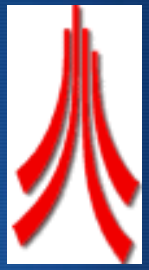


ATLAS Analysis

Roger Jones

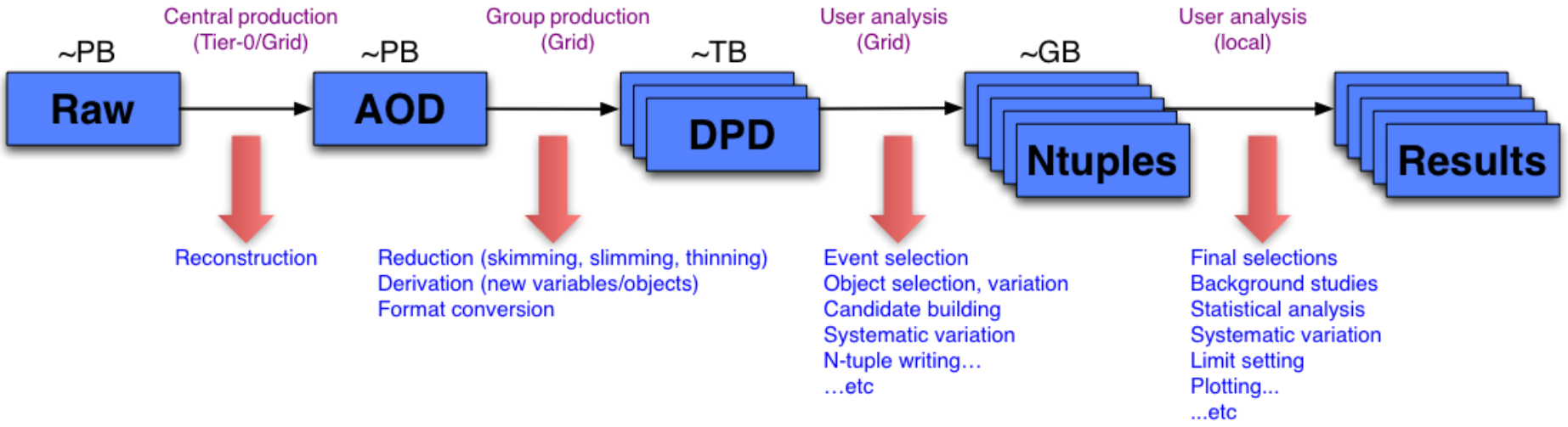
ATLAS Data Volume 2009-12

- 130 petabytes
- 600k datasets in various formats
- 355 million files
- Various processing task categories
- 800 active users
- Several analysis frameworks – no single "analysis chain" to preserve
- For analysis, the most efficient level is to focus on the AOD/D3PD level
  - Slimming and skimming off common input datasets (e.g. at AOD or "D3PD" level)

Level 3

- All code and datasets used in a publication should be preserved under existing policy
- ATLAS has no approved level-3 formats for external use, and such release will require such approval
- We are concerned that anything released be useful as *information*, & not consume large amounts of collaboration effort (both in production and response)
- As such, tools like Recast are more attractive
  - The information incorporates the efficiency, acceptances and corrections – so is robust
  - It also helps meet the internal requirement of full documentation of analyses

The Generic Analysis Flow



Plan to merge the AOD (end of recon chain) with the D3PD
Still have multiple derived DPDs representing skim/slim/thin and augmentation
Smart framework needed for this step

