



Scaling Products for Seasonal Peaks

How to Scale Products for Seasonal Peaks

Companies must prepare for traffic peaks when developing minimum viable products (MVPs). If a product hasn't been designed to scale to meet increased demand, the application will experience outages. Frustrated users may choose competing products.

While many types of outages are difficult to prepare, companies can develop their products to scale for seasonal traffic peaks because they are predictable.

Amazon Serverless technologies, such as Amazon API Gateway, AWS Lambda, and Amazon DynamoDB, enable companies to hyperscale to prevent outages by predicting and meeting performance expectations during seasonal spikes in user traffic.

Successfully launching an MVP depends on understanding when products in your industry experience the most use.

Because these spikes occur at predictable times of the year - for example, Black Friday, Christmas, The Super Bowl, Tax Season, and New Year's Day - companies can prepare by anticipating how high the traffic will surge.

Predictable Spikes in User Traffic

The retail industry experiences huge spikes in traffic during the holiday shopping season. Black Friday, for example, launches the season, as e-commerce retailers offer special discounts. According to [Digital Commerce 360](#), online retail customers spent a record \$9.2 billion on Black Friday in 2022.

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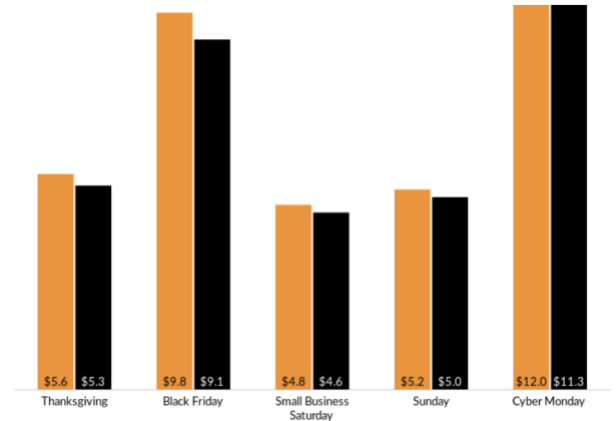
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Online sales surge during Thanksgiving weekend

(Actual and projected U.S. online retail sales in \$billions.)

● 2023 ● 2022

Source: Adobe Analytics. Thanksgiving and Black Friday sales are actual, while Saturday, Sunday and Monday are projected. November 2023 data.



Preparing for seasonal increased user demand starts in the application development process.

Accessing Data with Amazon API Gateway

By using Amazon API Gateway to access data, business logic, and functionality, a business can understand how users of e-commerce applications access data and behave during transactions. For example, in e-commerce applications, catalog searches, loading carts, and moving to checkout all generate purchasing behavior data.

Amazon API Gateway is used for creating, publishing, maintaining, monitoring, and securing REST and WebSocket APIs at any scale. With Amazon API Gateway, developers can create APIs for their client applications or make Web APIs available to third-party app developers.

Amazon API Gateway provides developers a secure and highly configurable entry point to other resources and applications inside AWS or other platforms.

Seasonal Traffic Metrics

To scale successfully, a company must track key metrics reflecting business priorities. These metrics allow the company to analyze throughput.

For e-commerce applications, a company may predict adding a certain number of users during the season, with an average number of transactions, and an average duration.

Using these metrics, the company can calculate how many transactions to expect during peak traffic times and how much throughput time is required, to manage data more efficiently.

Leveraging Data Access Patterns for Seasonal Scaling

To analyze data access patterns for an e-commerce application during seasonal traffic, a company may need to focus more on reads than writes because catalog searches outnumber purchases. Other types of applications require more focus on writes than reads transactions.

Separating writes from reads and moving them to a database allows companies to record and review data to determine where time is spent and how spikes contribute to database transaction management issues.

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When Amazon DynamoDB serves as the No-SQL database for developing e-commerce applications, the solution keeps writing and reading times constant and the schema flexibility of the data stored. The consistency provided by Amazon DynamoDB is a crucial factor in designing asynchronous transactions that help scale volume substantially as required.

Scaling with microbatches optimizes throughput for transactions. Microbatches enable the same amount of information to be sent using fewer transactions by inserting records into the database in bulk. This allows for the development of less expensive products with higher profit margins.

Load Testing for Seasonal Traffic Spikes

Load testing using a defined number of additional users simplifies the estimation of seasonal traffic demands and costs and achieves the linear, logarithmic, or exponential scalability needed to accommodate the computational complexity of the application and its transactions.

Pricing Estimation

Predictable scalability has economic benefits. For e-commerce applications, a calculator can be created that allows the company to plug in numbers of users and assumptions, to create pricing for cloud-native e-commerce solution packages. By calculating pricing, companies can ensure that their applications are affordable and profitable.

What Hyperscaling Means for Seasonal Traffic Spikes

The good news about seasonal traffic spikes is they can be predicted.

Carrying out data access analysis and using a calculator for load testing will help your company prepare for and manage seasonal user traffic.

IO Connect Services can set up a demo for load testing. As an AWS Advanced Tier Services Partner, we have the expertise to assemble the right architecture for developing applications capable of hyperscaling using Amazon API Gateway and Amazon DynamoDB.

About IO Connect

IO Connect Services is an AWS Advanced Tier Services Partner, a certified MuleSoft® System Integrator Partner, a Salesforce Commerce Cloud Consulting Partner, and a member of the Datadog Partner Network. Our professionals have over 20 years of experience delivering complex technical solutions worldwide. We offer solutions in migration, DevOps, cloud native development, cloud solution architecture, security and compliance, and managed services. The company has achieved AWS competencies in retail, migration, and DevOps. We work relentlessly on establishing and maintaining trust with our clients and all business partners for long-term relationships.

Focusing on companies "born in the cloud" or wishing to migrate to the cloud, IO Connect enables them to exploit the advantages of having a cloud-native infrastructure.

[Reach out to us](#) today to schedule a consultation.

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