Moving desktops & apps to AWS with Amazon WorkSpaces & AppStream 2.0

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Agenda

SUMMIT

Today's challenges

Why customers choose AWS end user computing services

Overview of Amazon WorkSpaces

Overview of Amazon AppStream 2.0

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

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

Business moves faster than ever

20

years

Is the average age of a Fortune 500 company

$5T

globally

Was the value of merger and acquisition activity in 2018

The importance of security keeps rising

4.5B

records

Were exposed in the first half of 2018

34%

of data breaches

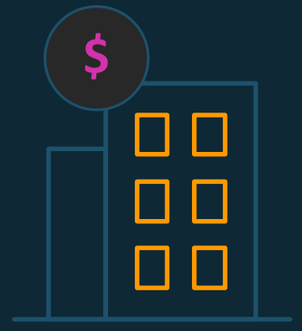
Are from lost or stolen devices and documents

$3.8M

dollars

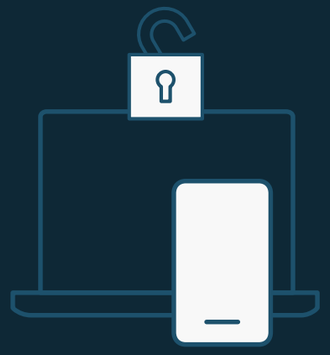
Was the average cost of a data breach in 2018

Challenges for IT to meet the needs of end users



Costly on-premises infrastructure

Complex application management



Unsecured personal devices

Poor user experience

Organizations are turning to the cloud

76%

of organizations

Use or are investigating cloud desktops

77%

of cloud desktop users

Feel that cloud desktops are more secure than traditional desktop environments

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

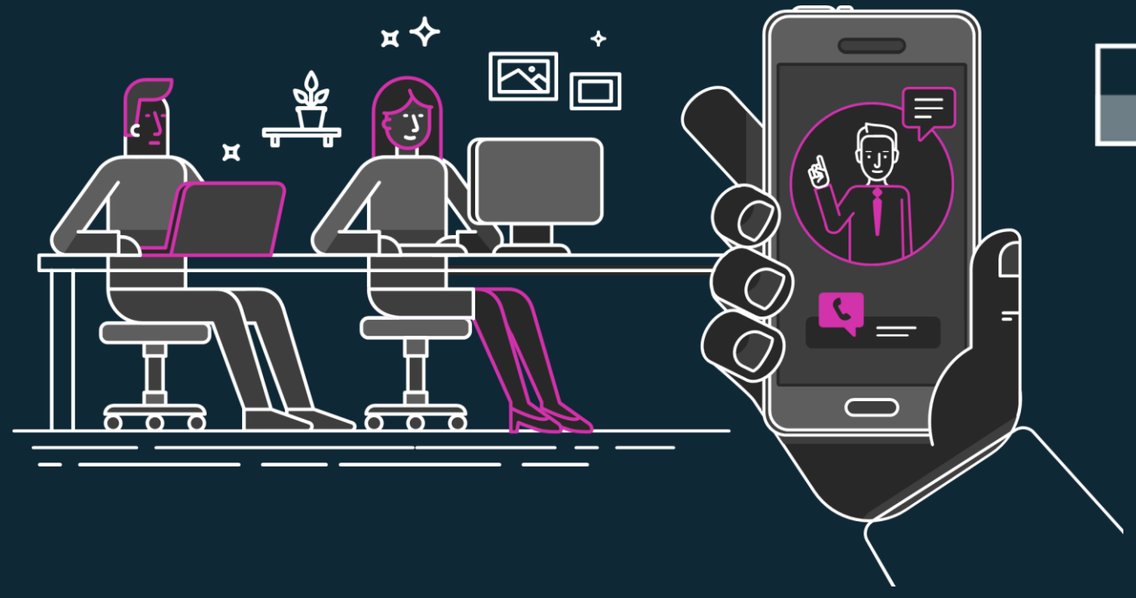
Simplify IT operations while reducing spend

AWS end user computing

amazon AppStream 2.0
Applications

amazon Worklink
Mobile access

amazon WorkSpaces
Desktops



amazon WorkDocs
Documents

Customers

aws SUMMIT

aws

Amazon WorkSpaces

Highly interactive cloud desktops that users love

Demo Scenario:
Last minute “Emergency” deployment ask for 30 consultants starting tomorrow

