## re:Invent

NOV. 29 - DEC. 3, 2021 | LAS VEGAS, NV

# Automotive Industry Attendee Guide 2021

### Welcome!

On behalf of AWS, we're excited to welcome you to re:Invent 2021!

This year's hybrid conference is packed with best practices, usable examples, hands-on labs, and customer stories to help you make the most of the AWS Cloud to achieve your business goals.

The **Automotive** Industry track explores key use cases driving innovation across the vertical, including use of high performance computing, edge computing, machine learning, data lakes, and more for autonomous vehicle development; creating software-centric vehicles by decoupling software and hardware development; over-the-air software updates; cloud-based CAD design; and more

We are happy to have you along for the journey!

To be sure you are prepared and ready to take on re:Invent 2021, we've created this guide on how to maneuver the event successfully.



Dean Phillips Worldwide Technical Leader for Automotive at Amazon



Bill Foy, Director – AWS Automotive Business Development



## Breakout sessions



Join the Automotive Industry track breakout session to hear customer stories, best practices, pitfalls to avoid, and how you can make the most of the AWS Cloud for industry-specific use cases.

#### **AUT201**

## AWS for autonomous driving with Aurora Innovation

The technology company Aurora is a leader in self-driving technologies. AWS provides Aurora with an edge-to-cloud infrastructure and services to host and run its demanding workflows. In this session, Aurora shares some of those workflows and explains how they use AWS to ingest and analyze massive quantities of data, achieve rapid machine learning model training, and run millions of simulated miles per day. Developing self-driving technologies is not a solo exercise. Learn how by using Aurora technologies and AWS open-standard constructs like data lakes and cosimulation, the two companies can help an ecosystem of partners and customers collaborate in the cloud.

#### **Featured Speaker:**

#### **Aurora Innovation**

**Tim Kelton, Director Software Engineering** 

#### **AUT304**

## Developing a platform for software-defined vehicles

Join this session to learn how Continental is accelerating the speed of innovation in automotive software with AWS. Decoupling software and hardware development, while ensuring a seamless deployment of software functions to vehicle hardware, is key as the industry moves from hundreds of discrete ECUs to high performance computing (HPC) vehicle architectures. With the Continental Automotive Edge Platform enabled by AWS IoT Greengrass, Continental offers OEMs a unified engineering platform to develop, integrate, and deploy software seamlessly from the cloud to the vehicle. Utilizing services including AWS Batch, AWS Fargate, and Amazon MWAA, Continental provides modern DevOps workflows for autonomous vehicle development.

#### **Featured Speaker:**

#### **Continental**

Martin Stamm, Principal Architect Holistic Engineering and Technologies at Continental



#### Curated highlights: Learning from Amazon

#### COM301

## Improving traffic congestion with machine learning

When you're stuck in a traffic jam, you might wonder why there isn't a more efficient way to manage the growing number of vehicles on the road. Advances in computer vision and machine learning can now enable more intelligent and dynamic vehicle queues. In this session, learn about Smart Traffic, an emerging technology that serves to improve vehicle traffic throughput and relieve congestion. Discover how Cloud Brigade leverages multiple AWS artificial intelligence and machine learning services to solve this complex problem.

#### **IOT204**

## Building connected auto solutions with AWS IoT

Join this session to learn about connected auto and mobility best practices that were discovered through hundreds of engagements and thousands of activations. Find out how to customize different microservices, from the edge to the cloud, to build innovative and differentiated solutions for use cases from in-vehicle personalization to safety monitoring, behavioral analytics, anomaly detection, diagnostics, and more.



## Interactive sessions



Join us for nine chalk talks focused on automotive use cases, and engage with AWS technical experts and customers who have built these workloads themselves in four chalk talks.

#### **AUT301**

## Toyota Racing uses deep learning to predict race outcomes

In this chalk talk, dive deep into the architecture and machine learning techniques that Toyota Racing Development (TRD) uses to identify up-and-coming stock car racers and predict race outcomes. We discuss how to ingest and unify telemetry and timing data from various sources within a data warehouse and automate ETL and ML operations workflows. We also discuss how to design and deploy custom TensorFlow models and expose predictions in R Shiny dashboards. Amazon Redshift, Amazon SageMaker, and Apache Airflow are featured in this talk for builders and enthusiasts.

