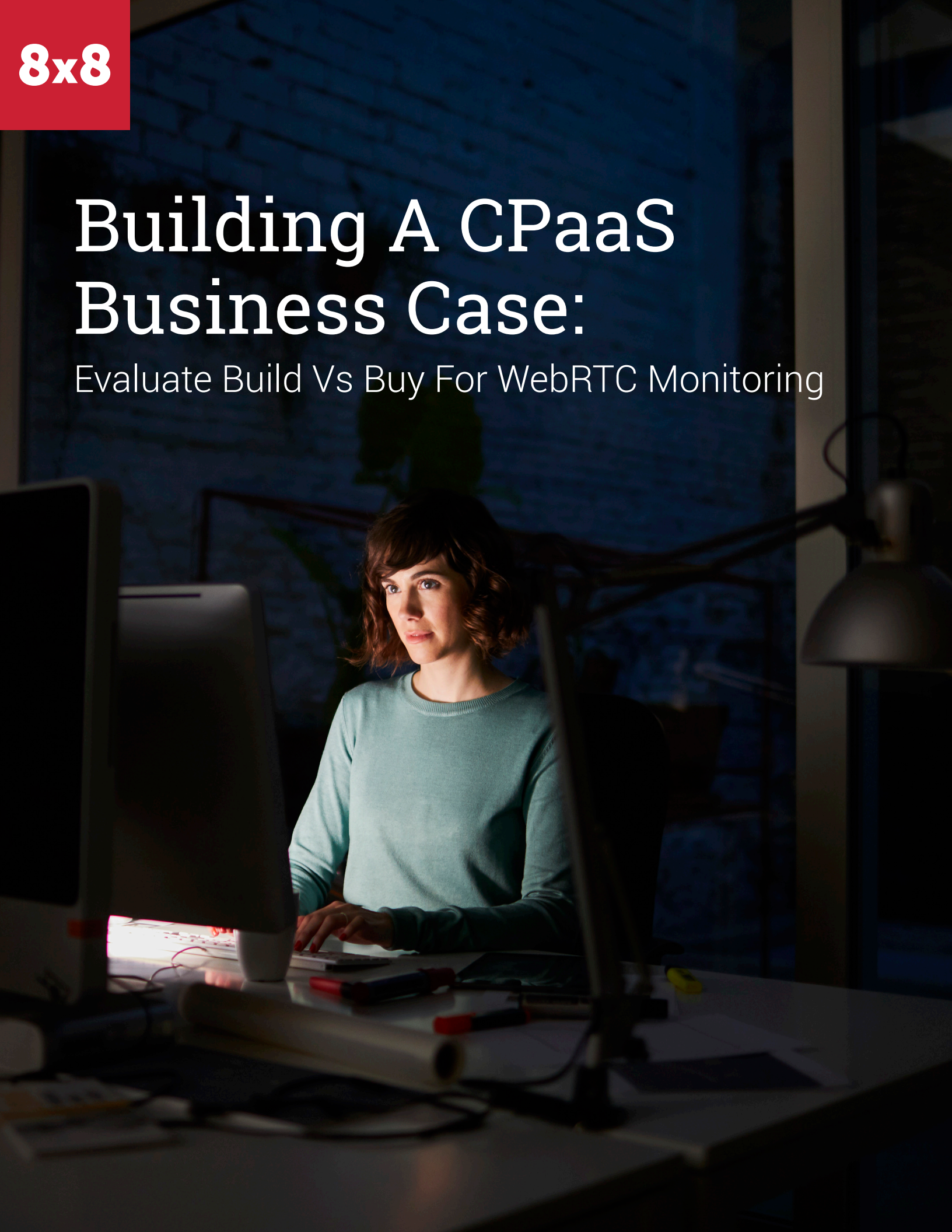


# Building A CPaaS Business Case:

Evaluate Build Vs Buy For WebRTC Monitoring



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# Building A CPaaS Business Case: Evaluate Build vs Buy For WebRTC Monitoring

Purchasing the 8x8 callstats SaaS solution delivers a better value solution with lower TCO over 5 years than building a WebRTC monitoring solution from scratch. Using our TCO calculator, a comparison of both options reveals callstats delivers greater functionality, more quickly, at lower cost.

