PROBLEMS IN CURRENT DESKTOP GRID

They are based on client-server model. So issues are with:
- Robustness
- Reliability
- Scalability

How to solve the above Desktop grid problems?

We can use P2P services which can provide a robust, reliable, and scalable job submission and execution system that is able to efficiently utilize widely distributed available computational resources.

SYSTEMS ARCHITECTURE

“This systems can be thought of as a combination of Condor-like grid system and a system such as BOINC”

So, to execute jobs on this system we have to address several issues:
- Job submission
- Matchmaking
- Load balance
- Secure job execution
- Resilience to failures
MATCHMAKING ALGORITHMS

- The Rendezvous Node Tree
  - Uses a distribute data structure built on the top of an underlying Chord DHT.
  - RN-Tree copes with dynamic load balance issues by performing a limited random walk after the initial mapping to an owner node, and performs matchmaking by passing information describing the maximal amount of each resource available up and down the tree.

- Content-Addressable Network
  - Using CAN DHT routing process as an underlying matchmaking process.
  - Treat each resource type as a distinct dimension and search for the closest node whose coordinates in all dimensions meet or exceed the job’s requirements.

FUTURE WORK

- Handle Fairness issues.
- Handle dependency between jobs.
- Build Prototype System.