

# MEETING THE NETWORK DEMANDS OF CHANGING GENERATIONS

## **BENCHMARK REPORT**

DEFINING END USERS, THEIR EXPECTATIONS  
AND HOW TO ASSURE HIGH LEVEL APPLICATION  
EXPERIENCE WITHIN CHALLENGING  
ORGANISATIONAL BUDGET CONSTRAINTS





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# MANAGEMENT SUMMARY

A KEY MEASURE OF BUSINESS SUCCESS IS CUSTOMER SATISFACTION AND CUSTOMERS ARE APPARENT IN VARIOUS GUISES. CLIENTS, CONSUMERS, SUPPLIERS, WORKFORCE ALL FORM A CLIENT BASE WHEN VIEWED FROM AN INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) PERSPECTIVE.

The ever-increasing Generation Y workforce<sup>1</sup> is turning the workplace on its head and will shape the world of work and the supportive network infrastructures for many years to come.

## EXPECTATIONS OF GENERATION Y

Their expectations of end user applications are high and they require mobility and flexibility in working locations and methods of communication. They view instant access to information and ease of collaboration as essential to the structure of their working day.

## IMPACT UPON IT INFRASTRUCTURE

The results of our extensive worldwide online survey (as defined in this report) present a comprehensive view of the increasing challenges faced by IT departments in balancing budget and cost constraints with the ever increasing expectations of a new generation of workforce and clients. Supplemented by open questions that evoke thoughtful responses, this report evidences the growing user demand for network hungry business applications and the resulting need for high-level application and network performance. We provide an insight into how organisations recognise these challenges, highlight recognised solutions and we examine the key benefits in doing so.

## ARE COMPANIES RECOGNISING GENERATION Y TRENDS?

Yes, the top three major ICT trends recognised as playing an important role in the business agenda of organisations are:-



- **Cloud computing** (driven not only by the speed of adoption, but also by the ease of use associated with cloud applications).



- **Information security** as the pervasive use of cloud applications and mobile devices (both business provided and personal) adds pressure to the security infrastructure.



- **Multi device and mobility** – as the increasingly mobile workforce replicates the consumer experience in the business world.

<sup>1</sup> Generation Y are the demographic cohort following Generation X ranging in birth years from circa 1980 to 2000.

## IN ADDITION:-

- **Performance:** 67% of respondents state that end users are demanding enhanced application performance and 63% expect better availability of applications.
- **Productivity:** Applications implemented in the last two years and planned for roll out in the next two years focus on productivity, i.e. unified communications, collaboration and cloud based productivity.
- **A further challenge** is the reduction in IT budgets. In the current challenging business environment for organisations across both private and public sectors, 54% of respondents are asked to deliver more with the same or lower budget.

## NETWORK IS MISSION CRITICAL



It is unsurprising, that **94%** of organisations agree that the network is mission critical. To meet both business demands and the expectations of the evolving workforce it is essential that the network remains fit for purpose at all times.

However, the survey highlights that the increased volume of network traffic is NOT without problems with **in excess of 90%** of respondents having received complaints relating to application performance.



## ALIGNING THE NETWORK WITH GENERATION Y'S NEEDS

It is recognised that the need to enhance each organisation's networks cannot simply be solved by continual capacity upgrades (a costly and short term solution).

64% of respondents advised that their preferred option of improving the network is to *implement increased network governance and tools to measure and predict performance*

## WHAT DOES THIS BETTER APPROACH LOOK LIKE?

### GOVERNANCE APPROACH TO MANAGE USER EXPERIENCE

By implementing the following monitoring and management solutions, network governance is improved:-

- (a) Visibility of performance of individual applications over the network
- (b) Prioritise applications according to business criticality
- (c) Ability to adjust user's flow in real time to guarantee user experience.

### PRO-ACTIVE NOT REACTIVE

A pro-active approach to governance of the network with tools to provide the following:-

- (a) Business critical applications are prioritised over social and personal application
- (b) Accurate and reliable predictions of the impact of end user applications on the network

### THE HYBRID WIDE AREA NETWORK (WAN)

Introduction of the hybrid WAN combining the enterprise WAN with the internet and enabling non critical traffic to be routed via the internet or, in some situations, for the internet to be the primary connection. This allows organisations to deploy services with different SLAs dependent upon the use and location of the application.

# INTRODUCTION

THIS BENCHMARK REPORT IS THE RESULT OF AN EXTENSIVE WORLDWIDE SURVEY OF ALMOST 300 SENIOR ICT MANAGERS AND DECISION MAKERS ACROSS BOTH PUBLIC AND PRIVATE ENTERPRISES.

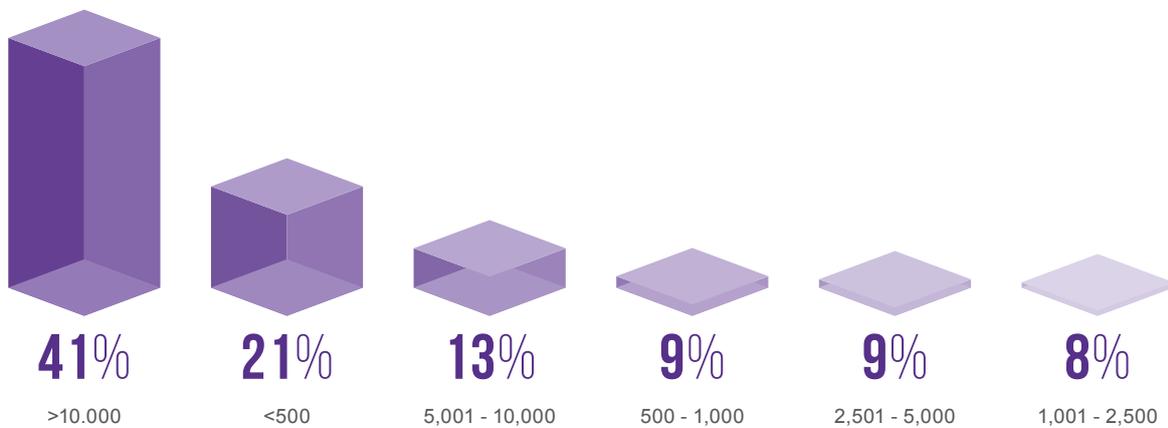
Its objective was to assess the impact of the Generation Y workforce on the applications being deployed in worldwide enterprises and how their changing work habits and

expectations are driving the business and technology agenda. As a result, it presents a comprehensive view of the challenges faced by ICT departments in balancing budget and cost constraints with ever increasing user expectations and the growing demand for network hungry business applications.