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

AWS re:Invent hands-on labs

Improves security

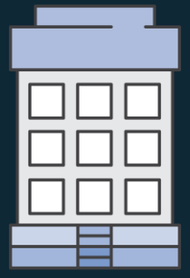
No sensitive data on user devices

Storage encrypted at rest

Desktop stream encrypted in transit

Amazon WorkSpaces encrypts data and streams
and keeps information off devices

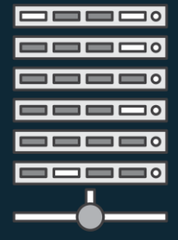
Plays well with existing tools



Intranet

Microsoft Active Directory

Multi-factor authentication (MFA)
(RADIUS-based)



Systems/patch management
(SCCM, BigFix, WSUS)

Certificate authority

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

AWS Directory Services Options

WorkSpaces requires a minimum of 1 of these 3 options:

- **Active Directory Connector** (“ADC”)
  - Stateless Proxy to a Microsoft Active Directory
  - AD integration required, no standalone option
- **AWS Microsoft Active Directory Enterprise** (“MAD”)
  - A true Microsoft AD implemented as a managed service
  - Standalone (Lab, demo, test) OR AD integrated via AD Trusts
- **Simple AD** – free! But only really good for PoT or PoC
  - Samba v4
  - Standalone
- ***On premise + Cloud Active Directory*** *(A 4th “hybrid” but mostly likely production option)*
  - *Domain Controllers only “On-Prem” or both “On-Prem” with DC(s) in the cloud*
    - *on EC2 instance(s)*
  - *MAD or ADC linked*
  - *DC and Global Catalog in VPC is recommended if installed in VPC*
  - *Ensure sites and subnets costs are configured correctly*

Amazon WorkSpaces flexibility

Clients

Desktop, Mobile, Web

Operating system

Windows 10, Windows 7, Amazon Linux

Bundles

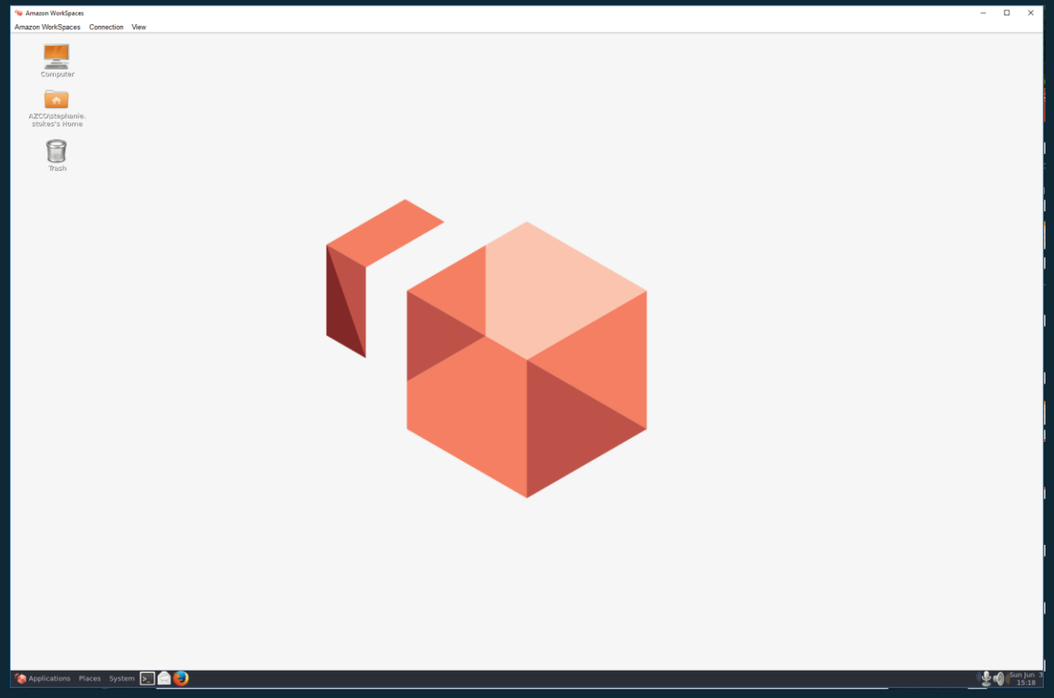
Value, Standard, Performance, Power, PowerPro, Graphics (x2)

Flexible pricing

Monthly, Hourly, BYOL

Linux WorkSpaces: What is it?

