香港浸會大學理學院
HKBU Faculty of Science

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DEPARTMENT OF COMPUTER SCIENCE

MPhil Degree Oral Presentation

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Time:	18 August 2008(Monday) 9:30 am – 10:30 am (35 mins presentation and 15 mins Q & A)
Venue:	SWT 504, Committee Room, Shaw Tower, Shaw Campus

"A Concurrent Negotiation Mechanism for Grid Resource Co-allocation"

Abstract

Since computationally intensive applications may often require more resources than a single computing machine can provide in one administrative domain, bolstering resource co-allocation is essential for realizing the Grid vision. Given that resource providers and consumers may have different requirements and performance goals, successfully obtaining commitments through concurrent negotiations with multiple resource providers to simultaneously access several resources is a very challenging task for consumers.

Negotiation is a process by which the parties involved resolve matters of dispute by holding communications and coming to an agreement which can be mutually agreed by each other. Whereas there are research works adopting automated negotiation for solving the Grid resource allocation problem in recent years, this work is among some of the earliest research works adopting a *concurrent* negotiation mechanism for solving the problem of Grid resource *co*-allocation. In traditional negotiation, once a contract is established, both negotiation parties are bounded to the contract, i.e., neither party can breach the contract. This work adopts the idea of *leveled commitment contracts*, in which negotiation agents are allowed to renege on a contract during the negotiation.

The novel contribution of this work is devising a concurrent negotiation mechanism that (i) coordinates multiple one-to-many concurrent negotiations between a consumer and multiple resource providers such that the consumer can simultaneously access several resources by reaching agreements with multiple resource providers, (ii) manages (de)commitments for consumer agents during each one-to-many negotiation where reneging on a contract is allowed for both provider and consumer agents, and (iii) devises an adaptive commitment management strategy profile such that the consumer agent can adopt appropriate negotiation strategy for each kind of Grid resource.

*** ALL INTERESTED ARE WELCOME***