

New Facility Organization

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US ATLAS Computing Facility Meeting at Argonne

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Outline

- Facility Evolution
- New WBS
- Focus on Continuous Integration

Facility Evolution

From: Paolo Calafiura <pcalafiura@lbl.gov>

Subject: Evolution of US ATLAS facility

Date: November 29, 2017 at 1:04:04 PM CST

To: Eric Lancon <elancon@bnl.gov>, Rob Gardner <rwg@uchicago.edu>, Kaushik De <kaushik@uta.edu>

Resent-From: <rwg@uchicago.edu>

Dear Eric, Rob,

following up on yesterday's discussion and also on the questions asked by Abid and Tom this afternoon, we write you to solicit your input, in the form of a short white paper, on the evolution of the US ATLAS computing facility after the end of Run 2.

As you know, ATLAS and US ATLAS models of available vs needed resources show shortages of ~5X in both storage and CPU for Run 4. As part of the efforts to address these shortages we plan, or have already started to

- 1) add to our pledges 20% external CPU resources (DOE HPCs and potentially NSF HPCs),
- 2) optimize our storage model as a "data lake" reducing dataset duplication and relying more on WAN data access.

Some questions that the white paper could address include:

- 1) how should resources be allocated between T1/T2/T3s to make optimal use of Ops funding? What impact will the evolution of networking and networked storage have on this allocation?
- 2) how does the long-term plan to run 50% of G4 simulation on HPC affect US ATLAS Facility hardware priorities?
- 3) how does the data lake storage model impact the ATLAS GRID and the US ATLAS Facility architecture?
- 4) to which extent does US ATLAS share expertise and operational responsibilities across sites? What would be the future contributions of the OSG-LHC project, if approved, to these responsibilities?

We would appreciate if you could send us an initial version of this white paper by the end of the year.

Thanks,

Kaushik and Paolo

<http://bit.ly/facility-evolution>

Evolution of the US ATLAS Computing Facility

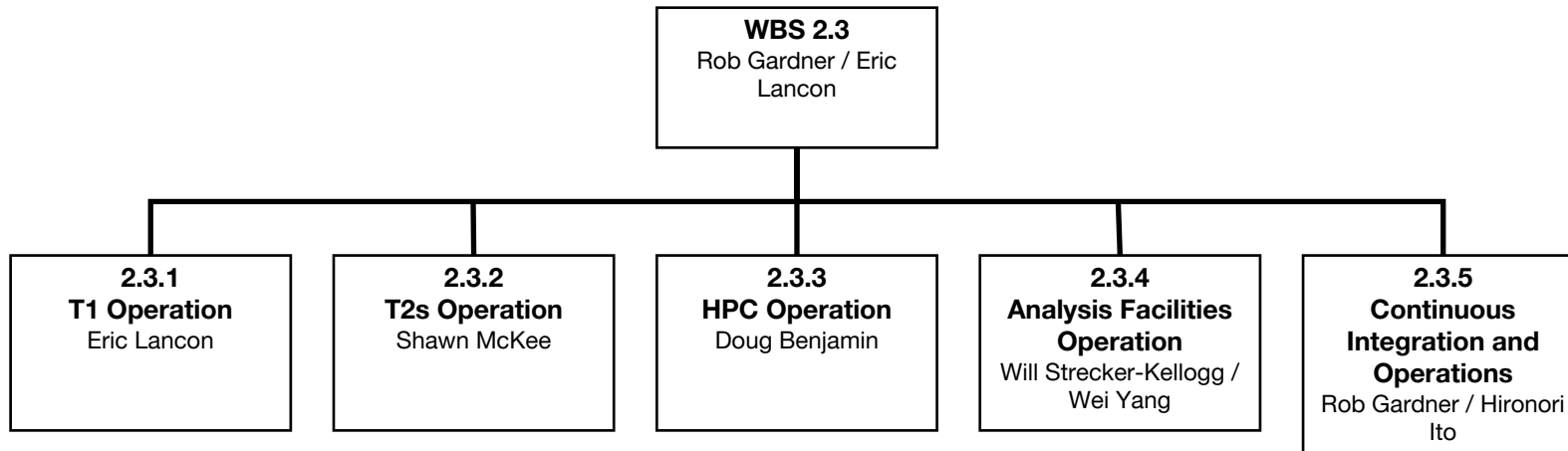
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March 2, 2018

