

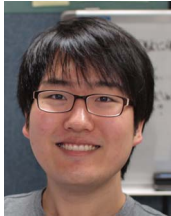
Measurement and Modeling the Power Consumption of Router Interface

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Abstract— Energy saving study without the power consumption measurement of network devices makes less effective or biased results than the study based on the empirical power consumption data. Thus, precise evaluation of network appliance power consumption is inevitable to develop more influential energy saving techniques. In this paper, we measure the power consumption of an edge router, CISCO 7609 router, as well as evaluate the effect of the packet size and the routing protocol onto the power consumption of an edge router. We investigate that with four different packet sizes according to RFC 2544 and three different routing protocols, none, OSPF, and BGP with the increment of link utilization. We analyse empirical data for numerous individual cases and find that the packet size are closely related to the power consumption of the edge router. Based on these results, we model the formal power consumption equation of the edge router.

Keyword— Power consumption, packet size, routing protocol, edge router, link utilization



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