PROACTIVE HOT–ZONE FLOW CONTROL FOR SEAMLESS STREAM HANDOFF UNDER MOBILE MULTICAST NETWORKS (FriAmPO1)

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Abstract: This paper considers a scenario of broadcasting stream media over a mobile multicast networking environment, where a server employs the wired Internet multicast to replicate and distribute stream media to a set of access points (APs), from which mobile hosts (MHs) intercept the stream through wireless unicast links. An analytical framework is introduced for characterizing the traffic dependency between AP and MH by taking into account the issues impacting the seamless stream handoff (e.g., AP out−of−synch, handoff latency and path−setup delay). Based on it, a proactive hot−zone flow control scheme is proposed, which employs a simple threshold−based policy for regulating the traffic flow between AP and MH prior to handoff. The simulation results reveal that the proposed scheme can significantly reduce the playback hiccups while consuming limited buffer space, compared with the one without any special attention.
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Particularly, deployment of a few-second-video-length buffer in AP and MH is capable of achieving the seamless stream handoff most of the time subject to fairly loose constraints of the AP synch error (ranging between −3 and +3 sec) and handoff latency (around 1 sec).