Review of: "Mode Selection of Content Delivery At Edge Nodes Based On Learning"

Marios Avgeris

Potential competing interests: The author(s) declared that no potential competing interests exist.

- This work presents a learning-based mode selection for content delivery at edge nodes in cellular networks, to improve resource efficiency. Although this topic has been widely investigated during the last years, this study presents some novelty in the way that the mechanism "learns" the most fitting delivery mode (unicast/multicast) for each request, without prior knowledge of the network parameters and the content popularity. The evaluation shows encouraging results, however, some aspects of this work can be improved:

- Most of the related works cited are older than 5 years old. The authors should consider adding some more recent works on the field like:

[1] Wang, X., Wang, C., Li, X., Leung, V. C., & Taleb, T. (2020). Federated deep reinforcement learning for Internet of Things with decentralized cooperative edge caching. IEEE Internet of Things Journal, 7(10), 9441-9455.

[2] Wei, X., Liu, J., Wang, Y., Tang, C., & Hu, Y. (2021). Wireless edge caching based on content similarity in dynamic environments. Journal of Systems Architecture, 115, 102000.

- In Section 2 "System Model", Zipf's law should have a citation or at least a brief discussion.

- In Section 3 "Learning on Content Delivery Mode", I didn't quite catch how the authors transit from the relaxed, non integer/binary forms of β, back to the integer values, to decide the mode for each file (Page 6, first 2 paragraphs).

- In Section 4 "Performance Evaluation", the claim that "the performance of proposed algorithm is about 30 times better than that of random scheme." is not supported by the corresponding Figure 1. The authors are advised to elaborate on this.

- Some typos have to be corrected. Examples follow:

- Page 2, first paragraph: "provides potential solution to efficient" should be revised as "provides potential solutions to efficient".
- Page 2, last paragraph: "In practical, each edge" should be revised as "In practice, each edge".
- Page 3, first paragraph: "high data rate service" should be revised as "high data rate services", and "retrieve this file from data center" as "retrieve this file from a data center".
- Page 3, second paragraph: "node responses it" should be revised as "node responses to it".
- Page 6, last paragraph: "multicast may use more resource" should be revised as "multicast may use more resources".
- Page 7, first paragraph: "the cost of unicast and muticast" should be revised as "the cost of unicast and multicast", "For comparison,For comparison," should be revise as "For comparison,", "random algorithm" should be revised as "a random algorithm" and "randomly deliveries" as "randomly delivers".
- Page 7, second paragraph: "The excellent performance of proposed algorithm do not need complicated computation and file popularity profile like exhaustive and greedy algorithms." should be revised as "The excellent performance of the proposed algorithm does not need complicated computations and file popularity profiles like the exhaustive and the greedy algorithms." Also in the same paragraph, "than that of random scheme." should be omitted.
- Page 7, last paragraph: "Compared Figures 2 and 3, it is shown" should be revised as "The comparison in Figures 2 and 3 shows".