

Modern computer applications are increasingly concerned with utilizing distributed resources, like processors and storage. Developers of these applications often assume either a homogeneous or a centralized environment without extensive requirement for reliability, security and scalability. This assumption is insufficient for contemporary computation environment, which is essentially heterogeneous, unreliable, exposed to open and insecure world and with dramatically increased entities.

Grid Computing emerges as a technology for coordinated large-scale resource sharing and problem solving among many autonomous groups. In Grid's resource model, the resource sharing relationships are dynamic: attendants can join or leave multiple relationships at any time. However, Grid requires a stable quality of service and the changing of sharing relationship can never happen frequently. This model works for a conventional distributed environment but is challenged in the highly variational wireless mobile environment.

In mobile environment, networks are unstable: mobile nodes can join and leave frequently; the quality of connection is unpredictable; even network itself can be ad-hoc. Moreover, mobile nodes have limited local resources and battery life. Although Grid Computing hasn't addressed these problems extensively, researches in Mobile Computing provide solutions attacking these mobility issues.

In this talk, we will investigate the relevant technologies to support building Grid system over a wireless mobile network, involving the areas of scheduling, energy-awareness, adaptive application, security for mobile device, mobile networking and p2p resource routing.