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Cloud Operations for today, tomorrow, and beyond

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Over the years, AWS has innovated its cloud operations to support its own needs at scale and turned those capabilities on for you to solve your challenges in governance, compliance, observability, and operations as you build your applications in the cloud, on premises, in hybrid environments, and at the edge. Join this session to learn how AWS Cloud Operations is building for the future with automated governance and intelligent, efficient, and application-based operations that will power your growth and innovation. Hear how customers used AWS services to build their own cloud operating model for operational excellence that tore down silos and optimized costs.

Cloud operations Innovations talk

- Automating operations
- Improving performance and resilience
- Creating delightful customer experiences
- Improved developer experience

...and here comes the money...

JP Morgan Chase & Co.

Is gigantic

Sanya Sridharan

- \$15B tech spend
- First to invest in the light bulb
- First to public cloud
- 35k software engineers
- 600m+ lines of code
- High degree of variance
- Many langs

- Many environments, on-prem, cloud
- heterogeneity and complexity magnify challenges
- Highly regulated industry
- Complex applications estate

Engineer Platform and Integrated Experience (EPiX)



Unified Interface

A self-service, personalized experience through an integrated development environment

Cloud Focused

Leveraging AWS for its scalability, resiliency, speed, and agility

Data-Driven

Identifying relevant data and telemetry for real-time detection and resolution

Governance & Security

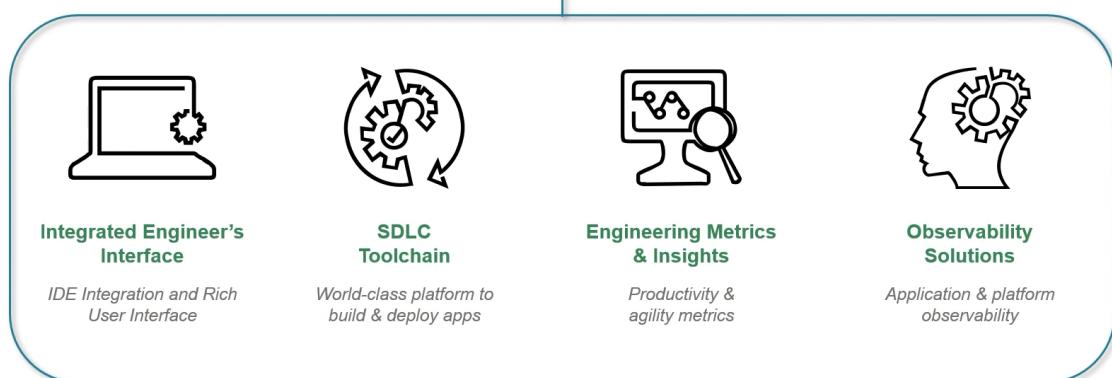
Consistent controls that adhere to security standards

JPMORGAN CHASE & CO.



Singular platform for our engineers

Engineer's Platform & Integrated Experience (EPiX)



JPMORGAN CHASE & CO.

Observability as Code

Implemented as part of the developer experience

We continue to see benefits throughout our journey



Security, resiliency, & reliability

Increase in number of deployments & speed with on-demand compute that we can scale in a secure manner



Observability as Code from dev to prod

Full stack observability, leveraging manifest defined monitors, RED & USE metrics, SLOs as code with automated visualization, alerting and recovery



Enhanced engineer experience

Enhanced experience for both our technologists and external customers as large systems are migrated to AWS

JPMORGAN CHASE & CO.

Scaling Governance

AWS Control Tower



Set up and govern



Observe and take action anywhere

Set up your AWS environment for governance in as little as 30 minutes



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**Set up
and govern**



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action anywhere**

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NEW IN GA

AWS Control Tower
releases 65 new
controls supporting
digital sovereignty



Help you meet digital sovereignty requirements with greater confidence



Help prevent actions, enforce configurations, and detect resource changes



Customize Region deny control to apply regional restrictions



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TODAY



^^ neat

NEW IN GA

AWS Control Tower releases 65 new controls supporting digital sovereignty



Help you meet digital sovereignty requirements with greater confidence



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Customize Region deny control to apply regional restrictions



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TODAY



AWS EVENTS

Thank you for your response!

Which of these challenges is most likely to keep you up at night?

