



Analysis of Various Energy Efficient Data Centers Using Cloud Systems

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Abstract--The Computing systems basically focus on the performance issues driven by factors as consumer demand, business need or scientific reasons. As Energy efficiency is increasingly important for future information and communication technologies (ICT), the increased usage of ICT, together with increasing energy costs and the need to reduce green house gas emissions call for energy-efficient technologies that decrease the overall energy consumption of computation, storage and communications. At the same time we also need to maintain QoS(quality of service) and SLA(service level agreement). For the same we need to identify challenges in the area of energy and power affected. After studying some of the current best practice and relevant literature in this area, this paper identifies some of the remaining key research challenges that arise when such energy-saving techniques are extended for use in cloud computing environments. We discuss causes and problems of high power/energy consumption, and present taxonomy of energy efficient design of computing systems covering the virtualization, and data centre levels. We survey various key works in the area and map them onto our taxonomy to guide future design and development efforts.

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