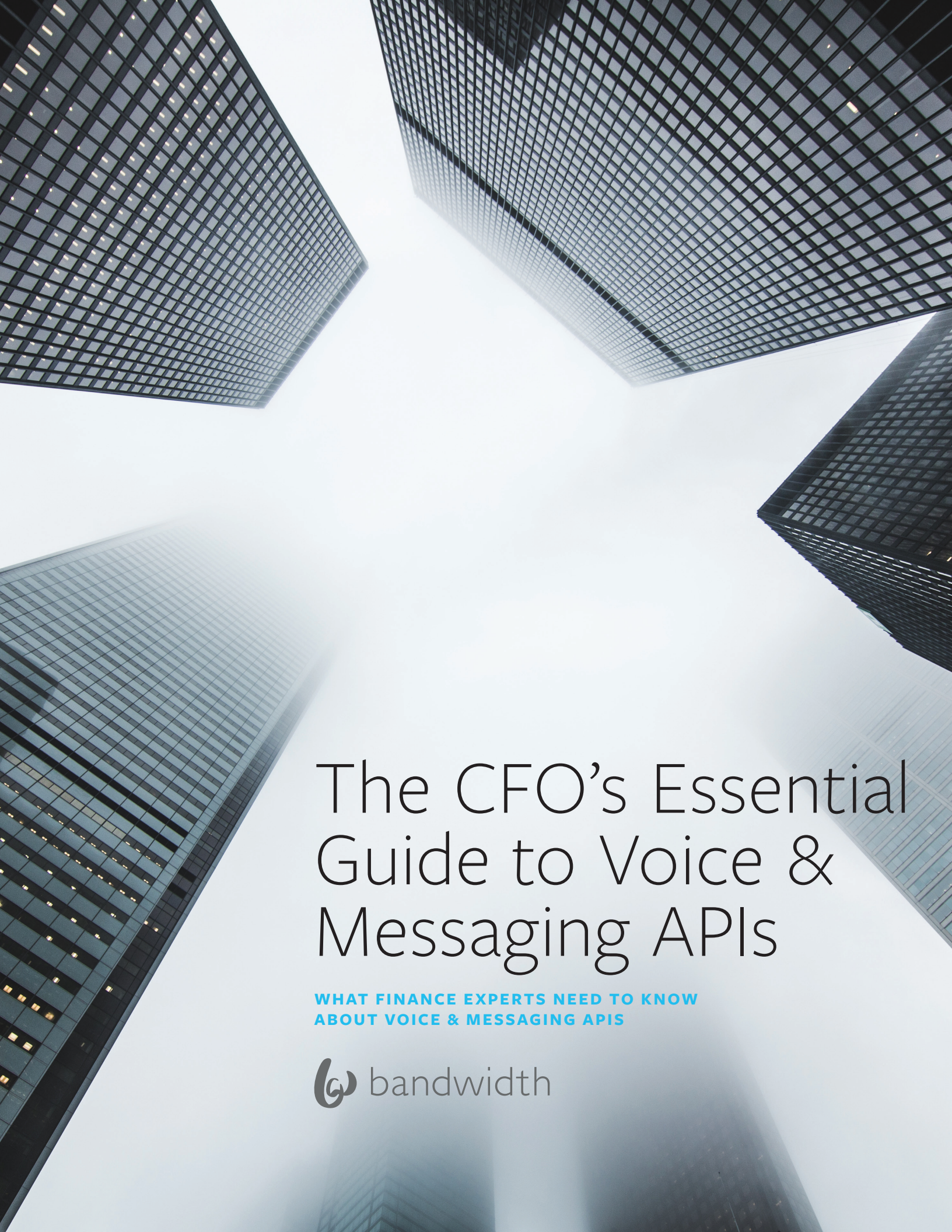


A low-angle, upward-looking photograph of several modern skyscrapers with glass facades, creating a sense of height and urban density. The buildings are arranged in a circular pattern around the center of the frame, with their edges converging towards the top. The sky is a pale, hazy blue.