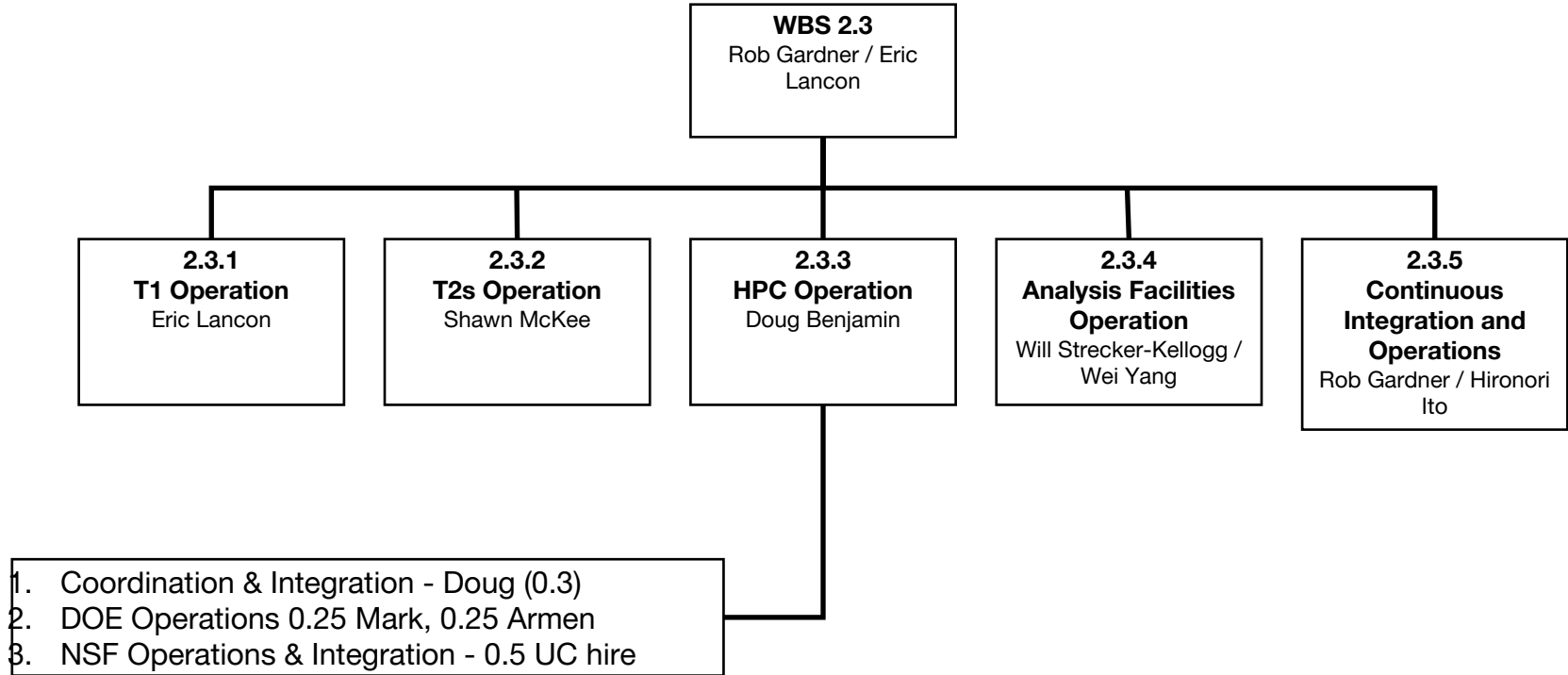
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New WBS 2.3