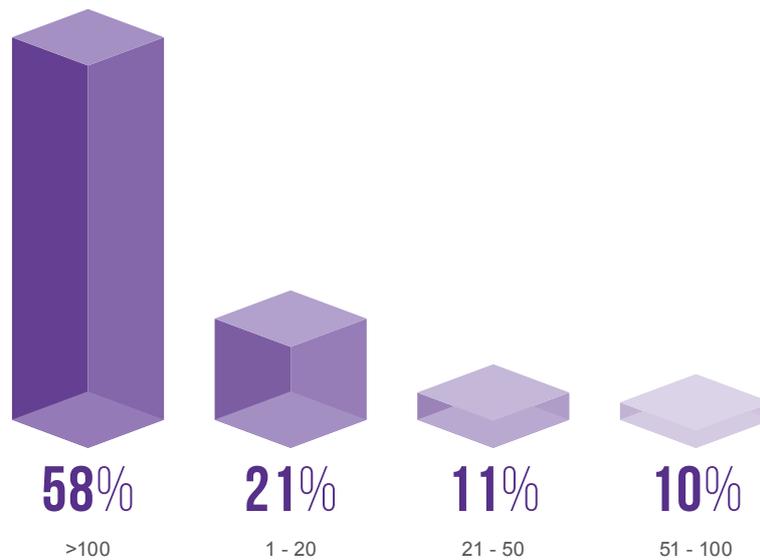
The study was undertaken as an online survey with a number of detailed specific questions, as well as open-ended questions that elicited the opinions of the respondents.

The focus was on organisations with large numbers of workplaces across multiple locations with the majority having over 10,000 workplaces and 100 or more locations.

## Q HOW MANY INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) WORKPLACES DOES YOUR ORGANISATION MANAGE IN THE CORPORATE NETWORK?



## Q HOW MANY LOCATIONS DOES YOUR CORPORATE NETWORK COVER?



Representative job titles of respondents include Head of Service Management, Head of Cloud Services, Head of IT, Programme Director, Assistant Director of IT, Head of End User Computing and Senior Service Delivery Manager.

### THE ANALYSIS OF THE FINDINGS AND CONCLUSIONS ARE SPLIT INTO 4 CHAPTERS:

- Chapter 3 defines the Generation Y workforce and how their expectations differ from those of the Generation X workforce.
- Chapter 4 considers how these differing expectations of the Generation Y are driving the business and IT agenda of public and private sector enterprises and how they are influencing the business applications being implemented.
- Chapter 5 looks at the business and IT impact of the applications being demanded by Generation Y.
- Chapter 6 considers whether corporate networks are ready for these changes and how the IT organisation is responding to them.
- Chapter 7 concludes that guaranteed application performance is an unavoidable requirement for organisations responding to the trends identified in the survey.



# THE INCREASING GENERATION Y WORKFORCE

## WHO ARE “GENERATION Y”?

Generation Y (also known as millennials and comprising the generation born between 1980 and 2000) are entering employment in vast numbers. According to the new Pew Research Center analysis of US Census Bureau data<sup>2</sup> the year 2015 saw an increase in Generation Y workers in the USA to one in three. Surpassing Generation X (the previous generation) to become the largest share of the American workforce.

## DIFFERENCES IN WORKING PRACTICES

A fundamental defining characteristic of the Generation Y generation is their affinity with the digital world and they enter the workplace with a keen understanding of technology based business tools.

Working in a more collaborative and communicative style, Generation Y prefer video conferencing to face-to-face meetings and telephone. A survey by Wainhouse Research reveals that **55%** of conferencing managers are seeing an increased demand for video deployments from younger employees. The majority relies heavily on personal devices and is seamlessly in touch with colleagues, clients and friends utilising a plethora of collaboration technologies such as video chats, instant messages and text.



<sup>2</sup> <http://www.pewresearch.org/fact-tank/2015/05/11/millennials-surpass-gen-xers-as-the-largest-generation-in-u-s-labor-force/>

# EXPECTATIONS AND DEMANDS OF GENERATION Y END USERS

GENERATION Y EXPECT A TECHNOLOGY EXPERIENCE AT WORK THAT REFLECTS THEIR EXPERIENCE AS A CONSUMER AND ALSO EXPECT TO GET THE SAME EXPERIENCE WHICHEVER DEVICE THEY ARE USING. ACCORDING TO RESEARCH FROM OFCOM (THE UK'S INDEPENDENT COMMUNICATIONS INDUSTRY REGULATOR) IN 2015, 33% OF INTERNET USERS NOW SEE THE SMARTPHONE AS THE MOST IMPORTANT DEVICE WHEN GOING ON-LINE. FOR THESE USERS, THE SMARTPHONE IS THEIR DEFAULT GATEWAY TO ON-LINE BROWSING, CLOUD BASED APPLICATIONS AND DEVICE SPECIFIC APPS.

How is all this impacting the organisations surveyed for this benchmark report?

