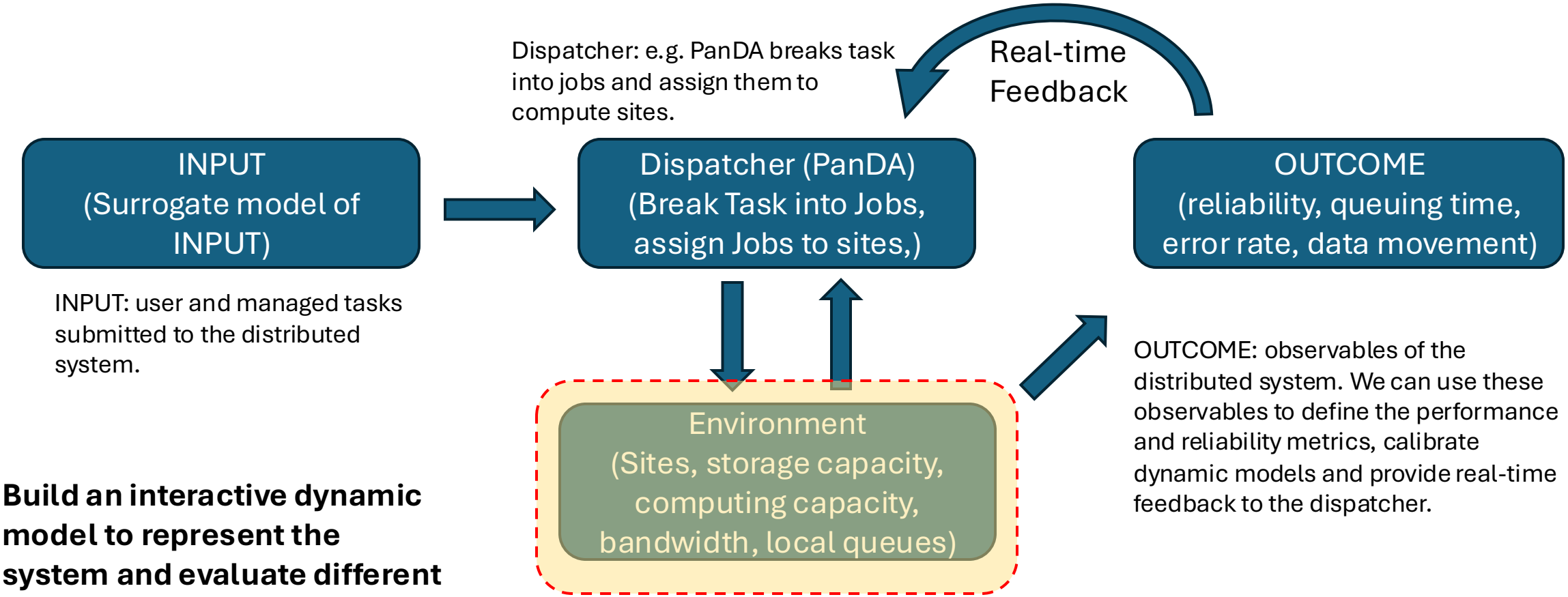
Track 4 ModSim

01/15/2025 Monthly Meeting

Track Lead: Adolfy Hoisie (BNL)

Overall Design and Roadmap



Build an interactive dynamic model to represent the system and evaluate different policies.

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Long-term goals

- High fidelity Event-based Simulation (HF-EBS):
  - ATLAS distributed computing grid, calibration and validation.
  - Error understanding and Error injection. (Reliability, main theme)
  - Global data movement. (Unique to this project.)
- HF-EBS to fast ML/AI Surrogate
- ML Surrogate to provide fast feedback for Optimization (e.g.RL).

Updates and near-term goals

High fidelity Event-based Simulation (HF-EBS):

- PanDAs records:
  - Thanks to Kaushik's sharp eyes. (too few jobs)
  - Tania & Ozgur found the bug
  - CHEP 2024 paper due by the end of Feb, Ozgur is leading a paper write up.
  - (ACAT 2025 is open for abstract, due Feb 19, link)
- ATLAS distributed computing grid, calibration and validation.
  - Raeese & Sairam (BNL), Fred, Paul, …
  - HF-EBS -> First paper.
- Error understanding and Error injection. (Reliability, main theme)
  - Tania, Paul, Sankha (BNL), …
  - PanDA Error understanding -> paper
- Global data movement. (Unique to this project.)
  - Tania, Paul, Kuan-Chieh (BNL), …
  - Important for data movement v.s. waiting & computing trade-off

Today’s talk

- Raeese on event-based simulation
- Paul on error code