

# Internet traffic rise needs infrastructure upgrade

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Australian internet traffic will increase by more than five times to hit one exabyte (one billion gigabytes) of data a month by 2016, a University of Adelaide mathematician and internet researcher has predicted.

Professor Matt Roughan, who is developing traffic matrices to help produce more efficient [internet networks](#), says the predicted massive amount of [data traffic](#) adds weight to the need for upgrading Australia's aging [telecommunications infrastructure](#) with a [National Broadband Network](#) (NBN).

"One argument against whether the NBN is worthwhile has been that it will give us capacity that's not needed," says Professor Roughan. "But history in [internet traffic](#) globally has shown that every time you add capacity, new innovations come along to fill it."

Professor Roughan has won a 'Test of Time' award for research he conducted a decade ago at the US telecoms giant AT&T, devising large-scale network traffic matrices to help plan network designs.

The Australian Computing Machinery (ACM) SIGMETRICS Test of Time Award was announced at a conference in Pittsburgh this week.

"It was probably some of the best work I've done," says Professor Roughan. "We chose modelling assumptions about network traffic which have survived the test of time and are still relevant today, despite the

massive increases in internet use."

Professor Roughan says that when he came to Australia and joined the University of Adelaide in 2004, the incredible figure of an exabyte per month volume of traffic for Australia was considered unlikely.

"Few people could see where such massive growth could come from. Then companies such as YouTube and Facebook stepped in to provide content sourced from the internet's users themselves," he says. "The massive demand for these and other new services and applications has kept traffic growing exponentially over the past decade."

Professor Roughan's analysis based on Australian Bureau of Statistics data shows that Australian internet traffic has in fact followed the trend predicted in 2004, doubling every 475 days.

Professor Roughan is now working to generate new internet traffic matrices which will help network providers design efficient communications networks to cope with the increasing traffic.

"We are looking at the maths behind the patterns of internet traffic against which network designs can be tested for efficiency," he says. "But Australia also needs the physical infrastructure to support this rapid growth."

Provided by University of Adelaide

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