ENTERPRISE MOBILITY & COLLABORATION

Working together with new tech to win business

Connected staff, equipped with intuitive technology to improve co-ordination and collaboration, can stay ahead of the curve in a fast-moving digital world

OVERVIEW
SUE TABBITT

In 2016, a lot hinges on an organisation's ability to move deftly. Being efficient, improving the customer experience and pre-empting market disruption depend on the ability to connect dynamically and regroup.

These are now the drivers for unified communication (UC) and collaboration. It is not about blindly equipping employees with technology, but empowering them to get the job done without fuss.

Rob Bamforth, a principal analyst at Quocirca, attended a collaboration conference in London recently, where a recurring theme was improving user adoption. James Tye, chief executive of Dennis Publishing, told of his decision to default to team communication tool Slack because of its immediacy compared to e-mail. Its use had been rising anyway, but now Mr Tye is driving it from the top of the business. "In the midst of all the possibilities, simplicity and ubiquity are key," Mr Bamforth notes.

Businesses are also investing more in their workspaces to facilitate collaboration. Wainhouse Research estimates there are 40 million "huddle rooms" – small dedicated spaces for on-the-fly meetups – in use among companies globally. Technology must reflect that. Logitech, for example, is targeting huddle rooms with an inexpensive, portable, HD-quality video-conferencing camera.

Jabra transformed its working practices a few years ago. The headset manufacturer, which employs 1,000 people, removed all desk phones in favour of the UC platform Skype for Business (formerly Microsoft Lync). Communications are largely mobile now and speakerphones can turn any space into a meeting room.

"The new set-up paid for itself in less than three months, removing the cost of fixed lines, reducing travel and boosting productivity," says senior vice president Holger Reisinger. "More importantly, it reflects the way people want to work now – they can be at home with all of the capabilities of the office."

For younger generations, such flexibility is assumed. It also enables companies to address gaps in their talent, effortlessly joining remote freelancers to workgroups.

Ubiquitous high-speed connectivity, smart mobile devices and cloud-based applications are important enablers. "For years, businesses have put up with the pain and cost of disjointed communication systems," says Ed Grant, co-founder of Solgari, an Irish UC startup. "Now end-users should be able to access whatever services they need through any internet device."

Solgari provides free, browser-based video, voice, conference or chat via the cloud. "The cloud has changed everything," Mr Grant says. It paves the way for any company to access the latest integrated capabilities, flexibly and affordably. Otherwise they become limited by proprietary systems, which third parties cannot easily connect into.
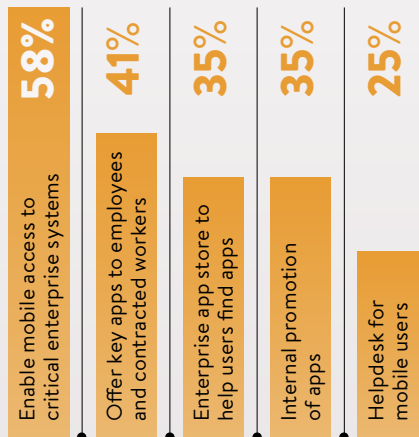
Modern collaboration should be inclusive, mobile and social, crossing company boundaries. "As more business applications and UC move to the cloud, it becomes far easier to 'mash up' services and make them available anywhere," says Greg Zweig, director of solutions marketing at Genband, which facilitates this. "UC is moving to a model where multiple business applications are 'communication-enabled'."

The most advanced collaborators are organisations with a high percentage of knowledge workers, where the need for rapid access to expertise and information is highest. Smaller companies also tend to be ahead, with less legacy infrastructure and much to gain from improved productivity.

The gap could close though, as larger organisations lose their cloud inhibitions. Slack counts three-quarters of US Fortune 100 companies as users of its cloud-based software, as well as government agencies, law firms, advertising agencies, restaurants and non-profit organisations.

Estate agent Deighton McKenzie uses Slack to provide a better service to people selling their homes, collaborating and sharing documents related to viewings, questions and offers. Cosmetics firm Lush has reduced internal e-mail by 75 per cent since using it. It plans to pilot Slack in its stores next, to provide social media support and enable website issues to be flagged quickly to HQ.

Graham Bevington, president of Mitel's Enterprise Division, notes that inter-organisation collaboration is becoming increasingly important. "Collaborative networks now connect doctors, pharmaceutical companies, patients and their families, to improve people's health, while on university campuses in the US they are enabling faster co-ordination of security lockdowns when incidents threaten students' safety," he says.

Besides the danger of disruption, companies that lag their competitors risk frustrated employees using consumer tools such as WhatsApp for work. Research by cloud UC provider Fuze found 32 per cent of workers using messaging apps and 25 per cent making video calls without consent, something that will increase as younger employees enter the workplace, potentially exposing sensitive information through inadequately secured channels.

In the future collaboration will become even more intuitive, for example via wearable devices, and augmented and virtual reality. Avaya Live Engage already uses avatars to navigate virtual meeting rooms and other business settings. Bots, software applications that can perform simple and repetitive tasks, are also infiltrating UC environments. Slack uses a glossary bot called Glossbot to explain company jargon and Statsbot to update teams on performance.

But first there is some catching up to do. "Education, government organisations and retail could benefit from increased investment," says Sheryl Kingstone, research director at 451 Research. "Mid-sized companies experiencing a growth phase or managing multiple locations probably have the most to gain – once they understand a strong collaboration strategy is a competitive advantage."

> "Ubiquitous high-speed connectivity, smart mobile devices and cloud-based applications are important enablers"

CONNECT
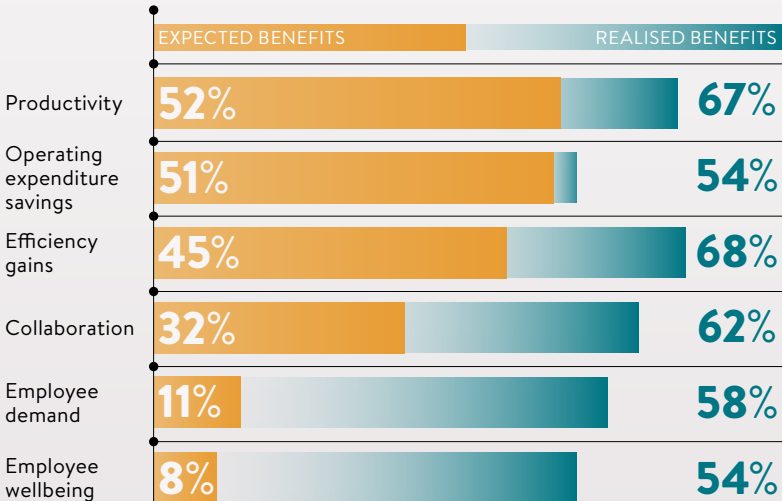
IMPLEMENTING ENTERPRISE MOBILITY SOLUTIONS
WHAT STRATEGIES ARE YOU USING TO DRIVE APP ADOPTION?

- **58%** Enable mobile access to critical enterprise systems
- **41%** Offer key apps to employees and contracted workers
- **35%** Enterprise app store to help users find apps
- **35%** Internal promotion of apps
- **25%** Helpdesk for mobile users

Source: Apperian 2016

DRIVERS OF UNIFIED COMMUNICATION ADOPTION

EXPECTED BENEFITS | REALISED BENEFITS

	Expected	Realised
Productivity	52%	67%
Operating expenditure savings	51%	54%
Efficiency gains	45%	68%
Collaboration	32%	62%
Employee demand	11%	58%
Employee wellbeing	8%	54%

Source: PwC 2015

COMMERCIAL FEATURE

THE ALWAYS-ON COMMUNICATIONS DILEMMA…

BroadSoft's cloud-based unified communications and collaboration technology can liberate your workforce and avoid information overload

broadsoft

The world of work is being reshaped by a groundswell of tech-savvy, mobile-first talent, looking to work flexibly, remotely and collaboratively. Consumer technology innovation has facilitated this, empowering workforces to communicate and collaborate from any location, at any time and using any device.

Business decision-makers have sought to enable these shifts in working patterns rather than restrict them. However, the challenge facing both businesses and employees is avoiding the mass of information overload created by the plethora of apps, messaging and e-mails.

PRODUCTIVITY AT RISK

People need tools to help manage the "always-on" mentality and continuous stream of information they are faced with. Existing communication tools are often limited in scope, context and mobility, which can lead to ineffective collaboration. As a result, business processes and workflow often become fragmented, causing productivity to fall as users are constantly interrupted by notifications, and switch among multiple applications and tasks. Next-generation unified communications and collaboration (UC&C) technology should be delivering simplicity and intuitive, app-like experiences across multiple devices.

Michael Tessler, president, co-founder and chief executive of BroadSoft, expands on this issue: "When you consider that, according to a study from Common Sense, 72 per cent of teens and 48 per cent of adults feel the need to respond to messages, posts and notifications immediately, then you can see why business decision-makers are struggling to manage the non-stop flow of information, communications and notifications that employees receive, scattered across a variety of locations, devices and applications."

According to Taher Behbehani, chief digital and marketing officer of BroadSoft: "Office workers are already checking their e-mail inbox 30 times an hour, yet businesses are trying to improve productivity by feeding an attention-challenged workforce new standalone, siloed enterprise messaging apps, video and web-conferencing and other collaboration tools."

Only game-changing, mobile-first cloud communications can enable these new ways of working, and help to manage information overload, inefficiencies and lower productivity.

Scott Hoffpauir, chief technology officer and co-founder of BroadSoft, adds: "End-users want to cut through the noise and have everything they need in one place. For example, if an employee initiates a call to a co-worker, BroadSoft UC-One Hub's contextual pane will immediately show the caller all recent files, e-mail, social media engagements, tasks, IM [instant message] sessions and other data between the two colleagues, without opening or searching through additional applications."

MOBILE CLOUD SOLUTION

For business cloud UC&C, BroadSoft has become a recognised leader by service providers and industry experts alike, identified by analyst firm Frost & Sullivan as the market share leader for unified communications as a service (UCaaS) with 41 per cent of the market. It also boasts 25 of the top 30 global service providers by revenue as customers.

Brent Kelly, principal UC&C analyst for KelCor, says: "As communications and collaboration migrates to the cloud, market forces and momentum favour three providers as the ultimate big winners: BroadSoft, Microsoft and Cisco. While Microsoft and Cisco seem obvious, given their size, BroadSoft is also a significant player because of its huge communications service provider partner network."

❝ Only game-changing, mobile-first cloud communications can enable new ways of working, and help to manage information overload, inefficiencies and lower productivity

BroadSoft's managing director, Europe, the Middle East and Africa, Craig Decker says: "Our strategy has always been to focus on what really matters; the real end-user customers and the international communication service provider community. In the era of cloud transformation, service providers are in a unique position to ensure the network quality and security that businesses need to transition to cloud UC&C with confidence."

Flexibility has been a catalyst for increasing workplace fragmentation, with people working at different times and in different locations, on multiple devices, each with its own identity, using multiple tools including new apps such as WhatsApp, Redbooth, Concur and Salesforce.com. Effective communication, on-site, off-site and while mobile, remains essential for a successful workplace. Only a cloud-based infrastructure is capable of integrating all that, and this is driving phenomenal market growth as more and more companies move from PBX (private branch exchange) systems to the cloud.

SERVICE PROVIDER ADVANTAGE

However, BroadSoft insists it is its focus on market needs, rather than technology, which has kept it ahead of the curve and leading the market.

Mr Decker concludes: "Our product has to be rock solid as our service provider customers are the most technically savvy in the world with high expectations regarding quality and security, and businesses must have confidence in their cloud UC&C vendor. As the global transition to cloud continues, BroadSoft's competitive advantage comes from being a vendor that is deeply integrated into mobile networks and has a complete stack of solutions incorporating PBX, unified communications, team collaboration and contact centre.

"Our service provider relationships are the icing on the cake because they provide rock-solid network, quality and security with one bill, and one support organisation. When combined with the future of work vision, you can see why BroadSoft is well positioned to allow teams and individuals to reach new levels of productivity and mobility."

CLOUD COMMUNICATIONS SHIFT

The latest figures from Cavell Group, a leading research and consulting firm in the telecom, cloud and managed services sectors, show the UK market is growing at 31.8 per cent a year in business of all sizes.

