RESEARCH
PAPER

Because quality matters

Delivering UC&C availability, performance and quality of service across a hybrid digital infrastructure

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Because quality matters

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Executive summary

Unified Communications and Collaboration (UC&C) solutions are becoming both ubiquitous and more complicated to manage, leading to increasing workloads for support teams tasked with delivering availability, performance and that elusive, yet all all-important, quality of service. In this research paper we look at underlying causes, such as ever-increasing mobility plus growing acceptance and use of the public cloud as part of a hybrid approach to UC&C provisioning. We also examine the pain points these and other developments can cause ill-equipped IT support teams and the best way of addressing such issues going forward.

While not ideal, businesses networks will often be "just good enough", able to cope with the demands of most applications while needing little in the way of maintenance or support. But not when it comes to Unified Communications and Collaboration (UC&C) where every nuance of every connection, from setup to tear down, will be immediately visible to users trying to make telephone calls, share information and take part in online conferences over the corporate network, across WAN links, SIP trunks and beyond. Users absolutely reliant on that network, who expect it all to "just work" are quick to complain when calls take longer to connect than expected, video starts buffering or conferencing connections are dropped.

But what exactly are the challenges facing enterprises struggling to monitor and manage, not just performance and availability, but the quality of service provided by their sprawling UC&C networks, and how are they best addressed?

Using data from an online survey of *Computing* subscribers in medium to large enterprises we seek to answer these questions by looking in detail at the support issues associated with increasingly common multi-vendor digital communication environments. We also discuss the rapidly growing use of the cloud and the implications of the adoption of this and other advances when it comes to monitoring and managing UC&C systems in enterprises across the board.
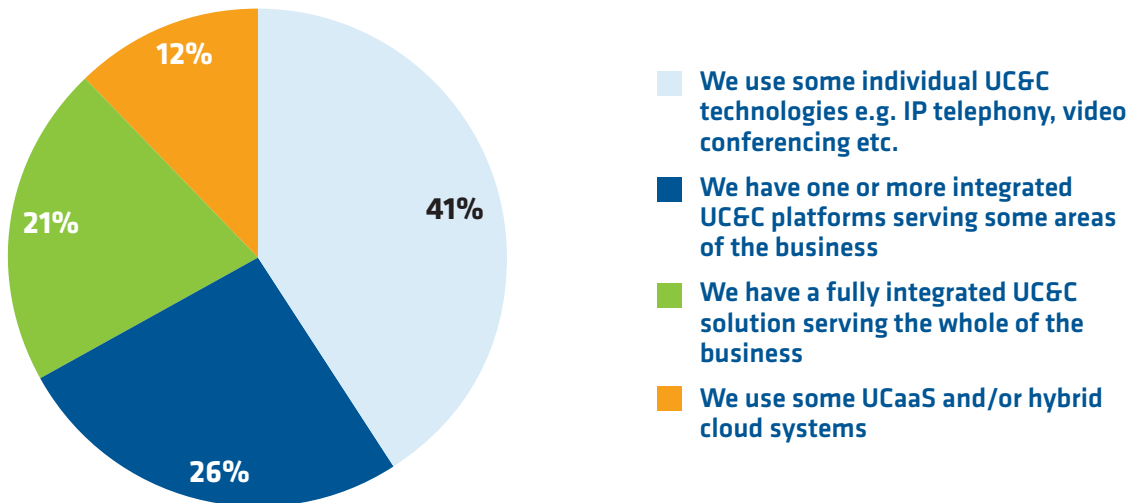
We're all unified now

One of the first items of note highlighted by the *Computing* survey is the extent to which enterprises have embraced UC&C as a key business application. The PABX and dedicated telecoms network may not be dead yet, but they are becoming an endangered species and fast, with unified communication and collaboration technologies in use, at least to some degree, in all of the companies taking part (Fig. 1, *see next page*).

For many (41%) that use was restricted to a specific technology or standalone solution limited, such as switch to IP telephony or installation of a self-contained video conferencing facility. Beyond that, however, the majority (47%) said they had deployed integrated UC&C platforms offering a much broader mix of voice, video and collaboration functionality at least somewhere within their organisations with 21 percent of those polled having a fully integrated solution serving the whole of the business.

