ICB matters

Eric Lançon

What is the ICB?

ICB role described in Computing TDR (section 8.1.3)

8.1.3 The International Computing Board

The International Computing Board (ICB) is the body that discusses the computing resources available to ATLAS, both hardware and manpower, and contributions from various collaborators to the ATLAS Computing project. As such the ICB receives and considers responses to effort and other computing reviews by the Computing Resource Review Board, CERN management and other such bodies.

It is the ATLAS forum for issues concerning the relationship between computing at the institutes and computing at CERN, and the means by which physicists in the institutes can contribute to the ATLAS computing project and analyse ATLAS data. The board considers and approves Software Agreements between Institutes and Funding Agencies and ATLAS, and also considers all disputes concerning their implementation.

It particularly concerns itself with issues regarding the construction and deployment of the worldwide computing infrastructure for ATLAS, and in particular relations between ATLAS and the LHC Computing Grid (LCG) project, and also network-based collaborative tools. As such, it appoints the ATLAS member of the LCG SC2 committee, and receives quarterly reports on the LCG project.

The ICB's remit also extends to those issues in the ATLAS software project that concern the outside institutes such as ease of installation of code, compilers, platforms, ease of use of the ATLAS suite at remote sites, licensing issues etc.

Given the importance of resources in its remit, the board is composed of delegated representatives of the funding agencies, as communicated by the National Contact Physicists, and a chairperson elected for a renewable two-year term by the voting members. The ICB has various *ex-officio* members to aid it in its work, namely the Computing Coordinator, Software Project Leader, Grid Coordinator(s), the ATLAS Spokesperson, Deputy Spokesperson and the ATLAS Resources Coordinator. The ATLAS-IT liaison and SC2 member appointed by the ICB are required to be in attendance.

https://twiki.cern.ch/twiki/bin/viewauth/Atlas/InternationalComputingBoard

Organization

- One <u>representative</u> for each of the 43 ATLAS Funding Agencies (FA)

- ~Monthly meetings (next meeting <u>today</u>)

  - Some FAs not active in computing do not (regularly) attend the meetings

- Sub-groups :

  - Software & Computing Resource Scrutiny Group

  - Software & Computing Speakers and Publications Committee

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Software & Computing Speakers and Publications Committee (SCSPC)

- **Mandate** (here) :

  - The SCSPC deals with conference presentations (from abstract approval to speaker selection and review of proceedings) and with technical publications in the Software & Computing domain

- **Composition** : 3 elected members

  - Andrej Filipčič (SI), Chair : March 2013

  - Torre Wenaus (US) : March 2014

  - Farid Ould-Saada (NO) : March 2015

Please provide inputs (nominations, informations, …) to atlas-computing-speakers@cern.ch

Author list for technical publications

Issues

- Agreement on authorlist:

  1. Many authors allowed for technical talks

  2. One author for general talks

- Some papers on CHEP with many authors were found to be closer to general than technical, too late for action

- We have no clear distinction between 1 and 2

  - Technical things evolve and become general

  - Many talks with mixed general and technical contents

  - Need to be more careful in the future

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Monday, December 10, 12

Talks policy

Changes in SC/SSC Policies

- EVERY Atlas related presentation, publication must go through SC or SSC review process
    - Invited talks
    - Talks which mention ATLAS in any way, although not strictly ATLAS focused
    - Also local technical papers with restricted author list need to be approved
- SSC handles the submissions of "detector-conference" abstracts
- SC handles the submission of "physics-conference" abstracts
- All the presentations must be available for review 2 weeks in advance
    - Even by people who know what they are doing (those usually obey the rules!)

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Software & Computing Resource Scrutiny Group (SCRSG)

- **Mandate** (here) **:**

  - The SCRSG reviews requests for manpower and hardware resources before they are presented to external bodies such the C-RRB, and receives **accounting** reports.