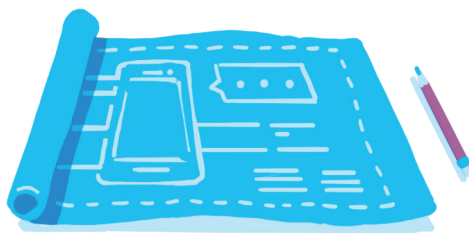
The CFO's Essential Guide to Voice & Messaging APIs

WHAT FINANCE EXPERTS NEED TO KNOW
ABOUT VOICE & MESSAGING APIS



So your product and operations teams want to add communications functions into your software? They're not alone. Voice and messaging APIs are innovating communications in much the same way that Amazon Web Services transformed cloud computing. This guide will give you an inside look at doing voice and messaging right, on budget, and on time—with a CPaaS Solution.

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So, what the heck is CPaaS and why should I care?

CPaaS (Communications Platform as a Service) solutions—which include voice, messaging, and other communication-focused APIs are a software shortcut that allows developers to quickly and easily integrate calling, texting and other telecommunication functions directly into applications. A few lines of code—and voila! You've got innovation built to scale.

There was a time when only large enterprises with lots of resources could afford to add voice and messaging to their systems. Adding this functionality meant purchasing large, costly infrastructure like PBX switches or SIP trunks, not to mention hiring a team of experts to integrate it and connect it all with the other systems. CPaaS has changed all that.

Now, a single developer with a few lines of code can add business-critical features in hours rather than weeks or months. In fact, companies of any size can use communication APIs to deliver self-service onboarding, support, and other features to their end users, improving the customer experience while lowering operational costs. Businesses can also extend the value of existing assets by adding voice and messaging capabilities to legacy software.



AS A CFO OR FINANCIAL LEADER, IT'S IMPORTANT TO UNDERSTAND THE CPAAS LANDSCAPE:

What it looks like, who the main players are, and how the choices your organization makes will affect business operations and your bottom line. This guide will help you do all that and more, preparing you to guide and support your company's technical leaders every step of the way.



LET'S START FROM THE TOP: WHAT'S AN API?

An API (Application Program Interface) is simply a few lines of ready-made code that make it possible for applications to interact with each other and share data. Think of it as an Excel formula for your most complicated financial analytics—where you never have to build a thing! (Just copy, paste and have it do the work for you.) These software shortcuts let developers quickly and easily integrate common functionality into websites, mobile applications and internet-connected devices.

Still sound complicated? Here's a real-world example. Have you ever used your Facebook or LinkedIn password to log into a different application altogether? That's APIs at work. They make it easier for you (one less password to remember), and easier for the developer behind the scenes (one less piece of functionality he has to create from scratch). He can use Facebook or LinkedIn's APIs to securely access user data instead of creating a way to store and manage his own.





OK, I KNOW WHAT AN API IS NOW. BUT WHY IS MY PRODUCT GUY SO AMPED UP ON CPAAS?

CPaaS is the newest trend in the decades-old movement toward cloud-based business processes. From a financial operations standpoint, communications in the cloud (just like anything else in the cloud) is a play for cost savings, efficiency and resource management. CPaaS removes the need to buy hardware—delivering simpler, quicker and more cost-effective access to the calling and texting functionality your product team needs to build sticky applications. Similar to the example above with creating login credentials, your developer doesn't need to figure out how to build an entire connected call center just to support phone call functionality—our team has done the work already! He can take a ready-made software development kit and save some serious time and money.

As for your product guy, he probably knows that many of the most successful companies taking advantage of CPaaS are those well acquainted with using communications as an enabler and differentiator. These no-stack startups, the likes of Google, Uber, and Zendesk, are highly scalable, agile and disruptive to well established industries.

CPAAS CAN MAKE A DIFFERENCE IN YOUR BUSINESS.

Today virtually everyone has experienced the value that communications APIs can bring to everyday interactions. Below are just a few examples.



AUTOMATION:

Your doctor's office automatically texts you appointment reminders the day before an appointment to make sure you'll be there on time



STREAMLINED PROCESSES:

You click a link from a mobile app to call a support agent when you experience problems with your cable television—the support agent already knows a detailed history thanks to tight integration.



BETTER CUSTOMER EXPERIENCES:

Your bank texts you an authentication code that you enter online to validate your account access instead of waiting on hold for a customer service rep.