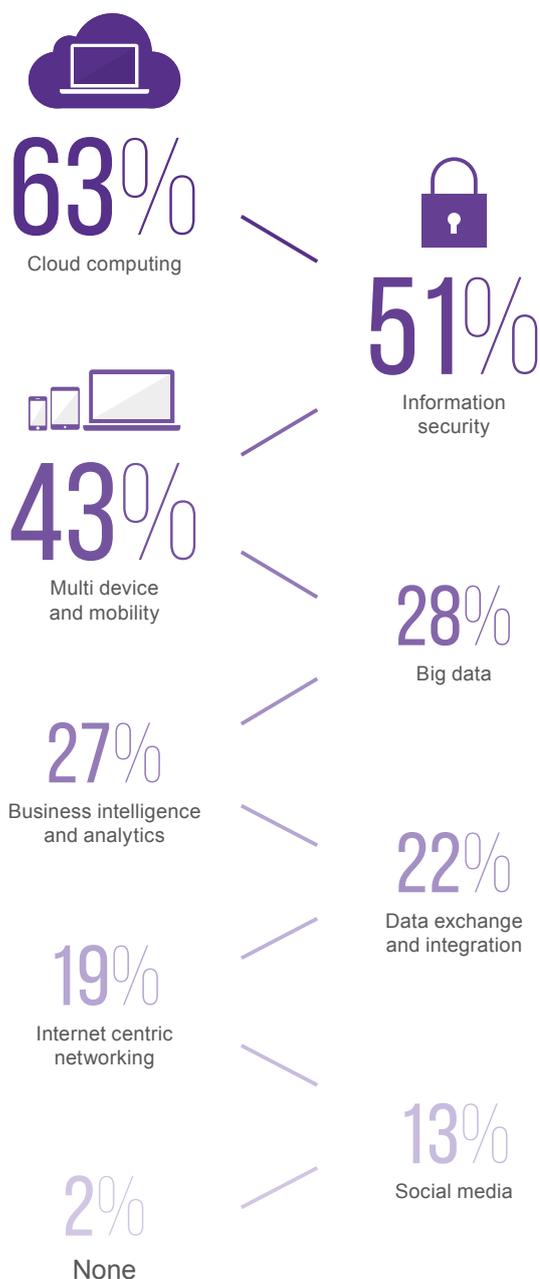
## MAJOR ICT TRENDS

Cloud computing tops the list of ICT trends impacting the business agenda (**63%**), driven by the speed of adoption and ease of use associated with cloud applications.

Multi device and mobility sit in third place (**43%**) reflecting the increasingly mobile Generation Y workforce.

The nature of these end user driven trends leads IT respondents to highlight information security as their second most influential ICT trend. More than half of the respondents highlighted this. The pervasive use of cloud applications and mobile devices is putting added pressure on the security infrastructure and the frequency of external hacking and denial of service (DoS) attacks is increasing.<sup>3</sup> Recent high profile hacking of major corporates, e.g. TalkTalk,<sup>4</sup> has demonstrated the direct impact this can have on stock price and customer satisfaction and retention.

**Q** WHAT MAJOR ICT TRENDS PLAY AN IMPORTANT ROLE ON YOUR ORGANISATION'S BUSINESS AGENDA? (MAXIMUM OF 3 CHOICES)



<sup>3</sup> <http://www.forbes.com/sites/davelewis/2015/01/29/ddos-attacks-continue-to-rise/#2715e4857a0b1c14bf94b7fa>

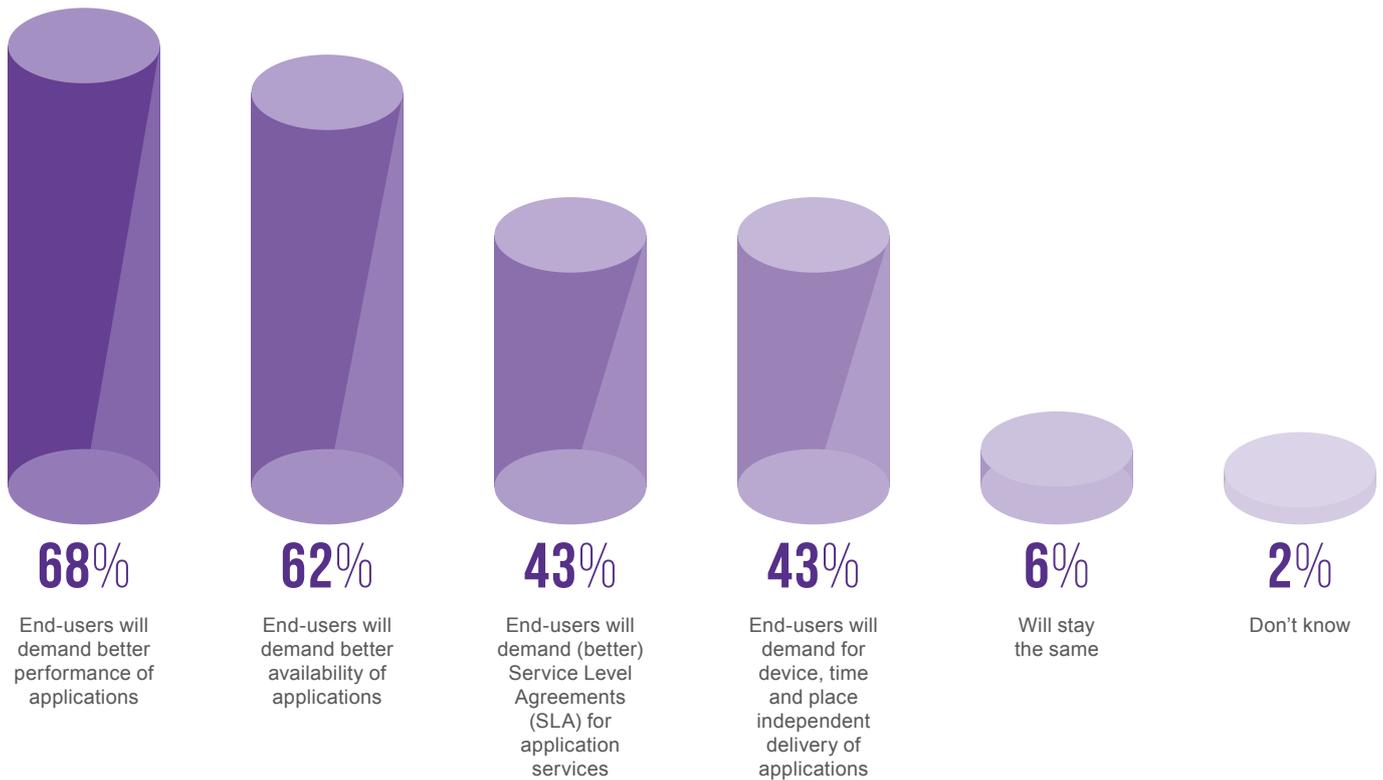
<sup>4</sup> <http://www.thisismoney.co.uk/money/news/article-3286040/TalkTalk-says-want-terminate-contract-early-considered-case-case-basis-a.html>