## Executive Summary

Service providers and enterprises need new network monitoring and analysis tools to support WebRTC initiatives. When rolling out a WebRTC-based service, you can either build your own monitoring tools from scratch or use a commercial solution such as callstats.

callstats.io performed a total cost of ownership (TCO) analysis to compare the two approaches for an average-size service provider. Our study finds callstats.io yields a cost savings of over \$900K USD after one year and offers better value even over a five-year horizon.

This paper reviews the details and the assumptions behind our TCO analysis. If you are considering building your own WebRTC monitoring application, this paper will help you identify the various software development, test and support resources you'll need to hire. It will also help you sketch out a preliminary development budget, scope out ongoing operations expenses and think about potential opportunity costs and risks.

Building a full-function WebRTC monitoring tool is a serious undertaking that requires significant time and expertise, and diverts key development resources from more strategic endeavors. We understand first-hand what it takes to build a comprehensive WebRTC monitoring platform. Our seasoned team of WebRTC experts has spent over five years developing and expanding our intellectual property, building upon real-world experience gained with large customers like 8x8, RingCentral, and Atlassian.

We hope this paper helps you thoroughly consider the full costs of building your own solution. When you do, we think you'll conclude callstats can help you save time and money, and improve operations while freeing up valuable development staff and budget to focus on core business projects.

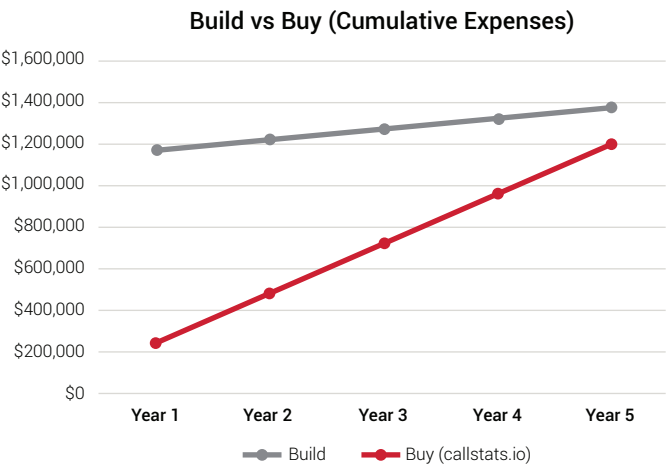


Figure 1: Build vs. Buy TCO Analysis Summary

## Introduction – TCO Tool Helps Make Informed Decisions

Cloud communications services providers (CPaaS, CCaaS, UCaaS providers, etc.) and enterprises are introducing WebRTC-based applications and services to accelerate the pace of innovation, reduce development and operating expenses, and exploit the full potential of the web. With WebRTC you can make HD voice or video calls, share screens or exchange messages directly from a web browser or mobile app without any special-purpose software or dedicated hardware.

Operations teams must introduce new network monitoring, analysis, and diagnostic tools to support WebRTC initiatives and ensure quality user experiences—especially over best-effort internet connections. When launching a WebRTC-based application or service, you can either build your own monitoring tools from scratch or use an off-the-shelf solution like callstats. We developed a build-vs-buy TCO analysis tool to help you make an informed business decision.

The tool compares the five-year TCO for each approach. It factors-in upfront development costs and ongoing operations expenses for the build approach and monthly subscription fees for the buy approach. You can download a free copy of the tool and run your own TCO scenarios using your own data. You can also extend the tool to add more detail or specificity.

## TCO Variables And Assumptions

We used the TCO tool to perform a build versus buy analysis for an average-size CPaaS, CCaaS or UCaaS provider rolling out a new WebRTC-based monitoring application. We estimated the effort required to develop a rudimentary application from the ground up and compared that to the cost of using a commercial offering such as callstats.

Our human capital assumptions for the build approach constitute only a fraction of the research and development effort callstats expended to build out a fully featured, state-of-the-art monitoring service. We assumed a small team of developers could build a simple monitoring application in less than one year. By contrast, the callstats solution was developed over a much longer period of time by dozens of specialized software engineers including data scientists and analytics experts, application architects, UX specialists, and WebRTC thought-leaders such as the co-author of the WebRTC statistics API.

The variables and assumptions factored into our TCO analysis are described below.



