AWS re:Invent

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Scaling & maintaining Amazon WorkSpaces & Amazon AppStream 2.0 deployments

Russell Bell
Senior Solutions Architect,
End User Computing
AWS

Jeremy Johnstone
Corporate Operations Engineer
DraftKings

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Amazon AppStream 2.0

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Objectives

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Objectives

- Learn how to manage instance types
- Learn how to scale and manage the AppStream 2.0 fleet
- Learn how to use AppStream 2.0 usage reports
- AppStream 2.0 demo
- Key takeaways
- Conclusion

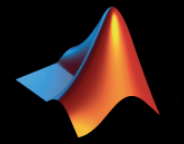
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Instance types

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Manage instance types

amazon AppStream 2.0

Instance family types	Recommended workloads
General purpose	
Compute optimized	
Memory optimized	
Graphics Pro	
Graphics Design	
Graphics G4	

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Running mode management

Always-On fleet

Instant connection

Uses running instance fleet

On-Demand fleet

1-to-2-minute launch time

Uses stopped instance fleet

Which mode is right for me?

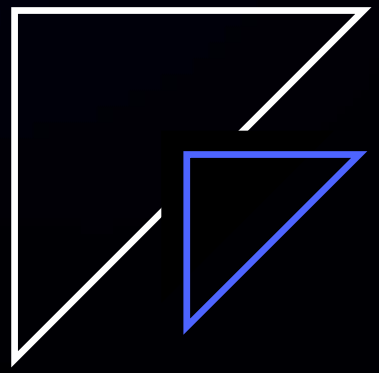
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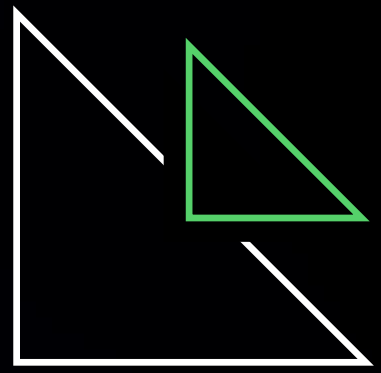
Scaling and optimization

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Scale and manage the AppStream 2.0 fleet

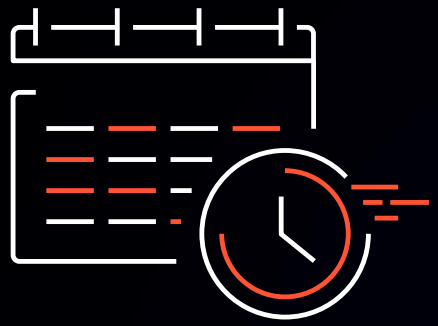
Scale-out policies

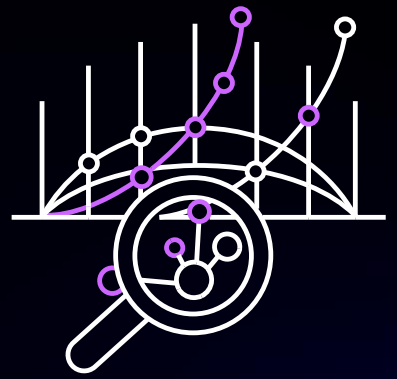




Scale-in policies

Scheduled policies



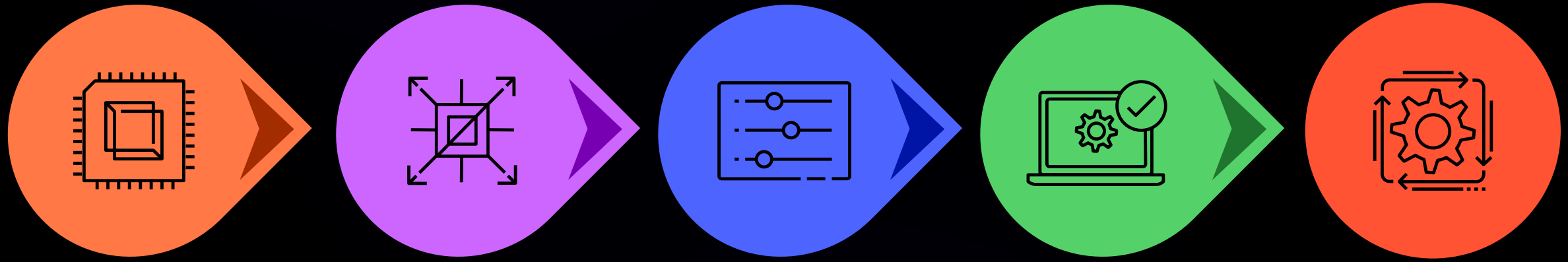


Target tracking policies

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Optimize the AppStream 2.0 fleet

