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Premium Communications Network

Simplified Cloud-Based Telecom Carrier Infrastructure

Overview

Businesses need to be able to engage with customers with confidence, which means their network services — voice, SMS, and MMS — must demonstrate the highest quality and reliability. Over the last 10 years, Plivo has built a Premium Communications Network (PCN) that provides the best quality and reliability, thanks to direct partnerships with Tier 1 carrier networks all across the globe. These close relationships save you from having to worry about carrier complexities, and let you leverage a reliable communications network without unnecessary management overhead.

With eight data centers strategically located around the world, Plivo's PCN is built on top of enterprise-grade cloud infrastructure designed and built for redundancy, availability, and resiliency at every level, which allows us to offer virtually infinite scale.

Frankfurt, Germany
Ashburn, VA
San Jose, CA
Austin, Texas
Bengaluru, India
Singapore
São Paulo, Brazil
Sydney, Australia

Globally distributed PoPs
24/7 monitored NOCs

Direct carrier connections to 1,600+ networks across 190+ countries enables Plivo to deliver voice and messaging communications with high reliability and quality, quickly

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Local carrier relationships worldwide

You can measure a carrier network in multiple ways. You can look at its total coverage area — the number of regions and countries it serves — or you can consider its quality, meaning the quality of its connections.

Plivo's communications platform as a service (CPaaS) excels on both counts. We reach voice and messaging customers across the globe — we have direct relationships with more than 1,600+ carrier networks and connectivity in 190+ countries. And when it comes to service quality, we use advanced practices and techniques to give our customers the best connections possible. The result is a premium communications network that no other CPaaS can match.

In more than a decade of doing business, we've learned that global reach and connection quality must go hand in hand. Some communications platforms focus only on the number of countries supported and not on the quality of the connections. It's relatively easy for communication platforms to claim global coverage by connecting with a few global telecom carriers, but companies that do that are shortchanging their customers. In many countries, only local entities authorized by regulatory agencies can establish direct connectivity with telecom network operators. When telecom carriers lack direct connections with local in-country telecom networks, customers are in for poor connections and frustrated, unhappy end users.

Worldwide PoPs

Large wholesale aggregators often connect with multiple carriers through a limited number of data centers or points of presence (PoP), typically positioned in regions that service a specific geographic area. These PoPs act as interface points between the customer network and the carrier networks, and the closer (in network terms) a provider's PoP is to the actual location of the business or the customer, the less delay and more consistency in the quality of the call. Having a limited number of PoPs means that a call from or to a regional source or regional destination has a high probability of being multiple network hops away from the actual source and destination, which can lead to high latency and crosstalk.

What's a hop? All voice and messaging traffic on the internet is sent as data packets, and passes through multiple subnetworks between their source — where they were generated — and their destination. Each trip through a subnetwork route is called a hop. The fewer hops between any two nodes, the closer they can be said to be in network terms.

Each hop introduces some delay between source and destination. The interval between a source sending a packet and a destination receiving it is called latency. Network hops have a greater impact on latency than geographic closeness. Distance alone causes propagation delays that are typically measured in a small number of milliseconds. Networks, though, can introduce multiple kinds of delays: queuing delay, processing delay, and transmission delay among them. These delays are generally on the order of tens or hundreds of milliseconds.

The problem is that delays accumulate as data packets are routed between networks. The more hops, the more delays. Studies have shown that people can perceive lag in voice communications when a delay of 100–200 milliseconds is introduced into the system. When they get as high as 300 milliseconds, having a conversation becomes unpleasant. That's why the best communications platforms expend so much effort building their carrier networks — to reduce hops, latency, and delays.

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Plivo has established seven PoPs that correspond to internet exchange points (IXP) in every region around the globe. IXPs are data centers in which internet infrastructure companies connect with each other. They're like the hub cities that some airlines maintain; in that analogy, network data is like airline passengers trying to reach their destinations in the shortest number of flights, because that means the shortest time.

How does having PoPs in multiple regions help you? Well, if you were in, say, Australia, and connected to a wholesale provider, their closest PoP could be as far away as Hong Kong. That would mean all local calls within Australia would be routed to Hong Kong before being routed to the receiver back in Australia, and that could add 150 to 200 milliseconds of latency to local calls, significantly diminishing the call quality. Plivo, by the way, has a PoP in Sydney (and similar local PoPs in other regions), so added latency is minimal. In-country calls never have to leave the country.

