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The architecture and administration of the ATLAS online computing system

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The needs of ATLAS experiment at the upcoming LHC accelerator, CERN, in terms of data transmission rates and processing power require a large cluster of computers (of the order of thousands) administrated and exploited in a coherent and optimal manner.

Requirements like stability, robustness and fast recovery in case of failure impose a server-client system architecture with servers distributed in a tree like structure and clients booted from the network. For security reasons, the system should be accessible only through an application gateway and, also to ensure the autonomy of the system, the network services should be provided internally by dedicated machines in synchronization with CERN IT department's central services.

The paper describes a small scale implementation of the system architecture that fits the given requirements and constraints. Emphasis will be put on the mechanisms and tools used to net boot the clients via the "Boot With Me" project and to synchronize information within the cluster via the "Nile" tool.

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