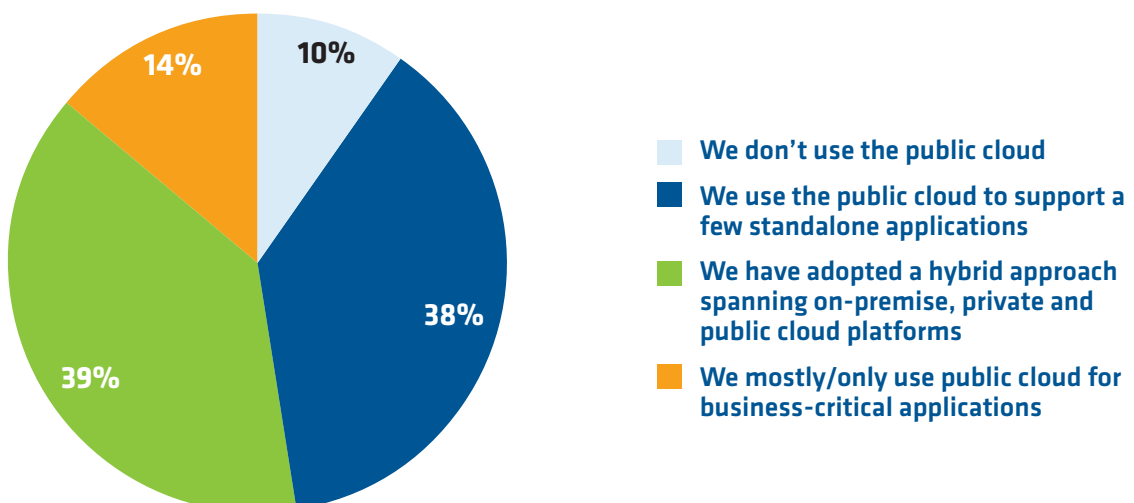## Fig. 1 : Which of the following best describes the use of Unified Communications & Collaboration (UC&C) in your organisation?

- We use some individual UC&C technologies e.g. IP telephony, video conferencing etc.
- We have one or more integrated UC&C platforms serving some areas of the business
- We have a fully integrated UC&C solution serving the whole of the business
- We use some UCaaS and/or hybrid cloud systems

Interestingly, a small but not insignificant number (12%) had also extended their communication and collaboration systems into the cloud, either through a Unified Communications as a Service (UCaaS) platform or as part of a more general hybrid cloud approach to IT. That, in turn, leads neatly to the second trend highlighted by the *Computing* survey, which is a new willingness of companies to take advantage of what the public cloud has to offer.

Once seen as major roadblocks to public cloud adoption, security and compliance issues do still remain as a perennial concern, but they no longer dominate corporate thinking in the way they once did. Indeed, most CIOs and CTOs seem now to accept them as necessary evils to public cloud adoption, as reflected in the mere 10 percent of respondents continuing to shun the public cloud as a platform for business-critical applications (Fig. 2).

Fig. 2 : Which of the following best describes the use of the public cloud to support business-critical applications in your organisation?

- We don't use the public cloud
- We use the public cloud to support a few standalone applications
- We have adopted a hybrid approach spanning on-premise, private and public cloud platforms
- We mostly/only use public cloud for business-critical applications

Of the rest there was an even split between enterprises employing the public cloud to support specific applications (38%) and those adopting a wider hybrid IT strategy with business-critical applications deployed across a mix of on-premise, private and public cloud platforms (39%). Added to which there was a frankly surprising 14 percent who said they had given up with on-premise platforms altogether in favour of using the public cloud to provide for most or all their business-critical application needs.

Complexity rising

Another trends worth noting is a move to more diverse and complex UC&C deployments in general. Now firmly established as just another part of the wider IT landscape, the days of the self-contained telecoms network are long gone with most of the companies polled employing unified solutions from multiple vendors and routinely doing so across a mix of network products, platforms and services (Fig. 3).

Fig. 3 : Which of the following best describes your UC&C deployment/s?

We have adopted a single vendor policy for UC&C and have just one integrated system	23%
We have one system made up of products from multiple vendors	12%
We have multiple single-vendor solutions	32%
We have multiple solutions each made up of products from multiple vendors	22%
We outsource our UC&C requirements	3%
We used cloud-based UC&C	8%

Whether this is always by design rather than accident is debateable with just under a third (32%) of companies polled admitting to multiple single vendor solutions possibly through acquisition/merger or lack of a coherent IT strategy. Either way there is a clear intent to avoid vendor lock-in through a mix of products with only 23 percent of companies opting for an all-encompassing single vendor policy.

On the downside, deliberately choosing multiple vendors and products will result in a more complex solution and a whole new set of integration and support issues which will need to be dealt with by hard-pressed IT teams tasked with delivering UC&C availability, performance and quality.

You say quality, we say ...

And then we have the little matter of what exactly is meant by "quality" which, when it comes to contemporary digital communications, isn't as easy to define as you might think.

This is partly due to the ubiquity of unified communications which, unlike most other business-critical applications, are used by everyone in the organisation each with their own take on what constitutes a good quality of service (QoS). For some it may be lack of failures, for others it's the ability to stay in touch no matter where they are or what device they happen to be using. Moreover, will collectively have a totally different perspective compared to IT support staff resulting in a real disconnect between the problems end users experience and the way in which support teams approach, troubleshoot and prioritise the underlying application and network causes. A disconnect further exaggerated by monitoring and troubleshooting tools barely fit for purpose as far as modern UC&C technologies are concerned.

