

## **Title: The Lattice Project: Combining Multiple Models of Grid Computing**

Abstract -

The Lattice Project is a system that combines multiple models of Grid computing. Grid computing is a paradigm for leveraging multiple distributed computational resources to solve fundamental scientific problems that require large amounts of computation. The system combines the traditional Service model of Grid computing with the Desktop model of Grid computing, and is thus capable of utilizing diverse resources such as institutional desktop computers, dedicated computing clusters, and machines volunteered by the general public to advance science. The production Grid system includes a fully-featured user interface, support for a large number of popular scientific applications, a robust Grid-level scheduler, and novel enhancements such as a Grid-wide file caching scheme. A substantial amount of scientific research has already been completed using The Lattice Project. In this talk, we will provide an overview of Grid computing and will discuss the features and capabilities of The Lattice Project in some detail. We will also discuss our collaboration with Coppin State as it relates to our funded grant proposal, "Grid, Public, and GPU Computing for Assembling the Tree of Life". To date, this effort has centered around the construction of a Condor pool at Coppin State that consists of many hundreds of Windows machines. This new computing resource can be used both locally and through the Grid system. Already, we have completed more than 10 CPU years of computation using the Coppin State Condor pool.