  - The SCRSG assess each **M&O** line item on a yearly basis :

    - Determine the work required in the next year

    - Propose the allocation of in-kind effort

- Review the progress and effort estimates from the previous year

- **Composition** :

  - S&C coordinator and deputy, ICB chair, ATLAS resource coordination : ex-officio

  - 3 elected ICB members

    - Guenter Duckeck (DE) : March 2013

    - Roger Jones (UK) : March 2014

    - Gianpaolo Carlino (IT) : March 2015

OTP...

OTP : Class 1

- **'shifts' @ P1** : AMOD & Comp@P1
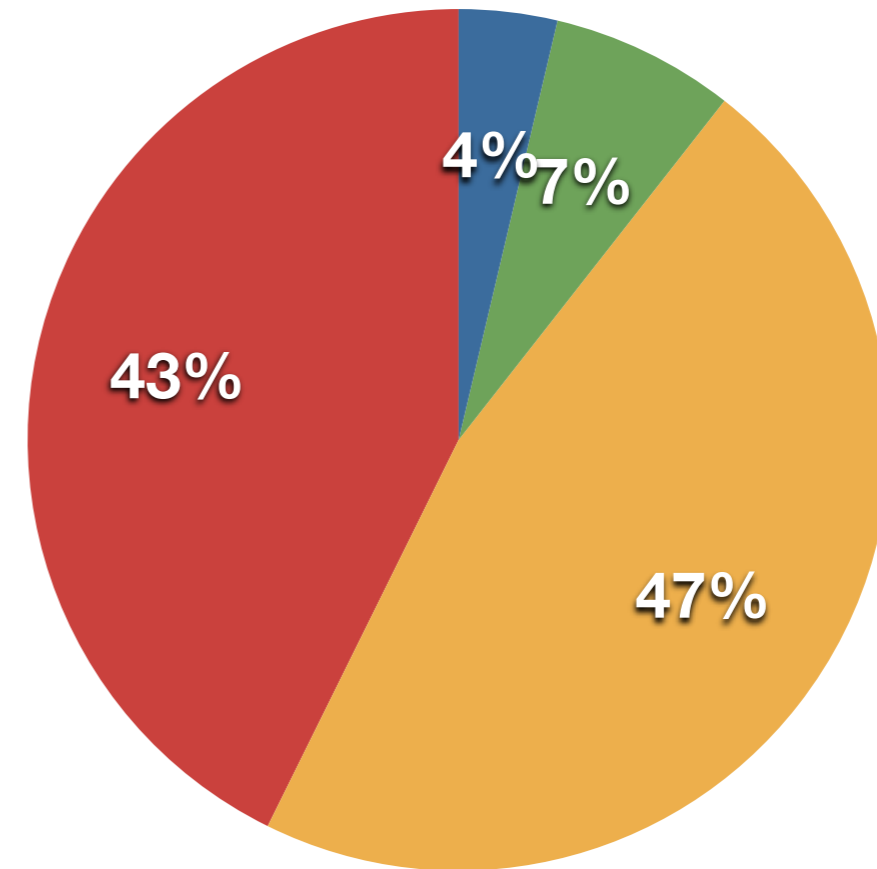
  - 1,224 shifts in 2011, ~11% of ATLAS

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OTP : Class 2

- **Remote 'shifts'** : ADCoS, DAST, software,…

  - 3,700 shifts in 2011, ~10% of ATLAS

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OTP : class 3

- Technical work, unit FTE **(M&O-B)**

  - 148 FTEs in 2011, **~24% of ATLAS**

  - Entries provided by task leaders, most of 2012 in OTP

  - Accounting closed **end of 2012**, once validated by ICB SG (double counting, …)

FTEs

- 🔵 Management
- 🟢 M&O B: Database development & deployment
- 🟡 M&O B: Distributed Computing
- 🔴 M&O B: Software Project

Faire-share : FAs should contribute according to there relative share to class 1, 2,3 - reports publicized

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OTP : Class 4

- **ATLAS support at T1s & T2s**, unit FTE

  - 176 FTEs in 2011 (more than class 3 !)

