



# PC PRO PREDICTS 2022

The *PC Pro* team give their tech predictions for the year ahead, with a little help from the real experts





**P**redicting the future of the tech industry is a fool's errand. Luckily, we're not short of those in the PC Pro office, so we've asked our team to look into their crystal balls and give us their best guesses as to what will happen in the next 12 months of tech. We've got everything from doomsday scenarios to high-profile resignations on our list of things likely to happen in 2022. There's some good news in there too!

Of course, there are some people who make a living out of predicting which way the tech industry will bend, so we've also printed a selection of predictions from three leading analyst firms to see if they can do any better than our in-house experts.

### Chrome OS eats Windows' business lunch

Tim Danton

It happened quietly, but during 2020 Chrome OS devices outsold Macs for the first time, according to IDC's worldwide figures. At the current rate of growth it would be well over a decade before Chrome is threatening Windows and its number one position - Microsoft holds around 80% of the market, Google's OS around 10% - but I predict that 2022 is the year when Microsoft's vice-like grip on business computer sales starts to loosen.

Let's put some numbers on this woolly prediction: the market share of Chrome OS devices will double to 20% by the end of 2022. Too bold? Perhaps. But prevailing winds are in its favour: as hybrid working becomes the norm, it's access to cloud-based data that will become the number one need for information workers rather than support for Microsoft Office.

Google also beats Microsoft for collaboration, for mobile OSes and for appeal among the new generation of workers. Simply put, a Windows PC is no longer necessary for work. Sure, the inertia created by over 30 years of Windows dominance will be difficult to shift, but if anyone can succeed, it's Google.



### Internet blackouts from cable cutting

Paul Ockenden

For many years, people have warned that nations could cause disruption for their enemies by cutting undersea fibre-optic cables, but the stories have usually come about when conventional submarines have been spotted lurking close to data cable routes. We've now reached the point where drone subs are used for things like underwater archaeology, and some of these are fully autonomous, given just a target and left to get on with it. It's not much of a stretch to go from "seek out this shipwreck and grab some artefacts" to "seek out this cable and sever it". Now imagine a whole swarm of these cable-snipping drone subs.

Of course, the internet was designed to be self-healing, able to protect itself from disruption like this. That's the theory, but the real world doesn't work like that. For starters,

BELOW Cables under the sea could be at risk of attacks in 2022

although there's a huge number of cables under the sea, the older ones are so small as to be useless. It's only the later fatter pipes that matter, and there aren't so many of those. Second, capacity in these fibre-optic cables is leased on a commercial basis - you can't just send your bits down whichever one is available.

A coordinated attack on undersea cables is bound to happen, and it will cause massive disruption on a level at least equal to the financial crisis. And it could easily happen in 2022.

### Windows tablets finally come of age

Darien Graham-Smith

I realise this sounds like a prediction from another era, but 2022 could be the year of the Windows tablet. With Windows 11, Microsoft has finally landed on an interface that's finger-friendly without diluting the power of the desktop. It's also wisely stopped trying to pit its own app library against the might of Android, and is instead enabling users to install Android apps on their Windows devices.

At the same time, the back-end team has been hard at work getting Windows on ARM ready for a mainstream role. This isn't Windows RT part two but a feature-complete port of the operating system, with a translation layer that allows users to run Intel code on lightweight, low-power ARM hardware.

In other words, all the pieces of the puzzle are in place - and frankly the tablet market feels like it's just waiting for Windows. There are already numerous professional-grade Android tablet systems out there, complete with detachable keyboards

BELOW LEFT Chrome OS has already gnawed away at Windows...

BELOW ...while Windows tablets may challenge Android devices







and stylus attachments. All Microsoft needs to do is get Windows 11 onto them and, after a decade of shilly-shallying, the OS could finally take its place as the best-of-both-worlds platform for computing on the go.

## Mid-tier providers hit by DDoS attacks

### Jon Honeyball

There appears to be a rise in the use of DDoS (distributed denial of service) attacks against mid-tier service providers, with numerous assaults against VoIP suppliers in recent months, along with ISPs (*see p118*). These companies are ripe for ambush: they have a lot of connectivity, but also service connections out to a wide range of customers.

If you attack a mid-level provider, you can significantly disrupt services to their customers. This puts enormous pressure on the service provider and might tempt them to give in and pay some of the ransom fees demanded from the attackers.

