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Nota di contenuto	THE COMPETITIVE INTERNET SERVICE PROVIDER; Contents; Foreword; List of Figures; List of Tables; List of Abbreviations; Part I Introduction and Basics; 1 Introduction; 1.1 Motivation; 1.2 Efficiency and Quality of Service; 1.2.1 Network Efficiency; 1.2.2 Network Quality of Service; 1.2.3 Trade-off between Efficiency and Quality of Service; 1.3 Action Space and Approach; 1.4 Overview; 2 Internet Service Providers; 2.1 A Classification Model for ISPs; 2.1.1 Definition of Internet Service Providers; 2.1.2 Internet Service Provider Roles; 2.1.3 Support Provider Roles; 2.1.4 End-users 2.2 Classification of Selected Providers 2.3 Summary and Conclusions; 3 Performance Analysis Basics; 3.1 Queueing Theory; 3.1.1 Introduction; 3.1.2 Kendall's Notation; 3.1.3 Little's Law; 3.1.4 M/M/1 Queueing Systems; 3.1.5 M/M/1/B Queueing Systems; 3.1.6 M/G/1 Queueing Systems; 3.1.7 Other Queueing Systems; 3.1.8 Queueing Networks;

3.1.9 Conclusions; 3.2 Network Calculus; 3.2.1 Basics; 3.2.2 Example; 3.2.3 Conclusions; 3.2.4 Outlook; 3.3 Optimisation Techniques; 3.3.1 Introduction; 3.3.2 Modelling Optimisation Problems; 3.3.3 Solving Optimisation Problems; 3.4 Summary and Conclusions  
4 Internet Protocols4.1 The Internet Protocol Stack; 4.1.1 IP; 4.1.2 UDP; 4.1.3 TCP; 4.1.4 Lower Layer Protocols; 4.2 Summary and Conclusions;  
5 Applications; 5.1 World Wide Web; 5.1.1 QoS Requirements; 5.1.2 Traffic Model; 5.2 Peer-to-Peer Applications; 5.2.1 QoS Requirements; 5.2.2 Traffic Model; 5.2.3 The Future of P2P; 5.3 Online Games; 5.3.1 Computer Game Market; 5.3.2 Classification of Computer Games; 5.3.3 Online Game Architectures; 5.3.4 QoS Requirements; 5.3.5 Traffic Model; 5.4 Voice over IP; 5.4.1 QoS Requirements; 5.4.2 Traffic Model; 5.5 Traffic Classification  
5.5.1 Port-based Traffic Classification5.5.2 Advanced Mechanisms; 5.6 Summary and Conclusions; Part II Network Architecture; 6 Network Architecture Overview; 6.1 Introduction; 6.2 Quality of Service Architectures; 6.2.1 Components of a Quality of Service System; 6.2.2 The Integrated Services Architecture; 6.2.3 Stateless Core Architectures; 6.2.4 The Diffserv Architecture; 6.2.5 Tuned Best-effort Architectures; 6.2.6 Other Architectures; 6.2.7 Classification of Quality of Service Architectures; 6.3 Data Forwarding Architecture; 6.3.1 IP Routing; 6.3.2 Label Switching  
6.4 Signalling Architecture6.4.1 Routing Protocols; 6.4.2 Quality of Service Signalling Protocols; 6.4.3 Label Distribution Protocols; 6.5 Security Architecture; 6.6 Admission Control; 6.6.1 Location; 6.6.2 Flow and Network Behaviour; 6.6.3 Guarantees; 6.6.4 Other Properties; 6.7 Summary and Conclusions; 7 Analytical Comparison of Quality of Service Systems; 7.1 On the Benefit of Admission Control; 7.1.1 Fixed Load; 7.1.2 Variable Load; 7.1.3 Variable Capacity; 7.1.4 Summary and Conclusions; 7.2 On the Benefit of Service Differentiation; 7.2.1 Traffic Types; 7.2.2 Best-Effort Network Model  
7.2.3 QoS Network Model

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## Sommario/riassunto

Due to the dramatic increase in competition over the last few years, it has become more and more important for Internet Service Providers (ISPs) to run an efficient business and offer an adequate Quality of Service. The Competitive Internet Service Provider is a comprehensive guide for those seeking to do just that. Oliver Heckmann approaches the issue from a system point of view, looking not only at running a network, but also at connecting the network with peering and transit partners or planning the expansion of the network. The Competitive Internet Service Provider:<l

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