Class-4
2012 preliminary

- Accounting introduced in 2011

  - **Contributions from FAs for ATLAS computing recognized**

- ATLAS effort at sites for distributed computing: 167 FTEs (364 people)

- Contributions from 30 FAs (out of 43)

- 40% of this effort is provided by ATLAS members

  - 71 FTEs from ATLAS members corresponding to 149 different people

	FTEs	Nb people
Total	167	364
ATLAS Members	71	149
%	43%	41%

Contributions from those people not accounted yet for fair-share distribution of OTP classes between FAs, ongoing discussions with POTS

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OTP Summary

- **Class 1**: 'shifts' @ P1 (AMOD & Comp@P1)

  - 1,224 shifts in 2011, ~11% of ATLAS

- **Class 2** : remote 'shifts' (ADCoS, DAST, software,…)

  - 3,700 shifts in 2011, ~10% of ATLAS

- **Class 3** : technical work, unit FTE **(M&O-B)**

  - 148 FTEs in 2011, **~24% of ATLAS**

  - Entries provided by task leaders, most of 2012 in OTP

  - Accounting closed **end of 2012**, once validated by ICB SG (double counting, …)

- **Class 4** : ATLAS support at T1s & T2s, unit FTE

  - 176 FTEs in 2011 (more than class 3 !)

Share between FAs reported

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Software & Computing M&O-A

Core services
Non-physicist work
2012 allocation : 22 FTEs

7 FTEs

Software Infrastructure
Librarians, Release built, Testing, ...

9 FTEs

Central Operation
Production, Data Distribution, Monitoring, Servers, ...

4 FTEs

User Support
VO management, Accounts, e-groups, ...

2 FTEs

Database
Administrators

Total allocation, division by categories validated LHCC

Usage reported to LHCC scrutiny group

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15

M&O-A definition & billing

- Definition in MoU(1) and computing TDR(2)

Category A tasks are extremely technical in nature. They are in general service tasks with required skill sets that are not generally compatible with those of a physicist. They are also at a level whereby they take a significant fraction of a Full-Time Equivalent (FTE) for the people carrying them out. These tasks are, however, crucial to the functioning of the experiment. Several

- Contribution from each FA could be either

  - in kind : direct contribution to S&C effort (Number of FTEs cannot exceed authorship share)

  - or 'in cash' according to authorship share

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(1) https://atlas.web.cern.ch/Atlas/private/MOU/Add1_ATLAS_M&O-MoU-2005-008_CoreComputing.pdf
(2) http://atlas-proj-computing-tdr.web.cern.ch/atlas-proj-computing-tdr/PDF/Computing-TDR-final-July04.pdf

16

2011 OTP Reviews

- Not all areas of S&C were reviewed in 2011,

- Most parts of software & ADC

- Evaluation of effort usage, requirements, critical areas

- Ongoing process for 2012

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Summary - ADC

- ADC contribution increased in 2011

  - new structure and new projects (monitoring, Grid services, ...) in 2011

- total contribution expected to slightly decrease for 2012 and some redeployment of manpower

- Some critical areas with reduced number of experts : pilot code, panda, VO administration, software distribution

2011 review concise report

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Summary - Software Area

- Software area contribution decreased in 2011

- Real lack of software experts

  - Technically skilled people needed

  - Danger in view of increased software activity during shutdown

- Total contribution should be increased for 2012

  - Various ways need to be investigated by S&C management to involve more people in software area

2011 review concise report

Summary - Shifts

- Comp@P1 & ADCoS shifts

  - High effort from ATLAS institutes

  - Merge the two shift categories, evaluate various scenarios

- Software shifts : Convergence towards a more efficient, possibly automated system should be foreseen.

