

Toast Engineering Teams: Summer 2019



- **Orders Core:** The name says it all. We price, update, move along orders. Our code touches the Toast API where online orders are created, the Android code where in-restaurant orders are recorded, the database where orders are persisted. The orders need to be priced, discounted, taxes computed, service charge added: these are in our court. We operate at high scale and as Toast grows it only gets more interesting. We do not do dishes.
- **Gift Card and Loyalty Platform (GCLP):** We empower our customers and enable success by extending the core platform. This team builds APIs and services so partners can integrate and expand the Toast Ecosystem. The work by this team is impactful, offering new functionality and attracting new customers.
- **Config Publishing:** This team has been recently created to work on a strategic rewrite of our Publishing System from the ground up. This is a highly visible project which will serve to drive a great deal of growth in 2019. The publishing system is leveraged by more than just our menu, allowing changes to be published to our platform for a single restaurant; a group of locations; or all locations in a restaurant group. We are investigating different technologies and building out a platform that can easily support multiple location accounts. From one day to the next, the publishing system will have the ability to push a small change to a single location for their locally sourced menu specials, to staging an update across all menus for multiple locations in a chain safely and quickly. Come to join in solving challenging problems as we look to push our platform forward!
- **Discounts:** We are a newly formed team responsible for owning and evolving our Discounts functionality. Discounts are largely centered around a custom-built, highly configurable and powerful rules engine used to determine the eligibility of a discount. This functionality spans across Toast's entire stack from our Android Point of Sale system, to backend microservices, to frontend configuration pages. We are looking to improve our engine by building new features, fixing bugs, and improving monitoring as we continue to make our architecture better!
- **Android Platform:** The Android Platform team's mission is to make our Android codebase secure, reliable, and blazing fast so that our customers have a great experience with our devices. We build the core services in our Android code base, and we establish the design patterns and practices that allow all of the Toast development teams to contribute great features to our apps. Join the Android Platform team to learn Android in-depth, code for performance, and drive our platform to architectural excellence.

- POW! (POS Order Workflow):** The work of the POW! team is at the very core of Toast. As a member of this team you will be making sure that bartenders, servers, and kitchen staff have an efficient and enjoyable experience when using our app day to day. The entire workflow, from a server creating an order on a Toast POS (point of sale) device, to sending it to the kitchen--via Toast KDS (kitchen display screens) or printed tickets--to alerting the server that the food is ready, is the POW team's domain. We focus on building and maintaining well-architected, performant and stable Android code so that our customers can delight guests, do what they love, and thrive.
- Quality Tools:** What does quality mean across an Android, Web, and Microservices platform? How do you improve it over time? Quality Tools supports engineers in developing quality software at Toast through two avenues: education and tooling. We educate developers using data such as test coverage or mean time to recover from failure in order to help them make informed decisions on their testing strategy. We build highly functional and scalable tools to help streamline the testing processes at Toast. Our unique position within the organization lends us a variety of responsibilities and the freedom to approach tasks in creative and innovative ways. You would contribute to robust tools such as our Selenium-based end-to-end testing framework, test metrics and real-time production monitoring dashboards, or building Slack app bots, all helping to elevate quality and improve processes here at Toast. There is no limit to the scope of projects we undertake. You would be exposed to front-end, backend and database technologies alike. We are constantly exploring new tools and solutions to help make testing a simpler more enjoyable task for engineers. If you are the kind of individual who does not shy away from taking on new initiatives and learning new technologies, you would be a good fit for the Quality Tools team.
- Labor, Payroll, Cash (LPC):** Our mission is to allow restaurants to track their money and their employees. We aim to provide visibility into a restaurant's cash and labor costs, help restaurants follow ever-changing and complicated labor laws, and allow restaurants to spot fraud with their cash flow. We also are the middlemen between Toast's labor and cash data and external partners, furnishing APIs for partners who build on top of Toast's product to provide scheduling and employee management solutions. Our team is very full-stack, working on Android code, Java backend server code, frontend UIs, and external APIs. Last but not least, we are passionate about ice cream breaks.
- Data Platform Architecture:** Be part of the architectural transformation and redefine the data processing of our transactional data. Be challenged by billions of rows of data and build scalable prototypes around our evolving distributed processing architecture. As part of this initiative you will work with the full scope of the data, create new layers of processing and help scope out the future of services for the platform.
- Dev Tools:** The mission of the Dev Tools team is to improve the productivity of all engineers at Toast. As a result, work on this team is extremely high impact and high leverage. We work with a variety of technologies, ranging from Ansible and Docker to Python, Java and SQL databases. We own tools that provision development environments locally and in the cloud. By working on this team, you will learn about

