

An Interactive Approach for QualNet-based Network Model Evaluation and Testing at Real Time

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Abstract—Network simulators, e.g., QualNet, have been widely used for the sake of cost efficiency in network model evaluation and testing. In order to evaluate and test the impacts of parameters on network models, massive simulations and result analysis are typically running repetitively in a sealed virtual environment per a non-real-time simulated clock, apart from real-time human interactions. The major drawback of this caustic approach is obvious in large-scale network simulations with long simulation time and hardware-in-the-loop accessories, when the result analysis must be adaptive to human factors in nowadays computer networks. In this paper, we design and implement an interactive real-time user interface (RTUI), which is a reliable human-in-the-loop framework that allows human users to dynamically modify the parameters of network model during the simulation process. With negligible delays and overhead, the impacts of parameter changing on network model can be actualized and measured at real time, rather than in a repetitive manner of the conventional approach, resulting in RTUI's time-efficiency and cost-efficiency in network protocol debugging and assessment.

(Pt9)Keyword—RTUI, Network model evaluation & testing, QualNet



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