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**Secure and Sustainable Load Balancing of Edge Data Centers in Fog Computing**

**Abstract**

Fog computing is a recent research trend to bring cloud computing services to network edges. EDCs are deployed to decrease the latency and network congestion by processing data streams and user requests in near real time. EDC deployment is distributed in nature and positioned between cloud data centers and data sources. Load balancing is the process of redistributing the work load among EDCs to improve both resource utilization and job response time. Load balancing also avoids a situation where some EDCs are heavily loaded while others are in idle state or doing little data processing. In such scenarios, load balancing between the EDCs plays a vital role for user response and real-time event detection. As the EDCs are deployed in an unattended environment, secure authentication of EDCs is an important issue to address before performing load balancing. This article proposes a novel load balancing technique to authenticate the EDCs and find less loaded EDCs for task allocation. The proposed load balancing technique is more efficient than other existing approaches in finding less loaded EDCs for task allocation. The proposed approach not only improves efficiency of load balancing; it also strengthens the security by authenticating the destination EDCs.