QoE driven CDN resource allocation approach: literature review

Hanyu Li

February 2, 2020

1 The method that is being used now by industry

The most commonly used method is randomly assign new users to currently available CDN(Content Delivery Networks), usually according to the hashed id of users. Apparently, this kind of round robin approach gives rise to a set of problems. For example, the dynamic CDN status is neglected. Furthermore, the QoE(Quality of Experience) of users are affected by various factors which may contain factors other than QoS(Quality of Service).

2 State of art works

2.1 Prediction based

2.1.1 CFA

It aims to capture the complex relationships between session features and vedio quality

its pros and cons

- 2.2 E2 based
- 2.3 user heterogeneity
- 3 User heterogeneity: a new way to improve QoE

4 How we mitigate those drawbacks

Reference

- [1] Junchen Jiang, Vyas Sekar, Henry Milner, Davis Shepherd, Ion Stoica, and Hui Zhang. CFA: A practical prediction system for video qoe optimization. In 13th USENIX Symposium on Networked Systems Design and Implementation, NSDI 2016, Santa Clara, CA, USA, March 16-18, 2016, pages 137–150, 2016.
- [2] Guowei Zhu, Chou Mo, Zhi Wang, and Wenwu Zhu. User mapping strategies in multi-cloud streaming: A data-driven approach. In 2016 IEEE Global Communications Conference, GLOBECOM 2016, Washington, DC, USA, December 4-8, 2016, pages 1-6, 2016.
- [3] Athula Balachandran, Vyas Sekar, Aditya Akella, Srinivasan Seshan, Ion Stoica, and Hui Zhang. Developing a predictive model of quality of experience for internet video. In ACM SIGCOMM 2013 Conference, SIGCOMM'13, Hong Kong, China, August 12-16, 2013, pages 339–350, 2013.
- [4] Fatima Haouari, Emna Baccour, Aiman Erbad, Amr Mohamed, and Mohsen Guizani. Qoe-aware resource allocation for crowdsourced live streaming: A machine learning approach. In 2019 IEEE International Conference on Communications, ICC 2019, Shanghai, China, May 20-24, 2019, pages 1-6, 2019.
- [5] Xu Zhang, Siddhartha Sen, Daniar Kurniawan, Haryadi Gunawi, and Junchen Jiang. E2E: embracing user heterogeneity to improve quality of

REFERENCE 3

experience on the web. In Proceedings of the ACM Special Interest Group on Data Communication, SIGCOMM 2019, Beijing, China, August 19-23, 2019, pages 289–302, 2019.

- [6] Mowei Wang, Yong Cui, Xin Wang, Shihan Xiao, and Junchen Jiang. Machine learning for networking: Workflow, advances and opportunities. IEEE Network, 32(2):92–99, 2018.
- [7] Luca De Cicco, Saverio Mascolo, and Vittorio Palmisano. Qoe-driven resource allocation for massive video distribution. Ad Hoc Networks, 89:170–176, 2019.