

Distributed Packet Forwarding and Caching Based on Stochastic Network Utility Maximization

ABSTRACT

- In this paper, we present a distributed framework for joint request/data forwarding and dynamic cache placement in cache-enabled networks.
- we establish a dual queue system for both requests and data, and define a dynamic mapping between the two queues with the help of dummy data.
- As the local objective function associated with Lyapunov optimization is time-varying due to the stochastic evolution of request/data queues, we develop a low-complexity distributed forwarding and caching algorithm via stochastic network utility maximization.

EXISTING SYSTEM

- Cache-enabled network architecture has great potential for enhancing the efficiency of content distribution as well as reducing the network congestion.
- This, in turn, has called for joint optimization of traffic engineering and caching strategies while considering both network congestion and content demands.
- In this paper, we present a distributed framework for joint request/data forwarding and dynamic cache placement in cache-enabled networks.

PROPOSED SYSTEM

- First, to extract the network state information from local queue information, we introduce a dual queue system with dynamic mapping between the request and data queues.
- Second, to derive an efficient forwarding and caching algorithm, we iteratively update the request/data forwarding vector and the cache placement vector using stochastic network utility maximization.
- We prove that the proposed algorithm achieves the queue stability and derive its tracking performance in a stochastic environment. T

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

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SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

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REFERENCE

- [1] C. Yang, Y. Yao, Z. Chen, and B. Xia, “Analysis on cache-enabled wireless heterogeneous networks,” Jan. 2016.
- [2] J. Luo, J. Zhang, Y. Cui, L. Yu, and X. Wang, “Asymptotic analysis on content placement and retrieval in MANETs,” Apr. 2017.
- [3] E. Bastug, M. Bennis, and M. Debbah, “Living on the edge: The role of proactive caching in 5G wireless networks,” Aug. 2014.
- [4] X. Wang, M. Chen, T. Taleb, A. Ksentini, and V. C. M. Leung, “Cache in the air: Exploiting content caching and delivery techniques for 5G systems,” Feb. 2014.