Abstract

The primary challenge of cloud service providers is finding ways to maintain a high degree of Quality of Service (QoS) in a cost-effective manner to ensure either profitability (for business-based cloud service providers) or cost avoidance (for government cloud service providers). The traditional approach to improving system performance is to upgrade the servers and/or network backbone, an expensive undertaking. The authors used OPNET Modeler to represent distributed system architecture supporting a variety of application services and defined a framework for measuring QoS from the end-user's perspective and discovered that there is no direct relationship between server/network upgrades and overall QoS in distributed systems. This framework can be used as a decision support tool for cloud service providers to optimize the QoS of their systems by choosing upgrade strategies that provide the greatest "bang for the buck."

Index Terms

Computer Science  Cloud Computing

Keywords

Computer networks  Quality Of Service  Modeling And Simulation  Computer Performance  Distributed Systems