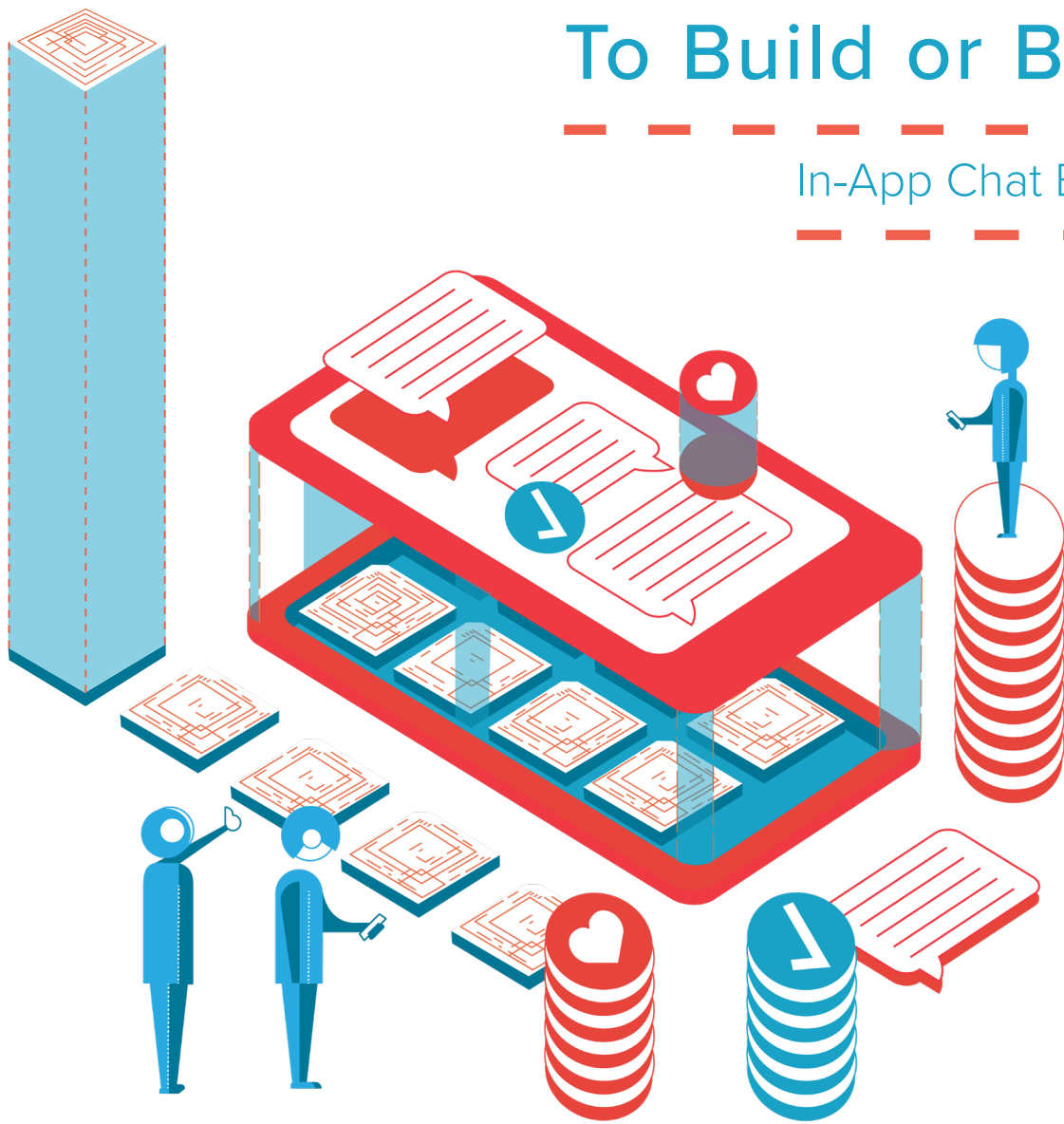


PubNub

# The Developer's Dilemma

## To Build or Buy?

In-App Chat Edition



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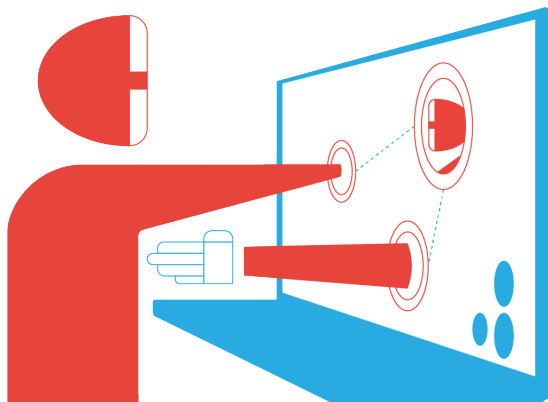
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Chat is a crucial component of any app to foster engagement, create true connections among users, and build a shared sense of authentic community—from live event reactions to doctor-patient counseling, from customer service inquiries to multiplayer chat streams during a game, and more. If this essential form of communication is missing, or less-than-seamlessly integrated, users will go as far as to disengage or avoid using your platform.

At first glance, it may seem that the best, most-straightforward option would be enlisting your own developers to build a solution in house—from your chat features and backend architecture to future maintenance and updates. After all, they understand your company's specific needs and use case best.

But building chat—along with any other real-time feature—from scratch is expensive and time-consuming, and it opens the door to potential roadblocks and delays. Chat is extremely important to your application's success, but it shouldn't be your team's primary focus. Time spent building this backend infrastructure is time that developers are not focusing on your core product.

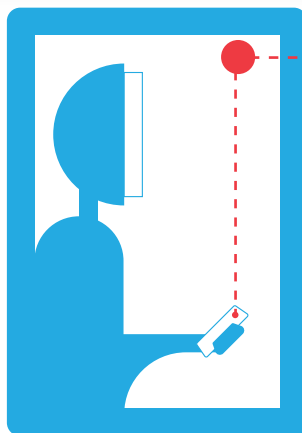


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Plus, it's extremely difficult to build in-house chat that is consistently reliable with low latency, can operate in real time, and can scale as your users and usage grows.

Purchasing a third-party solution to build out the infrastructure and core functionality for your chat is the only real way to ensure operational reliability, long-term scalability, and to build all the essential chat features your users need in a timely, cost-effective manner. By relying on experts—like PubNub—to build your chat, you gain all these benefits without needing to sacrifice total customization of your chat, with flexible SDKs, chat and UI components, and a library of integrations.

