



Getting Started Do UC&C Right

Unified communications and collaboration offers enterprises benefits such as greater productivity and cost reductions. However, these complex environments pose significant challenges for IT, which must have the right processes and technology in place to ensure a successful rollout.

INSIDE ▶▶▶

Pros and Cons of UC&C
Page 2

How UC&C Has Changed
Page 5

4 Top UC&C Challenges
(and How to Solve Them)
Page 7

How 3 Organizations Solved
Their UC&C Challenges
Page 11

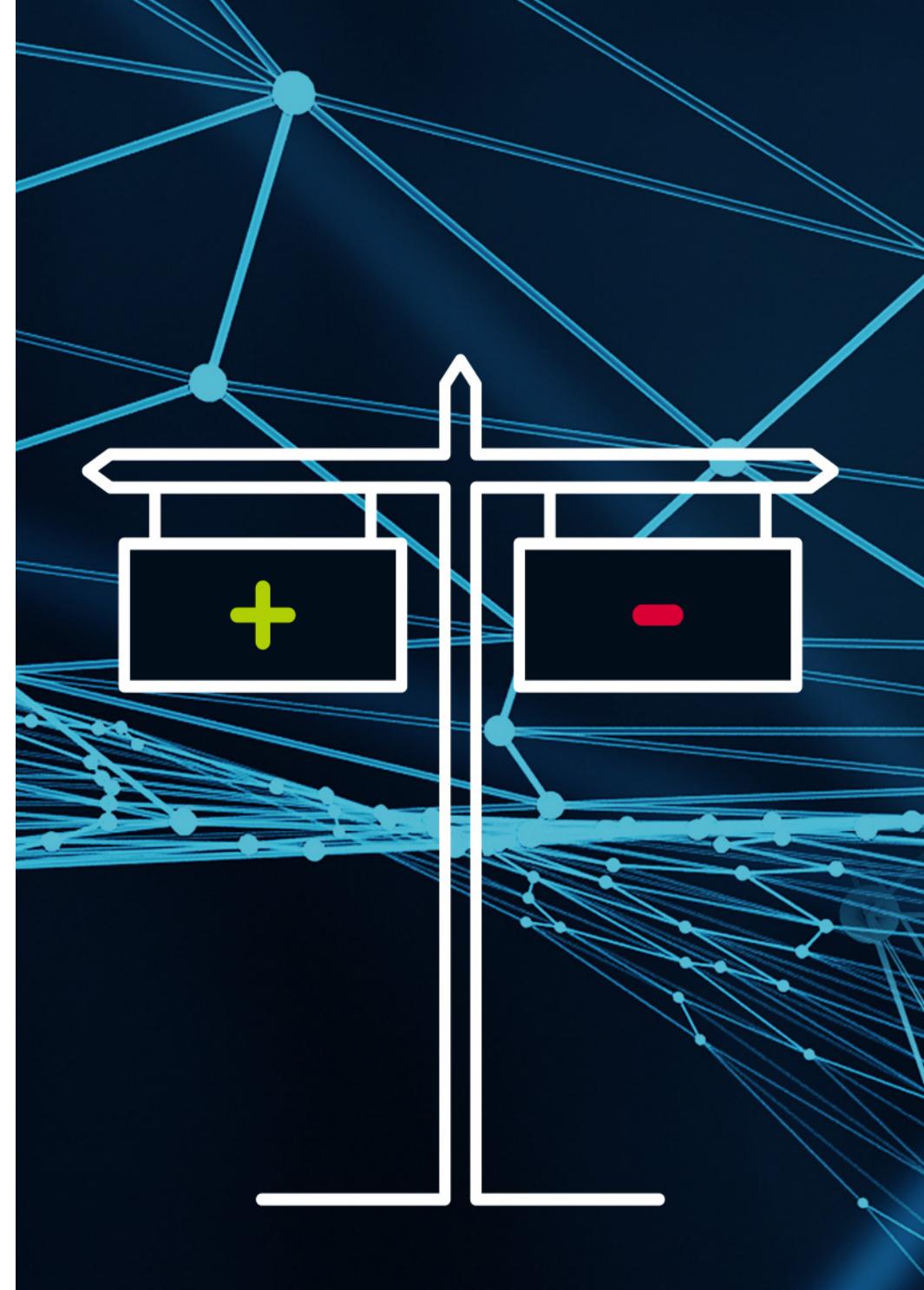
What to Look for in a UC&C
Service Assurance Vendor
Page 14



