Stochastic modeling in broadband communications systems

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Abstrak

Mathematical methods based on the theory of stochastic processes have long been used effectively in telephone traffic modeling. Today's modern network traffic, which is distinctly different from traditional voice traffic, generates challenging mathematical and statistical problems. Stochastic Modeling in Broadband Communications Systems provides a concise overview of stochastic models and mathematical techniques for solving these problems and enhances readers' overall understanding of communication systems. The book also presents an excellent introduction, particularly for students and professionals in probability and applied mathematics, to a huge area of interesting problems and models arising from modern developments in broadband channel transmission systems.
The author's clear presentation is based on sound mathematical reasoning, and he has taken special care to make the material easily accessible to readers unable to devote hours of time on rigorous mathematical detail and generality. Topics include models ranging over different time scales of calls, bursts, and cells; different protocol layers for transport, control, and applications; mechanisms for queuing, collisions, delay, and loss; and the effects of buffering, retransmission, multiplexing, and traffic control. Comprehensive exercises are provided at the end of each chapter.