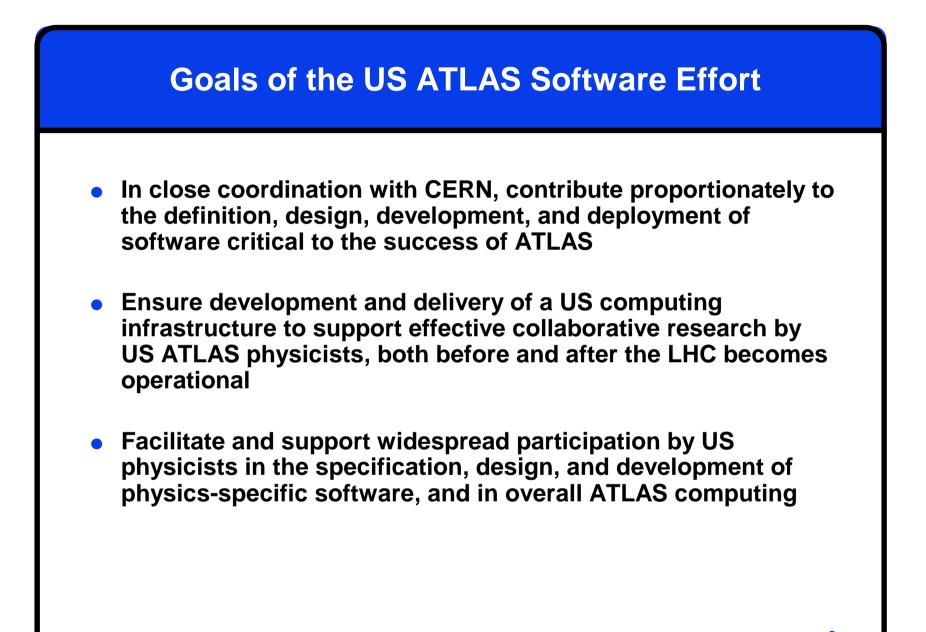
Software Development for US ATLAS Computing

(Based partly on David Malon's talk at the February presentation to US ATLAS)

Thomas J. LeCompte Argonne National Laboratory lecompte@anl.gov

> CERN 18 March 1999

> > Tom LeCompte



Components for Achieving These Goals

- Explicit coordination of US ATLAS software efforts by the US Regional Center, with specific efforts to facilitate, encourage, and support widespread involvement by US physicists in ATLAS computing
- Specific and significant software development efforts:
 - A pilot project (testbeam data analysis)
 - Core software development
 - Concentrated in control or database domains
 - Detector-specific reconstruction

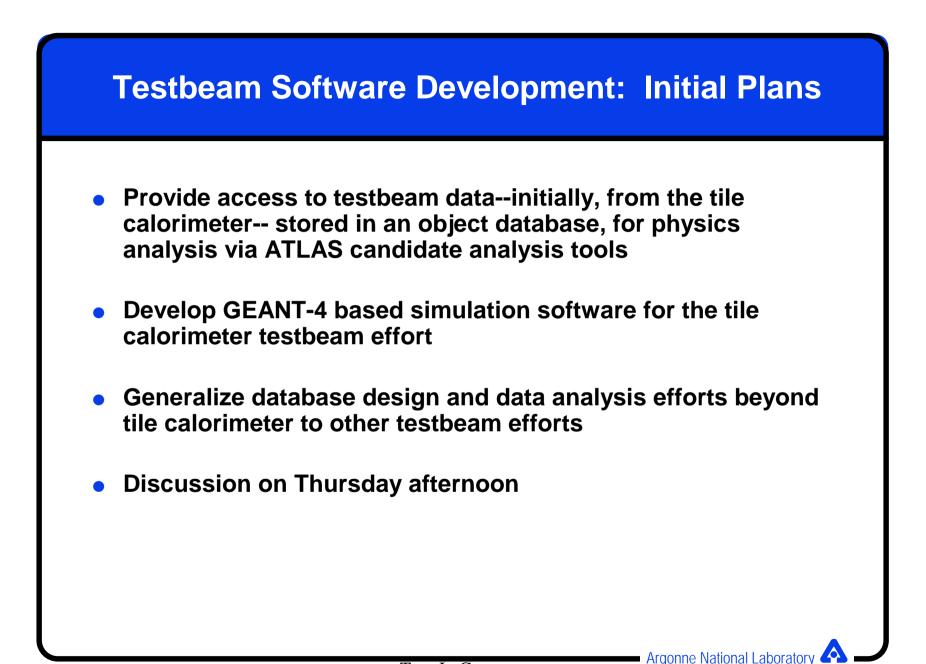
By design, these projects inform and advance one another.

Pilot Project: Testbeam data analysis and related software

- Why testbeam?
 - Directly addresses facilitation and involvement of US physicists in specification and use of next-generation software NOW, in a context they care about NOW, rather than waiting until 2005
 - An early success is critical in recruiting new people
 - The proposing institutions have a significant physicist clientele in this area, so that software developers have ongoing guidance and feedback
 - Provides testbed for analysis tools and data storage solutions proposed by ATLAS while there is still time to influence their design and specification--based on real data

