

Low-Latency Computation Offloading based on 5G Edge Computing Systems

Zhen-Yuan Pan*, Jiann-Liang Chen* and Yao-Chung Chang**

**Department of Electrical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan.*

***Department of Computer Science and Information Engineering, National Taitung University, Taitung, Taiwan.*

Lchen@mail.ntust.edu.tw*, ycc@nttu.edu.tw**

Abstract—This study proposed a Low-latency Services Offloading Policy based on a Greedy algorithm, called LSOPG, for 5G edge computing. LSOPG algorithm inherits the advantages of low complexity and high efficiency of the greedy algorithm and improves the frequency of congestion caused by queuing between users, finds the best balance between latency and load balancing. Compared with the previous study, when there are 20 users and the service type is 1080P@60fps video streaming, the proposed LSOPG policy can improve about 1.92% latency and 22.25% packet loss rate. When the number of users is increased to 50, it improves about 2.41% latency and 35.32% packet loss rate. This experimental result confirms that the LSOPG policy can provide well service quality in 5G networking.

Keyword—Multi-access Edge Computing, Edge Network, Offloading Policy, 5G, Games as a Service

Zhen-Yuan Pan is an undergraduate student at the Department of Electrical Engineering, National Taiwan University of Science & Technology, Taipei, Taiwan. His current research interests are Machine Learning, SDN and AI.

Jiann-Liang Chen was born in Taiwan on December 15, 1963. He received the Ph.D. degree in Electrical Engineering from National Taiwan University, Taipei, Taiwan in 1989. Since August 2008, he has been with the Department of Electrical Engineering of National Taiwan University of Science and Technology, where he is a Professor and Dean now. His current research interests are directed at cellular mobility management and personal communication systems.

Yao-Chung Chang [M'03] received his Ph.D. degree from National Dong Hwa University, Hualien, Taiwan, in 2006. He serves as the Chair, Department of CSIE, National Taitung University, Taiwan. He is a recipient of the subsidization program in universities for encouraging exceptional talent, Ministry of Science and Technology, Taiwan, and is the author of more than 60 papers in international journals and conferences. His main research interests include mobile communication networks, AIoT, Cloud Computing and 5G Mobile Computing.