PROS and CONs of UC&C

In the past two to three years, enterprises have accelerated their adoption of unified communications and collaboration (UC&C) solutions. According to InformationWeek's "[2014 State of Unified Communications](#)" report, only 38% of organizations had deployed UC&C technology in 2013.¹ But just one year later, 44% had systems in use, with another 13% planning to deploy within 12 months. IDG Enterprise's "[Unified Communications & Collaboration 2015](#)" report found that 55% of organizations were using UC&C solutions in 2015, and for 2016, they planned to increase their UC&C budgets by an average of 9%.²

Enterprises are adopting UC&C technologies for a variety of reasons. At the top of the list are hopes for improved productivity and cost reductions,



as employees are able to work together more effectively.

But in practice, organizations don't always realize the benefits they wanted to achieve. A big part of the reason is that today's UC&C environments are incredibly complex. They include an array of services and service providers, which means there are many places where something could go wrong. Network managers and administrators often have difficulties troubleshooting these environments accurately and quickly with existing tools.

To ensure that UC&C deployments go as smoothly as possible, networking professionals should acquaint themselves with the unique attributes of UC&C technologies and their interdependency with the network. Understanding the intended purposes of the technology and the potential impacts on the converged IP network can help networking pros obtain the business benefits of UC&C solutions and minimize the risk.

Advantages of UC&C

- **UC&C provides more effective communication and collaboration that can lead to greater productivity.**



In InformationWeek's research, 62% of enterprises surveyed said that improving employee collaboration was one of their top business drivers for adopting UC&C solutions. Modern UC&C solutions enable applications, such as presence, instant messaging, shared desktops, and video-on-demand, all of which can help employees get more work done. In addition, these solutions integrate all of an organization's communications technologies, such as VoIP, voicemail, messaging, email, and calendar, making it much easier for staff to schedule meetings and keep each other up to date on the status of projects. In short, UC&C helps everyone in the organization do his or her job better and faster.

- **UC&C offers better support of mobile workers and employees who need flexible schedules.** Another key driver for UC&C adoption is the growth of mobility. Market researchers at [IDC](#) forecast that by 2020, 105.4 million U.S. workers, 72.3% of the entire workforce, will be mobile.³ Today's UC&C solutions make it much easier than in the past for mobile workers to connect to their corporate networks and stay in touch with their colleagues and customers via video, voice, and text-based communication. This further enhances productivity, and it improves morale for workers who frequently work outside the office.
- **UC&C enables integrated video and telepresence, which can reduce travel costs.** Many organizations have found that while email and phone conversations are helpful, they don't always have the same impact as seeing someone while speaking with him or her. Scientists going all the way back to



[Charles Darwin](#) have demonstrated that nonverbal communication, such as a person's eye contact, facial expressions, and body language, have a huge impact on human conversations.⁴ Services such as video and telepresence allow workers to give and receive these visual cues, making communication more effective. In many cases, organizations find that increasing their use of video and telepresence lets them reduce the need to travel to meetings, which can add up to significant savings.

- **UC&C makes sales, support, and other customer-facing staff more effective.** Just as UC&C can make workers more effective in communicating with each other, it can also make them more effective when they are talking with customers. It's becoming more common for employees to interact with customers via video, and although it requires some additional training, it can

be particularly helpful in resolving support issues. In addition, unified communications makes it easier for sales staff to schedule appointments with contacts and to make themselves available to prospects and customers.

Challenges of UC&C

- **The complexity of UC&C environments makes troubleshooting difficult**



for IT. The biggest downside to UC&C is undeniably the complexity it introduces. In a deployment, enterprises typically have a multivendor environment with a host of servers handling call management, conferencing, voice messaging, mail, database, and virtual desktop infrastructure; applications such as Cisco Jabber, Microsoft Lync/Skype for Business, Exchange, and SharePoint; and other desktop clients — as well as the authentication and security necessary for each of those services. On the networking side, they have

the WAN/LAN, Session Initiation Protocol (SIP) trunks, the public switched telephone network (PSTN), and internet connections, as well as connections to multiple service providers. When something goes wrong — and it inevitably will — IT has a long list of places to look for the problem. That means troubleshooting can take hours, days, and even weeks, leaving the business with sub-standard communication services in the meantime.

