

8x8



Fast, reliable and secure communications

Delivering consistent
cloud communications
experiences globally.





Introduction

Communications should be simple. The days of on-premises servers, PBX closets, and redundant power supplies are numbered. Businesses deserve a single reliable platform that supports different communication channels, with a consistent experience for modern employees and customers alike in today's digital world.

Enter 8x8. The 8x8 Open Communications Platform™ delivers high-quality cloud communications with zero IT hardware, so you can operate from anywhere and connect with customers everywhere. Enable conversations to flow naturally and organically from text to voice, to video and back; empowering you to work better.

8x8 built an enterprise cloud communications infrastructure with three goals:

- Offer global cloud communications spanning voice, video, messaging, contact center and communications APIs
- Leverage best-of-breed public cloud infrastructure that scales globally
- Guarantee availability and reliability of real-time communications services

8x8's patented technology and built-in software intelligence features address common cloud communications challenges such as connectivity issues, audio and video quality problems, and service outages. 8x8 Global Reach™ technology automatically routes communications traffic to the nearest data center to deliver crystal-clear connections, superior call quality and conversations that sound and feel natural, backed by an end-to-end SLA.

We designed our infrastructure using public cloud partners including Amazon Web Services (AWS), incorporating principles of operational excellence, security, reliability, performance efficiency, and cost optimization. This is a vital component of our infrastructure, providing a stable, secure and high-performance architecture to speed innovation and deliver customer value.



Learn more at 8x8.com/partners/aws.

Fully redundant services

AWS supports many 8x8 services, including messaging, analytics, integration framework, storage and quality management. Our programmable microservices are deployed on AWS Elastic Kubernetes Service (EKS) to deliver the performance, features, and global reach our customers need without sacrificing quality or security.

AWS Global Accelerator routes traffic to customers based on any changes in network conditions, improving the availability and performance of 8x8 services. We also use Amazon CloudFront, a fast content delivery network service that securely delivers traffic to customers globally with low latency, high transfer speeds.

Our infrastructure is designed to support high-load traffic peaks and can quickly absorb the increase in traffic as demand grows. We leverage multiple regions for higher availability and compensate for regional outages through an active-active configuration. If one region becomes unavailable, it is taken out of rotation, while traffic reroutes automatically. Our customers depend on our services for their business, and we strive to minimize disruption.

We also collect and monitor billions of operational data points in the form of logs, metrics, and events to get a unified view of our microservices. That helps identify issues quickly and proactively redirect vital business communications so that our customers have the peace of mind knowing they can always access highly reliable cloud communications services without worrying about service downtime.

