

PROFESSIONAL CLOUD ARCHITECT

Prudent Global

Company overview

Prudent Global is an online direct-to-consumer Chicago-based footwear and apparel retailer founded in 2008 and acquired by Cymbal Group in 2010. Prudent Global is a fair trade and B Corp certified sustainability-focused company that works with cotton farmers to reinvest in their communities, a fact which appeals to Prudent Global’s younger target market demographic.

Solution concept

1) The beta Delivery by Drone initiative enables licensed drone pilots to team up with Prudent Global to deliver shoes and sandals to customers via drone. DBD allows customers to place their orders and then get their shoes delivered in an expedited amount of time. The drones stream real-time video to their pilots, as well as their coordinates, so that customers can see the location of their shoes on a map.

2) Prudent Global wants to release official APIs for partners. APIs will be published in a controllable, versionable way, with the ability to track, secure and monetize.

3) A social integration service initiative which highlights images hashtagged with Prudent Global’s products using machine learning to ensure images are appropriate.. The social media highlighting service is currently proof-of-concept. Built by a developer in their own time after hours as an experiment, the service garnered a lot of excitement and interest, especially from the marketing team. During one of the internal demos, however, inappropriate images were included in the product gallery.

Existing technical environment

Delivery by Drone is an experiment by the supply chain and logistics team. Their core customer-facing application does order processing, showing the current status and location of their delivery. The drones connect via the cellular network. The drones use the drone API to receive commands and send real-time information and video about their location and status.

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| The existing technical environment includes:  ● A website frontend and pilot and truck management systems run on Kubernetes  ● Positional data for drone and truck location kept in MongoDB database clusters  ● Drones connected to virtual  machines using a stateful  connection, streaming video via RMTP to the pilots and sending commands from the pilots to the drones | Purchase & Product APIs were developed over time as the business was being built. They were initially only  intended to be used in-house, and not exposed to 3rd parties and partners.  ● Many of the APIs are simply built into monolithic apps, and were not designed for partner integration,  lacking functionality such as versioning.  ● The majority of the APIs run on Ubuntu Linux VMs, and scaling has been somewhat difficult because of the use of virtual machines and monolithic architecture.  ● APIs do not have a built-in mechanism for supporting multiple accounts and granting access is very limited as a result. | The social media highlighting service currently runs on a single virtual machine, and while it does work, it has some performance and scalability issues.  ● SuSE linux  ● MySQL DB  ● Redis  ● Python |

Business requirements

● Easily scale to handle additional demand when needed and expand to more test markets.

● Streamline development for application modernization and new features/products

● Ensure that developers spend as much time on core business functionality as possible, and not have to worry about scalability wherever possible

● Let partners order directly via API

● Deploy a production version of the social media highlighting service and ensure no inappropriate content

Technical requirements

● Move to managed services wherever possible

● Ensure that developers can deploy container-based workloads to testing and production environments in a highly scalable environment.

● Standardize on containers where possible, but also allow for existing virtualization infrastructure to run as-is without a re-write, so it can be slowly refactored over time

● Securely allow partner integration

● Stream IoT data from drones

Executive statement

Prudent Global has three areas of strategic focus: improving customer experience, leveraging analytics, and improving digital marketing. Prudent Global has experienced rapid growth and has had trouble meeting demand. The organization wants to implement solutions that will help scale services and personalize customer experiences. Prudent Global wants to be able to dynamically surge delivery during peak periods. Prudent Global also wants to be able to facilitate large scale B2B orders and better predict customer demand and trends. The organization wants to ensure the security of its B2B partners’ business plans and make it easier for those partners to integrate with Prudent Global’s APIs to submit orders and specify customizations. Prudent Global also wants to integrate social media and marketing applications into its platform. They would like to be able to highlight posts on social media platforms which feature Prudent Global products directly on their product pages, but are concerned about the possibility of having unsavory content shown to users accidentally.