#### **Featured Speaker:**

Derek Jones, Data Manager, Toyota Racing Development USA

#### **AUT302**

## Serverless architectures for autonomous fleets

Learn how Torc built a real-time vehicle telemetry dashboard to monitor its autonomous trucking test fleet. Speed to market was critical, so Torc adopted a serverless architecture to deliver its first MVP within 8 weeks. Learn how Torc used Amazon Location Service for real-time fleet tracking and geofencing with visualization of the fleet on a web portal with less than one second of latency. Torc is working on adding AWS IoT Greengrass v2 at the edge along with a video streaming feature for displaying data from onboard cameras.

#### Featured speaker:

**Justin Brown, Cloud Architect, Torc Robotics** 



#### **AUT306**

## **AV data lake reference architecture**

Learn how to build an autonomous vehicle (AV) data lake using a provided reference architecture and recent field notes. See how to design and build an end-to-end scene detection pipeline using Spark on Amazon EMR and expose scene metadata via Amazon S3 and Amazon DynamoDB. Chalk talk leaders use Webviz running on Amazon ECS for deep video inspection, review large-scale image extraction from ROS bag files, and label data using Amazon SageMaker Ground Truth. Then, learn how to fine-tune an object-detection neural network using SageMaker script mode. The workflow is implemented with Amazon Managed Workflows for Apache Airflow.

#### **AUT307**

## Supercharge applications with insights from vehicle signals

In this chalk talk, learn how to access and process vehicle signals using in-vehicle APIs provided by BlackBerry IVY. Discover how to share the result of your processing with applications and services in the vehicle, at scale and in a way that is repeatable across a community of developers. The chalk talk includes a demonstration of the energy management of an electric vehicle to illustrate concepts discussed.

#### **Featured Speaker:**

Sue Ludwig, Senior Software Development Manager, Ivy Solutions Team at BlackBerry



#### **GPS313**

# Building a manufacturing data and analytics platform on AWS

From this chalk talk, AWS Partners can learn how to build industrial solutions using an industrial data platform on AWS. Learn how to establish a single repository of real-time and historical data to enable innovation and automated workflows through AWS for industrial solutions for advanced analytics, machine learning, and artificial intelligence at scale across a global footprint.

#### **OPN311**

#### Build your AWS Cloudconnected embedded Linux OS faster

Thanks to the open-source meta-aws project, your custom-built embedded Linux distributions can now include and verify embedded device solutions even faster. The meta-aws project, which is software for the Yocto Project and Automotive Grade Linux (AGL), composes a set of recipes that accelerate the installation and configuration of AWS device software. In this chalk talk, learn from a meta-aws maintainer about the project scope, goals for the next year, and examples of how the project helps embedded users build faster on AWS.



#### **QTC304**

## Use case insights from the BMW Group quantum challenge

Commercially available quantum computing technology is still early in its maturity, and enterprises and governments are exploring areas where quantum computers may one day provide an advantage over classic approaches. In this chalk talk, consider some science-based guidance to contemplate where quantum computers may help. Also, learn from the Amazon Quantum Solution Lab's work defining use cases for quantum computing with the BMW Group for the 2021 BMW Group Quantum Computing Challenge. Join this chalk talk to explore this new domain and ask your questions related to what might work well on a quantum computer.

#### **CMP316**

## Scalable autonomous vehicle simulations with AWS Batch

Developing advanced driver assistance systems (ADAS) for today's vehicles and autonomous vehicles (AV) of the future is a promising, but challenging, endeavor across multiple dimensions, including technology, compliance, reliability, security, and capital investments. In this chalk talk, learn how AWS can help accelerate ADAS and AV development with global hyperscale infrastructure and the latest technology offerings. Also, find out how AV technology providers are building highly performant and scalable data processing, simulation, and training pipelines across hundreds of thousands of vCPUs and GPUs using native AWS services.



Join us for important builders' sessions focused on automotive use cases, and engage with AWS technical experts who will give you a hands-on experience building exciting automotive workloads.

#### **AUT303**

## Intelligent vehicle fleet data collection using CMS

Connected Mobility Solution (CMS) on AWS is an efficient and scalable way to collect telemetry data from fleet vehicles. It allows fleet managers to perform configurable streaming data analytics and present fleet visualizations and insights in a UI presented in a mapping context. Commercial fleet management is often driven by analyzing anomalies and trends in key fleet metrics. In this workshop, explore data flow within CMS; learn to connect streaming analytics using AWS IoT Core, AWS Lambda, and Amazon Kinesis Data Analytics; and connect a fleet visualization dashboard with metrics and analytics tuned for electric fleets.