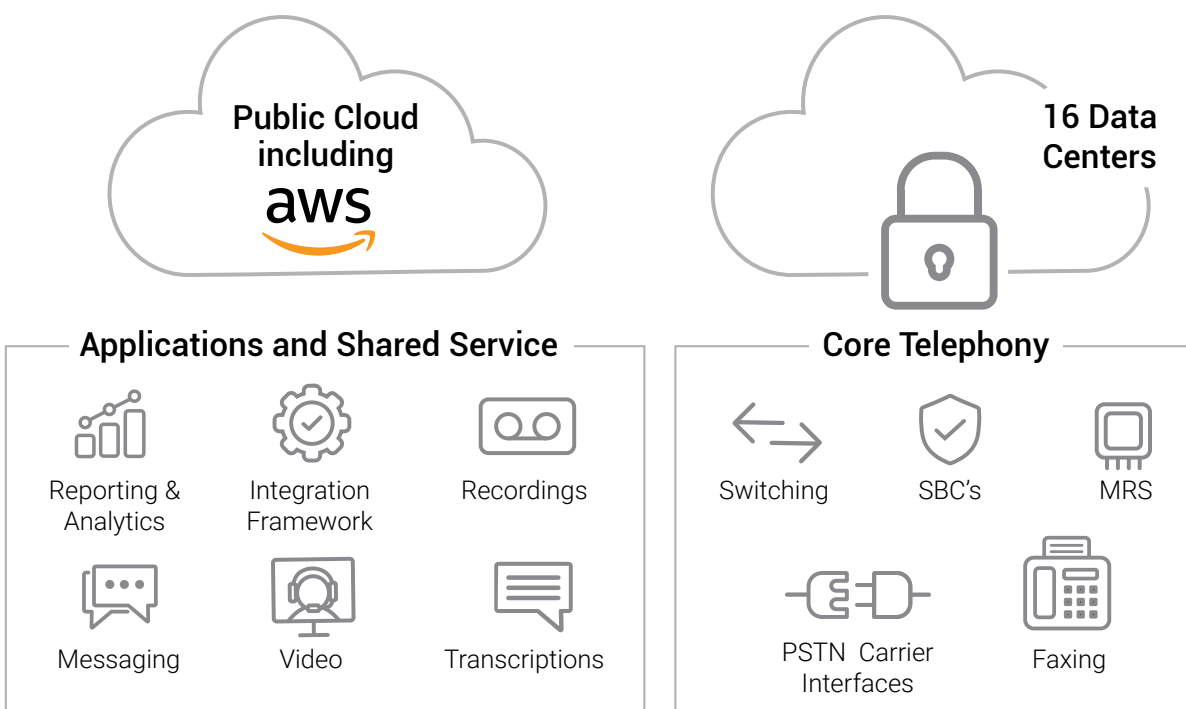


Figure 1: 8x8 Platform Strategies



Geo-routing keeps customers connected

Real-time communications like voice calls or video meetings are the most demanding applications to deliver over the internet. Their nature means there is no luxury of retransmission and buffering is very limited.

This difficulty becomes more challenging with the growing number of mobile and remote workers, where IT does not control the network. 8x8 Global Reach™ optimizes quality of service regardless of call location.

When an 8x8 end-user makes a call, our patented technology seeks out the closest data centre to the current location, subject to service, security and data sovereignty issues (which might obtain the user's signalling data from particular geography). We call this geo-routing.

Media data is susceptible to delays, and 8x8's patented technologies minimize this data latency. All routing decisions take place in real-time and factor in the current Internet and carrier network conditions to determine the best call routes.

8x8 leads in innovative IP communications

We deliver the high-quality business communications globally through an extensive network of peer-to-peer connections. As a global cloud communications provider for voice, video, messaging, contact center, and communications APIs, 8x8 can connect all internal calls across a distributed enterprise in this way.

Endpoints using 8x8's high-definition (HD) codecs for internal company calls have HD call quality. 8x8's meetings, content sharing, presence, chat, SMS and other services also take advantage of these peer-to-peer topologies.

Our codecs dynamically switch and transcode during a communications connection. 8x8 optimizes the selection of these codecs during a call, either for network conditions or calling features such as call recording or a conference bridge, delivers an optimal connection.

A comprehensive array of techniques conceals the effects of any packet loss, latency or jitter that may be present in an underlying data connection. These techniques take place at the audio processing level, but 8x8 also preserves the best quality voice connections when endpoints are moving across network boundaries such as moving from WiFi to 4G or from one WiFi connection to another. That means 8x8 users can effortlessly flip a call from the mobile app to a desk phone and back again, without other parties on the call noticing the switch.



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Reliability and uptime availability imperatives

8x8 uses fully mirrored top-tier, state-of-the-art data centres across 16 geographically diverse locations running on global public cloud infrastructure, including AWS.

Each Tier 3+ data centre is serviced by:

- Multiple Tier 1 ISPs with multiple redundant links and direct private connections
- Multiple top-tier PSTN carriers

8x8 Global Reach™ uses a cluster implementation, from the hardware to the application layer, with core network redundancy for each element, including dual power supplies and UPS, and data replication across data centers.