- **Service issues can lead to poor customer service and lower productivity, possibly leading to a loss of customers and revenue.** When IT takes a long time to resolve issues and isn't meeting its service level agreements (SLAs), the business benefits are not realized. Poor voice or video quality can cause staff to cut calls and meetings short, preventing them from getting valuable work done. Delays in delivering messages can slow the pace of



work, and outages for calendar or presence services can make it difficult to schedule tasks and events. When customer-facing staff experience these sorts of issues, the customers they're serving can quickly become frustrated with the company. Some of them may even decide to take their business elsewhere if they cannot get the kind of service they expect.

- **Users may stop using some UC&C features or bypass the UC&C solution entirely.** In the worst-case scenario, users can become so frustrated with the UC&C solution that they stop using it. That hurts the business in two ways: Money and resources were spent and benefits were not derived from that investment. Making matters worse, employees who find themselves in this situation may look for another way to get the communications services they need. Unfortunately, these kinds of workarounds can lead to security and compliance issues. And it means

How UC&C Has Changed

UC&C technology brings together all the various methods of business communication with a common, integrated interface. For example, if you are sending an email through a UC&C solution, your screen may show you whether the person you're contacting is in the office and offer options for video chat, a voice call, voicemail, or scheduling a meeting.

Not too long ago, unified communications was all about voice and text, and VoIP was the primary technology enabler. But these days, video and telepresence are becoming much more important to organizations. A typical modern UC&C solution includes integrated tools for:

- Voice: VoIP, audio conferences, and voicemail
- Video: desktop video, and video conferencing, immersive-video/telepresence, broadcast, and video-on-demand
- Messaging: instant messaging, and email
- Presence: location, calendar, out-of-office integration, and activity
- Collaboration: shared desktop, and webinars



that IT is no longer in complete control of what's happening on the corporate infrastructure and networks.

Planning for Success



The best time to plan for UC&C solution deployment is in the very earliest stages. Organizations that plan their deployments carefully, building in best-in-class management and monitoring solutions from the beginning, can avoid unexpected cost increases and realize UC&C cost savings. Enterprises that have deployed UC&C say that getting this initial experience right is critical for ensuring widespread adoption of the technology and the ultimate success of the project.

For organizations that are already further down the deployment road, it isn't

too late. They should look for technological solutions or service vendors that can help them cope with any challenges they're experiencing or that crop up in

the future. Getting the right UC&C help in place is the key to maximizing the business benefits and minimizing risks to successful implementation.





4 Top UC&C Challenges

(and How to Solve Them)

Even the best-planned UC&C deployments can run into issues. With so many different pieces and parts in the solution, it's inevitable that end users will run into difficulties — issues they expect IT to solve. Ideally, IT should have a service assurance solution in place that can proactively alert the IT department about any issues. The best time to resolve a problem is before it really becomes one that affects users. Network troubleshooters should also prepare ahead of time by learning what to expect and planning a strategy for quick resolution of common issues.





Prepare for Challenges

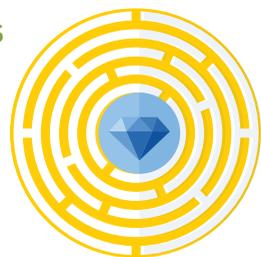
1. Poor call or video quality.

Complaints about the quality of voice or video calls are among the most common problems in UC&C environments.

Unfortunately, these types of issues are also difficult to troubleshoot because there are so many possible causes.

For example, quality problems can arise from underlying network issues. The most common type of quality problem arises from misconfigured Quality of Service (QoS) in the network. Another common problem is a lack of bandwidth, either because the network doesn't have enough capacity to support UC&C or because a rogue application or device is consuming a disproportionate amount of network resources.

If the network appears to



have sufficient bandwidth and is configured properly, the problem may be the call server, gateway, or session border controllers (SBC), or it may be from the third-party service provider (e.g., SIP trunk or PSTN). And if those all check out, it's time to investigate the endpoints. Are they connected over a poor Wi-Fi link? The problem could be as simple as someone not positioning the microphone close enough to his or her mouth or trying to use a speakerphone in a noisy location. On the other hand, the device may have some

sort of component failure, perhaps with the echo cancelers or noise suppression, or maybe the device isn't configured appropriately.

2. Complex troubleshooting using

multiple vendor tools. As the example above indicates, troubleshooting a UC&C environment commonly involves investigating multiple possible points of failure. Typically, each of the devices and applications involved will have separate monitoring and maintenance tools.

