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Assignment 6.2

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Overview of the Case Study: Amazon's Evolutionary Architecture (2002)

An overview of the key points

• The Monolith, often known as "Obidos," is the original architecture:

In 1996, Amazon launched Obidos, a two-tier, monolithic application. It housed all of the display and business logic that underpins functions like personalization, reviews, and recommendations. This design grew too tightly connected over time, making it challenging to expand or maintain.

• Complexity and Scalability Issues:

Innovation got more challenging as Obidos expanded. Because of these interdependencies, changes in one sector ran the risk of shattering others. Because every component was interconnected, scaling individual features was equally challenging.

## • Shift to Service-Oriented Architecture (SOA): Amazon started a significant architectural overhaul between 2001 and 2005. The monolith was replaced by a distributed, decentralized system built on services. This made it possible for every company function to be distinct, autonomously created, and overseen by small, committed teams.

## • Important Architectural Choice: Service Isolation: Preventing other services or clients from having direct access to databases was one of the most important changes. Rather, each service was solely responsible for its own data and logic, which were only accessible through APIs.

Knowledge Acquired

• Service Orientation Facilitates Ownership & Innovation: Teams were able to assume complete ownership over development, deployment, and operations by isolating services. Decentralization decreased dependency and increased agility.

• Data Layer Abstraction Increases Scalability: Amazon was able to scale, replicate, and secure data without interfering with downstream systems by blocking direct client access to databases.

• Microservices and DevOps Speed Up Deployment:

The change in design made it possible for Amazon to provide services regularly and independently. Their daily deployments increased from about 15,000 in 2011 to almost 136,000 in 2015, proving that automation and service ownership accelerated development.

• Innovation by Team Autonomy: all service had a team in charge of all aspect of its lifecycle, from conception to operations, fostering a culture of responsibility, efficiency, and client-centeredness.