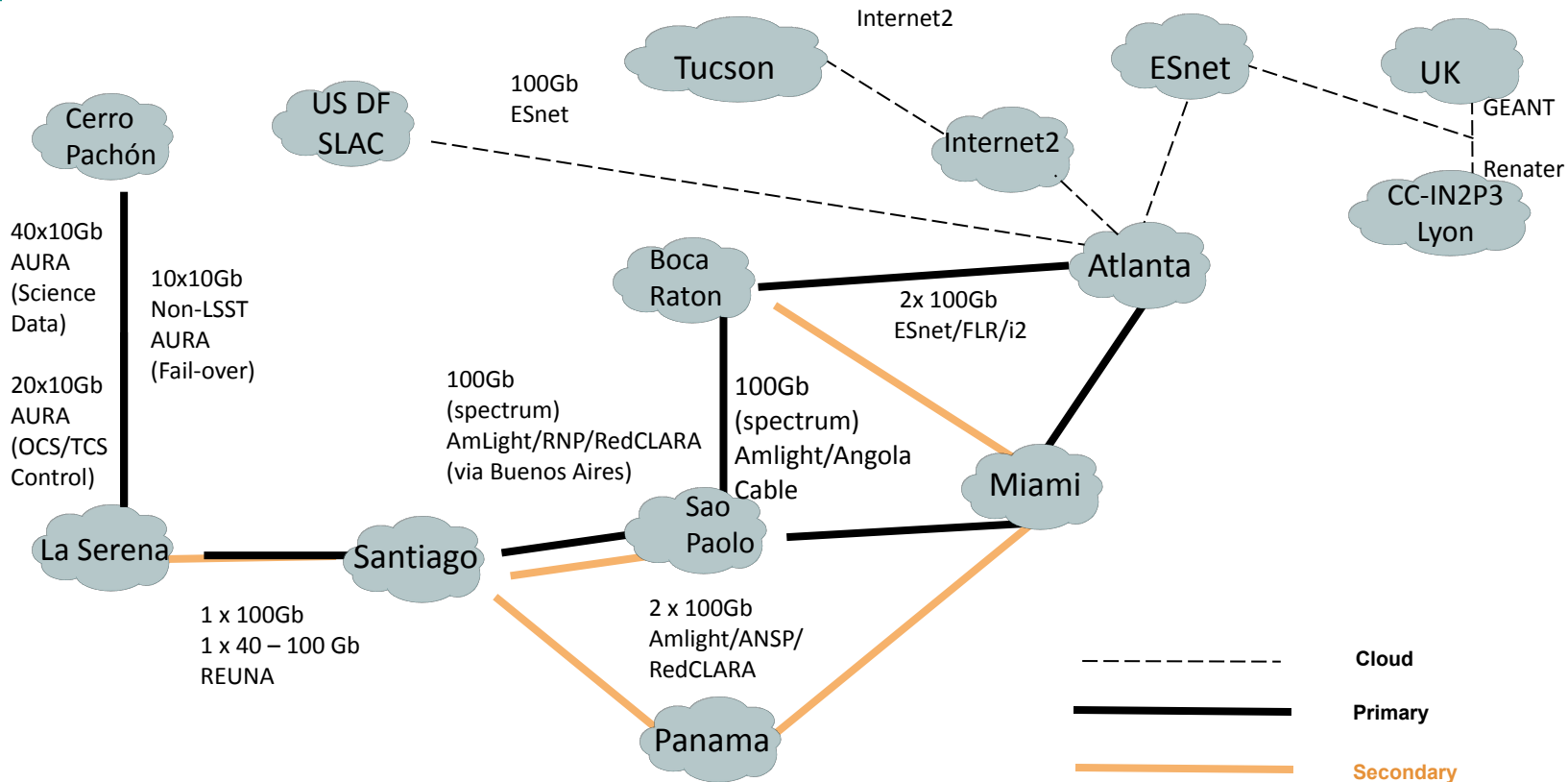


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# Preamble

- Seeing the network topology diagrams, I was wondering about the pipe sizes and if I could estimate the data flows through the pipes
  - I am looking at maximum rates, not averages
- Rubin sizing [model](#) is the source for data volumes
- Use parameters as knobs for durations of various activities

