

CASE STUDY

API Enablement at Target (2015)

Target is the sixth-largest retailer in the US and spends over \$1 billion on technology annually. Heather Mickman, a former director of development for Target, described the beginnings of their DevOps journey: “In the bad old days, it used to take ten different teams to provision a server at Target, and when things broke, we tended to stop making changes to prevent further issues, which of course makes everything worse.”³⁷

The hardships associated with getting environments and performing deployments created significant difficulties for development teams, as did getting access to data they needed.

As Mickman described:

The problem was that much of our core data, such as information on inventory, pricing, and stores, was locked up in legacy systems and mainframes. We often had multiple sources of truths of data, especially

between e-commerce and our physical stores, which were owned by different teams, with different data structures and different priorities. . . .

The result was that if a new development team wanted to build something for our guests, it would take three to six months to build the integrations to get the data they needed. Worse, it would take another three to six months to do the manual testing to make sure they didn't break anything critical because of how many custom point-to-point integrations we had in a very tightly coupled system. Having to manage the interactions with the twenty to thirty different teams, along with all their dependencies, required lots of project managers because of all the coordination and handoffs. It meant that development was spending all their time waiting in queues instead of delivering results and getting stuff done.³⁸

This long lead time for retrieving and creating data in their systems of record jeopardized important business goals, such as integrating the supply chain operations of Target's physical stores and their e-commerce site, which now required getting inventory to stores and customer homes. This pushed the Target supply chain well beyond what it was designed for, which was merely to facilitate the movement of goods from vendors to distribution centers and stores.

In an attempt to solve the data problem, in 2012 Mickman led the API Enablement team to enable development teams to "deliver new capabilities in days instead of months."³⁹ They wanted any engineering team inside Target to be able to get and store the data they needed, such as information on their products or their stores, including operating hours, location, whether there was a Starbucks on-site, and so forth.

Time constraints played a large role in team selection. As Mickman explained:

Because our team also needed to deliver capabilities in days, not months, I needed a team who could do the work, not give it to contractors—we wanted people with kickass engineering skills, not people who knew how to manage contracts. And to make sure our work wasn't sitting in queue, we needed to own the entire stack, which meant that we took over the

Ops requirements as well. . . . We brought in many new tools to support continuous integration and continuous delivery. And because we knew that if we succeeded, we would have to scale with extremely high growth, we brought in new tools such as the Cassandra database and Kafka message broker. When we asked for permission, we were told no, but we did it anyway because we knew we needed it.⁴⁰

In the following two years, the API Enablement team enabled fifty-three new business capabilities, including Ship to Store and Gift Registry, as well as their integrations with Instacart and Pinterest. As Mickman described, “Working with Pinterest suddenly became very easy, because we just provided them our APIs.”⁴¹

In 2014, the API Enablement team served over 1.5 billion API calls per month. By 2015, this had grown to seventeen billion calls per month and spanning ninety different APIs. To support this capability, they routinely performed eighty deployments per week.⁴²

These changes have created major business benefits for Target—digital sales increased 42% during the 2014 holiday season and increased another 32% in Q2. During the Black Friday weekend of 2015, over 280,000 in-store pickup orders were created. By 2015, their goal was to enable 450 of their 1,800 stores to be able to fulfill e-commerce orders, up from one hundred.⁴³

“The API Enablement team shows what a team of passionate change agents can do,” Mickman says. “And it helped set us up for the next stage, which is to expand DevOps across the entire technology organization.”⁴⁴

This case study is takeaway rich, but one of the clearest pictures it paints is how architecture affects the size and organization of a team and vice versa, per Conway’s Law.