
AWS
re:Invent
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SVS311

Optimizing cost and performance for AWS Lambda-based workloads

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Which one is more expensive?



Running for 1 second
with 2 GB RAM



Running for 2 seconds
with 1 GB RAM

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Lambda pricing

Pricing components

- Number of requests
- Duration (in GB-seconds)
- Ephemeral storage (in GB-seconds)

Duration is metered by 1 millisecond increments, based on the function memory setting

1 second with 2 GB of RAM
costs the same as
2 seconds with 1 GB of RAM*

Free tier

1 million requests and 400,000 GB-seconds of compute

Per month, per account

*Assume same amount of ephemeral storage

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Why optimize?

- Multiple moving parts
- Improve user experience
- Drive operational efficiency
- Increase business value
- Reinvest cost savings into the business

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Optimizing Lambda-based applications

- Lambda function configuration
- Optimization of function code
- Lambda event source mapping configuration
- Error handling
- Potential architecture changes

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ServerlessVideo

A live video streaming application built with serverless technologies



ServerlessVideo



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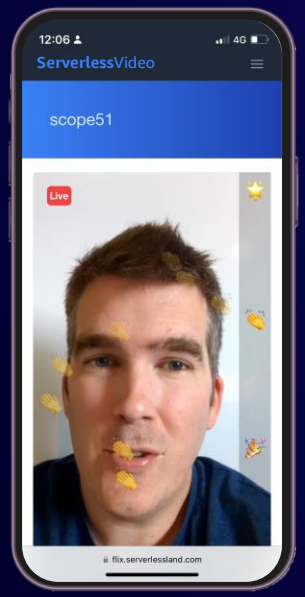
https://s12d.com/video

Livestreaming and on-demand video

ServerlessVideo is a live video streaming application, built with serverless architecture



Live broadcasts from experts during AWS re:Invent



Watch and interact live



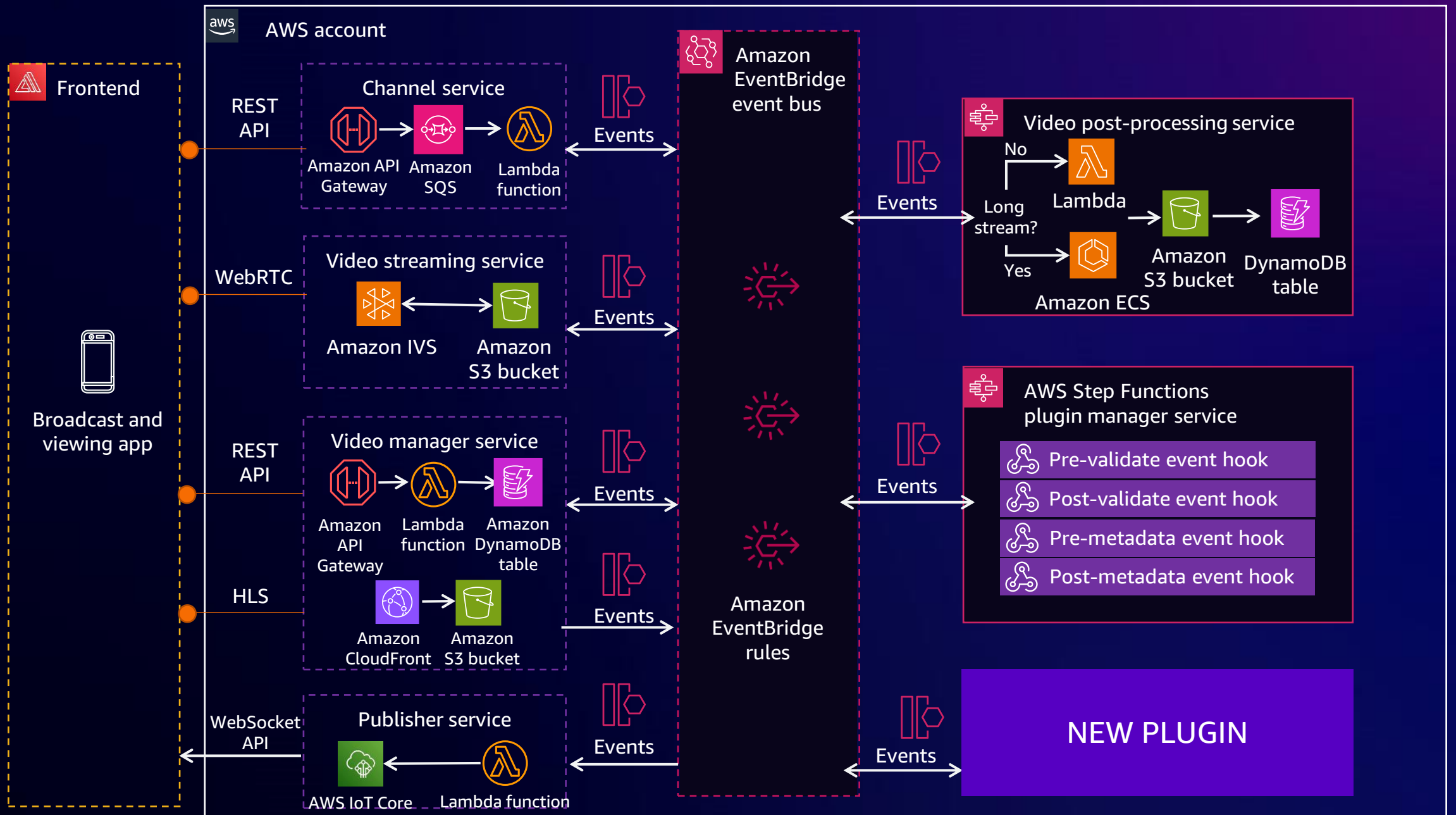
Playback on-demand

ServerlessVideo

https://s12d.com/video

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Our plugin samples for today

