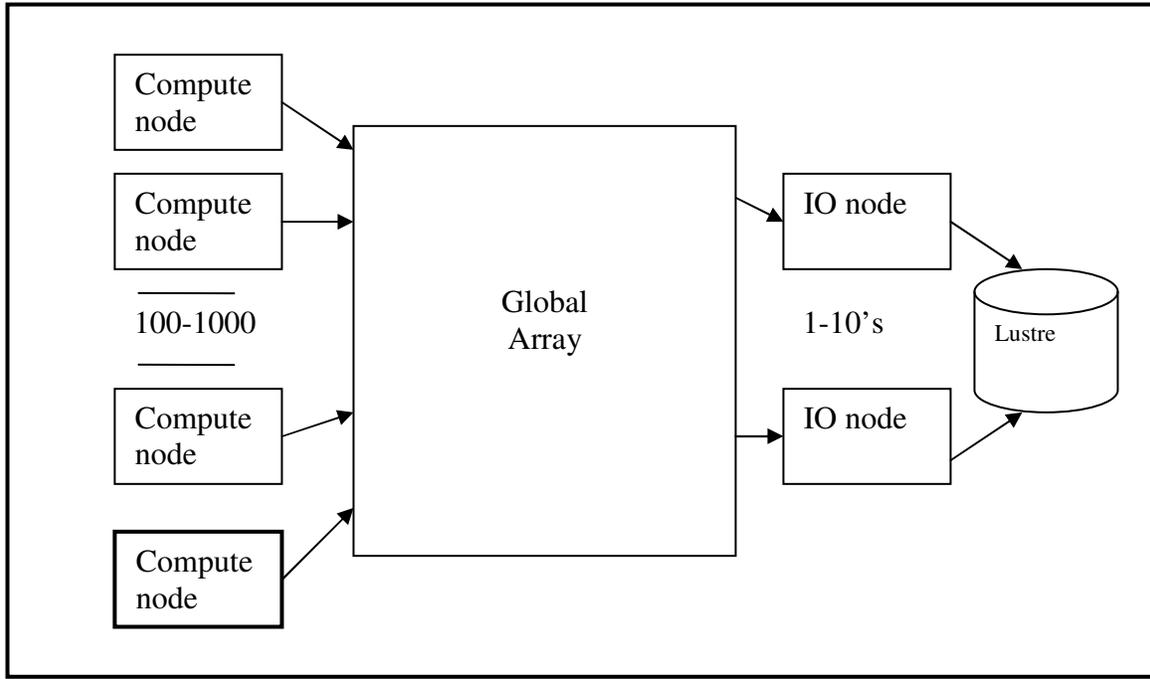


Asynchronous IO Component

PNNL is working on a climate modeling application in which the team is experimenting with the following design:



Basically, the model generates data during each iteration and stores this in the global array (GA). The IO nodes then write the data to disk while the model generates the next set of data to store.

Designing this scheme requires experimentation and balancing the number of compute nodes with the number of IO nodes. If the IO takes longer than the compute nodes take to execute an iteration, then the compute nodes idle and waste large amounts of CPU resources (there are many more compute nodes than IO nodes).

It should be possible to replace the GA with the CCA event service. This should give a more flexible design in which the event service buffers the data and the compute and IO nodes are not so tightly synchronized.