# Integration of Titan supercomputer at OLCF with ATLAS production system

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# Outline

- Introduction and motivation
- ATLAS ProdSys and PanDA workload management system (WMS)
- PanDA setup for integration with Titan
- Results
- Summary

# Summary

- We completed integration of Titan supercomputer at OLCF with PanDA and ATLAS production system in 2015, as a part of US DOE ASCR funded research project - “BigPanDA”
- Tasks for Titan are submitted via ATLAS Production System (ProdSys 2).
- Job submission and data movement between Titan and ATLAS Grid are fully automatic
- In 2015 Titan was officially validated by the ATLAS to run Geant4 simulations
- Since June 2015 we are running ATLAS  Geant4 production tasks on Titan continuously
- Pure backfill operation, running multiple multi-job pilots with MPI wrappers (currently up to 76800 cores)
- From September 2015 to October 2016, ATLAS consumed **~61M** Titan core hours, **~1.8M** detector simulation jobs were completed, **~132M** events processed
- We have shown that we can improve overall Titan utilization by ~2%, while consuming up to  ~27% of otherwise unutilized resources, all without negatively impacting Titan’s operation and other users on Titan
- In July 2016 DOE ASCR has funded BigPanDA for another 2 years, to expand operations on Titan