

On Multiobjective Optimization to Improve the Scalability of Fog Application Deployments Using Fogtorch

Authors : Suleiman Aliyu

Abstract : Integrating IoT applications with Fog systems presents challenges in optimization due to diverse environments and conflicting objectives. This study explores achieving Pareto optimal deployments for Fog-based IoT systems to address growing QoS demands. We introduce Pareto optimality to balance competing performance metrics. Using the FogTorch optimization framework, we propose a hybrid approach (Backtracking search with branch and bound) for scalable IoT deployments. Our research highlights the advantages of Pareto optimality over single-objective methods and emphasizes the role of FogTorch in this context. Initial results show improvements in IoT deployment cost in Fog systems, promoting resource-efficient strategies.

Keywords : pareto optimality, fog application deployment, resource allocation, internet of things

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