As Cavell Group's research associate Dominic Black points out, cost factors only add to the business case for cloud adoption. He says: "Companies used to invest in their own PBX equipment, generally requiring a significant amount of up-front capital expenditure. With cloud, they pay for services as they consume them and can scale their requirements up or down in line with changing business needs, shifting costs to operational expenditure. The market has been maturing over the last ten years and, according to our research, over two million business users in the UK have already taken advantage of cloud communications solutions."

The advantages of using BroadSoft technology are being seen first-hand by leading telecom service providers such as Gamma, which works with a growing number of small and medium-sized enterprises, many of them looking to replace their on-premises PBX, as well as larger companies with multiple sites.

Gamma's products director Alan Mackie says: "One company we have worked with is Thrifty Car Hire, which operates across multiple sites and also needs to be able to open up new sites very quickly. Cloud enables them to do that. It solves a problem and relieves a painpoint that premises-based PBX can't."

Cloud has had a profound impact on the workforce. With BroadSoft UC&C solutions, employees can log in from anywhere on any digital device and the system will immediately recognise them, their teams and all their contacts. Users can locate colleagues quickly and immediately begin messaging to share real-time information. If closer collaboration is required, they simply hit the audio or video button to begin a call, conference or screen-sharing session. The ability to pull a call from one appliance to another, for example, between a desk phone and mobile device is another benefit of native mobile integration.

"The feedback we get from the end-users of the cloud-based system, the employees, is extremely positive," says Mr Mackie. "We can work from home, use their laptop to make calls, share information with colleagues during a call and work remotely, yet collaboratively. The business benefits from lower costs, more flexibility and higher reliability than they were getting with PBX, and because employees have access to the technology that enables them to work in the way which suits them best, productivity also goes up."

For more information please visit www.broadsoft.com

CLOUD SHIPMENTS TO TAKE OVER ON-PREMISE IN 5 YEARS

● On-premise: -5%   ● Cloud: 18%

5-year CAGRs: -5%

5-year CAGRs: 18%

(chart: 2016, 2018, 2020, 2022, 2024, 2026; y-axis 20%, 40%, 60%, 80%)

Source: BroadSoft

Workplace of tomorrow has top communications

A unified communications and collaboration strategy that allows staff to work where and when they choose can also boost commitment and engagement among sometimes dispersed employees

Stockpic/Ed Gregory

FUTURE WORKPLACE
ALISON COLEMAN

The statutory right for employees to request flexible working, enshrined in UK law two years ago, was a catalyst for making the unconventional – working from home, on the move or in multiple locations across workplaces – become the norm.

In order to keep their increasingly flexible workforces connected, engaged and productive, organisations have had to rethink workplace communications. For many the solution has been to implement a unified communications and collaboration (UC&C) strategy, providing access to new communication technologies across a range of media, including web, chat, e-mail, screen-sharing and web-conferencing. In the workplace of the future, employees will demand nothing less.

"Flexible working has become the norm and employers who restrict it can often find their staff feeling constrained, and can even lose key employees or projects due to a rigid work environment," says David Walsh, chief executive and chairman of communications firm Genband. "This is leading many companies to realise they need an up-to-date communications strategy that provides employees with the flexibility they now demand."

But there is evidence to suggest that mobility is also good for business. According to the Economist Intelligence Unit's *Mobility, Performance and Engagement* survey, sponsored by Aruba, companies rated by employees as pioneers in terms of how they support mobile technology, saw a rise in productivity (16 per cent), satisfaction (23 per cent) and loyalty (21 per cent), compared with organisations rated poor at supporting mobile technology.

Aruba's Europe, Middle East and Africa vice president and general manager Alain Carpentier says: "In response to the demands of the ever-moving employee, we are seeing companies using private cloud-based tools, not expensive WAN routers, to install infrastructure, the main reason being that they can install it as quickly as their employee can relocate, fire up a mobile device and connect to cloud-based applications.

"Working through virtualised data centres, cloud applications can be centrally secured and deployed anywhere through the public or private cloud. The result is quicker network access from any location, connected back to corporate resources, a better employee experience and faster return on investment."

Brother UK is one of just a handful of companies to achieve Investors in People Platinum status, an accreditation for outstanding employee engagement. The firm has used its UC&C strategy to boost engagement in a number of ways, including the use of workplace social network Yammer to provide a one-stop shop for news and updates across the business.

"Yammer has had a number of positive impacts," says Brother UK's infrastructure and shared services director Louise Marshall. "It has reduced the number of internal e-mails, which saves time and helps people to focus on their work. We encourage people to use Yammer as they would Facebook: they personalise it so they get the updates they want first and they only use it when they need. It is less of a distraction than e-mails."

Brother UK offers its own web-conferencing tool called OmniJoin, which allows people to web-conference while sharing files and using tools, and has explored other areas of communication.

Ms Marshall adds: "We will soon be sending all our new recruits 'anticipation videos' – short, engaging films showing what life is like at Brother UK. We do what we can to put people at ease before they start and our communications are a key part of that."

All of these are important for a company whose workforce is widely dispersed. Brother UK's sales staff are often on the road, working away from home or flexibly at home, and their communication strategy helps create a feeling of togetherness among colleagues.

70%
of UK organisations will see flexible working become their main way of working by 2020
Source: Lancaster University Work Foundation 2016

60%
of European employees are using a smartphone, laptop or tablet provided by their employer
Source: ADP Research Institute 2016

UC&C systems are being adopted in more traditional sectors, including law. At international law firm Taylor Vinters, technology is increasingly changing the way they use office space, and how their teams communicate and collaborate."

Managing partner Ed Turner says: "In a strategy review last year, our 200 staff, based in London, Cambridge and Singapore, told us they want a workspace that offers the greatest possible flexibility, but which is simple and fast to use. That's across both the virtual and physical environments."

The firm sees cloud-based communication as a key development with huge potential. "It offers us a consistent, flexible

❝ Many companies realise they need an up-to-date communications strategy that provides employees with the flexibility they now demand

and cost-effective way of working, for both staff and clients, regardless of their physical location or geography," says Mr Turner. "Our firm has an entrepreneurial spirit and a culture that embraces new ways of doing things, and our clients are typically leading change in their own industries, so they expect us to embrace cutting-edge communication and collaboration technologies and approaches."

While many workforces today are multi-generational, it is the millennial generation that is driving UC&C trends in pursuit of a work environment that allows them to work flexibly, inclusively, collaboratively and productively. These younger individuals are the future leaders that companies are seeking to attract, retain and develop.

Phil Sheridan, senior managing director at recruitment firm Robert Half UK, says: "Millennial employees are most productive and engaged with their work when they are empowered. As a highly educated, ambitious group they often gravitate towards opportunities that provide meaningful personal and professional growth. They value flexibility more than other generations and are more likely to turn down an opportunity that doesn't offer work-life balance in addition to a competitive salary, and they are technologically astute."

Companies should review their UC&C strategy as they would with any other benefit in their portfolio, with constant feedback and engagement analysis. This means tracking initial uptake, monitoring data analytics for ongoing engagement, and encouraging honest feedback about the highlights and required improvements.

Jamie Mackenzie, director of marketing at Sodexo Benefits and Rewards Services, says: "An annual review of these operations should be carried out to assess the legalities, costs and contractual arrangements, supported by intermittent formal reviews and ongoing feedback from the entire workforce."

In implementing UC&C solutions that allow staff to work where and when they choose, employers need to be aware of potential pitfalls. Flexible working practices that encourage an always-on culture can take a psychological toll on employees. And while "work is life, life is work" is a mantra that many millennials subscribe to, for some people the blurring of lines between work and home life can prove stressful.

Tim Forer, a partner in the employment team at law firm Blake Morgan, says: "It is a question of balance, but employers have a responsibility to send a clear message that a work-life balance is important for mental wellbeing, as is protecting non-work relationships from the invasion of technology. This doesn't necessarily mean imposing strict limits on working flexibly, but making sure that staff know how the always-on culture can impact them more than they realise."

However, one of the great benefits of a UC&C system is it can help to eliminate the feelings of isolation that can affect those working remotely. Anna Gibbons, head of marketing at digital agency I-COM, says: "By fostering a high level of collaboration, a company ensures that all employees, whether home or office based or overseas, benefit from real-time information and continual communication. This higher level of engagement also means that a company will benefit from the knowledge and expertise of all employees, no matter where they are located."

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WHICH OF THE FOLLOWING HAVE THE GREATEST IMPACT ON HOW PRODUCTIVE AND SATISFIED YOU ARE IN YOUR JOB?

● PRODUCTIVE   ● SATISFIED

	PRODUCTIVE	SATISFIED
The ability to work from any location at anytime	49%	38%
The ability to access information quickly and easily	42%	31%
The ability to collaborate with colleagues effectively	21%	30%
The freedom to work anywhere in the office/workplace	14%	27%
The ability to concentrate on work	32%	30%
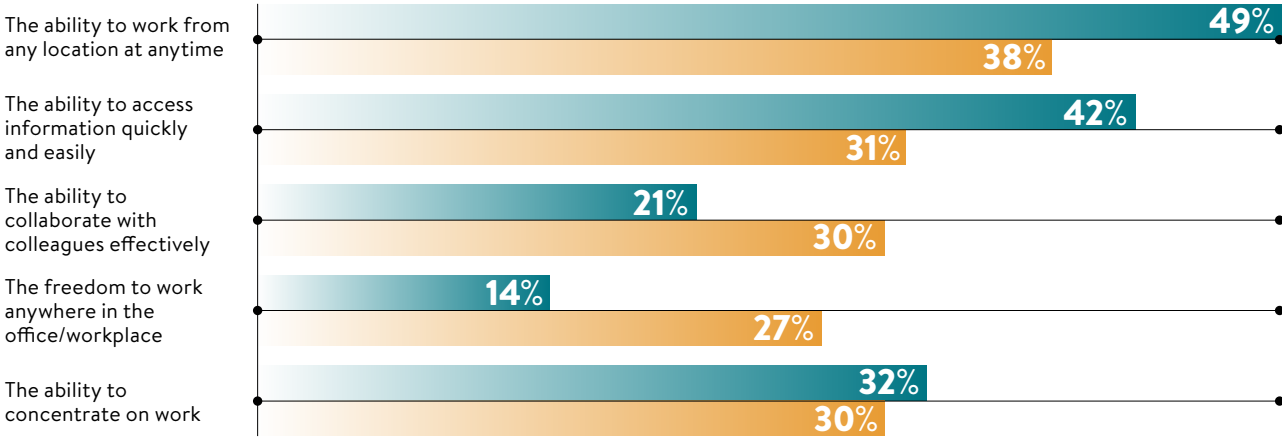
Source: Economist Intelligence Unit 2016
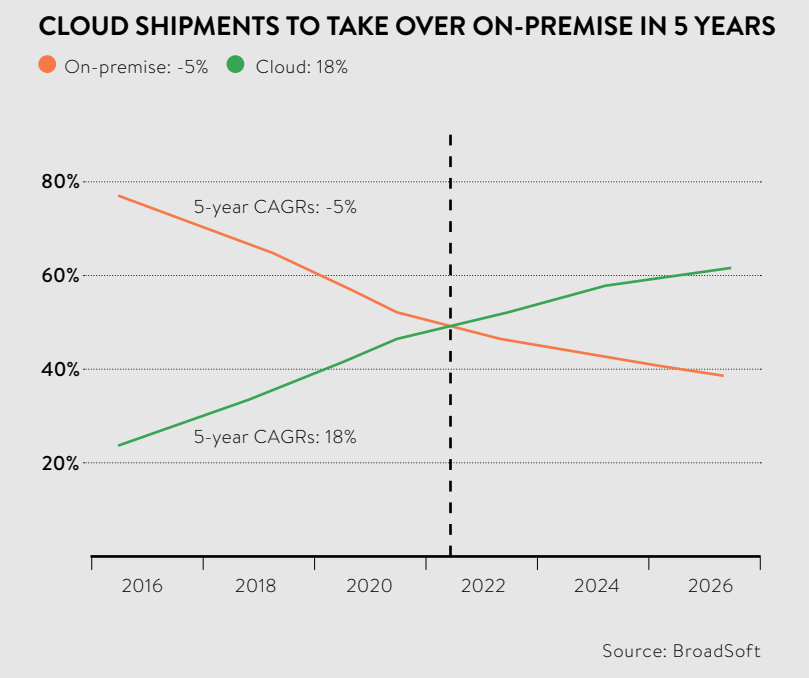
Bring your device but keep to company rules

The advantages of allowing employees to bring their own technology to work outweigh the risks, but security of company data must be safeguarded

BRING YOUR OWN DEVICE
FINBARR TOESLAND

When the BYOD or bring-your-own-device trend first emerged, it was hailed by many technology experts as a game-changer for productivity, work-life balance and collaboration in businesses across all sizes and industries. Unfortunately, the reality has been markedly different, as a myriad of unforeseen issues has caused chief information officers (CIOs) to rethink their approach.

