

Systems and Methods for Automatically Selecting a Communication Channel

Researchers at the University of South Florida have developed a method to reduce the energy used by client electronic devices connected to the Internet.

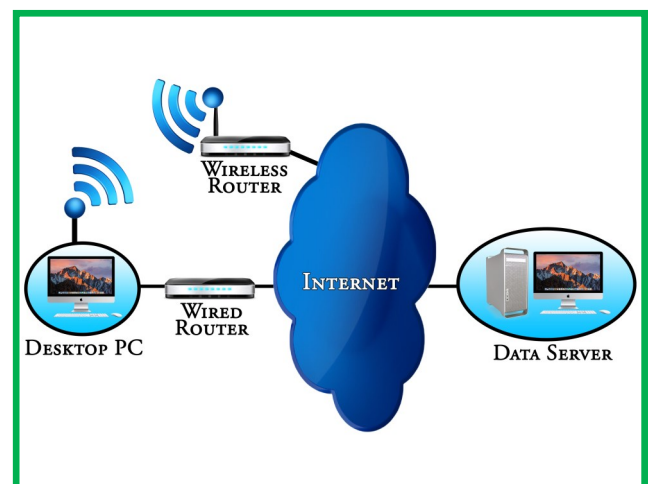
The energy consumed by information and communications technology (ICT) is of growing concern. High energy use has a negative environmental impact and can greatly increase operational expenses. Along with the rapid increase in data rates and energy use within ICT, there has been a corresponding increase in the number of available communication channels. The selection of the channel with the lowest power consumption is not always the best choice and energy cost must be balanced with download time. Hence, there is a need for a system that automatically selects a communication channel that considers not only local energy consumption and bandwidth but also data transfer rates from one end to the other end of the communication path.

Researchers at USF have created an automated communication channel selection described as dual-channel, single link (DCSL) solution. DCSL can be implemented at the application layer when a client host application opens sockets on two different channels, each channel having a unique IP address. The application then determines the channel through which to send or receive data based on energy cost and performance requirements. Packet ordering is maintained on a connection-by-connection basis, where one channel could be Wi-Fi while the second could be high-speed Ethernet. The method can increase battery life in smart phones.

ADVANTAGES:

- Optimize power usage efficiently in electronic devices
- Does not require new hardware
- Builds sustainable communications platforms

*Controlled Trade-off in Communications
Between Energy and Performance*



*The Communication System with Dual
Channel Single Link*

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