Amazon Linux 2 + MATE =



- Amazon Linux 2 is a CentOS fork
  - Workspaces is on the LTS branch
- Linux Workspaces use MATE Desktop Environment
  - Mate is a fork of Gnome 2
  - It does not require GPU acceleration
- Yum is the primary tool to manage software in AL2
  - Yum can be used to add / remove / search for and update software
- Amazon maintains repos for Amazon Linux (amzn2-core)

* Details at https://aws.amazon.com/amazon-linux-2/

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

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

Demo Scenario:
WorkSpaces Provisioning Walkthrough

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

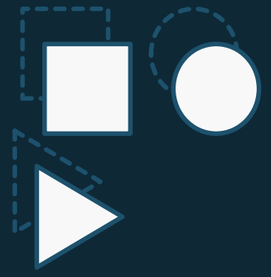
Amazon AppStream 2.0

Deliver desktop applications to any computer

Ways you can use Amazon AppStream 2.0

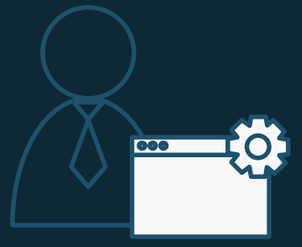
Business applications

Simplify application delivery



3D design and engineering

Work without workstations



Software vendors

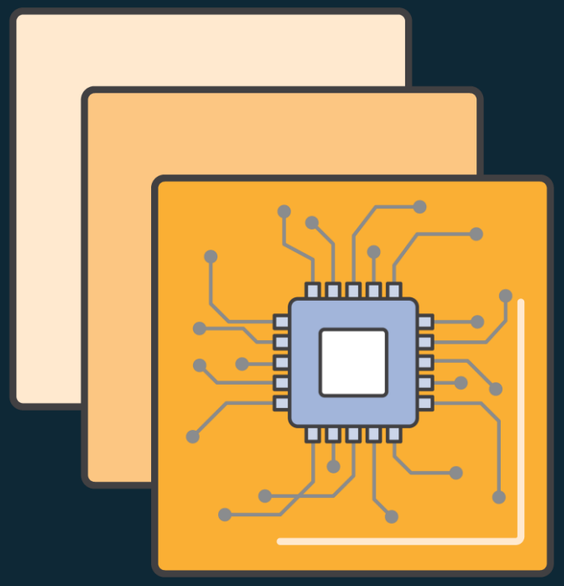
Deliver trials, demos, and training

Create SaaS with no rewrites

Educational institutions

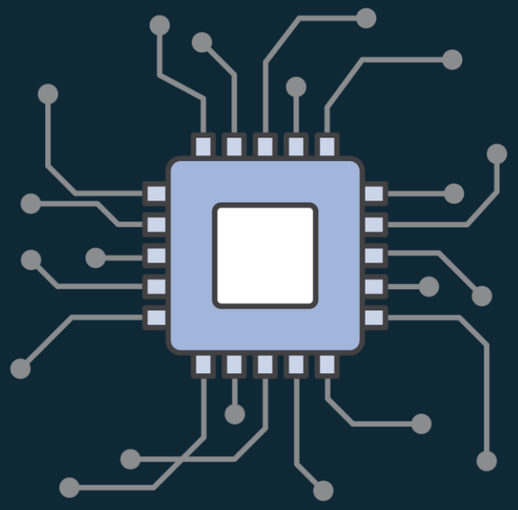
Replace computer labs and enable distance learning