The first generation of BYOD policies left much to be desired and caused significant unease among employees, with technology research firm Gartner predicting in early-2014 that within two years one-fifth of all BYOD projects would fail.

"Companies instituted policies that were too stringent, so employees became afraid to adopt BYOD or had complaints after doing so," says Nick Galea, chief executive of unified communications provider 3CX. "Many companies also failed to reassure employees that their personal information on their own devices would not be accessed by the company."

While these oversights had high costs for some enterprises, there are crucial lessons to be learnt from their missteps, especially when the next generation of BYOD policies is considered.

A central feature of many initial policies was strict containerisation, where users were only allowed to use a suite of select business apps, separated from the rest of the device. If this practice was followed in all respects then business data would be highly secure, but users have been largely resistant to this method, according to John Shaw, vice president of product management at IT security firm Sophos. "Having to sign in and out of two logically distinct interfaces, and being unable to use their favourite apps for work didn't sit well with users in general," he says.

The introduction of all-encompassing mobile device management (MDM) proved to be similarly problematic. This solution gives IT departments the ability to wipe the entire device clean, including all personal files, in the event of loss or hacking. Beyond the costly investment required to implement the system, MDM has security limitations that mean it is not a feasible option for most enterprises.

> Instead of looking for ways to fight against BYOD, enterprises need to embrace this movement and work with employees to ensure it is safely implemented

"Once my kids are logged on to play their favourite game on my iPad, they can send e-mails to anybody in my company contact list, including my boss. And the same goes for anybody who might happen to find my device on the train," says Mr Shaw.

Some organisations may be hesitant to put BYOD policies into effect, viewing the potential security challenges as too much of a risk, but it's now too late to put the genie back in the bottle, with a study commissioned by VMware showing that 39 per cent of UK employees would consider leaving their jobs if they were not allowed to use their mobile devices for work. Instead of looking for ways to fight against BYOD, enterprises need to embrace this movement and work with employees to ensure it is safely implemented.

"Employees are all working on personal devices. The devices may belong to the employee or to the company, but either way they are personal," says Mr Shaw. "So BYOD has happened to some degree to every organisation; the only questions are how much control does IT have over BYOD and how wide open is the company's security posture as a result?"

Just because a company forbids employees from downloading unapproved apps by blacklisting masses of popular programs doesn't mean that issues of BYOD security will instantly disappear and in many cases employees will simply circumvent IT regulations. Almost 70 per cent of 20 and 30-something millennials openly admit to breaching IT policies and using apps not sanctioned by their employer, according to a survey conducted by TrackVia.

Even more concerning is the finding in the same study that 60 per cent of millennials, often referred to as digital natives, don't have concerns about corporate security when they use unauthorised personal apps. "By all means, organisations should embrace #GenMobile's penchant for openness, innovation and collaboration, using any device they wish, but only when they can understand and plan for the security risks these behaviours bring along," says Alain Carpentier, Europe, Middle East and Africa vice president and general manager for Aruba, an HP Enterprise company.
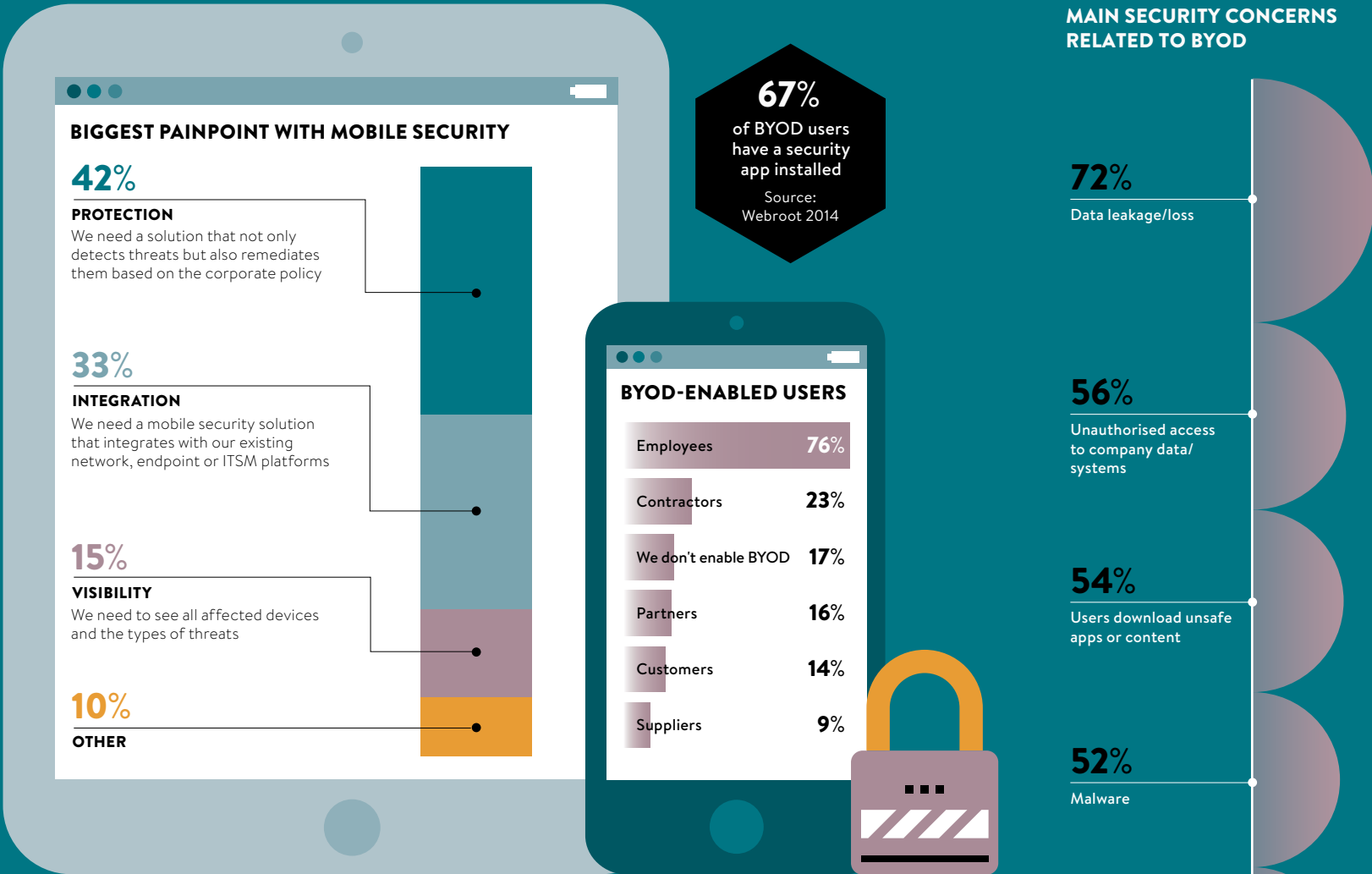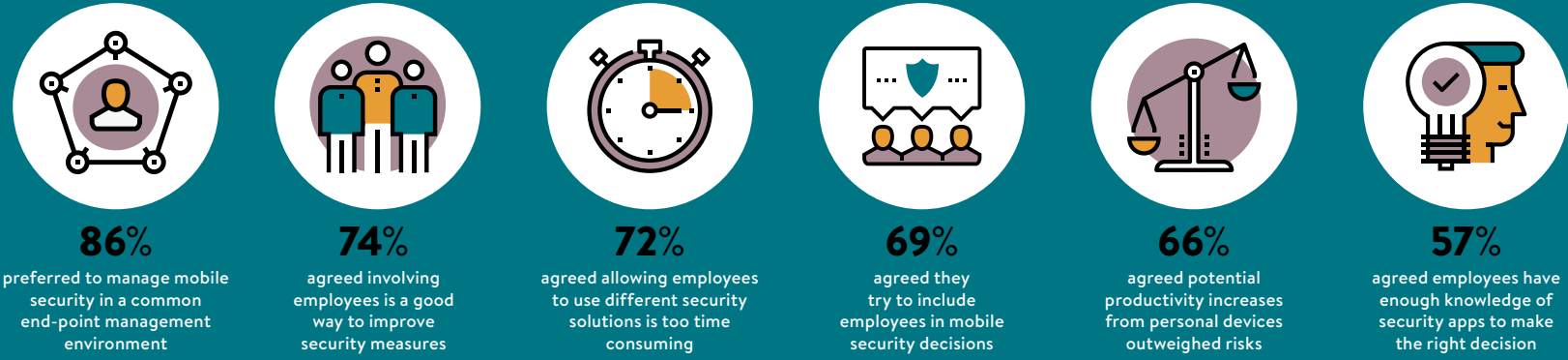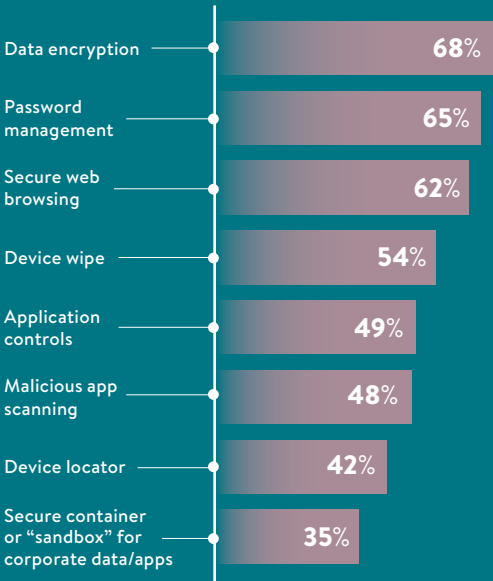
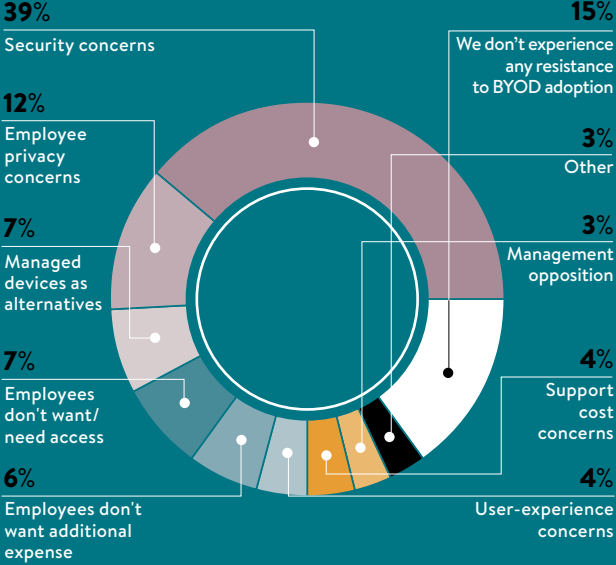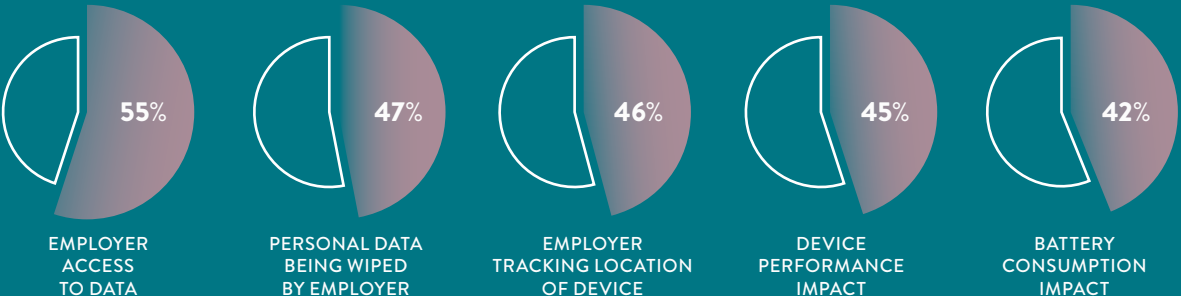New mobile devices and apps are entering the market on a daily basis, bringing along with them unfamiliar software and new vulnerabilities. For that reason, a static BYOD policy is doomed to fail. "It is important to review existing policies and modify them to meet the changing business needs, rather than trying to defend why old policies and practices should translate to new mobility challenges," says Ali Neil, head of security services for Verizon in Europe, the Middle East and Africa.