5 STEPS TO OPTIMIZATION



Right-size the instance type

Adjust the fleet scaling size

Adjust the fleet scaling interval

Verify the running mode

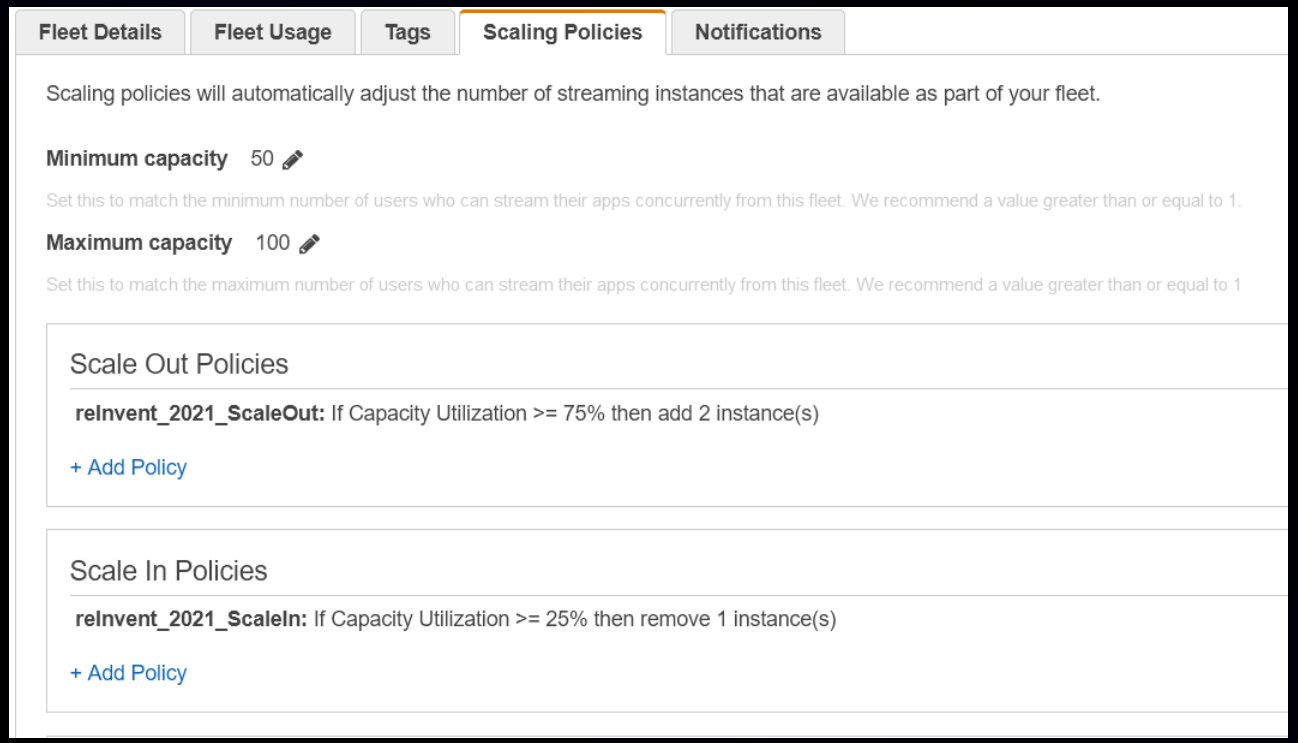
Continuous monitoring

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Example

Use case



Requirements

Deploy a set of applications for 100 users with 50% concurrency

The users' work is time sensitive, and any delay accessing the applications would be costly for the company

Fleet type

Always-On

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Usage reports

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What are AppStream 2.0 usage report?

