

AWS re:Invent

Real-Time Streaming Applications on AWS Use Cases and Patterns

Ray Zhu, Sr. Product Manager, AWS

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To win in the marketplace and provide differentiated customer experiences, businesses need to be able to use live data in real time to facilitate fast decision making. In this session, you learn common streaming data processing use cases and architectures. First, we give an overview of streaming data and AWS streaming data capabilities. Next, we look at a few customer examples and their real-time streaming applications. Finally, we walk through common architectures and design patterns of top streaming data use cases.

Agenda

- Why real-time analytics?
- What is real-time data?
- What real-time services does AWS offer?
- Who uses them?
- How do I use them?
- Q & A

WHY REAL-TIME ANALYTICS?

Why Real-Time Analytics?



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A Day in the Life

Error 500

The server encountered an internal error and was unable to complete your request.



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A Day in the Life

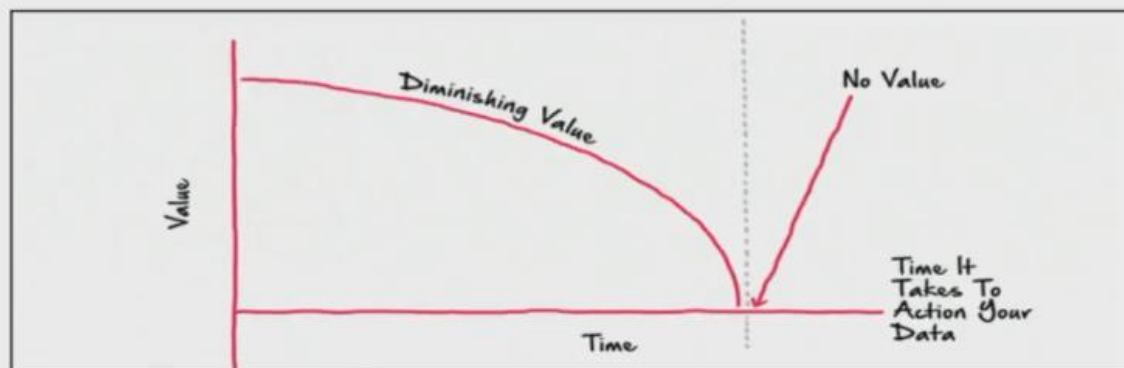
219.134.32.117 - - [16/Feb/1998:09:38:20 -0800] "GET /wp-content HTTP/1.1" 200 4521 "-" "Mozilla/5.0 (compatible; MSIE 10.0; windows NT 6.1; Trident/5.1; .NET CLR 3.8.23015.5)"

95.169.41.62 - - [16/Feb/1998:09:38:20 -0800] "PUT /app/main/posts HTTP/1.1" 200 3883 "-" "Mozilla/5.0 (windows NT 6.2; Trident/7.0; rv:11.0) like Gecko"

221.147.191.247 - - [16/Feb/1998:09:38:20 -0800] "GET /explore HTTP/1.1" 200 6579 "-" "Mozilla/5.0 (Windows; U; windows NT 5.1) AppleWebKit/538.0.1 (KHTML, like Gecko) Chrome/38.0.895.0 Safari/538.0.1"

179.96.123.130 - - [16/Feb/1998:09:38:20 -0800] "GET /list HTTP/1.1" 200 560 "-" "Mozilla/5.0 (windows NT 6.3; win64; x64; rv:5.4) Gecko/20100101 Firefox/5.4.6"

Diminishing Value of Data

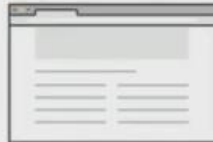


WHAT IS REAL-TIME DATA?

What Is Real-Time Data?