There is no one-size-fits-all solution for BYOD. Each organisation's policy evaluation should be carried out under a framework that comprehensively assesses risks and challenges faced by the company. Moving beyond the initial mobile security analysis, using a specialised third-party testing service on a regular basis can help get a fresh perspective on protection issues and cover any corporate IT blind spots.

Although CIOs and IT departments will be responsible for creating successful BYOD policies, employees themselves need to play a central role in their implementation. No matter how comprehensive and scalable an enterprise's BYOD policy may be, unless staff fully understand the policy itself and the risks associated with their devices at work, there will still be major security dangers.

Employees' responsibilities in successful BYOD policies go beyond simply using strong passwords and changing them regularly. For example, users should make

> The selected wiping of sensitive corporate data should be allowed, while not erasing personal messages, e-mails and apps

sure apps are kept up to date and not be careless when accessing important business data outside the workplace. Research from Acronis revealed that 77 per cent of employees globally had not undergone any education around the threats associated with BYOD.

Many first-generation BYOD schemes didn't succeed partly due to resistance from employees, who just utilised unauthorised apps, but also because IT departments found policies to be overly complicated and impractical. Making BYOD as easy as possible to set up and maintain is key for CIOs, who need to consider the often overworked IT workers, as these tech professionals will be the ones involved in the day-to-day managing of BYOD policies.

The higher-than-expected costs from BYOD app security, policy management, system infrastructure and regulatory compliance from past deployments can now be more accurately projected by companies, so processes can be streamlined to bring in cost-savings.

Enterprises can still realise the benefits of BYOD, from reduced costs, improved activity and increased employee satisfaction, if equilibrium between scalability and usability is reached. "The lesson is to find a balance between the two approaches in a way that is largely invisible to users," says Mr Shaw.

An example of how this could be achieved is by ensuring company data and personal information remain isolated from each other at all times, through individual app separation. The selected wiping of sensitive corporate data should also be allowed, while not erasing personal messages, e-mails and apps.

Businesses can no longer ignore the growing BYOD movement. "Failure to support BYOD will impact productivity and will reduce employee satisfaction," Mark Ebden, strategic consultant at IT services firm Trustmarque, concludes. While recognising security of corporate data is a major concern for CIOs, "companies must make use of the tools available to them to manage BYOD – to ensure BYOD functions effectively as a sensible policy, but at the same time does not impact on the usability of devices," he says.

SECURITY CHALLENGES OF BYOD

EMPLOYER MOBILE SECURITY MANAGEMENT

86% preferred to manage mobile security in a common end-point management environment

74% agreed involving employees is a good way to improve security measures

72% agreed allowing employees to use different security solutions is too time consuming

69% agreed they try to include employees in mobile security decisions

66% agreed potential productivity increases from personal devices outweighed risks

57% agreed employees have enough knowledge of security apps to make the right decision

Source: Webroot 2014

BIGGEST PAINPOINT WITH MOBILE SECURITY

42%
PROTECTION
We need a solution that not only detects threats but also remediates them based on the corporate policy

33%
INTEGRATION
We need a mobile security solution that integrates with our existing network, endpoint or ITSM platforms

15%
VISIBILITY
We need to see all affected devices and the types of threats

10%
OTHER

67% of BYOD users have a security app installed
Source: Webroot 2014

BYOD-ENABLED USERS

Employees	76%
Contractors	23%
We don't enable BYOD	17%
Partners	16%
Customers	14%
Suppliers	9%

Source: Crowd Research Partners 2016

MAIN SECURITY CONCERNS RELATED TO BYOD

72% Data leakage/loss

56% Unauthorised access to company data/systems

54% Users download unsafe apps or content

52% Malware

50% Lost/stolen devices

49% Vulnerability exploits

48% Inability to control endpoint security

39% Ensuring security software is up to date

38% Compliance with regulations

37% Device management

35% Network attacks via wi-fi

Source: Crowd Research Partners 2016

ESSENTIAL MOBILE SECURITY FEATURES

Data encryption	68%
Password management	65%
Secure web browsing	62%
Device wipe	54%
Application controls	49%
Malicious app scanning	48%
Device locator	42%
Secure container or "sandbox" for corporate data/apps	35%

Source: Webroot 2014

INHIBITORS TO BYOD ADOPTION

- 39% Security concerns
- 12% Employee privacy concerns
- 7% Managed devices as alternatives
- 7% Employees don't want/ need access
- 6% Employees don't want additional expense
- 15% We don't experience any resistance to BYOD adoption
- 3% Other
- 3% Management opposition
- 4% Support cost concerns
- 4% User-experience concerns

Source: Crowd Research Partners 2016

EMPLOYEE CONCERNS OVER MANDATED SECURITY

55% EMPLOYER ACCESS TO DATA

47% PERSONAL DATA BEING WIPED BY EMPLOYER

46% EMPLOYER TRACKING LOCATION OF DEVICE

45% DEVICE PERFORMANCE IMPACT

42% BATTERY CONSUMPTION IMPACT

Source: Webroot 2014 | Source: Crowd Research Partners 2016

FEELING COMFORTABLE WITH USEFUL WEARABLES AT WORK

The security considerations for BYOD are wide-ranging, but the fundamental goal is to assure the protection of corporate data held on employee-owned devices. Laptops, tablets and other devices owned by the company generally have a number of security safeguards in the event of loss or theft. Staff-owned smartphones lack these extensive protections, leaving them vulnerable to attack.

Storing critical business data with strong encryption on personal devices is clearly not a new development, but as the potential avenues for data theft grow, more precautions have to be put into practice. According to Mr Galea, the first consideration for an improved BYOD security policy is user authorisation. "Smartphones and tablets must be registered before they connect to the company network, and robust authentication procedures for users should be set up," he says.
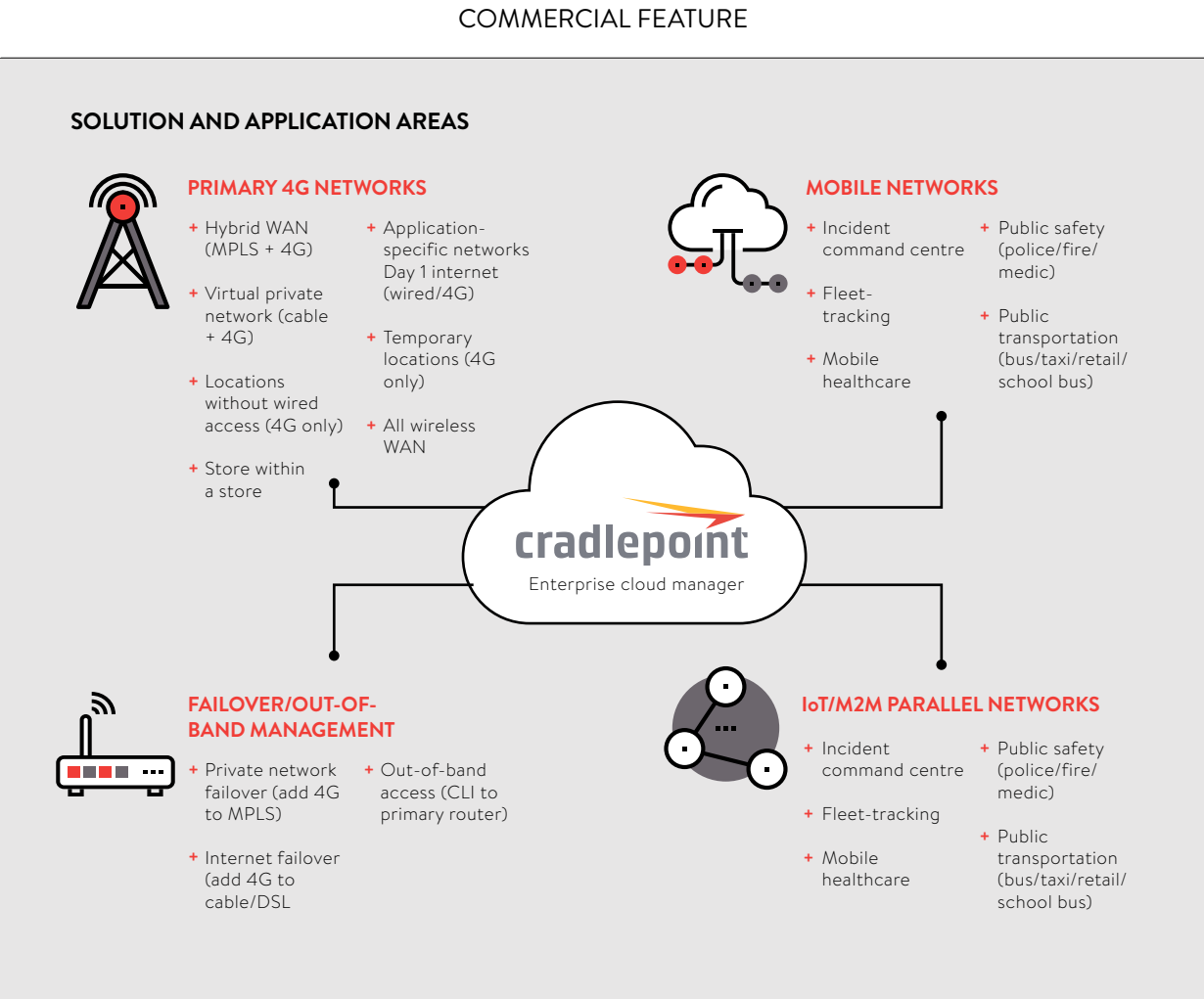
From the much publicised launch of the Apple Watch to fitness trackers such as Fitbit, wearable technology has rapidly become commonplace in a matter of just a few years. Researchers at analysis and advisory firm IDC forecast the global wearables market would ship 72 million units in 2015, a year-on-year growth of more than 173 per cent. However, the relative simplicity of wearables' applications in the workplace means that, at the moment, their presence at work has been minimal.

"Without voice or video, there's less reason to integrate them with other communications," says Nick Galea, chief executive of unified communications provider 3CX. This is expected to change with the increasing popularity of wearables, which will further propel these devices into the mainstream. "As product and software developers begin to add apps and features that support unified communications and encourage use in the workplace, we'll see much more complexity," adds Mr Galea.

Enterprises need to begin planning now for the widespread usage of wearables, as many current IT infrastructures are drastically underprepared for the incorporation of these devices. Mark Ebden, strategic consultant at IT services firm Trustmarque, believes it will be hard to customise wearables to satisfy the complex demands of mobile enterprises, due to proprietary technology which the majority of devices are based on.

Wearables have the potential to alter the mobile enterprise security landscape in ways not experienced before. "In particular, the fact wearables are generally broadcasting and listening, using Bluetooth, is a rising concern to security teams," says Mr Ebden. Google Glass is a prime example of the challenges wearables can create, as smartglasses have the ability to record sensitive company data without the need to even be on the same network.

A Symantec report found that 20 per cent of login credentials sent by wearables are not encrypted, giving cybercriminals open access to user-sensitive IDs and passwords. Unless comprehensive and dynamic BYOD policies are phased in that cover wearables, then corporate data will remain at risk.