If you are weighing the option of building in-house software against the value of buying an in-app chat solution, you've come to the right place. In the following guide, we'll cover the topics you should consider when building out chat, and why you should buy a solution to build with.



# WHAT TO CONSIDER WHEN BUILDING IN-APP CHAT

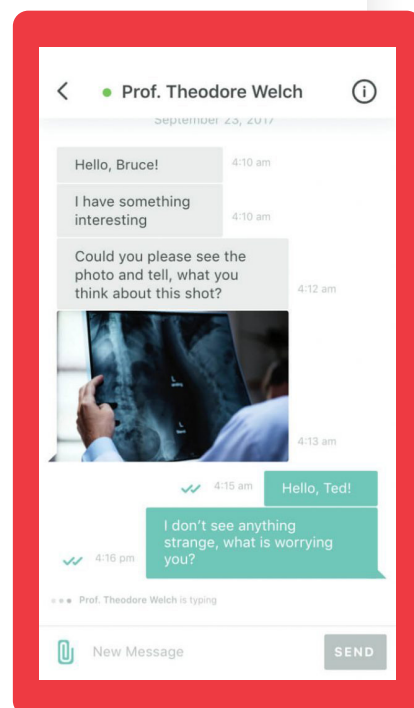
Chat is a critical feature across multiple diverse industries like e-learning, healthcare, live events, marketplaces, and customer service. Every use case will have specific challenges and requirements. Before deciding to build in house or buy a solution to build your chat functionality, it is important to consider your own business's values and priorities, such as:

## CUSTOMIZATION

One benefit that companies often cite when building in-house is that they retain complete control over their features and functionality. But with platform solutions that are currently available, even the most unique customization for a niche use case is within the realm of possibility. For example, PubNub's platform of SDKs and chat components works as a set of building blocks for your virtual experiences, without sacrificing any of the flexibility, reliability, or customization as you build your product.

## SCOPE

Make sure to truly understand the scope of the chat you want in your platform before you decide to build in house. Do you want just one-to-one chat or chat streams and multi-channel chat? Will you want to be available on different platforms and devices, or



offer desktop and mobile interfaces? Will your solution need to span globally or comply with data regulations like GDPR or HIPAA? The larger the scope of your project, the more difficult and risky it will be to go with an in-house solution.

