Examine the advantages of an integrated scalability approach at various cloud stack layers

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Abstract

The development of cloud computing has significantly altered how services are built, deployed, and made accessible to users outside of the organization. In actuality, the pay-as-you-go model of dispersed IT supported by the cloud computing paradigm calls for the outsourcing of software services and applications. In this situation, the capacity to ensure effective cloud performance management and to facilitate automated scalability become fundamental prerequisites. Users of the cloud are becoming more and more interested in a transparent and coherent image of the cloud, where performance is guaranteed in a variety of situations and under a variety of loads. In this essay, We examine the advantages of an integrated scalability approach at various cloud stack layers, concentrating on the database and compute infrastructure layers. In order to achieve this, we offer various performance measurements and a set of rules based on them to assess the cloud stack's condition and scale it as needed to maintain stable performance. Then, using a proof-of-concept architecture, we empirically investigate three scaling scenarios for cloud performance: database only, computing infrastructure solely, and the scenario where computing infrastructure and database compete for resources.

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