

Design and Implementation of an Audio/Video Group Chat Application for Wireless Mesh Networks

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Abstract—Widespread powerful mobile devices and the advanced technologies in wireless mesh networks (WMNs) open a new scenario where users require audio/video group chatting with their neighbors anywhere without the need of fixed communication infrastructure. However, development of audio/video group chat applications for WMNs are still challenging because the applications cannot rely on a central server, and the topology of the underlying WMNs is frequently changed and unreliable. In spite of those difficulties, the applications should perform audio/video data processing for multiple members and chat group management concurrently.

In this paper, we define important requirements of audio/video group-chat applications for WMNs, and then, explain our design and implementation for realizing them. To show the feasibility and scalability of our application, we implemented prototype group talk system composed of an 802.11n WMN and smartphones connected to wireless mesh nodes, and measured group management and video processing performance increasing the number of group members.

Keyword—Wireless Mesh Networks, Audio/Video Group Chat



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