#### **AUT305**

## Developing automated driving systems on AWS

Developing automated driving system (ADS) solutions requires the support of sophisticated data services that can enable rapid development and testing of the intrinsic ADS modules. In this builders' session, explore the nature of ADS data using the Audi Autonomous Driving Dataset (A2D2) from Registry of Open Data on AWS. Discover how to build Robot Operating System (ROS)-centric data-services solutions using modular AWS services with Amazon EKS, Amazon MSK, Amazon Redshift, Amazon FSx, and Amazon S3, among others. Learn about generalizable recursive divide-and-conquer data-parallel processing patterns using AWS Step Functions and AWS Batch.



## Keynotes





### **Adam Selipsky Keynote**

Adam Selipsky is the CEO of Amazon Web Services (AWS), the world's most comprehensive and broadly adopted cloud platform. Having previously led AWS Marketing, Sales, and Support for 11 years, from 2005–2016, Selipsky helped launch and grow AWS from a startup into a multi-billion dollar business. Prior to rejoining AWS in 2021, Selipsky was most recently President and CEO of Tableau Software. He led Tableau through its acquisition by Salesforce, in what was the third-largest software industry acquisition at the time. Selipsky has also held various leadership roles at RealNetworks, and before that, was a Principal at strategy consulting firm Mercer Management Consulting. He has an AB in government from Harvard University and an MBA from Harvard Business School.





#### **Dr. Werner Vogels Keynote**

Dr. Werner Vogels is Chief Technology Officer at Amazon.com, where he is responsible for driving the company's customer-centric technology vision. As one of the forces behind Amazon's approach to cloud computing, he is passionate about helping young businesses reach global scale and transforming enterprises into fastmoving digital organizations. Vogels joined Amazon in 2004 from Cornell University, where he was a distributed systems researcher.



#### **Peter DeSantis Keynote**

Peter DeSantis is the Senior Vice President of AWS Global Infrastructure and Customer Support. In this role, he leads the AWS teams responsible for designing the data centers, servers, and network that underpin our AWS services and for deploying and operating this infrastructure worldwide as well as for the customer-facing organizations providing support for our AWS products.

Live stream sponsored by:





#### **Machine Learning Keynote**

Swami Siyasubramanian is Vice President at AWS in charge of all Amazon AI and machine learning services. His team's mission is "to put machine learning capabilities in the hands of every developer and data scientist." Swami and the AWS AI and ML organization work on all aspects of machine learning, from ML frameworks (TensorFlow, Apache MXNet, and PyTorch) and infrastructure, to Amazon SageMaker (an end-to-end service for building, training, and deploying ML models in the cloud and at the edge), and finally AI services that make it easier for app developers to incorporate ML into their apps with no ML experience required.



#### **Global Partner Summit Keynote**

Join us for the Global Partner Summit keynote, presented by Doug Yeum, Head of AWS Partner Organization, Sandy Carter, Vice President, Worldwide Public Sector Partners and Programs, and Stephen Orban, General Manager of AWS Marketplace and Control Services. You'll learn about cloud-powered innovation and the opportunity it creates for AWS Partners, as well as how AWS Partners use the AWS Cloud to build innovative solutions and services, differentiate their businesses, and enable customers in virtually every industry to transform their businesses.

Live stream sponsored by:





## Leadership sessions



PLAY

### **Leadership sessions**\*



All Builders Welcome

#### **LaDavia Drane**

Director, Inclusion, Diversity & Equity



#### **Francessca Vasquez**

**AWS Executive Panel** 

Vice President, Technology

PLAY

### **Leadership sessions**\*



AWS Marketplace

#### **Stephen Orban**

General Manager, AWS Marketplace



**AWS Public Sector** 

#### **Max Peterson**

Vice President, Worldwide Public Sector



AWS Public Sector Partners

#### **Sandy Carter**

Vice President, Worldwide Public Sector Partners and Programs



AWS Storage

#### **Mai-Lan Tomsen-Bukovec**

Vice President, Worldwide Public Sector Partners and Programs



AI/ML

#### **Bratin Saha**

Vice President, Machine Learning

### **Leadership sessions**\*



Analytics

#### **Rahul Pathak**

Vice President, Analytics



Architecture

#### **Brian Taptich**

Vice President, AWS Worldwide Specialist Organization



**Business Applications** 

#### **Peter Hill**

Vice President, Business Applications



**Cloud Operations** 

#### Bill Vass

Vice President, Engineering – Storage, Automation, Streaming & Management



Compute

#### **David Brown**

Vice President, Amazon EC2

### **Leadership sessions**\*



Containers

**Deepak Singh** 

Vice President, Compute Services



Databases

**Jeff Carter** 

Vice President, Relational Databases



Developer

**Ken Exner** 

Director, AWS Developer Tools

Live stream sponsored by:





Edge

**Bill Vass** 

Vice President, Engineering – Storage, Automation, Streaming & Management



Enterprise and Migration

**Todd Weatherby** 

Vice President, Professional Services



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### **Leadership sessions**\*



IoT

Michael MacKenzie General Manager, AWS IoT



Networking & Content Delivery

**David Brown** 

Vice President, Amazon EC2



Security, Compliance, and Identity

**Stephen Schmidt** 

Security Officer







Serverless

#### **David Richardson**

Vice President, Serverless



Training & Certification

#### **Maureen Lonergan**

Director of AWS Training and Certification



## Learn



## Choose the learning methods that work for you









#### **Breakout sessions**

Available from intermediate (200) through expert levels (400), so you can grow your skills, no matter where you are in your career. Select from any track, level, or available session type to tailor your re:Invent experience.

#### Workshops

Workshops are two-hour hands-on sessions where you work in teams to solve problems using AWS services. Workshops organize attendees into small groups and provide scenarios to encourage interaction, giving you the opportunity to learn from and teach each other.

#### Chalk talks

Chalk talks are a highly interactive content format with a small audience. Each begins with a short lecture (10–15 minutes) delivered by an AWS expert, followed by a 45- or 50-minute Q&A session with the audience.

#### **Builders' sessions**

These are 60-minute small group sessions with up to six attendees per table, and one AWS expert, who is there to answer questions and provide guidance. It's just you, your laptop, and the AWS expert.



## Choose the learning methods that work for you









#### **Training and Certification**

Learn directly from AWS experts and get practical experience with real-world cloud scenarios. Skill up fast with a bootcamp, show your expertise by earning an AWS Certification, and practice your craft with one of our labs.

#### **AWS DeepRacer**

Developers of all skill levels can compete in virtual races during re:Invent for a chance to win prizes and glory! Tune in to AWS DeepRacer TV throughout re:Invent to catch the championship action.

#### **Jams and GameDays**

Test your skills in implementing AWS solutions by solving real-world problems in a gamified, risk-free environment. Take part in collaborative and interactive learning exercises—and win prizes!

#### Expo

Learn from AWS experts and partners. The Expo at The Venetian will be host to AWS Village, AWS Partner Network, AWS Marketplace, Builders' Fair, Developer Lounge, a demo theater, Jam Lounge, Startup Central, and sponsor booths.



## Play



PLAY

### Play









#### **Midnight Madness**

Once again this year, we will be hosting an AWS-style pep rally to kick off the week and welcome our most dedicated fans. Midnight Madness provides a sneak peek into re:Invent, complete with the first product launch of re:Invent 2021.

#### Quirky

Experience Amazon's unique culture at one (or more!) of our Quirky events. Whether it's board games, bingo, or a sneak peek of one of your favorite Amazon TV shows, we've got something for everyone.

#### re:Play party

For our 10th annual re:Play party, we have an amazing lineup, featuring all the classic re:Play activities like dodgeball and office chair grand prix, and we have a very special musical headliner. Stay tuned for more information!

#### **Restaurant receptions**

Join the conversation at our vibrant restaurant receptions. Meet people from across the tech world and connect on topics of interest to you at a range of wonderful venues.