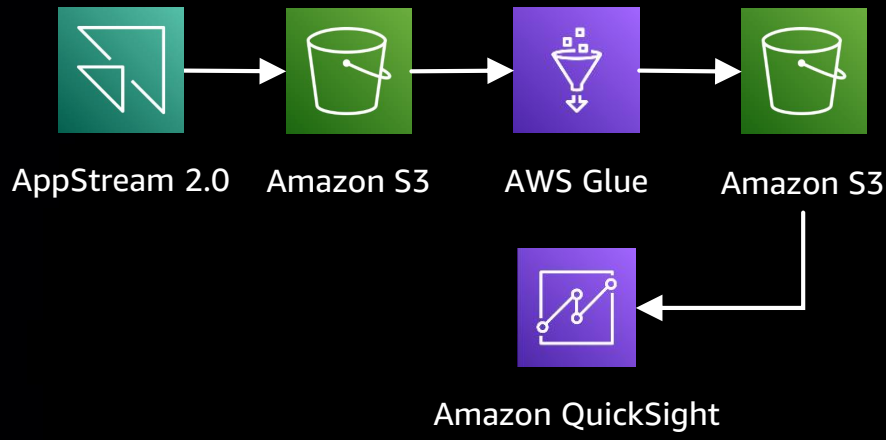
- Detailed monitoring
  - Detailed reports about how your users are using the service
- Automated data gathering
  - The service will automatically generate a CSV-formatted report once a day
- Flexible storage for reports
  - All report are stored on Amazon S3, which can be leveraged by other services for further analysis



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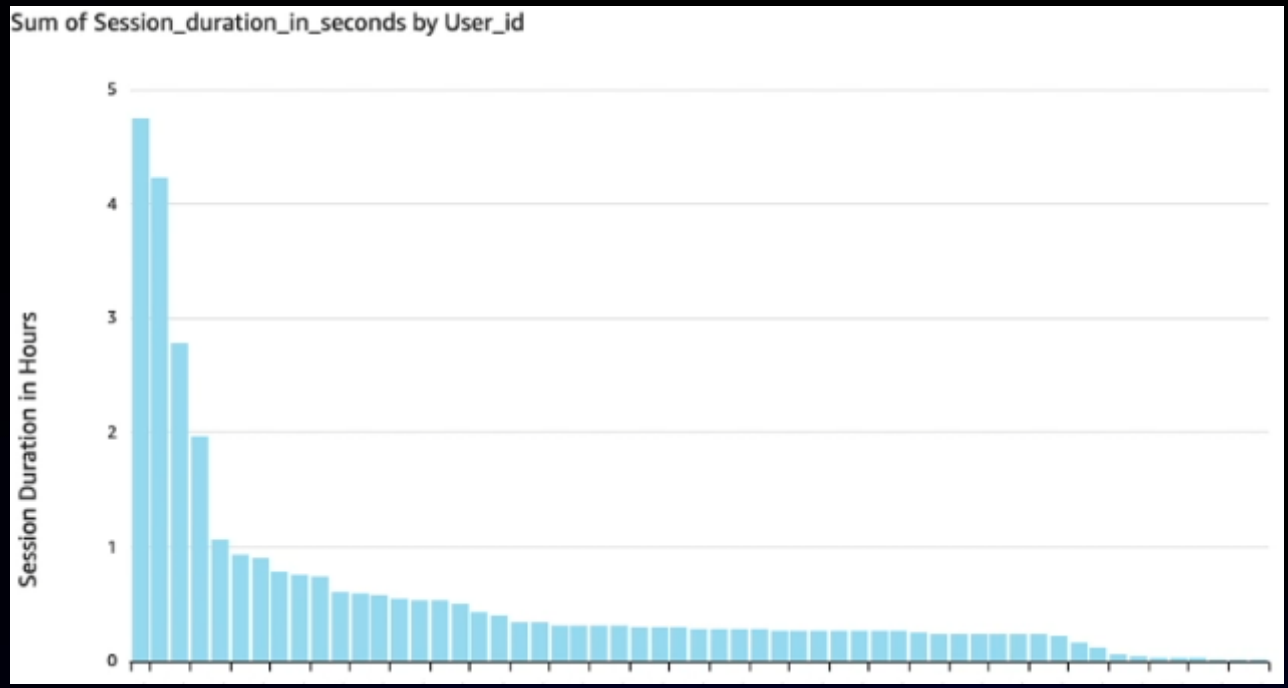
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AppStream 2.0 usage reports



Art of the possible with reporting

- Basis for AppStream 2.0 usage reports
  - Session information
  - Application information
- Usage reports can be utilized for business insights
  - User-specific usage patterns
  - Business unit cost forecasting
  - Session



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Takeaways



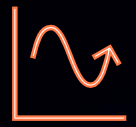
One size doesn’t fit all



Cost vs. user experience is important



Let the application owner drive



Scaling rules will vary for each use case

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Amazon WorkSpaces

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DraftKings' story

- Customer growth = CX staffing need
- NFL season preparation
- 950 new CX employees in 70 days
- Located in multiple countries

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What are we solving for?