# Long Haul Network Links

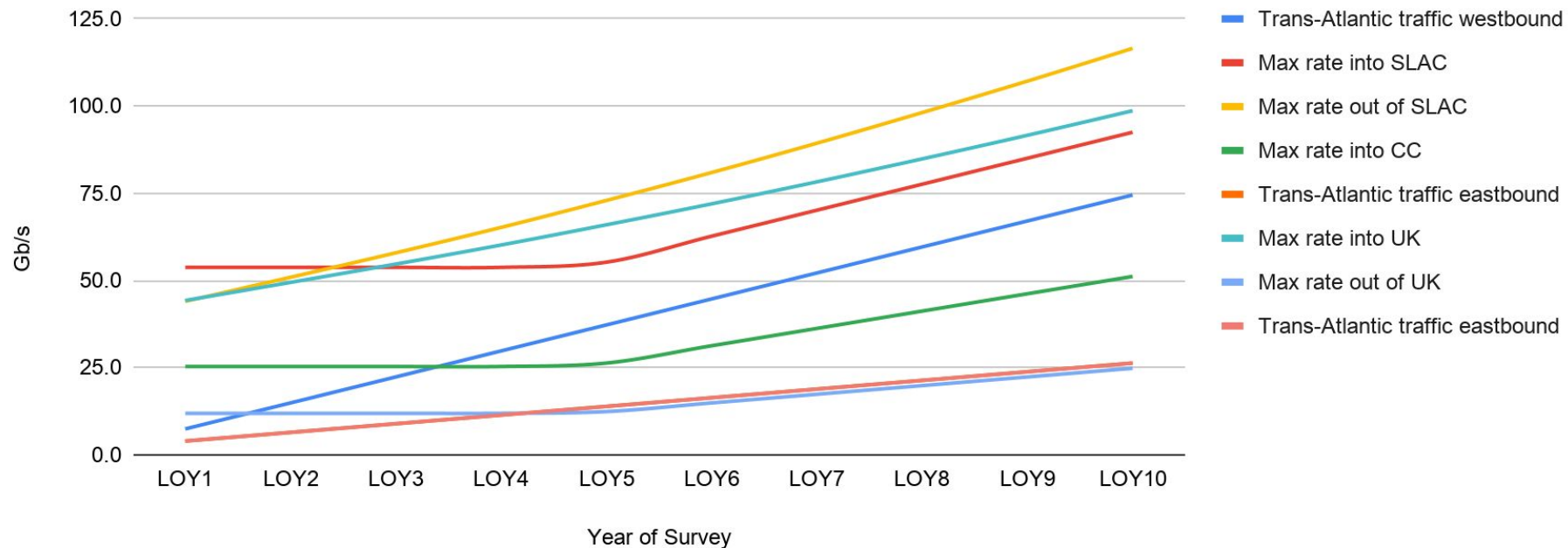


# Model Assumptions

- Raw images
  - 2 exposures (compressed) sent to SLAC in 6 secs
  - 1 Gb/s EFD transfer to SLAC
  - Images sent trans-Atlantic daily (full days)
- For sake of discussion, SLAC will exchange trans-Atlantic data with CC-IN2P3, which will coordinate UK data
- SLAC, UK, France produce 25:25:50% of DRP - 200 days allocated
  - Transfer output products “daily” - ie as production is being done
  - CoAdds are produced **after** single image processing is complete; object catalogues can be updated. CoAdds sent to Chile.
    - 15 days allocated for distribution to DFs; 30 days for “lite catalogs” to IDACs.
- 15 Gb/s from SLAC to brokers
- Annual nominal bulk transfer to DESC at NERSC (10% of single year images)

# Results

## Estimated Max Network Transfer Rates



# Takeaway

- With this choice of parameters, rates seem ok...
  - But max rates can be driven by how aggressive we'll want to be in shipping the DRP CoAdds - not as much data, but much shorter time window
  
- Did I miss any significant data to be transferred? Or botch the rate I did assume.