A Case Study of Cache Performance in ICN - Various Combinations of Transmission Behavior and Cache Replacement Mechanism

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Abstract—**Information-centric networking (ICN) is suggested by many papers and research projects to improve network performance and enhance network resource efficiency in recent years. Moreover, in these researches, some researchers not only proposed their ideal ICN approaches but also modified the existing cache replacement mechanism to fit their ICN approaches. In this paper, we aim at investigating and quantifying the effect of the cache hit ratio with two kinds of transmission behavior, sequential and un-sequential, and three cache replacement mechanisms, FIFO, LRU, and random, in ICN. We implement several simulations with ndnSIM under NS-3 simulator. The simulation results show that LRU and FIFO are suitable for all networking applications no matter sequential or un-sequential content transmission behavior is used. Besides, the simulation results reveal that the cache hit ratios in LRU and FIFO are same when the experiment settings are with same interest packets sending rate, same experiment time, and sequential content transmission behavior.**

Keyword—**information-centric networking (ICN), cache hit ratio, transmission behavior, cache replacement mechanism**

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