- **Ease of management**
  - Automated patching capabilities
  - Automated application assignment
  - Automated Virtual Desktop Infrastructure (VDI)/ Desktop-as-a-Service (DaaS) provisioning
- **Minimize IT access to AWS**
  - Execution speed
  - Capability to roll out 100+ VDI/DaaS quickly

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What are we solving for?

- **Cost control**
  - Stopping/deleting VDI/DaaS for terminated and on-leave users
- **User experience**
  - Standardized setup process
  - Minimize end-user confusion during initial setup

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Objectives

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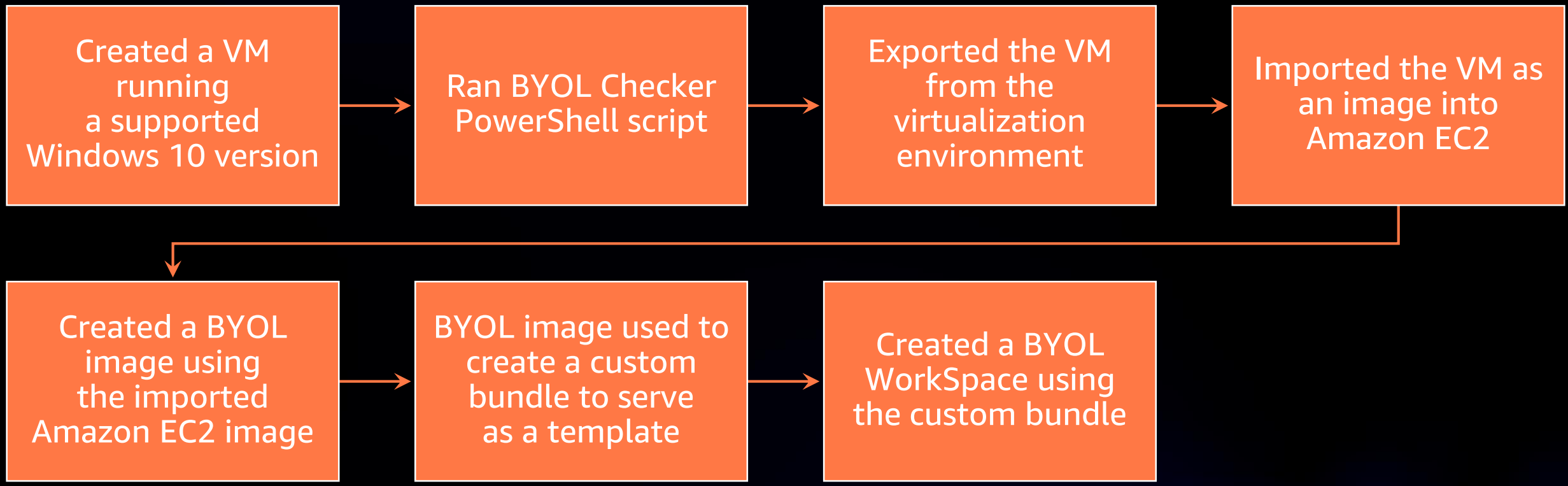
Objectives

- Discover how our BYOL image was created
- Review our bundle decisions
- Learn about running modes
- Review our AWS Lambda automations
  - Provisioning
  - Running mode
- Learn how to dynamically set up WorkSpaces using Microsoft Endpoint Manager

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BYOL image

ABILITY TO USE EXISTING WINDOWS 10 ENTERPRISE OR WINDOWS 10 PRO DESKTOP LICENSE FOR AMAZON WORKSPACES IF YOUR LICENSING AGREEMENT ALLOWS



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Changes made on the BYOL WorkSpace

1. Changed default background
2. Added an Active Setup entry
3. Created a trigger on the Automatic-Device-Join scheduled task

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Bundle decisions

Multiple bundle options that offer different CPU, GPU, memory, and storage options based on the user requirements

DK Selection: Performance bundle

- Hardware bundle switching allows you to switch between the Value, Standard, Performance, Power, or PowerPro hardware bundles as needed
- Dynamically increase storage allocations at any time

