AWS re:Invent

EUC302

Move your desktops and applications to AWS EUC

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Global Tech Lead – End User Computing
Amazon Web Services

Agenda

- Today's challenges
- Why customers choose AWS end-user computing services
- Overview of Amazon WorkSpaces
- Overview of Amazon AppStream 2.0
- Overview of Amazon WorkDocs
- Deployment considerations
- Demo

The way we work is changing

65%
of employees

say they'd be more
productive with flexible
work policies

43%
of workers

worked
remotely
in 2018

16M
people

in the
gig economy
(temps, contractors,
and freelancers)

Business moves faster than ever

20

years

___

Average age
of a Fortune 500
company

$5T

globally

___

Value of
merger and
acquisition
activity in
2018

The importance of security keeps rising
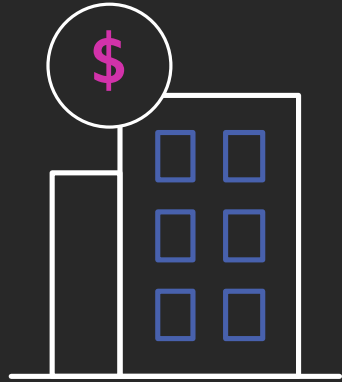
4.5B
records

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exposed
in the first
half of 2018

34%
of data breaches

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are from lost or
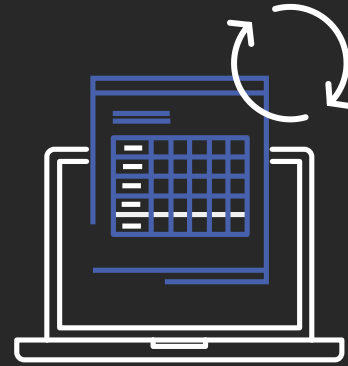stolen devices
and documents

$3.8M

Average cost of a
data breach in
2018

Challenges for IT to meet the needs of end users

Costly on-premises infrastructure

Complex application management

Unsecured personal devices

Poor user experience

Why are customers choosing AWS end-user computing?

Give **users** anywhere, anytime access to company
data and applications on their favorite devices

Help **IT** maintain data security, reduce complexity,
and improve user productivity

Extend and apply the core benefits of AWS to drive
transformation of their existing end-user computing environments
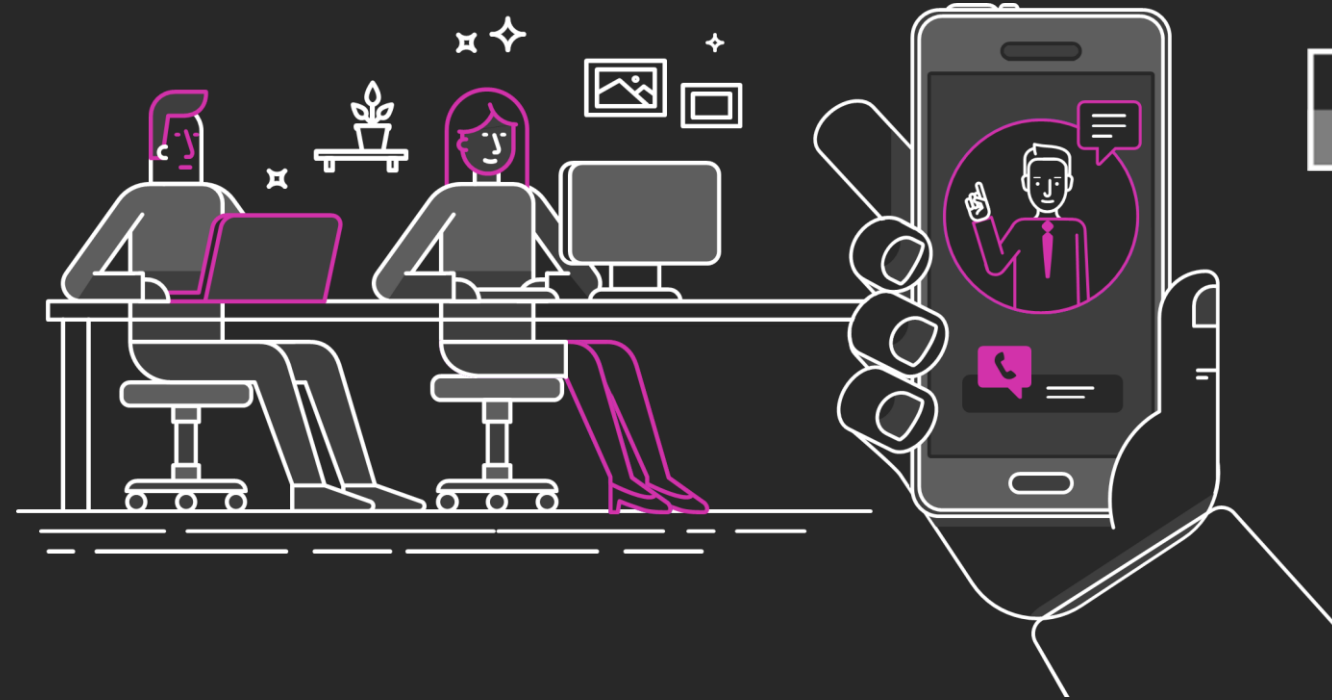
The cloud transforms end-user computing

