**Case Study 1: Conflict Tracker - SaaS**

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With the highly-followed and reported-on Russian invasion of Ukraine, it can be difficult to determine which information is accurate or unbiased. Using the software service known as “Conflict Tracker”, users can access a map of the conflict zone, reference aggregated and publicly-available information regarding the conflict, and view information about the conflict in real-time. Conflict Tracker is a browser and mobile-based news and pseudo social media application that reports specifically on conflicts worldwide. This paper will discuss Conflict Tracker’s features, determine if those features meet the characteristics of a cloud platform, how the Software as a Service (SaaS) model fits Conflict Tracker’s features, and how this service model over others will improve Conflict Tracker.

Conflict Tracker is a browser and mobile-based news application that allows users to track past or real-time status of any conflict occurring worldwide. Users can view existing conflicts in list or map form and click on them to view relevant chronological updates. Information presented on the software is sourced and linked to publicly-available and vetted data. Data topics would include territory held/gained/lost, troop strength/losses, and weekly expert interpretation of the data from an unbiased perspective. Multiple users can access the software through a network (namely the internet) via a web browser or a mobile application. Users can add conflicts that interest them most into a “favorites” section, create a profile, and engage with other users with comments, messages, and friend requests in a pseudo social network. However, users can only choose one conflict to follow and would need to upgrade to a paid premium service to have unlimited access. The software also allocates resources as needed to users so those resources are not wasted. Users of Conflict Tracker do not manage the infrastructure or underlying operating components of the software; they simply have access to it.

By analyzing these features, we can determine if Conflict Tracker meets the essential characteristics of a Cloud Platform. The National Institute of Standards and Technology (NIST) SP 800-145 defines five essential characteristics of a cloud platform as having on-demand self-service, broad network access, resource pooling, rapid elasticity, and being a measured service. A user can provision resources independently without the need for interaction with the provider, meeting the requirement for on-demand self-service. The app is also accessible “over the network using standard methods” (p.2) through browser and mobile apps, meaning it has broad network access. Next, the resource pooling characteristic is met due to the app’s multi-tenant usage. The allocation of resources to users that the software’s back-end supports meets NIST’s definition of rapid elasticity. Finally, additional user capabilities (being the number of viewable conflicts) are billable making Conflict Tracker a measured service. Since all five of NIST’s characteristics are met, Conflict Tracker can be considered a cloud service.

Since we have now determined that Conflict Tracker is a cloud service, we can determine that the best cloud service model to fit Conflict Tracker’s features would be SaaS. Conflict Tracker categorically fits into NIST’s definition of SaaS as “the capability provided to the consumer is to use the provider’s applications running on a cloud infrastructure” (p.2). It is also accessible from various client devices, the customer doesn’t manage the infrastructure, and users are able to modify some “user-specific application configuration settings” (p.2). SaaS also supports multi-tenancy and since Conflict Tracker is managed by a single entity, the same software updates and releases would be pushed to all customers.

SaaS is the best option for Conflict Tracker over Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) service models. Referring again to NIST SP 800-145, IaaS allows customers to “provision processing, storage, networks, and other fundamental computing resources” (p.3). Since users of the app are using their own devices to access the software and does not provision traditional IT infrastructure, the IaaS model does not apply by definition. PaaS is also not applicable to improving or supporting Conflict Tracker because it does not allow users “to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages…and tools” (NIST p.2-3). The characteristics of SaaS explained in the previous paragraph are definitively in-line with the purpose and features of Conflict Tracker, making SaaS the de facto service model over others.

With Conflict Tracker’s features classifying it as a cloud service, analyzing SaaS’s characteristics with respect to those features, and applying the characteristics of IaaS and PaaS with respect to those features, it is clear that SaaS is the optimal service model. Conflict Tracker’s features are categorically aligned with the NIST definition and characteristics of SaaS. By comparing SaaS to other types of cloud service models, using SaaS is the best way to deploy the proposed services of Conflict Tracker over IaaS and PaaS.

**References**

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