It appears there's a multiple layered service provision here for the attackers – you can rent time on a number of compromised computers, and use them to generate vast amounts of traffic aimed at the target. This can run to thousands of rogue computers, and terabits of data per second, as reported by Microsoft on an attack against its Azure infrastructure.

Mitigation is hard; it's a fast-changing attack profile, coming from all over the world. But there are companies that can help. Expect this kind of attack to be on the increase and ensure, wherever possible as a customer, that you have backup solutions in place in case your upstream mid-tier providers are hit.

For the provider under attack, payment of the ransom is no guarantee the attack will stop. Indeed, it might show that you're a target ripe for further harassment.

## Tim Cook stands down at Apple...

### Barry Collins

Tim Cook has completed a decade in charge of Apple and he's done about as good a job as he could possibly have hoped for. Following Steve Jobs was a

ridiculously tough ask, but the understated Cook has not only maintained Apple's technology lead in phones, tablets and smartphones, but carved out new markets too, such as smartwatches and AirPods. Meanwhile, services have further fattened Apple's already flabby profit margins. In his ten years in charge, Apple's share price has increased by more than 1,200%.

Short of taking on Tesla in the car market – a move that has long been rumoured, but seems far from certain – it's hard to see what more Cook could achieve. If the 60-year-old CEO reaches the same conclusion, 2022 might well be the year he decides to step aside and enjoy his retirement. He was granted 5 million shares in the company for his decade in charge in August and cashed most of them in right away, giving him a \$750 million nest egg. Good luck to the Apple lackey tasked with buying his retirement present.

## ...and Zuckerberg takes Meta back seat

### Nicole Kobie

Change is afoot at Facebook, recently changing the name of its umbrella corp from the social network's moniker to the even less meaningful "Meta". It's all part of the company's shift to virtual reality and the metaverse, which CEO and founder Mark Zuckerberg believes will be the future of the internet.

The rebrand was announced shortly after the leak of documents by whistleblower Frances Haugen, which accused the company of prioritising profit over safety. That



### ABOVE Could Tim Cook's successful reign at Apple be coming to an end?

Zuckerberg chose to focus on VR rather than the real-life complaints about his life's work shows how deeply unserious and unfit the man is to run a company that interacts with 3 billion people globally.

That's why Zuckerberg should step down as CEO. Given he's withstood such storms before, it may seem unlikely he'd entirely depart the company now known as Meta, but the focus on the metaverse gives him an escape from day-to-day leadership. He can follow the lead of Sergey Brin and Larry Page, the Google co-

## Zuckerberg should step back as CEO and hire a responsible adult to take the flak on his behalf

### OPPOSITE You'll have the right to repair by law, at least in the US/EU

### BELOW The metaverse gives Facebook a chance to transform itself

founders, who handed the reins of their company to Eric Schmidt in 2001, in an effort to introduce an "adult to the room".

That's what Zuckerberg should and will do in 2022: step back as CEO, hire a responsible adult to take the flak on his behalf, and spend his time developing his version of the metaverse. He'd be happier and, more importantly, so would we.

## The antivirus market begins to unravel

### Jon Honeyball

The antivirus marketplace continues to change. There have been a number of large-scale mergers, and vendors are continuing to use a relatively small number of "backroom engines" licensed from a few major players as critical parts of their infrastructure. The free AV product market costs companies money to service, but they need the data from the large non-paying userbase to tune their engines. And their paying customers, whether individual end users or business customers with site licences, benefit from that.



WHAT THE ANALYSTS PREDICT

PC Pro's staff don't have the monopoly on tech expertise. Of course, if expertise were a commodity, we'd be investigated by the competition authorities, but we concede there are others out there who know a bit. So, in the spirit of generosity, here are some of the predictions being made by the leading analysts as to what will happen in 2022.

HYBRID WORK BECOMES DEFAULT

CCS Insight

Until the pandemic struck, office workers were very much the norm. Not next year, predicts CCS Insight, which claims that "with the increase in remote work and large swathes of the workforce shifting to hybrid working, the office-based employee is no longer common enough to be the default profile". This shift has "huge implications for organisations' IT strategies, driving a wave of investment and process optimisation in several sectors".

EMPLOYEE MONITORING BACKLASH

CCS Insight

With staff literally out of sight at home, "there is a growing appetite for monitoring technologies that use data from applications and devices to determine the way employees are working and behaving", CCS Insight stated. "However, this has explosive consequences, with employees concerned that monitoring fails to respect their privacy or is being used inappropriately by their managers." CCS believes this could result in constructive dismissal cases.