- OTP credit should be uniform between various categories (1h shift should get same credit for all shift categories)

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2011 review concise report

Resource usage monitoring

- Utilization of resources : Disk (mainly) & CPU

- Balance between T1s & T2s

- GROUPDISK deployment (local usage)

- Small T2s want analysis too (pre placed data)

- 2011 usage (wrt pledges)

  - T1 CPU ~100%, T2 CPU >> 100%

  - T1 disk ~100%, T2 disk ~70%

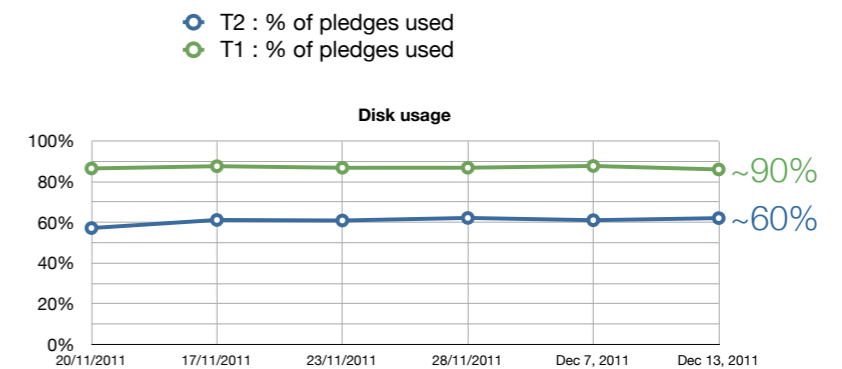Analysis : jobs at T2s vs T1s last 6 months

% T1   % T2
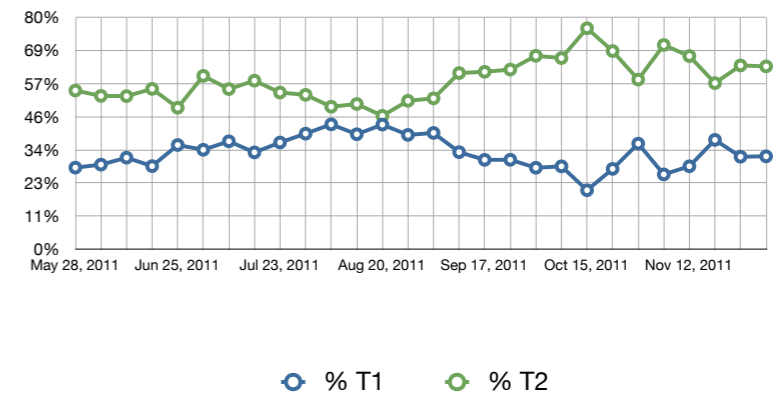
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Disk Occupancy Vs Pledges - II

