

AWS re:Invent

NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

EUC303

Getting started with Amazon AppStream 2.0

Dylan Barlett (he/him)

EUC Specialist Solutions Architect
AWS



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Before we get started

What you'll need today

- A laptop
- Access to a lab account (details in a moment)
- Access to an email account (business or personal)
- Curiosity and interest in learning

Notes

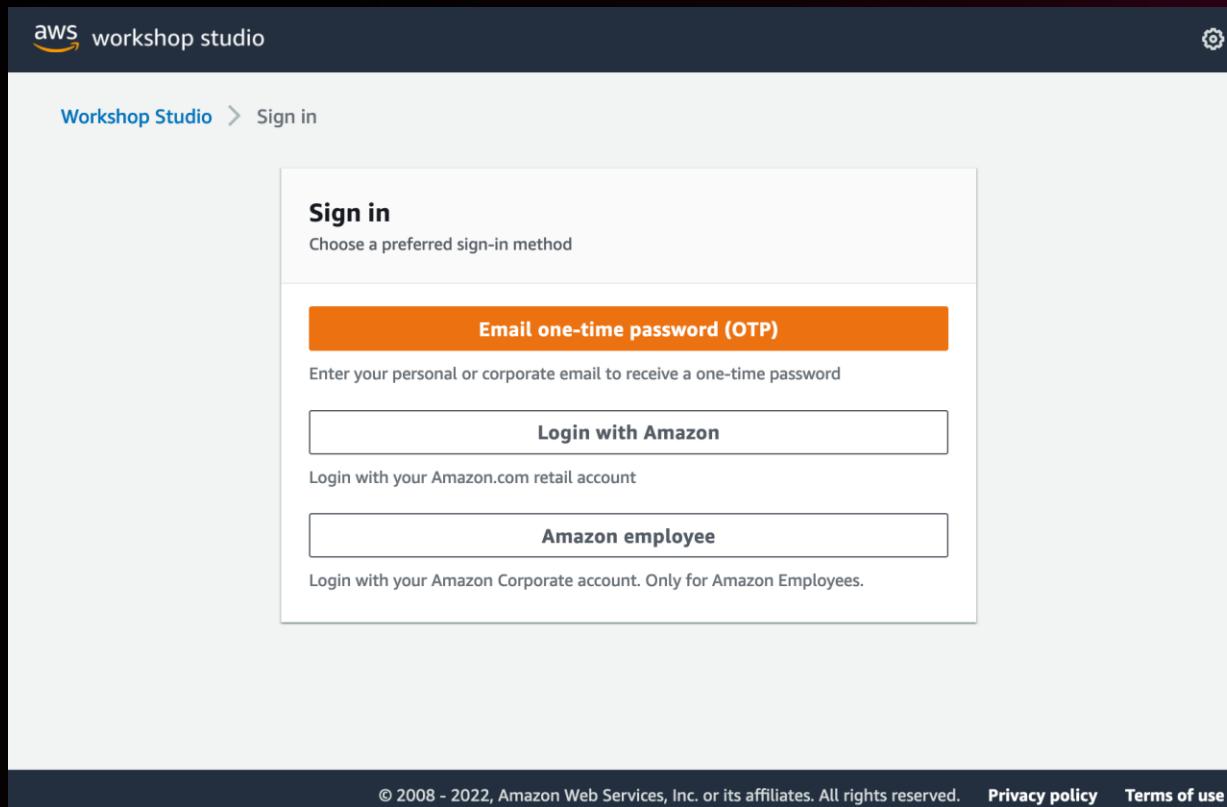
- It will help to temporarily disable your pop-up blocker
- We're here to help!

Getting started with this workshop

- As a participant, you will have access to an AWS account with pre-provisioned infrastructure and IAM policies
- The AWS account will only be available for the duration of this workshop. You will lose access to the account thereafter
- Be sure to review the terms and conditions of the event. Do not upload any personal or confidential information in the account

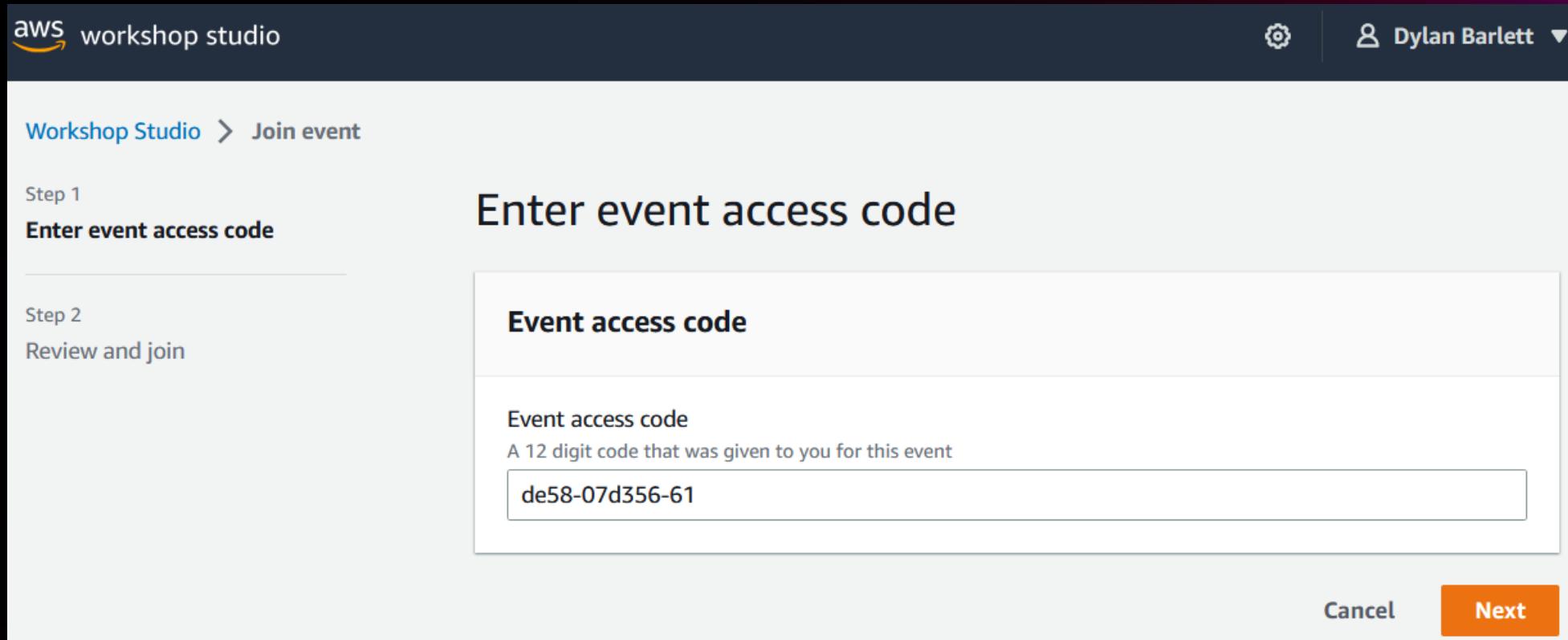
Step 1: Sign in via email one-time password