## END USER EXPECTATIONS

When asked how these trends will affect end-user's expectations of application performance, the top two responses at **68%** and **62%** reflected a lack of compromise on behalf of end users; they want better performance and they want better availability. Also significant was an

expectation that applications would be available on demand, at any time, on any device. If all that does not present a big enough challenge for IT delivery services, then end-users also want to hold them more accountable through better Service Level Agreements (SLAs).

### Q HOW, IN YOUR OPINION, WILL THIS AFFECT FUTURE EXPECTATIONS ON APPLICATION PERFORMANCE FROM END-USERS? (MORE THAN ONE ANSWER POSSIBLE)



Consistent with this emphasis on user experience, **97%** of respondent's agreed that end-user experience is critical to the successful adoption of a new application. Gone are the days of imposing large, complex, slow and difficult to use applications on end-users. The expectation now is that business applications will be as quick to deploy and easy to use as the apps on a smartphone.

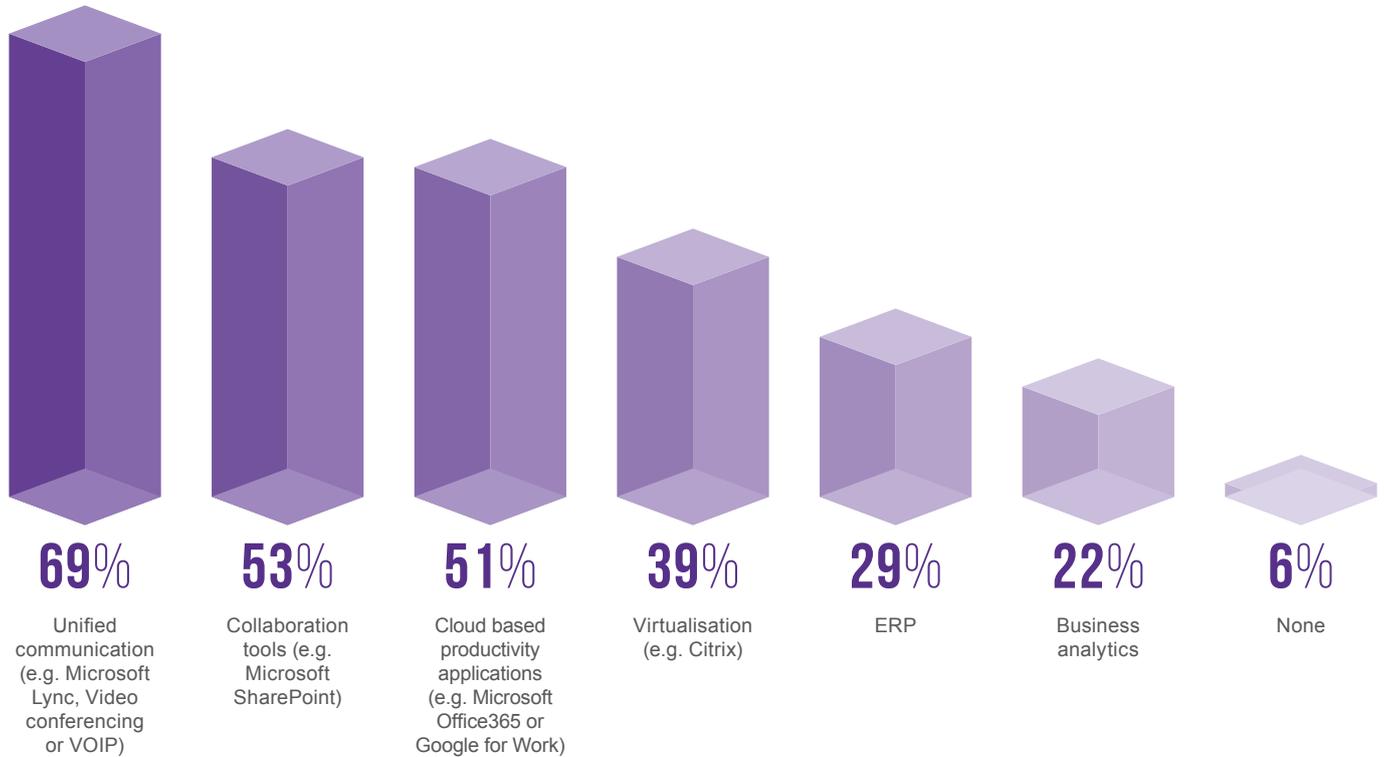
## WHAT APPLICATIONS ARE ORGANISATIONS IMPLEMENTING TO SUPPORT THE GENERATION Y'S WORK STYLE?

A more collaborative approach to working is becoming the norm. With informal and ad-hoc meetings replacing formal face to face meetings, and an increasing trend of mobile and teleworking. All these are strongly reflected in the applications that organisation have implemented in the last two years, and expect to continue to prioritise in the next two years.

