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I am not lost.

I am working for ATLAS, on the Integrated Simulation Framework (ISF) project.
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Simulation Requirements for the ATLAS Detector

MC samples vs. data

Monte Carlo simulations of physics events, including detailed detector simulation, are indispensable for every analysis of high energy physics experiments. **Increasing the recorded luminosity** at the LHC, and hence the amount of ATLAS data to be analyzed, leads to a steadily rising demand for simulated MC statistics. These MC requirements for more refined physics analyses can only be met through the implementation of **fast simulation strategies** which enable faster production of large MC samples. [1]
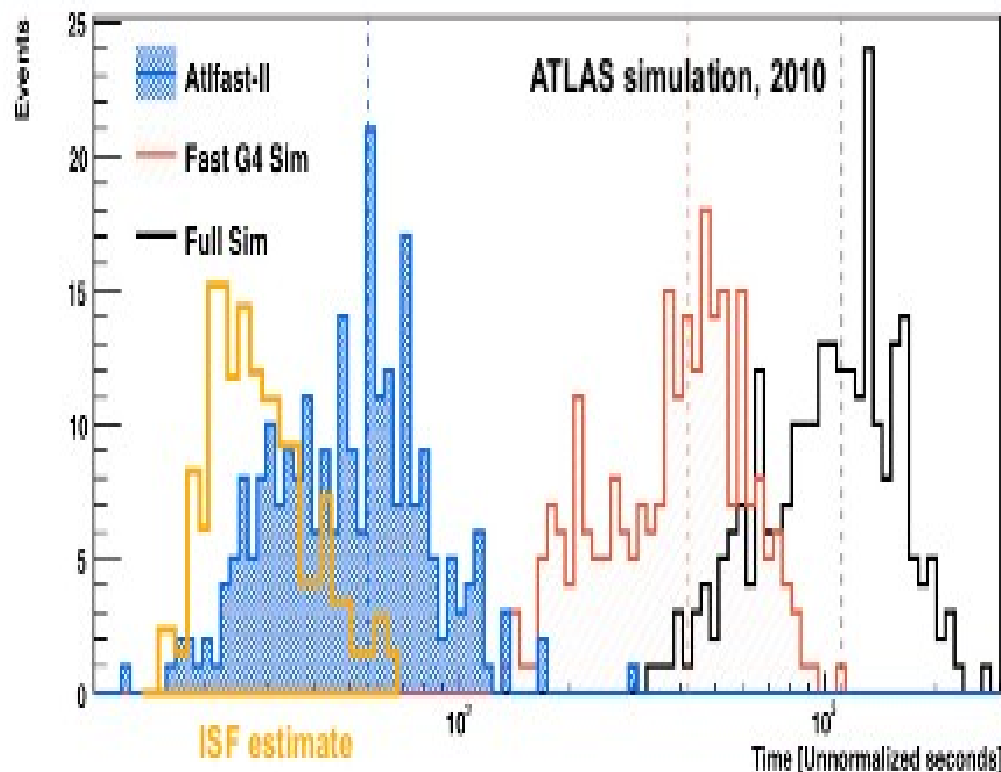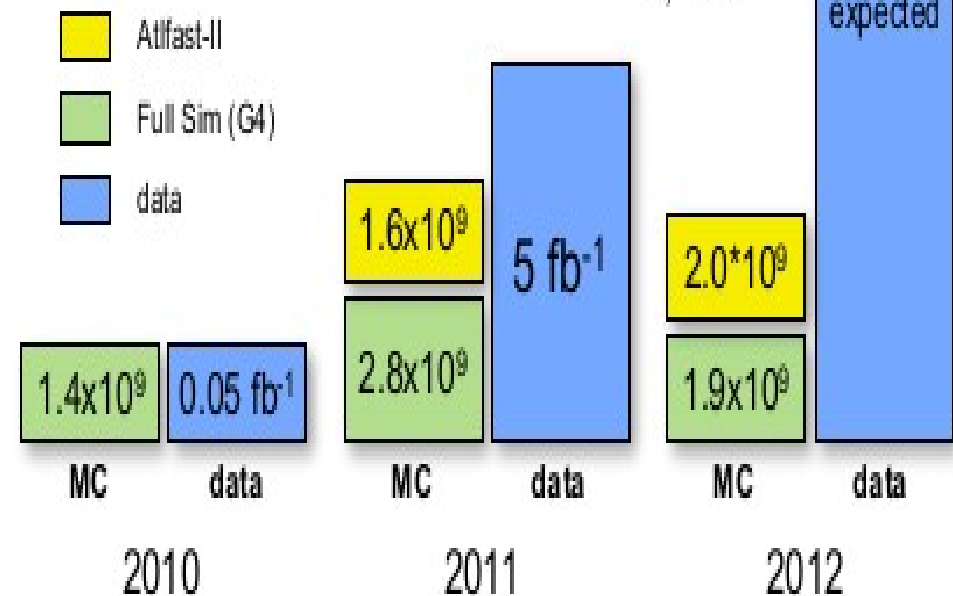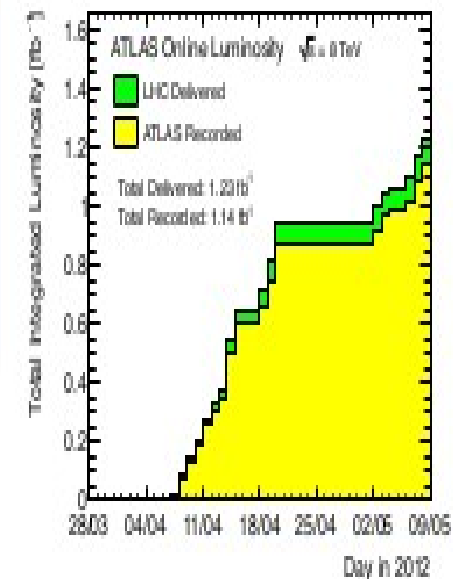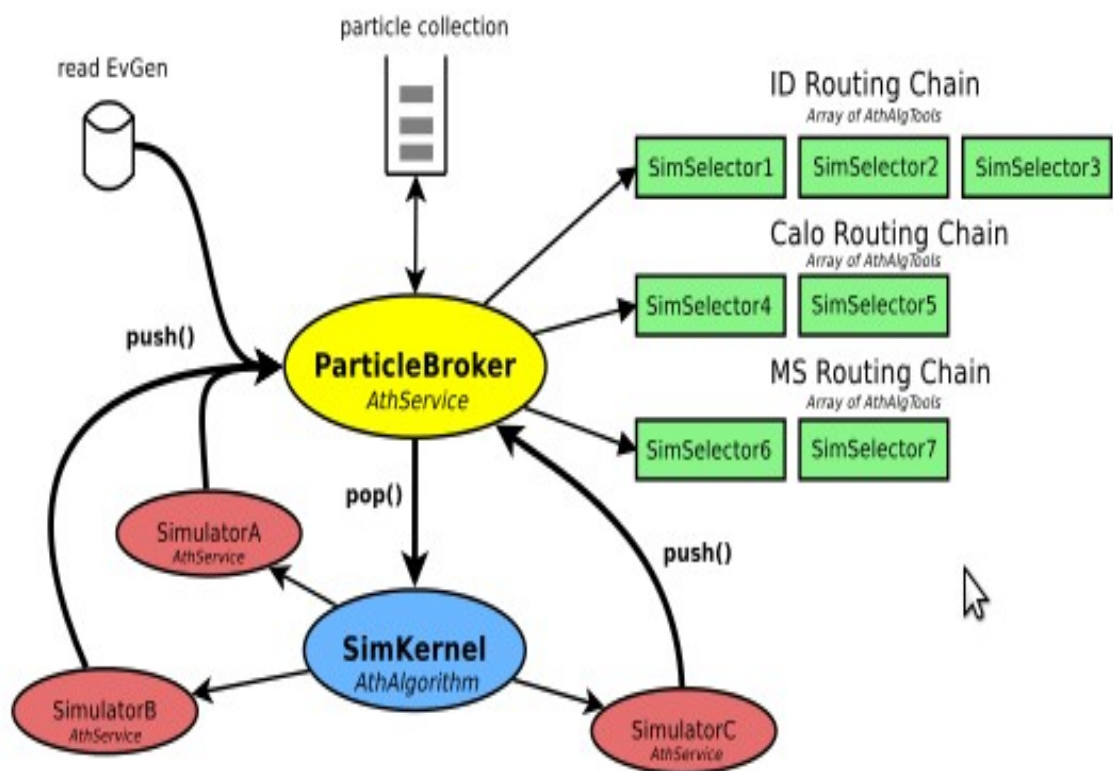
The Integrated Simulation Framework (ISF)

