

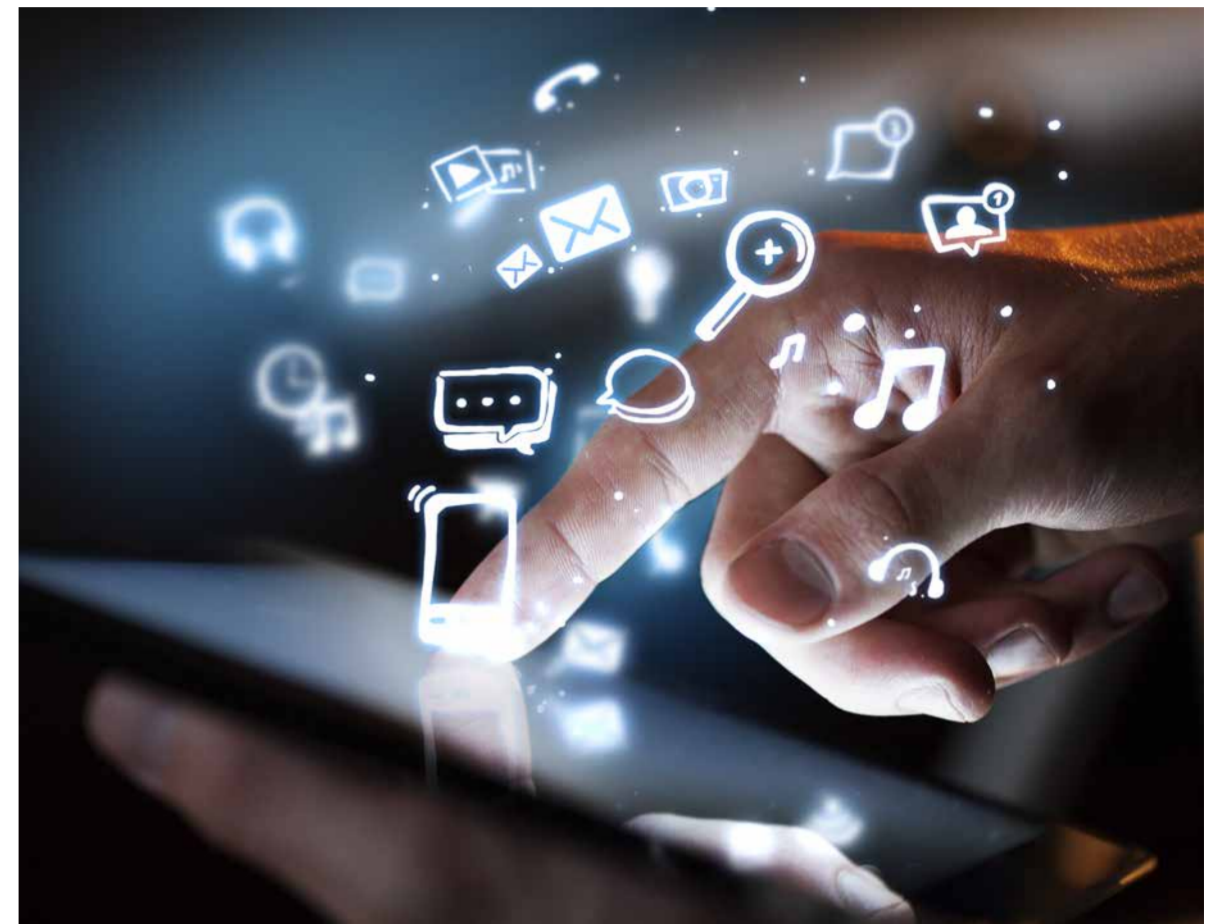
SatMon: Saturation Monitoring in Wi-Fi Networks

Product Offering

Researchers from Dublin Institute of Technology have developed a novel software tool that passively monitors for node saturation in Wi-Fi networks, enabling network operators to manage and respond to user demands more efficiently and effectively.

Node saturation can result in congestion and deterioration of Wi-Fi service quality due to high packet data delays and losses over the network.

By using nodes to monitor their neighbours to detect the on-set of saturation, wireless network operators can make better decisions with regard to routing, channel selection, bandwidth provisioning and admission control.



Competitive Advantages

- **Optimised bandwidth for real-time services:** The software enables bandwidth provisioning to optimise real-time services such as VoIP and video streaming.
- **Low cost and simple process:** Node monitoring is a completely passive technique meaning there is not a requirement to communicate with the saturated node and therefore no overhead cost incurred.
- **Scalability:** As the process is passive, it can be scaled relatively easily to accommodate higher volumes of network traffic.
- **Resource Determination:** Through admission control, network providers can verify if sufficient resources are available to enable a proposed network connection.
- **Identify Denial-of-Service (DoS) attacks:** Service disruptions resulting from DoS attacks can be identified on wireless networks.

Industrial Applications

This technology is an ideal solution for companies involved in real-time wireless network performance monitoring. It is particularly useful for operators of large-scale, dense, Wi-Fi hot-spots seeking improved visibility of network operation.

Commercial Opportunity

DIT Hothouse is seeking a suitable commercial partner to take this innovative new technology to market.

Increased mobile and tablet usage and the resulting demand for wireless connectivity have made it increasingly necessary for wireless network providers to ensure adequate provision of bandwidth. With the continuous development of new wireless enabled technologies and rich media content, demand for optimised wireless networks will continue to grow. This technology enables the management of wireless demand and therefore presents a significant commercial opportunity for network vendors.

DIT Hothouse offers excellent commercial terms to licensees on technologies developed through DIT research.

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Stage of Development

A prototype has been developed, tested and executed in order to validate the proof of concept. Demonstration software is available and the technology is patent-pending.

Technology Description

This technology is based on a passive detection algorithm that uses a temporal analysis to remotely observe neighbouring nodes to determine if they have become saturated.

A node captures data packet transmissions from all the neighbour nodes within its reception range, calculates their individual traffic loads and, importantly, calculates their available capacity.

The capacity utilisation measurement can allow network operators to take preventative action to avoid further deterioration of wireless services.

Project Team

The technology was developed through research undertaken by DIT's Communications Network Research Institute (CNRI).



The project team is led by:

- **Dr. Mark Davis (Principle Investigator)**

Dr. Mark Davis is the Principal Investigator and project director at the Communications Network Research Institute (CNRI) at the DIT. The main theme of the research carried out at the CNRI is the delivery of QoS for real-time services such as VoIP telephony and video streaming. The CNRI has developed a number of tools for estimating user satisfaction with VoIP and streamed video applications, as well as a patented application for managing the bandwidth on WLANs



Intellectual Property

The Intellectual Property associated with this technology was created in Dublin Institute of Technology and is patent-pending.

Next Steps

If you would like to learn more about this technology or discuss commercial opportunities, please contact:
**Paul Maguire, Licensing Executive, DIT Hothouse on
01 402 7002 or email paul.maguire@dit.ie**



DIT Hothouse is the award winning Innovation and Technology Transfer Centre based in Dublin Institute of Technology. Hothouse leads the consortium responsible for commercialising research from DIT, IT Tallaght, IT Blanchardstown, IADT and National College of Ireland.

Hothouse draws in entrepreneurial and academic talent, ignites creativity and provides a dynamic environment to fast-track businesses and technologies to commercial success.