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

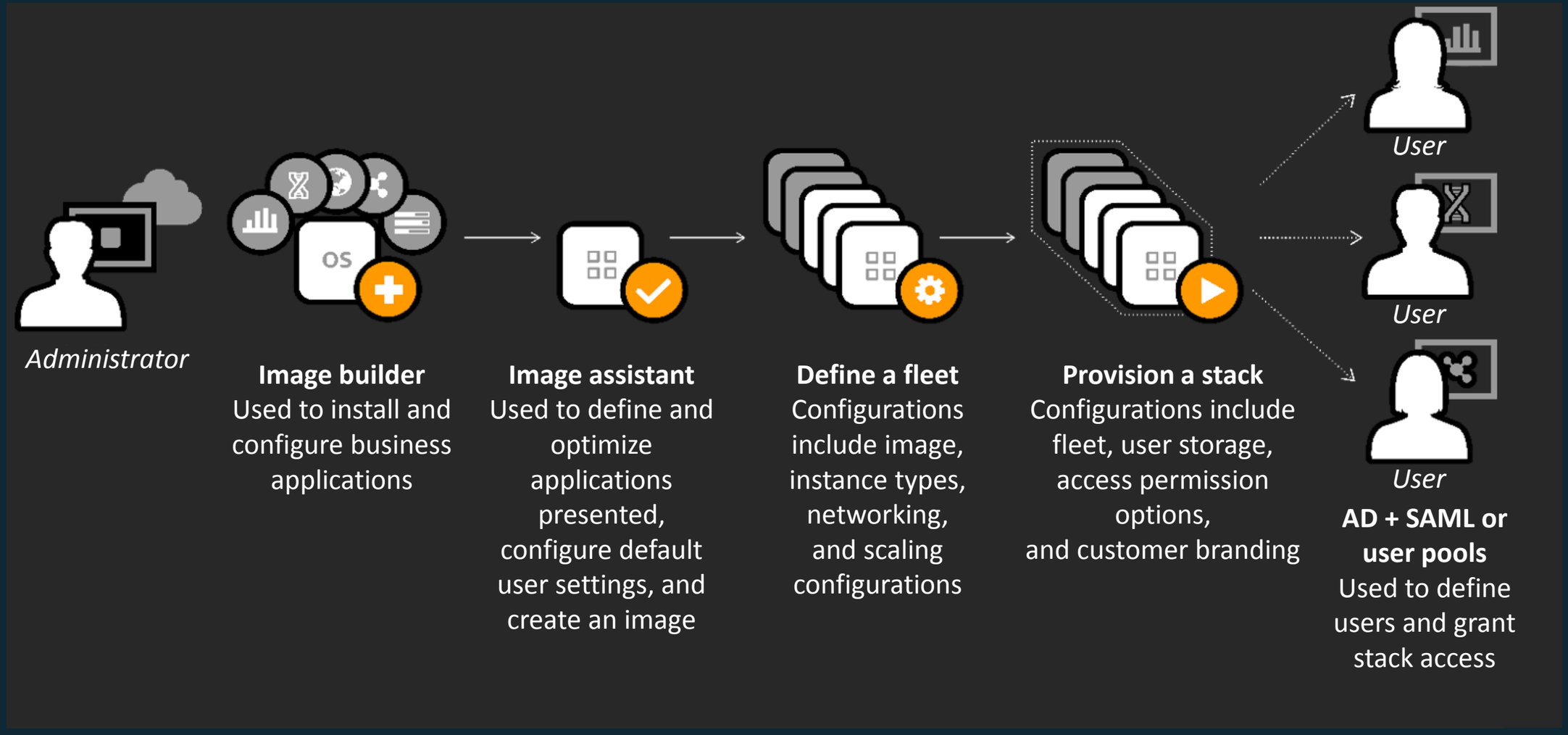
Graphics instance families



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	8–61 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



