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Sessions: Deterministic Network Analysis; 4.1 Events and Processes in Packet Multiplexer Models: Universal Concepts; 4.2 Deterministic Traffic Models and Network Calculus; 4.3 Scheduling
4.4 Application to a Packet Voice Example 4.5 Connection Setup: The RSVP Approach; 4.6 Scheduling (Continued); 4.7 Summary; 4.8 Notes on the Literature; Appendix; Problems; Chapter 5. Stream Sessions: Stochastic Analysis; 5.1 Deterministic Calculus Can Yield Loose Bounds; 5.2 Stochastic Traffic Models; 5.3 Additional Notation; 5.4 Performance Measures; 5.5 Little's Theorem, Brumelle's Theorem, and Applications; 5.6 Multiplexer Analysis with Stationary and Ergodic Traffic; 5.7 The Effective Bandwidth Approach for Admission Control; 5.8 Application to the Packet Voice Example
5.9 Stochastic Analysis with Shaped Traffic 5.10 Multihop Networks; 5.11 Long-Range-Dependent Traffic; 5.12 Summary; 5.13 Notes on the Literature; Problems; Chapter 6. Circuit-Multiplexed Networks; 6.1 Introduction and Sample Applications; 6.2 Multiclass Traffic on a Single Link; 6.3 Overflow and Non-Poisson Traffic; 6.4 Multiclass Networks; 6.5 Erlang Fixed-Point Approximation; 6.6 Admission Control; 6.7 Waiting Room and Retrials; 6.8 Channel Allocation in Cellular Networks; 6.9 Wavelength Allocation in Optical Networks; 6.10 Summary; 6.11 Notes on the Literature; Problems
Chapter 7. Adaptive Bandwidth Sharing for Elastic Traffic 7.1 Elastic Transfers in a Network; 7.2 Network Parameters and Performance Objectives; 7.3 Sharing a Single Link; 7.4 Rate-Based Control (RBC); 7.5 Window-Based Control (WBC): General Principles; 7.6 TCP: The Internet's Adaptive Window Protocol; 7.7 Bandwidth Sharing in a Network; 7.8 Summary; 7.9 Notes on the Literature; Problems; Chapter 8. Multiple Access: Wireless Networks; 8.1 Bits over a Wireless Link: Principles, Issues, and Trade-Offs; 8.2 Bits over a Wireless Network; 8.3 TCP Performance over Wireless Links
8.4 Adaptive and Cross-Layer Techniques

Sommario/riassunto

The viewpoint is that communication networking is about efficient resource sharing. The focus is on the three building blocks of communication networking, namely, multiplexing, switching and routing. The approach is analytical, with the discussion being driven by mathematical analyses of and solutions to specific engineering problems.The result? A comprehensive, effectively organized treatment of core engineering issues in communication networking. Written for both the networking professional and for the classroom, this book covers fundamental concepts in detail and places design issue