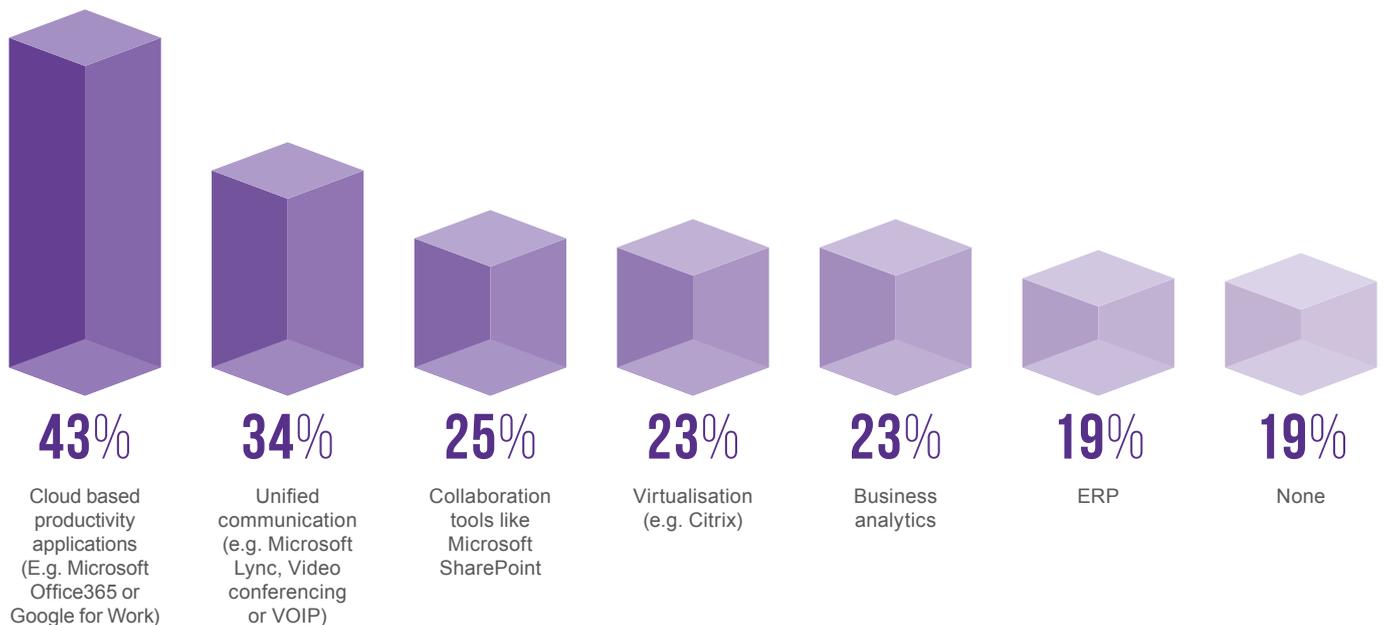
Unified communications and video conferencing, such as Skype for Business, top the list with **69%** of organisations having implemented the technology in the last 2 years. The next most prevalent were collaboration tools (**53%**) such as Microsoft Office365 and Google for Work, with cloud base productivity tools in third place at **51%**.

ALL THREE OF THE TOP CATEGORIES HAVE SIGNIFICANT RAMIFICATIONS FOR NETWORK CAPACITY AND TYPICALLY HAVE HIGH END USER RESPONSE EXPECTATIONS.

**Q** WHAT TYPE OF NEW APPLICATIONS HAS YOUR ORGANISATION IMPLEMENTED DURING THE LAST TWO YEARS? (MORE THAN ONE ANSWER POSSIBLE)



**Q** WHAT TYPE OF NEW APPLICATIONS IS YOUR ORGANISATION PLANNING TO IMPLEMENT IN THE COMING TWO YEARS? (MORE THAN ONE ANSWER POSSIBLE)



# RESULTING BUSINESS AND IT CHALLENGES

WITH THE GAME CHANGING EXPECTATIONS OF GENERATION Y AS DESCRIBED IN THE PREVIOUS CHAPTER, AND THEIR MORE COLLABORATIVE APPROACH TO WORKING, WHAT BUSINESS AND IT CHALLENGES HAVE BEEN IDENTIFIED BY THE SURVEY PARTICIPANTS?

## THE NETWORK HAS BECOME MORE CRITICAL

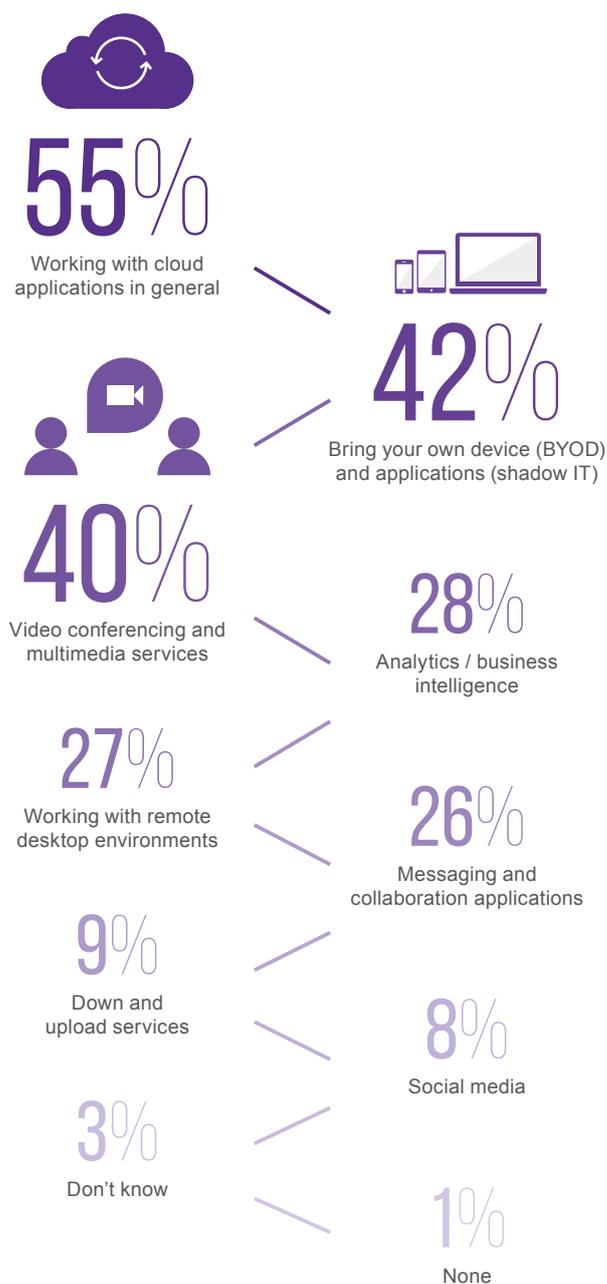
The vast majority of respondents (94%) agreed that due to market developments and innovations, the corporate network becomes more critical for organisations.