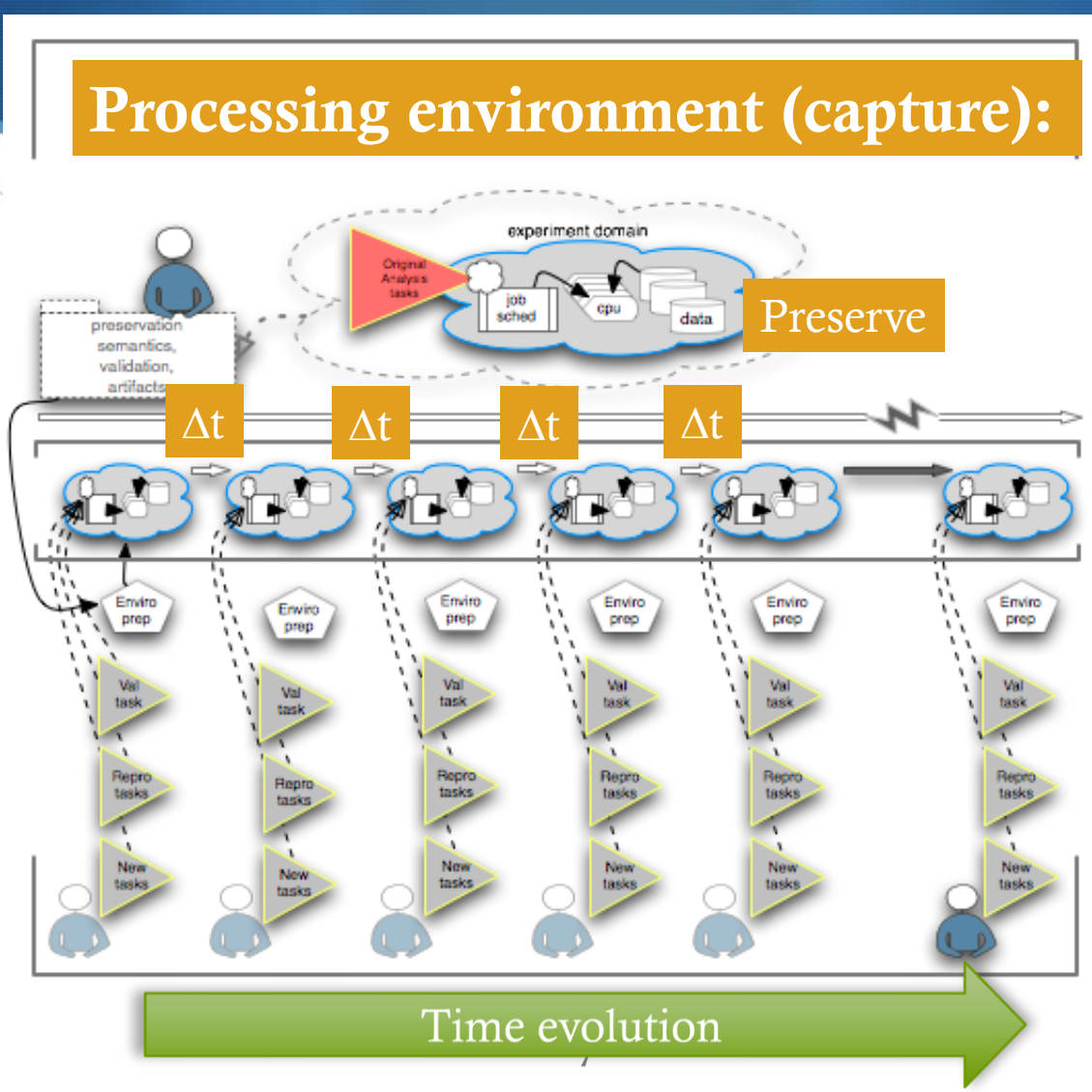
Documentation etc

- Paper & software documentation in twikis, indico, CDS
- Software in SVN
- Metadata on datasets in AMI
- Frontier conditions database access if needed