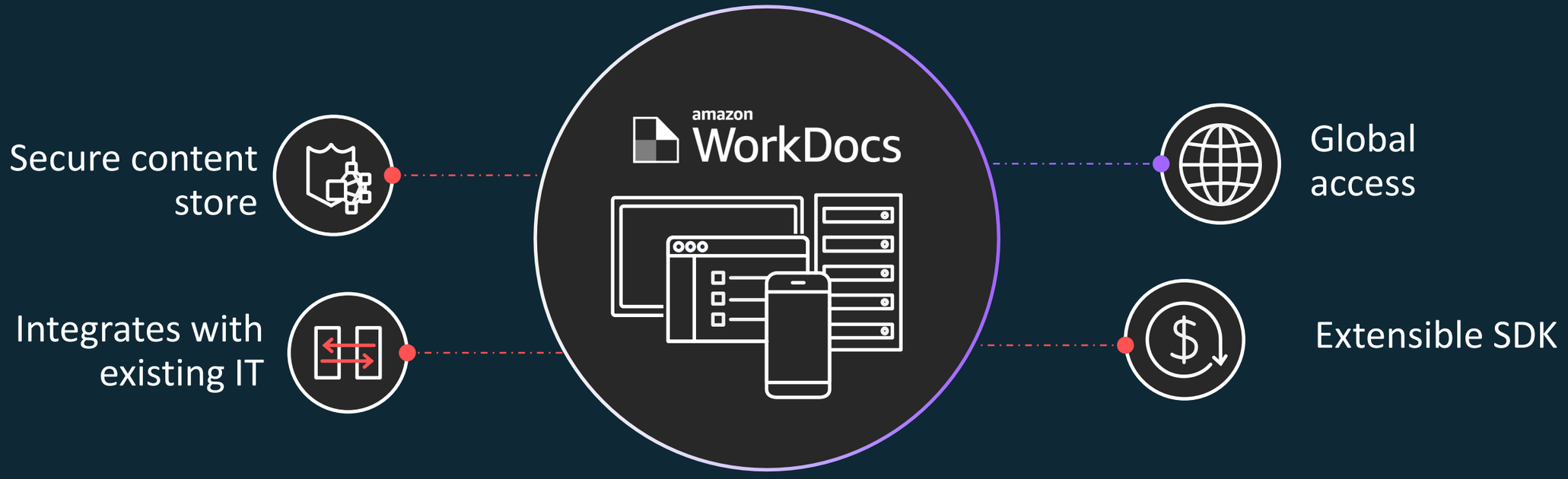
Customer success story

Compuware

Compuware uses Amazon AppStream 2.0 to deliver Topaz on AWS as the industry's first cloud access to modern mainframe development with a comprehensive suite of mainframe development and testing tools designed to help developers, regardless of experience, understand and work on any program, no matter how old or complex, so companies can easily maintain and innovate with their mainframe investments.