Before Australian PoP
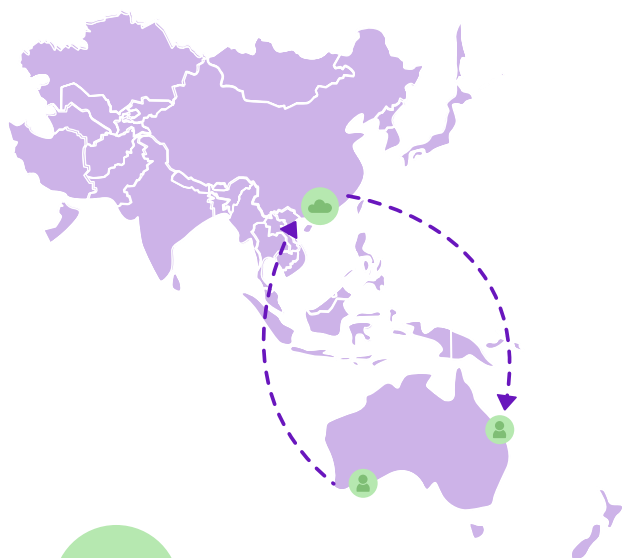
150ms

After Australian PoP

20ms

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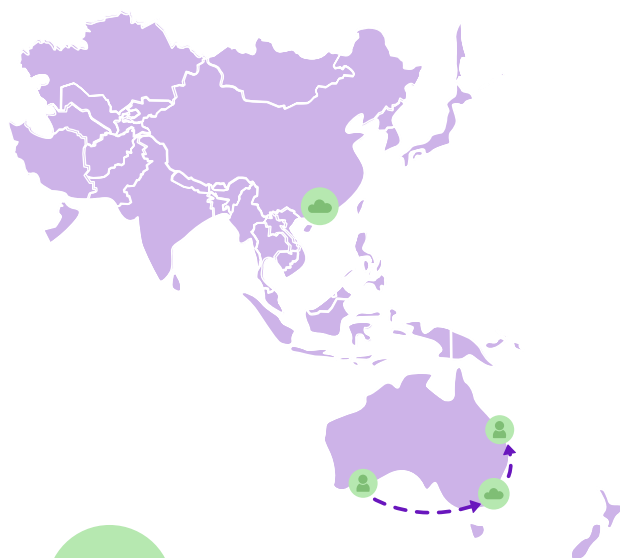
Direct carrier connectivity

Having a premium communications network requires offering unmatched connectivity — not just in multiple countries but within each country as well. We connect with at least two local or Tier 1 direct carriers in each country so we can eliminate multiple hops, lower the overhead of routing, reduce latency, and give our customers the best connections possible. Having multiple carrier connections also gives our customers built-in redundancy to ensure that, in the event of a carrier failure, all voice traffic is automatically routed through alternative carriers to minimize service disruption and quality degradation.

Carrier quality

Plivo connects to the best local carriers in each country. Our strict evaluation process approves only carriers that meet the highest industry standards. In addition to standard interoperability and compatibility testing to ensure that all systems work together seamlessly, we also battle-test carriers with simulations of real-time traffic to evaluate available bandwidth and service quality. We continuously monitor our network and automatically optimize carrier routing paths to maximize quality and deliverability.

No route blending

Some service providers claim that blending routes (combining routes from multiple carriers) improves reliability and ensures uptime. In reality, though, these service providers blend high-quality local carriers with cheaper aggregators that use lower-quality routes, leading to inconsistent call quality. Our strict carrier approval process and automated quality-based routing engine allows Plivo to consistently maintain a high quality of service.

Carrier redundancy

We connect to multiple carriers in each country to ensure that we never have a single point of failure. If one carrier experiences issues, our systems automatically divert traffic through other available carriers. We prioritize using the best routes and ensure we have appropriate redundancy to guarantee high reliability in each region.

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Reliability

Plivo's intelligent distributed call routing system ensures that all traffic is distributed not only over the fastest routes, but also the most reliable ones. By contrast, some providers without global data centers use centralized routing, forcing all call traffic through a single location. Not only does this approach add latency for customers located far from the central routing location, it also sets up the central location as a single point of failure, with a potentially devastating impact on reliability. Distributed routing eliminates single points of failure and provides flexibility and scalability by offering a presence in multiple regions.