○ T2 : % of pledges used
○ T1 : % of pledges used

Disk usage

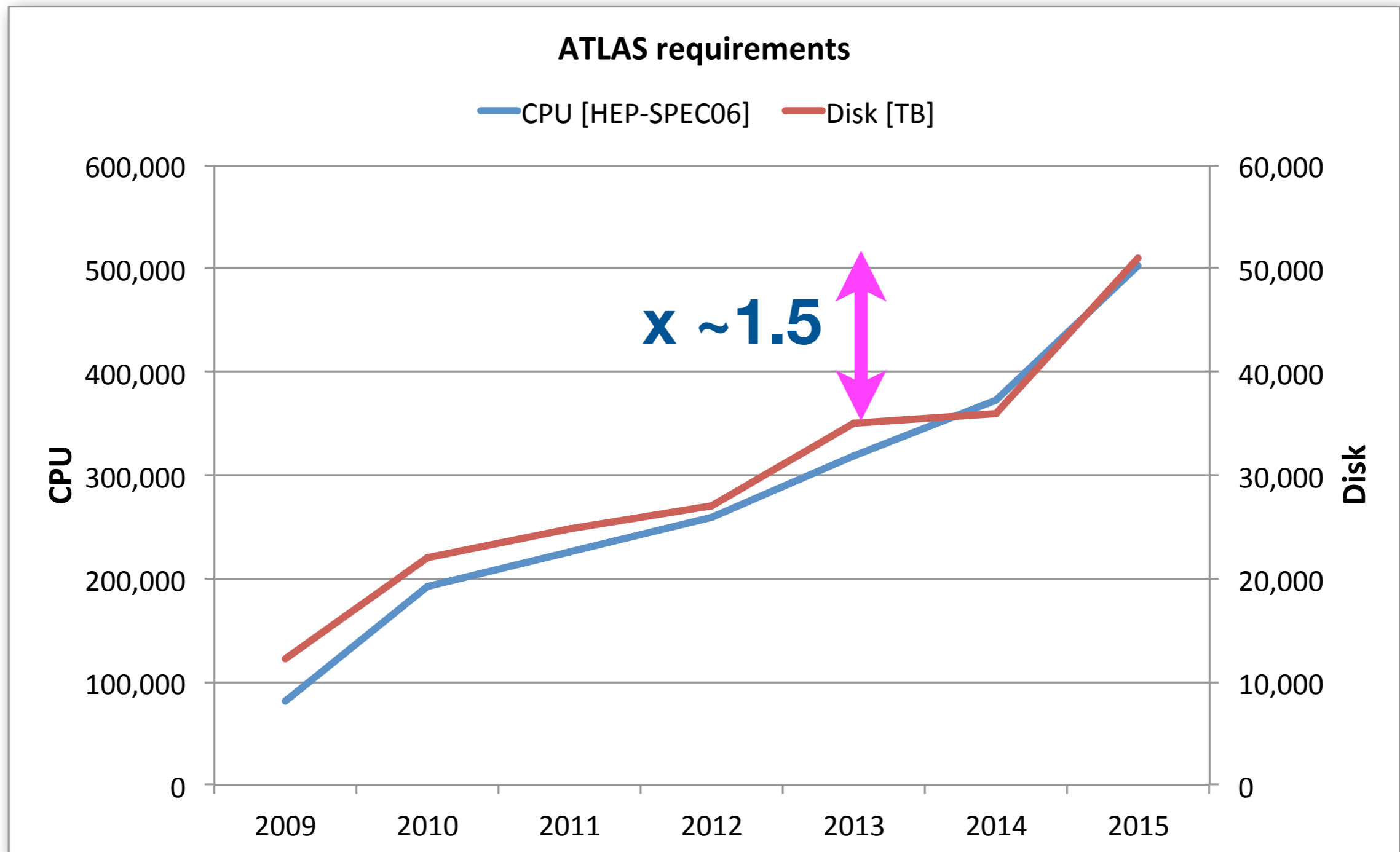
~90%
~60%

~stable over last 1.5 months

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plot (and some others) still not available in dashboard