And if your project does grow in scope, or ends up being more complex than you originally planned, do you have the funds allocated to continue building and experimenting with a feature that is not core to the business model? Will you have the ability to host, run, maintain, and scale the service moving forward?

### **TIME, RESOURCES, AND OPPORTUNITY COSTS**

When choosing to build over buy, you also have to consider missed opportunities, not just the upfront costs. Will building this part of the software distract your employees from solving problems that impact your bottom line?

It's common for organizations to underestimate the time, resources, and effort it requires to build robust, scalable in-app chat. As you build, you will realize that modern chat is a very feature-rich experience, which includes multiple real-time facets in addition to messaging, like notifications, presence indicators, and profanity filtering.

When building in-app chat, you will be directly pulling resources away from your business's main goals and mission. Anytime that your developer is working on a non-central feature in your app, that is taking resources away from the main product.



By building your chat infrastructure and features with a third-party solution, your team is free to focus on their specializations. With customers who have come to us after trying to build in house, they often needed to dedicate at least one full-time developer to just maintaining their chat infrastructure.

### **SCALABILITY**

Your infrastructure will need to support growing numbers of users and surges in activity, and be able to handle any number of simultaneous conversations. You might need to invest in more infrastructure and even refocus developers to add or extend chat features as you grow.

And then, as your user base expands, you'll always need to upgrade, maintain, expand, and rework your chat and its supporting infrastructure. You'll need dedicated resources to handle traffic spikes, monitor systems, balance loads, log and mitigate errors, and ensure future upgrades are implemented seamlessly, so that users don't experience interruptions or downtime.

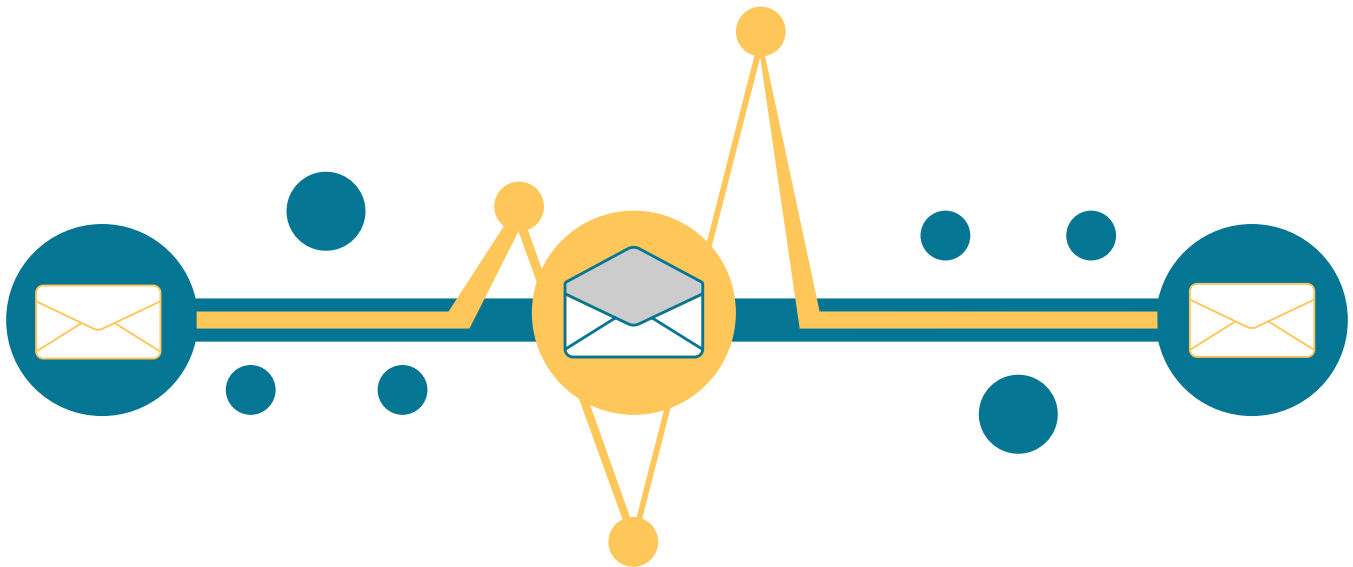
### **RELIABILITY**

Maintenance will be ongoing, and it's not just making sure chat doesn't go down; it's verifying your core infrastructure is also stable. Reliability will require global replication, automatic fail safes, reliable message delivery, and other capabilities that all need to be architected, developed, tested, and deployed.



