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Cloud Computing Software Architecture and Innovation in the Cloud

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Abstract. Software architecture has emerged as a key sub-discipline of software engineering; particularly in the realm of the large-scale system development such as cloud computing systems. Cloud computing systems are constructed from many parts and components, the organization of the overall system and the software architecture presents a new set of design problems. This level of design has been addressed in high-level design for developing any application in a cloud computing systems. In this tutorial we provide an introduction to the emerging field of cloud computing software architecture. We begin by considering of what means of architecture and cloud computing systems, why we need software architecture for a cloud computing systems as a complex system, our motivation for study and research about software architecture, facts, goals, a number of common architectural styles upon which many systems are currently based and show how different styles can be combined in a single design. In this tutorial, we highlight some of the major problems and how people have an opportunity to persuade their innovations in this field. After that we will consider some issues in designing cloud

computing architectures and selecting appropriate supporting technology. Then we present three case studies to illustrate how architectural representations can improve our understanding of cloud computing software systems. Finally, we survey some of the outstanding problems in the field, and consider a few of the promising research directions.

Keywords: Software Architecture, Cloud Computing Systems, Software Engineering, Network Software.

Biography of Instructor:

Mehdi Bahrami is the senior software analyzer at Lian Processor Co. and BISC member at University of California which is directed by Prof. Lotfi A. Zadeh. He was also a lecturer of Computer Science. Mehdi has authored published several technical papers in the areas of grid computing systems, distributed computing and software architecture. He was a Coeditor-in-Chief of the Journal of International Journal of Soft Computing and Software Engineering, and was on the Technical Editorial Boards of the



several IEEE and computer science international conferences and journals. Mehdi has a strong experience on developing software application for different platforms, such as Web based systems; Microsoft Windows based systems and Android systems. Also he is pioneer of Cloud Template Architecture.