Access resources anywhere, on any device

Scale with the changing workforce

Enable innovation

Improve security and control

Increase user productivity

Simplify IT operations while reducing spend

AWS end-user computing

amazon
AppStream 2.0
Applications

amazon
Worklink
Mobile access

amazon
WorkSpaces
Desktops

amazon
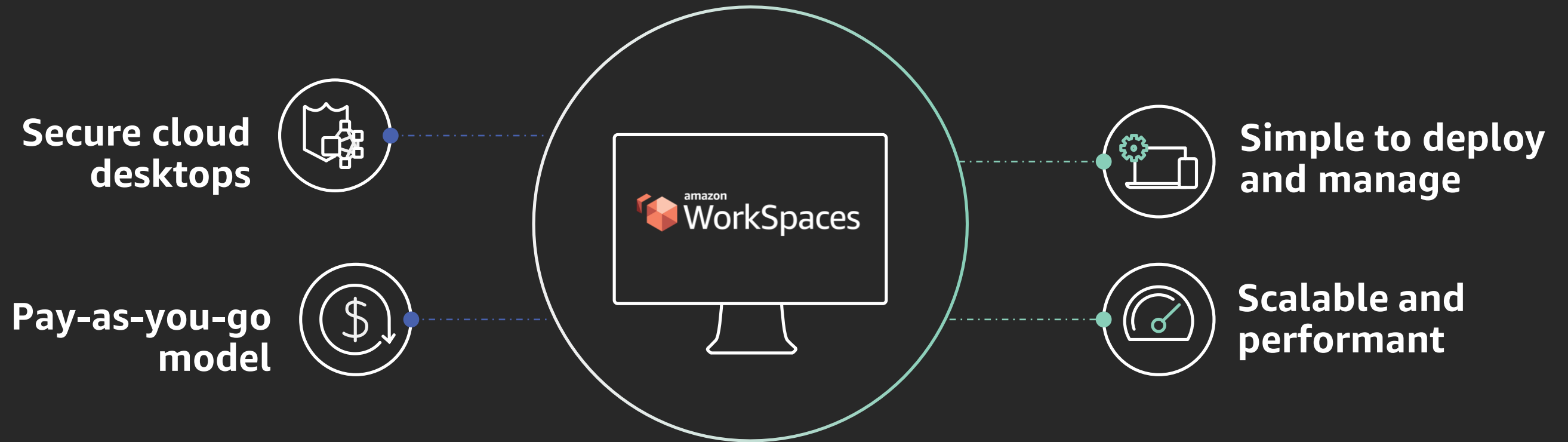**WorkDocs**
Documents

Customers

Amazon WorkSpaces

Secure cloud desktops

Pay-as-you-go model

amazon
WorkSpaces

Simple to deploy and manage

Scalable and performant

Highly interactive cloud desktops that users love

AWS re:Invent hands-on labs

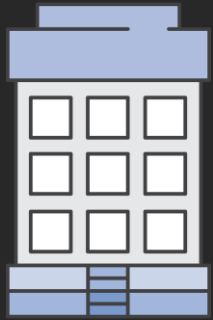# Improves security

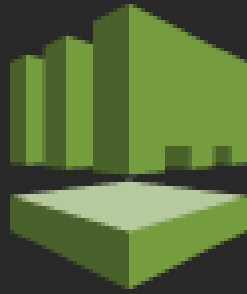**No sensitive data on user devices**

Storage encrypted at rest

Desktop stream encrypted in transit

Amazon WorkSpaces encrypts data and streams
and keeps information off devices

Plays well with existing tools

Intranet

Microsoft Active Directory

Multifactor authentication (MFA)
(RADIUS-based)

Systems/patch management
(SCCM, BigFix, WSUS)