NOW is the time for this feedback

Natural means to leverage particular US software strengths

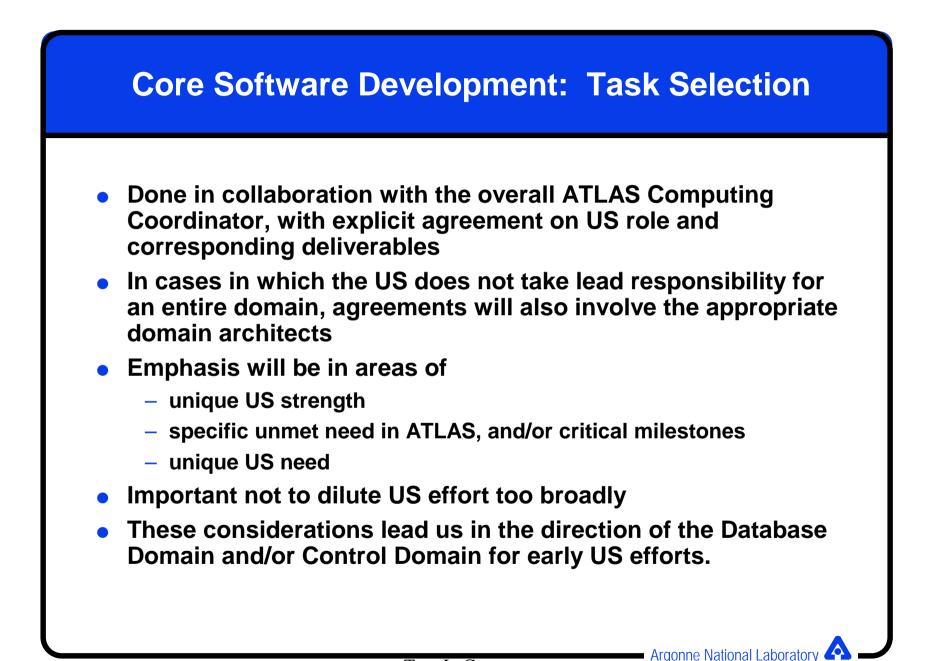


Core Software Development

- Why?
 - It is our obligation.
 - Core software domains are both critical and drastically understaffed.
 - It is an area of particular US strength, and allows leverage based on other US efforts (e.g., HENP Grand Challenge) and experience (BaBar, CDF/D0, STAR, ...).
 - The US has a vital interest here--US physicists can collaborate effectively from afar only if software infrastructure, database, and data distribution issues are addressed appropriately.

Argonne National Laboratory

- We have been asked, collectively and individually, to help.



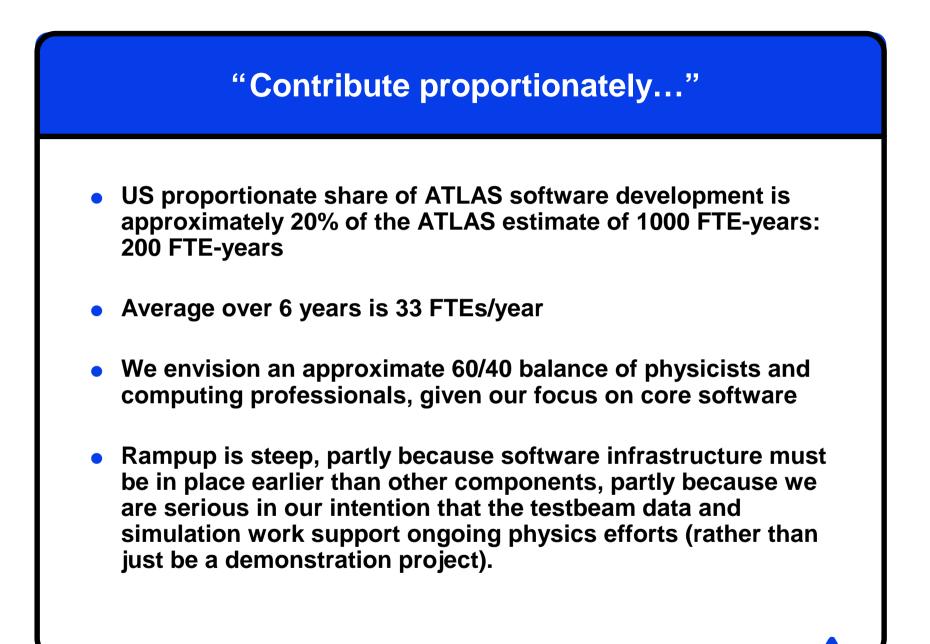
US ATLAS Software Coordination

Management aspects of coordination are addressed elsewhere. First-year software coordination goals:

- Integrate US efforts into CERN-based ATLAS software development process, efforts, and plans
- Facilitate and encourage participation by US physicists ATLAS software development
 - pilot project is designed to be a significant step in this direction
 - will encourage and provide OO assistance to physicists wishing to participate in the ATLAS Software Process
 - training, an appropriate infrastructure, and support are all part of this, and will come from the Infrastructure function
- Participate in the specification of software requirements for a regional center
- Specify and evaluate tools and training needed to support US developers, compatible with CERN training and tools

Detector-Specific Reconstruction

- Effort will largely proceed from the Universities
 - Coordination will be through the US ARC and the overall ATLAS detector reconstruction project
- US ARC will provide assistance in the form of software professionals
 - Especially along bouindary lines between detectors and core software
 - Assistance and training also provided by Infrastructure: see Craig Tull's talk.
- Right now, people want to help, but don't know where to start.



Scope and Scale

- We have assessed the scope and scale of the proposed efforts in multiple ways
 - Top down: What does it mean to be 20% of ATLAS computing, with an emphasis on core software?
 - Bottom up: How much effort will it take to accomplish the specific proposed tasks?
 - Sideways: What does the experience of other experiments tell us about the scale of effort needed to deliver specific components?
- We have asked the US funding agencies to support efort at this level.
 - 48 FTE-years of software professionals for core software
 - 36 FTE-years of software professionals for reconstruction and simulation
 - 115 FTE-years of physicists