# Build Approach

We factored in the following up-front development expenses:

- **Application research** – investigation and discovery to identify functional requirements, develop architectural specifications, etc. We estimated this at 3 full-time equivalent (FTE) months. (See note below regarding FTE cost assumptions.)
- **Software development – WebRTC** – development of core WebRTC monitoring functionality. We assumed 9 FTE-months. WebRTC domain expertise is hard to come by. Most organizations will need to identify outside talent for this effort.
- **Software development** – data engineering – development of core data management functionality (building the data pipeline, selecting and implementing data storage, analytics and warehousing services, etc.). We assumed 9 FTE-months.
- **Software development** – full stack – development of front-end and back-end code. We assumed 9 FTE-months.
- **Software development** – data analytics – development of data analysis, AI, and ML components. We assumed 9 FTE-months. This effort requires domain expertise that might not be prevalent in a typical service provider or enterprise IT organization. You may need to hire data scientists for this work.
- **Software testing** – the complete set of functional, integration, performance and scale testing required to ensure the application is production-ready. We assumed 12 FTE-months
- **Software documentation** – development of the documentation required to maintain, support and extend the application on an ongoing basis. We assumed 1 FTE-month.
- **Software deployment** – costs associated with placing the application into production. We assumed 1 FTE-month.
- **Development tools** – capital expenditures for new software tools required for development and test. We assumed \$10,000.
- **Opportunity cost** – potential direct or indirect revenue lost by diverting critical development resources from strategic projects and core business tasks. We assumed \$100,000.



**Note:** To keep the analysis simple, we assumed a fully burdened monthly FTE cost of \$19,200 (~\$120/ hour) for all engineering and test resources. In practice, actual FTE costs will vary based on the person's experience and discipline.

We factored in the following recurring operating expenses:

- **Monthly cloud compute costs** – we assumed the entire application is hosted in a cloud compute environment such as AWS EC2. We estimated monthly costs of \$50.
- **Monthly cloud data warehousing costs** – we assumed the application is powered by a cloud-based data warehousing service like AWS RedShift. We estimated monthly costs of \$1,000.
- **Software maintenance and enhancements** – ongoing application bug fixes; performance, scalability and resiliency improvements; new features and functionality; etc. We assumed 12 FTE-months.
- **Software support** – ongoing “help desk” support to the operations team using the application in production. We assumed 12 FTE-months.

**Note:** We included only three months of cloud compute and cloud data warehousing costs during the first year. In a build scenario, you will spend the most of the first year developing and testing applications in a non-production environment.





# Buy Approach

For the callstats approach, we assumed the customer selected our Enterprise pricing plan, which is tailored to meet the specific needs of an individual business. With our Enterprise pricing plan, you get the monthly minutes, support commitments and payment terms that are right for your company. For an average-size CPaaS, CCaaS or UCaaS provider we assumed a monthly subscription fee of \$20,000.

Figure 2 shows the estimated build and buy expenses entered into the TCO tool. It summarizes the key variables and assumptions behind the build versus buy analysis.

Estimated Build Expenses	
Monthly fully burdened FTE cost for Dev/Test eng (\$)	\$19,200
One-Time Upfront Expenses	
Application Research (FTE-months)	3
Software Development - WebRTC (FTE-months)	9
Software Development - Data Engineering (FTE-months)	9
Software Development - Full Stack (FTE-months)	9
Software Development - Data Analytics (FTE-months)	9
Software Testing (FTE-months)	12
Software Documentation (FTE-months)	1
Software Deployment (FTE-months)	1
Development Tools (\$)	\$10,000
Opportunity Cost (Resources diverted from strategic projects) (\$)	\$100,000
Recurring Operations Expenses	
Monthly Cloud Compute Costs (\$)	\$50
Months of Cloud Compute During Year 1	3
Monthly Cloud Data Warehousing Costs (\$)	\$1,000
Months of Cloud Data Warehousing During Year 1	3
Software Maintenance and Enhancements (FTE month/year)	1
Software Support (ops team assistance) (FTE months/year)	1
Estimated Buy Expenses	
Monthly callstats.io subscription fee (\$)	\$20,000

Figure 2: Build vs Buy Expense Assumptions

# Findings

We calculated a standard total cost of ownership over a five-year period for each approach. For the build approach we factored in initial development costs and ongoing operations costs. For the buy approach we factored in the ongoing monthly subscription fees. Figures 3 and 4 compare the annual and cumulative expenses of each approach. Figure 1 plots the cumulative expenses of each approach.

During year one callstats offers a cost savings of over \$929,000 because of the significant up-front development expenses associated with the build approach. Even after five years, callstats still yields a lower TCO. Only in year six does the build approach begin to make sense economically. And even then, the home-grown tool will provide only a small fraction of the functionality delivered by callstats.

