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A Client-centric Approach to Interoperable Clouds

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Abstract. Cloud computing offers several benefits in terms of scalability, cost and performance. These benefits have contributed to the wide-scale acceptance of the cloud computing paradigm and growing adoption by the industry. With this growth, limitations of this paradigm are beginning to surface. One such limitation is that contemporary clouds are not interoperable. This limitation arises due to proprietary technologies, heterogeneous interfaces and the tight tethering of service offerings to the host cloud. Current research solutions for enabling cloud interoperability are predominantly provider-centric, requiring cloud providers to adopt and implement the changes that facilitate interoperation. This approach faces several hurdles and can take a long time to hit the market. In the meantime, a client-centric approach to interoperation is necessary for providing its benefits to consumers in the current cloud ecosystem. To this end, a novel framework for cloud interoperation called collaborative cloud computing is proposed. The proposed framework provides dynamic, on-the-fly collaborations and resource sharing among

cloud-based services, without preestablished collaboration agreements or standardized interfaces, through use of client-controlled mediating agents called proxies.

About Prof. Mukesh Singhal:

Mukesh Singhal is a Chancellor's Professor in the Computer Science and Engineering program at the University of California, Merced. He received a PhD degree in Computer Science from the University of Maryland, College Park, in May 1986. From 1986 to 2001, he was a faculty in the department of Computer and Information Science at The Ohio State University. From 1998 to 2001, he served as the program director of the Operating Systems and Compilers program at the National Science Foundation. From 2001 to 2012, he was a Professor and Gartner Group endowed chair in Network Engineering in the Department of Computer Science at The University of Kentucky. His current research interests include distributed and cloud computing, cyber-security, and computer networks. He has published over 240 refereed articles in

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