

Power Efficiency in Energy-aware Data Center Network

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Abstract: Energy efficiency is becoming increasingly important in the operation of networking infrastructure, especially in enterprise and data center networks. Networking devices today consume a non-trivial amount of energy and it has been shown that this energy consumption is largely independent of the load through the devices. Numerous studies have shown that data center network rarely operate at full utilization, leading to a number of proposals for creating servers that are energy proportional with respect to the computation that they are performing. In this paper, as servers themselves become more energy proportional, the data center network can become a significant fraction of cluster power. We propose several ways to customize an energy-aware data center network whose power consumption is more proportional to the amount of traffic it is moving. Specifically, our approach is to propose cross-layer design for data center network.

Keywords: Energy Proportional; Energy-aware Data Center Network; Cross-layer Design

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