

Two Aggregator Topology optimization using Multiple paths in Data Center Networks

Abstract:

Thousands of server racks are interconnected via top-of-rack (ToR) switches to build a large data center network. Many big data applications require these racks to transfer data to a specific set of racks called aggregators in the data center. With different applications, the set of aggregators and the amount of data generated in each server rack change.

Existing system:

A lot of research has been carried out in the last couple of decades on data-center network architectures with the goal of making them more energy-efficient. The classic datacenter design architecture and other improved architectures addressing different issues like over-subscription, congestion, packet-drop, poor utilization of resources (aggregator and core layers) in conventional datacenter architectures are important instances of previous work.

Disadvantages:

1. Existing applications are not energy efficient.
2. Data center architecture doesn't provide good performance because of the poor resource utilization issues.

Proposed system:

In this paper we focus on the problem of data aggregation using two aggregators in a data center network, where the source racks are allowed to split their data and send to the aggregators using multiple paths. We show that the problem of finding a topology that minimizes aggregation time is NP-hard for $k = 2, 3, 4$, where k is the maximum degree of each ToR switch (number of uplinks in a top-of-rack switch) in the data center.

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Advantages:

1. Here resource utilization is efficient.
2. Application performance has been improved.

SYSTEM REQUIREMENTS

H/W System Configuration:-

- Processor - Pentium –III
- RAM - 256 MB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

S/W System Configuration:-

- Operating System : Windows95/98/2000/XP
- Application Server : Tomcat5.0/6.X
- Front End : HTML, Jsp
- Scripts : JavaScript.
- Server side Script : Java Server Pages.
- Database : MySQL 5.0
- Database Connectivity : JDBC