SOLUTION AND APPLICATION AREAS

PRIMARY 4G NETWORKS
+ Hybrid WAN (MPLS + 4G)
+ Virtual private network (cable + 4G)
+ Locations without wired access (4G only)
+ Store within a store

+ Application-specific networks Day 1 internet (wired/4G)
+ Temporary locations (4G only)
+ All wireless WAN

MOBILE NETWORKS
+ Incident command centre
+ Fleet-tracking
+ Mobile healthcare

+ Public safety (police/fire/medic)
+ Public transportation (bus/taxi/retail/school bus)

cradlepoint
Enterprise cloud manager

FAILOVER/OUT-OF-BAND MANAGEMENT
+ Private network failover (add 4G to MPLS)
+ Internet failover (add 4G to cable/DSL

+ Out-of-band access (CLI to primary router)

IoT/M2M PARALLEL NETWORKS
+ Incident command centre
+ Fleet-tracking
+ Mobile healthcare

+ Public safety (police/fire/medic)
+ Public transportation (bus/taxi/retail/school bus)

5 WAYS TO UPGRADE YOUR BUSINESS INTERNET

Boost up-time, security and mobility, while revolutionising management with a 4G cloud-enabled router. Here are five proven ways to benefit

cradlepoint

01 Control via cloud management
The old-fashioned model of IT maintenance was to have staff physically attend routers to implement changes. It's preposterously laborious. The cloud model changes that. Now, engineers can control the network across a wide range of geographic locations and device types, from anywhere in the world.

Retail giant American Apparel embraced cloud management for its 260 stores. American Apparel director of store IT infrastructure Osvaldo Hurtado says: "Many of our store employees are not technically savvy. By having the tools to manage our routers through the cloud, we don't require IT staff at every store location. We can do it from headquarters."

02 Implement a failover solution
If the internet goes down, a store or business will be crippled and exposed to risks of lost revenue, productivity and customer experience issues. A failover solution provides a second connection that kicks in when needed to mitigate these risks.

Raising Cane's is a fast-growing chicken restaurant chain based in Louisiana with locations in more than 15 states in the US. It used to rely on dial-up internet as a back-up solution. Not only was this too slow, it didn't support the newest PCI (payment card industry) DSS 3.0 security standards for credit card processing.

Vince Severns, Raising Cane's vice president of information technology, implemented a Cradlepoint AER2100 dual-al-modem device for each restaurant for primary connectivity and cellular 4G LTE as a failover solution. "If our primary wired internet connection fails, then the network automatically switches over to 4G LTE back-up," says Mr Severns. "The store managers typically don't even notice that they've flipped over to 4G. In fact, in some cases the Cradlepoint connection is faster than the existing primary connection. When our auditors tested the Cradlepoint AER2100, they saw for themselves that it meets the new PCI standards."

Today a restaurant can endure a broadband failure with zero impact. As a bonus, the new router eliminated two phone lines, for dial-up and fax, reducing the break-even cost of the new hardware to less than 24 months.

03 Embrace the internet of things
This is the age of the connected device. Consumers are buying internet-connected kettles and light bulbs, and businesses are inundated with internet of things (IoT) devices – air conditioning, CCTV cameras, alarms, point-of-sale machines, vending machines, rat-traps... the list goes on.

Every device on the network is an on-ramp and subject to security risks. The problem is connecting and managing a broad array of devices, while maintaining security and control. The best way to do this is with a purpose-built 4G LTE router. Features should include remote security monitoring, geo-fencing and GPS functionality. This means if an ATM machine is moved away from its location, an alarm can be triggered. Also, IoT coupled with cloud management enables real-time analytics, and alerts for security and health of devices on the network.

> This is the age of the connected device. Consumers are buying internet-connected kettles and light bulbs, and businesses are inundated with internet of things devices

04 Go mobile
Vehicles out on the road need maximum connectivity. This includes police vehicles, food vans at music festivals, buses and pop-up shops with no time to organise a fixed-line connection. A 4G LTE router can offer super-fast connectivity, with a host of additional benefits.

Let's start with the connectivity. Vending Trucks, Inc. supplies vehicles to a range of companies with one thing in common: they demand always-on internet. No black spots. Crew need to send live Twitter feeds, run large-screen TVs on the side of trucks, stream audio, as well as access the internet in general. Vending Trucks opted for a Cradlepoint COR router. This is a fully integrated router/bridge, integrated 4G modem, a ruggedised metal housing certified for shock and vibration, external 3G/4G and wi-fi antennas.

Black spots are eliminated in two ways. First, the router can leapfrog from one mobile network to another to find the strongest signal. Second, cloud management gives the IT team the ability to find alternative connectivity. Vending Truck technology director Justin Lesbirel says: "Let's say one of our customers is in a poor wireless network coverage area, but they're next to a building that has wi-fi available. With Enterprise Cloud Manager, I can remotely sync the truck's setting to use the building's wi-fi as a LAN. Then I can take care of all their data usage and monitoring, and send them reports directly from the cloud manager."

05 Improve network security
The threat posed by hackers and malware ought to be clear. Less well understood is the role the router plays as a gatekeeper, guarding the network from intruders. It is vital that enterprises adopt router technologies that actively protect the network. These include regular updates, implemented via a cloud management system for immediate effect. The router may need to segment applications and data sets, with varying security policies.

Parallel networks or physically air-gapping networks can keep sensitive data, such as PCI or US HIPAA-subject (Health Insurance Portability and Accountability Act) applications, isolated on their own completely separate network. Without physically air-gapping the network, hackers could possibly uncover vulnerabilities in network segmentation and pivot from non-critical applications, such as the customer wi-fi, to gain sensitive information, such as credit card details.

This is the reason utilising parallel networks is a hot topic in security. Parallel networks also combat the sort of errors that hit the retailer Target in the United States. Hubert Da Costa, vice president, Europe, the Middle East and Africa, of Cradlepoint, recalls: "An air-conditioning engineer logged in to the Target network to fix a unit. The laptop had malware installed and the hacker pivoted from the HVAC system to the point-of-sale system and 15 million accounts were breached. Demand for routers and best-in-breed security applications, which would have prevented that breach, rocketed overnight."

The right router coupled with the right cloud management can bring critical advantages to all companies, from startups to global enterprises. The Cradlepoint range of primary and 4G LTE cloud-managed routers can address these and other key business issues. They all enable PCI compliance, ensuring bank and enterprise-grade security for sensitive transactions.

Cradlepoint supplies routers and cloud management software to half of Fortune 100 companies and 75 per cent of the world's top 25 retailers.

For more information please visit Cradlepoint.com

MORE THAN 15,000 CUSTOMERS
More than 15,000 enterprise, small and medium-sized business, and government customers around the world for sites, remote workforces, vehicles, assets and machines

Retail
Transportation
Financial services/insurance
Food and beverage

Public sector
Healthcare
Higher education

Bright outlook for business in the cloud...

Organisations are increasingly attracted by cloud-based services to handle all sorts of communications, including telephony, audio and video-conferencing, and e-mail, as well as data storage, network provision and security

CLOUD MIGRATION

CHARLES ARTHUR

Despite the internet, text messaging and e-mail, business still relies both on face-to-face meetings and the phone call; BT's financial results show the fixed-line telephone is not going away.

What is changing, though, is the way the phone on the desk works. These days, a phone on an office desk is increasingly likely to be internet-connected, using voice-over-internet-protocol (VoIP) systems to link via an internal exchange (PBX) to their end-point.
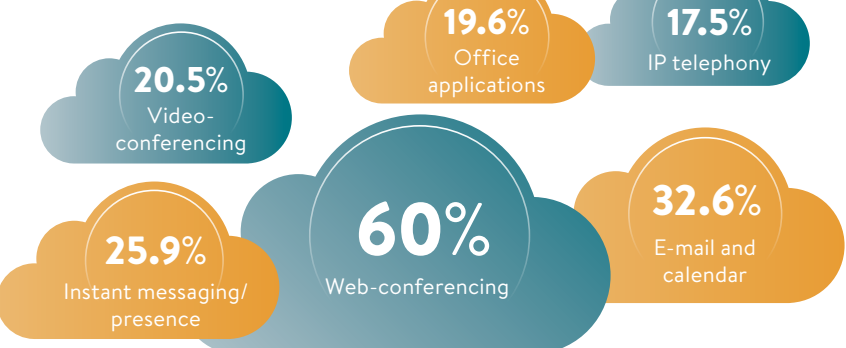
But given this, the question arises why have a physical PBX at all? Wouldn't it be easier to send the IP or internet protocol traffic directly to the phones, since they have internet addresses? This is the initial thinking behind UCaaS, unified communications as a service.

However, the concept can go much further, aiming to provide a cloud-based service to handle all sorts of communications, including telephony, audio and video-conferencing, and on-site video. Sometimes, it also includes the services that surround or complement those communications, including e-mail, data storage, and network provision and security.

The research group Gartner sees a bright and busy future for UCaaS from end-user spending of about $11.9 billion on cloud-based services in 2016, for 127 million people worldwide, it foresees a market of $20.6 billion in 2020, with 225 million users.

These extra users will have come as existing companies migrate from on-premise PBX systems, replacing the capital expenditure of the physical object with operational spending on the cloud-based service. On-premise user numbers will still outweigh UCaaS users, by 371 million to 225 million, on Gartner's calculations, but the trend is strongly away from on-premise use.

In many cases, the only brake on adoption will be due to licences on the local PBX, but the older such systems get, the less incentive there is to renew or extend the licence, opening the way for wholesale replacement or removal.

All the technological changes required for UCaaS to be possible happened some time ago, explains Bern Elliot, Gartner vice president, who studies unified communications and collaboration. First there was the capability to run VoIP effectively, which happened in about 2000. Then there was virtualisation, enabling multiple independent systems to run inside a single server, around 2006. With that, UCaaS became feasible.

> Even with the difference in operating cost, as the complexity of business grows while the need for connectivity rises, a cloud-based system becomes increasingly attractive

All that was then needed was the shift in business culture to accept the idea of using cloud services rather than on-premise ones. Once that began happening for e-mail, document storage and processing in the past couple of years, it was only a matter of time before telephony and other communications services followed.

The contest for UCaaS contracts will come from a mix of well-known mega-vendors, such as Google and Microsoft, competing against smaller, best-of-breed companies which specialise in the field, such as Avaya, RingCentral and Mitel.

Gartner reckons there will be strong adoption of cloud telephony, reaching 41 per cent of small and medium-sized businesses (SMBs) by 2020 due to budget constraints and the strain on companies' IT staffing. For large organisations, the rise will be from 3 to 11 per cent in the same period.

A key reason for this disparity is the different demands of smaller companies compared with big ones. Small businesses tend not to need video-conferencing solutions and have few locations that need to be tied together.

The low reliance on corporate video – Gartner puts the demand at around 1 per cent of SMBs even by 2020 and says only 10 per cent of mid-size businesses will ever adopt it – means the process of shifting to off-premise systems is far simpler; there are fewer systems to integrate. In many cases, staff are likely to use ad-hoc video systems, such as Apple's Facetime or Microsoft's Skype, to get the job done more simply.

This means the shift from a physical PBX to a cloud-based internet service effectively becomes one that shifts from capital to operational expenditure, and tends to be both cheaper and easier to scale.

Growing or shrinking the number of people served and the capability provided is simply a matter of adding licences on a remote server and connecting specialised phones to Ethernet jacks, rather than wiring up or removing phone lines separate from the internet connection. The handsets will typically use VPN (virtual private network) technology, which means the voice data is encrypted within the system.

There are provisos as the lower-cost nature of UCaaS can mean in turn that vendors and resellers are working on comparatively thin margins to begin with, and so ongoing licences need to be studied for built-in extra costs. Indeed, it can cost two to three times more in operating spending for a UCaaS system than the amortised capital spend for an on-premise system.

But there are savings elsewhere, including reduced maintenance contracts for the PBX and no need for internal staff looking after the telephony infrastructure. "We calculate that for an organisation of fewer than 3,000 people, cloud solutions are less expensive," says Mr Elliot at Gartner. "For those between 3,000 and 10,000 people, the economies of scale are there." He points out though that there are exceptions. A government agency, for example, will want to retain tight control of its telephony and won't trust its running to the cloud.

"The way I explain it is that if you have an IT staff of, say, 20 people then they can handle about 20 projects a year," Mr Elliot explains. "Do you really want one of those to be your phone and communications? Maybe if you're a hospital, but if you're a consultancy where most of your people aren't even in the office, why would you?"

Even with the difference in operating cost, as the complexity of business grows while the need for connectivity rises, especially for mobile users, who can be served the same function with an app, a cloud-based system becomes increasingly attractive.

