

BENCHMARKING IN VIRTUAL DESKTOPS
FOR END-TO-END PERFORMANCE TRACEABILITY

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ABSTRACT

There are proven benefits in terms of cost and convenience in delivering thin-client based virtual desktops, versus the use of traditional physical computers for end-user computing purposes. New cloud offerings such as "desktop-as-service" are rapidly being adopted among various communities, ranging from government agencies to research institutes and business entities. However, several challenges remain in evaluating hardware resources and thin-client protocol configurations for delivering virtual desktops with adequate user Quality of Experience (QoE).

In order to overcome those challenges, we develop a novel benchmarking methodology and toolkit for virtual desktop environments by enhancing earlier works on slow-motion benchmarking and the VDBench toolkit. We focus on automation aspects of benchmarking, and extend the end-to-end performance traceability for common desktop applications such as Internet Explorer, Media Player and Excel Spreadsheets. We also address the user interface design with an aim to easily instrument and generate comprehensive performance reports for complex environment setups. In a validation study, we deploy the enhanced VDBench toolkit in a real-world virtual desktop testbed that hosts applications that render 3D visualizations of disaster scenarios for scene understanding and situational awareness.