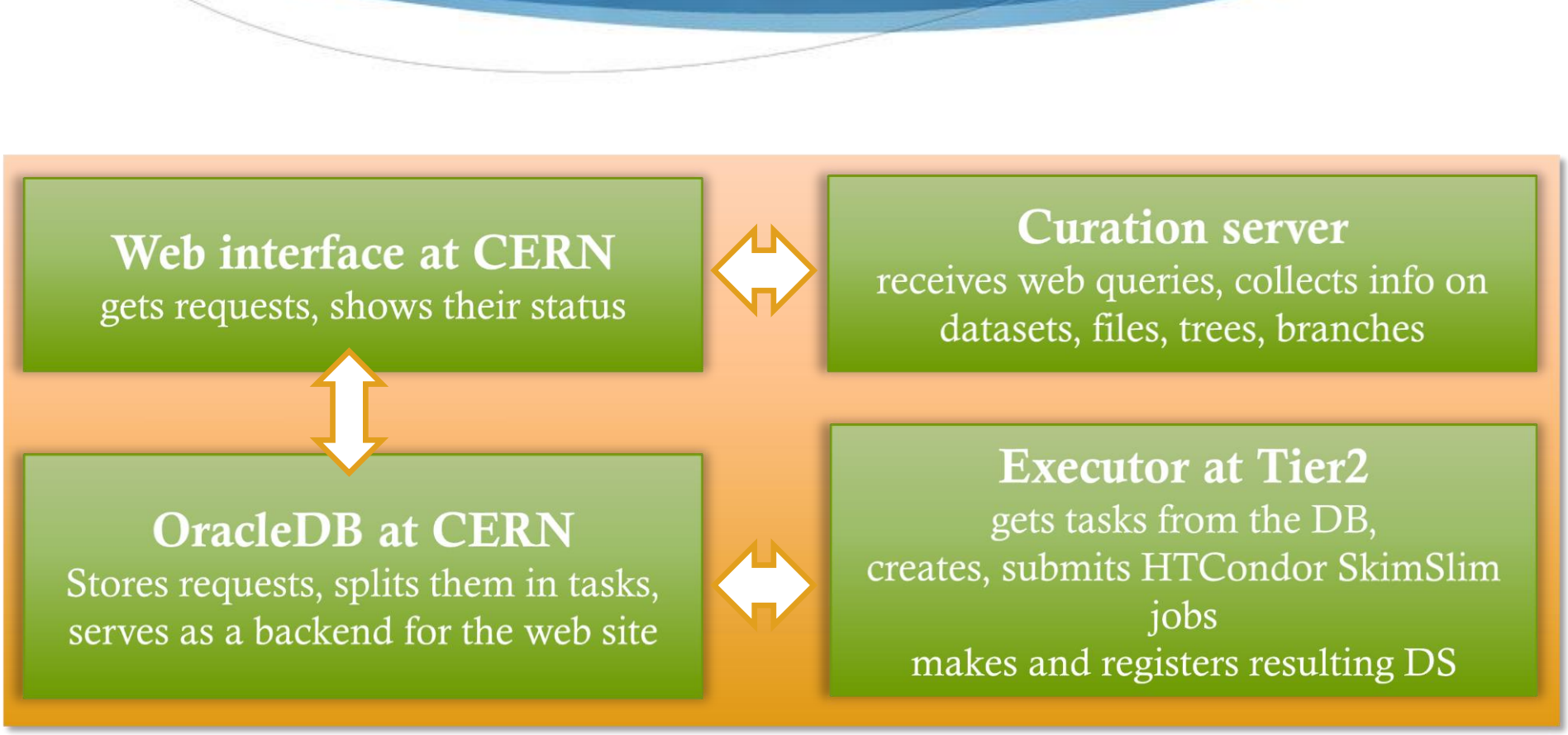
Zoom-in – skim/thin/slim

- Prototype of one part of the analysis chain
- Leverage existing tools and services where possible
  - taking advantage of environment preservation lessons (e.g. DESY automated services)
- Start with:
  - A prototype service in ATLAS
  - An existing analysis environment at a Tier 2 center
  - Existing datasets on disk that can be stored locally or via FAX (federated sites)
  - Validate, preserve and analyse the skim/thin/skim step