But looking forward, there could be even bigger changes on the horizon. Younger workers in businesses are less and less familiar with fixed-line desk phones; they've grown up with smartphones, which can do voice calls as well as video and VoIP from multiple services. In time, UCaaS could simply be an app on a smartphone.

"We're already seeing that our mobiles can embed enterprise communications," says Mr Elliot. "The switchboard becomes an app on the mobile phone too. I've seen this done in France – the company bought mobile phones and broadband, no PSTN [public switched telephone network]. Everyone was accessible via an app on their smartphone, even the receptionist; so they could be in the café and still be routing calls as they came in."

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USAGE OF CLOUD-BASED UNIFIED COMMUNICATIONS
SURVEY OF IT LEADERS USING UNIFIED COMMUNICATIONS AS A SERVICE

- **20.5%** Video-conferencing
- **19.6%** Office applications
- **17.5%** IP telephony
- **25.9%** Instant messaging/presence
- **60%** Web-conferencing
- **32.6%** E-mail and calendar

Source: Nemertes Research 2015

CASE STUDY: OLIVER MARKETING

OLIVER is a marketing company headquartered in London, but it would be a bad thing if all its staff were in the office. Its business model is to provide marketing specialists, who go and work inside companies to create specific campaigns tailored to those clients, such as Starbucks and the Post Office.

But they remain employees of OLIVER and need to stay in touch with the central hub, ideally without racking up phone bills for their clients. After speaking to 6 Degrees, a specialist reseller for Avaya, OLIVER's IT manager Rob Smith decided to go for a UCaaS system to replace its existing PBX, which only functioned inside its headquarters.

"With our on-site system, we were pretty much restricted to communicating via e-mail with the people in the satellite agencies," Mr Smith explains. "Now, each user in the satellite agency has a desk phone which connects to the internet and has a built-in VPN [virtual private network, encrypting communications to and from the end-point] to the cloud-hosted PBX."

There's also an app for iPhones, if needed, and a "softphone" app for PCs, so there are multiple ways to use the system. And implementation was surprisingly quick. "We were able to set up the handsets before rollout for about 300 people in around a dozen locations. But then it was literally a swap from using the old system on Friday to the new one on the Monday," says Mr Smith.

Another advantage is it works out cheaper than the old physical PBX and can be scaled up around the world – the company is already looking to roll it out to its New York offices.

Staying in touch with top-quality video-calling

Businesses can unify diverse locations with upmarket video-calling, which brings management or executive teams together, seemingly in the same room

Google

> **It's perfect for anyone who wants to reinstall camaraderie within a geographically spread team**

TELEPRESENCE

CHARLES ORTON-JONES

Where are we with video-calling? It's been six years since Apple launched the iPhone 4 with its front-facing camera. At the launch event the vice president in charge of the iPhone, Greg Joswiak, needed to patiently explain that this neat little function would mean video-calling. "FaceTime is going to change the way we communicate forever," he declared. And it did.

FaceTime, together with Skype, made video-calling mainstream. The *Star Trek* vision of people chatting face to face over a video link became normal. Today girlfriends talk to boyfriends for hours this way. Families prop up an iPad during birthday celebrations so granny in New Zealand can see what's going on. But businesses?

The commercial world lags badly. The very concept of video-calling is riddled with questions. Do businesses need premium quality kit or is consumer stuff like FaceTime and Skype OK? What's the best way to use it? And is telepresence different to video-conferencing? And is it OK to do it in our pyjamas from home?

Let's start with the quality. Yes, FaceTime and Skype do the job. But few businesses will risk a multi-million-pound deal with an iffy connection. Most firms prefer to pay for a superior service. It's worth it.

Andy Lord is chief operating officer of global recruitment firm Rethink. His firm paid £80,000 for a product called Vidyo, which allows up to 5K resolution. "I still use Skype," he says. "I'm a big fan of it. However, with Vidyo it's purpose built for businesses so there's a reliable element."

Mr Lord says high-quality video-calling means you'll use it more. "Ultimately, it ensures we feel like colleagues who are sat in the same room; when you've got teams in Singapore, across the UK, Ireland and other locations it can be hard to keep the familiarity and ability to work together. It's perfect for anyone who wants to reinstall camaraderie within a geographically spread team," he says.

Now, what about the term telepresence? Is it archaic? Views differ in the industry. Steve Rafferty, UK managing director of telecoms giant Avaya, thinks telepresence is past it. He says: "Telepresence is a hugely overused term which no longer applies as it still makes video-collaboration stand out as something different; a siloed 'thing' an executive can use where there are whole rooms dedicated only to video calls and that needs to be booked days in advance."

Mr Rafferty says communication should be possible on any device. "At Avaya we no longer distinguish between technology communication tools, we simply communicate as all our technology, including

$2.63 billion

estimated size of the global telepresence market by 2022, up from $0.9 billion in 2016

Source: Marketsandmarkets 2016

video, is blended in our collaboration platform," he says.

Fierce rivals Cisco offer another perspective. They still like the term telepresence. Donald McLaughlin, director of digital collaboration at Cisco UK and Ireland, says: "Telepresence is used to differentiate from FaceTime and so on. The higher definition and quality and spatial sound means it's still relevant." And he's got a point because the top end video-conferencing equipment really is in a different league.

Cisco's flagship TelePresence 3000 suite comprises three 65-inch screens with three cameras, offering a whole room field of view. A two-row system can link 18 people. This is how FTSE 100 companies conduct international meetings. Staring into a standard webcam isn't a real alternative.

But maybe that isn't the alternative because recently we've seen an explosion in clever mid-market products. Google in particular has entered the market with a pair of products, Chromebase and Chromeboxes, which offer good quality for a modest price.

Chromebase, a device made by Acer in partnership with Google, is a 24-inch monitor with a webcam costing £675. Or, if you already have your screen, there's the Chromebox mini PC, made by a variety of brands, for around £200.

Why is Google in this market? Mark Grady, head of Google Chrome's channel division in Europe, the Middle East and Africa, says it's partly due to the company using vid-

Google Chromebase is a touch-control, all-in-one device for video-conferencing

eo-calling so extensively. "I say we are the world's largest user – 12,800 rooms have video-calling. Every Google employee uses it," says Mr Grady.

The kit is easy to use. It links in with other Google products for simple collaboration. Mr Grady sees it as part of the democratisation of technology, bringing telepresence quality equipment to the masses. "You can leave it on all day," he says. "We call it the worm hole. JustEat put it in two locations, London and Borehamwood, and it connects the two."

And what is the future of video-calling? The next leap is virtual reality or VR. Put on a headset like the Oculus Rift or HTC Vive and break through the screen. Alexandre Tomic, founder of the VR online casino SlotsMillion.com, is an entrepreneur backing the technology.

"Picture this," says Mr Tomic. "You're the boss of a company with clients and partners all over the world. What would it be like if, instead of having to rely on e-mail and Skype to communicate with them, you could simply put on a pair of virtual reality goggles and meet with them in person inside your VR business?"

His casino will host virtual poker games. "Players would be rubbing shoulders with staff, who would be able to see their playing habits and grant them bonuses accordingly. Managers will meet inside the casino for meetings. Eventually, we will be spending a large percentage of our working lives inside the VR world and thus the playground of the consumers will become the workplace of the industry," says Mr Tomic.

We are distance away from this. Dr Nicola Millard, head of customer insight and futures at BT, suggests augmented reality, in which you can see the real world plus digital overlays, is a better solution. "Augmented reality doesn't trigger the same effect on me, and offers the possibility to blend real and virtual environments for collaboration in a far more naturalistic way that doesn't cut me off from the real world or make me look quite so stupid," she says.

Microsoft's Hololens headset is rumoured to launch later this year. Put it on and virtual objects and people float around the room by magic. Who knows, it could do for augmented reality what the iPhone did for video-conferencing.

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CHALLENGES TO FUTURE INVESTMENT IN VIDEO-CONFERENCING	28% Cost/business issues	23% Lack of user demand	21% Organisational/ decision-making issues	10% Support issues	10% Impact on network	9% Complex vendor landscape

Reports of its death may yet be greatly exaggerated

E-mail may swamp workers' inboxes and become an unwieldy, time-wasting diversion, but there are alternatives which can supplement, if not entirely replace, this now traditional form of communication

DEATH OF E-MAIL
DANNY BRADBURY

E-mail is 45 years old this year and some people want it to retire early – or at least to work fewer hours.

Take France, for example. The country recently passed the *El Khomri* law, which requires companies to negotiate policies to limit the use of e-mail after hours. Germany also banned out-of-hours e-mailing in 2013.

Work e-mail has a way of intruding on your personal life. When your mobile phone beeps and you see your co-worker's name, it's hard to ignore. It's also just annoying to deal with, say many professionals who would rather use something less cumbersome.

Grouping people together to work on a particular project can be challenging. The wrong people can be included in message threads that don't concern them and important people can be left out. E-mails get buried and unread. Workers can end up with many different e-mail threads relating to the same topic and information becomes harder to retrieve.

Collaborating on files that are being passed around by e-mail is a chore and even finding the right version can be time consuming. Then, there's the spam issue.

Lizzie Penny did away with e-mail altogether. "Antiquated ways of working just don't make any sense from a personal perspective, but also from a productivity perspective," says the co-founder of the Hoxby Collective, a community of 250 freelancers around the world.

E-mail is 45 years old this year
Getty Images

E-mail was adequate for the 30 full-time staff at Ms Penny's West London marketing agency Futureproof, but after starting the Hoxby Collective, she quickly found that it couldn't cope with organising 250 loosely-coupled freelancers in 16 countries. "It doesn't work as a day-to-day platform," she says.

There are alternatives, ranging from social networking platforms such as Microsoft's Yammer to instant messaging software including Hipchat and collaboration platforms like Basecamp or Asana.

The Hoxby Collective uses a variety of tools, including Google Hangouts, an online video-conferencing tool that enables team members to talk with each other directly. The community's most-used communications tool is Slack.

Developed in Canada by Vancouver-based Stewart Butterfield, co-founder of Flickr, Slack is a web-based group communication system that enables organisations to group communications into channels. These are indexed and archived, so information is easily retrievable. Anyone in the team can be added to a channel and the service integrates with many third-party products, including Google Hangouts.

Slack was conceived because workers needed a better way to talk to each other than the digital equivalent of a formal letter, explains Slack chief technology officer Cal Henderson, who reckons four in every five emails are sent by machines.

Mail-merged blastouts and notifications from social messaging services or internal company software systems are all automatically generated. It's better to have a system

> ❝
> New collaboration tools can reduce e-mail workloads and make internal teams more productive

such as Slack consume them and make their information available in an easily digestible form rather than force people to wade through them in an e-mail inbox, he says.

Employees at UK firm Lush have slashed their e-mail volume by 70 per cent with Slack. The cosmetics retailer began using the 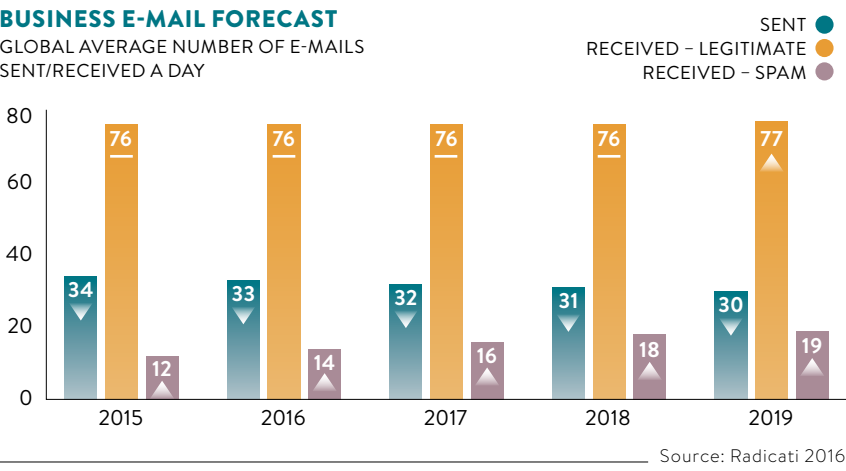system in April last year while working on its mobile app. The external software development agency wanted to use the software to make collaboration easier, says Lush's head of user experience and digital design Adam Goswell. Lush liked it enough to expand it internally and 850 of its 1,500 staff with e-mail addresses now use it.

