CS5052

LET'S TALK ABOUT SPROCKET

WEEK 11

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REWIND 101

Problems that gave birth to Sprocket

PROBLEM 1

Traditional video processing systems are often complex and costly, making them unsuitable for many video processing applications.

PROBLEM 2

CLOUD BASED processing systems lacked automatic provisioning and dynamic load balancing.

PROBLEM 3

The systems could not be customized easily to meet the various needs of various video processing applications.

√ SOLUTION 1

Designed to be highly customizable to meet the specific needs of various video processing applications.

√ SOLUTION 2

Provides automatic resource provisioning and dynamic load balancing, which helps to reduce the cost and complexity of video processing.

√ SOLUTION 3

Sprocket can handle real-time video processing

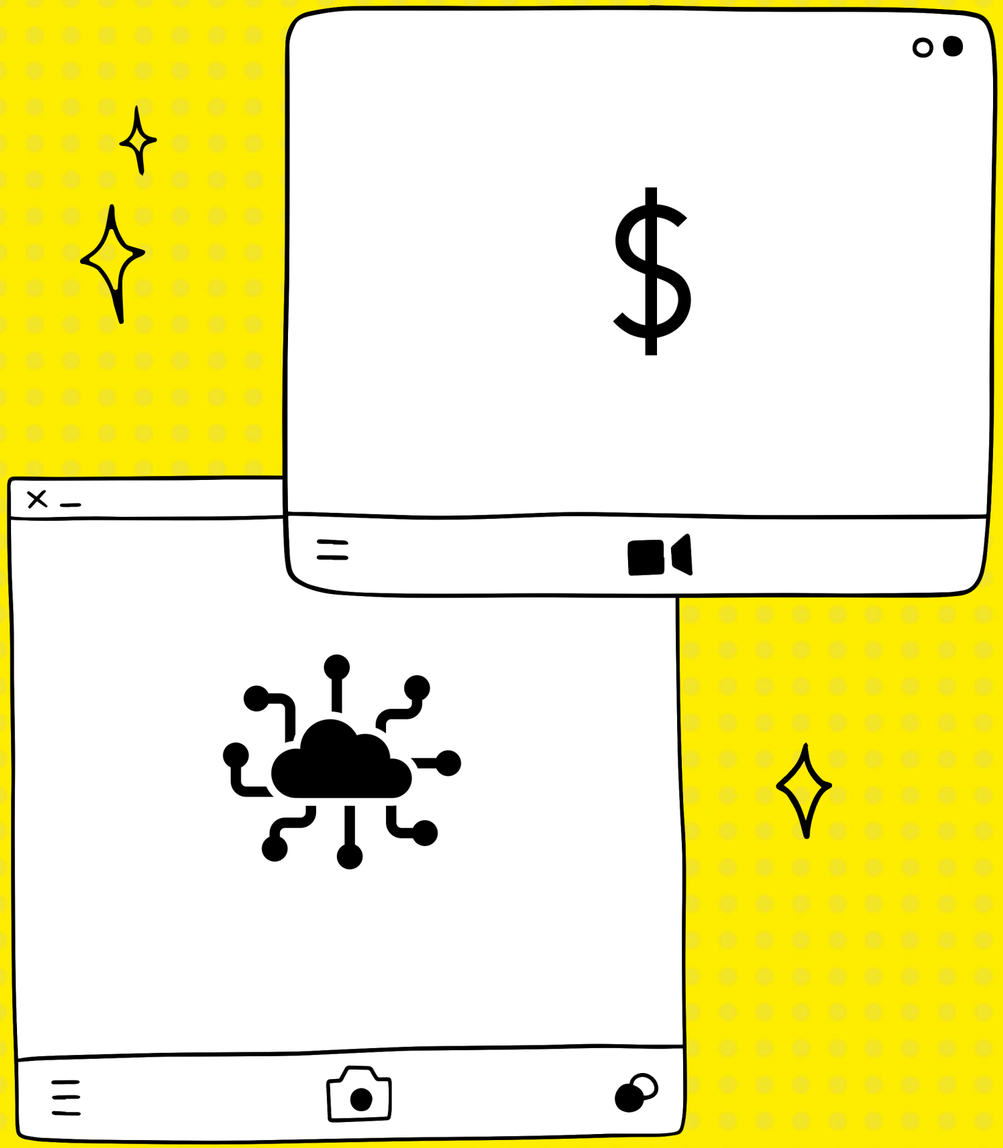
BEHOLD

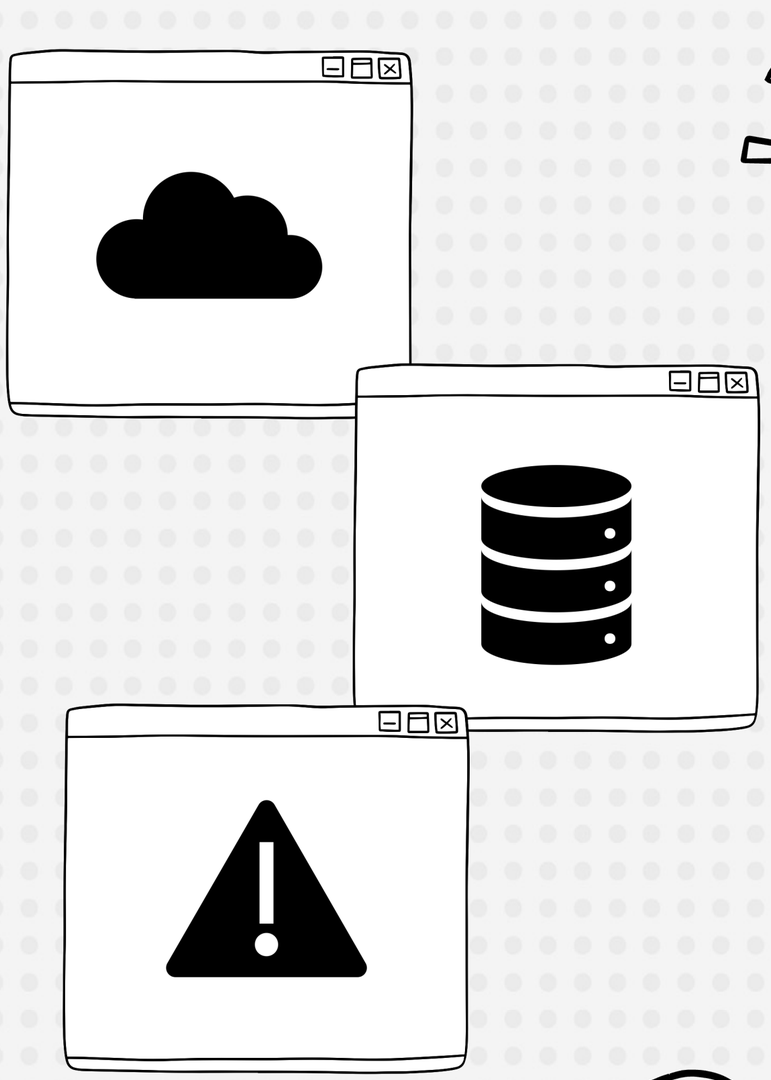
The Magic of Sprocket

Question 1

Imagine a scenario where a company needs to process large volumes of video data in a cost-effective and scalable manner.

How might the implementation of Sprocket impact this task's cost and resource requirements?





Question 2

Have you ever used a video processing framework before? If so, what were some of the challenges you faced, and how do you think a serverless framework like Sprocket could help address these challenges?

If not, what are some potential use cases where you could see yourself using a video processing framework in the future?