## ADDING INTERACTIVE FEATURES

The basis of a good chat is real-time message sends, but users have come to expect many other real-time features alongside it. Your users will notice if the real-time features that add to their engagement are missing. Fundamental additions like typing indicators, online/offline presence detection, reactions, emojis, and geolocation go a long way towards improving communication and providing the best user experience.





## WHY YOU SHOULD BUY INSTEAD

At **PubNub**, we've worked with countless developers and companies who have turned to us after trying and struggling to build, operate, and maintain their own chat in-house—especially when they experienced substantial growth and needed scalability and reliability for a fraction of the cost. Like our customer vFairs, who migrated from in-house in 2020, and was able to scale their user base by 40x with no downtime. In fact, customers who build with PubNub save 75% on development time, compared to in-house building or other point solutions.

So, after speaking with multiple customers and listening to their feedback, what have we found to be the best benefits of buying a platform solution for your chat over building in-house?

### HUGE COST SAVINGS

On average, it takes less than half the time and money to implement chat with a solution like PubNub than to build it in house. It also saves exponentially over staying in-house in the long run, because maintenance, growth, and scalability are already built into the monthly pricing of most third-party solutions.

*"**PubNub** already has the functions, and the documentation. We could have built our chat and updates ourselves," said Sam Staley, CEO at Event.Gives, a fundraising events platform. "But **PubNub** is the expert, and we trust them. They provide a secure, maintained backbone that we know will be there every day and work right."*



## LESS DEVELOPER TIME

It cannot be stressed enough how beneficial it is to make sure your developers are free to work on the core functionality of your product whenever possible. The price of tying up developers on non-core essentials adds up, with not only the additional time and cost for any roadblocks, but the opportunity costs of possible missed features and lost revenue.

**Consider this:** How much more could you accomplish by having your best developers spend time on your core platform or app, instead of on your real-time infrastructure in the background? “With **PubNub**, we have the building blocks we need,” said Justin Poliey, Director of Engineering at audience engagement platform **LiveLike**. “**PubNub** has made our engineering and product roadmap discussions easier, because we know what our capabilities are so we can map our ideas precisely to how we’re going to execute them.”

## EASIER IMPLEMENTATION

Buying a solution means that you will have access to all of their pre-built features and integrations. It is extremely simple to plug the solutions into your existing software and make it work, which cuts down on the time to deploy since you don’t have to build the architecture from the ground up.

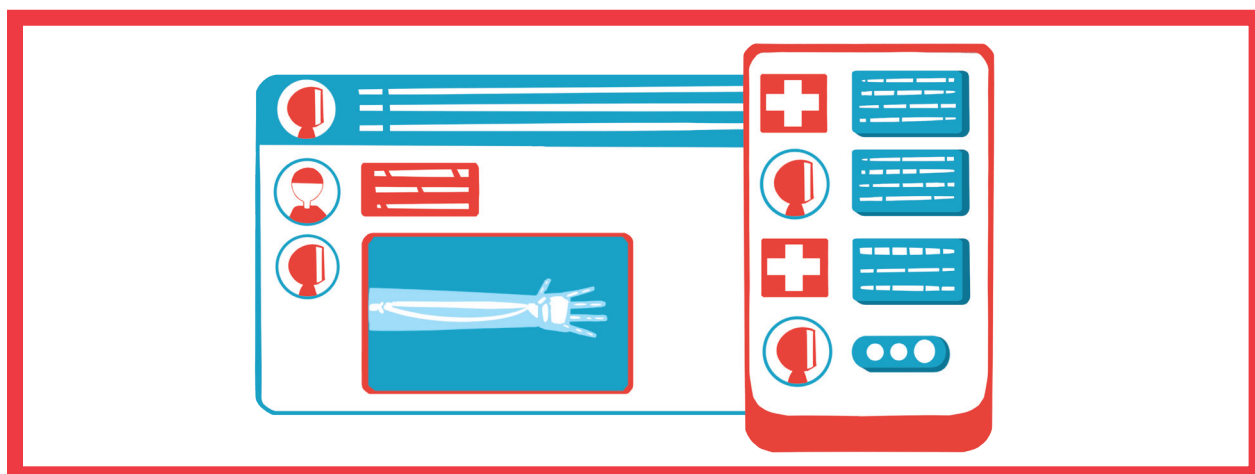
For example, **PubNub** helps developers create their app with multiple pre-built chat and UI components, integrations, and a library of SDKs that can be plugged in to make development even faster and easier, all while providing advanced features and customization in less time—like profanity filtering, video integration, presence indicators,