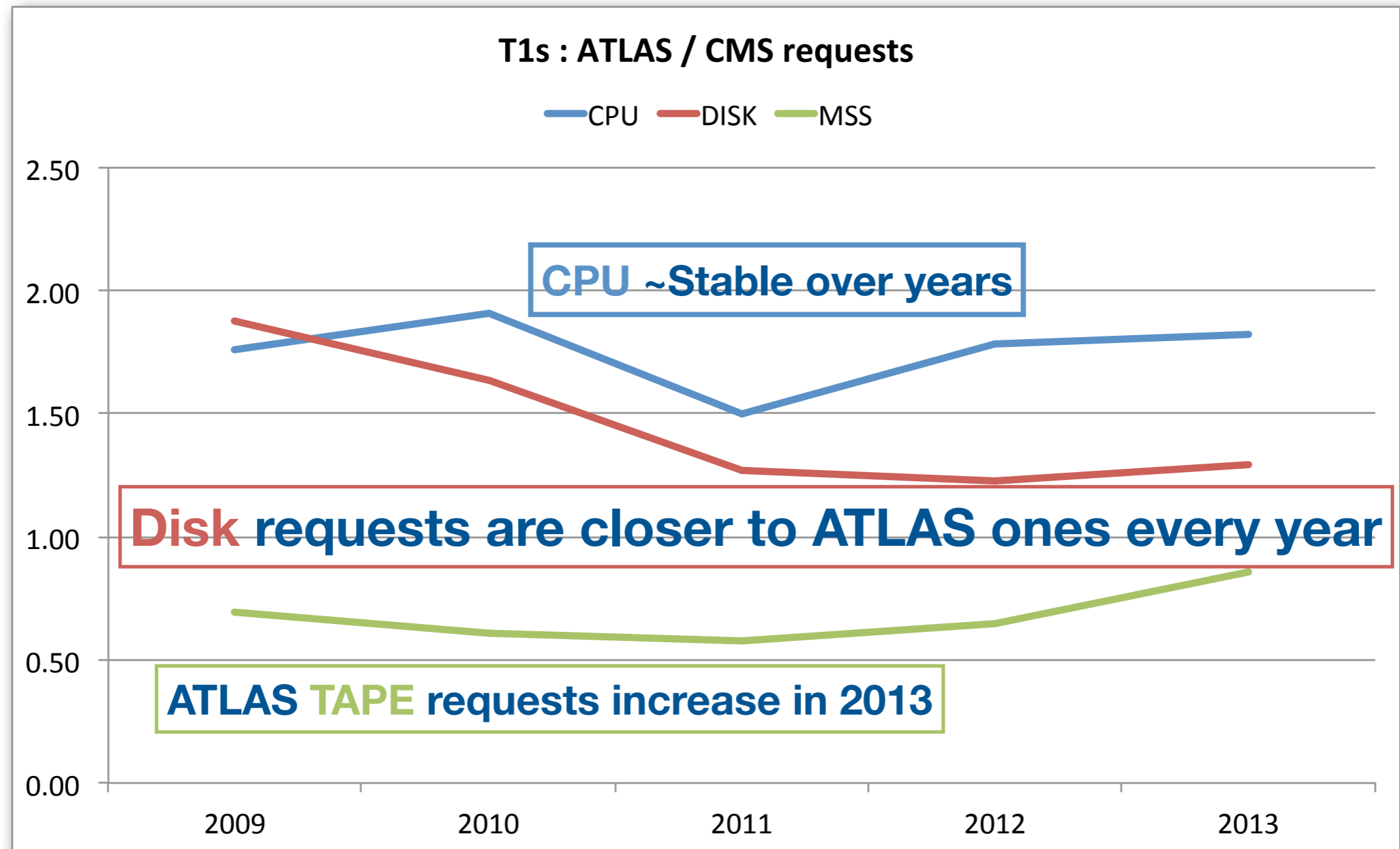
5
Wednesday, December 14, 11

CPU usage over pledges (mostly at T2s) has to be acknowledged
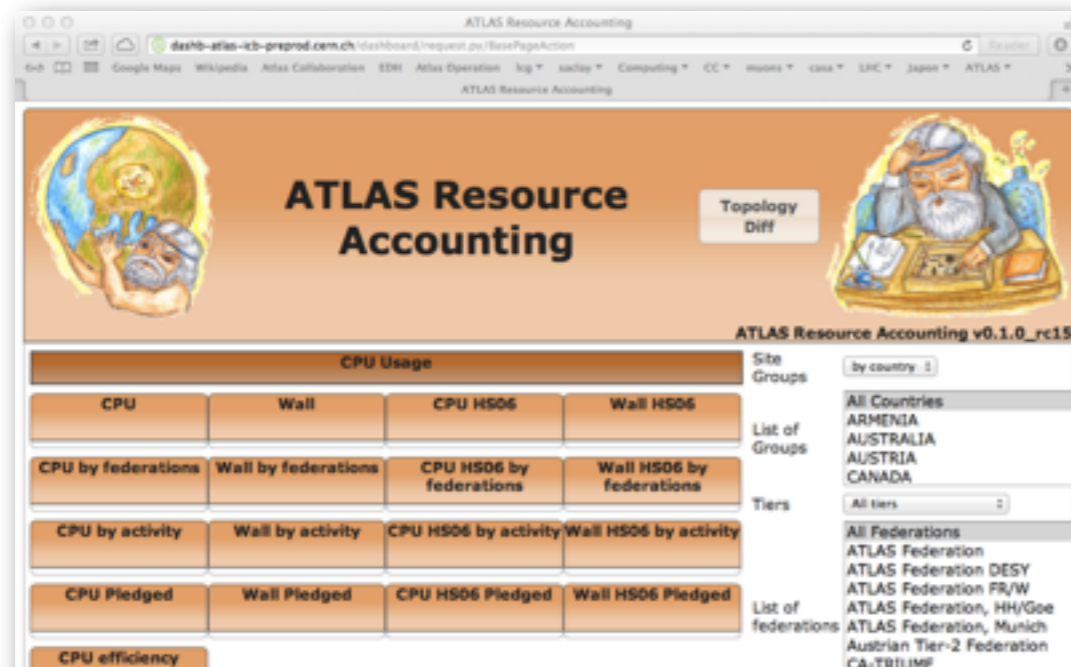
Resource requirements at T1s

