

Leeds and Cambridge win grant to cut Internet energy use

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The universities of Leeds and Cambridge have won a £5.9m, five-year EPSRC Programme Grant award to continue interdisciplinary research aimed at cutting the energy used in ICT networks.

Estimates suggest that computing and communications now accounts for around 3% to 5% of global CO2 emissions, and that the energy used by ICT is increasingly exponentially.

The 'INTelligent Energy aware NETworks' (INTERNET) project is trying to cut the carbon footprint of ICT networks by at least an order of magnitude.

Professor Jaafar Elmirghani, the project's lead investigator, said: "The funding will offer us the stability and flexibility needed to address the major challenges associated with energy utilisation in telecommunication networks."

Energy efficient processes are increasingly important to ICT companies for environmental and economic reasons, and in an effort to avoid attract the attention of national regulators.

"The predicted future growth in the number of connected devices, and of the bandwidth of the Internet, of an order of magnitude or two, is not practical if it leads to a corresponding growth in energy consumption," Elmirghani said. "Regulations may therefore come soon, particularly if governments worldwide enforce moves towards carbon neutrality.

"The INTERNET project is therefore of great importance in seeking to establish the current limits on ICT performance due to known environmental concerns and then developing new ICT techniques to provide enhanced performance. In particular, substantial advances can be achieved through the innovative use of renewable sources."

The project will draw together research in three areas: optical networks, led by Professor Elmirghani at Leeds; optimisation of internet and Web protocols and services, led by Professor Jon Crowcroft at Cambridge; and optical routing and data communications, led by Professor Richard Penty and Professor Ian White at Cambridge.

The INTERNET project will join a flourishing band of researchers working on other aspects of the same problem. The GreenTouch Alliance, established at the beginning of the year, is trying to develop and demonstrate technologies within five years that have the potential to cut the energy used in communications networks one-thousand fold.

Meanwhile, the Energy Aware Radio and neTwork techNologies (EARTH) consortium, a Seventh Framework Programme project, is trying to halve the energy consumed in so-called 4G wireless networks such as LTE.

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