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Intensity Frontier Computing at Fermilab

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The Intensity Frontier (IF) experiments at Fermilab require computing, software, data handling, and infrastructure development for detector and beamline design and to extract maximum scientific output from the data. The emphasis of computing at Fermilab for many years has been on the Tevatron collider Run 2 and CMS experiments. Using the knowledge and experience gained from those experiments as well as new computing developments, preparations for computing for IF experiments are ramping up.

There are many challenges in IF computing. These include event generators and detector simulation, beamline simulation, detector design and optimization, data acquisition, data handling, data analysis, and all of the associated services required. In this presentation many of these issues will be described, including a description of a new project, The Fabric for Frontier Experiments (FIFE), aimed at providing excellent modern computing services for the IF experiments at Fermilab.

FIFE is a collaborative effort between computing professionals and experiment scientists to produce an end-to-end, fully integrated set of services for computing on the grid and clouds, managing data, accessing databases, and collaborating within experiments. FIFE includes job submission services for processing physics tasks on the Open Science Grid and elsewhere, an extensive data management system, custom and generic database applications for calibrations, beam information, and other purposes and collaboration tools. FIFE sets the direction of computing at Fermilab experiments now and in the future, and therefore is a major driver in the design of computing services world wide.

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