



Cleanroom Computing - Building Efficient and Secure Network Services

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Abstract. Network has become an integral part in people's daily lives and work. However, there are two key scientific issues that prevent users from using network services: Performance and Security. To address the performance issue of network services, we proposed Cleanroom Computing Mechanism. In this mechanism, software will be developed following the Cleanroom Programming Specifications, and will be stored in the software warehouse. The modules of software will be streamed into users' client devices and servers, so as to achieve the goal of "executing while streaming", which will significantly enhance the user experience. We also proposed Cleanroom Security Mechanism to improve the security of network services. Users and service providers are required to sign Cleanroom Security Agreements to ensure that only those software agreed by both sides can execute in the users' client devices and servers, which further builds mutual trust between the two computational bodies. Research on Cleanroom Computing has the significant impacts on both theoretical studies and practical applications for building efficient and secure network services.

Short-Bio. Guojun Wang received B.Sc. degree in Geophysics, M.Sc. degree in Computer Science, and Ph.D. degree in Computer Science, at Central South University, China, in 1992, 1996, 2002, respectively. He is a Pearl River Scholarship Distinguished Professor of Higher Education in Guangdong Province, a Vice Dean and a Doctoral Supervisor of School of Computer Science, Guangzhou University, China. He received the 2014 First Prize (in the 5th place) of the National Natural Science Award, State Council of the People's Republic of China. He was listed in "Chinese Most Cited Researchers" (Computer Science) by Elsevier in the past five consecutive years (2014-2018). He had been a Professor at Central South University, China; an Adjunct Professor at Temple University, USA; a Visiting Scholar at Florida Atlantic University, USA; a Visiting Researcher at the University of Aizu, Japan; and a Research Fellow at the Hong Kong Polytechnic University, HK. His research interests include artificial intelligence, big data, cloud computing, mobile computing, trustworthy/dependable computing, cyberspace security, recommendation systems, and mobile healthcare systems. He has published more than 400 technical papers and books/chapters in the above areas. His research is supported by Key Project of the National Natural Science Foundation of China, the National High-Tech Research and Development Plan of China (863 Plan), and the Ministry of Education Fund for Doctoral Disciplines in Higher Education. He has served as an associate editor or on editorial board of some international journals including IEEE Transactions on Parallel and Distributed Systems (TPDS), Security and Communication Networks (SCN), and International Journal of Parallel, Emergent and Distributed Systems (IJPEDS). He is the Leading Steering Chair of the IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), the Leading Steering Chair of the International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCCS), and the Leading Steering Chair of the International

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