Certificate authority

Amazon WorkSpaces integrates easily with your on-premises tools and network

Amazon WorkSpaces flexibility

Clients

Desktop,
mobile,
web

**Operating
system**

Windows 10,
Amazon Linux

Bundles

Value,
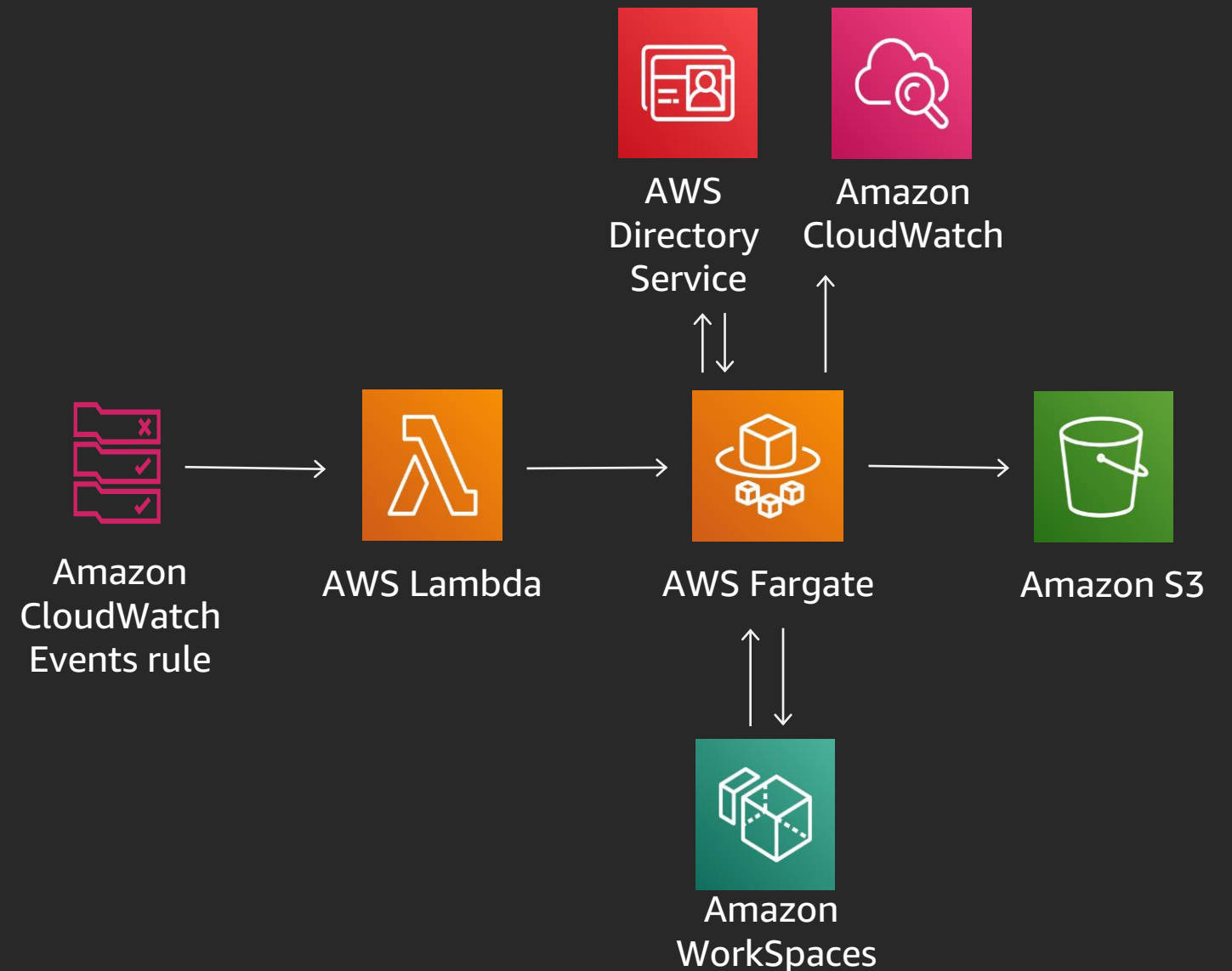standard,
performance,
power,
PowerPro,
graphics (x2)

**Flexible
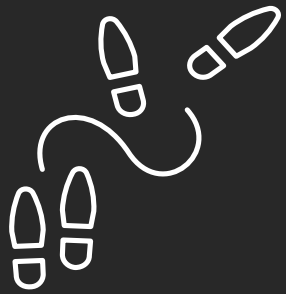pricing**

Monthly,
hourly,
BYOL

Amazon WorkSpaces Cost Optimizer

AWS offers the **Amazon WorkSpaces Cost Optimizer**, a solution that analyzes all of your WorkSpace usage data and automatically converts the WorkSpace to the most cost-effective billing option (hourly or monthly), depending on the user's individual usage

AWS Directory Service

Amazon CloudWatch

Amazon CloudWatch Events rule → AWS Lambda → AWS Fargate → Amazon S3

Amazon WorkSpaces

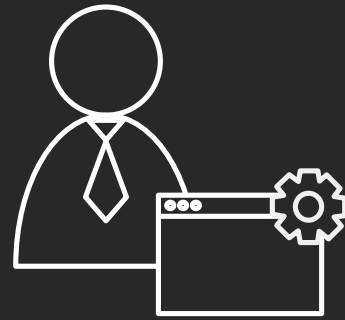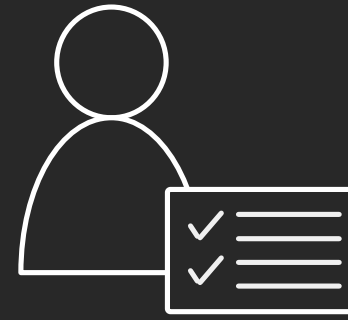https://aws.amazon.com/solutions/amazon-workspaces-cost-optimizer

How customers are using Amazon WorkSpaces

Mobile and/or remote employees

Partners, consultants, and temporary employees

Mergers and acquisitions

Replacement of virtual desktop infrastructure (VDI), project-based work

Customer success story
Yamaha

"Performance and stability is better than before,
and we were able to introduce the solution quickly. Best of
all, Amazon WorkSpaces did not require any upfront
investment, and we pay only for what we use. We are now
working to retire our on-premises VDI solution entirely."

