

A Spot Pricing Framework to Enable Pricing and Risk Management of Inter-Domain Assured Bandwidth Services

Mehdi Aboufadi

Aparna Gupta

Decision Sciences and Engineering Systems

Shivkumar Kalyanaraman

Ritesh Pradhan

Electrical, Computer and Systems Engineering

Rensselaer Polytechnic Institute

Troy, NY 12180, USA

August 29, 2002

Abstract

In the current bandwidth market, Internet Service Providers (ISPs) provide guaranteed Internet bandwidth within their domains. However, they are incapable of providing such assurances for data crossing their domain boundaries. In this paper, we present a spot pricing scheme for Internet bandwidth contracts within an ISP domain. These models when implemented at access or exchange points of different ISP domains would provide assured bandwidth for inter-domain traffic. Each contract will constitute a Quality of Service agreement between a customer and a provider within an ISP domain. By appropriately bundling derivative contracts defined on the intra-domain service contracts, a provider will not only be able to give inter-domain Quality of Service assurance, but will be able to add new services and manage its portfolio of services.