



The 8 Criteria for Enterprise-Grade Communications as a Service

WHITEPAPER

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The 8 Criteria for Enterprise-Grade Communications as a Service

Companies of all sizes have realized the strategic and transformative value of the cloud in their IT stacks. Today, it's common to use cloud services for email, CRM, file sharing, DevOps and a host of other applications. Typical business and IT benefits include lower costs, better scalability and a simpler, outsourced infrastructure.

Interestingly, although the telephone network was probably the original cloud environment, many companies are reluctant to move their voice communications to today's cloud.

ENTERPRISE VOICE



Communications are the lifeblood of any enterprise. Businesses are now finding that a patchwork of different types of communications and services is not enough for success in a highly competitive, global environment. Increasingly, businesses are demanding something more: an enterprise-grade solution with the power to provide global, continuous, high-quality communications that enhance collaboration and improve productivity.

CONTACT CENTER



8x8 Enterprise Communications as a Service (ECaaS)

8x8 ECaaS encompasses a variety of different communication services and technologies. Its defining characteristic is that it provides *one integrated platform* for all business communications, including personalized customer service in the contact center and advanced performance analytics. Designed for businesses of all sizes, 8x8 ECaaS is “enterprise-grade”—global, reliable and secure—and much more.

UNIFIED COMMUNICATION



Even though the telephone network was probably the original cloud environment, many companies are reluctant to move their voice communications to the cloud. Their concerns stem from early experiences with consumer products such as Skype that didn't offer business-grade reliability and voice quality.

REAL-TIME ANALYTICS



After 10 years spent developing ECaaS, 8x8 has created an innovative, enterprise-grade global network that enables any business to put its real-time communications in the cloud. ECaaS builds on many core technologies from telephony and unified communications, and encompasses more than 100 of 8x8's patents. These foundational technologies come together in 8x8 ECaaS to provide continuous communications and true mobility to enhance the way companies work today.

This paper introduces and summarizes the key aspects and unique benefits of 8x8 ECaaS.

1. Global Reach® Network
2. Global Delivery. Local Experience.
3. Reliability and Uptime
4. An End-to-End Service Level Agreement and Guarantee
5. Industry-leading Security and Compliance Certifications
6. Big Data Analytics
7. Application Integrations
8. Elite Touch Deployment Methodology

1. Global Reach® Network

Providing global communications is much more than just a set of data centers. 8x8 developed proprietary Global Reach technology to ensure that 8x8 voice communications, placed or received anywhere on the globe on any device, have the same consistent quality as a local or internal call within a single area code. To deliver on this vision, Global Reach combines several patented technologies implemented in 8x8's communications software and cloud platform.

At the top level, 8x8 delivers its communication services from twelve data centers in nine locations across five regions of the world: North America, Europe, Asia Pacific, Australia and South America (Singapore and Rio de Janeiro coming Fall 2016).

Why 8x8 Global Reach Routing Is Superior and Enterprise-Grade

When you place a call on the 8x8 network, the system makes a number of real-time decisions on call setup and routing based on geographic locations and network conditions. Every VoIP call is comprised of two data types, a *signaling plane* and a *media plane*. The signaling plane deals with call setup, management and teardown while the media plane is the actual digitized voice of the call.

Most hosted VoIP solutions route signaling and media data through the same data center regardless of where a caller is located when their call is initiated. For instance, if a U.S.-based employee is traveling in Sydney, Australia and needs to make a call to a local business in Sydney, the call would still need to be routed back through their "home" data center in the U.S. first. This is how Skype for Business works. As you can imagine, routing all calls through only a few data centers is less than ideal for real-time communications. Conversations can become frustratingly slow as latency and delay may degrade the call.

This is why it is so important to have data centers spread out strategically across the globe as 8x8 has done. However this is not the only advantage that 8x8 has built into its network.

Geo-Routing Makes Global Reach Uniquely Enterprise-Grade

Many hosted VoIP solutions route call data through the same data center regardless of the physical or geographic location of callers. 8x8 takes a very different and more sophisticated approach.