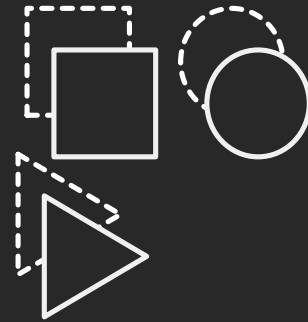—**Taku Harako**, IT Technology Strategy Group, Yamaha

AppStream 2.0

Secure application streaming

Centrally manage applications

amazon
AppStream 2.0

Integrates with existing IT

Scale without infrastructure

Deliver desktop applications to any computer
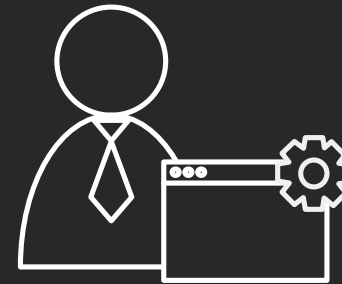
Ways you can use AppStream 2.0

Business applications

Simplify application delivery

3D design and engineering

Work without workstations

Software vendors

Deliver trials, demos, and training

Create SaaS with no rewrites

Educational institutions

Replace computer labs and enable distance learning

Multiple instance families

- One session – One VM = Consistent performance
- Match application workload to instance characteristics
  - General purpose – Knowledge-worker applications
  - Compute optimized – Compute-bound applications that benefit from high-performance processors
  - Memory optimized – Applications that process large datasets in memory
  - Graphics optimized – High graphics requirements
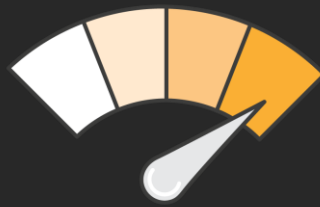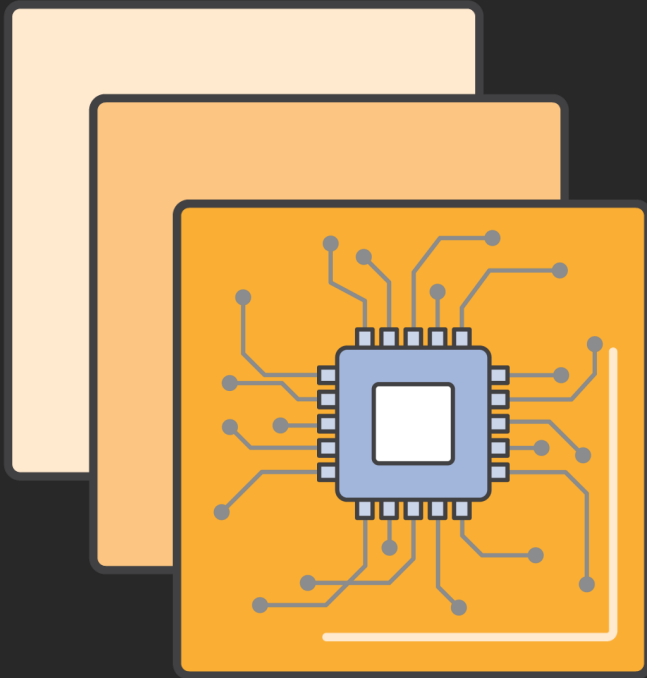
Graphics instance families
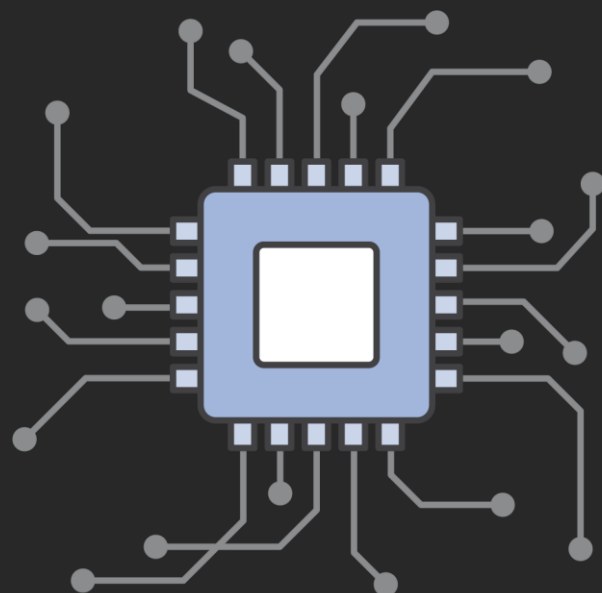
Instance family	Graphics design	Graphics desktop	Graphics pro
Number of instance sizes	4	1	3
Price	$0.25–$2.00	$0.50	$2.05–$8.20
GPU memory	1–8 GiB	4 GiB	8–32 GiB
vCPU	2–16	8	16–64
Instance memory	7.5 – 61 GiB	15 GiB	122 – 488 GiB
GPU vendor	AMD	NVIDIA	NVIDIA
Libraries supported	DirectX, OpenGL, OpenCL	CUDA, DirectX, OpenGL, OpenCL	CUDA, DirectX, OpenGL, OpenCL