The reason for this becomes clear when participants were asked which business or end user initiatives were their greatest challenge with regard to applications performance. The top three answers all reflected the user trends and expectations discussed earlier; working with cloud applications (55%), bring you own devices (BYOD) and shadow IT (42%), and video conferencing (40%).

Video conferencing and multimedia services epitomize the type of applications that can offer major boosts to end user productivity and reflect a more collaborative work style. But the more effective they are, the more they are used and the more strain they put on the network. For most line of business applications, a response time of a few seconds may not be desirable but is usually acceptable. In a video or audio conference, **this makes the facility unusable and will immediately result in discontented users.**

The use of personal devices and shadow IT services such as DropBox, Skype, and Google, for example, by end users can have unexpected and invisible impacts. Having critical business applications slow down because someone is downloading a video to watch on their commute home must be avoided.

**Q** WHICH BUSINESS OR END-USER INITIATIVES ARE YOUR GREATEST CHALLENGES WITH REGARD TO APPLICATION PERFORMANCE? (MAXIMUM OF 3 CHOICES)



## HIGH LEVELS OF DISSATISFACTION WITH APPLICATION PERFORMANCE

With the challenges of keeping up with Generation Y end user expectations and the increasing load on the network from the explosion in Cloud and other network intensive applications, only 2 of the individuals said that they never get complaints from end-users about performance. Of the 90% who admitted to having complaints from users, 32% said they got them regularly, 27% at peak times, and 30% when specific applications were being used. This suggests that **end users are finding that application performance is not fit for business purpose on a regular basis with specific applications, and consistently at peak periods.**

### Q DOES YOUR ICT ORGANISATION GET COMPLAINTS FROM END-USERS ABOUT THE PERFORMANCE OF APPLICATIONS?



33%

Yes, regularly



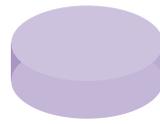
30%

Incidentally, when specific applications are being used



27%

Yes, but only on certain peak moments



8%

Don't know



2%

No, never



# ARE CORPORATE NETWORKS EQUIPPED FOR THESE CHALLENGES?

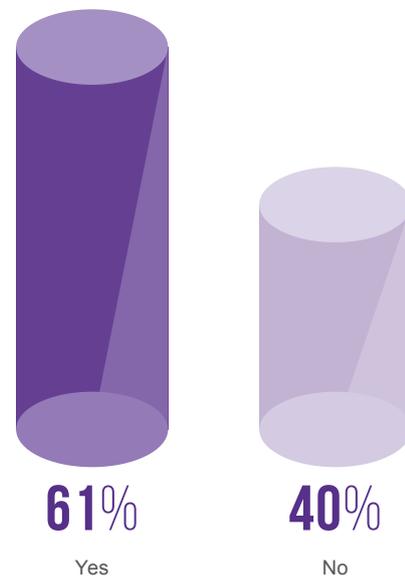
A NUMBER OF CLEAR TRENDS HAVE EMERGED IN END-USER EXPECTATIONS, WORK STYLES AND THE BUSINESS APPLICATIONS THAT GENERATION Y USERS ARE DEMANDING. HOW IS THE IT ORGANISATION RESPONDING AND HOW READY IS THE CORPORATE NETWORK FOR THE INCREASED PRESSURES THAT THESE INITIATIVES BRING WITH THEM?

## MEASURING SATISFACTION

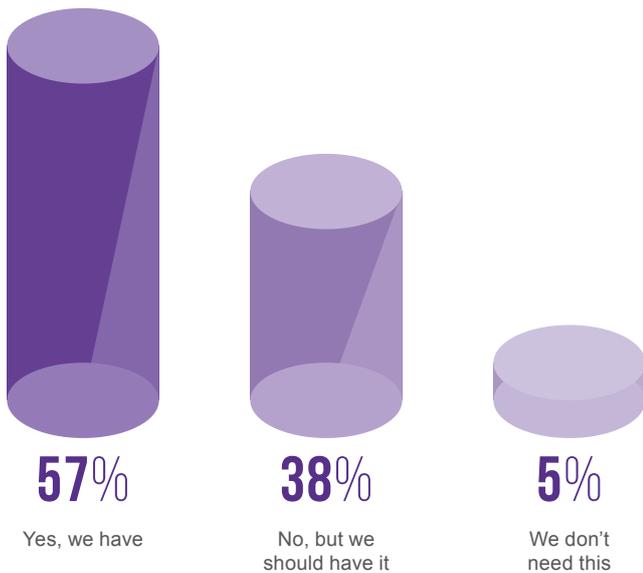
Interestingly, more organisations *measure end user satisfaction of performance (61%)* than have IT governance in place for application performance (57%) Which raises the question: *what SLAs the user experience is being measured against and who determines what an acceptable level of performance is?*

A high proportion of organisations have no IT governance or measurement for application performance suggesting that many are struggling to get their heads around some of the challenges highlighted earlier in this report and simply do not know what to measure, or how to measure it. *It is very likely that the question of measuring application performance does not move up the priority list for IT.*

