Green Networking

Visibility, a first step towards sustainable networking

Students
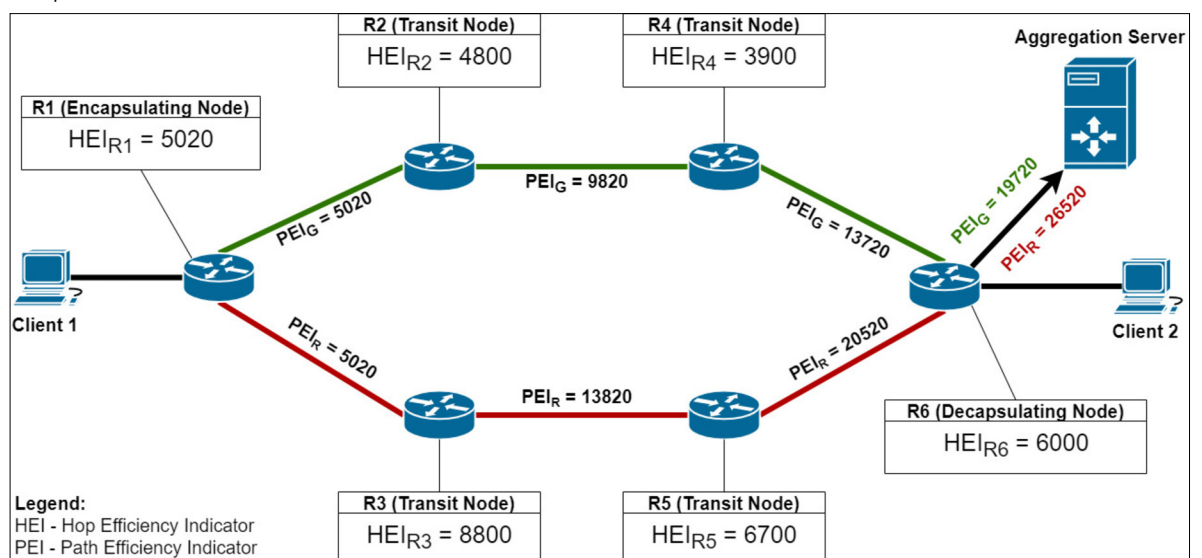
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Introduction: As the global demand for network connectivity intensifies, the environmental impact of networking infrastructure becomes increasingly significant. This study addresses the critical issue of the lack of visibility into the energy efficiency of networks, hindering the optimization for sustainability. Drawing from the Green Networking Metrics IETF draft, we propose a method to bring transparency to energy efficiency within networks, laying the groundwork for green routing strategies.

Approach / Technology: The research employs a two-fold approach. First, it involves a theoretical elaboration of mathematical concepts, establishing a foundation for understanding and evaluating energy efficiency in networking environments. Second, a Proof of Concept is implemented on a virtualized network, demonstrating the feasibility of the proposed methodology.

Result: The results showcase the potential for comparing path efficiency and identifying the most efficient and inefficient hops along a network path. The findings underline the necessity for further exploration, advocating for the implementation of the methodology on a physical network. Subsequently, efficiency data should be exported and analyzed centrally, paving the way for informed decision-making towards sustainable networking practices. This study contributes to the emerging field of green networking by providing a structured approach to enhance energy efficiency visibility in network environments, fostering a more sustainable and ecologically responsible networking infrastructure.

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Subject Area
Networks, Security & Cloud Infrastructure, Internet Technologies and Applications, System Software, Communication systems

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Indicator Calculation Visualization
Own presentment