what tools are important to an engineering organization at scale and how to keep that organization running smoothly.

- **Performance Engineering:** The goal of the Performance Engineering team is to ensure Toast applications are fast and scalable. We design, build, and execute test scenarios that push our applications to their breaking point. Our goal is to understand where the limitations of our platform are, the cause of the limitation, and help determine how to remove the limitation. As a member of this new team at Toast, you will help us build out our performance testing & monitoring frameworks from scratch. Come help us break things!
- **Data Sync:** Want your breakfast sandwich to make it to the Kitchen Display Screen? We are responsible for moving data between tablets and into the cloud reliably at scale. Toast's legacy sync platform succeeds 99.9% of the time; our job is to continually push that limit. Our current project is a dramatic reimagination of Toast's sync paradigm using event sourcing to support offline-first functionality. Join us to contribute to a push for reliability that will eventually impact all Toast systems.
- **Scale:** Toast's growing customer base requires our team to accommodate an exponential increase of data and traffic without compromising performance and high availability. Together we will explore, research, and prototype the latest technologies and apply them to Toast's core engineering systems. You will have the opportunity to contribute to our leading architectural projects, such as horizontal sharding, data replication, cache engine, big data analytics, etc.
- **Analytics:** Be a part of a team that takes restaurant data analytics to its deserved level. We are challenged with improving our existing reporting solutions and replacing them with an advanced and fully distributed analytics platform using Spark. We will take all Toast transactional data and create new insights into the restaurant business. From simple sales reporting, to correlation based analytics to machine learning and prediction. Big Data Analytics starts here.
- **Config Menus:** Get Fully-Stacked on the Config team as we handle Front End UX, Server Side Code, Database storage and versioning and publishing of menu and restaurant data. From single location restaurants to massive restaurant chains - design scalable user interfaces, write fast performing server side code, and create efficient database queries. As a member of the team, you'll be presented with problems from across the technology stack and you configure them out.
- **Capital:** Capital is Toast's beta online lending platform that is poised to be launched in Q4 of 2019. Restaurants are generally low-margin businesses without much liquid cash. When a restaurant owner runs into issues (for example, a broken, \$10K industrial oven) or wants to improve or expand their restaurant, they lack the necessary funds. Toast Capital tries to solve for these customers by giving them the money they need, then allowing them to pay Toast back with a percentage of each of their credit card transactions. Our projects and priorities include building a reliable mechanism to accurately extract the fees from transactions, scaling our infrastructure to handle increasing usage as we move off of beta, building automation for our Capital operations team, and designing a front-end for our Capital app. Toast Capital is building out infrastructure using the right technology for the job. We work primarily with React and

Java, but if the need arises, the team is flexible and will experiment with new technologies, ultimately using the technology that makes the most sense.

- **Payments Core/Platform:** We move money. Hiding in those three words is an extraordinary swath of engineering challenges. From the moment you swipe your credit card at a Toast terminal your payment data is encrypted, sent through a complex asynchronous fault-tolerant processing queue to our most secure environment, validated, and authorized. Along with this comes a number of adjustments, confirmations, and settlements to make absolutely sure our restaurants get their money. We build and maintain some 10 of the most critical systems in Toast's infrastructure. Security, fault tolerance, supportability, and 100% uptime requirements are at the heart of every project in the core payments team.
- **BizOps Automation:** From onboarding to billing we help our customers help themselves to information in the Toast systems. We have many internal customers who you can get to know as well. Our work improves our customer and employee happiness as well as increasing the operational efficiencies of Toast.