Question 3

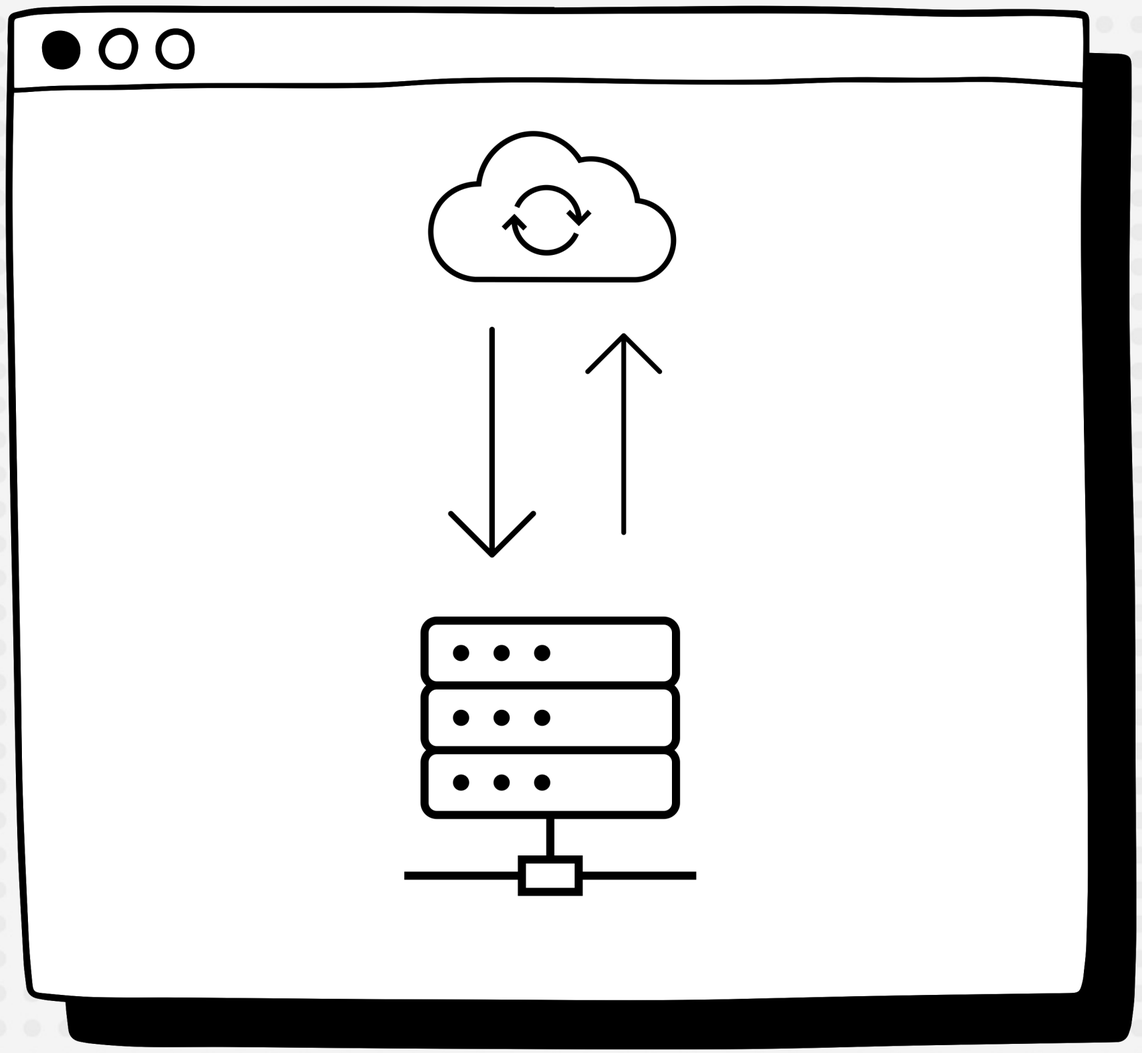
What are some potential limitations or drawbacks of using a serverless video processing framework like Sprocket, and how can these be addressed?

FACT :

Sprocket is highly configurable and scalable, making it suitable for both small-scale and large-scale video processing tasks.