"We were running multiple projects across multiple teams and countries. Co-ordinating those projects was becoming a nightmare," says Mr Goswell. "We ended up with lots of e-mail threads and Skype conversations. Slack seemed like a way to bring that together in one place, but it also enabled natural conversations."

New collaboration tools can reduce e-mail workloads and make internal

teams more productive, but the challenge has always been getting external people on board. Customers, suppliers and business partners typically rely heavily on e-mail. Lush will often create a dedicated Slack channel for new external business partners and some of them may already be using the service anyway, adds Mr Goswell.

Persuading companies to convert can often be a hit-and-miss affair, though. "We have failed to do that, though we have tried," admits the Hoxby Collective's Ms Penny. "Big clients in particular are loath to change their systems. I think it's a scary thing for a lot of people to do. For us it was easy, but for other people it feels like a massive leap."

Slack might not be the right mechanism to engage customers, but companies must nevertheless move beyond e-mail when talking to them, says Paul Murphy, European commercial director at OpenMarket, which sells software to help companies do it.

CASE STUDY: ATOS

If you think e-mail is still popular, ask the 20 and 30-something millennials. That's what French IT consulting giant Atos did in 2011, when it assembled a team of young talent from across the firm to explore better ways of working.

"The younger generation doesn't use e-mail in private life," says Philippe Marein, head of human resources at Atos. "They were surprised to see such an e-mail-centric firm."

This prompted the company to launch its Zero E-mail initiative, a business transformation programme designed to restructure communications. The top-down management programme shifted the firm's culture from e-mail to collaboration using tools such as blueKiwi, a social collaboration platform it bought in 2012. It recently augmented the programme with Unify, a unified communications tool that it acquired last November.

The Zero E-mail initiative involved building communities around client projects and also brought together teams of experts within Atos in a way that would have been far more difficult with e-mail, says Mr Marein. The firm now has 7,500 active blueKiwi communities and has reduced e-mails by 70 per cent since 2011.

"Our company has a lot of business units. We're present in 72 countries and have a lot of activities," he says. "The initiative is a good way to enhance identity, break down silos and ensure people work well together."

"You may already have an e-mail communications channel, but you need to think about all of those other channels on mobile," he says, suggesting a mix of voice, mobile apps and even SMS text messaging as a way to communicate with consumer customers.

That's just the problem, though; there are so many alternative communication channels to e-mail and each has its place. Firms such as Slack, along with their competitors, are private, non-standard platforms. Conversely, e-mail is both a technology standard and baked into online culture.

"If you need to get hold of anybody, you need to drop down to e-mail because it's the lowest common denominator," Slack's Mr Henderson concedes. For that reason alone, e-mail is the communications medium that will take decades to die, if it ever does. "It's the cockroach of the internet," he concludes.

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BUSINESS E-MAIL FORECAST
GLOBAL AVERAGE NUMBER OF E-MAILS SENT/RECEIVED A DAY

● SENT
● RECEIVED – LEGITIMATE
● RECEIVED – SPAM

Year	Sent	Received – Legitimate	Received – Spam
2015	34	76	12
2016	33	76	14
2017	32	76	16
2018	31	76	18
2019	30	77	19

Source: Radicati 2016

Software you may need to download... soon

Apps and other software tools can enable improved communication and collaboration within the workplace – here's a guide to ten of the best

10 TOP TOOLS
ADRIAN BRIDGWATER

01 BOX

Box has gone to great pains to position itself as more than just a simple online data storage website or service. Charismatic chief executive Aaron Levie has used his media forays to explain how Box represents a wider technology proposition as an online file-sharing and content management service. Box allows users to share, collaborate and manage information based upon projects and user privileges or by a variety of other information access policies. The software attempts to counter the problem of disaggregated file-sharing across e-mail, video, voice, social channels and so on, and bring everything into a single content system.

02 FLEEP

Fleep is a messenger service for teams and projects. It is built by members of the team behind Skype. Fleep operates an open network, so users can communicate with anyone, inside or outside the organisation, enabling so-called ultimate project communication. Fleep's teams of professionals can consist of any combination or number of Fleep users and/or e-mail address participants. The software is optimised for productivity by offering the receiver a platform that supports non-intrusive communication with no online status alerts or repeat notifications. As such, Fleep provides a platform for collaborative conversations and may reduce the "noise" associated with traditional workplace communications.

03 SKYPE FOR BUSINESS RECORDING

Teleware's Skype for Business (SfB) Recording is a cloud-based enhancement to plain Skype with a web interface for voice recording, retrieval, replay and archiving of Skype calls. The product can be integrated into a communications infrastructure with enough control to meet the governance and quality management restrictions present in most firms. Users can be added or removed when needed within what is promised to be a secure framework. There is tamper-evident call-recording for regulatory compliance plus encrypted call-recording. Both inbound and outbound calls are recorded, and files can be filtered or transcribed, and users can choose how long they are stored.

04 TIBBR

TIBCO Software's tibbr has been on the market since 2011. This workplace collaboration tool brings together people, files, data, devices and entire IT systems. The concept is all about combining structured and unstructured information sources in one place for knowledge-sharing. The software is available across desktop, web and mobile. It works on Apple iOS, Android, and the BlackBerry and Windows platforms. The tibbr software itself is deployed on-site in a firm's own IT department or can supplied as a cloud service. It connects to conferencing technologies and file-sharing services, including Box, Dropbox, Google Drive, Huddle and SharePoint.

05 JOIN.ME

The logically named Join.me by remote connectivity firm LogMeIn is an online meeting tool that requires a free download before you can use it. It provides free screen-sharing, unlimited audio and simple video-conferencing. It's different because most web-conferencing and collaboration tools have been designed to replicate formal boardroom-style meetings, but Join.me has been designed from a mobile-first, multi-device perspective. So yes, you could use it to organise a family gathering or as a party planning online video conference, without the boardroom suit look and feel. There's even a fun whiteboard for everyone to draw on, virtually of course.

06 WORKFRONT

Workfront aims to help project management by streamlining peoples' workflows. What that actually means is software automation intelligence capable of combining instant messaging, task allocation and time management. Its makers claim it will kill off excessive e-mail, redundant status meetings and disconnected software tools that can distract users' attention spans. Every aspect of a project is controllable from task delegation to tracking and reporting. Workfront's document manager and digital proofing tools integrate with other major business applications, including Box, Dropbox and Google Drive.

07 SLACK

What began as a messaging tool for video game developers has evolved into the full-service collaboration platform we now call Slack. This messaging platform for teams presents a single unified archive with a search function. The software integrates with popular services such as Twitter and Dropbox. Slack has also built an ecosystem of partners, chatbots and integrations for additional functionality. The software is popular for its ability to counter the reply-all e-mail chain scenario that most of us know all too well. Instead, it provides persistent chatrooms or channels organised by topic. Slack can be used across multiple devices and allows both one-on-one messages and group conversations to be shared in channels. Teams who use Slack claim to see an average 48.6 per cent reduction in internal e-mail.

08 JIVE

Jive from Jive Software is an enterprise collaboration platform that has enjoyed particular success in financial and healthcare verticals. Firms using Jive can give their employees a personalised home page for individuals to be able to read just the company and work-related information they need when they login to their devices. The software connects people so that user-to-user interactions can be broken down by department. Crucially, it then allows IT administrators to analyse who is engaging with whom to pinpoint where productivity is flourishing and, obviously, where it isn't. Chief executive Elisa Steele claims Jive allows firms to be "contextually aware" of their workforce.

09 SHAREPOINT

Microsoft's SharePoint is a content management system that allows users to upload and share documents, images and videos with their colleagues and collaborators. Users can aggregate and track group edits while also maintaining version control. An encrypted service, SharePoint has a number of facilities to protect the security and fidelity of uploaded files. It is a browser-based solution, so it can be accessed from any internet-enabled mobile or desktop device. SharePoint can be installed on to on-site Share-Point servers or backed up on to Microsoft's cloud to create a hybrid system. Launched back in 2001, SharePoint is part of Microsoft's Office 365 suite of productivity software.

10 CHATTER

Salesforce Chatter is essentially an enterprise-level social network for employees to connect with each other and with their customers and partners. Built with a Facebook-style interface, the software provides access to files, business processes and document collaboration functions. Users can use an @mention tag to flag posts. Salesforce designed Chatter to be used both with mobile devices and on desktops. The product comes standard with a set of Salesforce apps and integrates with most third-party software, such as SharePoint, Google Drive and Box.

THE RISE OF HUDDLE ROOMS

Well-equipped, high-tech office spaces for small group meetings are boosting business collaboration

Corporate culture has undergone drastic changes over the past decade. Not only are traditional nine-to-five workers increasingly being replaced by a more mobile and flexible workforce, but the move towards open-plan offices is gaining traction. Recent innovations in unified communications, alongside the most recent global economic downturn, helped speed up this transformation, which has led enterprises to support more manageable, multi-use open-office spaces.

Open-office floor plans may help meet the changing demands of employees, but the noise and disruption caused by these offices has brought about the need for new collaborative spaces, where staff can have impromptu meetings without being disputed. There is a growing shift in focus taking us away from the conventional large conference rooms in favour of smaller, ultra-connected "huddle rooms", which some businesses refer to as "breakout rooms" and are typically used by smaller groups of two to four people.

"We are seeing a transition to companies creating small and flexible spaces, mainly driven by the prohibitive cost of maintaining a huge IT infrastructure," says Marco Landi, Europe, Middle East and Africa (EMEA) president at Polycom, a global leader in high definition video-conferencing, voice-conferencing and telepresence. "The transformation to huddle rooms enables everyone to be able to make use of them. Now meeting organisers don't have to schedule a meeting or ask IT to help; they can just walk into the room and the meeting can start."

Although the definition of huddle rooms can be quite broad, in essence these spaces are small meeting rooms intended for informal conversations, presentations, brainstorming sessions, conferences with remote workers or any number of other collaborations. According to Wainhouse Research, there are an estimated 50 million huddle rooms globally, showing that virtually all enterprises can capitalise on the potential of these spaces.

Huddle rooms are far from a new concept, but it has only been in recent years that companies have begun to grasp the possibilities presented by these under-utilised areas. Standard large meeting spaces have often been the default setting for all types of meetings, partly due to their expensive audio visual equipment and technology, but this isn't expected to be the case for much longer.

"Over the next ten years, we will see a transformation which will be led by three key things: flexibility, ease of use and improved user experience, at a much more competitive price point. Until recently, it wasn't uncommon for an enterprise to pay tens of thousands of pounds for a full conferencing system which required days to be fully installed. Now the technology is easier to install, we are seeing more requests for fitting huddle room-style spaces with a space-efficient plug-and-play device," says Mr Landi.

Technology-obsessed millennials expect the latest and most efficient devices to be at their fingertips. According to Wainhouse Research, 55 per cent of younger workers have been pushing conferencing managers for more available video solutions in the workplace, alongside 75 per cent demanding more mobile solutions. Huddle rooms that are equipped with video-collaboration technology have the ability to connect in-office staff with mobile workers, wherever they are, through innovative devices.

"I've got two millennial kids who work anywhere they feel comfortable, from using their laptop on the sofa to outside in the garden. In fact, 90 per cent of 15 to 35 year olds say that flexible working is important for them. These changes in the working environment make huddle rooms a must," says Mr Landi.

However, it's not just millennials who are making the most of this new-found freedom. "I'm 55 and don't need a seat in my office or a desk to work. I travel every week, so I have experienced firsthand that work can be done in a lounge, airport café, train or taxi. I don't need to go to an office to meet someone anymore," he adds.

Polycom® RealPresence Centro™

Polycom® RealPresence Trio™

Marco Landi, EMEA president, Polycom

> **We are seeing a transition to companies creating small and flexible spaces, mainly driven by the prohibitive cost of maintaining a huge IT infrastructure**

Equipment that makes any space a meeting space, no matter how small, is challenging the old way of doing business. Specialist devices, such as Polycom's RealPresence Trio and RealPresence Centro, have been introduced to support this growing trend. At the most cutting edge is the Acoustic Beam technology that limits the unwelcome background noise on a conference call by utilising available microphones to pick up the speaker, and also detect and reduce extraneous noise.