https://aws.amazon.com/blogs/compute/delivering-graphics-apps-with-amazon-appstream-2-0/

The AppStream 2.0 administrator workflow

Administrator

Image builder
Used to install and configure business applications

Image assistant
Used to define and optimize applications presented, configure default user settings, and create an image

Define a fleet
Configurations include image, instance types, networking, and scaling configurations

Provision a stack
Configurations include fleet, user storage, access permission options, and customer branding

User

User

User

AD + SAML or user pools
Used to define users and grant stack access

Customer success story
Dassault Systemes SolidWorks Corporation

Dassault Systemes SolidWorks Corporation develops 3D CAD design software, analysis software, and product data management software. DS SolidWorks uses Amazon AppStream 2.0 to deliver trials of their flagship software—SOLIDWORKS 2018 CAD Premium, through https://my.solidworks.com/#General

Customer success story
MathWorks

MathWorks uses Amazon AppStream 2.0 for hands-on MATLAB deep learning workshops with customers. MATLAB is a programming environment used by millions of engineers and scientists for algorithm development, data analysis, visualization, and numeric computation.
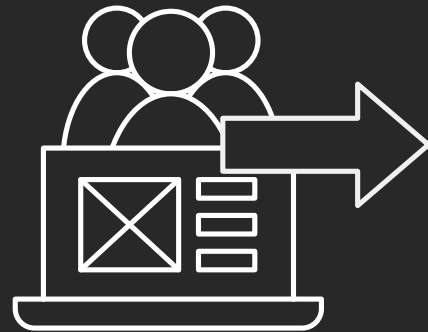
WorkDocs

Secure content store

Integrates with existing IT

amazon
WorkDocs

Global access

Extensible SDK

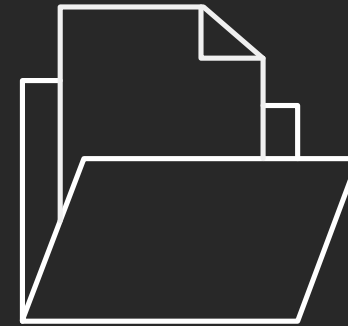**Secure, fully managed file storage with an extensible SDK**
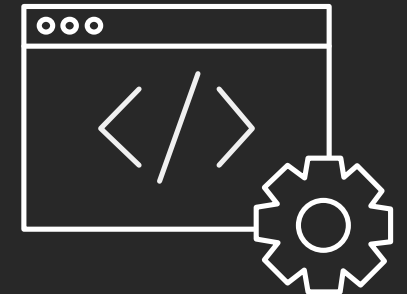
Ways you can use WorkDocs

Securely store
content in the cloud

Collaborate, edit,
and share across teams

Replace network
file shares

Build custom
content experiences

Customer success story
Halliburton

- Secure central storage for user files in WorkSpaces environment

- Users need to access files anytime, anywhere on mobile and desktop

- Custom application built using WorkDocs SDK

HALLIBURTON

Customer success story
Condé Nast

- Central secure repository for content

- Distribute terabytes of content worldwide

- Content is periodically refreshed in central repository

- Employees and partners worldwide access and download when notified of content refresh

CONDÉ NAST

amazon WorkSpaces + amazon WorkDocs

Features

- 50 GB free tier for Amazon WorkSpaces users
- Upgrade to 1 TB for $2 per user/month
- WorkDocs Drive can be a default user-storage solution

Deployment considerations

aws

The scenario

- Existing AWS customer
- Hybrid architecture, mix of applications on premises and in the cloud
- Existing Active Directory environment for identity
- AWS Direct Connect already in place
- 4,000+ users
  - ~30% contingent workforce
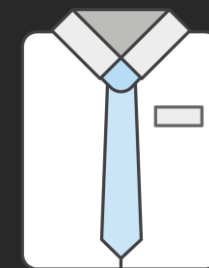 - ~10% with high-performance or GPU workloads