<https://catalog.workshops.aws/join>



Step 2: Enter event access code

de58-07d356-61



aws workshop studio

Dylan Barlett ▾

Workshop Studio > Join event

Step 1
Enter event access code

Step 2
Review and join

Enter event access code

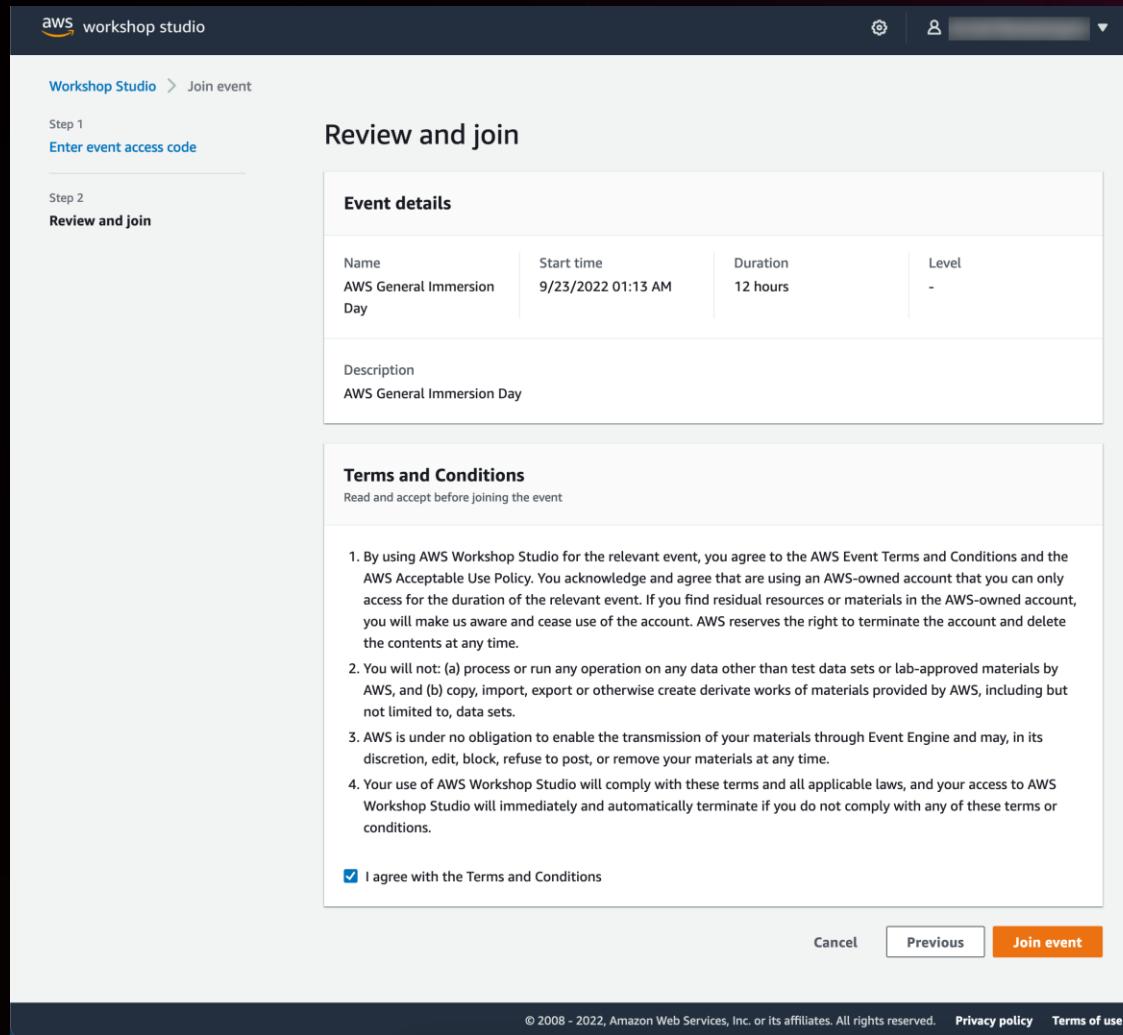
Event access code

Event access code
A 12 digit code that was given to you for this event

de58-07d356-61

Cancel Next

Step 3: Review terms and join event



The screenshot shows the 'Review and join' step of the AWS Workshop Studio 'Join event' process. The interface is divided into two main sections: 'Event details' and 'Terms and Conditions'.

Event details

Name	Start time	Duration	Level
AWS General Immersion Day	9/23/2022 01:13 AM	12 hours	-

Description
AWS General Immersion Day

Terms and Conditions
Read and accept before joining the event

1. By using AWS Workshop Studio for the relevant event, you agree to the AWS Event Terms and Conditions and the AWS Acceptable Use Policy. You acknowledge and agree that are using an AWS-owned account that you can only access for the duration of the relevant event. If you find residual resources or materials in the AWS-owned account, you will make us aware and cease use of the account. AWS reserves the right to terminate the account and delete the contents at any time.
2. You will not: (a) process or run any operation on any data other than test data sets or lab-approved materials by AWS, and (b) copy, import, export or otherwise create derivative works of materials provided by AWS, including but not limited to, data sets.
3. AWS is under no obligation to enable the transmission of your materials through Event Engine and may, in its discretion, edit, block, refuse to post, or remove your materials at any time.
4. Your use of AWS Workshop Studio will comply with these terms and all applicable laws, and your access to AWS Workshop Studio will immediately and automatically terminate if you do not comply with any of these terms or conditions.