When an 8x8 end-user makes a call, our patented technology seeks out the closest data center to the current location, subject to service, security and data sovereignty issues (which might require that the user's signaling data be sourced from a certain geography). We call this geo-routing.

Media data is *extremely* sensitive to delays and 8x8 has patented technologies to ensure that this data latency is always minimized. For all routing decisions, current Internet and carrier network conditions are taken into account and the best route is determined in real time.

The best way to illustrate how Global Reach optimizes voice calls is with a couple of common scenarios.

Scenario #1: 8x8 Softphone to 8x8 Mobile App

A Norway-based 8x8 softphone user with the Virtual Office Desktop client is traveling in Japan for business. She places a phone call from the softphone on her laptop to a colleague in Florida who is using the 8x8 mobile app.

The majority of hosted VoIP solutions will route the signaling and media data of the Norway-based caller through the same data center, regardless of where the caller is at the moment. So, if the specific data center is in the UK, even when the Norway-based caller is traveling in Japan, the data will still be routed back through the UK first. This is not the case with 8x8. The patented geo-routing technology can tell that the caller is in Japan, and sends the data through the nearest 8x8 data center, which is in Hong Kong. The system also looks at the destination of the person being called, Florida, and recognizes that the closest data center to that person is on the East Coast of the United States. The media and signaling data are routed between the Hong Kong and U.S. data centers; making no wasted trips, and traveling the fastest path to optimize call quality.



Scenario #1

Scenario #2: 8x8 Softphone to PSTN

In this scenario, a U.S.-based 8x8 softphone user traveling in China uses the Virtual Office Desktop softphone to call a local business using a landline. Other hosted VoIP providers may still route the caller's data back through the U.S. first, which may lead to lag time. However, 8x8's solution recognizes that the caller is in China and automatically routes the call through the closest 8x8 data center in Hong Kong. Since the local calling destination in China is a PSTN line, the call will be connected via the Hong Kong data center, the closest to both the caller and the destination.



Scenario #2

In all these scenarios, traffic can be routed over private networks or the public Internet, and 8x8's patented big data analytics log the call quality information related to all legs of the voice sessions. Any call quality issues can be immediately pinpointed and corrected. For enterprises that desire enhanced control over their communications traffic, 8x8 offers MPLS services through our ecosystem of partners.

8x8 Leads in Innovative IP Communications

8x8 leads in delivering the highest-quality business communications globally through the extensive use of peer-to-peer connections. The highest quality in both fidelity and latency is always achieved via an IP-to-IP connection.

And as a provider of enterprise PBX and contact center services, 8x8 is in the unique position of being able to connect all internal calls—to the receptionist, auto attendant, voicemail system and conference bridges—across a distributed enterprise in this way. If the endpoints use 8x8's High Definition (HD) codecs—for example, with internal company calls—the call quality will be in HD. 8x8's meeting, video, content sharing, presence, chat, SMS and other services also take advantage of these peer-to-peer topologies.

8x8 dynamically switches and transcodes between codecs during a communications connection. (A codec is the software that encodes and decodes an audio or video stream being sent/received by an endpoint device.) By optimizing the selection of these codecs during a call, either for network conditions or calling features such as call recording or a conference bridge, 8x8 ensures an optimal connection.

Finally, 8x8 uses a comprehensive array of techniques to conceal the effects of any packet loss, latency or jitter that may be present in an underlying data connection.

Many of these techniques are handled at the audio processing level, but 8x8 also preserves the best quality voice connections when endpoints are moving across network boundaries (for instance, from WiFi to 4G, or from one WiFi connection to another WiFi connection).

The result? 8x8 enables users to seamlessly roam between cellular, 3G/4G LTE data and WiFi connections. It's very easy to flip a call from the mobile app to a desk phone and back again—without other parties on the call noticing the switch.

When coupled with 8x8's big data and analytics platform, these technologies give enterprise users the unique ability to answer a call on any device in one location, transfer the call to any other part of the globe, and maintain management visibility into the entire lifecycle of that call from its origin to its termination, including all of the intermediate steps in between.

