

## Proposed Framework based on Classification of Vertical Handover Decision Strategies in Heterogeneous Wireless Networks

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**Abstract :** Heterogeneous wireless networks are converging towards an all-IP network as part of the so-called next-generation network. In this paradigm, different access technologies need to be interconnected; thus, vertical handovers or vertical handoffs are necessary for seamless mobility. In this paper, we conduct a review of existing vertical handover decision-making mechanisms that aim to provide ubiquitous connectivity to mobile users. To offer a systematic comparison, we categorize these vertical handover measurement and decision structures based on their respective methodology and parameters. Subsequently, we analyze several vertical handover approaches in the literature and compare them according to their advantages and weaknesses. The paper compares the algorithms based on the network selection methods, complexity of the technologies used and efficiency in order to introduce our vertical handover decision framework. We find that vertical handovers on heterogeneous wireless networks suffer from the lack of a standard and efficient method to satisfy both user and network quality of service requirements at different levels including architectural, decision-making and protocols. Also, the consolidation of network terminal, cross-layer information, multi packet casting and intelligent network selection algorithm appears to be an optimum solution for achieving seamless service continuity in order to facilitate seamless connectivity.

**Keywords :** heterogeneous wireless networks, vertical handovers, vertical handover metric, decision-making algorithms

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