and more. Mobile game developer **Pocket Gems** was able to migrate their existing solution to a highly scalable in-game chat nearly overnight. “The chat we built in-house wasn’t designed to scale for battles with many players...Once we saw that we needed a scaled, real-time communication solution, we turned to **PubNub**,” said Ashik Manandhar, **Pocket Gems**’ Engineering Director. “Now with **PubNub**, we have the technology to make our ideas a reality in a very short time with minimal effort.”

## MORE COMPLEX, ENGAGING FEATURES

A third-party vendor like **PubNub** also allows you to fully customize your chat to fit your exact needs and solve unique challenges. There are functions available to add additional attributes like push notifications, geolocation tracking, data streaming, and reactions that all work to improve engagement. Building, operating, and maintaining these additional features seamlessly in house alongside chat would be nearly impossible without a massive dev team. And you also have access to a highly-skilled team of Solution Architects to help with any questions and custom implementations.





Our customer **NurseGrid**, a platform that improves work scheduling for nurses, was able to easily add and automate all of the features they envisioned, like immediate alerts for schedule changes. “**PubNub** takes so many of the constraints off of us that we can just focus on the product, which is fantastic,” said Lorenzo Ciacci, **NurseGrid**’s CTO.

## IMPROVED SCALABILITY

When buying chat software, the solution will be able to handle any amount of message traffic, number of users, and simultaneous conversations. The platform will be built to handle growth and new features seamlessly. And at **PubNub**, you are even rewarded for growth with an unlimited amount of concurrent users and no added concurrency charges. “With the growth we’ve seen in the past ten months, it would have been a huge problem and time issue to scale up our chat manually. Having **PubNub** means we have one less thing to worry about. We’ve never questioned if it will work and scale with us as we grow,” said Arfeen Godil, Director of IT at **vFairs**.





## EFFORTLESS RELIABILITY

Another pro to buying an in-app chat solution is the confidence that it will just be reliable. For example, **PubNub** guarantees a **99.999%** uptime SLA and less than 100ms latency globally. This means there will be no need to worry about delays, outages, or maintaining these statistics as your user base expands. *“During an event, we have never worried about the reliability of our chat backend services because we know it’s being handled on the **PubNub** side,”* says Shray Bansal, Co-Founder and CTO at **Moment House**, a virtual-events platform for artists.

## LESS MAINTENANCE

One of the biggest benefits to a platform chat solution like **PubNub** is the continued savings on maintenance and optimization. A provider will often handle the responsibilities of solving technical issues and monitoring the chat backend. You will also have access to a support network, customer success agents, and detailed documentation for the components.

“We know **PubNub** is going to deliver all of our messages when and where we want them. It’s great to free up our engineers from worrying about these aspects,” said Colin Britton, COO of **JUNO**, a hybrid-events platform with a focus on lasting communities.

At **PubNub**, we offer the ability to build out and add on additional features to your chat, whether that’s by using our pre-built components and integrations partners, or by bringing in your own data using Functions. Our flexibility has allowed customers to build engaging virtual spaces and undertake larger, more complex projects than before.

