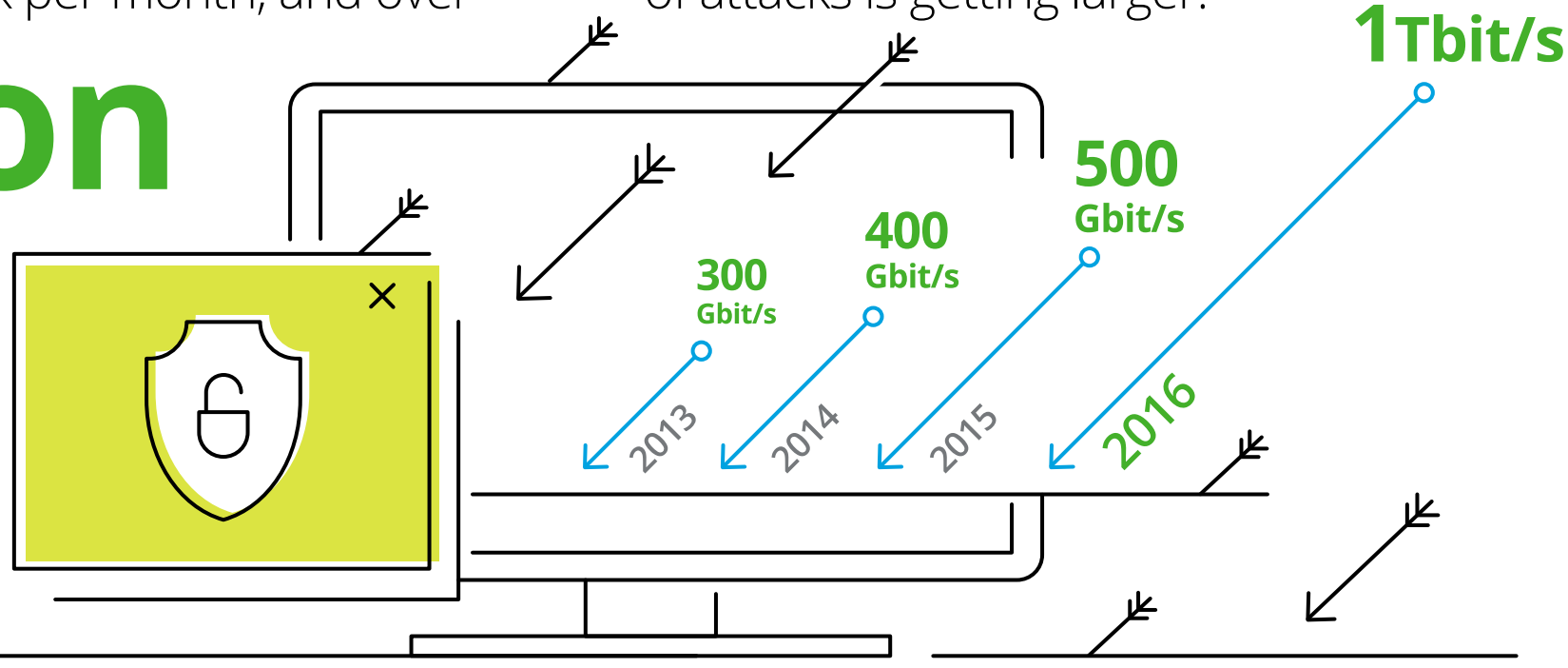
DDoS attacks enter the terabit era

Deloitte Global predicts **one Terabit/s Distributed Denial of Service (DDoS)** attack per month, and over

10 million attacks

during the year

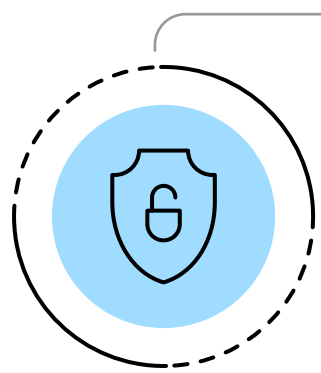
Every year, the average size of attacks is getting larger:



The escalation of DDoS is due to:

- the growing base of insecure IoT devices
- online instructions for unskilled attackers
- rising uplink data speeds – each connection can effect more damage

Solutions to the problem include:



- decentralization
- dynamic defense
- geographic filtering
- certification marks for connected devices