BYOD

Mergers and acquisitions
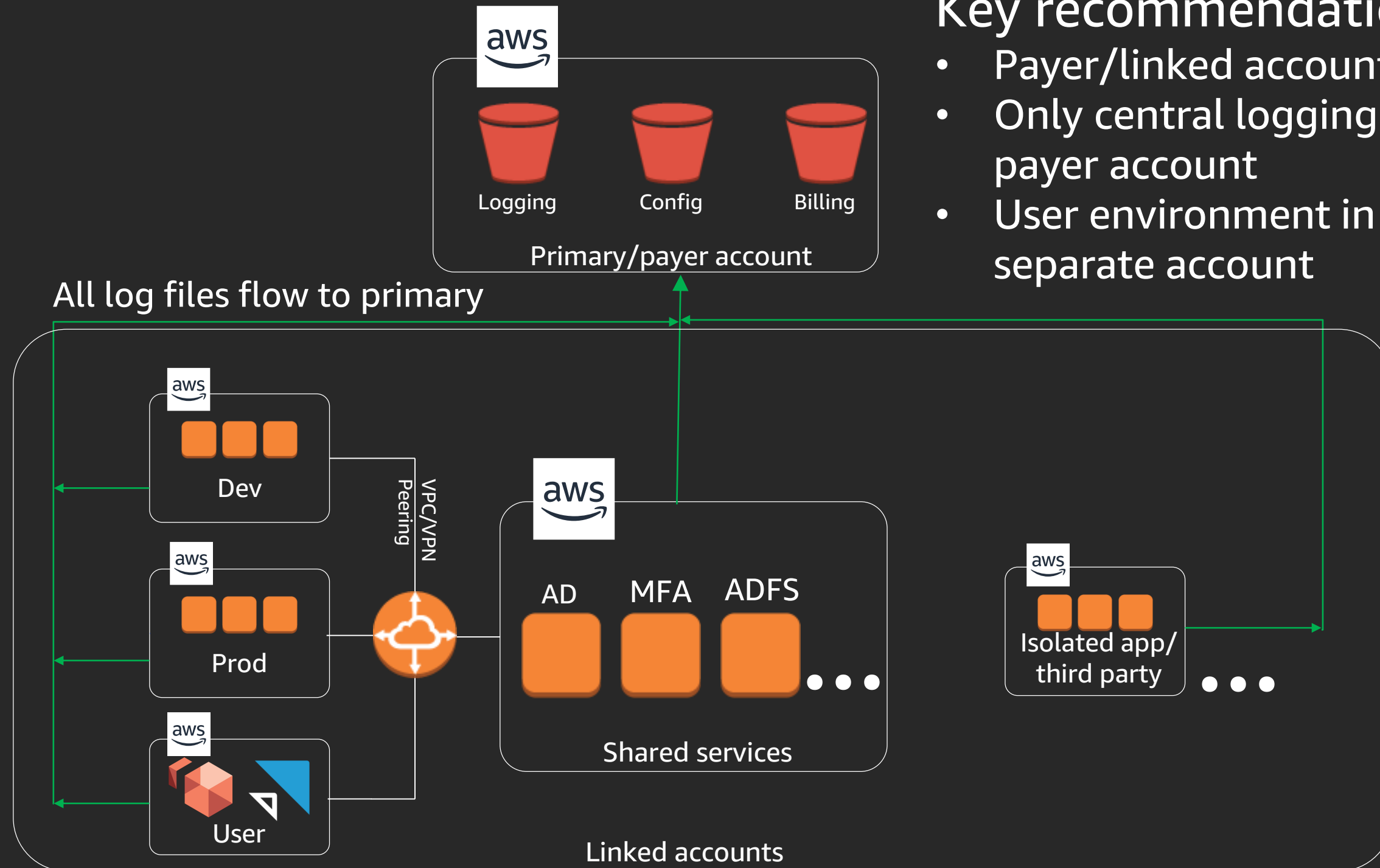
Mobile workers

Temporary workforce

Secure access

The approach

- Decide on user segmentation
- Select the initial use cases
- Evaluate performance characteristics
- Build the pilot solution
- Run user acceptance testing
- Deploy
- Iterate

AWS account structure

Key recommendations
- Payer/linked account structure
- Only central logging in payer account
- User environment in separate account

Logging   Config   Billing

Primary/payer account

All log files flow to primary

aws
Dev

VPC/VPN Peering

aws
Prod

aws
User

aws
AD   MFA   ADFS

Shared services

aws
Isolated app/
third party

Linked accounts

Network design: Subnets

- ✓ Amazon WorkSpaces requires two subnets in different Availability Zones

- ✓ AppStream 2.0 *should* be deployed across two subnets in different Availability Zones

