Research and practice of CCN on P2P and video streaming
-- our understanding, approaches and targets
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Content-Centric Networking (CCN, http://www.ccnx.org) is trying to follow named data oriented communication model to replace location based, host-to-host conversation TCP/IP architecture. Based on our years of working experience on P2P systems, we realized that there some interesting joint research problems by combining the two (P2P and CCN) together.

Following our center’s common approach, we’d like first develop internet application systems open to public users then start research based on these real systems. We have designed and implemented CCNMaze, a P2P file-sharing system over CCN (overlay network on top of TCP/IP). CCNMaze helps us understand CCN more in details, gather hands-on experience on CCN software, and simplify the architecture of IP based Maze to be more serverless and greatly reduce the complexity of the messaging mechanism. We are also targeting to implement some real-time video streaming application over CCN transformed from our P2P video live and VOD system called Hippo. As CCN is still at its primitive stage, we have really overcome some tech difficulties to make our application to work in reality.

There are three kinds of research problems we may be interested after these two P2P applications over CCN open to internet: 1. Organizing CCND connections for peers (CCN routing). 2. Data storage in CCN repo, Data redundancy and its caching strategies. 3. Implement in-memory Repo or ContentStore for video live streaming and their performance and traffic improvement.