中央研究院 資訊科學研究所
Institute of Information Science, Academia Sinica

Distinguished Lecture Series

Joint Software-Defined Application-Network Control Plane for Next Generation Real-Time Applications

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Auditorium 106 at New IIS Building

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Abstract

Current real-time applications such as telepresence systems require a very strong real-time interactivity. Requirements are even more stringent in multi-stream and multi-site teleimmersive applications due to strong dependencies across geographically distributed streams. In this talk, I will argue for a joint software-defined application-network control plane to assist the next generation real-time applications such as telepresence and teleimmersion. Furthermore, I will discuss OpenSession, the new 'Northbound' application-network control plane for multi-stream and multi-site real-time applications, which represents the interaction between the application-level session controller and Software-Defined Network (SDN) controller. OpenSession aims to improve end-to-end latency, bandwidth utilization and scalability by decoupling application data transport and control functionality, and partially offload the data transport functionalities to network layer switches. The offloading of application transport and control functions to network switches during their session run-time happens via OpenSession by leveraging the SDN (e.g., OpenFlow) assistance. The experiments with the OpenSession application-network control plane are very encouraging, since OpenSession improves greatly the performance, interactivity and resources usage of our real-time applications such as the 3D Teleimmersion.

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