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ClaRA: The CLAS12 Reconstruction and Analysis framework EDDIE BANULOS-CASILLAS, JOHN PRICE, Cal State Univ-Dominguez Hill, DENNIS WEYGAND, JOHANN GOETZ, VARDAN GYURJYAN, Thomas Jefferson National Accelerator Facility, SEBASTIAN MANCILLA, Universidad Técnica Federico Santa María — Like most modern nuclear physics experiments, the CLAS experiment at the Thomas Jefferson National Accelerator Facility (JLab) needs to deal with extremely high data rates; at CLAS, they can be as high as approximately one terabyte per day. The upgrade of the accelerator energy, and the upgrade of the CLAS detector necessitated by it, will increase the data rate by approximately a factor of five, making it even more important than ever to implement efficient data reconstruction and analysis techniques. Cloud computing provides an efficient and economically feasible way to handle such a large amount of data. A Beowulf cluster is a common type of setup for such a purpose; it uses many similar computers, all connected to each other, performing a task in unison. At the CSUDH Hadronic Structure Laboratory (HadLab), we have built a 44-node Beowulf-like computer cluster operating a Linux distribution of Rocks Cluster which is based on CentOS. All of the computers in the HadLab cluster are recycled, mostly from computer labs on campus, to reduce the overall cost of the cluster; two of the HadLab nodes perform administrative functions, while the rest perform the calculations done by the cluster. The software used for this work is the CLAS12 Reconstruction and Analysis framework (ClaRA), a service-oriented architecture in which data processing algorithms filter continuously flowing data. This talk will present the motivation behind the ClaRA framework, and will discuss the current status of the development project.

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