



The Chinese University of Hong Kong
Non-confidential Abstract of Technology Disclosure

Title:

A Consonant Broadcasting Architecture for Large-Scale Video Streaming

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Inventor(s):

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Non-confidential abstract:

Video streaming systems that can serve hundreds to thousands of concurrent users are already widely available. However, to deploy metropolitan-scale video streaming services for potentially millions of users, current video streaming systems are still limited in capacity, and expensive in cost. To tackle this challenge, researchers have proposed novel broadcasting schemes to deliver video streaming services to virtually unlimited number of users using network multicast and client-side caching. This invention is a novel Consonant Broadcasting (CB) scheme utilizing network multicast that outperforms all known periodic broadcasting schemes. Moreover, the periodic CB scheme can be extended to a dynamic version that performs well not only at heavy traffic loads, but also light traffic loads as well. This Dynamic CB (DCB) scheme outperforms all known open-loop periodic broadcasting schemes as well as closed-loop multicast streaming algorithms. Last but not least, DCB can be extended to support the streaming of both constant bit-rate (CBR) and variable bit-rate (VBR) videos. Unlike existing VBR streaming algorithms, which often requires substantially more resources to stream VBR videos than CBR videos of the same average bit-rate, DCB can stream VBR videos using fewer resources than streaming CBR videos, and still benefit from the more consistent visual quality offered by the VBR coding methods.

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