The ISF is fully embedded in the ATLAS framework (Gaudi-Athena). The general simulation flow is steered by the **SimKernel**, which is a single algorithm that holds **Simulator** services for the sub-detectors, a **ParticleBroker** service and the truth service. The SimKernel retrieves particles from the ParticleBroker and routes them to their associated simulation engines. All simulators fill a **common set of hit collections** which are then processed in the same digitization and reconstruction chain.

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particle collection

push()

ParticleBroker
AthService

pop()

push()

ID Routing Chain
Array of AthAlgTools

SimSelector1 SimSelector2 SimSelector3

Calo Routing Chain
Array of AthAlgTools

SimSelector4 SimSelector5

MS Routing Chain
Array of AthAlgTools

SimSelector6 SimSelector7

SimulatorA
AthService

SimKernel
AthAlgorithm

SimulatorB
AthService

SimulatorC
AthService

Conclusion

The fast simulation **Atlfast-II** with the calorimeter simulation **FastCaloSim** has been developed in order to reduce the simulation time in the ATLAS calorimeter system. It can be **tuned** against data, has been **validated** against the Geant4 based full simulation and has been **used since 2011** for large-scale MC production.

In order to meet the increasing physics demands on MC samples, the **Integrated Simulation Framework** (ISF) is being developed. It allows the flexible combination of full and fast simulation strategies in a single event to provide an **optimal balance** between precision and execution time, depending on the required accuracy.

The ISF is expected to be ready for production in 2013/2014 and **will be used for all simulations** and large-scale MC productions from **2015** onwards, when the LHC is expected to deliver a much higher integrated luminosity than today.