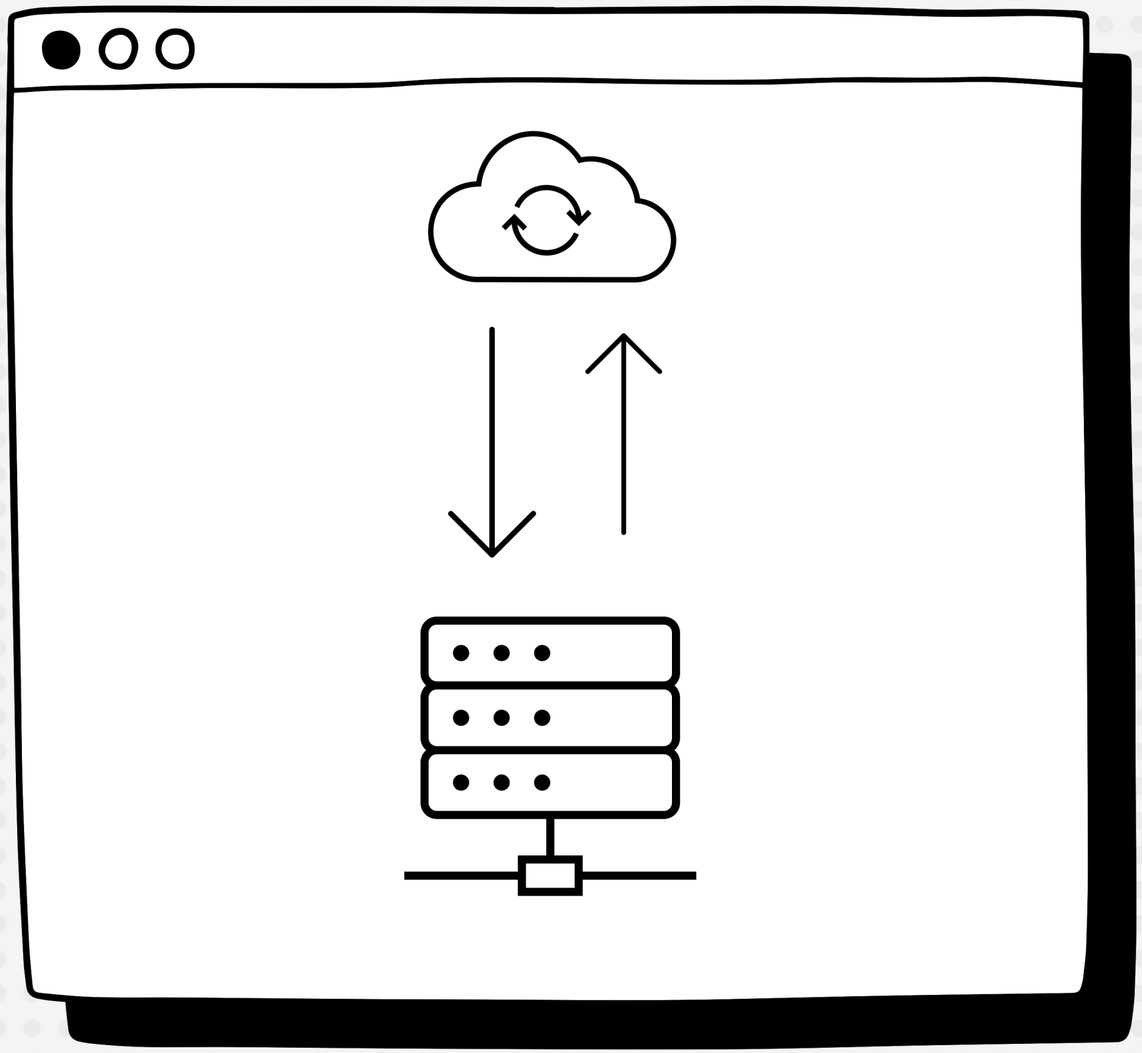
FACT :

By using Sprocket-based filter tools, users can apply filters to their videos and stream the updated version in their browser within a few seconds.



Question 4

What are the applications of Sprocket?



Question 4

What are the applications of Sprocket?

- ❑ Fast and cheap video processing
- ❑ Filtering
- ❑ Facial Recognition

QUESTION 5

Part 1

What does the Sprocket Coordinator do?

QUESTION 5

Part 1

- ❑ Manages the system-wide control pane
- ❑ Spawns and destroys workers
- ❑ Controls the data flow between workers

QUESTION 5

Part 2

How does the coordinator and the lambda workers interact?

QUESTION 5

Part 2

- ❑ Asynchronous RPC
- ❑ Coordinator sends commands
- ❑ The worker sends status reports
- ❑ Fed into internal DAG dataflow

Question 6

How does Sprocket optimize?

Question 6

How does Sprocket optimize?

- ❑ Processes available work
- ❑ Puts the pipeline to sleep
- ❑ Scheduling policies

QUESTION 7

How does Sprocket handle data streaming?

