

Study on the influence of some factors on wireless network quality in video streaming

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Abstract: This study investigates the impact of key network agents on the quality of wireless networks during video streaming. Focusing on factors such as signal interference, bandwidth fluctuation, packet loss, and latency, the research employs a combination of empirical measurements and simulation models to evaluate their effects on video playback performance. Metrics including Peak Signal-to-Noise Ratio (PSNR), buffering frequency, and startup delay are analyzed under varying network conditions. The findings reveal that signal interference and bandwidth instability are the primary determinants of degraded streaming quality, while adaptive bitrate mechanisms offer partial mitigation. The study provides quantitative insights into the thresholds at which network impairments become perceptible to users. These results contribute to optimizing wireless network configurations and developing more robust streaming protocols, offering practical guidance for enhancing Quality of Experience (QoE) in real-world video streaming applications.

Keywords: wireless network quality, video streaming, influencing factors, network performance