DESCRIPTION

The computer game industry is clearly growing in the direction of multiplayer, online games. Understanding the demands of games on IP (Internet Protocol) networks is essential for ISP (Internet Service Provider) engineers to develop appropriate IP services. Correspondingly, knowledge of the underlying network's capabilities is vital for game developers.

Networking and Online Games concisely draws together and illustrates the overlapping and interacting technical concerns of these sectors. The text explains the principles behind modern multiplayer communication systems and the techniques underlying contemporary networked games. The traffic patterns that modern games impose on networks, and how network performance and service level limitations impact on game designers and player experiences, are covered in-depth, giving the reader the knowledge necessary to develop better gaming products and network services. Examples of real-world multiplayer online games illustrate the theory throughout.

Networking and Online Games:

• Provides a comprehensive, cutting-edge guide to the development and service provision needs of online, networked games.

• Contrasts the considerations of ISPs (e.g. predicting traffic loads) with those of game developers (e.g. sources of lag/jitter), clarifying coinciding requirements.

• Explains how different technologies such as cable, ADSL (Asymmetric Digital Subscriber Line) and wireless, etc., affect online gameplay experience, and how different game styles impose varying traffic dynamics and requirements on the network.
• Discusses future directions brought by emerging technologies such as UMTS (Universal Mobile Telephone Service), GPRS (General Packet Radio Service), Wireless LANs, IP service Quality, and NAPT/NAT (Network Address Port Translation/Network Address Translation)

• Illustrates the concepts using high-level examples of existing multiplayer online games (such as Quake III Arena, Wolfenstein Enemy Territory, and Half-Life 2).

*Networking and Online Games* will be an invaluable resource for games developers, engineers and technicians at Internet Service Providers, as well as advanced undergraduate and graduate students in Electrical Engineering, Computer Science and Multimedia Engineering.

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### ABOUT THE AUTHOR

**Grenville Armitage** Editor and contributing author Grenville Armitage is Director of the Centre for Advanced Internet Architectures (CAIA) and Associate Professor of Telecommunications Engineering at Swinburne University of Technology, Melbourne, Australia. He received his Bachelor and PhD degrees in Electronic Engineering from the University of Melbourne, Australia in 1988 and 1994 respectively. He was a Senior Scientist in the Internetworking Research Group at Bellcore in New Jersey, USA (1994 to 1997) before moving to the High Speed Networks Research department at Bell Labs Research (Lucent Technologies, NJ, USA). During the 1990s he was involved in various Internet Engineering Task Force (IETF) working groups relating to IP Quality of Service (QoS). While looking for applications that might truly require IP QoS he became interested in multiplayer networked games after moving to Bell Labs Research Silicon Valley (Palo Alto, CA) in late 1999. Having lived in New Jersey and California he is now back in Australia – enjoying close proximity to family, and teaching students that data networking research should be fascinating, disruptive and fun. His parents deserve a lot of credit for helping his love of technology become a rather enjoyable career.

**Mark Claypool** Contributing author Mark Claypool is an Associate Professor in Computer Science at Worcester Polytechnic Institute in Massachusetts, USA. He is also the Director of the Interactive Media and Game Development major at WPI, a 4-year degree in the principles of interactive applications and computer-based game development. Dr. Claypool earned M.S. and Ph.D. degrees in Computer Science from the University of Minnesota in 1993 and 1997, respectively. His primary research interests include multimedia networking, congestion control, and network games. He and his wife have 2 kids, too many cats and dogs, and a bunch of computers and game consoles. He is into First Person Shooter games and Real-Time Strategy games on PCs, Beat-‘em Up games on consoles, and Sports games on hand-holds.

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