



# Sample Project: Operation and upgrade of a high performance computer network for the ATLAS experiment

Code	PH2322
Programme	FCT
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<b>Title</b>
Operation and upgrade of a high performance computer network for the ATLAS experiment

<b>Description</b>
<p>The ATLAS experiment relies on a large, distributed data acquisition system to gather its Physics data. At the heart of this system sits a high performance Ethernet network with an aggregate bandwidth at the Tb/s scale.</p> <p>This project is composed of two aspects :</p> <p>On one hand there is the hands-on administration of the existing network: this entails installing and configuring new device performing maintenance operations such as deploying firmware upgrades, as well as contributing to the improvement of the software suite used to monitor the system.</p> <p>On the other hand there is a research for suitable architectures and technologies to be used for the upgrade of the data acquisition network, that will require an increase in bandwidth and connectivity of up to a factor 100. This comprises the evaluation of alternative communication standards, such as InfiniBand, on dedicated test-beds (including software development) as well as in depth analysis of different multi-layered network architectures (on paper or through simulations).</p>

<b>Skills</b>

<b>Disciplines</b>
Applied Physics, Information Technologies

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