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Seminar - Francis - Nov 9 10am - Y'allcast architecture

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USC/ISI Networking Seminar Series

Yallcast: Extending the Internet Multicast Architecture

Dr. Paul Francis
Tuesday, Nov 9th, 1999 at 10am
Hosted by: Dr. Deborah Estrin

11th floor Large Conference Room
USC/Information Sciences Institute
4676 Admiralty Way
Marina del Rey, CA

http://www.isi.edu for directions

If we take a broad view of the term ``multicast'' to mean any distribution of content to more than one machine, we find that multicast is proceeding along two distinct architectural tracks. On one track is IP multicast, which mainly targets realtime non-reliable applications, but for which hopes run high for reliable applications as well. On the other are a plethora of open or proprietary host- or server-based approaches, each typically targeting a specific application or product line.

IP multicast suffers from a number of technical problems, lacks applications, and in general is having trouble reaching critical mass, especially regarding anything resembling a global infrastructure. Server-based approaches are valuable and wide-spread, but there is no synergy in terms of multiple distinct groups working within the same architecture. As a result, progress is not as fast as it could be, and consumers are strapped with multiple application-specific infrastructures to deal with.

This talk presents an architecture, called yallcast, that aims to unify both tracks under a single umbrella architecture. Yallcast attempts to take the best from both tracks--reliable and asynchronous distribution from the server-based track, and dynamic auto-configuration via a simple API from the IP multicast track.

A key component of yallcast is that it allows a group of endhosts (the hosts where the content-consuming application resides) to auto-configure themselves into a tunneled topology for the purpose of content distribution. Yallcast can run over IP multicast, but does not require it. This allows application developers to bundle yallcast into their applications, giving their applications robust and scalable configuration-free out-of-the-box multicast. This is key to the initial acceptance of yallcast and for allowing it to reach critical

Yallcast is not limited, however, to endhost-based distribution. It can also work in infrastructure servers (boxes that receive, replicate, and forward content but that are not consumers of the content). This allows improved performance for applications that require it. It can also provide other benefits such as better security. The endhost- and server-based modes of operation taken together, along with yallcast's ability to utilize local islands of IP multicast, allow yallcast to support the broadest possible range of applications.

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