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Running modes

THE RUNNING MODE OF A WORKSPACE DETERMINES ITS IMMEDIATE AVAILABILITY AND HOW YOU PAY FOR IT (MONTHLY OR HOURLY)

AlwaysOn

This mode is best for users who use their WorkSpaces full-time as their primary desktop

AutoStop

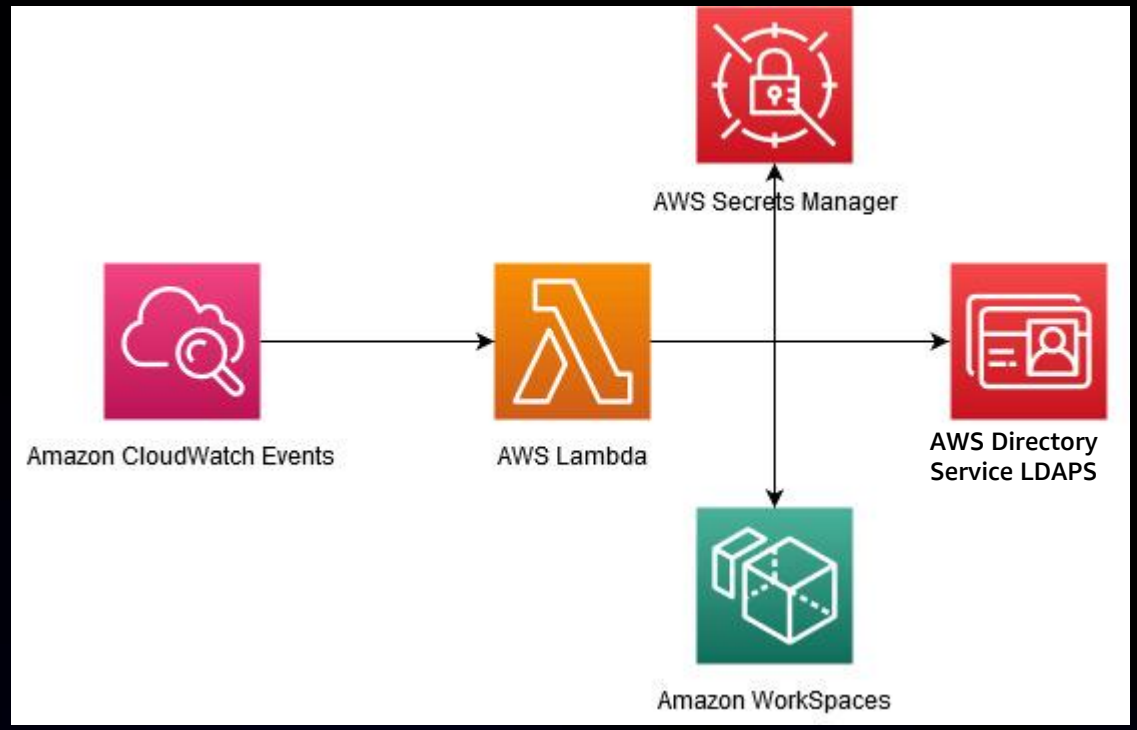
WorkSpaces stop after a specified period of disconnection, and the state of apps and data is saved

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AWS Lambda automations

BY CREATING A LAMBDA FUNCTION WITH VPC ACCESS, WE CAN USE THE PYTHON LIBRARY LDAP3 TO CONNECT TO DIRECTORY SERVICES

- LDAPS + Python Boto3 library
  - Provision AlwaysOn WorkSpaces for group members
  - Change running mode to AutoStop for non-group members
- Amazon CloudWatch Events rule
  - Fixed schedule that runs every hour



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Microsoft Endpoint Manager Overview

- **Enrollment triggered by Group Policy**
  - Automatic-Device-Join scheduled task
- **Device Management**
  - Application delivery
  - Compliance policies
  - Configuration profiles
  - Quality and Feature Update control

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Dynamic setup using Microsoft Endpoint Manager

Azure AD Connect

- Added the WorkSpaces organizational unit (OU) to the domain and OU filtering page, so WorkSpaces are synced to Azure AD as hybrid devices

Microsoft Intune

- Created a Dynamic Azure group for all WorkSpaces
- Deployed apps and settings to groom the OS





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Dynamic setup using Microsoft Endpoint Manager