As well as simple dropped connections, users might report muffled voice calls, an echo on the line or poor voice syncing in a video conference. IT teams, will need to address these using an understanding of possible cause plus tools designed primarily to monitor network bandwidth and latency, trace packets as they traverse the infrastructure and manage routing priorities.

The end result is support teams having to get by with tools that are simply not up to the job and a raft of pain points that can be put down directly to the need to support UC&C systems. This is clearly illustrated in Fig. 4, which shows the answers given by respondents when asked to rate common support issues around the use of unified communications technologies in their organisations.

Fig. 4 : Rate the following pain points with regards to maintaining the availability and quality of UC&C systems (1 = no problem, 5 = very problematic)

	PAIN POINT (4 OR 5 OUT OF 5)
Security concerns	47%
Lack of tools specific to UC&C quality	41%
Working with multi-vendor networks	41%
Lack of visibility into SIP trunk performance/utilisation	41%
Support for legacy systems	40%
Working with multiple service providers	39%
Explosion in remote and mobile working	38%
Support of user-owned devices	36%
Lack of investment in monitoring/management	31%
Lack of visibility into cloud services and applications	31%
Issues with WAN connectivity	30%
Compliance with statutory regulations	28%
Communications between Telecoms teams and IT	26%

As with anything to do with IT and networks, security issues naturally topped the list, rated either 4 or 5 on a 5-point pain scale by close to half (47%) of survey respondents. Following that, however, was a widespread lack of tools specific to monitoring and managing UC&C quality (41%), an issue which tied with both the need to work across multi-vendor networks and a lack of visibility into SIP trunk performance and utilisation.

Support for legacy systems was a single percentage point behind this bunch, seen as a major concern by 40 percent, and closely followed by having to work with multiple service providers (39%) and the explosion in remote and mobile working – identified as a real pain point by 38 percent of those taking part.

Lack of visibility into cloud services and applications was also an issue, albeit a little further down the list, highlighted as a pain point by 31 percent. That positioning, however can be put down to the more recent acceptance of the public cloud in relation to UC&C with every likelihood that it will rise sharply over time given the upwards trend in public cloud adoption. A trend which can only further exacerbate the lack of specialist UC&C management tools in the IT support armoury.

The scale of the problem

The good news is that UC&C systems and the "just good enough" networks on which they're hosted are generally robust enough to keep working even if it is at the expense of perceived quality. As can be seen in Fig. 5 which shows an incidence of reported performance and availability issues for now closely mirroring the frequency which might be expected for any network application.

Fig. 5 : On average, how frequently does your organisation experience a performance or availability issue with its UC&C system/s?
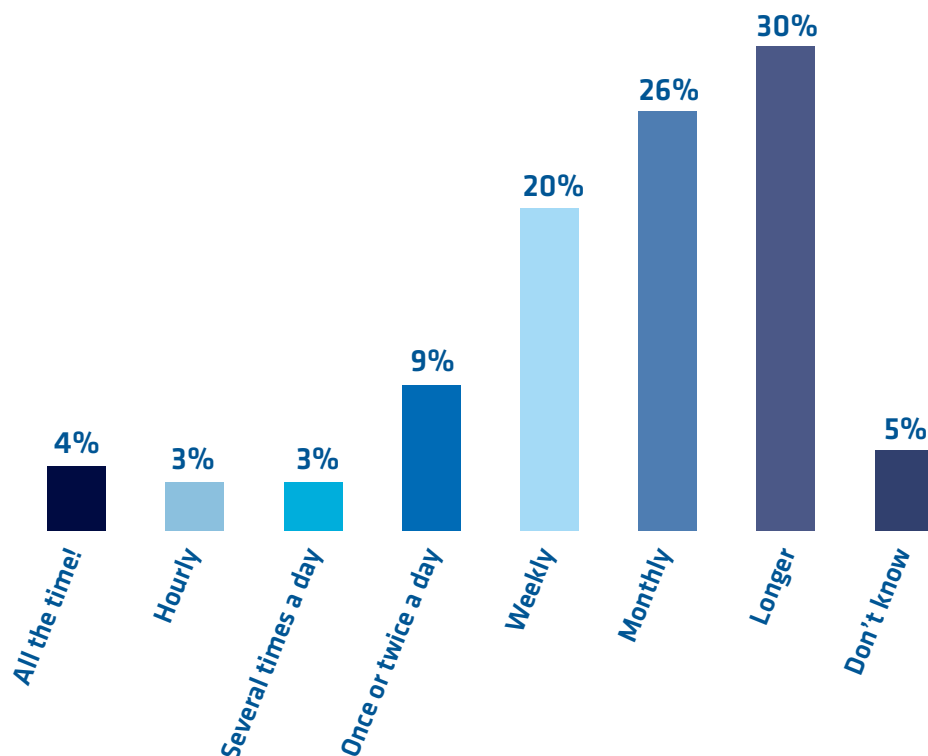
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Daily issues were reported as commonplace in 19 percent of companies, extending out to weekly events for a further 20 percent and monthly or longer for the remaining 56 percent of those able to answer (Fig. 5). This, however, will mainly be for calls logged with IT support teams with most users prepared to live with minor quality issues which might be the warning signs of deeper issues which ought really to be addressed. Sooner rather than later.