For example, 8x8 customers can answer a call on a mobile device in New Jersey, then transfer the call to a person or team in Beijing, and managers in both locations can view real-time analytics reflecting data from all legs of the end-to-end call. Managers in both locations can see relevant details of the communication on both sides of the transfer. This kind of visibility and reporting is not typically possible with any kind of on-premises equipment or even a hosted service.

2. Global Delivery with a Local Experience

8x8 provides the local number support required by multinational organizations. Local numbers are available in over 80 countries and toll-free numbers are available in over 120 countries. 8x8 provides local number porting in more than 40 countries.

Global Number Support	Countries
Toll-Free Numbers	120
Local Numbers	80
Local Number Porting	40

For the list of supported countries, visit

8x8.com/resources/learn/virtual-number/international-virtual-numbers

3. Reliability and Uptime

Companies often move services like email and CRM to the cloud to increase reliability and uptime. A shared service infrastructure is typically more stable than local data center servers. As part of its Global Reach Network, 8x8 has architected high reliability and uptime into the service.

The 8x8 Virtual Office cloud communications offering is delivered from fully mirrored, top-tier, redundant, and geographically diverse state-of-the-art data centers. Two of these data centers locations are in the U.S. to provide in-country redundancy. Deployments in the U.K., Canada, Hong Kong and Australia serve remote users to optimize service quality.

Each data center is serviced by:

- Multiple Tier 1 ISPs (multiple redundant links) and direct private connections from our U.S. East and West Coast deployments
- Multiple top-tier PSTN carriers

8x8's distributed, Global Reach Architecture is based on a cluster implementation (from the hardware to the application layer), with core network redundancy for each element.

This includes dual power supplies and UPSs, and data replication across data centers.

8x8 has a proven track record of reliability. In 2015, 8x8 has to date delivered an average core call flow processing uptime of 99.997%. In the event of a major disruption such as a natural disaster, failover between data centers for 8x8 Virtual Office happens instantly. Active calls will disconnect, but new calls can be generated immediately.

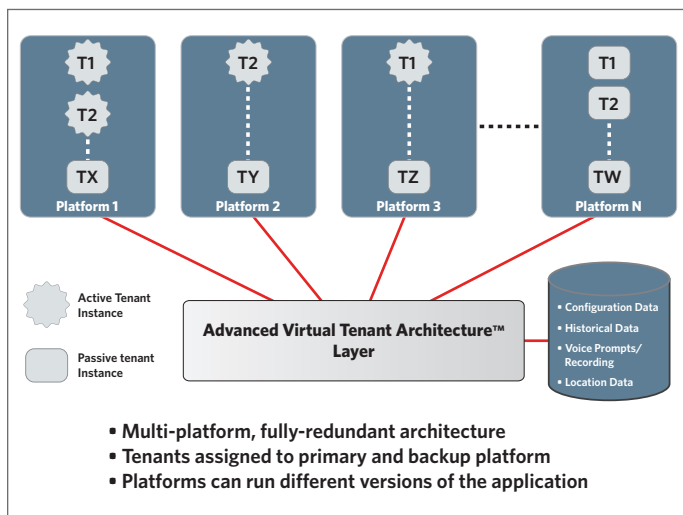
In addition, most of the maintenance services performed by 8x8 are completely seamless and invisible to customers. For example, 8x8 can move the core call flow processing from one data center to another without dropping a single call—to perform non-impacting customer maintenance. Currently, a core PBX upgrade is one of the very few maintenance requirements that can cause a short interruption, and these are scheduled at times convenient to the customer.

8x8 Virtual Contact Center local redundancy is offered by default, and geographical redundancy can be enabled as an option to provision geo-redundant tenants on multiple sites. This approach is superior to typical implementations, where planned contact center maintenance and system upgrades result in downtime.



To maximize uptime for customers, 8x8 has developed its patent pending Advanced Virtual Tenant Architecture. AVTA provides:

- **High Availability**—Best-in-class uptime at economical price points.
- **Virtually No Downtime for Maintenance**—Most planned maintenance can be performed with no impact to customer call flow.
- **Minimum Upgrade Risk**—Customers can upgrade to a new release of software, knowing that we can roll back at any time with no loss of data or configuration.



