Computing Infrastructure
September 1, 2004

Purpose, Description

GlueX is a compute-intensive experiment and will require a substantial computing infrastructure at JLab. This involves:

- design and implementation of a fast backbone network at the lab

- design and implementation of system to transfer 100 MB/sec from the counting house to the central computing facility

- purchase and installation of adequate offline storage media (approx. 1 PB/year raw data, 3 PB/year generated data)

- creation of large offline analysis farms (hundreds of cpu's)

- implementation of grid services to allow transparent access (OC 24 or better) to JLab and university computing facilities by GlueX collaborators

Current Status, R&D issues

Much of the above will not be needed for a number of years. Some of the items involve extension and/or upgrade of existing facilities, while others are completely new (e.g. grid services). JLab is a member of PPDG (a major grid collaboration) and is actively involved in grid R&D. We note that these all efforts are a continuation of current computer center activities.

Manpower, Further R&D, Production

Development and maintenance of the systems mentioned above will be the primary responsibility of the JLab Computing Center, although GlueX collaborators will need to be involved with the planning effort to ensure GlueX needs are met.

We estimate that prototypes of the items above will need to be in place three to five years before the beginning of data taking, and that production versions should be working one to three years before data taking (depending on system). We reconize that the purchase of many components (e.g. farm processors, switches, etc.) must be postponed for as long as possible for economic reasons, and that what needs to be in place early is the infrastructure within which these reside.

We note that the CEBAF Center extension currently under construction has dedicted space to house the offline farms and tape storage facilities needed to support GlueX.