Halls B/D ClaRA/JANA Discussion – Introduction/Goals

February 11, 2014

https://halldweb1.jlab.org/wiki/index.php/February_2014_Hall-B/Hall-D_ClaRA/JANA_discussion

14:30	(5)	**Introduction/ Goals**	-- Patrizia/Rolf
14:35	(15+5)	**CCDB calibration database**	-- Dmitry R.
14:55	(15+10)	**JANA and Hall-D**	-- David L.
15:20	(10+5)	**ClaRA Framework**	-- Vardan G.
15:35	(15+10)	**Hall-B Software Status**	-- Veronique Z.
16:00	(60)	**General Discussion**	
17:00		**---End --**	

From: February, 2012 JANA/CLARA Discussion

Functionality common to both JANA and CLARA

- Framework for event reconstruction
  - Modular:
    - allow easy replacement of one or more algorithms
    - allow independent development of modules by separate groups
  - Provides mechanism to parallelize reconstruction using multiple cores on the same computer
  - Plugin mechanism to allow extension of existing functionality at run time

From: February, 2012 JANA/CLARA Discussion

Primary Differences between JANA and CLARA

CLARA

- "Loosely Coupled":
  - Allows multiple languages to be combined since each module is a separate process
  - Data passed between modules by value
  - Built-in ability to distribute reconstruction job over multiple computers (cloud)

JANA

- "Tightly Coupled":
  - Single language, all modules contained within a single process
  - Data passed between modules by reference
  - Utilizes external distributed computing mechanisms like the GRID and Auger

CLARA is designed to provide interactive access to a system of services hosted either on a single node or distributed over a cloud

JANA is designed to make maximal use of a local, multi-core resource

From: February, 2012 JANA/CLARA Discussion

How JANA and CLARA might used in conjunction

JANA could be used to implement CLARA services that need to be highly efficient.

CLARA could be used to deploy JANA applications as shared services in a network distributed cloud computing environment.

The primary benefit to CLAS12 users of integrating JANA-based components into a CLARA-based system could be overall faster reconstruction for a fixed set of resources.

The primary benefit to Hall-D users of wrapping JANA-based programs as CLARA services would be gaining an interactive distributed computing environment that could provide a faster simulation/analysis cycle for specific studies.

February 2014 Halls B/D ClaRA/JANA Discussion

Generics from 2012 Halls B/D ClaRA/JANA Discussion:

- There are clear primary differences amongst ClaRA and JANA
- There were suggestions how ClaRA and JANA could be used in conjunction

There has been much progress over the last two years:

- The November 2013 software and computing review had nice words of praise!
- Hall D/JANA has proceeded to data challenge tests
- ClaRA has matured, and the framework has been utilized in data mining efforts
- Both Halls B and D have done training sessions of their users

What we would like to do at this stage, is revisit the ClaRA/JANA discussion of two years back, to see if there have been any new insights or lessons learned, and especially come back to the question how ClaRA and JANA efforts might be used in conjunction. Specific questions could be:

A) Would Hall-D benefit from the distributed computing functionality in ClaRA?

B) Would Hall-B benefit from using JANA inside a service?