8x8 Global Reach™

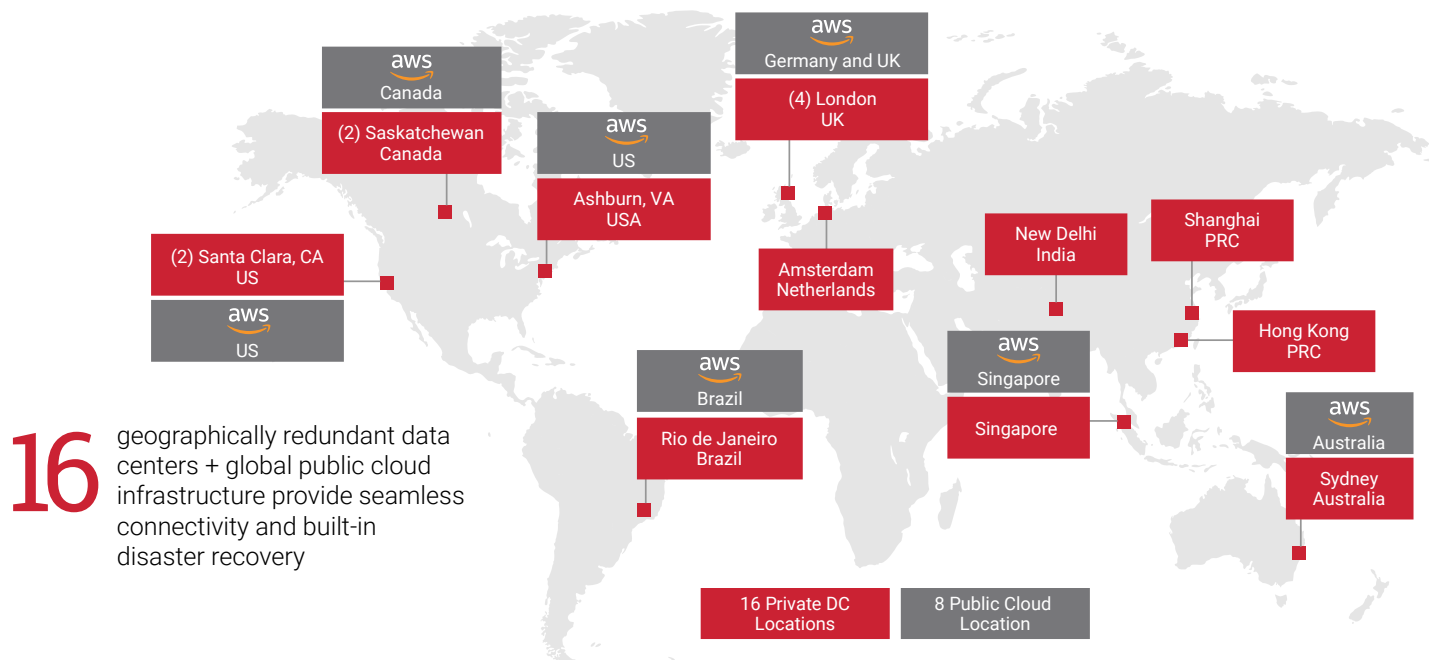


Figure 2: 8x8 Global Data Centers and Public Cloud Infrastructure

The inherent reliability of 8x8's architecture ensures service level availability guarantees of 99.99% uptime. In the event of a significant disruption such as a natural disaster, failover between data centers for 8x8 communication services happens instantly. Active calls can disconnect, but new calls are generated immediately.

To maximize uptime for customers, 8x8 uses its patented Advanced Virtual Tenant Architecture (AVTA) using redundant servers, databases, and storage resources to provide:

- High availability: Best-in-class uptime at economical price points.
- Virtually no downtime for maintenance: Most planned maintenance takes place with no impact on customer communications and call flows.
- Minimal upgrade risk: Customers can upgrade to new software releases, knowing that we can roll back at any time with no loss of data or configuration.