FACT

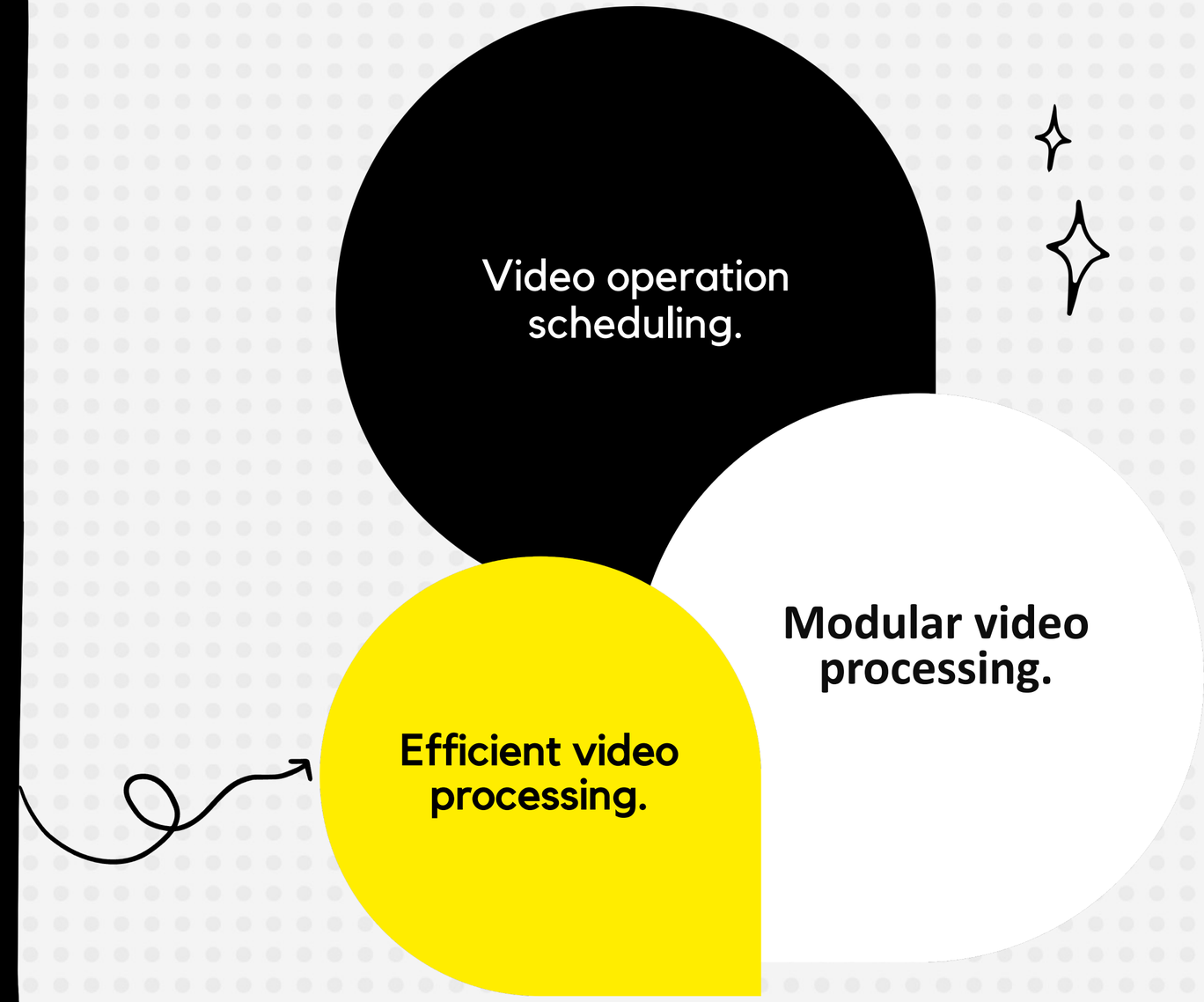
Sprocket's parallelism is adjustable for optimal performance and resource utilization.

FACT

Sprocket is fault-tolerant and retries failed operations.

QUESTION 7

How does Sprocket handle data streaming?



QUESTION 8

Potential limitations of using a shared memory model for data movement between pipeline operations

Fact 1

Sprocket allows for easy customization and integration with third-party services and libraries.

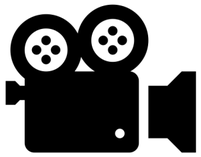
Fact 2

Sprocket can process live and pre-recorded video content for various applications like streaming and surveillance.

QUESTION 8

Potential limitations of using a shared memory model for data movement between pipeline operations

- ✓ Memory usage management
- ✓ Potential for data corruption
- ✓ Shared memory unsuitable for distribution
- ✓ Shared memory limits scalability.



Group Discussion

Question 1

Do you think that Sprocket was evaluated comprehensively?

Question 2

Do you think Sprocket can viably be used in production environments?

Question 3

Looking back at the papers you've read; could Sprocket be replaced and still provide the same functionality?

AND THAT'S A WRAP
THANK YOU !!!

BASED ON THE PAPER

Sprocket – A Serverless Video Processing Framework

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