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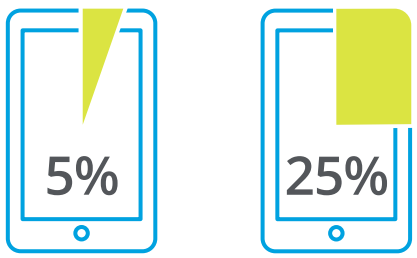
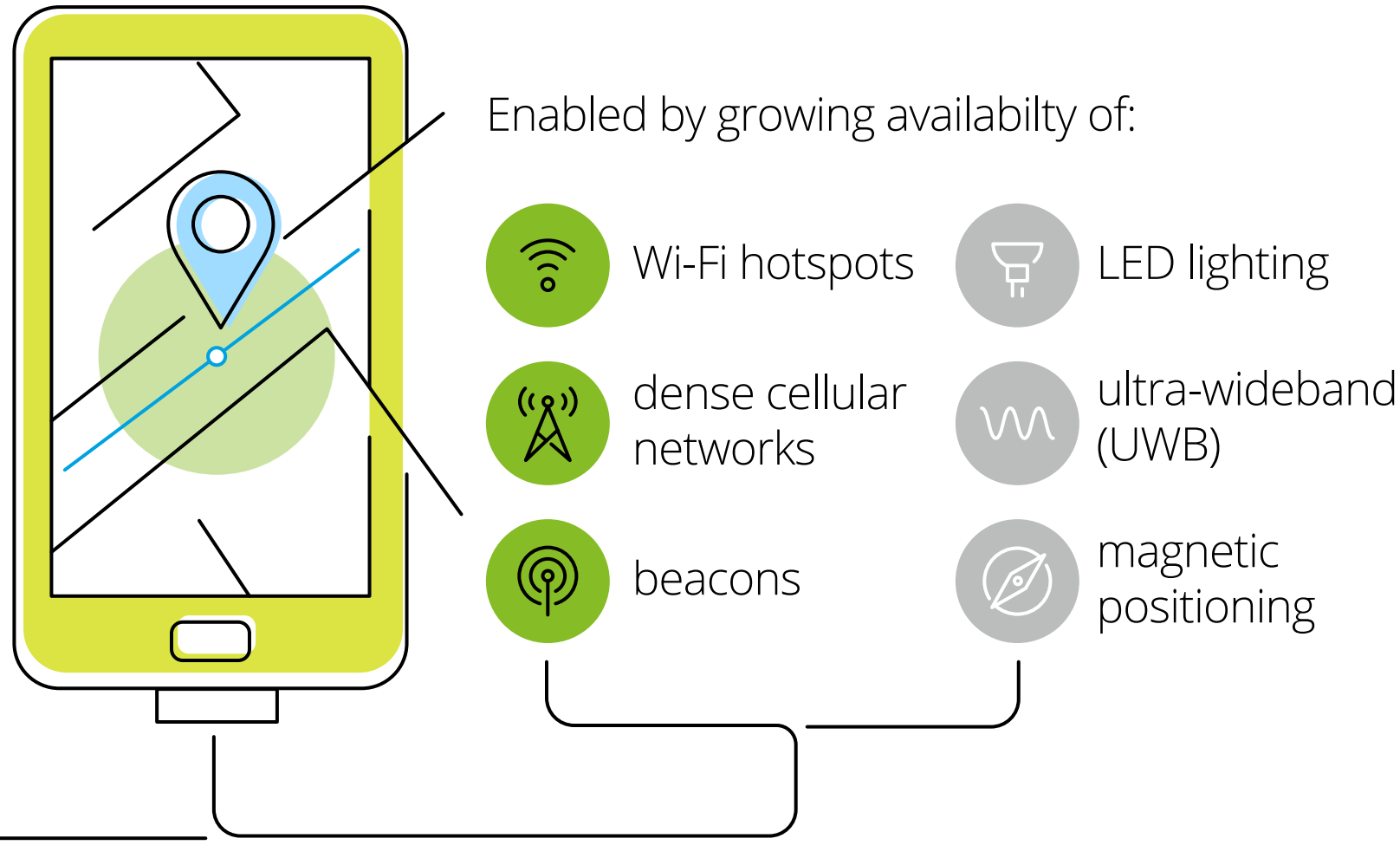
The great indoors: the final frontier for digital navigation

Deloitte Global predicts that by 2022,

at least a quarter

of human and machine uses of digital navigation will include or exclusively be indoors





It should have

the same disruptive impact

as outdoor navigation

It will enable:

new business models

improved existing ones

over the next decade

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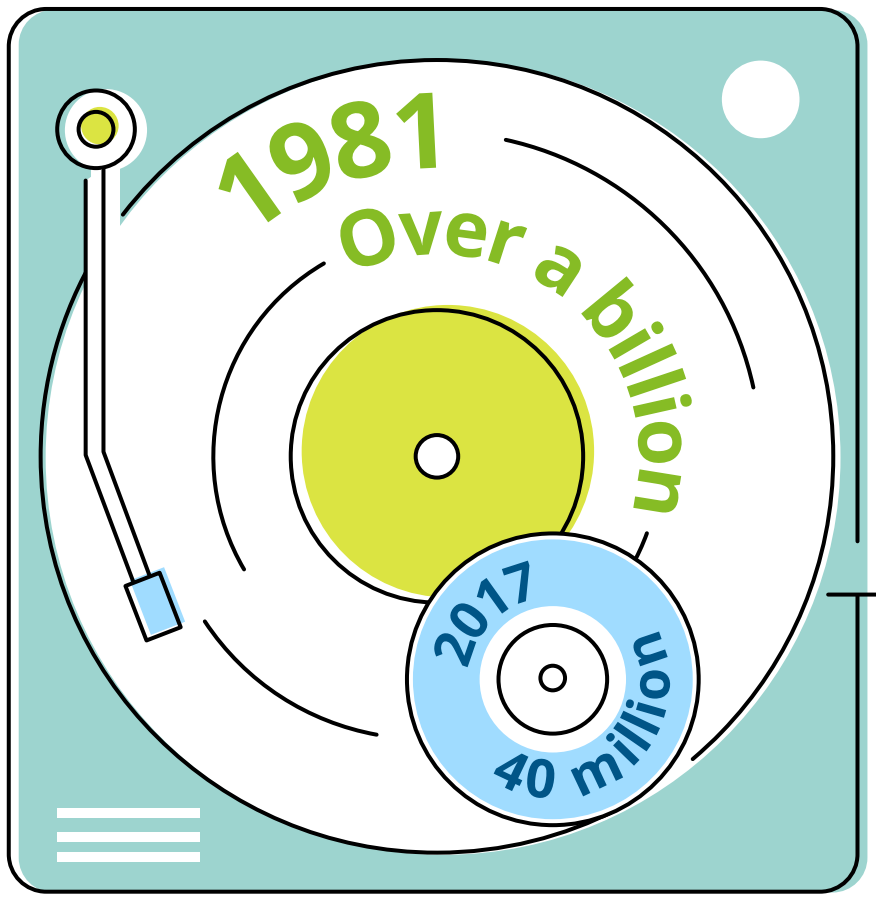
Vinyl: the billion-dollar nostalgic niche

Deloitte Global predicts that vinyl in 2017 will approach

$1 billion **in sales**

mostly from new records, but also from used discs and record players

Number of albums sold:



It will generate globally:

15%
of all **physical** music sales

6%
of all **recorded** music revenues

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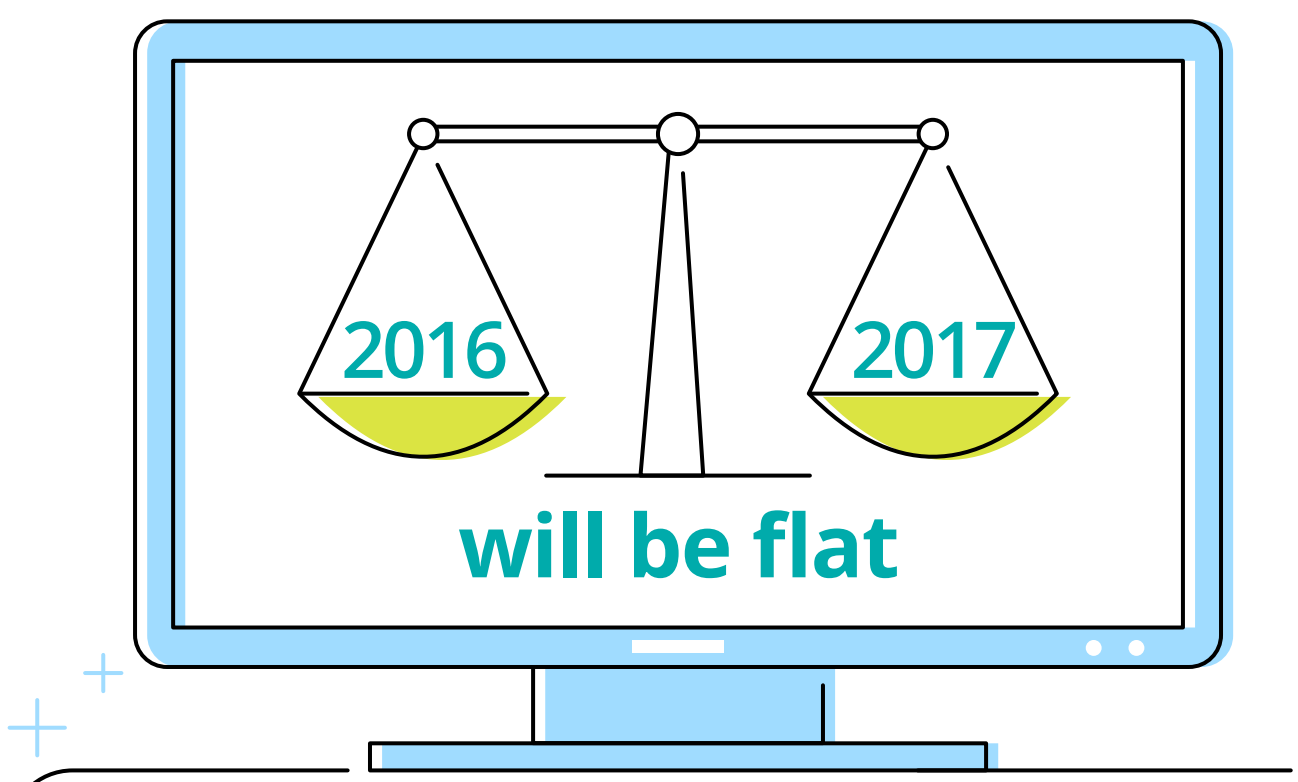
TV advertising in the US: flat is the new up

