

An Empirical Study of Cognitive Selection Mechanism Deployment in Wireless Environment

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Two proposed cognitive selection mechanisms were applied in user terminal to observe the performance of the mechanisms when executed within wireless environment. In this study, three different wireless broadband connections were used. They are high speed packet access (HSPA), wireless fidelity (WiFi), and wireless interoperability for microwave access (WiMAX). These two proposed cognitive selection mechanisms are termed as successive and comparative selection. The cognitive elements that are being utilized in the selection system include the capability of sensing the network condition (i.e. actual connection speed), performing analysis and decision making for selecting the most optimum condition. Successive selection performs an active monitoring with the time interval that had been established as 1800 seconds. Similar active monitoring process occurs in comparative selection. However, a threshold value is assigned as the set off point each time the mechanism is executed. The empirical study was conducted by devising the two cognitive selection mechanisms into two different locations i.e. the office and residential area. These locations were selected to vary the evaluation of the performance of these selection mechanisms in terms of connection switch delay and optimized speed. These two analyses were carried out by evaluating based on the actual connection speed and the recorded time delay. It was found that successive selection had shown a better optimized speed performance as compared to comparative selection. Low delay performance was the result of employing comparative selection in the system.

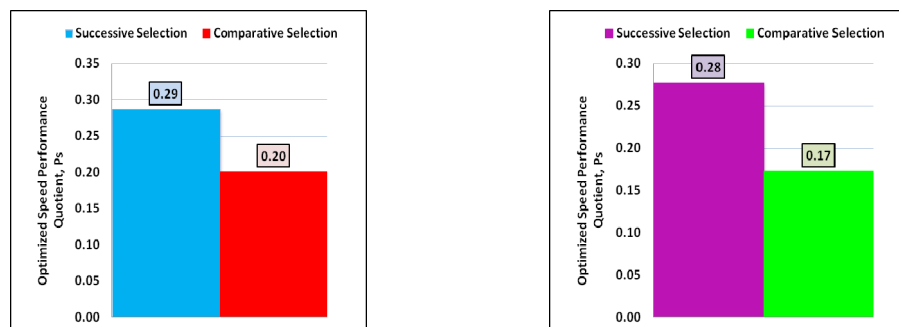


Figure 1 (a) & (b) : Optimized connection speed performance for office and residential investigation sites.