**Q** DOES YOUR ORGANISATION MEASURE END-USER SATISFACTION OF APPLICATION PERFORMANCE?



**Q DOES YOUR ORGANISATION HAVE IT GOVERNANCE IN PLACE FOR END-USER APPLICATION PERFORMANCE?**



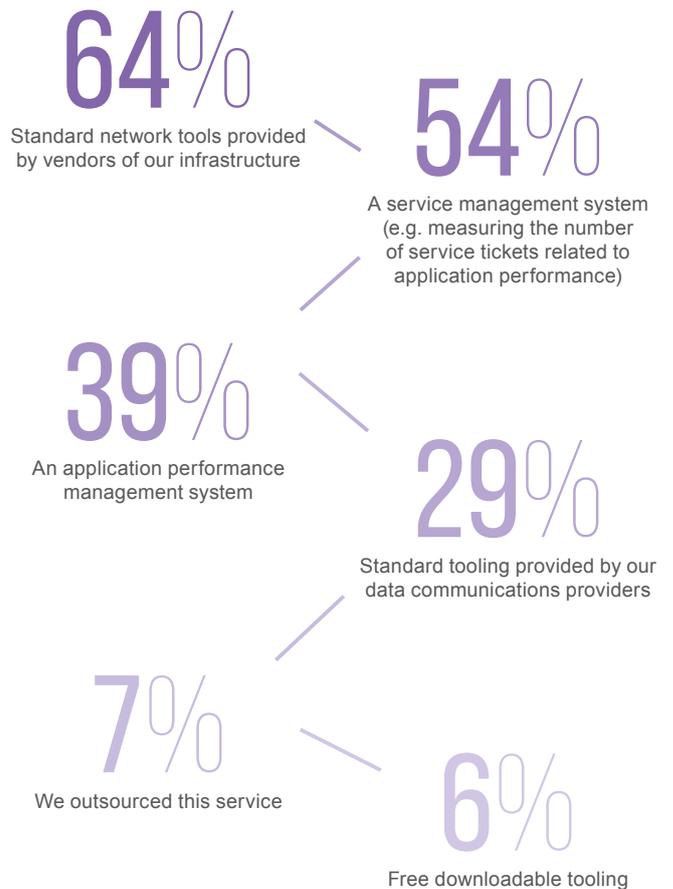
**HOW TO MEASURE THE IMPACT**

When it comes to the question of the tools being used to deliver application performance, a rather fragmented picture emerged. The most popular choice is standard network tools from the vendors providing the infrastructure (64%). But more detailed analysis indicated that many organisations are using a combination of tools. This suggests that *no single tool is providing them with a complete and holistic view of performance and end user experience.*

The drawback with standard tools from infrastructure vendors is that they usually only provide details of network utilization and how busy it is. They do not show the detail of what applications could be causing any congestion and *do not enable an organisation to measure the quality of experience for users.* They cannot highlight, for example, when bandwidth is being hijacked by a user who has returned from vacation and is uploading hundreds of pictures from their iPhone to Dropbox.

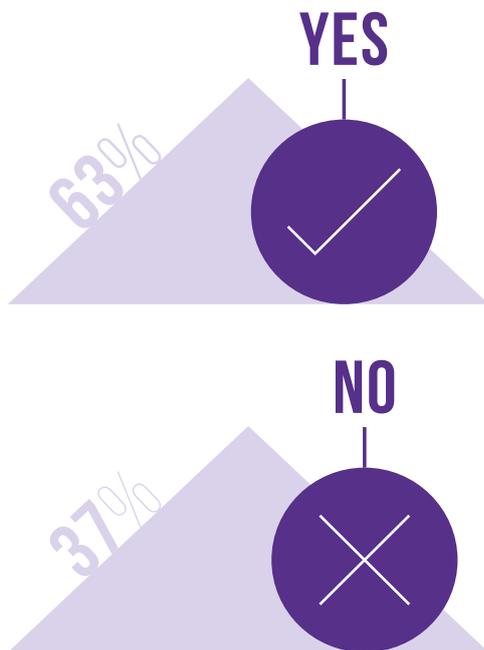
The second most popular choice is service management systems and measuring the number of tickets relating to application performance. This is a reactive approach that waits for someone to complain in order to find that there is a problem. *Individual users, and the business as a whole, today undoubtedly expect a more proactive and planned approach.*

**Q WHAT TOOLS HAVE YOU IMPLEMENTED TO DELIVER APPLICATION PERFORMANCE AND MEASURE END-USER EXPERIENCE? (MORE THAN ONE ANSWER POSSIBLE)**

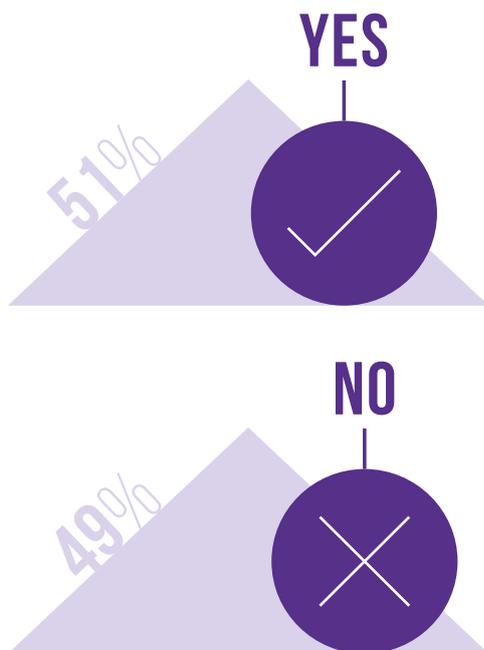


The impact of this measurement challenge becomes apparent when almost 40% of respondents indicated that they do not have insight or visibility on the applications that are carried on the corporate network. It is not a surprise therefore that half of them do not know which applications could have a negative impact on the performance of the network. This suggests that IT does not have control over the way the network is being used, the shadow IT problem, and is not able to predict or manage performance. In effect they are *flying blind while trying to meet the exacting performance and availability standards demanded by their customers.*

**Q DO YOU HAVE INSIGHT OR VISIBILITY ON THE APPLICATIONS THAT ARE CARRIED ON YOUR CORPORATE NETWORK?**



**Q DO YOU HAVE INSIGHT INTO WHICH APPLICATIONS (COULD) HAVE A NEGATIVE IMPACT ON THE PERFORMANCE OF YOUR CORPORATE NETWORK?**



Despite this, **74%** of organisations are prioritising applications on the network according to their level of business criticality. At first, this seems consistent with the results of the previous two questions on visibility of applications on the network. However, a more detailed analysis shows that only **36%** are able to tell which applications could be impacting performance and are also prioritising according to business criticality. *This implies a level of educated guesswork on the part of the remainder.*

**HOW TO PREDICT THE IMPACT**

It is clear that the majority of organisations expect to continue the rollout of end-user applications that have implications for the network. The challenge is how to predict and manage this impact?

