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Production Management System for AMS Remote Computing Centers

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The Alpha Magnetic Spectrometer (AMS) on board of the International Space Station (ISS) requires a large amount of computing power for data production and Monte Carlo simulation. A large fraction of the computing resource has been contributed by the computing centers among the AMS collaboration. AMS has 12 "remote"computing centers outside of Science Operation Center at CERN, with different hardware and software configurations.

This paper presents a production management system for remote computing sites, to automate the processes including job acquiring, submitting, monitoring, transferring and accounting. The system is designed to be modularized, light-weighted, and easy-to-be-deployed. It is based on Deterministic Finite Automaton, and implemented by script languages, Python and Perl, and the built-in Sqlite3 database on Linux operating systems. Different batch management systems (LSF, PBS, Condor ...), file system storage (GPFS, Lustre, EOS ...), and transferring protocols (GRIDFTP, XROOTD ...) are supported. In addition, the recent experience of the integration of the system with Open Science Grid is also described.

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Data processing workflows and frameworks/pipelines

Tertiary Keyword (Optional)

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Primary author: SHAN, Baosong (Beihang University (CN))

Co-authors: EGOROV, Alexander (Massachusetts Inst. of Technology (US)); ELINE, Alexandre (Massachusetts Inst. of Technology (US)); DEMAKOV, Oleg (Massachusetts Inst. of Technology (US)); SHI, Renli (Southeast University (CN)); CHOUTKO, Vitaly (Massachusetts Inst. of Technology (US))

Presenter: SHAN, Baosong (Beihang University (CN))

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