

Red Sox CTO: Baseball teams need modern tech stack as much as any other biz

You know a modern Major League Baseball team like the Boston Red Sox is built on a steady diet of data and analytics — this is true on the field just as much as in the front office.

While the main focus of a professional baseball club is building a competitive team that takes advantage of the unique talents of each player, when you get down to it, the Red Sox are no different from most businesses when it comes to their tech stack.

They make choices about sales and marketing tools, data storage, analyst dashboards — everything any company needs to run a business these days. The Red Sox, like many companies, are part of a larger corporate entity — in this case, the Fenway Sports Group — so they need to understand when and how to share tech with other members of the corporate family makes sense.

There's another wrinkle that most businesses don't have to take into consideration: The Red Sox are also a part of Major League Baseball, which has its own technology priorities that it shares with individual clubs.

As an example, Vasanth Williams, MLB's head of engineering and chief product officer, earlier this year told TechCrunch+ that the league has established a relationship with Google Cloud, which could impact each individual club's cloud infrastructure decisions:

We created a base platform that all clubs can leverage. That's one of the things we've done in the last few years that is both on the fan side as well as on the baseball data side. We wanted to bring all the data and make that accessible in an easy way. Back in the day, it was all on-premise and in different data centers. We put it all in the cloud and made it much easier for them to query and build analytics on.

To learn more about how the Boston Red Sox uses technology to run its business (and play the game), we spoke to Brian Shield, the club's chief technology officer.

A look at the stack

Shield said his job is similar to that of a CTO at any large organization trying to define and drive the company's technology strategy, but the requirements of a baseball club aren't always the same.



“I like to think the biggest buckets are the traditional sort of business systems,” he said. “Then we’ve got a big presence around understanding fan behavior and elements around that. Then we have baseball and baseball systems, and everything there is around the players. And finally, we’ve got Fenway Park and how we use technology to service fans.”

But it doesn’t end there. “It gets a bit more complicated when we start adding in minor league franchises and five different facilities in the Dominican Republic, and you start getting into some of our other organizations [across Fenway Sports Group],” he added.

The Red Sox want to take advantage of being part of Fenway Sports Group to the extent possible. In addition to the Red Sox, the group owns the Pittsburgh Penguins hockey team and the Liverpool Football Club, among others.

“The Fenway Sports Group portfolio continues to grow. And as it grows, on the technology side, we’re spending a lot more time together than we ever did before, ensuring as best we can that we’re not reinventing wheels; that we’re benefiting from best practices, and a host of things,” Shield said.

What does that look like?

The club has a lot going on when it comes to software. While the team had been using a mix of vendors for many years, more recently, they’ve been trying to standardize with certain tools, including Salesforce for sales and marketing; ServiceNow for internal and external customer service; Wasabi, a Boston startup, for cloud storage; and Google Cloud for infrastructure and platform services as part of the MLB push to standardize clubs on the platform.

“We made some strategic decisions to move to Google as our principal data environment relative to how we interoperate with certain fan-level data, and we also made a decision to migrate 100% to Salesforce. Those turned out to be fortuitous, because you know those are big investments that we made,” he said.

The move to Google Cloud has enabled the team to have all their fan data in a single place, and that, in turn, has helped them offer more individualized experiences based on what they know about each fan.

In 2020, the club also decided to move all its sales and marketing data to Salesforce. Before then, the sales teams hadn’t standardized on a single tool. “We’ve always been a hybrid historically between Salesforce and Microsoft Dynamics across 13 different sales teams,” Shield said.

“It took us about 18 months to fully get there, but starting in early 2020, we’ve effectively gone all-Salesforce across the board and integrated that bidirectionally with everything that we do within this enterprise data warehouse [in Google Cloud].”

For storage and backup of much of the data the team collects, Wasabi handles everything from player data, Salesforce and GCP backups, to tape archives and IoT and surveillance data from cameras and devices around the ballpark.

“Wasabi is turning out to be sort of a proverbial home run in that we are using it for all of our backups,” - Brian Shield

That is not to say, however, that they've done away with all other vendors. They have such a large operation, they still rely on other companies for various tasks related to storage. “Dell EMC remains an integral part of the day-to-day storage needs of the Red Sox for much of the internal operations of the business as well as baseball systems, other key applications, and the video production environment. Acronis, a key cyber security partner, plays a critical role in storage to address cybersecurity, ransomware, and other data recovery areas,” he said.

Help from a friend

Unsurprisingly, all of this was a highly complex undertaking for a large organization to pull off. The club did not try to go it alone and brought in Flywheel Software, a Boston company that characterizes itself as a “no-code data activation platform.”

“Flywheel helped us figure out how to integrate all this data, pulling all these data sources together, and then [showed us] how to structure that, architect that in a single view of a fan model,” he said.

Flywheel also helped the club coordinate its relationship with MLB more effectively to leverage the work MLB had already done. Finally, using a Flywheel product called Audience Builder, the team can create targeted marketing campaigns while handling the bidirectional integration with Salesforce.

All of that helps the Red Sox with everything from data privacy to certain compliance issues, reporting, integration, being able to take advantage of machine learning, multicloud integration and DevOps. Shield said that the general design of the architecture is being shared across MLB.

Customizing and moving forward

The Red Sox have modernized and centralized its data stack across a set of tools, allowing it to do more, including building custom applications on top of the tech stack to meet the team's unique needs.

As an example, the company is working on using IoT to better understand fan behavior inside Fenway. Shield said that is something they have long aspired to do, but the updated tech stack really opened up the possibilities.

“If you've been to Fenway this year, or a little bit last year, you know there's mobile food ordering now, and, if you're like me, someone who has been coming to Fenway for many years, you probably thought that would never happen,” he said.

Built in 1912, the park has been updated over the years, but the kinds of modern offerings available in newer ballparks seemed a distant dream until the club built the tooling to accommodate it.

Besides letting the audience order food, Red Sox can now collect more data from concessions and from mobile devices as fans move about the park. The technology lets them store more information and make better use of it to improve the fan experience at the game.

Years ago, Baseball Ops built an analytics engine called Carmine, which has since been put out to pasture and replaced with a cloud-enabled cousin called Beacon in 2017. While that's the most famous Red Sox proprietary app, it's not the only one the team has built. Shield said they have more than 25 additional apps, enabling the business side of the house to dig into the data.

Shield said the cloud architecture is what drives and makes all of it possible — grabbing data in near real time when it makes sense and over time when it's less crucial, all while storing and processing copious amounts of data to improve the team across all departments.

The Boston Red Sox are not a typical business: They have to fill a stadium with fans and play baseball at a high level while simultaneously cooperating with Fenway Sports Group and Major League Baseball. But when it comes to requiring a modern tech stack to take maximum advantage of technology to get the most out of their employees and their business operations, it's all pretty ... typical.

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