CPaaS Stories: Making a Difference with Businesses Big and Small

CFOs and financial managers working closely with the business often have concerns that operations teams haven't completely fleshed out—namely, the financial ones. When it comes to CPaaS, though, it's tough to find situations where the investment in automation doesn't yield positive returns. That's mostly because the investment in time, capital and human resources is usually quite a bit less than implementing voice and messaging through more traditional means.

Check out these case studies to see cost savings and automation in action.

WHAT *ELSE* ARE COMPANIES DOING WITH VOICE AND MESSAGING APIS?

Today virtually everyone has experienced the value that communications APIs can bring to everyday interactions. Below are just a few examples.

- Notify customers of important updates or appointments via SMS
- Click-to-call or message from within an application
- Request emergency help quickly, at the right location with 9-1-1 call routing
- Translate speech to text for data entry, or quick response via email
- Launch group calls and texts
- Call analytics and lead tracking functionality
- Two-factor authentication via SMS for increased security
- Web-based chat within your application
- Video chatting or call conferencing
- What else can you imagine?



REAL CPAAS STORIES



THE CHALLENGE:

Pet-sitting application Rover wanted to add an easier, faster way for its users to communicate with each other as they set up pet-sitting appointments. Start-up cost was a huge concern, as well as ability to scale as the user base grew.

THE SOLUTION:

Voice and Messaging APIs

THE RESULTS:

The new functionality immediately made an impact with Rover users— so much so that Rover ended up switching from their beta API partner to a new provider with better volume pricing to be prepared for quick scale and a broader release. Rover's Co-Founder Philip Kimmey said, "SMS enables sitters and pet owners to easily communicate via channels they're used to. The APIs allowed us to scale and meet our growing need with minimal cost."

"SMS enables sitters and pet owners to easily communicate via channels they're used to. The APIs allowed us to scale and meet our growing need with minimal cost."

Philip Kimmey,
Co-Founder of Rover

REAL CPAAS STORIES



THE CHALLENGE:

60 million U.S. consumers use YellowPages.com and the YP app every month, making it one of the largest opportunities for targeted local advertising. But the YP.com team struggled with managing their inventory of toll free numbers that were a key part of their ad offering.

THE SOLUTION:

Phone Number
Management APIs

THE RESULTS:

After integrating with phone number APIs, YP's number ordering and activation processes were streamlined, resulting in time savings and a bonus 50% inventory cost savings. Thanks to those savings, YP was able to expand more quickly than originally planned.

“Bandwidth’s API has made our phone number processes much more efficient. We’ve lowered the cost of carried inventory by almost 50% in one year.”

Bruce Goettelman
Technical Director of Product Management
Yellow Pages



CPaaS Dollars and Sense

Unlike many of the financial decisions a CFO or financial manager makes each day, investing in a CPaaS can be very simple (and pain free)! When your business teams or devs talk to you about using CPaaS to integrate voice and messaging into software or applications, here are **5 key financial questions** to consider.



1. DOES IT MAKE MORE SENSE TO BUILD IT YOURSELF?

There are times when purchasing on-premise equipment, hiring additional development staff, and embarking on a time-consuming in-house project is the right choice for an organization. However, depending on your current staffing and infrastructure, partnering with a CPaaS can be a much more efficient, expedient and cheaper alternative than DIY. Also keep in mind that any type of DIY solution will need to integrate with other legacy (and future) systems. Depending on the resources available, this could inhibit your team's prospects for future innovation.



2. WHAT'S THE MOST EFFICIENT USE OF YOUR CASHFLOW?

With a DIY solution, you can expect significant capital outlay to get your new voice and messaging implementations up and running—plus a long waiting period from your team's "big idea" to realizing revenue. With CPaaS, you can be much more efficient with your cashflow. Instead of spending millions of dollars (or more) on equipment and startup costs, you'll have the flexibility of a monthly subscription service to scale up or down.



3. WHAT'S YOUR BUDGET FOR TECHNICAL AND TELECOM STAFF?

What size line item do you have on the budget for voice and messaging integration? Would you rather pay for full-time dev resources that can float from project to project or spend more of those dollars on other technology investments?