Mobile Apps



Web Clickstream

```
[Wed Oct 11 14:32:52
2000] [error] [client
127.0.0.1] client denied
by server configuration:
/export/home/live/ap/htdo
cs/test
```

Application Logs



Metering Records



IoT Sensors



Smart Buildings

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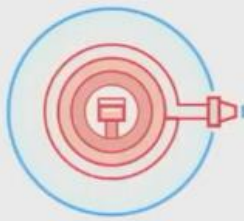
Real-Time Analytics Requirements



- Durable
- Continuous
- Fast
- Reactive
- Available
- Reliable

WHAT REAL-TIME
SERVICES DOES AWS
OFFER?

Amazon Kinesis: AWS Real-Time Services



Kinesis Firehose

Easily load streaming data into AWS



Kinesis Analytics

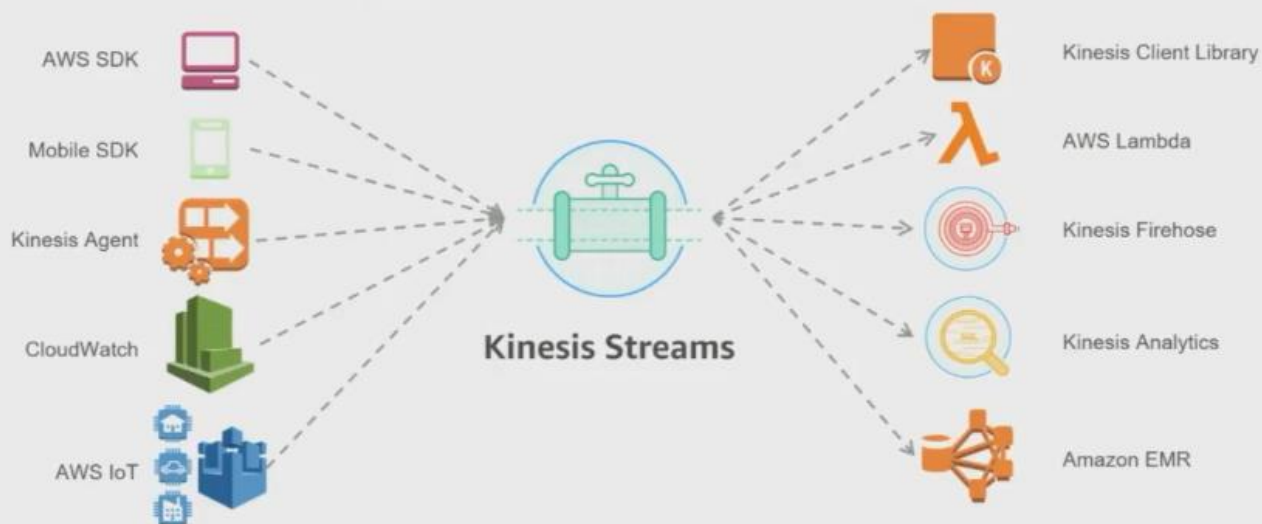
Easily process and analyze streaming data with standard SQL



Kinesis Streams

Build custom applications that process and analyze streaming data

What Is Kinesis Streams?

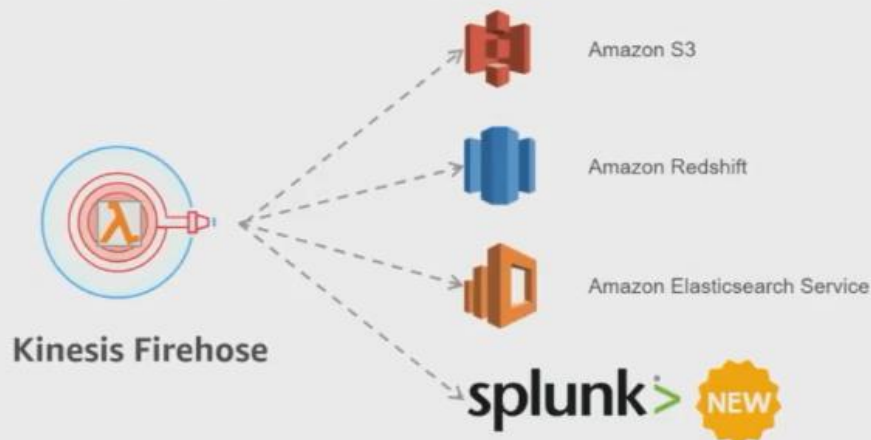


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What Is Kinesis Firehose?