Build	Year 1	Year 2	Year 3	Year 4	Year 5	Total (\$)
<b>Upfront Expenses</b>						
Application Research	\$57,600	—	—	—	—	\$57,600
Software Development	\$691,200	—	—	—	—	\$691,200
Software Testing	\$230,400	—	—	—	—	\$230,400
Software Documentation	\$19,200	—	—	—	—	\$19,200
Software Deployment	\$19,200	—	—	—	—	\$19,200
Development Tools	\$10,000	—	—	—	—	\$10,000
Opportunity Costs	\$100,000	—	—	—	—	\$100,000
<b>Total Upfront Expenses</b>	<b>\$1,127,600</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>\$1,127,600</b>
<b>Recurring Expenses</b>						
Cloud compute resources	\$150	\$600	\$600	\$600	\$600	\$2,550
Cloud data warehousing resources	\$3,000	\$12,000	\$12,000	\$12,000	\$12,000	\$51,000
Ongoing software maintenance and enhancements	\$19,200	\$19,200	\$19,200	\$19,200	\$19,200	\$96,000
Ongoing software support (ops team assistance)	\$19,200	\$19,200	\$19,200	\$19,200	\$19,200	\$96,000
<b>Total Recurring Costs</b>	<b>\$41,550</b>	<b>\$51,000</b>	<b>\$51,000</b>	<b>\$51,000</b>	<b>\$51,000</b>	<b>\$245,550</b>
<b>Total Costs</b>	<b>\$1,169,150</b>	<b>\$51,000</b>	<b>\$51,000</b>	<b>\$51,000</b>	<b>\$51,000</b>	<b>\$1,373,150</b>

Buy (callstats.io)	Year 1	Year 2	Year 3	Year 4	Year 5	Total (\$)
<b>Total Costs</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>\$1,200,000</b>

Figure 3: TCO Analysis - Annual Expenses

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Build</b>	\$1,169,150	\$1,220,150	\$1,271,150	\$1,322,150	\$1,373,150
<b>Buy (callstats.io)</b>	\$240,000	\$480,000	\$720,000	\$960,000	\$1,200,000
<b>callstats.io savings (\$)</b>	<b>\$929,150</b>	<b>\$740,150</b>	<b>\$551,150</b>	<b>\$362,150</b>	<b>\$173,150</b>

Figure 4: TCO Analysis - Cumulative Expenses

## Conclusion And Next Steps

Service providers and enterprises must build or buy new network monitoring tools to support WebRTC initiatives. Our analysis shows you can accelerate time to market and save money both in the short term and the long run by choosing callstats. Better still, you can take full advantage of the significant investments we've made and knowledge we've gained over the past 5+ years developing the industry's most extensive WebRTC monitoring solution. callstats can help you optimize WebRTC service quality, improve user experiences and customer satisfaction, and free up developers to focus on business innovation.

You can download a free copy of our TCO analysis tool. It enables you to plug in your own data or modify the spreadsheet to include other cost factors or considerations.

## About Callstats

callstats is a global leader in real-time communications monitoring and analytics. Our SaaS product helps software developers, contact center operators and product managers deliver reliable, high quality voice and video services to their users. Founded in 2014 and based in Helsinki, Finland, callstats was named a Cool Vendor in Unified Communications by research firm Gartner. Our API is integrated into a wide range of third party SDKs and popular CPaaS solutions, making it easy to add centralized call monitoring and troubleshooting capabilities to a WebRTC application. In 2019, callstats joined the 8x8 family in order to expand the support and analytics offerings to its customers.

Learn more at [www.8x8.com/products/apis/callstats-io](https://www.8x8.com/products/apis/callstats-io)

The 8x8 logo consists of the text "8x8" in white, bold, sans-serif font, centered within a solid red square.

8x8, Inc. (NYSE: EGHT) is transforming the future of business communications as a leading Software-as-a-Service provider of voice, video, chat, contact center and enterprise-class API solutions powered by one global cloud communications platform. 8x8 empowers workforces worldwide to connect individuals and teams so they can collaborate faster and work smarter. Real-time analytics and intelligence provide businesses unique insights across all interactions and channels so they can delight end-customers and accelerate their business. For additional information, visit [www.8x8.com](https://www.8x8.com), or follow 8x8 on LinkedIn, Twitter and Facebook.

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