

CS235: Coolstreaming and PPlive

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Overview

- Why I like the Coolstreaming paper
 - Many structure-based approaches have been tried.
 - None works as well.
 - Simple yet works
 - Extensive experiments, and analysis to validate intuitions and design choices.
- Comparing CoolStreaming with Bittorrent
 - Design requirements
 - Approaches
 - Can you simplify the design of CoolStreaming?

Analysis on Overlay Radius

- Why is it important?
- High-level ideas
 - Modeling the distribution of one segment as a tree. Each node can be repeated in the tree, as the overlay has no such a tree structure.
 - Computes the average distance from the root of the tree to any node in the tree.
 - The key idea is that all nodes randomly pick partners. Therefore, the number of nodes at depth d increases exponentially. Therefore, the radius grows logarithmically.

Radius is related to delay, and meeting the deadline in real time streaming is very important.

Analysis on Fault Tolerance

- The key idea is that if any ancestor of a tree fails, a node may suffer disconnectivity.
- However, with a random network, as long as one partner does not fail, one node can still obtain a segment.