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# 优化的IP-DiffServ动态资源定价机制

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Abstract
After referring to the IP-DiffServ adaptive pricing mechanism of NSF CAREER, this paper presents an optimal adaptive resource pricing mechanism on the base of market and plan. Based on the service plan and service layout, it prices the service class by providing the users more performances with lower cost and by making ISP win the most benefits. While calculating user perceived benefit, the burden factor is taken into account, then it can lead to an orderly distributed traffic according to the service plan. Experimental results indicate that the improvement to the value evaluation formula of service class of NSF CARRER is reasonable and effective.

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摘要
在参考了美国国家基金会(NSF)的CAREER提出的IP-DiffServ的动态定价机制后,提出了一个以市场和计划为基础的优化动态定价机制.该机制以业务计划和资源规划为基础,从实现用户的最大性能价格比和ISP的最大利益出发实现了对业务类的定价,在计算用户可感觉到的利益时,考虑了负荷因素,从而可以引导业务量按照业务计划有序分布.仿真实验证明了它对NSF CAREER的业务类价值评估公式进行的改进是合理而有效的.

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References:

[1] Wang X, Schulzrinne H. Pricing network resources for adaptive applications in a differentiated services network. In: Proc. of the 20th Annual Joint Conf. of the IEEE Computer and Communications Societies (INFOCOM 2001), Vol 2. 2001. 943-952.

[2] Wang X, Schulzrinne H. Comparison of adaptive internet multimedia application. IEICE Trans. on Communications, 1999, (E82-B)6:806-818.

[3] Wang X, Schulzrinne H. RNAP: A resource negotiation and pricing protocol. In: Proc. of the Int'l Workshop on Network and Operation Systems Support for Digital Audio and Video (NOSSDAV'99). 1999. 77-99.

[4] Wang X, Schulzrinne H. An integrated resource negotiation, pricing, and QoS adaptation for multimedia application. IEEE JSAC, 2000, (18)12:2514-2529.

[5] Wang X, Schulzrinne H. Performance study of congestion price based adaptive service. In: Proc. of the Int'l Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV 2000). 2000. 1-10.

[6] Briscoe B, Rizzo M, Tassel J, Damianakis K. Lightweight policing and charging for packet networks. In: Proc. of the IEEE 3rd Conf. on Open Architectures and Network Programming (OPENARCH 2000). 2000. 77-87.

[7] Günter M, Braun T, Khalil I. An architecture for managing QoS-enabled VPN over Internet. In: IEEE Local Computer Networks 1999 (LCN'99). 1999. 122-131.

[8] Nichols K, Blake S, Baker F, Black D. Definition of the differentiated services field (DS Field) in the IPv4 and IPv6 headers. RFC 2474, 1998.

[9] Corcoubetis C, Siris V. Managing and pricing service level agreements for differentiated services. In: Proc. of the 7th IEEE/IFIP Int'l Workshop on Quality of Service (IWQoS'99). 1999. 165-173.

[10] Conway AE, Zhu YL. Applying objective perceptual quality assessment methods in network performance modeling. In: Proc. of the 11th Int'l Conf. on Computer Communications and Networks. 2002. 116-123.

[11] Mohamed S, Cervantes-Perez F, Afifi H. Audio quality assessment in packet networks: An 'inter-subjective' neural network model. In: Proc. of the 15th Int'l Conf. on Information Networking. 2001. 579-586.

[12] Janssen J, De Vleeschauwer D, Petitit GH. Delay and distortion bounds for packetized voice calls of traditonal PSTN quality. In: Proc. of the 1st IP Telephony Workshop (IPTel 2000). 2000. 105-110.

[13] Evlogimenou A, Boutaba R. Programmable accounting management for virtual private networks. In: Proc. of the Network Operations and Management Sym. (NOMS 2002). 2002. 297-312.

[14] Hausheer D, Liebau NC, Mauthe A, Steinmetz R, Stiller B. Token-Based accounting and distributed pricing to introduce market mechanisms in a peer-to-peer file sharing scenario. In: Proc. of the 3rd Int'l Conf. on Peer-to-Peer Computing. 2003. 200-201.