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Fermi Offline Software: The Pros and Cons of Beg, Borrow, and Steal

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The Fermi Gamma-ray Observatory, including the Large Area Telescope (LAT), was launched June 11, 2008. We are a relatively small collaboration, with a maximum of 25 software developers in our heyday. Within the LAT collaboration we support Redhat Linux, Windows, and are moving towards Mac OS as well for offline simulation, reconstruction and analysis tools. Early on it was decided to use one software system to run our simulations as well as ultimately handle the event processing for real data. We leveraged many existing HEP external libraries (Geant4, Gaudi Framework, ROOT, CLHEP, CMT) to ease the burden on our developers. This strategy of re-using existing software helped us pull together our system quickly and test during our beam tests and data challenges. Now, after launch, we are in a new phase of the project, where we must move forward to support modern operating systems and compilers to get us through the life of the mission. This means upgrading our external libraries as well, which are not under our direct control. Meanwhile, it is crucial to our production system that we carefully orchestrate all upgrades to insure stability. An additional hurtle is that our number of active developers has dwindled dramatically. Many of those left are Windows developers reliant on the Visual Studio development environment, while our user base and production system depend on our Linux distributions. There have been a number of lessons learned, with undoubtedly more to come.

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