Uncovering insights using data-based intelligence

Trying to understand information from multiple communications tools makes data-driven decisions time-consuming and resource-intensive. 8x8's unified platform provides precise, aggregated analytics across all of your cloud communications.

You can get insights to uncover leads and customer service opportunities. 8x8 analytics also tracks the caller's entire customer journey throughout the organization, including call transfers, to help increase customer satisfaction.

8x8 analytics use internally developed systems to mine broad datasets collected in the 8x8 cloud. Data includes traffic trends, real-time events, network and service performance,

and call quality statistics. Data collection happens from each endpoint (desk phone, 8x8 Work app for desktop or mobile) on the 8x8 cloud. Endpoints act as probes on the network, sending data packets containing location information and quality of the services spanning, business phone, meeting, chat, contact centre and communications APIs.

These insights enable our customers to manage better their communications and collaboration experiences on any device. Real-time data helps customers to make instant, impactful changes and drive decisions.

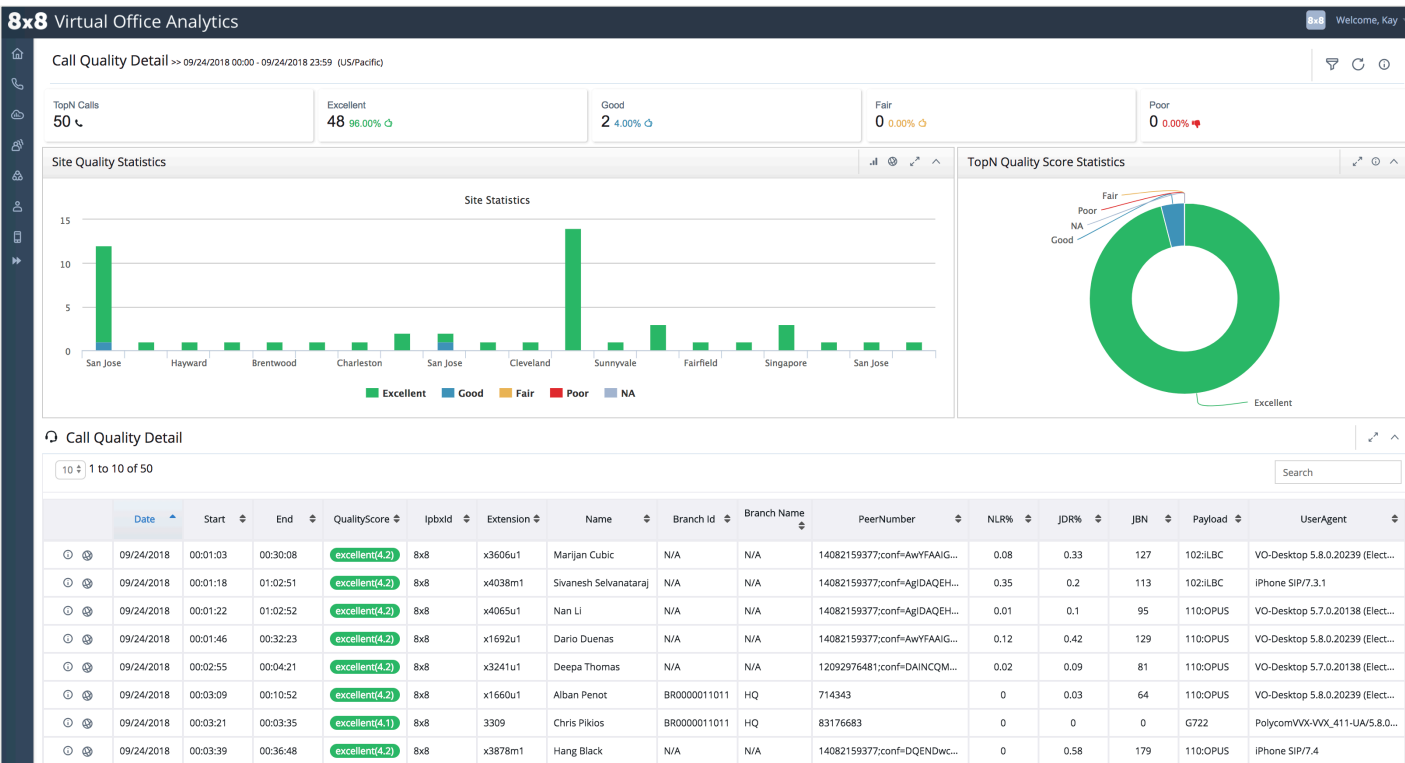


Figure 3: 8x8 Analytics Dashboard



Learn more at 8x8.com/partners/aws.



Industry-leading security and compliance certifications

Products designed for the enterprise must meet wide-ranging, demanding customer security and compliance requirements. 8x8 has dedicated itself to achieving security and compliance certifications to meet the needs of companies in all industries.

8x8 communications solutions have strong data-in-motion encryption and use AES 256 encryption for data at rest to protect customer data on AWS. As a result, national and multinational organizations choose 8x8 to help them comply with strict standards, protect their reputations, and secure their customer data.

All 8x8 services undergo rigorous software code security stress testing using Coverity tools. No other cloud communications provider has achieved 8x8's level of advanced, third-party annual audit and verification.

8x8 security and compliance certifications include:

- FCC Consumer Proprietary Network Information (CPNI) compliance
- Health Insurance Portability and Accountability Act (HIPAA) compliance
- National Institute of Standards and Technology – NIST 800-53 R4
- Federal Information Security Management Act (FISMA) compliant
- Standard Contractual Clauses (SCC) for data transfers between EU and non-EU countries.
- ISO 27001:2013 and ISO 9001 certified
- Certified PCI-DSS 3.2.1 SAQ-D Solution Provider
- Data-in-motion encryption with Session Initiation Protocol (SIP) over Transport Layer Security (TLS) and Secure Real-time Transport Protocol (SRTP)
