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SAd-CloudSim: A Toolkit for Modelling and Simulation of Self-Adaptive Cloud Software Architectures

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Why SAd-CloudSim?

- □ as a symbiotic simulation
- fill the gap between the conceptual research and the proof-of-concept implementation
- support research and development of cloud computing
- self-adaptive cloud architectures challenges



SAd-CloudSim novel extensions

- modelling and simulation of adaptation mechanisms for large-sale cloud-based systems,
- self-contained platform for modelling and testing selfadaptation mechanisms,
- support for testing the performance of cloud systems under varying dynamic workloads and with different quality goals,
- support extensions for modelling and testing selfadaptation frameworks and techniques.

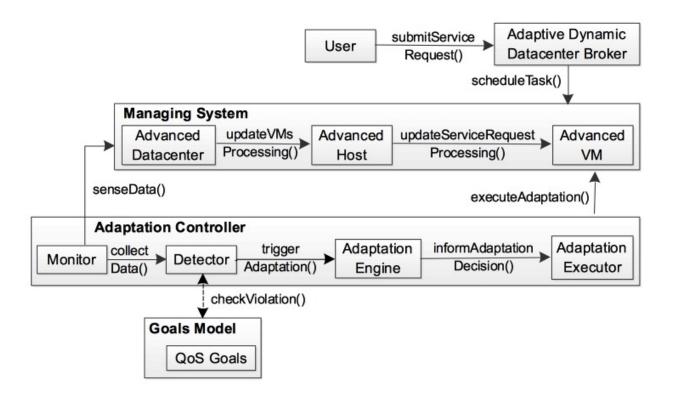


SAd-CloudSim architecture

Simulation Application	
Simulation Specification	CloudUserServiceRuntimeScenarioRequirementsConfigurationWorkload
Scheduling Policy	DatacenterAdaptiveAdaptive DynamicBrokerDatacenter BrokerDatacenter Broker
Self-Adaptation Layer	
Adaptation Architecture	MonitorDetectorAdaptation EngineAdaptation ExecutorAdaptation Tactic
Goals Model	QoS Goal Adaptation Rule
CloudSim	
User Services	ServiceServiceTypeRequestVM
VM Services	ServiceRequest VM Execution Management
Cloud Services	VMCPUMemoryStorageBandwidthProvisionAllocationAllocationAllocationAllocation
Cloud Resources	Events Handling Sensor Cloud Coordinator Datacenter Adaptive Datacenter
Network	NetworkMessage delayTopologyCalculation
	CloudSim core simulation engine



Simulation using SAd-CloudSim





SAd-CloudSim open source

https://github.com/m-salama/SAdSAwCloudSim





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