

عنوان مقاله:

Thermal-Aware Virtual Machine Placement Approaches: A Survey

محل انتشار:

دوفصلنامه مرکز پژوهشی ریاضی ماهانی، دوره 13، شماره 2 (سال: 1403)

تعداد صفحات اصل مقاله: 39

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خلاصه مقاله:

Thermal-aware virtual machine (VM) placement has emerged as a critically significant research domain in response to the escalating demand for energy-efficient and dependable cloud data centers. Addressing the imperative need for resource optimization and reduced energy consumption, the virtual machine placement problem seeks to strategically allocate VMs to physical servers while adhering to stringent thermal constraints. This paper intricately surveys the state-of-the-art techniques employed in thermal-aware VM placement, encompassing both static and dynamic approaches. Our comprehensive analysis delves into influential factors, including workload characteristics, server heterogeneity, and advanced thermal management techniques. By elucidating the intricacies of these considerations, our review offers a nuanced understanding of the complex VM placement landscape. Importantly, we spotlight key challenges and identify open research issues, presenting a roadmap for future investigations. This review paper stands as a pivotal resource, providing invaluable insights for researchers and practitioners navigating the evolving landscape of thermal-aware virtual machine placement in cloud data centers.

کلمات کلیدی:

Cloud Computing, energy saving, thermal awareness, virtual machine, data center

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