Deloitte Global predicts that US TV advertising revenue



$72 billion

or almost a third of global TV ad revenues

Ad spend's strength is due to:

- broad reach (monthly reach of 93% among US adults)
- stable high viewing volumes (~5 hours a day)
- a rise in CPM (up to 12.5%)
- low and stable time shift minutes (29 minutes)
- minimal cord-cutting (1-2% in 2016)

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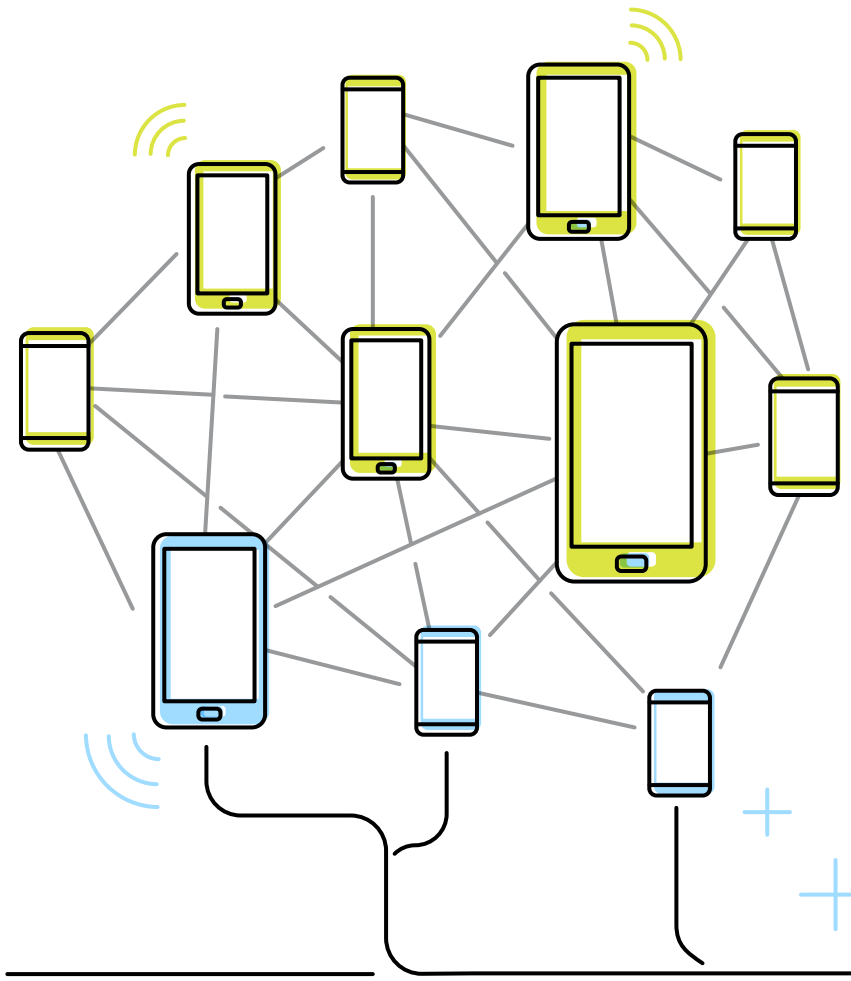
Brains at the edge: machine learning goes mobile



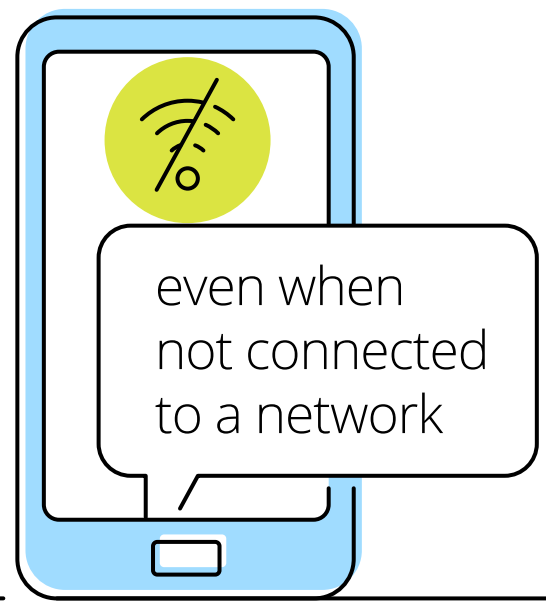
Deloitte Global predicts that in 2017 over