Demo Scenario:
WorkSpaces walkthrough with AppStream 2.0 in Action

Amazon WorkDocs

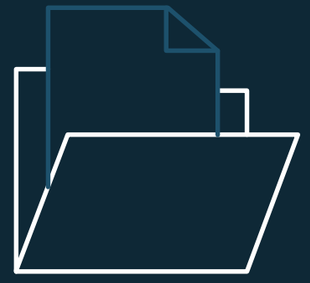


Secure, fully managed file storage with an extensible SDK

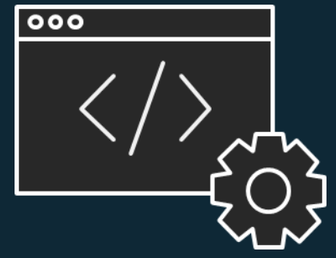
Ways you can use Amazon WorkDocs

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

amazon WorkSpaces + amazon WorkDocs

Features

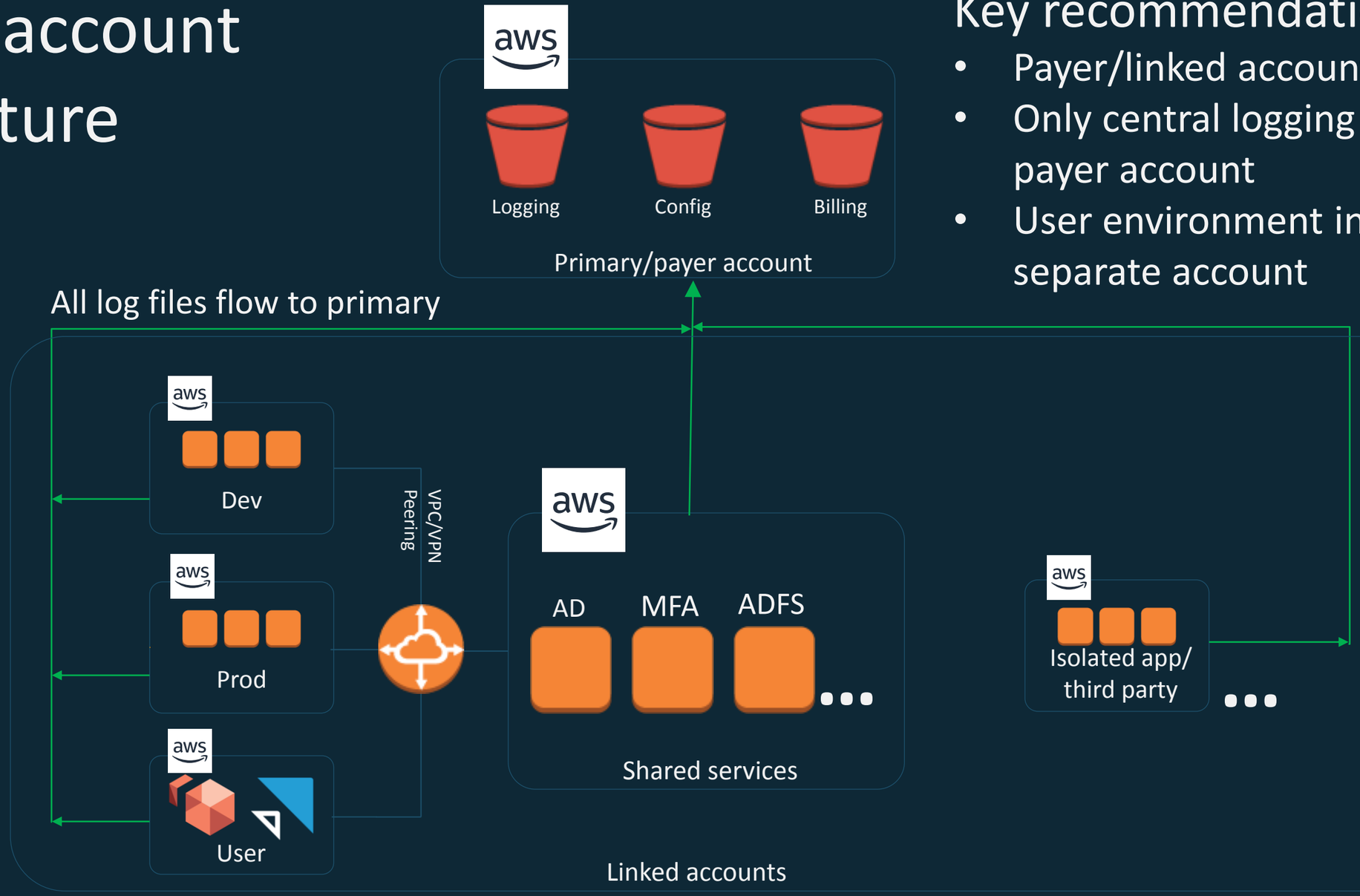
50 GB free tier for Amazon WorkSpaces users

Upgrade to 1 TB for $2 per user/month

Amazon WorkDocs Drive can be a default user storage solution

Deployment Considerations

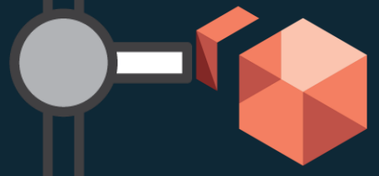
AWS account structure



Key recommendations

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

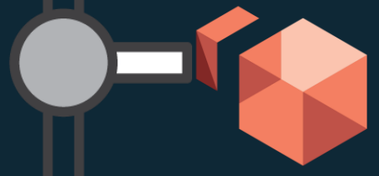
Network design: Subnets



- ✓ Amazon WorkSpaces requires two subnets in different Availability Zones
- ✓ Amazon 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