## Reserved seating

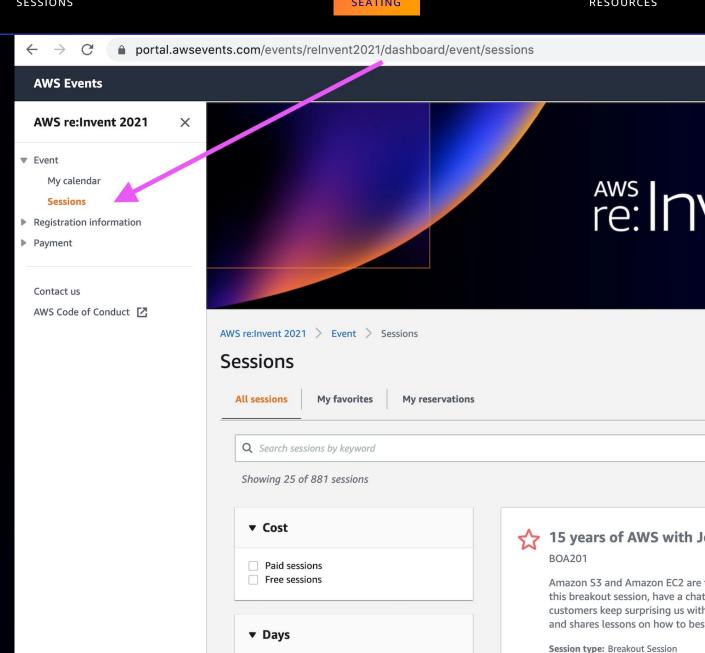


Topics: BuildOn.AWS

#### RESERVED SEATING WALKTHROUGH

## Navigate to the session catalog

After logging in to the event portal, click on the side nav and click "Sessions".



Monday



▼ Session type

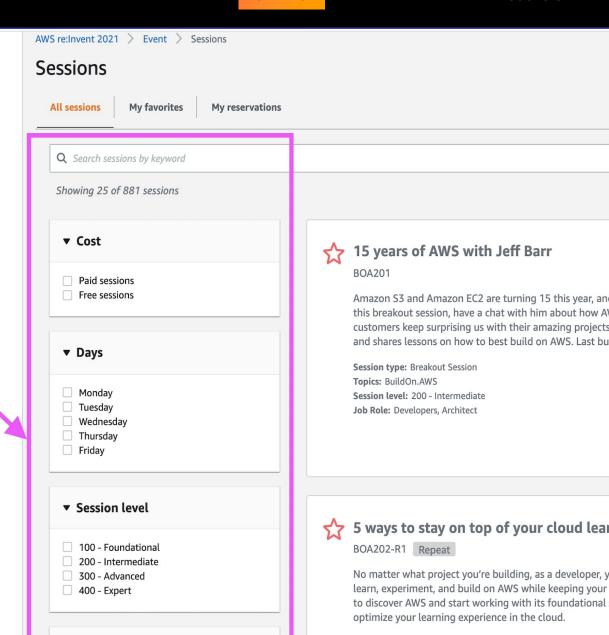
Session type: Chalk Talk

Topics: BuildOn.AWS

#### RESERVED SEATING WALKTHROUGH

## **Using catalog filters**

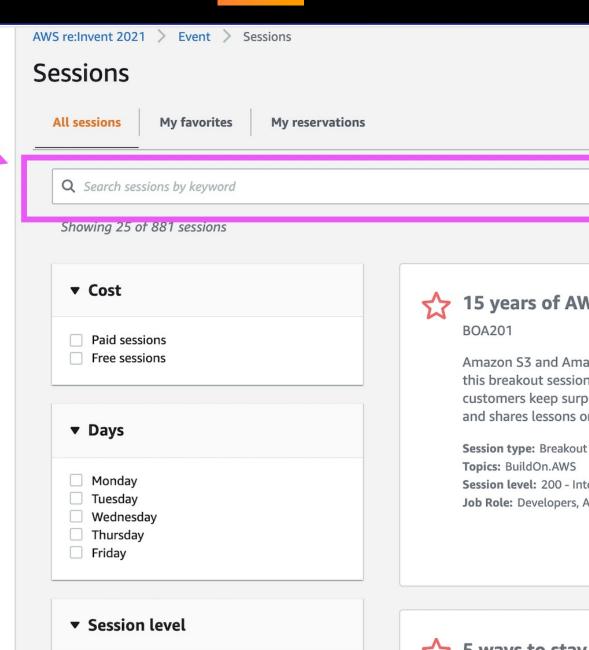
When viewing the session catalog, there is a set of filters available on the left sidebar of the sessions catalog that shows a variety of filters you can use while browsing. Filters include: price, day of the week, difficulty level, session type, topic, AWS service, and industry.