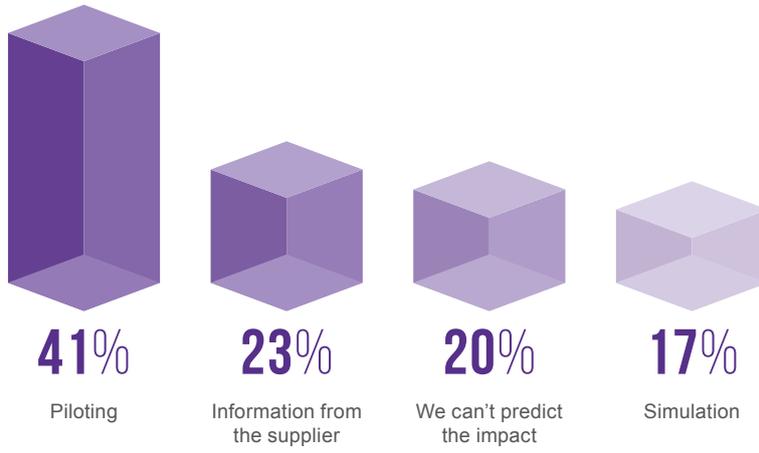
When asked how they predict the impact of new applications on the performance of the corporate network, the results were not very encouraging. Most organisations rely on piloting (**41%**). While that is probably the most reliable way of determining how specific applications will work in the real world, it can be time consuming and expensive. Furthermore, once end-users have been exposed to an application, it is very difficult to take it away again. It may already be too late by the time the need for an expensive network upgrade has been identified.

The second most popular approach (**23%**) is relying on information from the *application vendor*. The danger here is that the *vendor* can only look at the problem from the perspective of its own application, not the bigger picture of the end-to-end delivery. There may be a big difference between the minimum level of bandwidth stated for a service and what the user may consider to be fit for purpose.

One survey respondent commented that they were implementing Google Apps but had no information on the expected network impact. As a result they could only do limited simulations, pre-emptively do some upgrades, then monitor the network to try to detect any unexpected usage patterns. Another respondent commented that they do not always trust the information they receive from suppliers and rely more on simulation and piloting.

*20% of respondents took a more pessimistic view that they were unable to predict the outcome at all.*

**Q** HOW DO YOU PREDICT THE IMPACT OF NEW APPLICATIONS ON THE PERFORMANCE OF THE CORPORATE NETWORK?



# GUARANTEEING APPLICATION PERFORMANCE

THE DEFINITIVE CONCLUSION FROM THE EARLIER ANALYSIS IS THAT THE NETWORK IS BECOMING MORE CRITICAL, END-USERS EXPECTATIONS ARE INCREASING THE LOAD ON THE NETWORK, AND IT NEEDS BETTER WAYS TO PREDICT AND MANAGE THAT IMPACT. SO WHAT IS THE ANSWER?

When asked what the best options were for getting the best out of the network, a majority of the participants (64%) confirmed the need to implement better network governance and tools to measure and predict performance. *The status quo clearly cannot be maintained and a better approach is needed.*

**Q** TO GET THE MOST OUT OF THE CORPORATE NETWORK, WHAT ARE THE BEST OPTIONS? (MAXIMUM OF 3 CHOICES)



64%

Implement better network governance and tools to measure and predict performance



47%

Deploy hybrid WAN / hybrid networking



45%

Move more applications to the cloud and outsource the SLA

37%

Centralise / virtualise resources

29%

Rationalise application

19%

Add more network capacity

9%

Status quo. We will manage with the current infrastructure and capacity

3%

Don't know

## WHAT DOES THIS BETTER APPROACH LOOK LIKE?

### ▶ GOVERNANCE APPROACH TO MANAGE USER EXPERIENCE

There is a clear need for a governance approach that focuses on end user experience rather than network utilisation. It needs the tools to provide visibility of the performance of individual applications over the network, prioritise applications according to their business criticality, and the ability to adjust each user's flow in real-time to guarantee user experience.

*Traditional SLAs have focused on network performance rather than the application experience. But users rely on applications to run the business and therefore application based SLAs are needed. Optimising the network based purely on improvements in speed may assist in application performance, but it is the business driven application level SLAs that will determine the user experience and fit for business purpose.*

### ▶ PRO-ACTIVE NOT REACTIVE

A number of difficulties were highlighted in assessing and predicting the impact of the rollout of new business applications, particularly Cloud based, mobile and collaborative. These challenges are compounded by the increasing shadow IT and BYOD trends that can introduce a hidden load to the network. Business critical applications need to be prioritised over social and personal use and tools are needed that provide accurate and reliable predictions of the impact of end-user applications on the network rather than driving while looking in the rear view mirror.

### ▶ THE HYBRID WIDE AREA NETWORK (WAN)

The WAN that forms the basis of most organisation's network infrastructure has seen little change in recent years. But it is not suited to the Generation Y driven application trends highlighted in this report. It does not provide the level of flexibility that is required and is inhibiting the rollout of the applications that end-users are demanding. A different approach is needed. The hybrid WAN is one potential solution. It combines the enterprise WAN with the internet, enabling non critical traffic to be routed via the internet, or even in some situations for the internet to be the primary connection. This allows organisations to deploy services with different SLAs depending on the use and location of an application.

**To learn more about how Infovista and BT solutions can help solve the issues highlighted in this report, please contact [sales@infovista.com](mailto:sales@infovista.com). Alternatively, contact your BT Account Manager or call BT on 0800 028 5314.**