I agree with the Terms and Conditions

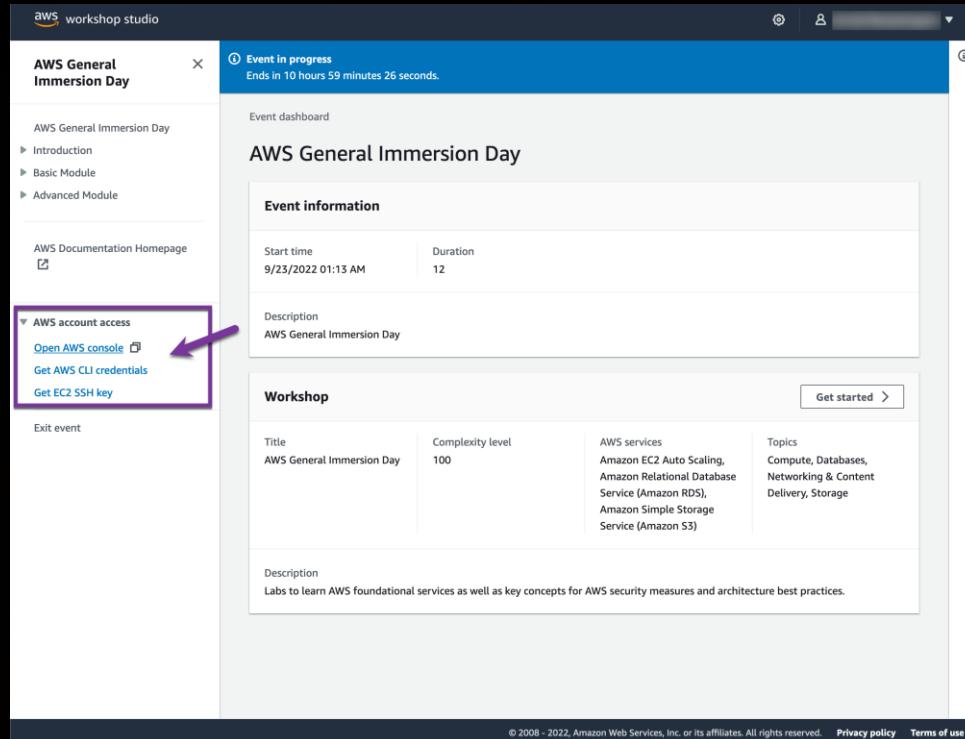
Cancel Previous **Join event**

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Step 4: Access AWS account

Access the AWS console



AWS General Immersion Day

Event in progress
Ends in 10 hours 59 minutes 26 seconds.

Event dashboard

AWS General Immersion Day

Event information

Start time	9/23/2022 01:13 AM	Duration	12
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Description
AWS General Immersion Day

Workshop

Title	AWS General Immersion Day	Complexity level	100
AWS services	Amazon EC2 Auto Scaling, Amazon Relational Database Service (Amazon RDS), Amazon Simple Storage Service (Amazon S3)		
Topics	Compute, Databases, Networking & Content Delivery, Storage		

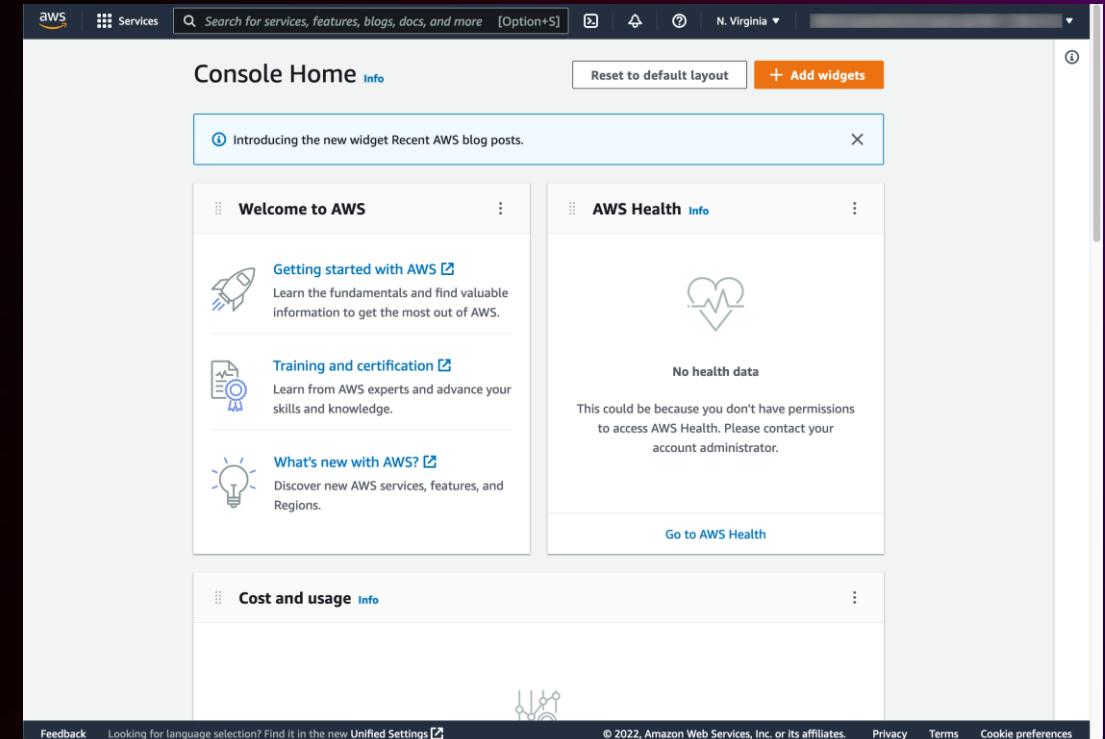
Description
Labs to learn AWS foundational services as well as key concepts for AWS security measures and architecture best practices.

AWS account access

- [Open AWS console](#)
- [Get AWS CLI credentials](#)
- [Get EC2 SSH key](#)

Exit event

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Console Home

Search for services, features, blogs, docs, and more [Option+S]

Reset to default layout [+ Add widgets](#)

Welcome to AWS

Getting started with AWS [Info](#)
Learn the fundamentals and find valuable information to get the most out of AWS.

Training and certification [Info](#)
Learn from AWS experts and advance your skills and knowledge.

What's new with AWS? [Info](#)
Discover new AWS services, features, and Regions.

AWS Health

No health data
This could be because you don't have permissions to access AWS Health. Please contact your account administrator.

Go to AWS Health

Cost and usage

Feedback Looking for language selection? Find it in the new [Unified Settings](#) [Info](#)

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Step 5: Get started with the workshop

AWS workshop studio

AWS General Immersion Day Event in progress. Ends in 10 hours 59 minutes 26 seconds.

Event dashboard

AWS General Immersion Day

Event information

Start time: 9/23/2022 01:13 AM Duration: 12

Description: AWS General Immersion Day

Workshop

Title	Complexity level	AWS services	Topics
AWS General Immersion Day	100	Amazon EC2 Auto Scaling, Amazon Relational Database Service (Amazon RDS), Amazon Simple Storage Service (Amazon S3)	Compute, Databases, Networking & Content Delivery, Storage

Description: Labs to learn AWS foundational services as well as key concepts for AWS security measures and architecture best practices.

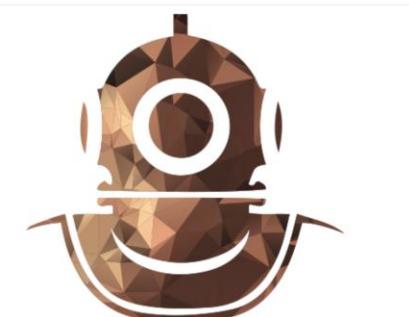
Get started > (A purple arrow points to this button)

AWS General Immersion Day

Event in progress. Ends in 10 hours 59 minutes 26 seconds.

Event dashboard > AWS General Immersion Day

AWS General Immersion Day



IMMERSION DAYS

In this General Immersion Day workshop, through a mix of service explanation and hands-on labs led by AWS, you will learn about AWS foundational services as well as key concepts for AWS security measures and architecture best practices. The hands-on labs are largely divided into basic and advanced modules. In basic modules, you can learn various features of each AWS foundational service. In advanced modules, you can learn how to connect each service organically to create architecture like 3-tier web application.