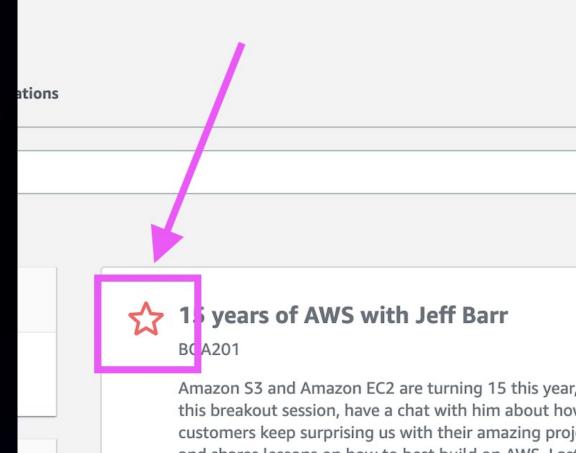
## **Using catalog search**

At the top of the session catalog, there is a search bar where you can enter freeform text to search the full catalog. The search box searches through all of the displayed text fields of a session, including session ID, title, abstract, and level.



## **Favoriting and** un-favoriting a session

When viewing the session catalog, any session shown in the results has a star icon on it. Clicking that star will mark it as a favorite. To un-favorite it, simply click the star again.



Amazon S3 and Amazon EC2 are turning 15 this year, and Jeff Barr, VP this breakout session, have a chat with him about how AWS was born, customers keep surprising us with their amazing projects. Along the wa and shares lessons on how to best build on AWS. Last but not least, go

Session type: Breakout Session

Topics: BuildOn.AWS

Session level: 200 - Intermediate Job Role: Developers, Architect



### Reserving a session

For events with reserved seating, when a session has available seats, the button on the session card will say "Reserve seat".

For sessions with a price greater than zero, the button will say "Buy for <pri>price>". Clicking purchase will open up the purchase form where you can complete your transaction. Once the transaction is complete, that session will show on your reservations list.



#### A practical guide to building an industrial data lake on AWS

#### MFG301

Analyzing the massive quantities and types of data generated in an industrial setting can enable effective into production optimization opportunities. An industrial data lake is foundational to help manage and st insights for their factory digital transformation efforts. This chalk talk walks through the steps to building industrial customer.

Session type: Chalk Talk
Topics: Manufacturing
Session level: 300 - Advanced

Reserve a seat

Dat

Loca

Date

Loca



#### AWS Cloud Technical Essentials (option 1)

TNC101-R2 Repeat

This bootcamp introduces you to essential AWS services and common solutions. The bootcamp covers fur security. It also explores concepts that increase your understanding of AWS services, so you can make more apply highly available, fault-tolerant, scalable, and cost-effective cloud solutions.

Session type: Bootcamp

Topics: Training and Certification

Session level: 100 - Beginner

Buy for \$1.00



### Waitlisting a session

When a session has no seats available, because the capacity has already been met, then the button will say "Join waitlist". If you join a waitlist for a session, and a seat becomes available in that session, you may automatically be placed in that session and we will notify you via email.



#### 15 years of AWS with Jeff Barr

BOA201

Amazon S3 and Amazon EC2 are turning 15 this year, and Jeff Barr, VP and Chief Evangelist at AWS, has born, how the developer experience has evolved over the years, and how customers keep surprising us community and shares lessons on how to best build on AWS. Last but not least, go back in time as Jeff

Session type: Breakout Session

Topics: None

Session level: 200 - Intermediate

Join waitlist



# Viewing your favorites, reservations, and waitlisted sessions

Along the top of the catalog page, there are 3 tabs: 1) All sessions, 2) My favorites, and 3) My reservations. Clicking on "My favorites" will show you a list of only sessions you have favorited. Clicking on "My reservations" will show you a list of items you have reserved or waitlisted.

AWS re:Invent 2021 > Event > Sessions

### Sessions

All sessions

My favorites

My reservations

Q Search sessions by keyword

Showing 25 of 881 sessions





## Cancelling a reservation or waitlist

When viewing a session, in any tab, if you have reserved or waitlisted, you can cancel that action by simply clicking the button again. It will show a dropdown that says "Cancel reservation" or "Leave waitlist".



#### Automating content moderation to improve digital safety

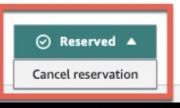
#### AIM307

The volume of user-generated content and third-party content has been exploding in social media, onli end users, companies need to find a way to review audio, image, video, and text content at scale for pot content. This chalk talk provides hands-on experience to implement a multimodal AI content moderation speech (Amazon Transcribe), and text (Amazon Comprehend).