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Application 1: Author metadata aggregator

Consume events from ServerlessVideo

Aggregate total minutes and number of videos per author

Store data in a data store

Use API to retrieve the aggregated metrics

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Application 2: Subtitle plugin

Runs when new video is uploaded

Transcribes and translates into different languages

Needs to be able to handle spikes in video upload events

Keeps track of processing progress

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Application 3: Real-time analytics application

Receives click stream data

Thousands of devices

Very low latency

Delivers to multiple destinations

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Wrap-up

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Key takeaways

- Start optimizing from the compute
- AWS Compute Optimizer and Lambda Power Tuning are your friends
- Consider using event batching and filtering
- Use appropriate error handling
- Don’t be afraid to re-architect and replace functionality with managed service

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Resources



https://serverlessland.com/explore/reinvent2023-svs311

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Best practices, for everyone



Powertools for Lambda

Python | TypeScript | Java | .NET

- Batch processing
- Config management
- Observability
- Secrets handling
- REST/GraphQL API
- Idempotency
- Input/output validation
- BYO middleware
- Self-documented schemas
- Feature flags
- Caching
- Streaming
- Data extraction

Feature set might vary across languages

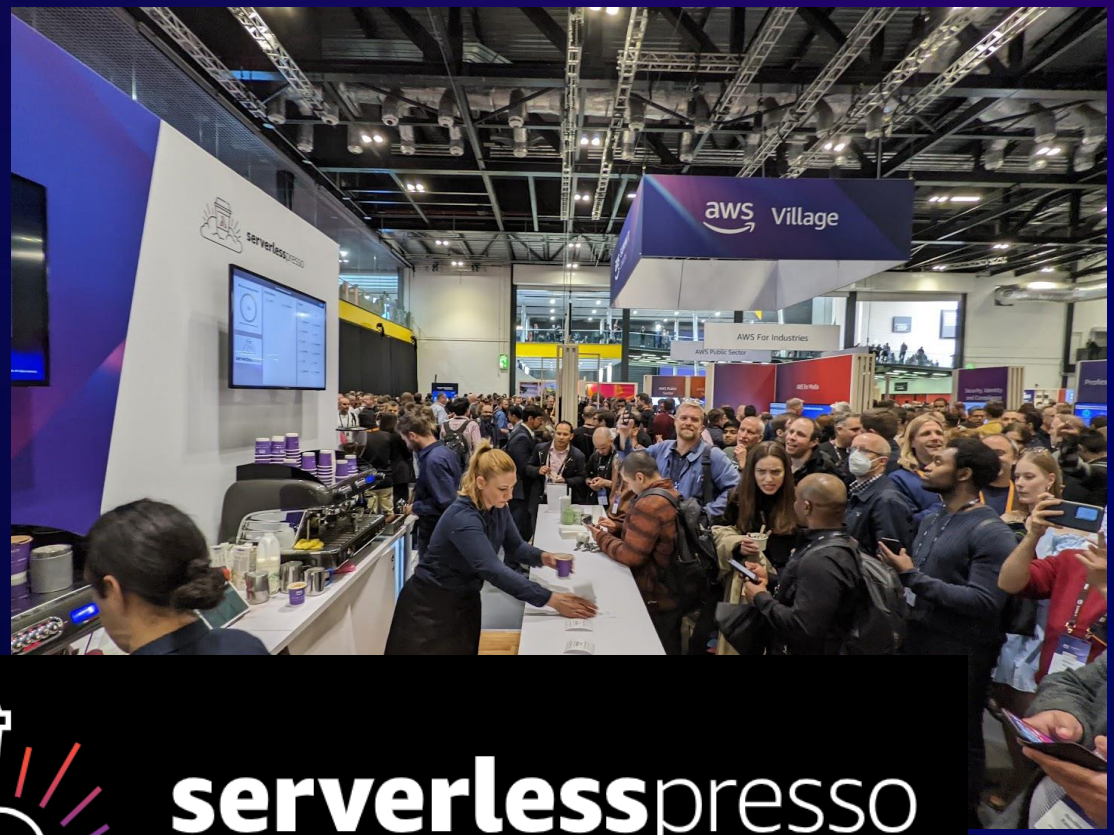
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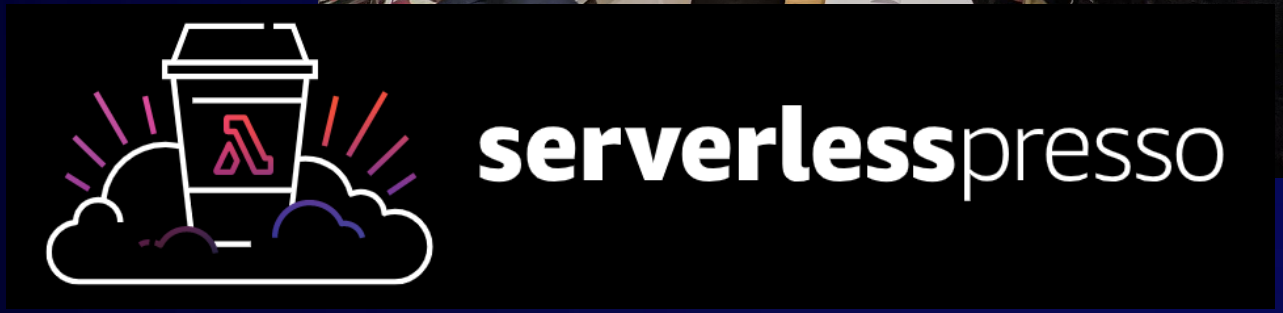
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