ATLAS requirements

CPU [HEP-SPEC06] — Disk [TB]

x ~1.5

Some countries will have difficulties to follow the foreseen increase after LS1

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2013 ATLAS resources requests (at T1s) : Comparison to CMS

T1s : ATLAS / CMS requests

— CPU — DISK — MSS

CPU ~Stable over years

Disk requests are closer to ATLAS ones every year

ATLAS TAPE requests increase in 2013

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Accounting

- Monitoring tools did not provide accounting and monitoring needed by FAs

- ICB accounting <u>document</u> listing the needs

- The requested accounting portal is being prototyped

ATLAS RESOURCES ACCOUNTING REQUIREMENTS FROM FA

This short document summarizes requirements about ATLAS resource usage that should be available from an ATLAS resource provider perspective.

Introduction
- A single entry point should provide all accounting informations for a given entity (site, federation, country, cloud,...).
- Accounting should be provided for various kind of resources (CPU, Disk, Tape) and for several categories (processing type, data type, user,...).
- Accounting results should be presented for as static table (view at a given time) and as time charts (weekly and monthly)
- Whenever applicable, accounting results should be compared to pledged and installed (available for ATLAS) resources

CPU usage
Both raw CPU/Wall-time and HS06 normalized CPU/Wall-time should be provided
1. consumption since beg. year (RRB year with monthly data points)
2. consumption by activity where activities should correspond to specific type of jobs (Simulation, reconstruction, user analysis, group analysis, validation, tests, merge,..)
3. consumption decomposition for pledged and non-pledged resources if applicable
4. CPU efficiency by activity

Resource usage by jobs
5. Number of jobs by category
6. Data volume per job / category
   a. Number of input and output files
   b. Number of GB input and output
   c. Number of events processed
7. Job timing decomposition (setup, stagein, execution, stageout,...)

Disk (Storage?) usage
8. total disk usage for pledged resources (LOCALGROUDPDISK... not included) since beg. of year (RRB year with monthly data points)
9. disk usage by data type (RAW, ESD, AOD, D3PD, user data,...)
10. disk usage for various disk partitions (DATADISK, GROUPDISK, ….) including non-pledged areas
11. Number of files and datasets stored
12. Usage statistics by dataset

Tape usage
13. tape usage since beg. of year (RRB year with monthly data points)
14. tape usage by data type (RAW, ESD, ...)
15. Number of files and datasets stored
16. Usage statistics by dataset

Data volume transfer
17. Input and output data volume transferred (with monthly data points)

T1s & T2s usage

- Differences between activities at T1s and at some T2s shrinking in some clouds

- Some 'specific' T1 activities (pileup, group-analysis,…) are affectively already performed at some T2s

- Usage of T1s vs T2s suboptimal?

  - Small fraction of T1s resources used for T1 'specific' tasks (**reprocessing**, group analysis, etc..)

  - T1 disks full while T2 disks underutilized (in 2011)

- T1 tape underutilized

Optimization of resources between T1s & T2s needed

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New Sites In ATLAS

- Declaration/changes should go to ICB (contact first : Andrej Filipčič)

- Tier 3 : Policy document <u>available</u>

- Tier 2 : Several Tier-3 became Tier-2 in 2012 : Bern, Slovak site

- Tier 1 :

  - RU Tier-1 plans presented by Andrei Minaenko at October ICB meeting

  - Progresses should be reported at ICB

In all cases validation of site performances and certification performed by ADC

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26

Questions / comments ?