300 million smartphones

(more than **a fifth of units sold**)

will have on-board neural network machine-learning capabilities

This will allow smartphones to perform machine-learning tasks



This functionality will enhance applications including:

- indoor navigation
- augmented reality
- language translation
- image classification
- speech recognition
- and many more currently unknown applications

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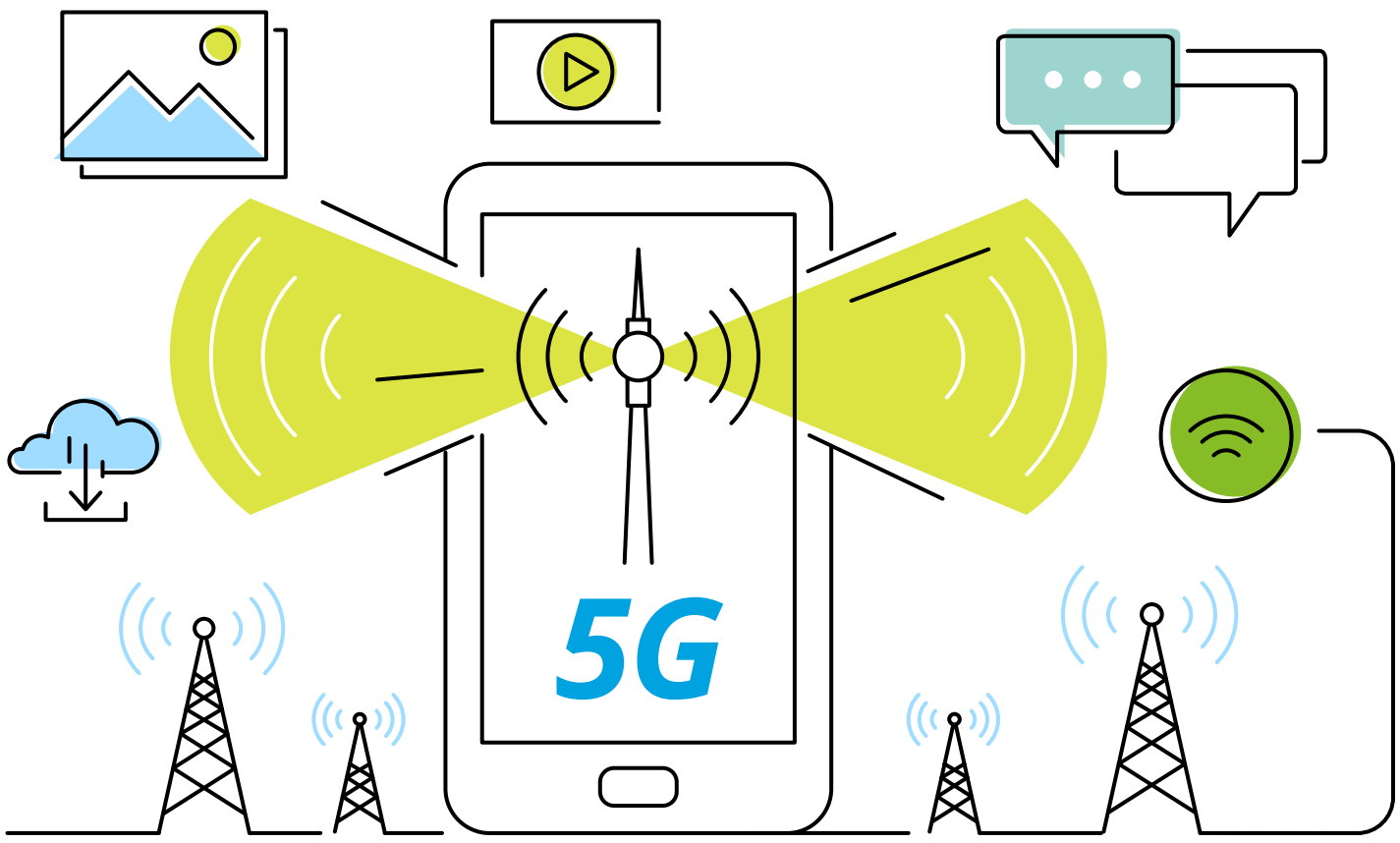
5G: A revolution in evolution, even in 2017

Deloitte Global predicts that over

200 mobile networks

will include elements of 5G network architecture in 2017



These will be found among upgraded **4G (LTE-A and LTE-A Pro) networks**, which will provide a steady progression to the full launch of 5G in 2020

Advanced 4G networks introduce network components including:

- Carrier aggregation
- Licensed Assisted Access
- MIMO
- QAM
- Beamforming

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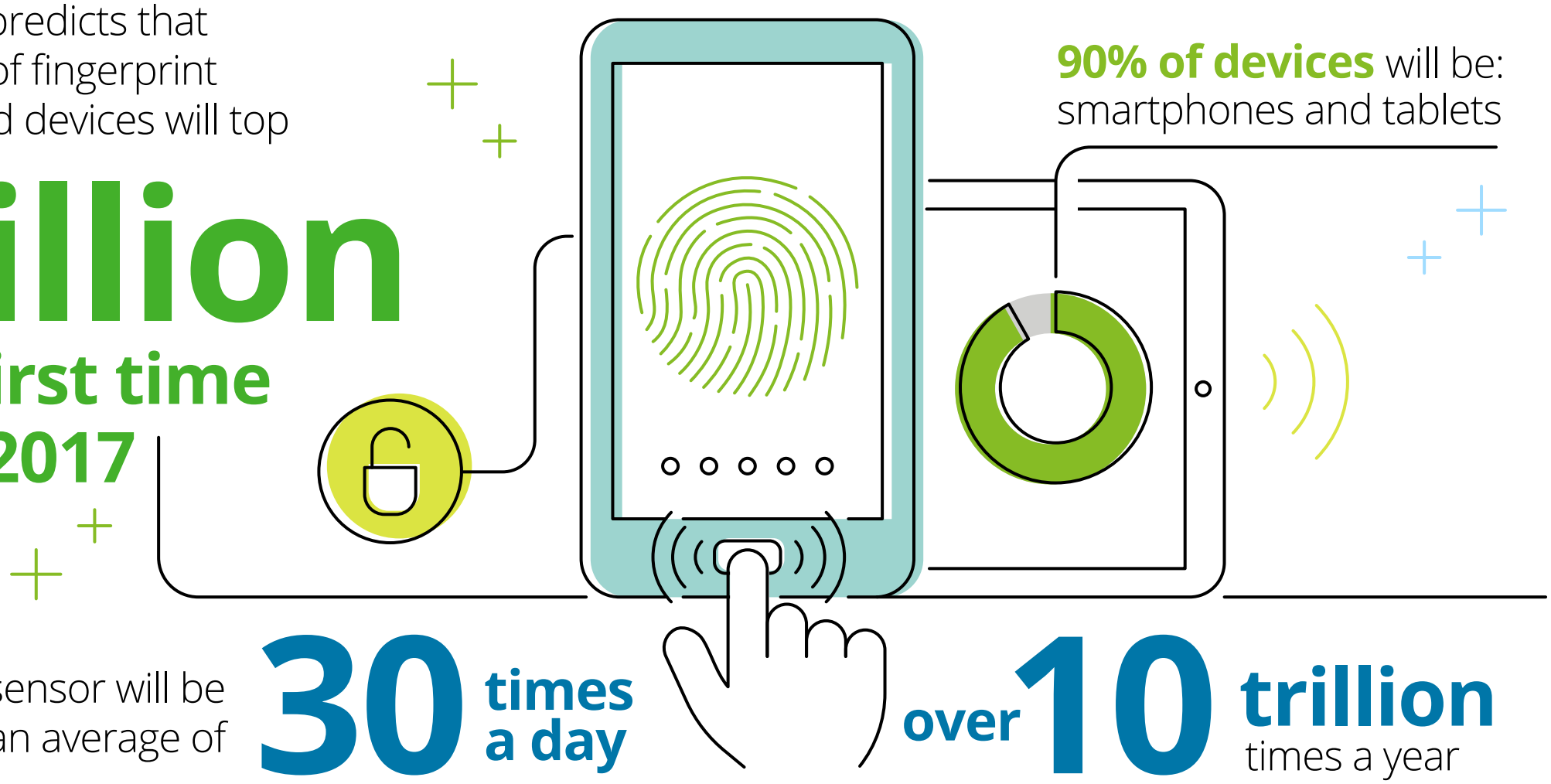
Prints charming: biometric security reaches the billions

Deloitte Global predicts that the active base of fingerprint reader-equipped devices will top

1 billion

for the first time in early 2017



90% of devices will be: smartphones and tablets

Each active sensor will be used an average of **30 times a day**

over **10 trillion** times a year

Catalyst for the deployment of biometric sensors in other environments and across multiple industries including:

- retail
- financial institutions
- government
- schools
- media companies
- many more

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Safety first: the road to self-driving starts with a stop

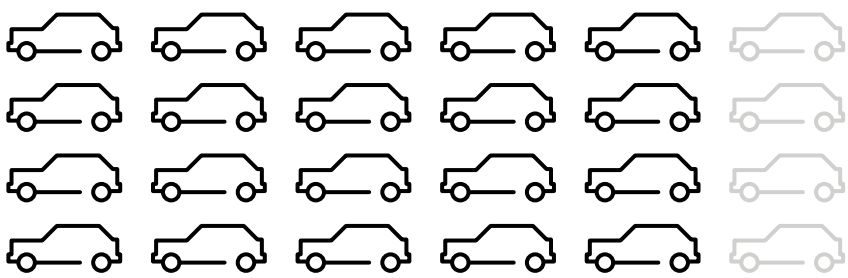
By 2022, Deloitte Global estimates that

a sixth of the US cars and light trucks

will be equipped with automatic emergency braking (AEB)