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What Is Kinesis Analytics?



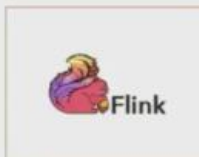
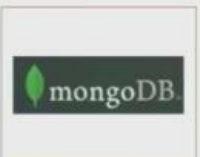
- **Continuous** anomaly detection
- **Continuous** time series analysis
- **Continuous** filtering
- **Continuous** aggregation
- **Continuous** enrichment

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Amazon Kinesis Third-Party Connectors



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WHO USES THEM?

Amazon Kinesis Customers



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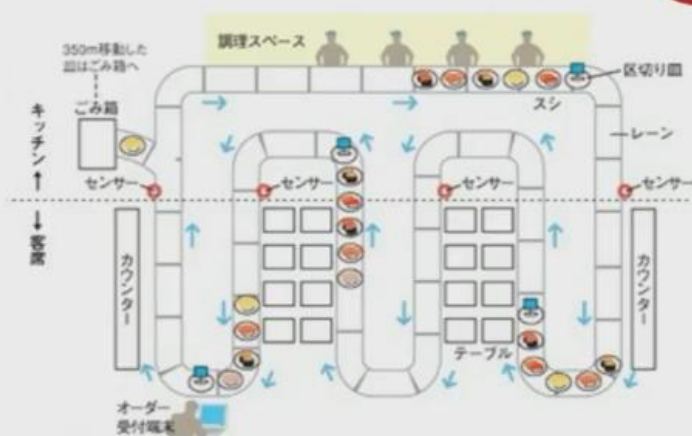
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Sushiro



Sushiro



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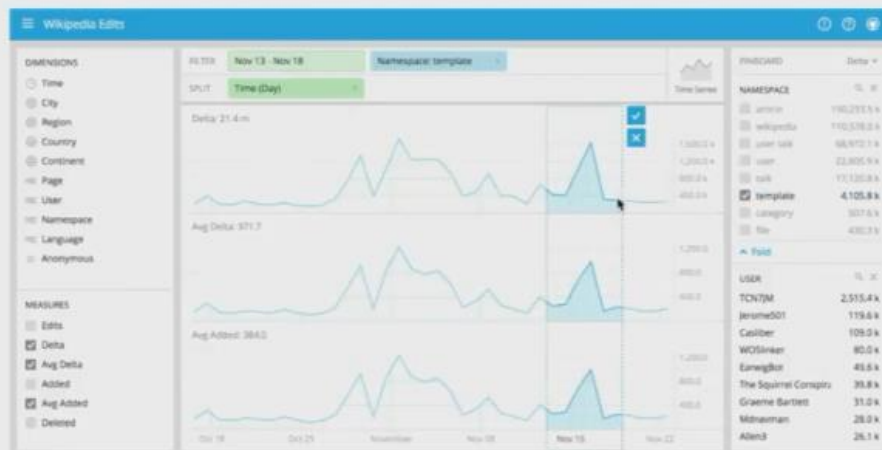
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Netflix



Netflix



Netflix



HOW DO I USE THEM?

Reference Architecture

Real-time application

- Continuous data processing by KCL application
- Continuous data archival to Amazon S3



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Reference Architecture

Real-time aggregation

- Continuous metric aggregation over time periods
- Continuous delivery to storage and analytics services



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Reference Architecture

Real-time alarms and notifications

- Continuous anomaly detection over a sequence of events
- Real-time alarm and notification triggering



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GETTING STARTED

Getting Started

- Kinesis Home Page: <https://aws.amazon.com/kinesis/>
- Kinesis Blog Post: <https://aws.amazon.com/kinesis/blog-posts/>
- Getting Started Page: <https://aws.amazon.com/kinesis/getting-started/>