This complicates matters because in order to effectively troubleshoot UC&C issues, staff must be trained in the use of all of these different tools. In addition, they frequently must spend time correlating and comparing log and device health data from these various tools to determine whether





they have multiple alerts about the same problem or whether they have several different problems at once. While these tools can be helpful, they generally don't integrate, and they require a lot of work by the IT staff.

3. Complex and diverse multivendor environments. Nearly every enterprise ends up with devices and services from multiple vendors as part of its UC&C solution. Sometimes this happens because of mergers and acquisitions. Sometimes it's because a company rolls out its UC&C solution in phases. And sometimes companies just change their preferred vendor over time because of budget constraints, organizational changes, or because a particular vendor has made a technological advance the company wants to take advantage of.

Whatever the reason, most IT departments have to cope with multivendor environments. And even if you have a single vendor for your

UC&C solution today, it's highly likely that you'll have at least some equipment or services from a different vendor as time goes on. Again, this adds even more complexity to the already complicated UC&C environment, and having multiple vendors adds to the number of monitoring and maintenance tools IT uses to support the solution.

4. Failure to use key features. At some enterprises, IT has rolled out a brand-new, state-of-the-art UC&C solution only to discover that employees aren't using the solution at all or they're ignoring some of its key features. Sometimes this happens because staff have privacy concerns related to features such as presence or video. Lack of training about best practices and how to use the solution also causes people to not use features or to create unnecessary issues for IT. Generally, these concerns fade away over time as people receive training, become more comfortable with the technology, and experience the benefits it offers.

In other instances, however, staff members don't use key features because they have had a bad experience with the technology, particularly in the early days of the rollout. Experiencing just a couple of grainy video calls or static-filled voice calls can be enough to convince employees that the technology "doesn't work." This results in a wasted investment for the business, as well as potential drags on productivity and customer service.

Solving the Challenges of UC&C

Fortunately, there are steps IT can take to eliminate or minimize these challenges. First, experts recommend that you build monitoring into your UC&C budget and architecture from the start. Having a monitoring solution in place from the start gives you an opportunity to baseline your existing system and quantify the benefits you expect to see from UC&C. As you begin trial deployments, this monitoring will be



invaluable in pointing out potential problems before the solution goes into production company-wide. And when you do roll out UC&C broadly, the monitoring solution will help ensure trouble-free operation and continuous improvement.

Second, the network should be assessed, with targeted upgrade and QoS policy deployed. Preferably, this upgrade should take place well before the solution rollout. This one step can eliminate many of the QoS issues that plague UC&C deployments. Remember, however, that a one-time upgrade won't solve the issue forever. As your company grows and as your employees make more use of UC&C services, particularly video, you'll need to continue to monitor available network resources and trends to ensure that you have adequate bandwidth for your needs.

Third, you'll need to double- and triple-check that all of the networking components and endpoints are properly configured to support UC&C. Again, configuration errors are

another common cause of quality problems — and one of the problems that's easiest to fix.

Fourth, provide comprehensive training for company employees. It should cover how to use the UC&C solution and how to get the most out of it. Most end users won't



read the user manual, so it's up to you to make sure they understand how to use the solution's features. In many cases, this up-front training can reduce hassles for IT down the road.

Monitoring Is Key

Finally, the most effective action companies can take to minimize the challenges associated with UC&C is to select a service assurance

solution with holistic monitoring and troubleshooting capabilities. A holistic solution can monitor every piece of the UC&C environment, so you don't have to worry about managing multiple tools from multiple vendors. Instead, there's a single pane of glass that shows exactly where problems are occurring, saving a tremendous amount of time that would otherwise be spent troubleshooting. In addition, the best service assurance solutions will notify you of potential problems before you hear about them from end users, allowing you to provide support that meets your SLAs and letting the business experience the maximum benefit from UC&C technology.

With a UC&C service assurance solution in place, enterprises find they are able to maximize the benefits of the technology while minimizing the challenges. In addition, it helps ensure quality service right from the beginning of the technology rollout, which can make the project more successful.

