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3/20/2022

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Microservice Architectures

The Microservices At eBay and its Impacts

For my final project case study, I will be researching and exploring the major e-commerce company, eBay. eBay is an online marketplace that facilitates selling items between consumers or from businesses to consumers. Over the years, eBay has evolved its system to include additional services for its users such as auctions, item disputes, and financing options. Many businesses start out by using monolithic architectures because it is faster to set and start business operations due to the small starting size of projects. However, as projects mature and grow in size over time they can start experiencing problems such as code becoming more complicated, architectures becoming harder to maintain, and the need for more developers to take care of the system. Additional problems with monolithic systems over time are that they lose both flexibility and speed to react to trends within the changing markets which is important to e-commerce sites. As eBay grew in popularity they faced these arising challenges and became less efficient with maintaining the complex codebase. For example, at one point in time eBay's monolithic system included over 3.4 million lines of code.

In 2011 eBay decided to change the way they operated by adopting microservice architectures to replace their monolithic system. Some potential benefits of using microservices are that they are easily scalable, can be developed/deployed separately from the main system, and allows quicker releases and time to market. These features were important for eBay due to the immense amount of data it was creating such as having 97 million active users and 62 billion

items listed in their inventory. During 2011, eBay experienced 75 billion database calls, 4 billion page views, and 250 billion search queries. The transition to eBay's microservices is organized by changing everything into a microservice such as databases, application tiers, and even the search engine. Currently, eBay uses over 1000s microservices in order to function. Each microservice is maintained by an independent development team and whenever a team wants to create a new service they create new provisions in the server for development, testing, staging, and production. This microsystem architecture removes unnecessary dependencies and makes it easier to deploy new services which are valuable to eBay since it develops new functionalities daily.