At the heart of AVTA is a multiplatform architecture that takes advantage of redundant servers, databases, and storage resources. Servers are shared among all tenants assigned to a platform and a single platform supports hundreds of tenants. Tenants are assigned to a primary and backup platform.

4. Unprecedented Service Level Guarantees

Using both the Elite Touch network readiness methodology and real-time analytics, 8x8's service level guarantees encompass the enterprise customer's underlying network. 8x8's ability to offer these unprecedented service level guarantees result from years of experience and ongoing collection and analysis of big data, including proactive monitoring of carrier performance, local and global traffic patterns, and individual feature utilization. Many of the 8x8's network optimization tools and methodologies have resulted in patents, making 8x8's capabilities unique.

End-to-End Service Level Agreement

Any type of contracted service should provide a service level agreement. An SLA provides for a level of guarantee, expectation and peace of mind. The customer knows what they're getting and can rely on it. The provider can deliver to the SLA and know that the customer is receiving the contracted services.

8x8 showed continued leadership in the cloud service provider market with the announcement of Performance Assured, the industry's first portfolio of guarantees covering both 8x8's service availability and voice call quality. The Performance Assured SLAs provide enterprises with two specific service guarantees:

1. A guaranteed minimum of 99.99% service uptime. In 2015, 8x8's annual service uptime has to date exceeded 99.99%, running at 99.997% for Virtual Office and 99.992% for Virtual Contact Center.
2. A guarantee for voice quality standards based on the industry- standard Mean Opinion Score (MOS). The 8x8 SLA provides for a guaranteed minimum of a MOS 3.0 for 98% of all calls end-to-end over private networks such as MPLS, or the public Internet.

5. Industry-leading Security and Compliance Certifications

Any enterprise product or service must meet or exceed existing customer security and compliance requirements. From the beginning, 8x8 has prioritized security and compliance certifications to meet the needs of companies in all industries. Because of this singular focus, 8x8 solutions have been selected by both national and multinational organizations to help them comply with strict standards, protect their reputations, and secure their customer data.

At 8x8, security starts with the actual software driving all cloud solutions that 8x8 provides. Prior to launch, all service offerings go through rigorous software code security stress testing using Veracode tools. Veracode is a Gartner Magic Quadrant Leader in application security testing.

Cloud Security Alliance

8x8 has been rated as Enterprise-Ready by the prestigious Skyhigh Networks CloudTrust program. Services with this designation must, at a minimum, satisfy the most stringent Cloud Security Alliance (CSA) requirements for data protection, identity verification, service security, business practices and regulatory protection.

HIPAA Compliance

HIPAA compliance has been a long standing offering from 8x8, to organizations of all types and sizes, not just healthcare organizations. 8x8's HIPAA compliance has been third-party verified, meaning that 8x8 can provide written documentation ensuring 8x8's compliance in their cloud communications system. 8x8 is also able to provide valid, up-to-date Business Associate Agreements (BAAs) for all types of HIPAA customers.

FISMA

8x8 services comply with the strictest U.S. federal security standards and have met the compliance requirements of secure U.S. federal agencies. 8x8 is the only cloud-based unified communications provider that advertises HIPAA compliance and third-party verification of its compliance with the Federal Information Security Management Act (FISMA) standard of compliance, FISMA is one of the most rigorous security standards to be found anywhere in the world.

PCI-DSS v3.1

8x8 regularly passes quarterly and annual audits for compliance with the PCI Data Security Standard (DSS), a recognized requirement for secure credit card transactions. 8x8 knows how important this is for organizations that accept credit card information and has engineered its solutions to assist its customers with maintaining this compliance.

SIP over TLS and Secure Real-time Transport Protocol (SRTP)

Data-in-motion encryption with SIP over TLS and SRTP are also available from 8x8, which enables full end-to-end encryption of both voice signaling and media streams, to and through the 8x8 cloud. This capability thwarts eavesdropping attempts on your conversations or "man-in-the-middle" attacks on the IP data traversing the 8x8 cloud.