- One of the first cloud computing companies to comply with GDPR
- UK Government G-Cloud Supplier
- UK Government Cyber Essentials Plus accreditation



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Conclusion

8x8 Global Reach™ is the foundation for our Open Communications Platform. Using private data centers and public cloud infrastructure that includes AWS lowers our maintenance overheads so we can provide a single integrated platform that enables businesses to communicate and collaborate more productively and engage their customers more effectively.

Our global infrastructure offers resilience, redundancy, and low latency that deliver uptime availability in excess of 99.99% across all our communications services. That's why more than a million business users across 160 countries get the best communications experience without compromising on quality or managing complex carrier or vendor relationships.

8x8 is one of the industry's most complete cloud platforms built with core technologies that we own and manage internally. This platform enables businesses to rely on one provider for their global communications, video meetings, contact center and customer support requirements, today and well into the future.

To keep up with the latest on AWS and 8x8's shared vision, visit the [8x8 and AWS partnership page](#). Resources and online events are added frequently.

The 8x8 logo consists of a red square with the text "8x8" in white.

About 8x8

The 8x8 Open Communications Platform™ transforms customer and employee experience with one system of engagement for voice, video meetings, chat, team messaging, contact center and enterprise-class API solutions powered by one global cloud communications platform. 8x8 helps organizations communicate, collaborate and connect from anywhere using any device. No on-premises equipment or maintenance required. That means fewer vendors, fewer bills and fewer apps to manage and provision. Whether you've got 10 employees or 10,000—one office or 1,000—8x8's one cloud communications platform brings them all together.

The AWS logo features the letters "aws" in a lowercase, sans-serif font, with a curved orange line underneath.

About AWS

For 14 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 175 fully featured services for compute, storage, databases, networking, analytics, robotics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 77 Availability Zones (AZs) within 24 geographic regions, with announced plans for nine more Availability Zones and three more AWS Regions in Indonesia, Japan, and Spain. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—trust AWS to power their infrastructure, become more agile, and lower costs.

