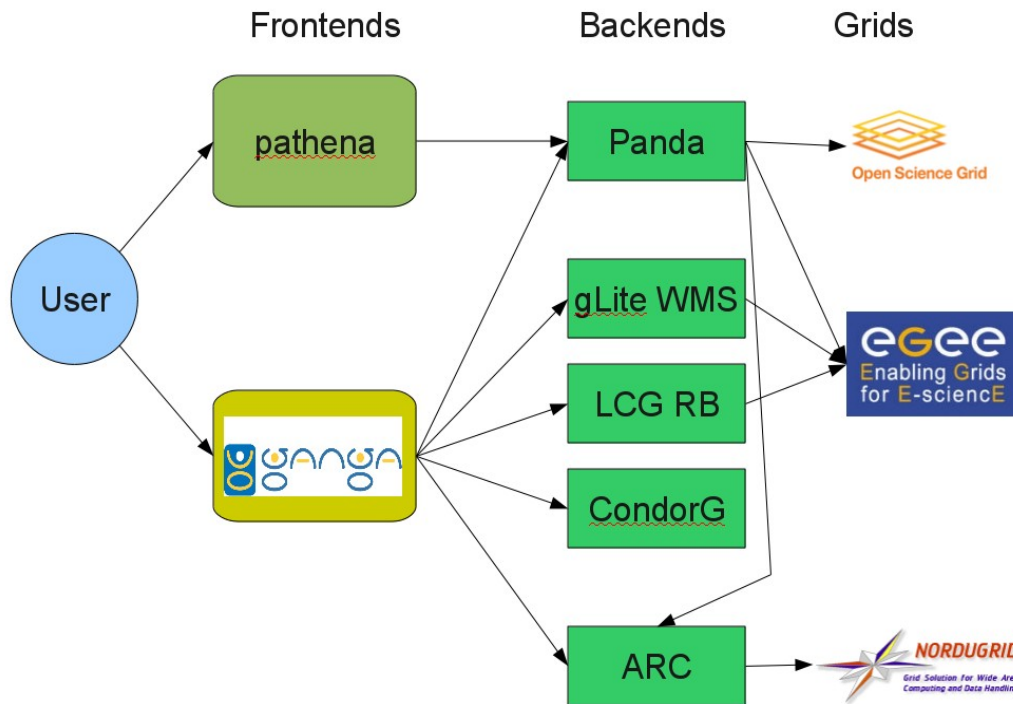# **Distributed Analysis Support**
in the ATLAS experiment

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Bjørn H. Samset, on behalf of the ATLAS DAST team

ATLAS analysis is complex

- ~2800 physicists
- Several hundred active grid users, more to come
- Large, official software kits
- Private code
- MC simulations
- Real data
- Databases
- Security
- ...

How do we give ATLAS physicists smooth and painless access to data and resources on the grid(s)? Tutorials, documentation, **support**!

DAST – the Distributed Analysis Support Team for the ATLAS VO

- DAST is the main ATLAS support hotline for distributed analysis questions
  - Expertise on ganga and pAthena
  - General knowledge of All Things Grid
  - Entry point for forwarding complex issues to relevant experts
- Mailing list is main point of contact
  - ~5 new threads per day, many taking days to follow up
  - Highest volume mailing list in ATLAS
- Work pattern
  - Two shifters each day, one per EU and US time zones
  - Shifters on for one week at a time
  - Mailing list (egroups) is the contact point
  - Common gmail account for tracking and answering issues
  - Weekly status meetings
  - Skype chatroom for live communication
  - Goal: 24h maximum wait for replies

Dick DASTardly
Unofficial DAST mascot

DAST gmail snapshot

Present DAST team

EU		US	
Daniel van der Ster	*CERN*	Nurcan Ozturk	*UT Arlington*
Mark Slater	*Birmingham*	Alden Stradling	*UT Arlington*
Hurng-Chun Lee	*NIKHEF*	Jacob Searcy	*Oregon*
Bjørn H. Samset	*Oslo*	Sergey Panitkin	*BNL*
Christian Kumner	*München*	Anirvan Sircar	*Louisiana*
Maria Shiyakova	*JINR*	Bill Edson	*SUNY Albany*
Manoj Jha	*INFN*	Karthik Arunachalam	*Oklahoma*
Jaroslava Schovancova	*Prague*		

- Highly international team, EU and US time zones
- First formed in summer 2008, mainly consisted of distributed analysis software developers
- Today: still some developers, but also many others who have either been self-taught or trained by the team
- Full credit as an ATLAS shift activity, though not regarded as "mission critical" shifts

Activities for a DAST shifter

- **Follow the mailing list, answer new items, follow up old ones**
- Follow the SAM and GangaRobot site-by-site analysis testing systems
- Report site problems of any kind that show up for users (file catalogs down, permission problems, bad files...)
- Forward complex problems to relevant experts
- Send test jobs to sites if requested by the worldwide computing operations team
- Maintain analysis FAQs and some documentation
- Encourage user2user support
- ...

Typical DAST questions

1) USE case

Q: Hi, I have a problem with my analysis.

A: Please provide your logs and some info on your job

Q: Oh, yes... Here they are.

A: OK, you've filled the data member outputdata wrongly

Q: Cool, thanks.

User education

2) Site problem(s)

Q: Waaah! My analysis ran fine yesterday, not today!

A: Please provide your logs and some info on your job

Q: Oh, yes... Here they are.

A: You're forcing the job to INFN, they're in downtime. Try FZK?

Q: OK, trying... No, still doesn't work. New error, though.

A: Yes, FZK can't access your input files either. No downtme. I'll ticket the site. If you need the data quickly, please request a transfer to a third site.

Site feedback

3) Feature request in disguise

Q: Hi, I'm using ganga like this, but it doesn't do what I want. What gives?

A: Hmm, seems ganga isn't equipped to do just that. I'm adding a feature request to their bug tracker.

Improved tools

Experiences with DAST in ATLAS

- DAST seems to be a successful activity
  - Good team, managed to attract nice and very competent people
  - Many questions, large knowledge base built
  - Very good response from users – almost too good
  - Users seem to get more competent
- We need to encourage user2user support
  - Many issues are "easy", most experienced users can answer them quickly
  - Some users to help out, but not enough
- The level of knowledge needed to this kind of activity is quite high
  - User tools, underlying tools, sites, data management, databases, …
- Knowledge of the technical aspects of grid computing is still essential for understanding problems on the analysis side

Future plans for ATLAS DAST

- Double shifts
  - When we get data in ~November, we anticipate a large influx of (inexperienced) users
  - From this point on, we'll have two shifters in each time zone
- Better information base, search functionality
  - There are mountains of ready-made solutions in our arcives
  - Need to sort this better, make it more easily searchable
- Keep helping our physicists
  - ...and thus ourselves, most of us also being physicists...
  - Distributed analysis is crucual for ATLAS physics, but it's still quite complex

Conclusions

- ATLAS distributed analysis user support through DAST seems to work well
  - at the present level of activity…
- All activities will have to be scaled up soon
  - Can we handle the increased number and complexity of inquires that we can expect?
  - Can we find and train enough shifters?
- Technically, we have the tools we need to help users
  - though better grid monitoring, site status, …, is always welcome
- Contact the team directly here:
  - atlas-project-adc-operations-analysis-shifts@cern.ch