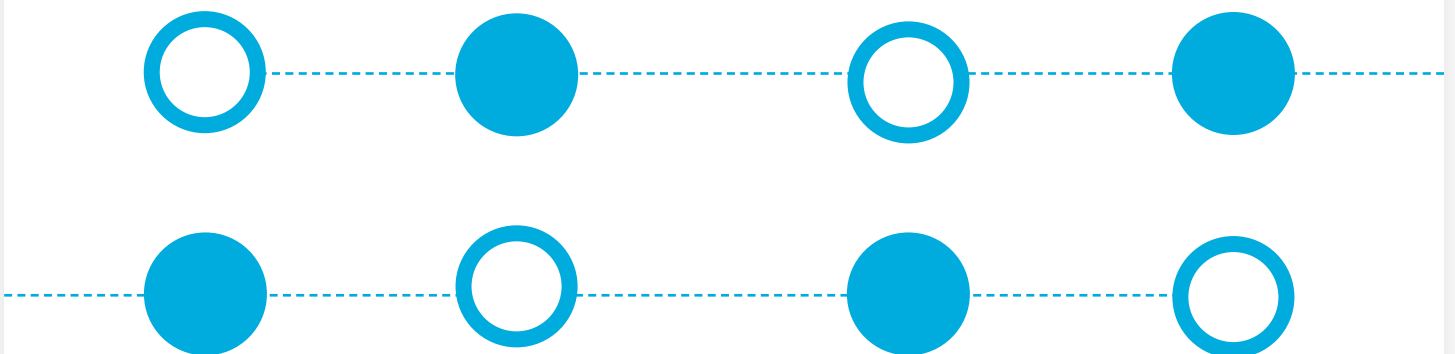


## DEVELOPER SUPPORT TO GET TO MARKET FASTER AND EASILY MAINTAIN YOUR BACKEND

Maintaining your chat infrastructure is just as important as building it out. You shouldn't have to worry about solving technical issues or monitoring your chat backend yourself, which uses valuable time and resources that could be spent on your core product instead. Letting a chat provider handle your backend infrastructure helps you get to market faster while you focus on building exactly what you want.

When working with a chat provider, you should have easy access to a support network and proper documentation—including pre-built chat components and a wide range of SDKs to help implement features quickly.

Questions and issues will inevitably arise during the development process, so a dedicated support team is crucial to successful deployment. **PubNub** has a talented team of Solution Architects to assist with any issues you might encounter when testing, building, or deploying your chat so you can go to market quickly and seamlessly. And for customers who host live event streams on their platforms, like concerts, we even have a dedicated personal team to help you in real time during your events.



## Don't Just Take Our Word for It, Check Out These Examples of Why You Should Buy a Solution to Power Your Chat

### \$85K-\$90K



We calculated that building in-app chat will usually take about four months and four developers. At \$35 per hour each (which is only the 25th percentile for an engineer's salary), it will be around \$85,000-\$90,000 to implement chat. That doesn't even include the opportunity cost from the slower time-to-market.

### \$144K Annual



There is also a cost to maturing, maintaining, and growing. It will take an average of two developers on-hand to maintain the infrastructure and ensure reliability, along with the costs of physical upkeep, servers, storage, and more. You can expect to pay a minimum of \$12,000 per month for maintenance. That is \$144,000 per year.

### 200,000 MAU



With pricing that averages \$4,000 per month to handle roughly 200,000 monthly active users, the first-year cost of PubNub is just \$48,000. Add in two developers for two months to deploy PubNub, and the total first-year cost is \$72,000

### 1/2 the Cost



We found that building and maintaining chat costs will cost an average of \$185,000 for small-to-midsize enterprises within the first year, along with almost 3 cumulative years of developer time. On average, PubNub takes two months to deploy and is less than half the cost.



## CONCLUSION



There are certain situations where building in-house might work for your business, like smaller proof-of-concepts or one time projects. But in most cases, we strongly encourage organizations to consider buying this part of their infrastructure. The cost savings and increased developer resources are just too good to pass up. Why spend a substantial amount of time hiring people and having them design a solution for your business, when one already exists on the market and is proven to be successful? A specialized vendor like PubNub has already solved the same issues countless times, and has streamlined the solution based on best practices and the success of other customers' implementations.

### Building with PubNub

Customers that implement in-app chat with **PubNub** ensure that their applications are interactive and engaging, that they run effortlessly, and that they will save considerably in the long run. Like our customer, **JUNO**, who was confident in **PubNub**'s reliability, scalability, and ability to host unlimited concurrent users to help them continue their pattern of 3x exponential growth. **PubNub** gives you everything you need to build robust, feature-rich chat that always works. It's infinitely customizable, has a **99.999%** uptime guarantee, and has less than 100ms latency worldwide.

Every dollar or minute wasted on non-core functionality means less time making your own app better. **PubNub** gives you reliable, world-class chat in less time—and using less resources—so you can focus on what's important for your own business. If you are interested in working with PubNub to build chat and other essential real-time features within your product, [contact us here](#).