Session type: Chalk Talk

Topics: Artificial Intelligence and Machine Learning

Session level: 300 - Advanced



#### BOA201

Amazon S3 and Amazon EC2 are turning 15 this year, and Jeff Barr, VP and Chief Evang born, how the developer experience has evolved over the years, and how customers ke community and shares lessons on how to best build on AWS. Last but not least, go bac

Session type: Breakout Session

Topics: None

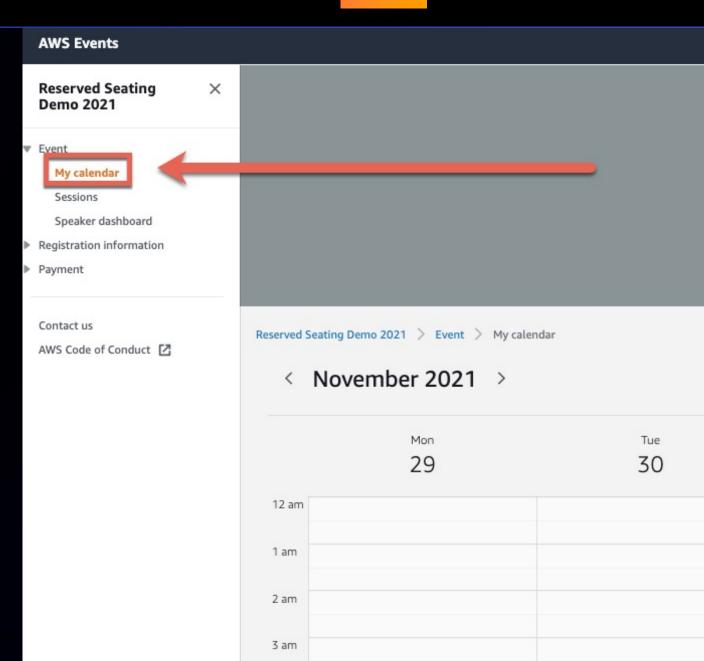
Session level: 200 - Intermediate





## Viewing your calendar

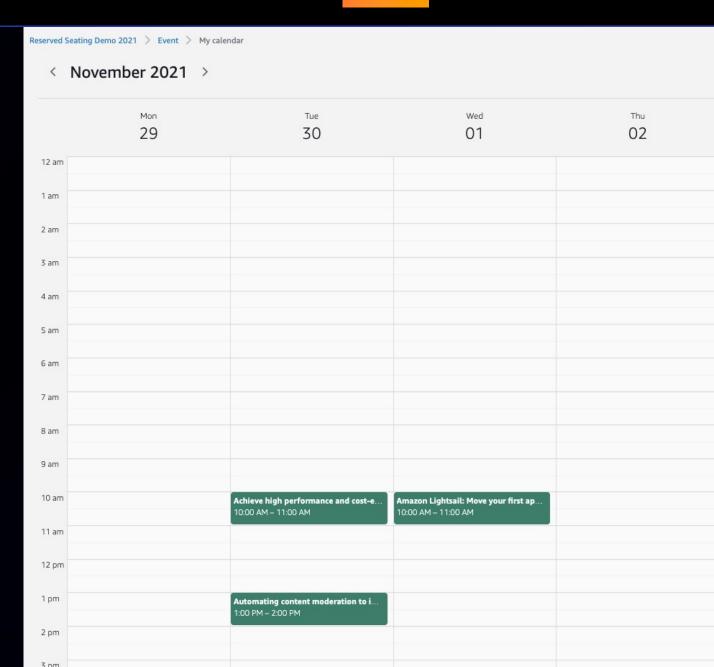
In the main navbar on the left of the session catalog, you will see a link that says "My calendar".





### Viewing your calendar

If you navigate to the calendar, you will see all of your favorites, reserved seats, and waitlisted seats on the corresponding days that those sessions are scheduled.

