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ATLAS Grid Data Processing: system evolution and scalability

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The production system for Grid Data Processing (GDP) handles petascale ATLAS data reprocessing and Monte Carlo activities. The production system empowered further data processing steps on the Grid performed by dozens of ATLAS physics groups with coordinated access to computing resources worldwide, including additional resources sponsored by regional facilities.
The system provides knowledge management of configuration parameters for massive data processing tasks, reproducibility of results, scalable database access, orchestrated workflow and performance monitoring, dynamic workload sharing, automated fault tolerance and petascale data integrity control. The system evolves to accommodate a growing number of users and new requirements from our contacts in ATLAS main areas: Trigger, Physics, Data Preparation and Software & Computing. To assure scalability, the next generation production system architecture development is in progress. We report on scaling up the GDP production system for a growing number of users providing data for physics analysis and other ATLAS main activities.

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