

Impact of polling on Bluetooth piconet performance

D. Contreras Bárcena; M. Castro Ponce

Abstract-

Bluetooth has become a ubiquitous technology present in almost every electronic device. A question often asked by manufacturers and final users is whether it can be used for uses other than the ones for which it was designed; in particular, for improved multimedia traffic support, with the fewest modifications in the implementation of the protocol (both hardware and software). In this article we analyze the impact on performance of the lowest levels of the Bluetooth architecture through a relevant parameter known as the polling time, T_{poll} . Here, we report on simulations of specific algorithms that allow to dynamically adapt the network to an optimal value of T_{poll} during transmission. We place special emphasis on the role of the kind of traffic on the network (e.g., constant bit rate, burst, multimedia-like). In addition, we analyze the results of simulations by comparing these algorithms with the static allocation value defined in the Bluetooth specification. Our results provide insight on how to optimize the transmission of multimedia traffic over piconets at the lowest layers of the Bluetooth architecture.

Index Terms- Bluetooth, polling, QoS, energy saving, T_{poll} , power consumption, performance, piconet, quality of service

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:

[Request full paper to the authors](#)

If your institution has an electronic subscription to IEEE Communications Magazine, you can download the paper from the journal website:

[Access to the Journal website](#)

Citation:

Contreras, D.; Castro, M. "Impact of polling on Bluetooth piconet performance", *IEEE Communications Magazine*, vol.49, no.9, pp.84-89, September, 2011.