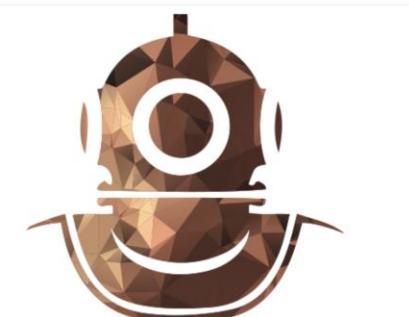
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AWS workshop studio

AWS General Immersion Day Event in progress. Ends in 10 hours 57 minutes 12 seconds.

Event dashboard > AWS General Immersion Day

AWS General Immersion Day



IMMERSION DAYS

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Agenda

- Brief overview of AppStream 2.0 20 minutes
- Lab part 1: Review pre-created resources 5 minutes
- Lab part 2: Create custom image 25 minutes
- Deeper dive into AppStream 2.0 30 minutes
- Lab part 3: Create stack, fleet, and user 15 minutes
- What's new 5 minutes
- Lab part 4: End user experience 15 minutes
- Conclusion and cleanup 5 minutes

Brief overview of AppStream 2.0



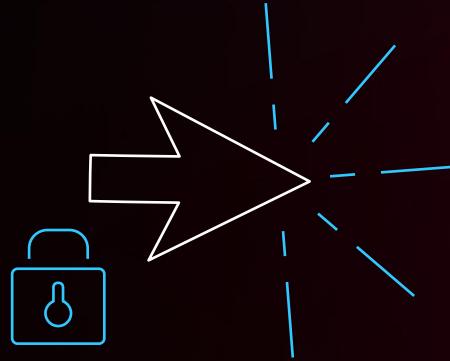
amazon
AppStream 2.0

- ✓ Fully managed
- ✓ Selectively persistence
- ✓ Low-cost
- ✓ Application streaming/SaaS conversion

AppStream 2.0 overview



**Co-located compute,
graphics, apps, data**



Encrypted pixel stream
(AES-256 encryption)



Users

Leading use cases

Enterprise

- Access to applications or virtual desktops with selective persistence
- On-demand access to graphic applications
- BYOD enablement

ISV

- Online trials, demos, training
- SaaSify applications without rewrite
- Cloud migration enablement

