High speed broadband will create energy bottleneck and slow Internet

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A surge in energy consumption resulting from increased uptake of broadband will further slow Australia's Internet, says University of Melbourne research to be presented this week at the Symposium on Sustainability of the Internet and ICT.

"Increased services like Video on Demand will put pressure on the system and create an energy bottleneck," said Dr Kerry Hinton of the University's Department of Electrical and Electronic Engineering and the ARC Special Centre for Ultra-Broadband Information Networks (CUBIN).

In a world-first model of internet power consumption, University of Melbourne researchers have been able to identify the major contributors to Internet power consumption as the take-up of broadband services grows in the coming years.

"It has now become clear that the exponential growth of the Internet is not sustainable, "said Dr Hinton.

The result indicates that, even with the improvements in energy efficiency of electronics, the power consumption of the Internet will increase from 0.5% of today's national electricity consumption to 1% by around 2020.

Dr Hinton says the growth of the Internet, IT broadband telecommunications will provide a wide range of new products and

services.

New home services include Video on Demand, web based real-time gaming, social networking, peer-to-peer networking and more. For the business community, new services may include video conferencing, outsourcing and tele-working.

"To support these new high-bandwidth services, the capacity of the Internet will need to be significantly increased. If Internet capacity is increased, the energy consumption, and consequently the carbon footprint of the Internet will also increase."

"This will place a major burden on the nation's power infrastructure as well as significantly contribute to green house gas production." Hinton says major ICT and Internet based companies are already experiencing difficulties due to the size and power requirements of servers, routers and data centres.

The model includes the entire network infrastructure required to provide the increasing traffic volumes arising from proposed new high-bandwidth services.

"Increasing amounts of energy will be needed to power and cool Internet equipment that provides high speed broadband."

"If service providers don't update their equipment, energy consumption will soar, but then cost of updating may also be prohibitive."

"This model is important because it shows us where we must focus our efforts to ensure the Internet is energy efficient. If we don't do this, the Internet will not fulfil the social and economic promise many of us are expecting of it," Dr Hinton said

The research will be presented at "Symposium on Sustainability of the Internet and ICT" hosted by The ARC Special Centre for Ultra-Broadband Information Networks (CUBIN) 25 – 26 November at the University of Melbourne.

Source: University of Melbourne