Deloitte Global predicts AEB will contribute to a reduction of annual US motor vehicle deaths

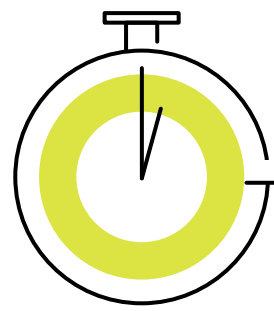
by 6,000



16% decline

compared to 2017

AEB technology can enable the vehicle to react to an obstacle



in 1-2 milliseconds

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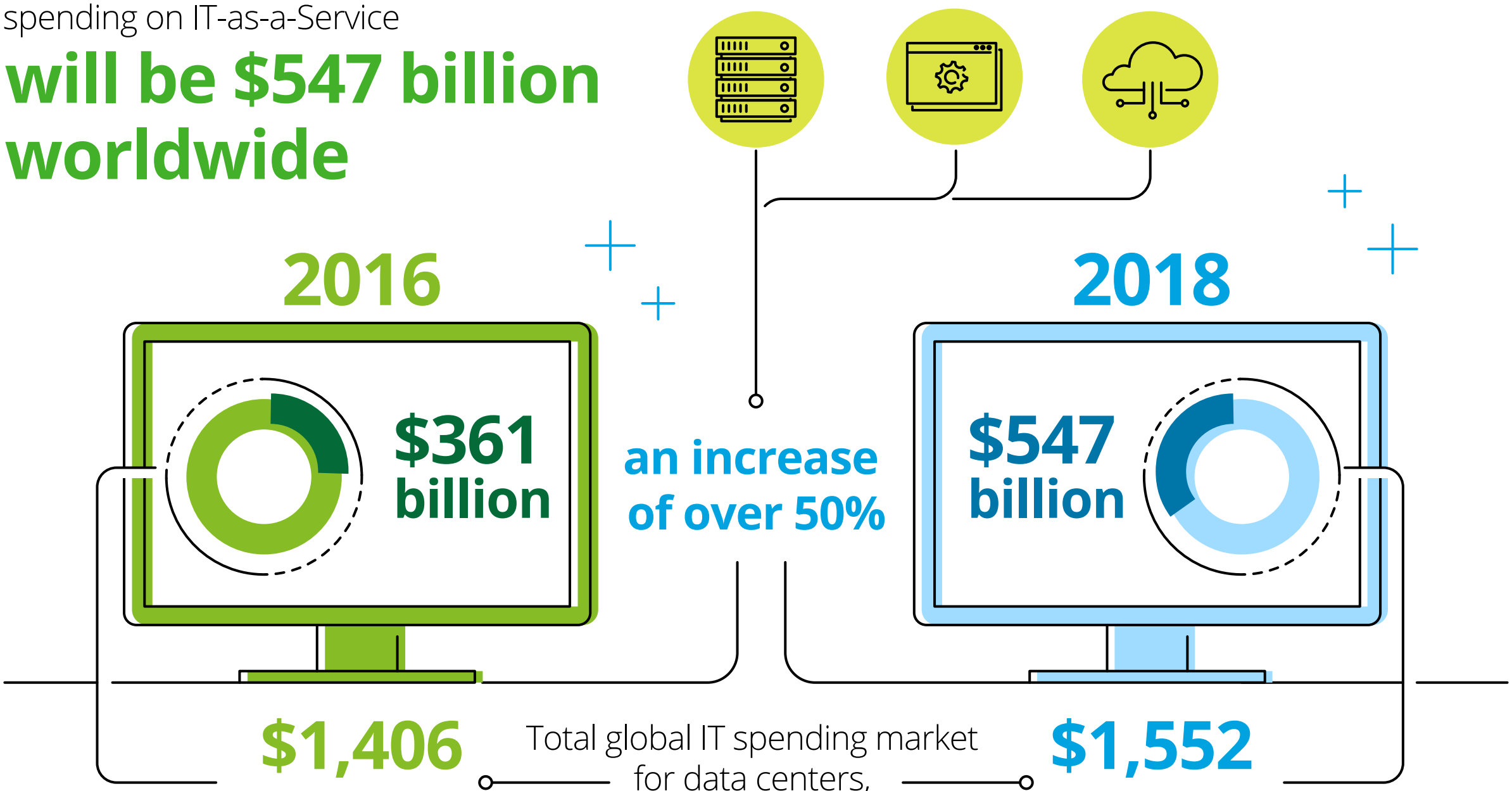
IT-as-a-Service: the half trillion dollar ‘niche’

