

Pricing Loss Guarantees for End-to-end Services on Service Overlay Networks

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Abstract

The Internet today mostly offers a simple best-effort mode of service. The capabilities of the Internet will be significantly enhanced if it supports better QoS modes, especially when QoS is provided for end-to-end services. In this article, we study the pricing problem of end-to-end bandwidth service with loss assurance facilitated by a Service Overlay Network (SON) architecture. A provider's strategies to construct end-to-end service contracts are investigated. By utilizing the end-to-end service provider's contractual relationships with ISPs in forming the SON, we develop an options based approach for pricing end-to-end loss assurances. Application of options pricing techniques provides a mechanism for fair risk sharing between providers involved in end-to-end service delivery, as well as between providers and customers of Internet services.