

# Vertical Handoff Decision Algorithm in Heterogeneous Wireless Network Based on Queuing Theory

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**Abstract**— A smart vertical handoff decision algorithm based on queuing theory is proposed in this paper. Vertical handoff in heterogeneous wireless network is crucial to the future wireless communication. The algorithm formulates the heterogeneous wireless area and handoff procedure using queuing theory and proposes a new network selection index called new handoff blocking probability to evaluate the network performance. A RSS-based mechanism is considered to avoid the Ping-Pong effect. Also the network architecture is regulated to manage the wireless resource effectively. The experimental results show that the proposed algorithm outperforms the traditional algorithm with low handoff blocking probability and a better load balance of the whole wireless environment.

**Keyword**—*Heterogeneous wireless networks, Queuing theory, Wireless resource management, Vertical handoff*



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