Edge device multi-unicasting for video streaming

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Abstract

After a decade of research and development, IP multicast has still not been deployed widely in the global Internet due to many open technical issues: lack of admission control, poorly scaled with large number of groups, and requiring substantial infrastructure modifications. To provide the benefits of IP multicast without requiring direct router support of the presence of a physical broadcast medium, various application level multicast (ALM) models have been attempted. However, there are still several problems with ALM: unnecessary coupling between an application and its multicasting supports, bottleneck problem at network access links and considerable processing power required at the end nodes to support ALM mechanisms. This paper proposes an architecture to address these problems by delegating application-multicasting support mechanisms to smart edge devices associated with the application end nodes. The architecture gives rise to an interesting edge device any-casting technology that lies between the IP-multicasting and the application layer multicasting and enjoys the benefits of both. Furthermore, the architecture may provide sufficient cost-benefit for adoption by service providers. The paper presents initial results obtained from the implementation of a video streaming application over the testbed that implements the proposed architecture.

Index Terms

Inspec

Controlled Indexing

Internet multicast communication visual communication

Non-controlled Indexing

ALM IP multicast application layer multicasting application level multicast application multicasting support mechanism bottle neck problem edge device multi-unicasting multicasting support network access links streaming media distribution service video streaming

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PACS Codes

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DOE Thesaurus Terms

Not Available

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