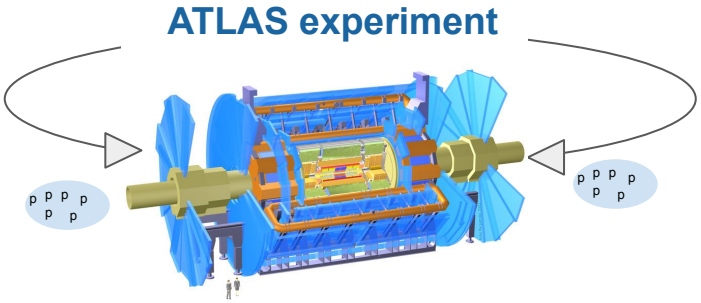
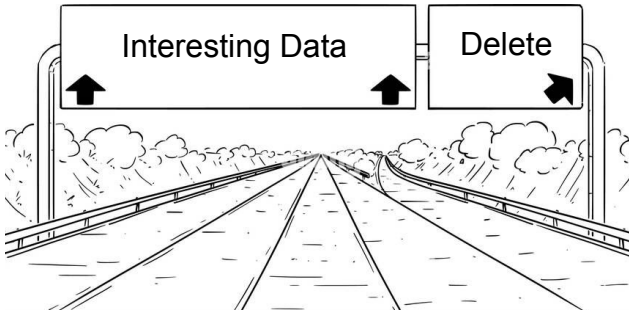
Event Filter Tracking

for the Upgrade of the ATLAS Trigger and Data Acquisition System



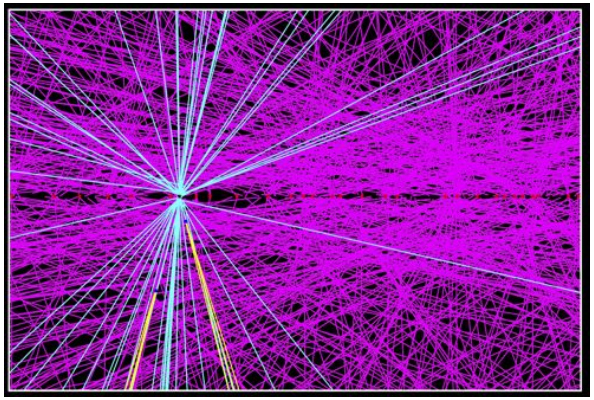
Collisions currently have a combined data volume of about **60 TB per second**.



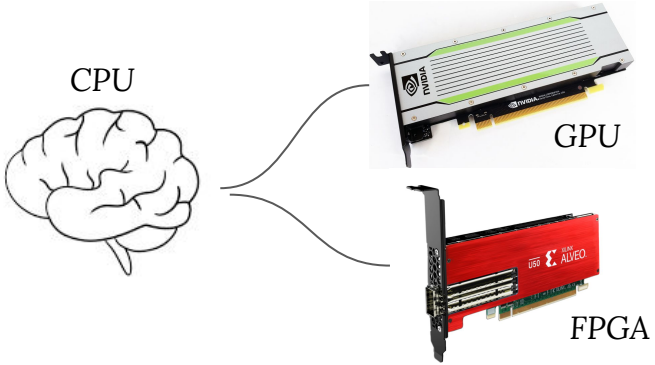
Special **real-time selection** system to **select and save** only the interesting data: Trigger and Data Acquisition (TDAQ)

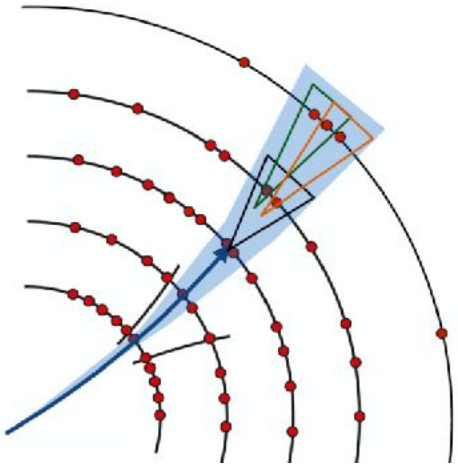
Fortunately, **only some of these data** will contain interesting characteristics that **might lead to new discoveries.**

High-Luminosity Large Hadron Collider program: **ten-fold increase in the amount of data** to allow observation of rare processes.



Event Filter tracking project: explore recent **advances in software tracking** and **heterogeneous computing** systems (CPU, without and with FPGA and GPU accelerators)





New challenging conditions for the TDAQ system.
In particular for the particle **tracks reconstruction**: additional combinatorial complexity.