CHIP SHORTAGE WILL IMPEDE IOT

Forrester

The effects of the chip shortage will be felt well into 2023, let alone 2022, predicts Forrester. However, it's the Internet of Things (IoT) device makers who will be hardest hit in the year to come. "IoT devices will feel the pinch particularly hard because they generally use more mature sensors, microcontrollers, and communications technologies that have more significant availability issues than advanced chips like CPUs and GPUs," the company warns.

60% OF BUSINESSES IN TECHNICAL DEBT

Forrester

The hangover from the pandemic will hit IT budgets, with the spending that many companies had to make to stay afloat in the early days of the Covid-19 crisis coming back to haunt them. "The 2020-2021 rush to digital resulted in a prioritisation of speed over maintainability, which will inflate their technical debt in 2022 and thus jeopardise their ability to modernise their IT organisations," Forrester warns.

AI TAKES OVER CUSTOMER SERVICE

Gartner

Poor customer service staff. Not only have they been shouted at routinely as supply chains collapsed during the pandemic, they now face being replaced by AI assistants. Businesses will significantly increase investments in chatbots, AI and analytics over the next two years, predicts Gartner. Such technologies "support new operational needs of managing a remote workforce, new demands and expectations from customers, and heightened expectations for service to deliver improved customer experience and value," Gartner says, rather optimistically.

GOVERNMENT IT SPENDING TO GROW

Gartner

Government spending on IT will increase by 6.5% worldwide in 2022, Gartner claims. "Governments will continue to accelerate investments in digital technologies to respond to and recover from the continuing evolution of public health uncertainties due to the Covid-19 pandemic," said Irma Fabular, research vice president at Gartner. "The disruptions caused by the pandemic have also reinforced a key digital government tenet, which is public policy and technology are inseparable." ●

However, Microsoft continues to make strong inroads with Defender, both as a free product built into Windows operating system, and as a licensed platform for business users. Some put Microsoft's market share at over 50% and rising. Windows itself, especially Windows 11, continues to become more robust, with core engineering making it less open to attack. Browsers continue to improve defences for malware, and against phishing and site impersonation, both significant routes for malware and data harvesting.

Android has become stronger with the latest releases, while iOS and macOS continue to have no significant malware issues.

All of this puts pressure on the AV marketplace, especially the paid-for products. Expect to see Microsoft's market share continue to increase as customers become more trusting of the free built-in capabilities of both the OS and the Edge browser. And expect to see a shift towards Microsoft

Optimism is high that this will clear the hurdles to become state law, giving R2R to a populace of over 20 million people. Add that to Biden's executive order instructing the Federal Trade Commission to limit OEMs from restricting repair and the 27 US states that have R2R on their agenda, and it's clear that there are tough times ahead for manufacturers who don't change their ways.

Some have already caved in. Massachusetts already has motoring R2R laws and, to comply, Subaru voluntarily disabled the telematic systems in vehicles sold in the state. This is despite various pro-motoring lobbyists repeatedly claiming that it couldn't be done. The anti-R2R brigade are suddenly without ammo.

The coming year will also see the EU replace its "Sale of Goods" directives with a new version as part of the European Green Deal. The replacement is designed to give consumers more rights, including statutory two-year warranties and amendments to make repair easier. R2R requires legislative change from forward-thinking leaders. Don't expect too much from the UK in 2022.

Social media firms threaten to boycott Britain

Barry Collins

This could be a hostage to fortune, as the Online Safety Bill was still passing through parliament at the time of writing. But with Kier Starmer urging an agreeable PM to toughen up the bill to include criminal sanctions for social media executives that fail to curb "abuse" on their platforms, it seems highly likely that this will make it onto the statute book.

This could be a turning point for Facebook, Twitter et al. Given that cleansing social media of all abuse is akin to ridding sewage from British rivers, the social media firms may decide that the risk of seeing their executives jailed is not one they're prepared to take. Could Facebook, Twitter and others call the politicians' bluff and threaten to boycott the UK in protest at the new legislation?

It will be fascinating to see who blinks first. Britain could be a very interesting social experiment in 2022.

cloud-based security offerings as part of the ongoing move to Office 365 corporate licensing.

Right to repair is enshrined in law... except in the UK

Lee Grant

A lot of noise was made in 2021 about right to repair (R2R), and expectations are high for 2022.

In January, the New York State Assembly will reconvene to consider bill A7006, the digital fair repair act, which is a proposed law to ensure that spares, tools and guides are available to both repairers and consumers.