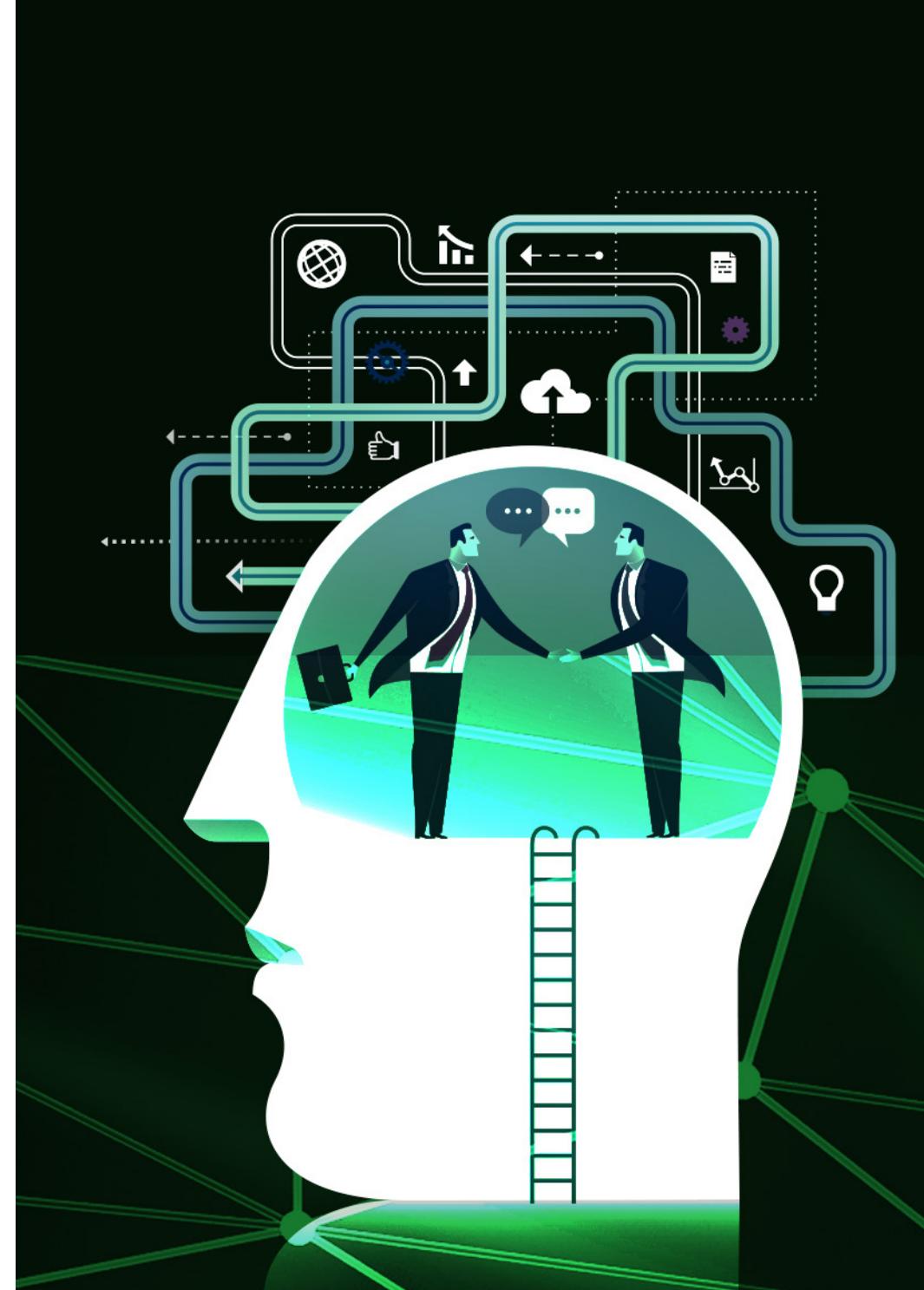


How 3 Organizations Solved Their UC&C Challenges

One of the best ways to learn how to overcome challenges associated with UC&C is to examine how other large enterprises have succeeded with the technology, despite some initial setbacks. Here are three examples:

Global Technology Leader

A global B2B technology vendor that sells products through distributors, online channels, and retail stores converted to an SIP trunked topology. The company receives thousands of inbound calls from customers every day,



and even after an upgrade of all their Session Border Controllers (SBC), they were still experiencing a high volume of communication outages, dropped calls, and poor call quality. Several different groups were involved in troubleshooting the problems, and each group used a different set of tools, which made correlation and collaboration difficult. Ultimately, they weren't able to resolve the problems with voice services efficiently or effectively.