Safe Harbor

8x8 has achieved certification of its compliance with the U.S.-EU and EEA Safe Harbor data privacy standards. Although a recent EU court opinion does not permit businesses to rely on the existing Safe Harbor framework for compliance with EU and EEA members states' laws, 8x8 will continue to monitor legal developments regarding Safe Harbor. 8x8 remains committed to following the current and proposed new Safe Harbor standards for the benefit of our customers and their data privacy and data sovereignty programs while the U.S. Department of Commerce works to gain approval for the new Safe Harbor framework.

ISO/IEC 27001:2013

8x8 U.K. has achieved ISO/IEC 27001:2013 certification. ISO/IEC 27001:2013 specifies the requirements for establishing, implementing, maintaining and continually improving an information security management system within the context of the organization and is recognized as the international standard for IT security.

U.K. Government Authority to Operate

8x8 U.K. has been granted an Authority to Operate (ATO) with Her Majesty's government and is approved to supply systems to Her Majesty's secure government agencies.

U.K. Government G-Cloud

U.K. Government G-Cloud is an initiative to ease public sector procurement of cloud technology. 8x8 U.K. has been accepted for inclusion on G-Cloud 7, the U.K. Government's online digital marketplace for public sector.

Cyber Essentials Plus

8x8 U.K. has achieved the United Kingdom's Cyber Essentials Plus accreditation and is accepted into the U.K.'s Network Services framework agreement for unified communications. The accreditation demonstrates the robustness of 8x8's IT infrastructure and validates its ongoing commitment to data integrity and security. 8x8's network has comprehensive measures in place to deter cybercrime and is highly secure for clients in both the private and public sector.

6. Big Data Business Performance Analytics

For many enterprises today, communications are a black-box utility providing very little business insight. The carrier may provide call detail reports (CDR) and the help desk may get complaints about call or service quality with no real way to track it or understand the impact.

8x8 offers a rich set of real-time, big data communications analytics that can help businesses uncover leads and customer service opportunities. 8x8 analytics also track the caller's entire customer journey throughout the organization, including call transfers—to help increase customer satisfaction.

8x8 analytics are based on internally developed systems that mine a broad set of big data details collected in the 8x8 cloud. Collected information includes traffic trends, real-time events, network and service performance, and call quality statistics. In support of this data collection, each endpoint (i.e. VoIP phone and mobile device) on the 8x8 cloud essentially acts as a probe on the network sending packets of data to the cloud with details about the location and quality of the services.

8x8 has used this big data analytics methodology internally for many years. Much of the underlying data and some of these same tools have been exposed and made available through Virtual Office Analytics and Virtual Contact Center Analytics.

This insight is indispensable in helping 8x8 customers better manage their customer communications and collaboration experiences on any device. The real-time aspects of the 8x8 Analytics packages, and the ability to monitor and manage call quality, along with deep analytics in the Virtual Contact Center, set 8x8 apart from other providers in the industry.

8x8 Virtual Office Analytics provides a set of unique dashboards and reporting options, including:

- Consolidated view and graphical details about call activities and metrics
- Viewing detailed information of all call activity on all extensions
- Real-time information about calls within the organization
- Matching inbound calls to outbound calls to find unreturned calls
- Viewing detailed information for all direct inbound numbers (DIDs)
- Agent, queue and ring group performance
- Endpoint device status
- Individual call and MOS call quality detail

8x8 Virtual Contact Center Analytics provides four top-level dashboards with critical business insights: Big Picture, Queue, Agent Comparison, and Agent Group, along with rich reporting capabilities.



7. Integrations with Enterprise Productivity and CRM Applications

Streamlining communications continues to be a major business driver across all applications. Companies find that linking their productivity, CRM and ERP applications with their communications platform greatly enhances productivity. Valued features include click-to-call, a screen pop of a customer record with an incoming call, and even single sign-on. 8x8 provides deep integrations with many leading productivity and enterprise applications.

