System Architecture for Ubiquitous Live Video Streaming in University Network Environment

Angeline G. Dludla[1], Mncedisi J. Bembe[2], Badamsuren Byambaakhuu[2], Mohammed-Sani Abdulai[3] and Jae Jeung Rho[2]

Meraka Institute in CSIR[1], P.O. Box 395, Pretoria, 0001, South Africa. KAIST-ITTP[2], 119 Munji-ro Yuseong-gu, Daejeon, Republic of Korea, 305-732. University of Professional Studies [3], Accra (UPSA), P. O. Box LG 149, Accra, Ghana

Adludla@csir.co.za, bembe@kaist.ac.kr, badasuren@gmail.com, mohammed.abdulai@upsa.edu.gh and jjrho@kaist.ac.kr

Abstract

The recent growth of ubiquitous computing brings to the networking discipline new classes of home, campus, and mobile networks. This would enable education service providers to provide services to learners anywhere, anytime and not only through fixed devices, but also through ubiquitous mobile end user devices. Realizing these capabilities would require an architecture which supports context awareness functionality and an understanding of the environment by the system. In this paper we present an architecture which supports ubiquitous live streaming for university or campus networks using a modified bluetooth inquiry mechanism with extended ID, integrated end-user device usage and adaptation to heterogeneous networks. Riding on that architecture, services that can be provided by the education service provider include but not limited to live video streaming, e-document delivery and virtual notice boards. For the ubiquitous live streaming, mobile end user devices play the master or coordination role to identify which end-user device from a pool of devices the streaming should be sent to. The remaining components work together to ensure context awareness, flexibility and much more reliability of the system.