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ACCRS: Autonomic based Cloud Computing Resource Scaling

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Abstract: A cloud computing model gives cloud service providers the ability to retain multiple workloads on a single physical system. However, efficient resource provisioning and possible system fault management in the cloud can be a challenge. Early fault detection can provide room to recover from potential faults before impacting QoS. Current static techniques of fault management in computing systems are not satisfactory enough to safeguard the QoS requested by cloud users. Thus, new smart techniques are needed. This paper presents the ACCRS framework for cloud computing infrastructures to advance system's utilization level, reduce cost and power consumption and fulfil SLAs. The ACCRS framework employs Autonomic Computing basic components which includes state monitoring, planning, decision making, fault predication, detection, and root cause analysis for recovery actions to improve system's reliability, availability, and utilization level by scaling resources in response to changes in the cloud system state.