To address the problem, the company decided to standardize on a monitoring solution that would provide a unified view of its UC&C environment. They deployed a combination of NETSCOUT nGeniusONE servers, nGenius Unified Communications co-resident licenses, and nGenius InfiniStream appliances. As a result, the technology firm is now able to identify the source of SIP 406 errors and isolate problems between VoIP network components, SBCs, SIP servers, and end-user devices. It can conduct call-quality analysis

to better understand customer call-quality complaints, as well as capacity analysis of VoIP traffic and forensic analysis of calls. Thanks to proactive monitoring and real-time alerts, the company experiences far fewer call-quality issues and is able to resolve those issues more quickly.

Cruise Line

Today's vacation travelers expect state-of-the-art connectivity, even when they're in the middle of the ocean. To meet customer demand, a global cruise line offers high-speed satellite internet for customers and crew, VoIP telephones, video-on-demand, and electronic armbands that let customers purchase items and enter their staterooms. IT staff travel on the ship to resolve issues with networks and communications. However, they sometimes ran into difficulties, particularly when the ship's movement meant it was disconnected from satellite service, and



they had to conduct troubleshooting without assistance from corporate headquarters.

The cruise line needed a simple, easy-to-use solution that the shipboard IT staff could



use to resolve issues as quickly as possible. It turned to the NETSCOUT nGeniusONE Service Assurance platform with Adaptive Service Intelligence technology, along with InfiniStream appliances and nGenius Packet Flow Switches. The new solution immediately exposed the root causes of some regular bandwidth spikes, and the team was able to make changes that improved service. The solution also allowed the on-ship IT team to pinpoint the causes of UC&C problems and resolve them faster. In fact, the NETSCOUT solution has been so effective that the cruise line now includes the technology in every ship that it builds.

Metropolitan City

The IT department for a major urban area was responsible for supporting a growing application and communication network, but its performance monitoring tools were more than five years old. As a result, the group was finding it difficult to troubleshoot problems with voice and video communications, and guarantee residents uninterrupted access to city services.

Recognizing its need for a better performance management solution, the city used the nGeniusONE Service Assurance platform to gain a centralized view of its UC&C and networking environment. The new solution let IT resolve issues quicker, and it improved the city's network

security. The IT group is finding it much easier to do troubleshooting and capacity planning, as well as to provide daily charge-back reports that show internet usage for various departments.

1. Finneran, Michael. "[2014 State of Unified Communications](#)." InformationWeek. April 3, 2014.
2. "[IDG Enterprise Unified Communications & Collaboration Study 2015](#)." IDG. June 16, 2015.
3. "[IDC Forecasts U.S. Mobile Worker Population to Surpass 105 Million by 2020](#)." IDC Press Release. June 23, 2015.
4. Darwin, Charles. "[The Expression of the Emotions in Man and Animals](#)." London: John Murray. 1872. Darwin Online. Accessed Aug. 9, 2016.

Turn page to find out what to look for in a UC&C service assurance vendor >>



What to Look for in a UC&C Service Assurance Vendor

All UC&C service assurance solutions aren't created equal. To be certain you're getting the level of service you need, look for the following features:

- Holistic monitoring and troubleshooting of the entire network
- Best-in-class voice- and video-quality monitoring capabilities
- Proactive 24/7 detection of service and performance problems
- Visibility into the interdependencies among servers and services
- Visibility into network capacity, utilization, and QoS setup
- Support for multivendor environments

Visit www.netscout.com/connect/unified-communications-at-a-glance.

- Learn more details about the included case studies and other customer successes
- Watch short videos: UC&C for Contact Centers and UC&C for Skype
- See demos using NETSCOUT for Analyzing SIP Failure, Analyzing WAN Congestions, Triaging Voice/Video Services QoS Issues, and Solving Single-Direction and One-Way Call Problems

About NETSCOUT

NETSCOUT SYSTEMS, INC. (NASDAQ: NTCT) is a market leader in real-time service assurance and cybersecurity solutions for today's most demanding service provider, enterprise, and government networks. NETSCOUT's Adaptive Service Intelligence (ASI) technology continuously monitors the service delivery environment to identify performance issues and provides insight into network-based security threats, helping teams to quickly resolve issues that can cause business disruptions or impact user experience. NETSCOUT delivers virtually unmatched service visibility and protects the digital infrastructure that supports our connected world.