

System and Method for Operating a Server Farm

 Communications & Information

 Manufacturing

Computer/AI/Data Processing and Information Technology

Digital Broadcasting, Telecommunication and Optoelectronics

Opportunity

Server farms, which are groups of computers that work together to store data and perform other digital tasks, have become essential to the functioning of modern economies. These computers require energy consumption in both the running of the computers themselves as well as the climate control necessary to keep the computers running at stable conditions. Rising concerns about the greenhouse gas emissions connected with high energy consumption mean that server farms need to become more energy efficient. This invention involves a methodology for increasing the energy efficiency of a given server farm—specifically, one in which multiple servers are operably connected with each other.

Technology

In the methodology outlined in this invention, the energy efficiency of each server is first assessed in terms of performance and power consumption. Then a virtual server is defined, with the virtual server consisting of two or more of the most efficient servers. This done, incoming computational jobs are routed as much as possible to the virtual server. This allows for jobs to be processed with greater energy efficiency. Moreover, jobs are assigned in such a way that they are never assigned to lower efficiency servers when any given server within the virtual server is idle. This ensures that energy consumption is consistently managed in the most efficient manner possible.

Advantages

- Unlike other methods of routing tasks, this methodology is designed to improve both the performance and the energy efficiency of a server farm.
- This methodology can be implemented in any given computing system.
- This methodology is not limited to server farm operation but can also be implemented to increase the energy efficiency of individual computing devices.

Applications

- Data centres
- Software development
- Cloud computing

IP Status

Patent granted



Technology Readiness Level (TRL) ?

5

Inventor(s)

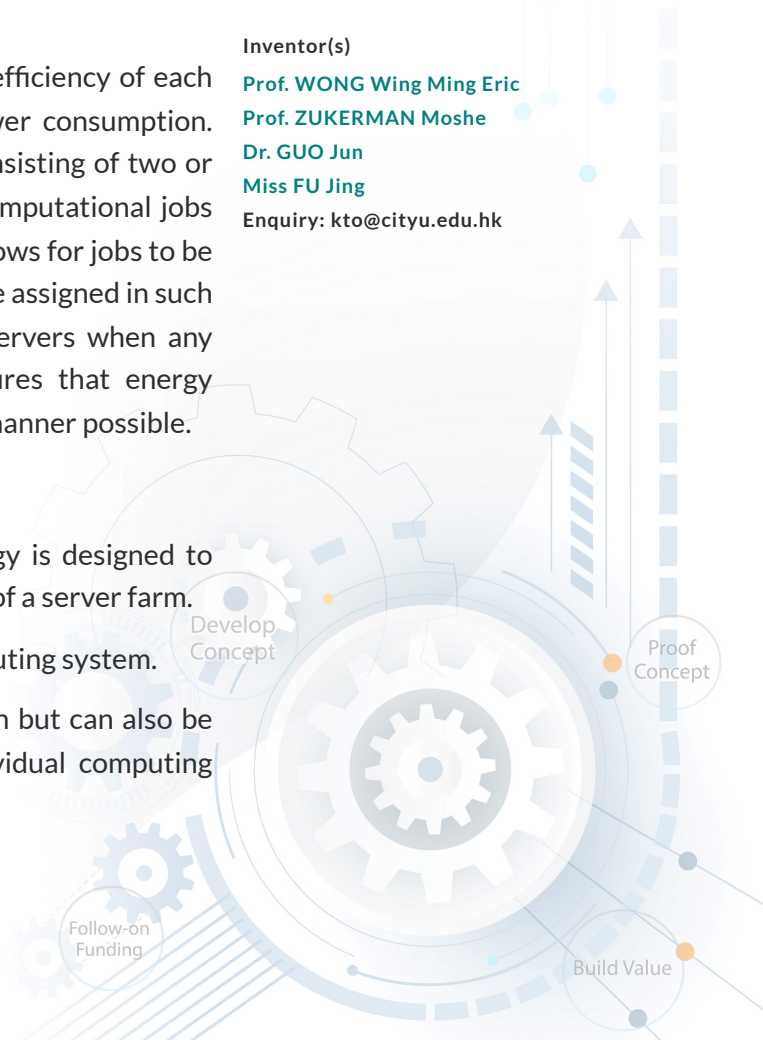
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