

Pakpoom Mookdarsanit 2013: Hybrid Cloud Methodology for Designing Failover System of Cloud Computing. Master of Science (Computer Science), Major Field: Computer Science, Department of Computer Science. Thesis Advisor: Mr. Sethavidh Gertphol, Ph.D. 80 pages.

Availability is one of three biggest issues which slow down the adoption of the Public Cloud. A Private Cloud can be designed to use as a replica when Public Cloud goes offline. In this research, we introduce the method for designing Private Cloud as a failover system for Public Cloud. Since the Private Cloud has less resource; it cannot handle all workloads previously on the Public Cloud. We overcome this restriction by adapting the full operation performed in Public Cloud into a light-weight operation optimized for a Private Cloud. A light-weight operation consumes less resource but also has removed quality of service (QoS) compared to the full operation. In other words, we remove the quality of service of the system in order to serve more requests. We also define a write type of data according to change and future use of that data in 3 types: Multiple-write data, Write-once data and Write-only data. We adapt the full operation into a light-weight one by removing the number of write types or changing one type to another. Because these three write-types have different number of workloads. Experimental result shows that, (1) a system with full operation consists of three Write-once data, one Write-only data and one Multiple-write data can sustain an average of 469 maximum numbers of requests. (2) When we adapt full operation into light-weight version by converting all Write-once data into Write-only data, a system can sustain 572 requests, an improvement of 21.96%. (3) When we adapt light-weight operation in (2) by removing a Multiple-write data, a system can sustain 1755 requests, an improvement of 206.81%.

---

Student's signature

---

Thesis Advisor's signature