Operating hybrid or multicloud environments

23%

57 votes

Maintaining continuous compliance

19%

46 votes

Keeping costs under control

29%

73 votes

Managing growth in data and workloads

29%

72 votes



You can't manage what you can't see

- Log everything
- Cloudwatch
- AWS eats their own dog food

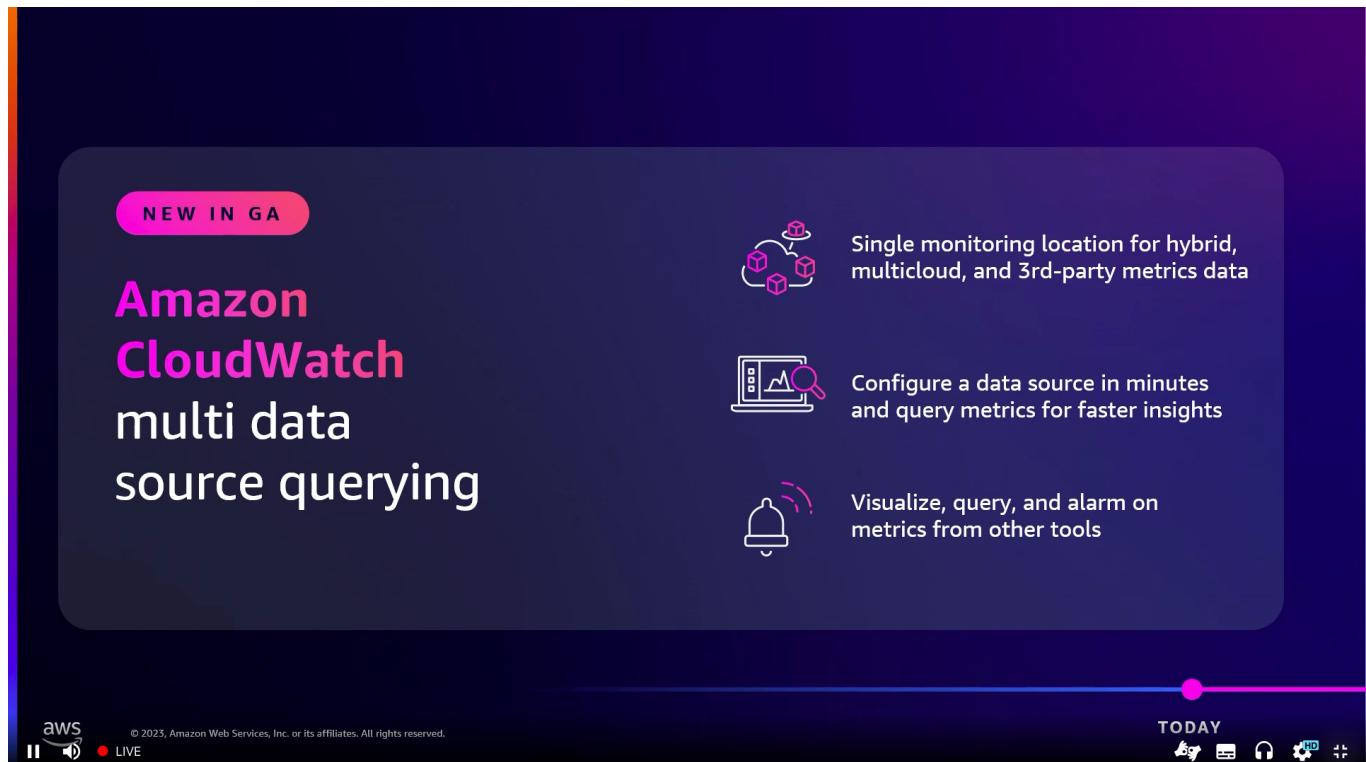
Monitoring for compliance in AWS control tower configuration with Systems Manager

Also works on other clouds

AWS Cloud Operations helps you in hybrid and multicloud environments

CloudWatch data querying from multiple source, across clouds and other environments.

Ingests custom data sources too!