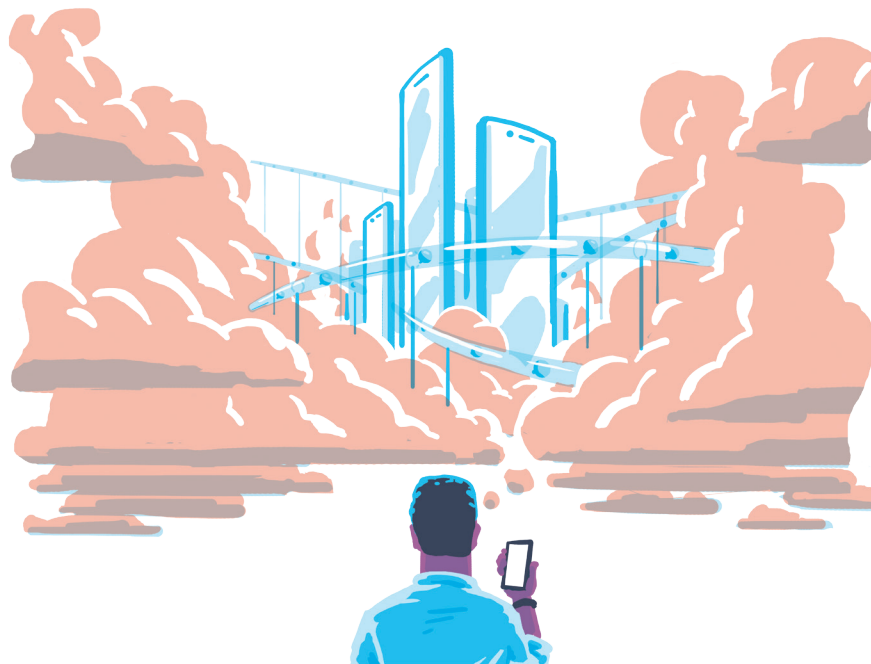
4. HOW QUICKLY DO YOU NEED TO ROLLOUT NEW SERVICES?

Besides cost savings (or minimal required investment) and technology benefits, CPaaS makes it easy for an organization to roll out new functionality in days or weeks rather than months or years. That often translates into quicker revenue realization from the new services you've added and can have a big impact on your bottom line.



5. WHAT COULD YOU DO WITH THE MONEY YOU SAVE?

When you don't need to hire high-salary telecom engineers or buy any new hardware or specialized telecom equipment, you'll have more opportunities to repurpose those dollars on mission-critical, differentiated projects. As CFO, you've got a holistic view of where those dollars can make the greatest business impact.



Types of CPaaS Providers: *What's the Best Choice for My Business?*

The CPaaS sector, once dominated by just a few players, has grown considerably due to the incredible demand for voice and messaging capabilities in business and consumer applications. A number of large, seasoned communications providers are now stepping up to the plate and offering CPaaS or CPaaS-like services, some as a compliment to their own traditional telecom offerings—and others as pure-play software vendors.

In its early days (just a few short years ago), the CPaaS market was dominated by pure-play software companies like Twilio, Nexmo and Tropo that targeted software developers who needed quick and easy access to communication APIs for voice and messaging and who had little to no knowledge of the intricacies of telecom infrastructure. As the market evolved, the needs of many CPaaS customers also evolved—they outgrew some of the “off the shelf” API options—in some cases, they needed a solution that could scale, in others, they needed higher quality, and in others, a better cost structure. As a result, a number of new players emerged to meet the demands of the market.

THE FOLLOWING CHART GIVES A SNAPSHOT OF THE KEY PLAYERS IN THE INDUSTRY.

You and your development team should carefully consider these offerings as part of your evaluation process—and remember: all providers are not created equal.

THE PLAYERS:	  	 	(Not CPaaS)   
GOOD CHOICE FOR:	Start-ups Quick software deployment Lower network volume Simple telecom requirements Scale and quality are less important	High speed, high volume Higher quality voice, better message deliverability Number management tasks like buying and porting numbers from one provider to another Business-grade solutions Custom solutions Cost control	Mass telephony Cost control Availability of phone numbers SIP infrastructure or traditional switch infrastructure are available Speed to market is less important
INTENDED BUYER:	Software developers, the “one-man-shop” start-up owner	Product owners, solutions architects, C-level executives	Telecom professionals (i.e. prior telecom experience required!)
CHALLENGES:	Support available	Prohibitive	Support available

HOW CAN YOU SUPPORT YOUR PRODUCT TEAM IN MAKING THE RIGHT CHOICE?

