

# Mobile Technology

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## Telecoms networks ‘maxed out’

The internet of things needs a new generation of digital infrastructure, writes *Daniel Thomas*

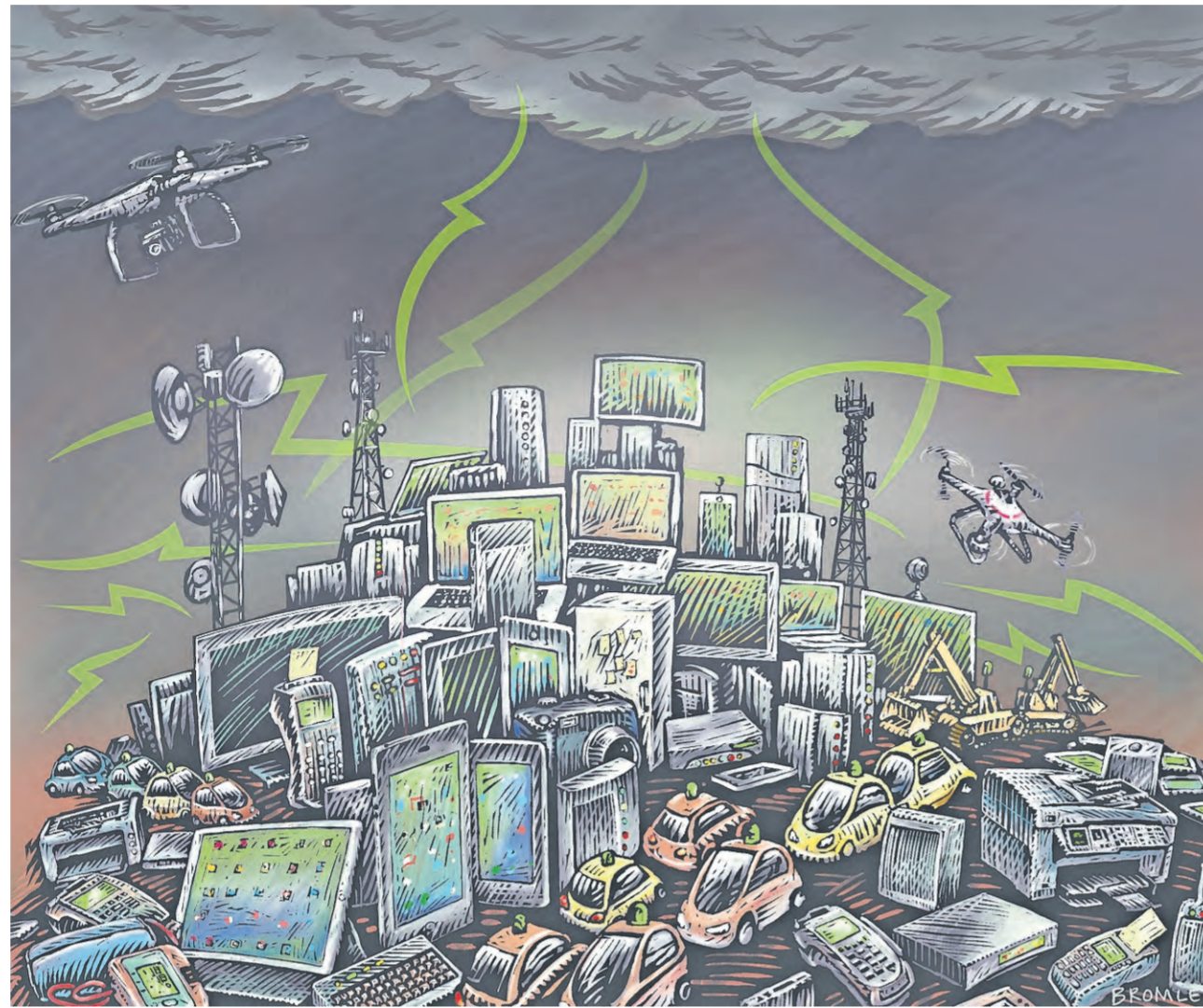
The holy grail for the telecoms industry is a network that is all-powerful, always on and everywhere. This may sound fantastical to those using an unreliable mobile or home broadband connection, but it may be closer than many imagine.

“We think we are at a point where there is a huge disruption coming,” says Marcus Weldon, chief technology officer at Nokia and president of Bell Labs. Telecoms networks have already seen increases in speeds, but experts say a bigger change is needed in order to connect billions of devices in homes, work places and public spaces.

The past few technology cycles have been driven by devices or web services, Mr Weldon says, but the next disruption will be about creating cloud-based networks from which we can instantly access data.

Streaming ultra high-definition television, internet banking, remote healthcare and virtual reality will increasingly depend on near-perfect network quality. A connected car is useless without a connection, and that connection needs to be flawless to prevent accidents.

“Every device, every media, every person will be connected,” says Mr Weldon. “Mundane tasks will be taken away by algorithms that can automate large chunks of everyday life. The network is cool again because it enables a new human existence.”



Ericsson, the Swedish telecoms group, expects there to be 28bn connected devices by 2021 – of which only 9bn will be traditional mobile subscriptions. The rest will be “things”, as applications for connected homes and cities become reality.

But new network architecture is needed. “All available tech is maxed out,” Mr Weldon says. “We built a network for people but in future every person will have 100 connected things.”

By 2020, Huawei estimates that network traffic will grow threefold and

mobile traffic will increase eightfold.

Fibre networks capable of carrying vast amounts of data across countries will need to be expanded. Telecoms groups are squeezing more out of the older copper cables using technologies such as G.Fast or vectoring, which can

achieve speeds of 500 megabits per second (Mbps). But many analysts see this as a stopgap.

Developing the technology behind 5G – the next generation of high speed mobile – is also crucial. The goal is not just faster speeds. “A response time is more important for a connected car, and battery life is more important for an agricultural application to measure moisture”, says Rima Qureshi, chief strategy officer at Ericsson.

The cost of developing and deploying this infrastructure is a problem. Ryan Ding, president for products and solutions at Huawei, says that sharing infrastructure is one solution. In Singapore, for example, the government encouraged power companies and telecoms operators to share pipelines, which brought the cost of connecting a home to the fibre network down to \$100 per connection, less than one-eighth of the average cost in Europe.

Indeed, many governments – cognizant of the economic and social advantages of digital infrastructure – are working with companies to help develop next generation networks.

Broadband access has become a basic human right, says Mr Ding. “This will create a new type of inequality. Broadband access brings both commercial and social value, so every country should increase investment in broadband construction.”

Tech experts, meanwhile are even more ambitious about changing the world. “*Star Trek* had it right,” says Mr Weldon. “The replicator is the 3D printer. The Holodesk is a VR room. A tricorder is there in real time medical imaging. Communicators – the smartphone. This is about simplifying life, automating life, improving life.”

### Inside

#### Simple steps to stop phone hackers

More than 1m malware programs targeted handsets last year

Page 2

#### ‘Extortion racket’

Media companies threatened by growing use of ad blockers

Page 2

#### Tablet therapies

Mobile video games could help treat some neurological conditions

Page 3

#### Smartphone cities

Apps rather than sensors are the secret to keeping traffic moving

Page 3

#### The relief of owning a ‘dumb’ phone

Travellers and the digitally weary seek simplicity from their handsets

Page 3



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