Low code - no-code tools

AWS Systems Manager

NEW IN GA

AWS Systems Manager low-code visual designer for runbooks



Author runbooks with simple drag and drop interface



Debug faster with error highlighting



Scan Python scripts for security vulnerabilities (in preview)



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TODAY



Runbooks, you say? Interesting

"Log Insights" grouping

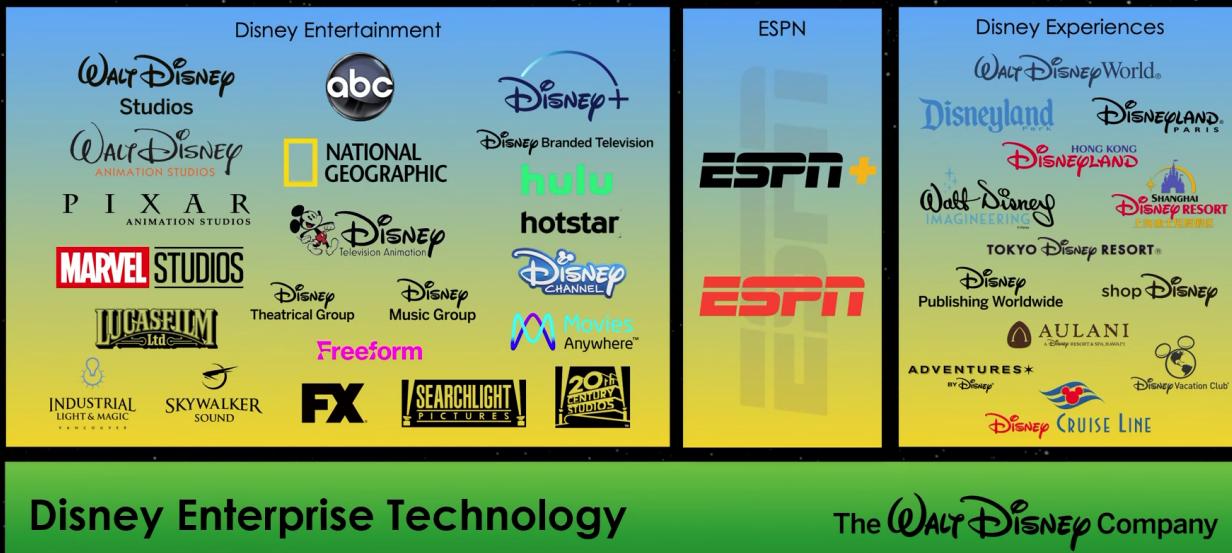
AWS Config

Periodic recording released, instead of continuous

On Thursday Dr. Werner Vogels will share more

Alexi from Disney

This guy is in on the Disney, full bore



Disney Enterprise Technology

The Walt Disney Company

II 🔍 🔍 LIVE

Stream HD

How to scale across this diverse brand landscape, but in the cloud?

Old Days were slow days

- weeks to set up an account? Really?
 - IAM accounts/roles/policies
 - Network and resource access
- They created a team to handle the "speed to delivery" problem with good back office tooling
 - Leveraged AWS tools like...
 - there is some stalling here, I want more detail
 - this is all set-up
- One-stop data shop, he says, Athena he says, visualization tools that AWS provides, he says, still no details.

Boss, can I get some details, please?

Base account set-up scaffolding includes access to the consolidated developer environments



**ENABLING
SPEED AND AGILITY**

Enable teams to realize business value faster



**DATA & OBSERVABILITY
AT SCALE**

Make it easy for teams to access data & get visibility



**OPTIMIZATION
OF EVERYTHING**

Reducing waste & optimizing resources

II 🔍 🔴 LIVE

Stream settings

Still no specific requirements, but there are some good ideas here, in terms of broad theory.

Segmenting of teams is bad, in terms of information sharing. They focused on creating a centralized community of good ideas for developers.

Self-service functions seem to make the development teams more invested in the tools they use, which improves the tools.

Alexi obviously has built things, but he's not allowed to talk about them, or he chose not to.

Back to Nandini, and then

David Yanacek

Lead AI Engineer and all around tech pogger



DevOps for building AWS tools like DynamoDB

This ain't it

The screenshot shows the AWS CloudWatch Log Groups interface. The URL is [CloudWatch > Log groups > /aws/lambda/SciFiDemo > All events](#). The interface displays a list of log events for the Lambda function "SciFiDemo". The log events are timestamped and show requests and responses from the Lambda function. The interface includes filters, search bar, and various action buttons.