Microsoft Office 365

- Outlook online
 - Click to call contacts, or emailed phone numbers from any browser
 - Import contacts into Virtual Office Online (VOO) and Virtual Office Desktop (VOD)
- Outlook native app
 - Click to call contacts
 - Show Outlook contact profile on incoming call
 - Import contacts into VOO/VOD
 - Schedule Virtual Meetings using the Outlook Calendar
- Skype for Business (Lync)
 - Click to call contacts
 - Import contacts into VOD (Lync Server only)
 - Share IM & Presence with VOD (Lync Server only)

Microsoft Active Directory Federation Services

- SAML Single Sign-On

Microsoft Group Policy Configuration

- IT can centrally configure all of their user's VOD client settings with Windows Group Policy

Salesforce

- Both Virtual Office and Virtual Contact Center are integrated with Salesforce
 - Embedded desktop within Salesforce
 - Support for Sales Cloud, Service Cloud and Desk.com
- Every employee with Salesforce can have advanced telephone features
 - Screen pop, click-to-dial and call logging
 - Advanced contact center features include pre-defined workflows across any media

Salesforce Desk.com

- 8x8 and Salesforce have partnered to provide a tightly integrated cloud solution that combines and enhances the strengths of 8x8 business phone service and Desk.com right out-of-the-box. Setup is easy and can be completed in just a few minutes.

NetSuite

- 8x8 Virtual Office phone and collaboration services have passed the rigorous *Built for NetSuite* approval process, ensuring a secure, reliable integration between the two applications.

SugarCRM

- A SugarCRM record pops up on the agent's computer screen for incoming calls. Agents can make calls from their web browsers just by clicking the green phone.

Zendesk

- Instantly identify who is calling with a screen pop matched to caller ID. Link it to any previous contacts and recorded information about previous contacts with the caller.

8. Elite Touch Deployment and Training

With any system or migration, good planning and methodology can speed the process and ensure success. 8x8 has worked with thousands of companies on needs assessments, planning, network readiness, training and rollout. The Elite Touch program gives customers the benefit of 8x8's extensive experience in accelerating successful enterprise deployments, from kick-off through ongoing support. This proven methodology helps ensure the fastest time to value—even for customers with large and complex requirements across multiple sites, global implementations, and integration with CRM or other back-end systems.

With a proven process that uses expertise and best practices gathered from more than tens of thousands of implementations, the Elite Touch program mobilizes a broad team with a variety of skills to support you through the deployment process and beyond:

- | | |
|---------------------------|------------------------------------|
| ▪ Deployment managers | ▪ Solutions consultants |
| ▪ Deployment engineers | ▪ Professional services |
| ▪ Sales engineers | ▪ Local number porting specialists |
| ▪ Implementation advisors | |

The Elite Touch program provides multiple deployment and training plans so enterprises can choose the package that will deliver maximum long-term value. Services include:

- **Solution design:** Gather customer requirements, perform a thorough network assessment, identify all of the call and interaction flows, and provide the system design required to meet the customer's unique needs.
- **Administration training and deployment:** Configure the implementation while training contact center and line-of-business managers on how to get the best value from their system.
- **System test and user training:** Ensure that the system is performing as desired, and that agents, receptionists, and supervisors understand how the system works, so they can be productive on Day One.

Our Elite Touch Deployment and Training packages provide the process, documentation, and training expertise necessary to ensure that your system is brought online quickly, meets your needs, and provides lasting value and ROI.

The Only Standard for Enterprise Communications as a Service

8x8's cloud-based solutions include cloud telephony, contact center, video and web conferencing, and reporting and analytics. Perhaps that's why 8x8 is the only vendor to be recognized in Gartner's 2015 Magic Quadrants for *Unified Communications as a Service, Worldwide*, and *Contact Center as a Service, North America*. 8x8 was also recognized as the *#1 Cloud Unified Communications Provider* for 2015 by Infonetix Research. To hear Diane Myers of Infonetix Research explain why 8x8 was chosen, visit <https://youtu.be/6M61ytZCt3o>.

Only 8x8 has the patented technology, infrastructure and security and compliance credentials necessary to deliver enterprise-grade performance. That's why more than 45,000 businesses operating in over 100 countries across six continents trust their communications to 8x8.

To learn more, call 1-866-862-2811 or visit www.8x8.com