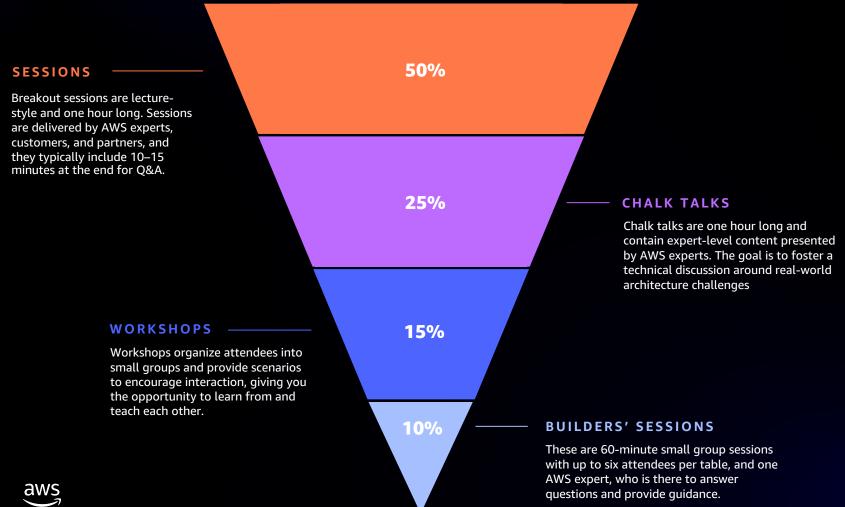




## Make a plan



### **Building your agenda**





Breakout sessions should make up the bulk of your plan. You can find customers directly speaking about their real-world experiences of using AWS products and services in sessions!

### **Building your agenda**

### PRO TIPS:

- Make sure to watch the leadership sessions that are most relevant to your areas of interest to get the most strategic updates.
- Be sure to not miss out on all the keynotes, as that's where you'll catch the biggest AWS launches.
- re:Invent always tries to feature many customers directly speaking about their real-world experiences of using AWS products and services. You'll find them in many breakout sessions, as well as keynotes.
- Think about topics that are currently mission critical to your team, and topics you're interested in learning more about.
- Breakout sessions will be available to watch virtually, even if you are registered for in-person re:Invent.
- Make an extensive list of sessions to watch! Favorite lots of sessions so when reserved seating goes live, you have lots of options.



### Got free time on your schedule?

There are many learning opportunities across the re:Invent campus in Las Vegas that require no reservation. Drop by the Expo, visit a content hub, or practice your craft in one of our labs.



#### Expo

Learn from AWS experts and partners. The Expo at The Venetian will be host to AWS Village, AWS Partner Network, AWS Marketplace, Builders' Fair, Developer Lounge, a demo theater, Jam Lounge, Startup Central, and sponsor booths. Come by and see all that the Expo has to offer!



#### **Content hubs**

Breakout session repeats will take place all week in all re:Invent venues, along with overflow sessions in our content hubs (centralized overflow rooms in every venue). We will also stream live content to the content hubs as the sessions fill up.



#### Labs

Practice your craft in a live AWS sandbox environment. Try any of our 100+ self-paced labs on your own, or reserve time with an AWS expert who can coach and guide you. Whether you're just starting out or honing your technical skills, learn by doing with labs.



PLAY

### Your re:Invent checklist

- Register for re:Invent / Book your hotel / Book your travel reservations / Upload your badge photo
- ☐ If attending in person, review the <u>health measures</u> in place for this year's re:Invent
- Visit the <u>re:Invent website</u> to stay up to date on announcements
- Add all five <u>keynotes</u> to your agenda **Pro Tip:** This is where you'll catch the biggest AWS launches
- Add your favorite leadership sessions to your agenda
- Get ready for reserved seating: favorite the learning sessions of interest to you
- Familiarize yourself with sponsors in the **Expo**, along with the Expo map
- If you're attending with a team, connect with your colleagues to plan how to conquer the many hours of content **Pro Tip:** Don't forget to find time to reconvene with your team and debrief on everyone's learnings
- Check out the <u>Play</u> activities and add them to your agenda
- ☐ Watch all the How to re:Invent videos to prepare for the week
- ☐ Follow Amazon Web Services on Instagram, Facebook, LinkedIn, and Twitter



## Useful resources



### **Useful resources**

#### **How to re:Invent**

Everything you need to know about how to re:Invent. Insider tips, planning advice, and interviews with re:Invent experts. Stay tuned for more episodes on the road to re:Invent!

How to re:Invent

#### **Health** measures

The health and safety of our customers, partners, and employees remains our top priority. Review our updated COVID-19 vaccination requirements for attending re:Invent in Las Vegas.

**Health** measures

#### **FAQs**

Get all the info you need on topics such as health and safety, registration, accessibility, and much more.

**FAQs** 



# Thank you!