- ✓ Subnets should be sized to accommodate the target end-state capacity
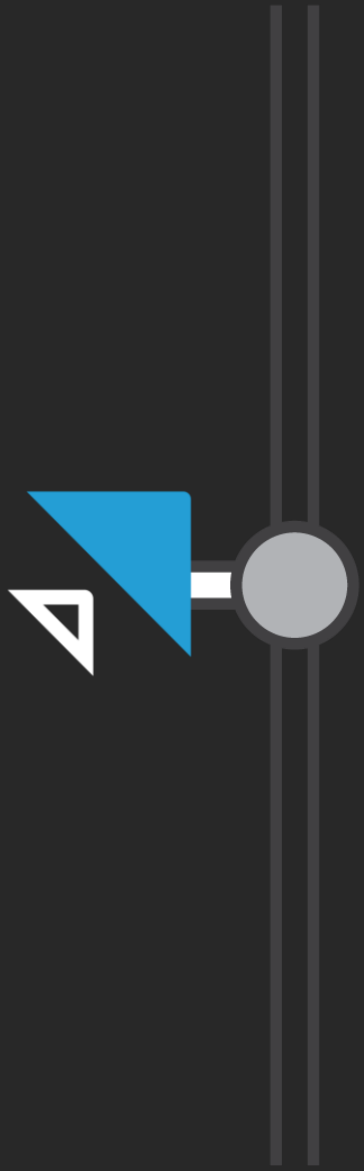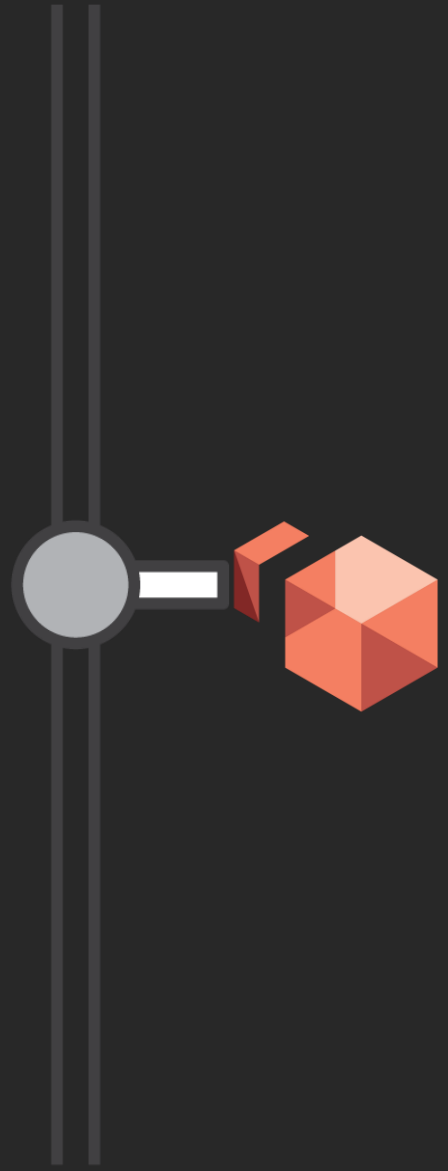
Elastic network interfaces

- ✓ An instance in either service has two network interfaces
  - ➤ ETH0 is the service interface
  - ➤ ETH1 is the interface in your VPC

- ✓ Routing rules and security groups affect ETH1; you have full control of this interface

- ✓ User traffic can route to file servers, backend databases, licensing servers, and so on, either in your VPC, in a peered VPC, or on premises
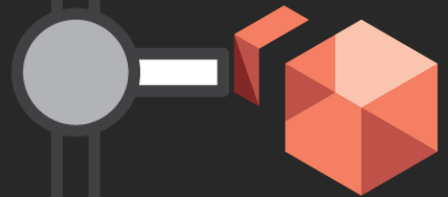
Directory integration