Polycom has long been at the forefront of innovative video-conferencing solutions, but why does the company so strongly believe in huddle rooms? "The old way of working solely over a phone is disappearing. Collaboration in the future is going to be interaction through video, instant messaging, web-streaming and content-sharing in addition to audio, which are all tools that enable people to talk to each other better and to work in a much more open manner," says Mr Landi.
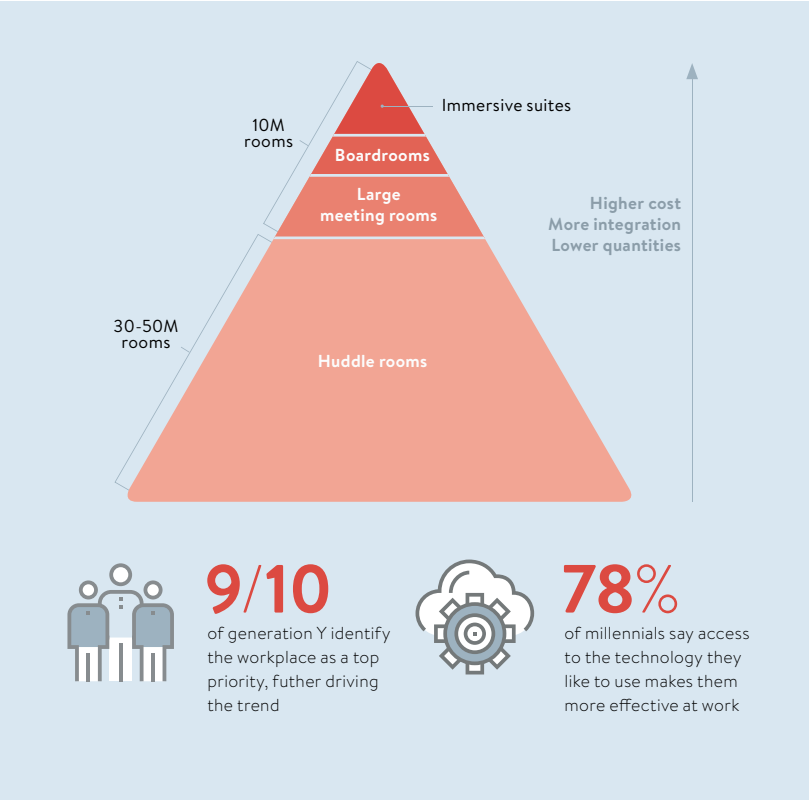
Huddle rooms can be set up easily using new collaboration devices such as the RealPresence Trio, a smart hub specifically designed for the huddle rooms that allows users to share images, videos, presentations and more content easily and in seconds.

The recent innovations in technology are driving video proliferation further by allowing smaller huddle spaces to be created even in the larger rooms or open plan offices. With four multimedia screens and a 360-degree camera in the centre, RealPresence Centro allows viewers to collaborate more naturally and literally huddle around the device, as opposed to looking at a single distant screen. RealPresence Centro helps create a huddle space versus a huddle room as it can be fitted anywhere.

The prospects of huddle rooms may be considerable, but technophobes will need to be convinced, if these spaces can be truly collaborative environments. Mr Landi agrees: "The element that always puts off people is ease of use. If users do not find these rooms or technology simple to use, they will just use an old-style meeting space. It is extremely important that this technology is really intuitive and "idiot-proof", with no training needed. The other element is the need to make this technology affordable." If it costs the same amount of money or more to fit out a huddle room than is being paid for a conference room, no one is going to do it.

Whatever the reason may be for the renewed interest in huddle rooms, private areas in open and shared offices will be at a premium, with 46 per cent of employees saying noise levels are the most distracting issue in the office, according to research by Jabra. When technology is used to increase productivity and co-operation to create a dynamic work environment, huddle rooms will reach their full potential.

"We think collaboration is going to bring everyone together and that's the way people will want to work. Once you've tried it, you will not want to go back," Mr Landi concludes.

Immersive suites
10M rooms — Boardrooms
Large meeting rooms
30-50M rooms — Huddle rooms
Higher cost / More integration / Lower quantities

9/10 of generation Y identify the workplace as a top priority, futher driving the trend

78% of millennials say access to the technology they like to use makes them more effective at work

Getting closer to customers with what they want

Closer connections with consumers, enabled by advances in technology, are driving an increased business offering and improved customer experience in diverse sectors

01
Airlines are targeting multiple touchpoints to offer more customised services

02
Lufthansa's app for the Apple Watch enables a touchpoint for customers to get up-to-date information about their flight

CUSTOMER ENGAGEMENT
CAROLINE BULLOCK

For Lufthansa to be known as a company that simply operates planes would be "the very worst-case scenario", according to the German airline's Reinhard Lanegger.

It's a revealing admission. In a similar vein to Uber's transition from taxi-hailing to a transport provider, the airline sector is having to reposition and evolve as the flight is downgraded to just one component in a far broader and integrated customer experience, fuelled by multichannel service.

According to ChannelHub, 86 per cent of buyers worldwide now use two or more channels per transaction, with the upshot being that every facet of the passenger journey is ripe for greater engagement and personalisation through added-value services.
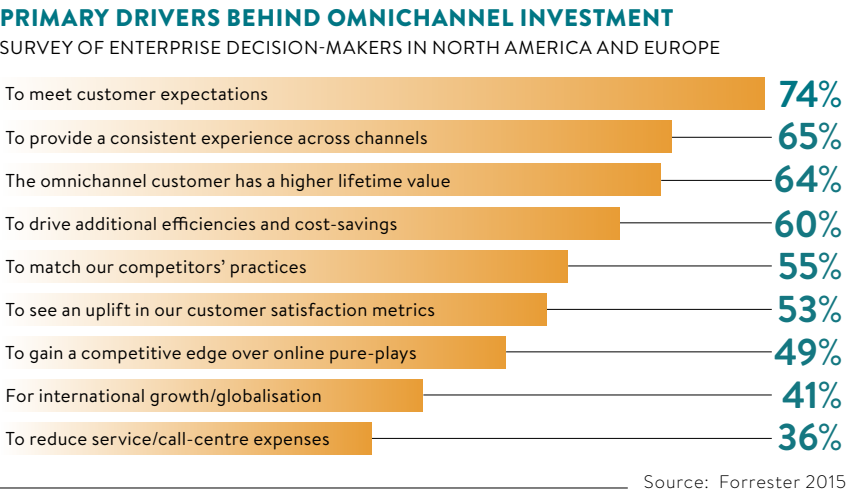
With their air mile schemes and frequent flyer programmes, airlines do have form as something of a precursor to the more customised service we now expect, but the game is changing and demanding a rethink. To engage with a younger demographic and fight for customer visibility in a market dominated by mobile applications now means competing with the wave of agile, digital travel startups that can target customer touchpoints with a faster, focused offering and shape their expectations accordingly.

From travel concierge service to the masses to "all-you-can-fly" membership clubs, these disruptors have put the focus firmly back on the customer while in the process attracting venture capitalist funding in excess of $6.6 billion last year alone.

It seems to be a case of if you can't beat them, join them for Lufthansa, having developed its own a startup culture internally in the form of a Berlin-based Innovation Hub to act as a central interface between the business and this buoyant global startup scene.

At the heart of the action is an open API (application programming interface) platform which provides secure access to central data and functionality through a dedicated portal based on TIBCO Mashery API management.

Third-party developers can access and integrate this data within their apps based on defined preferences to target a ready-made potential user base of 100 million passengers while the airline takes a step closer to the omnichannel, hyper-connected and real-time service customers now expect.

"For millennials, who live on the web or mobile devices, there is an expectation any interaction with a vendor should provide a seamless experience even if that interaction may actually involve multiple vendors," says Kevin Bohan, director of TIBCO's product marketing, integration technologies.

"APIs are the connectivity tissue that allows all these technologies to work together across business and technology boundaries to deliver data and capabilities when and where they're needed."

Indeed, by tapping into this agility and innovation the airline is discovering more immersive ways to reach and interact with customers by better responding to intent. For instance, engaging with an individual who "likes" a location on Instagram through an app that provides all the options for getting there is the kind of early intervention which can turn an idea on a wish list to a viable possibility.

And it doesn't stop with the booking. An eclectic range of third-party services from itinerary options via Yelp and Facebook recommendations, smart home apps that heat up your house based on the estimated time of arrival to the apps that know when there is insufficient time to get to the airport and send messages to your car to rebook the flight, cover all bases.

> ❝
> Every facet of the passenger journey is ripe for greater engagement and personalisation through added-value services

The common thread is automation and while Mr Lanegger, Lufthansa's account manager API and developer relations, acknowledges the possibilities are huge, he sounds a cautionary note.

"We know that artificial intelligence, if done well, is able to process more data and also make more unbiased solutions than humans, but it's critical we make sure this technology really understands and helps our customers the way that humans do," he says.

Perhaps an answer lies with the latest automated incarnations which can blur the line between the two, the increasingly humanised chatbots, which simulate online conversations to answer questions or perform tasks.

In the wake of Facebook, Microsoft and Apple staking their claim for mass-market adoption, take-up has exploded, with the latter's multi-tasking intelligent personal assistant Siri typifying the fusion of more sophisticated artificial intelligence and speech technology.

Having provided the speech recognition for Siri, speech technology specialist Nuance Communications has its own offering in the form of Nina, the nuance interactive natural assistant, and the first chatbot or virtual assistant developed for customer service which spans speech and text across telephony, the web, mobile and chat channels.

Portrayed as a perennial cheerful multi-lingual brunette on the Nuance website, she uses the company's speech recognition technologies with voice biometrics and natural language understanding to find targeted answers to user questions, while bringing contextual understanding to the interaction to perform transactions, make recommendations and up-sell services.

For Nordic-Baltic banking group Swedbank, where digital channels are expected to be the customer's primary choice of contact by 2018, she's become a central player in the self-service juggernaut by integrating online customer engagement with the company's contact centres and handling some two million of the 3.6 million annual customer interactions.

Head of channel management Martin Kedback says the convenience of a 24/7, omnichannel presence has made the technology an instant hit with customers across the spectrum with plans already afoot to expand to platforms such as iPad and mobile banking solutions aimed at its younger customers.

"Where this differs from just a standard question-and-answer function is that it starts an automated conversation with our customers, allowing us to drill down to the actual root cause of the question, making our customers stay digital or direct them to another channel if appropriate. So for example, if we pick up a sales lead and feel it would be better to connect the customer to an adviser, we could ask the virtual assistant to connect them," he says.

It's clearly an antidote to some of the more rudimentary automated replacements which once gave self-service a bad name and rebuffs the common narrative that casts automation as a threat poised to wipe out the low-skilled human roles all together.

Designed with the user in mind rather than purely cost-cutting, these technologies do appear to be delivering evidenced by the 80 per cent resolution rate to customer questions at Swedbank.

And the prediction from Gartner's research director of customer strategies and customer relationship management Brian Manusana that the ubiquity of automation will elevate employee skills in customer service bears out, with the 700 contact centre staff now focusing on added-value activities such as relationship-building conversations, more complicated questions or sales leads, knowing the bread-and-butter transactions are being addressed.

Further evidence that points to how the two will be bedfellows rather than rivals centres on training, with the consensus being that the human touch remains a vital factor in informing the bots' ongoing development, as nuance product development manager Sebastian Reeves explains.

"When we're designing these systems, we cannot predict all the conversations between customers and the company, so we collect data based on real transcripts. From these we construct a business case to solve them in an automated way by teaching the system," he says.

"There is no steady state with this technology, just constant training and updates which means learning from what real people are actually doing in the call centres keeps the proposition evolving and solving more complex customer issues."

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PRIMARY DRIVERS BEHIND OMNICHANNEL INVESTMENT
SURVEY OF ENTERPRISE DECISION-MAKERS IN NORTH AMERICA AND EUROPE

To meet customer expectations	**74%**
To provide a consistent experience across channels	**65%**
The omnichannel customer has a higher lifetime value	**64%**
To drive additional efficiencies and cost-savings	**60%**
To match our competitors' practices	**55%**
To see an uplift in our customer satisfaction metrics	**53%**
To gain a competitive edge over online pure-plays	**49%**
For international growth/globalisation	**41%**
To reduce service/call-centre expenses	**36%**

Source: Forrester 2015