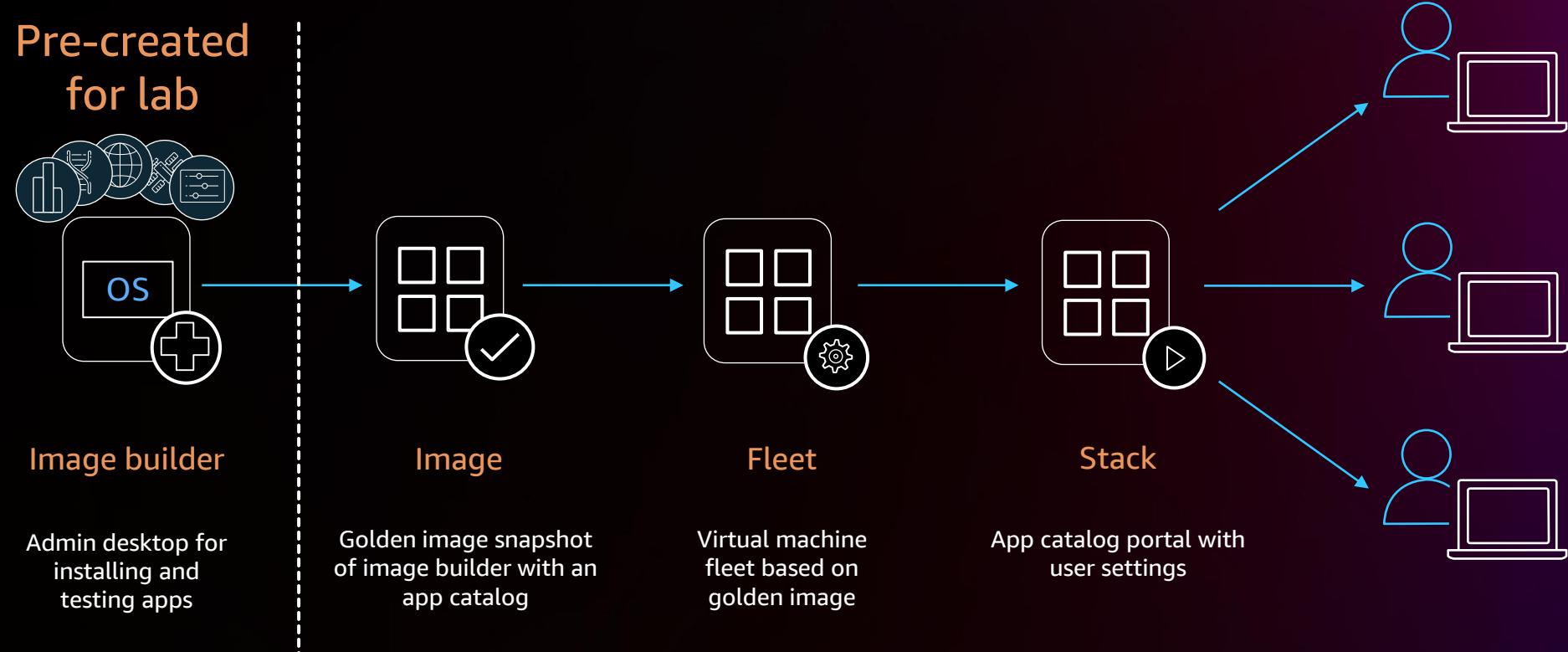
Education

- Dedicated lab alternative
- Remote learning

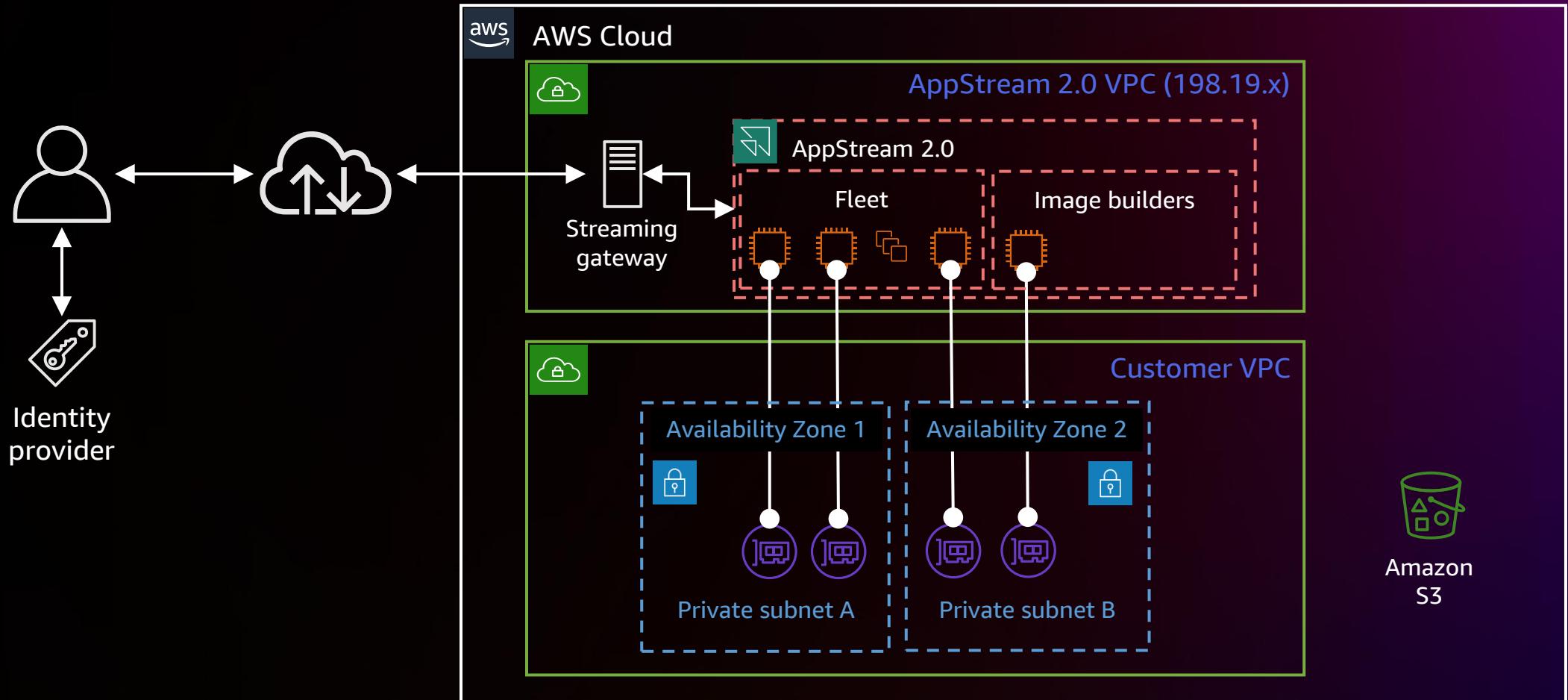
Shared responsibility model

Solution stack	Customer managed	AWS managed
Image management	✓	
Directory services and policies	✓	
VDI control plane install and admin		✓
Host admin		✓
Storage admin		✓
Load balancers install and admin		✓
Hypervisor install and admin		✓
Physical security		✓
Power, HVAC		✓
Rack and stack		✓

Admin workflow

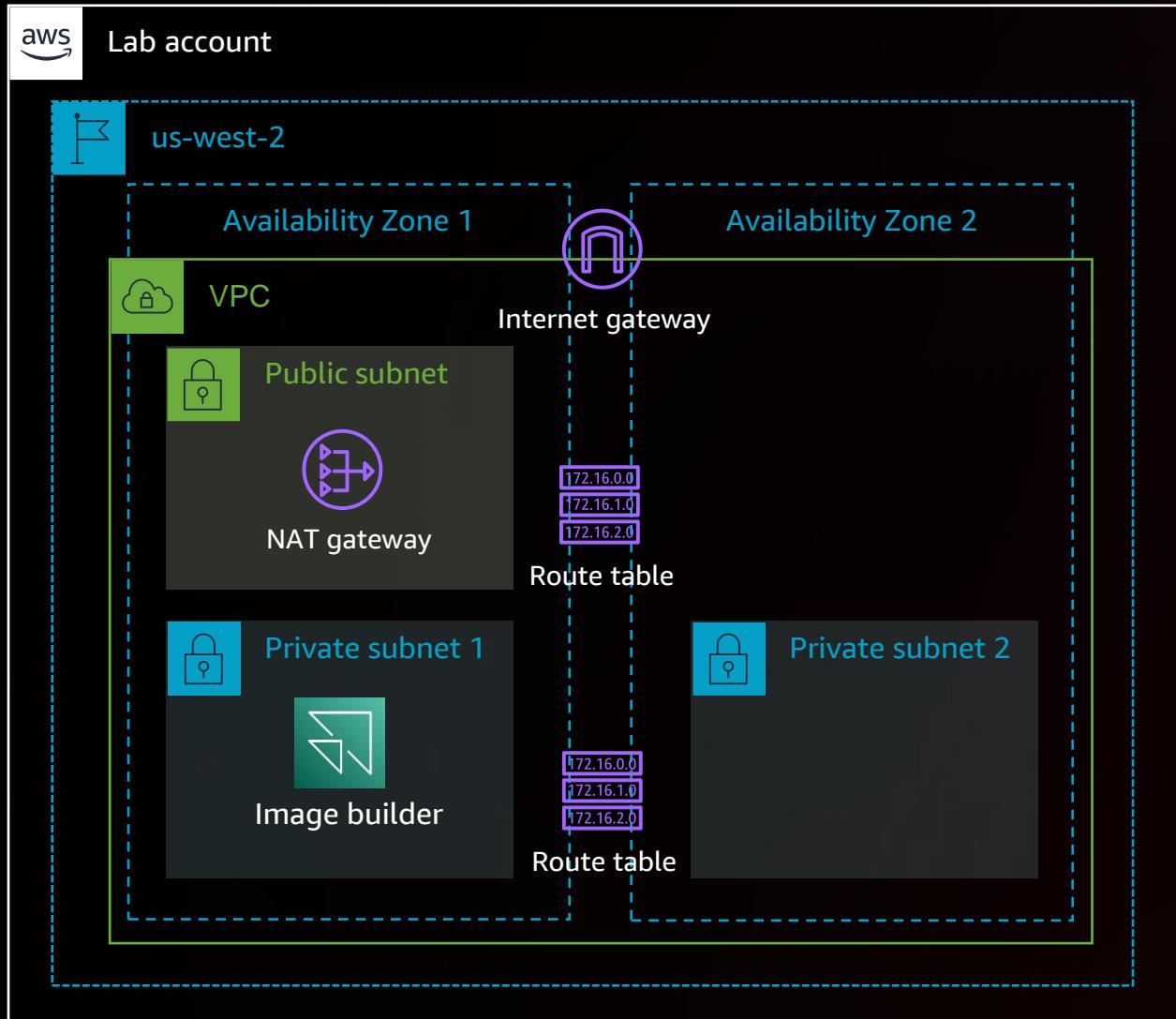


High-level architecture



Lab part 1: Review resources

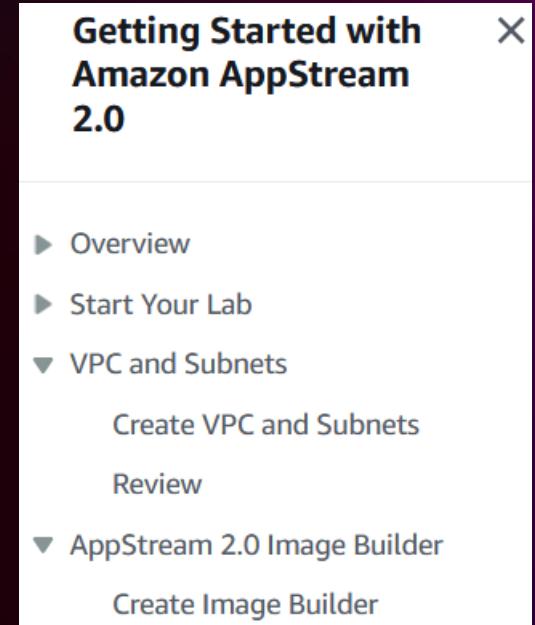
Pre-created in lab account



- VPC
- Internet gateway
- Public subnet with NAT gateway
- Two private subnets
- Route tables
- Image builder