Deloitte Global predicts that by the end of 2018, spending on IT-as-a-Service

will be $547 billion worldwide



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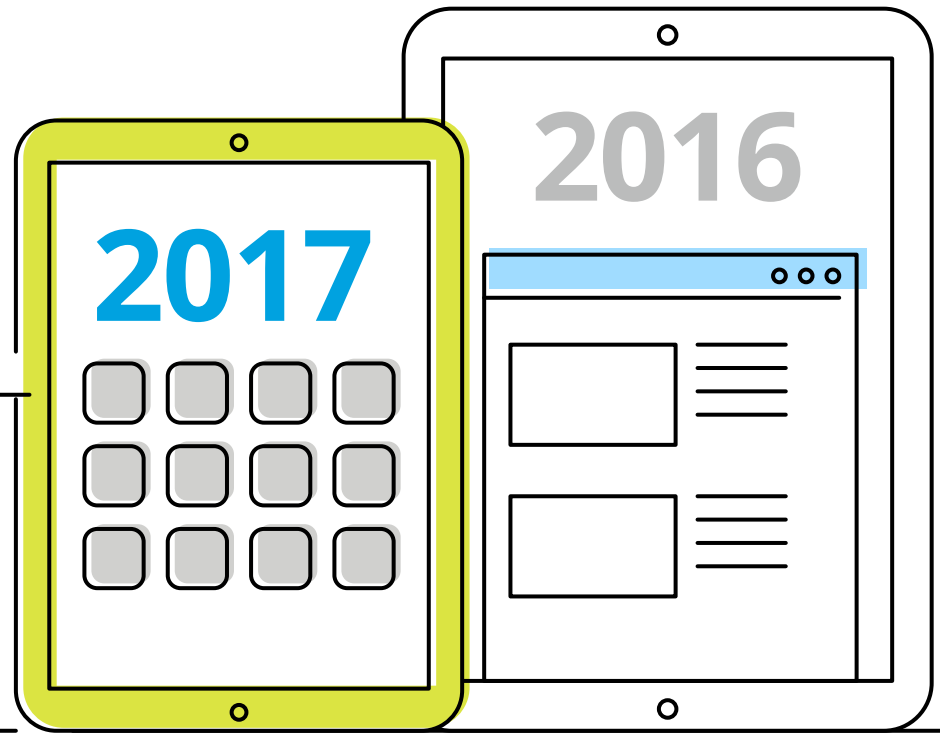
Have we reached peak tablet?

Deloitte Global predicts that 2017 sales of tablets will be fewer than

165 million units



10% less than the

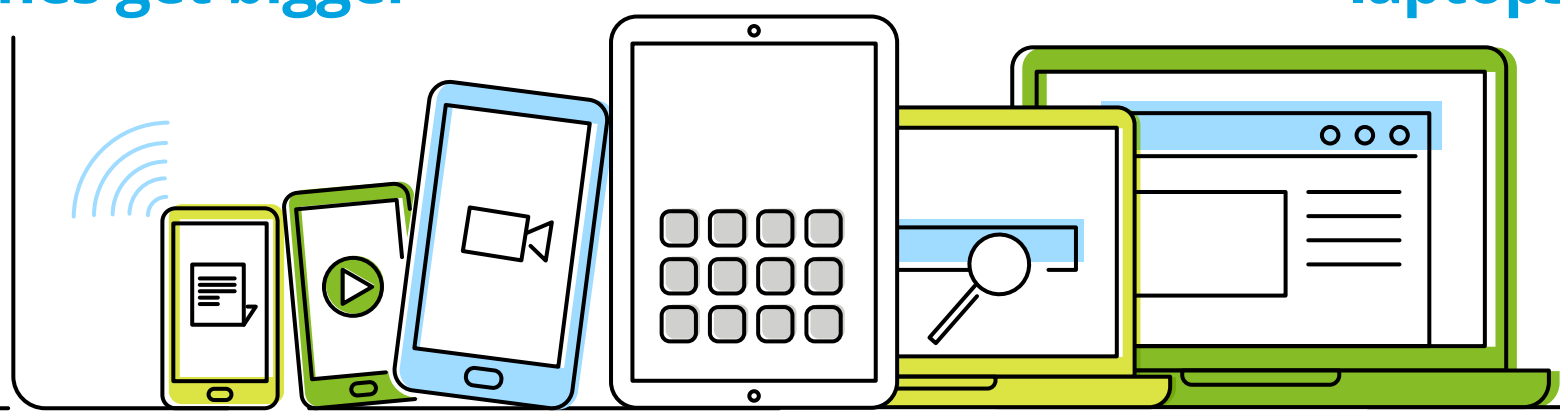
182 million units

sold in 2016

Their position as the device filling the gap between laptop/desktop computers and smartphones has been squeezed by

smartphones get bigger

laptops become lighter



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