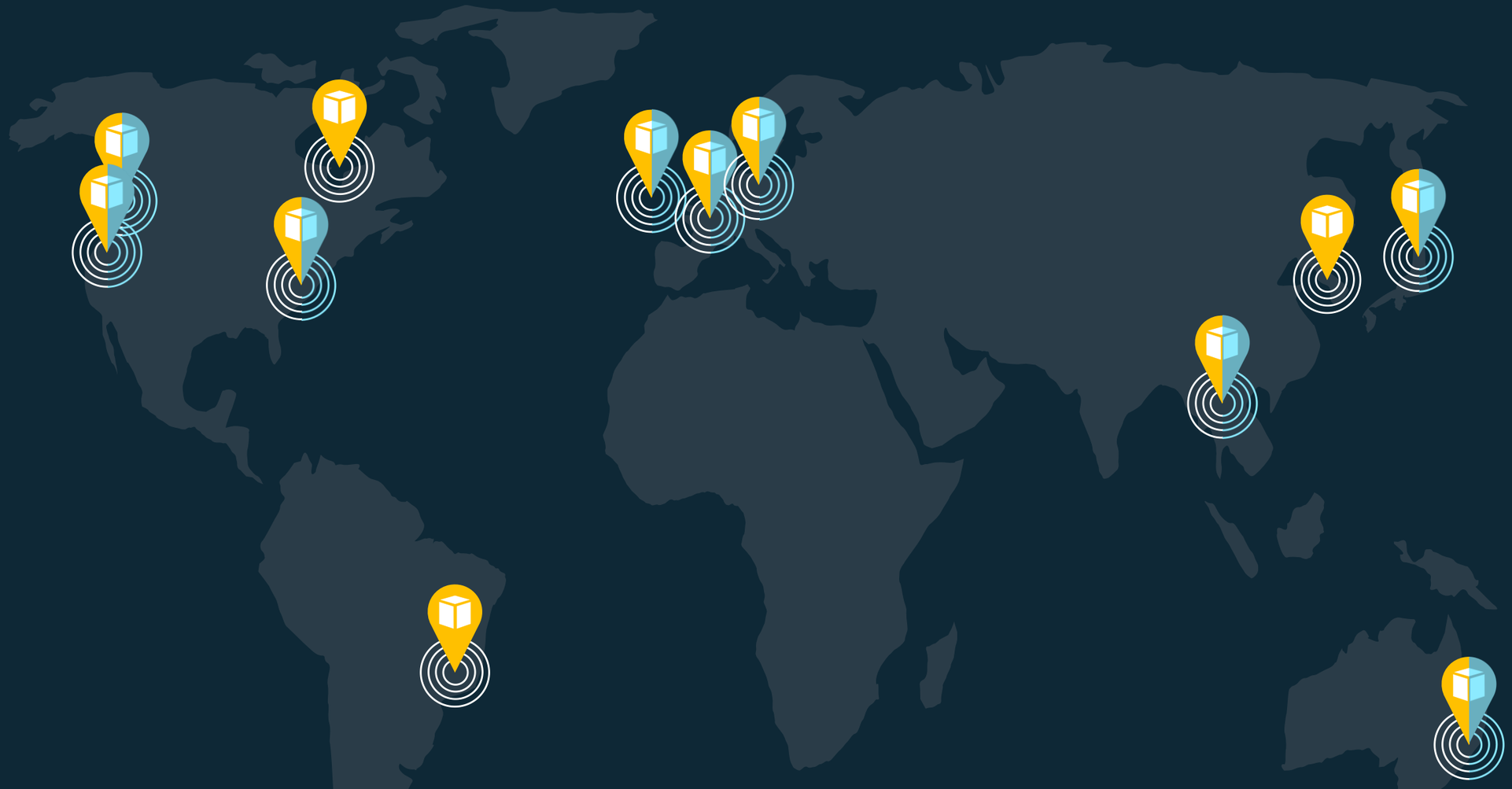
- Fleets can be domain-joined or stand-alone
- AD-joined fleets integrate via SAML with your identity provider

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 Scenario:
Active Directory, PowerShell and the AWS API

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, Windows 7, or Windows 10 experiences, including Amazon WorkDocs with 50 GB storage

amazon AppStream 2.0

Try Amazon AppStream 2.0 with no setup required!

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

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

amazon WorkDocs

Try Amazon WorkDocs;
free tier available!

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

Amazon WorkSpaces users receive access to Amazon WorkDocs for no additional charge

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

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Questions and Answers

Thank you!