Review pre-created resources

1. Ensure you're in the US West (Oregon) Region
2. Review VPC configuration
3. Review image builder configuration



Lab part 2: Create custom image

Create custom image

1. Connect to image builder
2. Install and configure applications
3. Run Image Assistant and create custom image

- ▼ AppStream 2.0 Image Builder
 - Create Image Builder
 - Connect to Image Builder
 - Installing Applications
- ▼ Image Assistant
 - Add Streaming Applications
 - Validate Applications
 - Optimize Performance
 - Configure Image
 - Review and Create

Deeper dive into AppStream 2.0



Global footprint

AppStream 2.0 Regions

AWS GovCloud (US) Europe

US-West

Frankfurt

US West

Oregon

Ireland

London

US East

N. Virginia

Asia Pacific

Ohio

Singapore

Sydney

Tokyo

Seoul

Canada

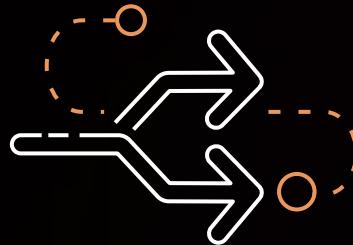
Central

Mumbai

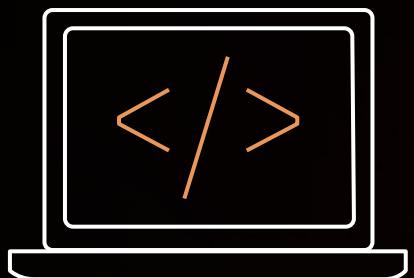


Access methods and end-user experiences

Access methods

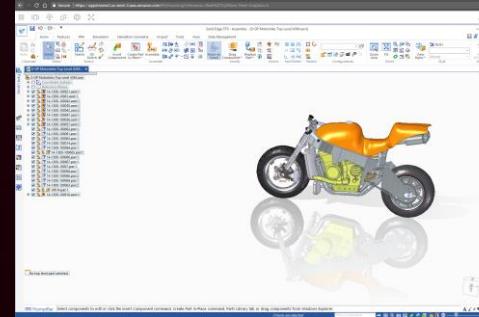


HTML5-capable web browser



Windows client

End-user experiences

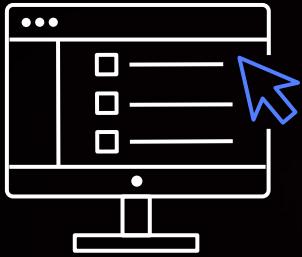


Application view



Non-persistent desktop view

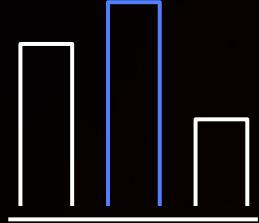
NICE DCV streaming protocol



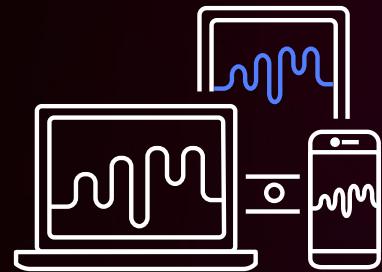
Optimized image quality



Encrypted pixel stream
(AES-256)

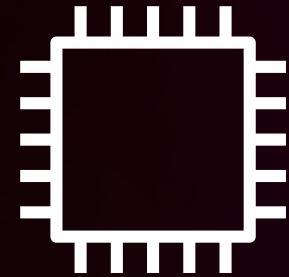
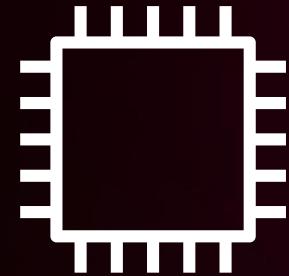
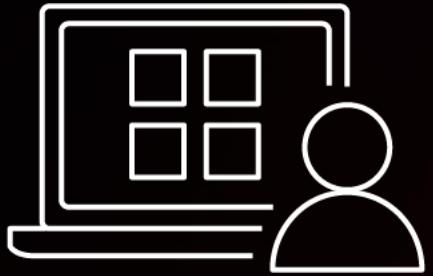
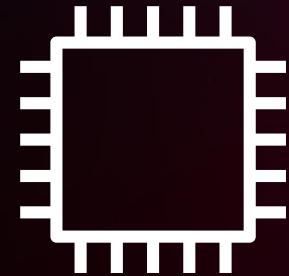


Adaptive quality of service



Adaptive multi-codec

One session per instance



Fleet types

	Always-on	On-demand	Elastic
Session launch time	Seconds	~2 minutes	~1 minute
Capacity management	By customer via scaling policies	By customer via scaling policies	By AWS
Pay for standby capacity	Yes, running instance rate	Yes, lower stopped instance rate	No
Billing	<ul style="list-style-type: none">Linux – per second^{1, 2}Windows – per hour²	<ul style="list-style-type: none">Linux – per second^{1, 2}Windows – per hour²	Per second, for duration of session ¹
Application delivery	Image	Image	Portable apps from a virtual disk
Active Directory support	Yes	Yes	No

1) 15-minute minimum duration

2) For each provisioned instance

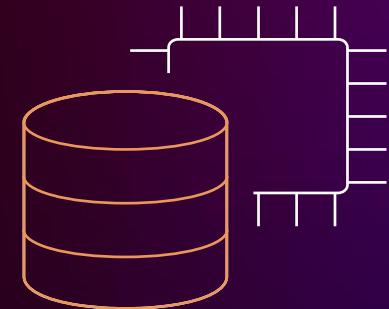
Instance types

Instance family	vCPU	Memory (GB)	GPU
General purpose	1-8	2-32	
Compute optimized	2-32	3.75-60	
Memory optimized	2-32	16-244	
Graphics design	2-16	7.5-61	AMD FirePro, 1-8 GB
Graphics pro	16-64	122-488	NVIDIA Tesla M60, 8-32 GB
Graphics G4	4-64	16-256	NVIDIA T4, 16-64 GB

Built-in persistence options

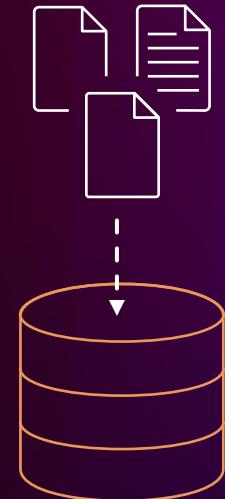
Application settings persistence

- Virtual hard disk (VHD)
 - Mounted on instance before session
 - Unmounted and persisted to customer S3 bucket when session ends
- Captures common settings locations
 - User registry hive
 - Home directory except for documents, pictures, etc.
- Only supported on Windows fleets
- Requires instance connectivity to S3 (supports VPC endpoints)



