Contribution ID: **252**   Type: **Poster**

Integrated automation for configuration management and operations in the ATLAS online computing farm

Tuesday 10 July 2018 16:40 (20 minutes)

The online farm of the ATLAS experiment at the LHC, consisting of nearly 4000 PCs with various characteristics, provides configuration and control of the detector and performs the collection, processing, selection, and conveyance of event data from the front-end electronics to mass storage.

Different aspects of the farm management are already accessible via several tools. The status and health of each host are monitored by a system based on Icinga2 and Ganglia. PuppetDB gathers centrally all the status information from Puppet, the configuration management tool used to ensure configuration consistency of every host. The in-house Configuration Database controls DHCP and PXE, integrating also external information sources.

In this paper we present our roadmap for integrating these and other data sources and systems, and building a higher level of abstraction on top of this foundation. An automation and orchestration tool will be able to use these systems and replace lengthy manual procedures, some of which also require interactions with other systems and teams, e.g. for the repair of a faulty host. Finally, an inventory and tracking system will complement the available data sources, keep track of host history, and improve the evaluation of long-term lifecycle management and purchase strategies.

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Session Classification: Posters

Track Classification: Track 8 –Networks and facilities