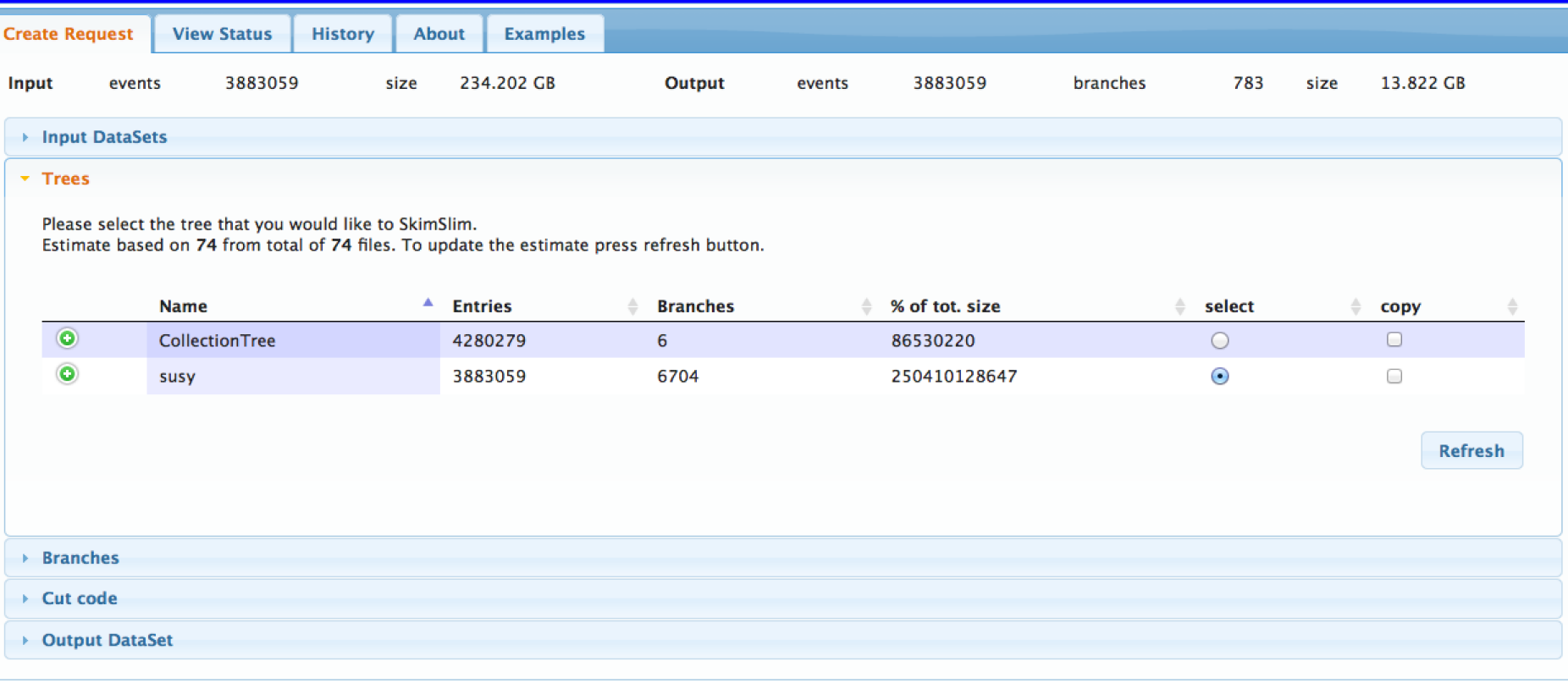
Sustained Usability Picture



Slim/Skim/Thin & Preservation

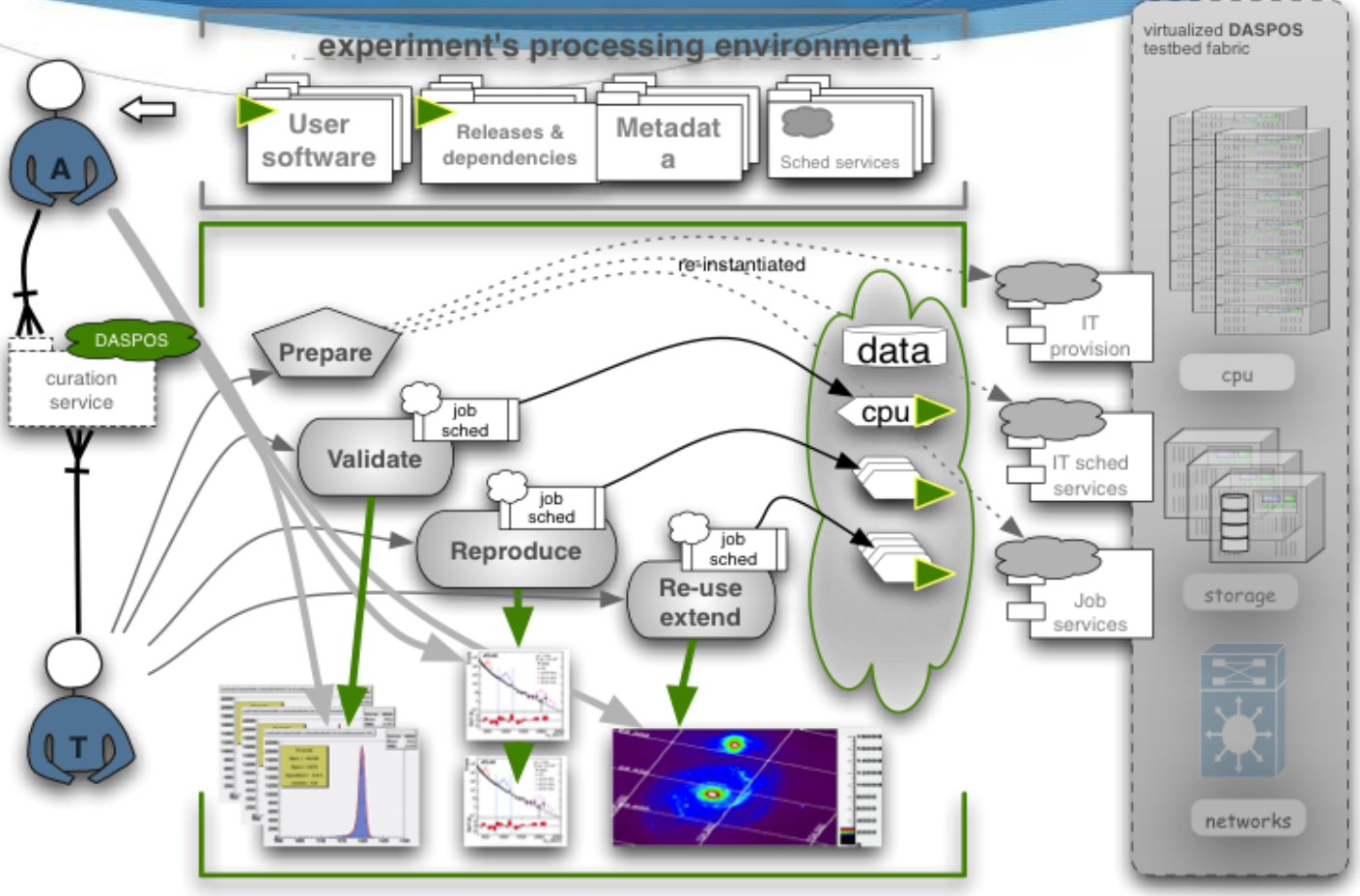


Skim Slim Service



- Point of entry to collect skim & slim operation
- Build & define a validation process from this
- Execute using existing virtualized execution infrastructure at the Tier 2
- Is data “still alive” monitoring infrastructure

Re-use, implement exe environment



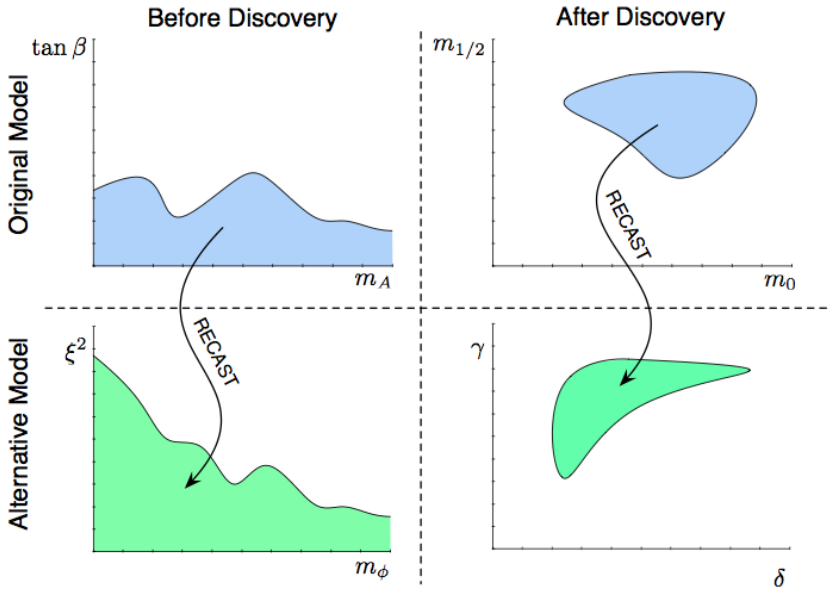
Prototype Status & Outlook

- Focus on one aspect of analysis preservation
- Meet the experiment where it currently is:
  - Slim & Skim service
  - Production Tier 2 center (Midwest Tier 2) virtualization services
- Leverage existing preservation environments from other experiments & labs
- Use to identify the hard issues (technical and policy)
- Already spoken of as part of the new analysis model

Analysis Practical steps - RECAST

arXiv:1010.2506

- Framework developed to extend impact of existing analyses
- Candidate for within-experiment and long-term analysis archival, encapsulating the full trigger & event selection, data, backgrounds, systematics
- Allow an existing analysis to be reinterpreted under an alternate model hypothesis
  - Complete information from original analysis, including the tacit information, contained in the data
  - Not optimized for the new model, but more reliable than a naïve reanalysis?



Recast seen as a very promising solution for preserving analyses and useful, cost effective preservation of information – addresses levels ~1-~3
Test case analyses of different types being input to Recast