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Practical benefits

It wouldn't be a premium communications network without a few additional perks that you can get only from a low-latency global network.

Guaranteed CLI

Businesses need the ability to identify a caller's phone number to quickly bring up their account information. We support both domestic and international Calling Line Identification (CLI) (a.k.a. caller ID) to help businesses provide great customer service.

We proactively test carriers for CLI using our in-country testing node network, and deprioritize any carriers that fail this test. Carriers that have ongoing issues are removed from our routing system.

Maintaining CLI across carriers is more complex than you might think. For example, countries in Europe and Asia have two kinds of carrier routes: those that allow only international caller IDs and those that allow only domestic. Plivo has partnerships with both types of carriers and has systems in place to automatically route calls via the right carriers and routes, taking care of the complexities and compliance for our customers.

Instant phone number provisioning

Plivo's direct carrier connects gives us instant access to unlimited long code, toll-free, and short code phone numbers. We have a large, diverse inventory of long code, toll-free, and short code phone numbers for our customers to choose from in more than 65 countries and 8,000 area codes, so customers can always provision the numbers they need in each country and region without having to wait for an appropriate number to become available.

High SMS deliverability rates

Our carrier partnerships and optimized routing ensure high SMS delivery rates. We connect directly to carriers and avoid aggregators and resellers and the added hops they impose. In addition, we make proactive checks for invalid and incorrect numbers before an SMS message is sent out using our APIs. As a result, Plivo's SMS delivery rates are among the highest in the industry. When we run into SMS delivery issues, we provide after-the-fact error codes to our customers so that they can figure out the root causes of any issues, and have confidence in their delivery metrics.

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End-to-end carrier relationship management

It's taken Plivo 10 years to develop our global carrier network, and we continue working all the time to maintain and expand it. Like so many things in business, a great telecom network is all about great relationships. Our carrier management team has the experience and the contacts necessary to procure the best possible routes for customers' voice calls and text messages with minimal-latency access to international carriers at the lowest available price. Each year, Plivo manages more than a billion voice and SMS connections. Our growing voice and messaging traffic gives us increasing leverage with carriers, and that helps us negotiate better pricing for our services. The savings we gain from carriers lets us set our pay-as-you-go service prices lower than other CPaaS platforms.

Carrier contracts

We negotiate, maintain, and renew contracts with hundreds of carriers around the globe. Direct local carrier connections give customers better voice quality and SMS deliverability. Because we cut out resellers and aggregators, we also eliminate practices that degrade quality of service. For instance, we don't offer least-cost routing, which prioritizes low cost over high reliability, nor do we make use of routing dilution or blending, which similarly uses unreliable low-cost routes with the objective of improving margins.

Regulatory compliance

We work with our customers to help them meet local regulatory and legal requirements when provisioning and maintaining phone numbers. One way we do that is through compliance applications. From within the Plivo console, customers can enter and save the sets of documents they need to meet regulatory requirements, submit them, and stay informed on the progress of the compliance application. The application page guides customers through the necessary regulatory information and the required supporting documentation for the long code, toll-free, and short code numbers they want in the geographies in which they do business. We also help customers through the regulatory process of registering custom sender IDs for their brands in countries that require upfront registration, seamlessly from within the console.

Support

Despite everyone's best efforts, things do go wrong in telecom. When that happens, businesses need to quickly zero in on what caused the problem and get it fixed. Because Plivo manages carrier relationships for our customers, we have a complete end-to-end view of every connection. We can identify issues and work with carriers to get problems solved, sometimes before our customers even know something went wrong.

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Summary

Plivo has made a huge investment in our carrier network. We've spent years developing the human and network connections necessary to ensure that our customers' calls and text messages get to their destinations as quickly and reliably as possible. No other CPaaS can match our premium communications network.

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About Plivo

Plivo offers businesses of all kinds a simple, fast, and scalable way to modernize customer communications. Thousands of businesses use Plivo to integrate voice calling and text messaging into their applications to deliver better customer experiences. The Plivo team brings deep communications and software development experience to address the needs of today's businesses — quality, scale, speed, and agility.

Want to learn more?

Visit Plivo

2FA and OTP
SMS, Call

Your login verification code is 105643

Contact Center
Chat, Messaging, Call

Can you share a picture of your damaged package?

Text Marketing
SMS, MMS

Get 40% off on your total purchase!

Notifications
Call, SMS

Your appointment is scheduled for 4 p.m.

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