ARTIFICIAL INTELLIGENCE-BASED KUBERNETES CONTAINER FOR SCHEDULING NODES OF ENERGY COMPOSITION

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Abstract

Kubernetes is a portable, extensible, open-source platform for managing containerized workloads and services that facilitates both declarative configuration and automation. This study presents Kubernetes Container Scheduling Strategy (KCSS) based on Artificial Intelligence (AI) that can assist in decision making to control the scheduling and shifting of load to nodes. The aim is to improve the container's schedule requested digitally from users to enhance the efficiency in scheduling and reduce cost. The constraints associated with the existing container scheduling techniques which often assign a node to every new container based on a personal criterion by relying on individual terms has been greatly improved by the new system presented in this study. The KCSS presented in this study provides multicriteria node selection based on artificial intelligence in terms of decision making systems thereby giving the scheduler a broad picture of the cloud's condition and the user's requirements. AI Scheduler allows users to easily make use of fractional Graphics Processing Units (GPUs), integer GPUs, and multiple-nodes of GPUs, for distributed training on Kubernetes. © 2021, The Society for Reliability Engineering, Quality and Operations Management (SREQOM), India and The Division of Operation and Maintenance, Lulea University of Technology, Sweden..

Keywords

Artificial intelligence; Automated scheduling; Cloud infrastructure; Kubernetes; Multi-criteria scheduler; Scheduling strategy