amazon WorkSpaces

- All WorkSpaces will be joined to an Active Directory domain

- AWS Directory Service is required to connect users to their WorkSpace

amazon AppStream 2.0

- Fleets can be domain-joined or stand-alone

- AD-joined fleets integrate via SAML with your identity provider

Active Directory recommendations

- Extend your Active Directory into AWS on Amazon EC2 instances

- Use cross-account VPC peering for communications to a shared services VPC

- Define your VPCs in Active Directory sites and services

- Separate Active Directory OUs by service and Region

Demo

aws re: Invent

aws

Global availability
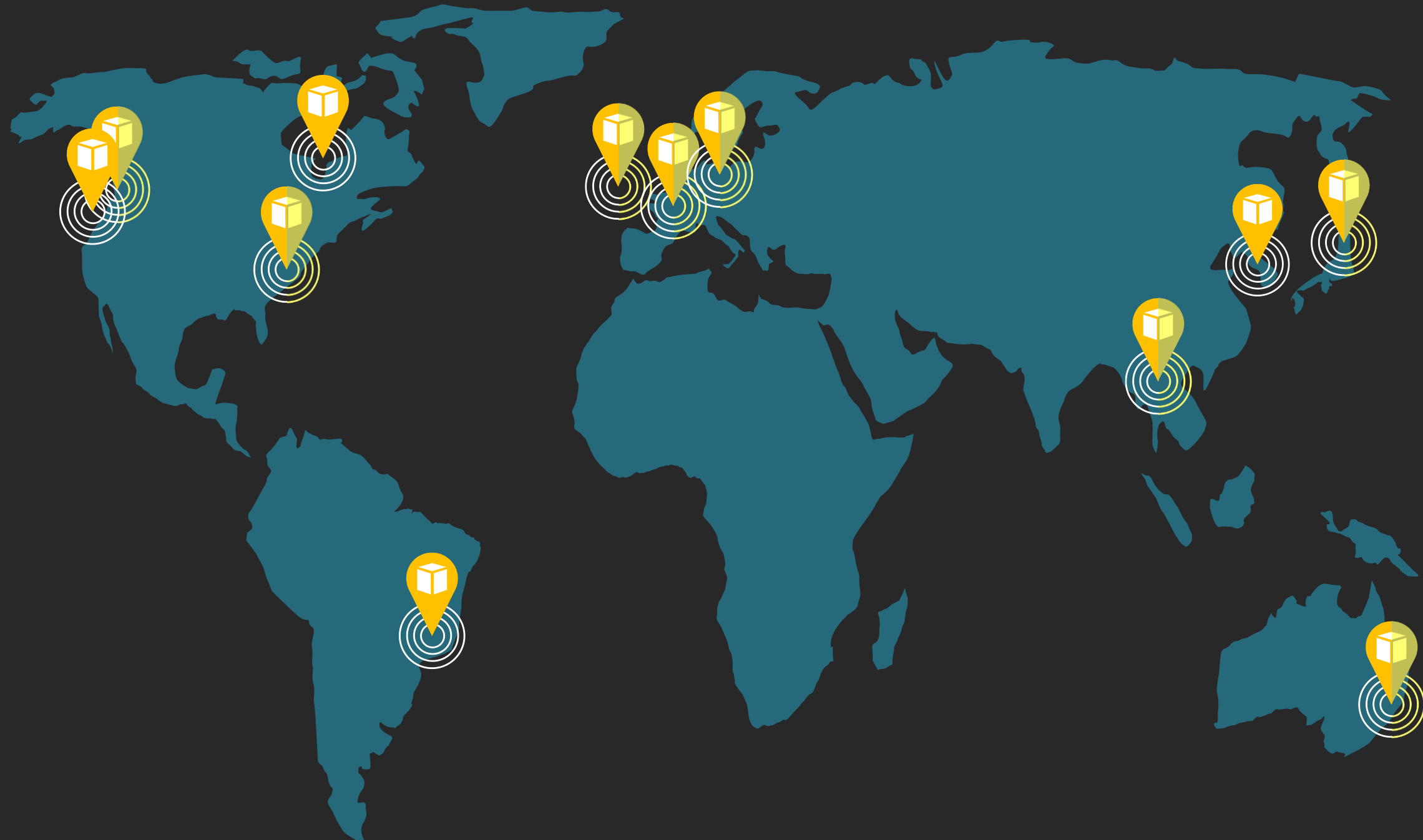
Try it now

amazon WorkSpaces

Try Amazon WorkSpaces;
free tier available!

Run two Standard bundle
WorkSpaces for 40 hours a
month, for up to two calendar
months

Amazon Linux 2 or Windows 10
experience, including WorkDocs
with 50 GB storage

amazon AppStream 2.0

40 hours per month use of
the stream.standard.large
instance type when using
Image Builder

Try sample applications—
business, design, engineering,
and developer

Upload your own files, test a
workflow, save your work,
and print

https://aws.amazon.com/free/

amazon WorkDocs

Try WorkDocs;
free tier available!

30-day free trial with 1 TB
of storage per user for up to
50 users

Amazon WorkSpaces users
get WorkDocs with 50 GB of
storage for no additional
charge

Related sessions

Wednesday, December 4th

EUC341: Why GE renewable energy and Multiview stream their desktop applications

9:15 am – 10:15 am | Bellagio, Monet 3

Wednesday, December 4th

EUC331: Moving to SaaS? Deliver desktop apps as web apps with no rewrite

10:00 am – 11:00 am | Mirage, St. Thomas A

Wednesday, December 4th

EUC338: Why Carnival Cruise line moved from on-premises VDI to Amazon WorkSpaces

4:00 pm – 5:00 pm | MGM, Level 3, Chairman's Ballroom 366

Wednesday, December 4th

EUC404: How Facebook deployed Amazon WorkSpaces globally

5:30 PM – 6:30 PM | MGM, Level 1, Grand Ballroom 119

Wednesday, December 4th

EUC405: Amazon WorkSpaces Streaming Protocol: Enable a consistent user experience

6:15 pm – 7:15 pm | Aria, Level 3 West, Ironwood 8

Wednesday, December 4th

ENT314: How GE Power empowered its departments to manage & stream their desktop apps

1:45 pm – 2:45 pm | Bellagio, Grand Ballroom 1

Thank you!

aws

Please complete the session survey in the mobile app.