Message	Log stream name
START RequestId: 177f3583-5a4b-4596-b27d-1ebd79c3abf6 Version: \$LATEST	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T15:01:00.686Z 177f3583-5a4b-4596-b27d-1ebd79c3abf6 DEBUG http-request...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:00.686Z 177f3583-5a4b-4596-b27d-1ebd79c3abf6 INFO request-handl...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:00.823Z 177f3583-5a4b-4596-b27d-1ebd79c3abf6 DEBUG search-index...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:00.823Z 177f3583-5a4b-4596-b27d-1ebd79c3abf6 INFO search-pets-h...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:00.824Z 177f3583-5a4b-4596-b27d-1ebd79c3abf6 END RequestId: 177f3583-5a4b-4596-b27d-1ebd79c3abf6	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:00.824Z REPORT RequestId: 177f3583-5a4b-4596-b27d-1ebd79c3abf6 Duration: 138.82 ms Billed ...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:01.959Z START RequestId: cc156906-823d-401d-aeee-8310519cd46e Version: \$LATEST	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:01.960Z cc156906-823d-401d-aeee-8310519cd46e DEBUG http-request...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:01.960Z cc156906-823d-401d-aeee-8310519cd46e INFO request-handl...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:01.964Z cc156906-823d-401d-aeee-8310519cd46e INFO aws-sdk Succes...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:01.964Z cc156906-823d-401d-aeee-8310519cd46e INFO browse-produc...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:01.965Z END RequestId: cc156906-823d-401d-aeee-8310519cd46e	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:03.088Z REPORT RequestId: cc156906-823d-401d-aeee-8310519cd46e Duration: 5.72 ms Billed ...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616
2023-11-19T07:01:03.088Z 315e7c44-d2ba-4156-9e2d-46c04095bfe5 DEBUG http-request...	2023/11/19/[...LATEST]5bb83d98689b49babffb0f081a9c2616

Log Insights

The screenshot shows the AWS Log Insights interface. At the top, there's a search bar and a 'Run query' button. Below the search bar, it says 'Logs Insights query can run for maximum of 60 minutes.' and has a 'Complete' link. There are tabs for 'Logs (20)', 'Patterns (8) - new', and 'Visualization'. The 'Logs (20)' tab is selected, showing 20 of 80,757 records matched. It includes a histogram at the top right and a table below with columns: #, @timestamp, @message, @logStream, and @log. The table lists logs from 2023-11-19T10:01:28 to 2023-11-19T10:01:28, detailing requests, reports, and errors. The bottom of the screen shows standard AWS navigation icons.

this is. not better

Emergency Beacons

Filter logs

This screenshot is identical to the one above, showing the AWS Log Insights interface with the same 20 log entries from November 19, 2023. The layout, including the search bar, 'Run query' button, and the 'Logs (20)' table, remains the same. The bottom of the screen also shows the standard AWS navigation icons.

Now we have to figure out how to write a query.

The screenshot shows the AWS CloudWatch Logs Insights interface. On the left, there's a sidebar with 'Logs Insights' and a search bar. Below it, a 'Query generator - new' section has two numbered lines of Logstash-like query language:

```
1 fields @message
2 | filter @requestId = "2b50b493-2c7f-4769-aeae-232348c0c1fe"
```

Below this, a 'Prompt' tab is selected, showing the user input: "show me just the log messages for 2b50b493-2c7f-4769-aeae-232348c0c1fe". There are 'Generate new query' and 'Update query' buttons. At the bottom, there are tabs for 'Logs (20)', 'Patterns (8) - new', and 'Visualization'. The main area shows 20 of 80,757 records matched. A status bar at the bottom includes CloudShell, Feedback, Hide histogram, © 2023, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

Query Generator! neat

The screenshot shows the AWS CloudWatch Logs Insights interface. The sidebar and basic layout are similar to the first screenshot. The 'Query generator - new' section contains three numbered lines of Logstash-like query language:

```
1 fields @timestamp, @message
2 | filter @message like /Error/
3 | stats count() by bin(1m)
```

The 'Prompt' tab is selected, displaying the user input: "show me the number of errors per minute". There are 'Generate new query' and 'Update query' buttons. The main area shows 6 of 6 records matched. The status bar at the bottom includes CloudShell, Feedback, Hide histogram, © 2023, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

query bucketed by minute

Look at trends quickly

NEW IN PREVIEW

Amazon CloudWatch natural language query generation

Ask questions about your CloudWatch data in plain language, or refine existing queries with natural language

TOMORROW

Non-technical people in shambles

It's AI, it's not AI, it's ML, but okay hype machine.