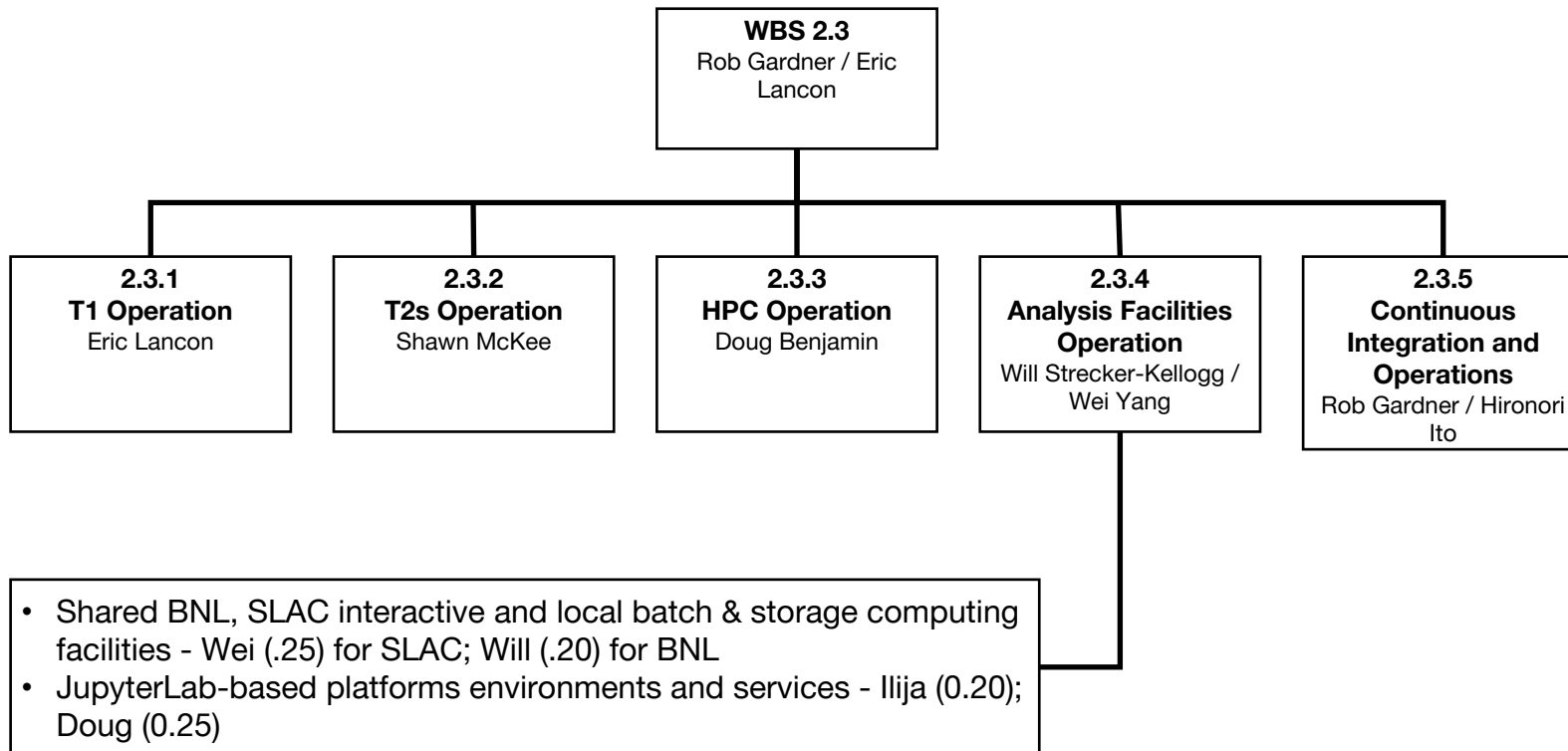


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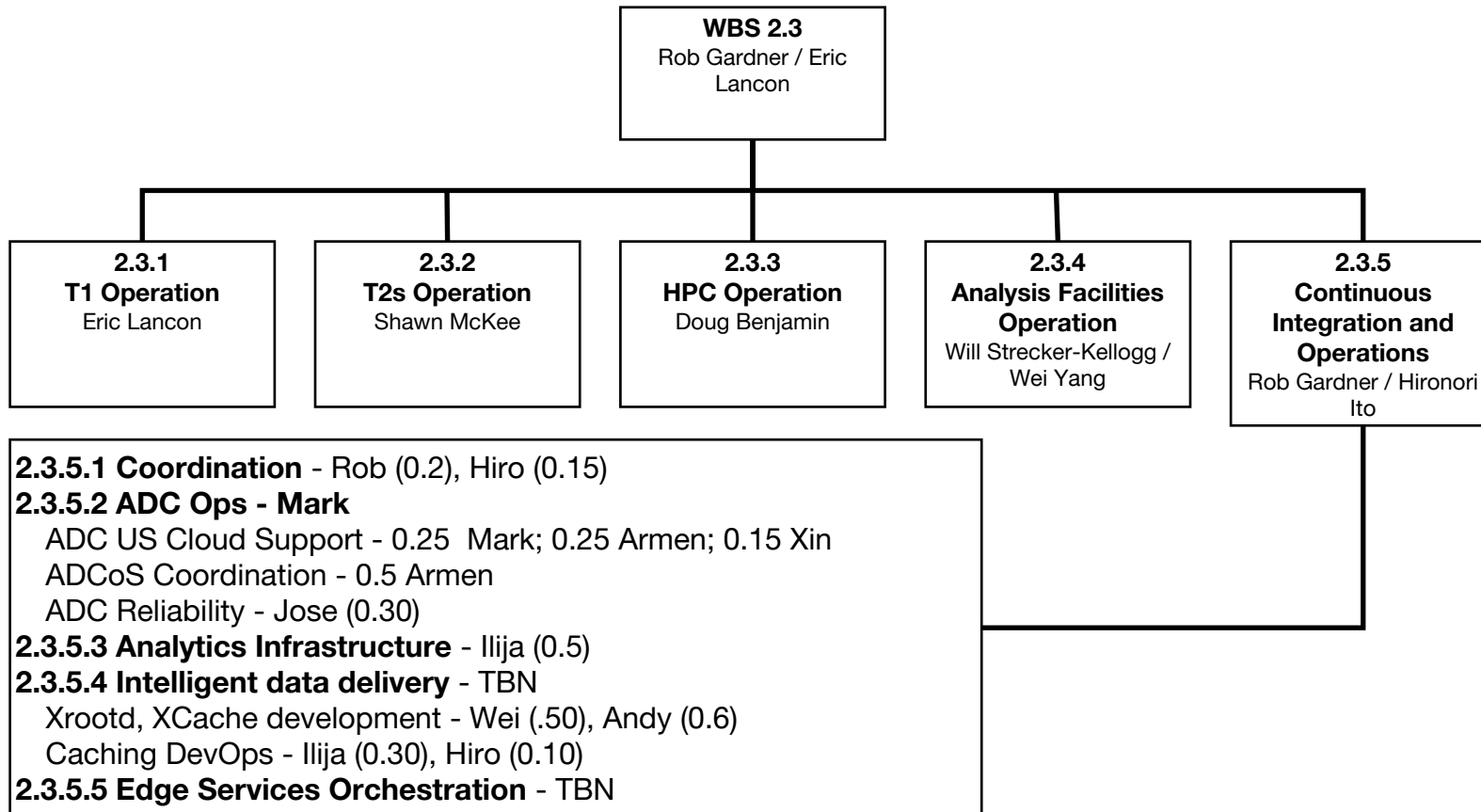
New WBS 2.3



New WBS 2.3



New WBS 2.3



Continuous Integration & Operations

- Maintaining stable operations
- ADC integration & ops activities
- Analytics
- Data Delivery
- Edge Services Orchestration (enabling DevOps)

Facility Evolution: Shared Operational Costs

4) to which extent does US ATLAS share expertise and operational responsibilities across sites? What would be the future contributions of the OSG-LHC project, if approved, to these responsibilities?

- There is some sharing of expertise but not responsibilities. New operational models are possible given new distributed service orchestration tools and frameworks.
- OSG-LHC will provide the core grid infrastructure as prescribed by the stakeholders
- SSL will provide a integration and testing platform for new software

Evolving how we deploy & operate

- Goal is to change the US ATLAS operations model
- In FY19 move towards centralized, k8s tools
- Leverage NSF investments (SLATE) and others
- XCache, next generation DTNs early drivers
- Goal:
 - each Tier2 and the Tier1 hosts a K8s edge cluster
 - will use SLATE which provides secure, policy access layer for centralized deployment

Facility Evolution: Resource Allocation

1) How should resources be allocated between T1/T2/T3s to make optimal use of Ops funding? What impact will the evolution of networking and networked storage have on this allocation?

- Look for optimizations in storage as it is the largest cost (equipment and operations) including aggregation & reclassification
- Integrate resources from all provider types, but keeping in mind in-kind contributions and dependent costs

Facility Resource Review (FFR)

- To follow-up on this recommendation we are planning in 2019 to review capacities, configuration, needs for each site
- Will enlist help from experts in ATLAS and university-based computing facilities management

This meeting

- Solidify the new WBS organization
 - new roles – organization
- Concrete deliverables for FY19
 - Meeting pledge capacities, ADC integration, evolving the deployment model, site reviews
- Note meeting organization follows WBS
- Please contribute to [Live Notes](#)

references

<http://bit.ly/facility-wbs>

<http://bit.ly/facility-evolution>

<http://bit.ly/atlas-lakes>

<http://bit.ly/ddl-rd>

<http://bit.ly/atlas-labels>

<http://slateci.io/XCache/>

<https://github.com/slateci/XCache>