Home folders

- Creates per-user prefix in customer S3 bucket
- Maps files 1:1 to objects
- Requires instance connectivity to S3 (supports VPC endpoints)



Storage connectors

- Google Drive and OneDrive for Business
- User authorizes connection via OAuth grant
- Requires instance connectivity to provider

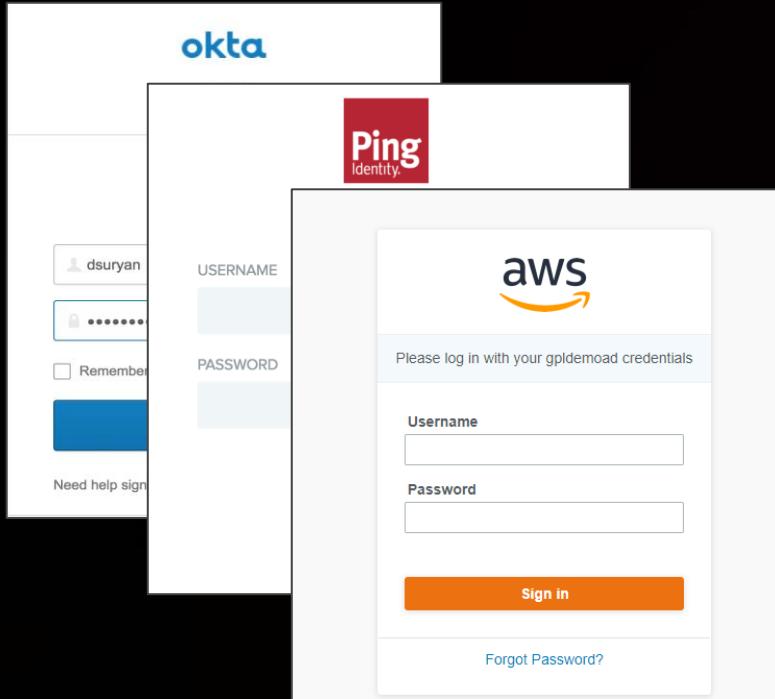


Authentication

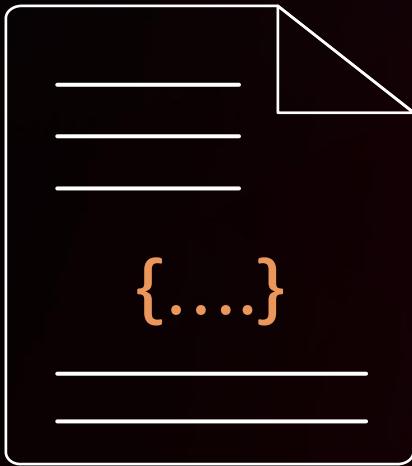


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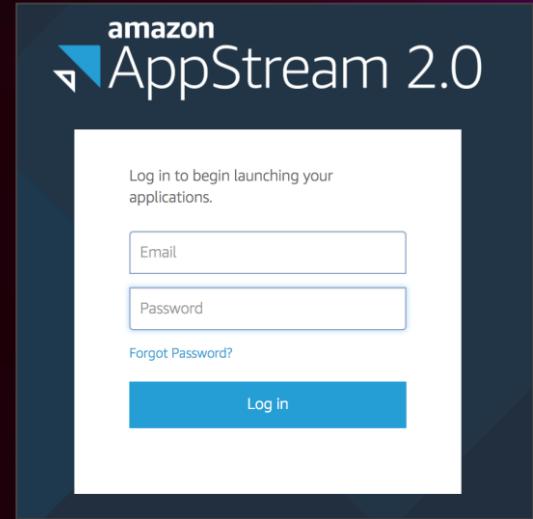
User authentication options



SAML 2.0
identity provider



Streaming URL from
custom backend



Built-in user pool

Domain-joined fleets

Use cases

- Access to network resources
 - File shares
 - Databases
 - Printers
- Enforce Group Policy

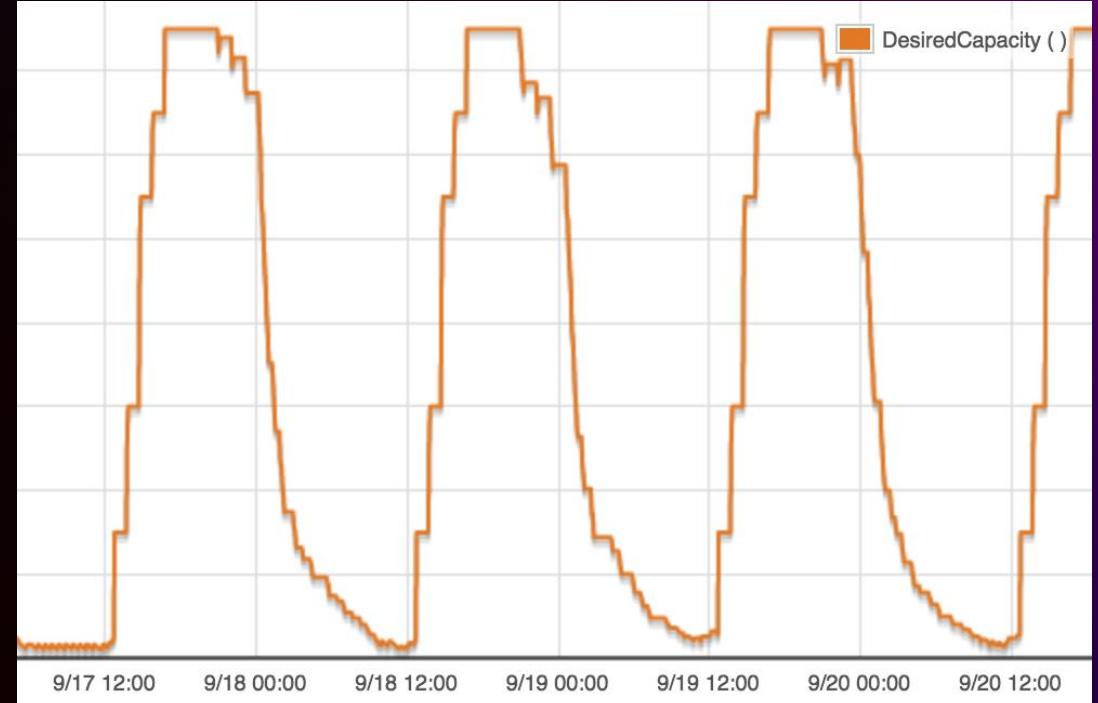
Prerequisites

- Windows always-on/on-demand fleet
- Connectivity from fleet to domain
- Service account
- OU for computer objects
- SAML 2.0 IdP