NEW IN PREVIEW

Amazon CloudWatch natural language query generation

Ask questions about your CloudWatch data in plain language, or refine existing queries with natural language

CloudWatch Logs Insights and Metrics Insights

Step-by-step explanation of every query

TOMORROW

beam him up

Pattern matching grouping

Screenshot of the AWS CloudWatch Logs Insights interface showing a query results page.

The top navigation bar includes the AWS logo, Services, a search bar, and a help link. The region is set to N. Virginia. A sidebar on the right lists "Discovered fields", "Queries", and "Help".

The main content area shows a query titled "Patterns (29) - new". It displays 29 patterns found in logs, each with a checkbox, event count, event ratio, and severity type. The patterns listed include various log entries like INFO request-handlers, DEBUG requests, and INFO search-pets-handlers.

Pattern	Event count	Event ratio (%)	Severity type
<*> <*> INFO request-handler Dispatching <*> request	11,537	14%	INFO
START RequestId: <*> Version: \$LATEST	11,537	14%	NONE
END RequestId: <*>	11,537	14%	NONE
REPORT RequestId: <*> Duration: <*> ms Billed Duration: <*> ms Memory Size: <*> MB Max Memory Used: <*> MB	11,533	14%	NONE
<*> <*> INFO aws-sdk Success calling DynamoDB.GetItem. Latency: <*>	6,842	8%	INFO
<*> <*> DEBUG search-index Search index <*> returned in <*>	3,768	5%	DEBUG
<*> <*> INFO search-pets-handler Found <*> pets matching query	3,768	5%	INFO
<*> <*> DEBUG http-request-handler Reading raw request, verb: GET, size: <*> bytes, url: /browse?category=<*>	3,725	5%	DEBUG
<*> <*> DEBUG http-request-handler Reading raw request, verb: GET, size: <*> bytes, url: /browse?category=pets&view=summary	2,896	4%	DEBUG

Below the table, a section titled "Pattern inspect (No selection)" provides an info link. The bottom of the screen shows standard AWS navigation icons and a copyright notice for 2023.

Automatically finds anomalies, checkbox opt-in!

Screenshot of the Amazon CloudWatch natural language query generation feature.

The interface features a dark background with a purple and yellow starburst graphic. A yellow button at the top left says "NEW IN PREVIEW". The main title is "Amazon CloudWatch natural language query generation". To the right, there are three callout boxes:

- "Ask questions about your CloudWatch data in plain language, or refine existing queries with natural language"
- "CloudWatch Logs Insights and Metrics Insights"
- "Step-by-step explanation of every query"

At the bottom, there's a "TOMORROW" button with a gear icon, and the AWS navigation bar with "CloudWatch", "LIVE", and other links.

I bet they want a pretty penny for this feature

AWS Services Search [Option+S] N. Virginia

DynamoDB > Tables > SciFiDemo

SciFiDemo

Overview Indexes Monitor Global tables Backups Exports and streams Additional settings

▶ Alarms

▶ CloudWatch Contributor Insights for DynamoDB
See the most accessed and throttled items in a table or global secondary index.

CloudWatch metrics Info

Alarm recommendations View all in CloudWatch

1h 3h 12h 1d 3d 1w Custom UTC timezone

Table: SciFiDemo

Read usage (average units/second) Read throttled requests (count) Read throttled events (count)

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CloudShell Feedback

AWS Services Search [Option+S] N. Virginia

CloudWatch metrics Info

Alarm recommendations View all in CloudWatch

1h 3h 12h 1d 3d 1w Custom UTC timezone

Table: SciFiDemo

Read usage (average units/second) Read throttled requests (count) Read throttled events (count)

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CloudShell Feedback

AWS Config Query

Sick demo David, you rock.

thank you David Yanacek

Huge pitch on governance and policy, also interoperability with other systems.

Interesting turn, I like it.