

Interactive Web-based Analysis Clients using AJAX: with examples for CMS, ROOT and GEANT4

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We describe how a new programming paradigm dubbed AJAX (Asynchronous Javascript and XML) has enabled us to develop highly-performant web-based graphics applications. Specific examples are shown of our web clients for: CMS Event Display (real-time Cosmic Challenge), remote detector monitoring with ROOT displays, and performant 3D displays of GEANT4 descriptions of LHC detectors. The Web-client performance can be comparable to a local application. Moreover the web client does not suffer from any of problems of software packaging, distribution and installation and configuration for multiple platforms. AJAX, which uses a mixture of Javascript, XML and DHTML, is spreading rapidly, helped by its support from industry leaders such as Google, Yahoo and Amazon. We describe how AJAX improves on the traditional post/reload web-page mechanisms, by supporting individual updates of sub-components of web pages and explain how we exploited these design patterns to develop real web-based High Energy Physics applications.

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