The bad news is how long it can take to fix UC&C problems with just over half the respondents (56%) estimating that, on average, it might take anywhere from a few hours to a day to satisfactorily resolve performance and availability issues (Fig. 6). Not only is that a long time for such a business-critical application but, factor in the frequency with which problems arise, backlogs and escalating support workloads become almost inevitable.

Fig. 6 : On average, how long does it take to resolve a UC&C performance or availability issue in your organisation? Not sure what this is yet …
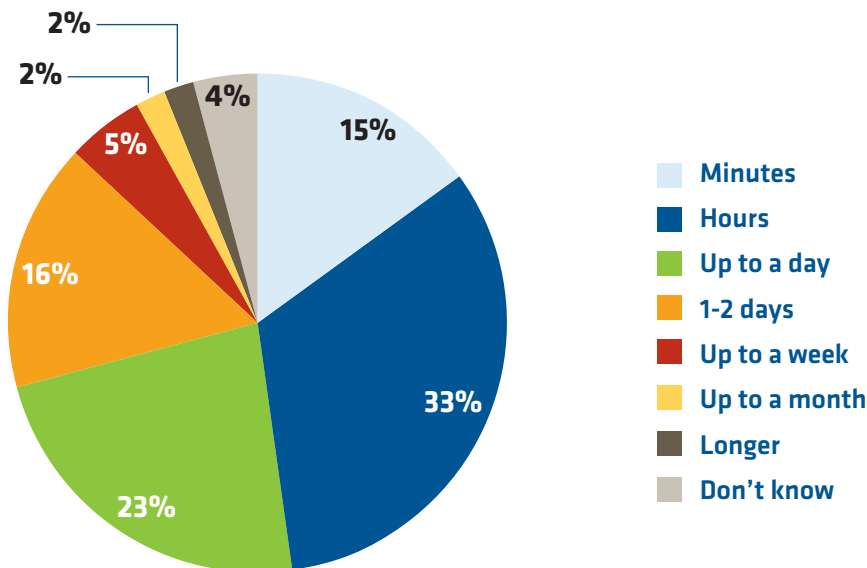
A fortunate few (15%) reckoned UC&C fixes could be found in minutes, but that's likely to be on smaller systems with limited scope and functionality. At the other end of the scale, meanwhile, a troubling 25 percent said they were faced with waiting for several days, weeks or, even, months to get problems resolved. A situation that can only get worse as the scale, reach and complexity of UC&C systems and supporting networks grows.

Going equipped

In terms of how best to address these issues the first step is to empower IT support teams with solutions expressly aimed at identifying and resolving UC&C related systems. These solutions should not just help translate subjective quality issues into probable underlying causes but also be able to analyse communication workflows and take proactive action to prevent problems arising in the first place.

Beyond that, management and support teams also need to prioritise visibility into what's happening across the whole of the IT infrastructure. Many will have no idea at all as to how WAN links and SIP trunks are performing or what happens when their communication goes into the cloud. Bottlenecks and availability problems are inevitable without this visibility and the only sure way of heading them off is to seek out services that provide both the necessary performance data and the means to take advantage of those insights to troubleshoot issues and insure UC&C availability, performance and quality from end to end.

Conclusion

An integral component of the modern digital business, Unified Communications and Collaboration solutions are becoming increasingly pervasive and more complex as enterprises across the board adopt new hybrid IT strategies and mobile working practices. This is adding to the workloads of IT support teams hampered by both a lack of tools aimed at identifying and troubleshooting UC&C issues as well as a general lack of visibility across an infrastructure now spreading beyond the corporate network to encompass encrypted WAN links, SIP trunks and growing use of the public cloud.

To address these problems a two-pronged approach is required, starting with greater investment in monitoring and management tools able to translate perceived quality issues reported by users into probable underlying causes. Tools that, ideally, can also analyse traffic patterns and take action to minimise potential future bottlenecks.

Equally companies need to prioritise visibility into business-critical applications such as UC&C. More than that, they need to deliver visibility across their entire infrastructure by seeking out services designed to provide this functionality and tools able to take full advantage of the insights to be gained. Only then will it be possible to take control of that elusive quality of service, not mention, availability and performance which IT support teams strive to deliver to demanding users expecting their communications systems to "just work" and work well no matter what.

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