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A Vertical Handoff Mechanism for Multimedia Streaming Services

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Biography

Chung-Ming Huang received the B.S. degree in electrical engineering from National Taiwan University on 1984/6, and the M.S. and Ph.D. degrees in computer and information science from The Ohio State University on 1988/12 and 1991/6. Currently, he is a Distinguished Professor, the Chairman of Dept. of Computer Science and Information Engineering, and the Director of Institute of Medical Informatics, National Cheng Kung University, Taiwan, R.O.C. He has published more than 180 referred journal and conference papers in wireless and mobile communication protocols, interactive multimedia systems, audio and video streaming and formal modeling of communication protocols. His research interests include wireless and mobile network protocol design and analysis, media processing and streaming, web technologies, and network applications and services.

Abstract

A mobile device equipped with multiple wireless access capabilities becomes gradually a leading trend. For example, a dual-mode mobile phone can connect the 3G and WLAN access networks simultaneously. Since each wireless access technique has different characteristics, users may suffer vertical handoffs during their movement in a heterogeneous network environment. Most current handoff solutions are based on received signal strength (RSS), in which the RSS with threshold (RSS-T) and the RSS with hysteresis and threshold (RSS-HT) are most common. However, either the RSS-T approach or the RSSHT approach may still have their corresponding drawbacks. In order to integrate the advantages of the RSS-T and RSS-HT approaches, this paper proposes a vertical handoff mechanism to adapt hysteresis dynamically. Meanwhile, the proposed system employs the Session Initiation Protocol (SIP) and the MPEG-4 Fine Granularity Scalability (FGS) to maintain the streaming quality during the handoff operation.