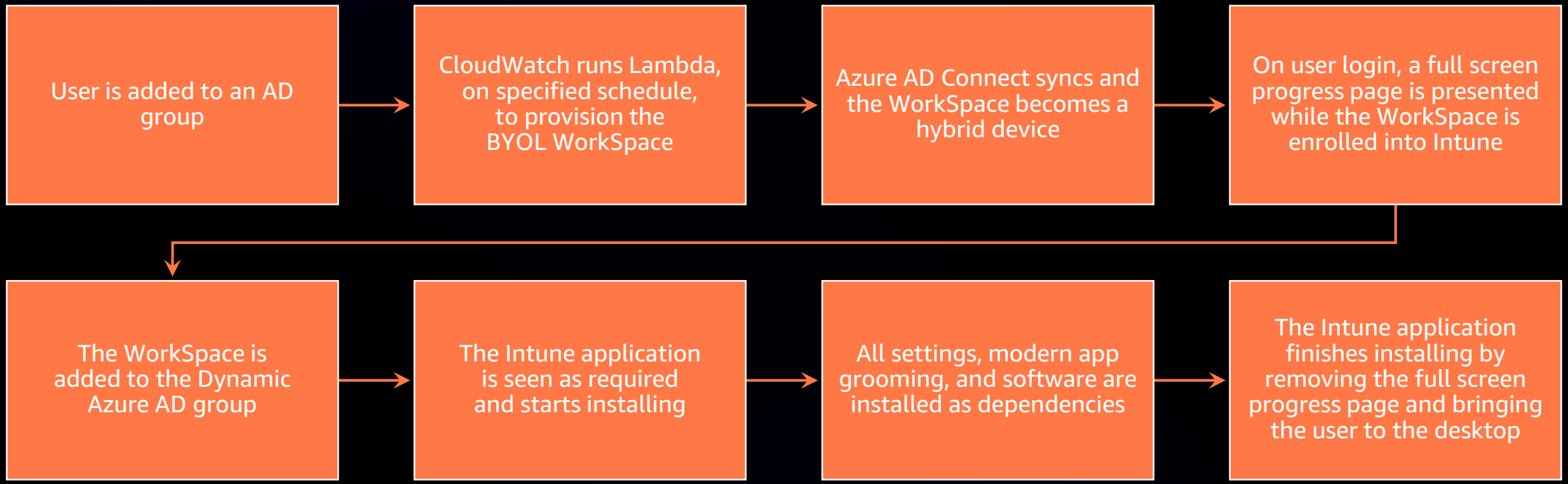
- Custom Win32 app removes the progress page
- Has 23 dependencies that must install before it can run
  - Modern app grooming
  - Default settings
  - Default software



Make sure all security software installs at the very end of the dependency chain

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Results



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Results

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Computer deployment – Pre-DaaS

New hire

- Order machine
- Wait for delivery
- Unbox
- Image and asset tag
- Re-box
- Create shipping label
- Coordinate delivery
- Send tracking number

Leaves company

- New box
- New label
- Wait for return
- Unbox
- Back up
- Wipe
- Repurpose or destroy

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Computer deployment – DaaS

New hire

Add AD group

Leaves company

Remove AD group



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Added benefits

- Didn’t have to provide computers ($)
- DaaS is secured from local device
- Access removal is quick and easy
- Global solution

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AppStream 2.0 – References

Amazon AppStream 2.0 primer
https://www.aws.training/Details/Curriculum?id=67990

Scale your Amazon AppStream 2.0 fleets
https://aws.amazon.com/blogs/desktop-and-application-streaming/scale-your-amazon-appstream-2-0-fleets/

Amazon AppStream 2.0 – Enterprise application onboarding workshop
https://aws.amazon.com/getting-started/hands-on/app-onboarding/

Get started with Amazon AppStream 2.0
https://docs.aws.amazon.com/appstream2/latest/developerguide/getting-started.html

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Amazon WorkSpaces – References

Amazon WorkSpaces primer
https://www.aws.training/Details/Curriculum?id=62373

Amazon WorkSpaces deep dive
https://www.aws.training/Details/Curriculum?id=67317

Automate provisioning of Amazon WorkSpaces using AWS Lambda
https://aws.amazon.com/blogs/desktop-and-application-streaming/automate-provisioning-of-amazon-workspaces-using-aws-lambda/

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