Though it's not your job to know all the technical ins and outs of each CPaaS offering, a general knowledge of CPaaS players and the kinds of things businesses are doing with CPaaS will assist you in guiding your more technical counterparts. Here are some key questions any organization should ask, in considering its CPaaS options:



Calling and Texting:

- What features do you require? Basic voice and messaging services are a typical standard offering for all of the above providers, but some also offer picture messaging (MMS), video messaging, group messaging, 9-1-1 connectivity, number management APIs for purchasing additional numbers and porting from carrier to carrier, and more.
- Do you require international coverage/support?
- Is mobile of particular concern to you? You may also require a mobile software development kit (SDK) package as well.



Phone numbers:

- Do you simply need quick access to phone numbers for a few thousand users in a particular local area? Or do you need an unlimited nationwide supply?
- Does your application require users to transfer numbers from other carriers? Ability to handle number porting in bulk should be of particular consideration if so.
- Do you require features like call forwarding, call recording, call tracking, etc? If so, you may need a special type of number to accommodate these features.



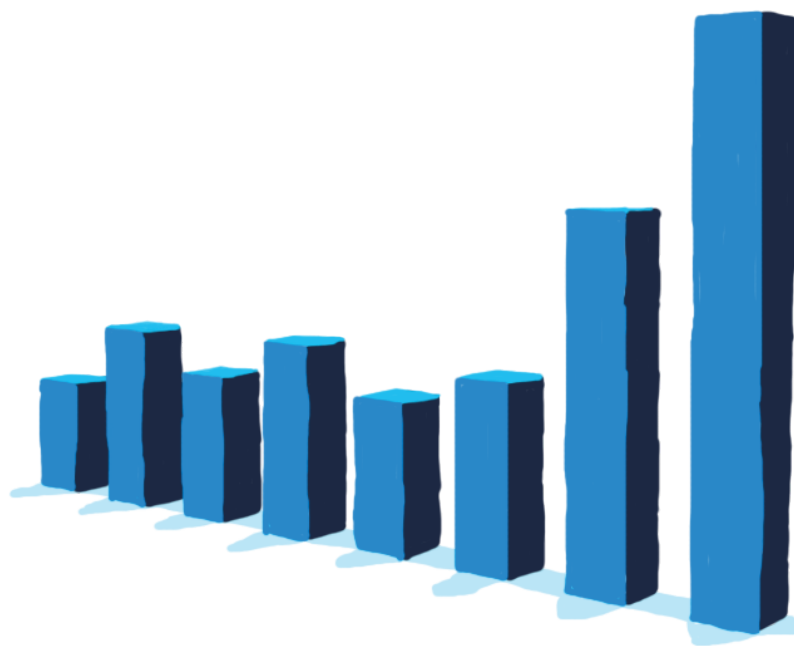
Support:

- What kind of support structure do you expect? Do you have a support SLA that needs to be considered?
- Are sample code, online forums and document libraries enough for you to solve problems or do you require on-call support 24/7 or a dedicated account manager?



Network Control:

- Do you need the flexibility of choosing or designing your own call routes to optimize for quality or cost? Some network providers will offer true customization, or pre-designed routes to make it easy to control costs or quality.
- Do you need quick responses and root cause for any potential issues? Dealing directly with a network carrier will provide quicker, more detailed responses should issues arise.
- Is quality of concern to you? Working directly with a carrier means more directly connected calls—no hopping around via third-party network vendors—resulting in a higher quality call.



The Bottom Line

As you can see, a variety of operational and financial considerations go into a CPaaS buying decision and it can't be taken lightly. Understanding the basics of CPaaS and how businesses can use it to both automate their offerings and glean cost savings is an important step for any financial leader. Working together with your business and product teams, the next step is up to you.

**IF YOU WANT TO LEARN MORE ABOUT BANDWIDTH'S CPAAS OFFERING,
START A CONVERSATION WITH US TODAY.**



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