Cost considerations

Scaling always-on/on-demand fleets

- Use scheduled scaling policies when demand is predictable
- Use utilization-based policies when demand is unpredictable
- Combine policies for complex scenarios
- Track effectiveness via Amazon CloudWatch



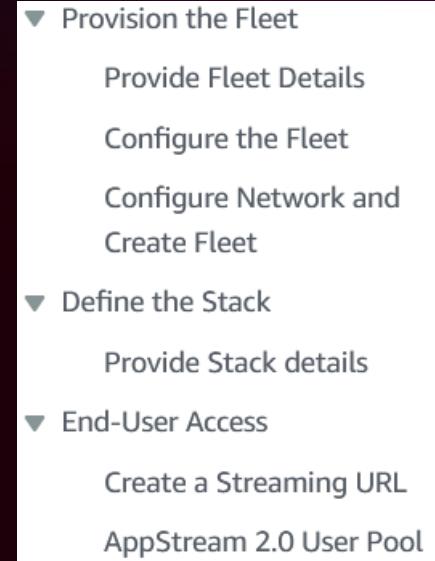
User fees

- Applies to Windows fleets (covers RDS SAL)
- Charged per unique user that streams in a calendar month
- Does not apply to image builders
- Cost
 - \$4.19 commercial
 - \$0.44 eligible educational institutions
 - \$0.00 with ported RDS CAL (if eligible)

Lab part 3: Create stack, fleet, and user

Create stack, fleet, and user

1. Create fleet using your custom image
2. Create stack
3. Create user pool and user (optional)



What's new?



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2022 announcements

Month	Announcement
October	Certificate-based authentication
October	Image Assistant GUI for Linux
October	Webcam support for Linux
June	UDP streaming with Windows client
June	US East (Ohio) region
June	xlarge and 2xlarge general purpose instances
April	Session scripts for Elastic fleets
March	Canada (Central) region
January	Application entitlements for SAML 2.0 users

Lab part 4: End user experience

End user experience

1. Launch a session as an end user
2. Explore the toolbar (optional)

▼ End-User Experience

- Access the streamed applications
- The AppStream 2.0 Toolbar Overview
- Launch an application
- Switch Windows
- Upload and Download Files
- Use the Clipboard
- View the settings
- Use full screen and multiple monitors
- Provide access through the client
- End the session

Conclusion and cleanup

- No cleanup required with these lab accounts
- Considerations in your environment
 - Ensure your image builder is stopped
 - Ensure your fleet is stopped
 - Un-assign stack from user pool user

End user computing: other track sessions

Type	Code	Level	Day / Time	Title	Speakers
Breakouts	EUC202	200	11/28, 5:30p – 6:30p	What's new with Amazon WorkSpaces, Amazon AppStream 2.0 & WorkSpaces Web	Hassan TA, Rey Wang
	EUC201	200	11/29, 5:00p – 6:00p	Creating the workplace of the future with AWS end user computing	Muneer Mirza
	EUC307	300	11/30, 8:30a – 9:30a	Accelerating SaaS conversion of legacy applications	Gurinder Raju
	EUC203	200	11/30, 10:00a – 11:00a	Creating flexibility and choice for VDI management with Amazon WorkSpaces	Kevin Goodman
Chalk talks	EUC205	200	11/28, 10:45a-11:45a	Managing application deployment in an Amazon WorkSpaces environment	Sam Goad
	EUC310	300	11/29, 12:30p – 1:30p	Streamlining log-on experience for Amazon WorkSpaces and AppStream 2.0	Asriel Agronin
	EUC309	300	11/30, 10:00a – 11:00a	Choosing an Amazon AppStream 2.0 fleet to reduce costs & optimize experience	Manav Verma
	EUC312	300	11/30, 2:30p – 3:30p	Securing end user computing workloads on AWS end user computing services	Michael Mattes
	EUC308	300	11/30, 5:30p – 6:30p	Best practices for migrating on-premises VDI workloads to the cloud	Phil Persson
	EUC301-R1	300	12/1, 11:45a – 12:45p	Securely stream AWS workloads to your remote workers	Andrew Morgan, Ariel Fu
Workshops	EUC304	300	11/30, 11:30a – 1:30p	Enable secure access to private resources with Amazon WorkSpaces Web	Spencer DeBrosse, Grant Joslyn
	EUC306-R1	300	11/30, 3:15p – 5:15p	Getting started with Amazon WorkSpaces	Dave Jaskie
Builders	EUC313-R1	300	11/30, 4:00p – 5:00p	Building streaming applications using Amazon AppStream 2.0 Elastic fleets	Don Scott
Theater	EUC001	NA	11/30, 2:30p – 2:50p	Maximize employee experience with Amazon WorkSpaces & AppStream 2.0	Stephen Stetler
	EUC002	NA	11/30, 3:00p – 3:20p	Modernize your virtual desktop infrastructure with Amazon WorkSpaces	Andrew Kloman

Learn more about AWS End User Computing

AWS re:Invent

AWS End User Computing Reception

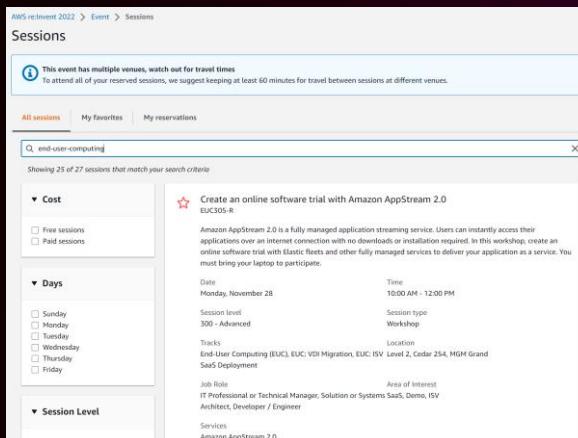
November 30, 2022 | 6:00PM - 9:00PM PST

Electra Cocktail Club, 3325 South Las Vegas Boulevard, Las Vegas, NV 89109



bit.ly/3hMzcVB

Visit the EUC re:Invent
session catalog



The screenshot shows a search results page for the AWS re:Invent 2022 session catalog. The search term 'end-user-computing' has returned 29 results. The results are filtered by 'Cost' (Free sessions) and 'Days' (Monday, November 28). One specific session is highlighted: 'Create an online software trial with Amazon AppStream 2.0' (EUC05-#). The session details include the date (Monday, November 28), time (10:00 AM - 12:00 PM), session level (300 - Advanced), tracks (End-User Computing (EUC), EUC: VDI Migration, EUC: ISV Level 2, Cedar 254, MGM Grand), location (MGM Grand), job role (IT Professional or Technical Manager, Solution or Systems Architect, Developer / Engineer), and services (Amazon AppStream 2.0). The session is described as a workshop where users will learn how to create an online software trial with Amazon AppStream 2.0, which is a fully managed application streaming service.



bit.ly/3TGUGAi



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Thank you!

Dylan Barlett

barlettd@amazon.com



Please complete the session
survey in the **mobile app**



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