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ABC-PSO for vertical handover in heterogeneous wireless networks (📘Article in press ❓)

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Abstract

Cloud computing is currently emerging quickly as a client-server technology structure and, currently, providing distributed service applications. However, given the availability of a diverse range of wireless access technologies, people expect continuous connection to the most suitable technology that matches price affordability and performance goals. Among the main challenges of modern communication is the accessibility to wireless networks using mobile devices, with a high service quality (QoS) based on preferences of the users. Past literatures contain several heuristic approaches that use simplified rules to look for the best network that is available. Nevertheless, attributes of mobile devices need algorithms that are quick and effective in order to select best available network near real-time. This study proposes a hybrid intelligent handover decision algorithm primarily founded on two main heuristic algorithms: Artificial Bee Colony or ABC as well as Particle Swarm Optimization or PSO named ABC-PSO to select best wireless network during vertical handover process. The ABC-PSO algorithm has been optimized to achieve small cost function that are powered using the IEEE 802.21 standard taking into account different available wireless networks, the application requirements and the user preferences to improve QoS. Numerical results demonstrate that the ABC-PSO algorithm compared to the related work has lower cost and delay, higher available bandwidth and less number of handover. © 2017.

Author keywords

ABC; Heterogeneous wireless networks; IEEE 802.21; PSO; Vertical handover

Indexed keywords

Engineering controlled terms: Bandwidth; Cost functions; Costs; Evolutionary algorithms; Heterogeneous networks; Heuristic algorithms; Heuristic methods; Particle swarm optimization (PSO); Quality of service; Radio systems; Wireless networks

Application requirements; Artificial bee colonies; Available bandwidth; Client-server technology; Heterogeneous wireless network; IEEE802.21; Vertical handovers; Wireless access technology

Engineering main heading: Optimization

References

This article has not been published yet.

If this article contains references, they will become available when the article is published.

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