Coordinating and Managing Vehicular Edge Computing Resources for Improved Energy Efficiency and QoS

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        The Hong Kong Polytechnic University

Abstract
We address the problem of energy-aware optimization of speculative execution in vehicular edge computing systems, where multiple copies of a workload are executed on a number of different nodes to ensure high reliability and performance. Our main intuition is that connected vehicles in close proximity can help each other to reduce their computational energy consumption while maintaining the desired Quality of Service (QoS). We propose a replica management algorithm which minimizes the energy consumption over multiple time periods while minimizing the latency for each of the periods. We evaluate the performance of the proposed algorithm by conducting an extensive experimental analysis. The experimental results indicate that the proposed algorithm obtains near optimal solutions within a reasonable amount of time.

About the Speaker
Daniel Grosu is an Associate Professor in the Department of Computer Science at Wayne State University, Detroit, Michigan, USA. He received the Diploma in engineering (automatic control) from the Technical University of Iasi, Romania, in 1994 and the MSc and PhD degrees in computer science from the University of Texas at San Antonio in 2002 and 2003, respectively. His research interests include parallel and distributed computing, edge and cloud computing, approximation algorithms, parallel algorithms, and topics at the border of computer science, game theory and economics. He has published more than one hundred peer-reviewed research articles in the above areas. He and his PhD student co-authors received several best paper awards including: the INFORMS 2015 IBM Research Service Science Best Student Paper Award Finalist, the 2014 INFORMS Service Science Best Paper Runner-Up Award, the 2014 INFORMS ENRE Best Student Paper Award, and the IEEE CloudCom 2010 Best Student Paper Award. He has served on the program committees of several international meetings in parallel and distributed computing such as ICDCS, CLOUD, EDGE, CloudCom, ICPP, and NetEcon. He is a senior member of the ACM, the IEEE, and the IEEE Computer Society.

All are welcome!
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