



SF LEARNING DAYS

Powering Public Sector Innovation Using the AWS Cloud

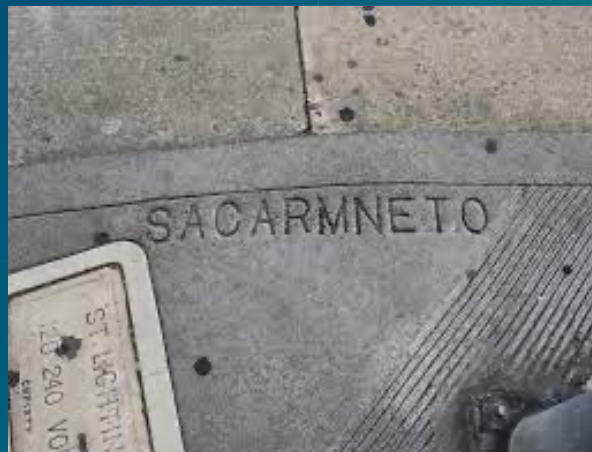
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"IT'S GOOD ENOUGH FOR GOVERNMENT WORK"



Public sector work has never been more important



24 weather/climate disaster events causing 253 deaths and \$57 billion in damages this year



75% of all IT organizations will have a ransomware event by 2025. In 2023, Education, Healthcare, and Government were top 5 targets. Average cost of a cyber event is \$4.5 million



From May/2020 to present, there have been 4,446 protests in cities worldwide with 45 people killed, over 14,000 arrested, and billions in damages



PUBLIC SECTOR INNOVATION CHALLENGES



GOVERNMENT



EDUCATION



NON-
PROFIT



HEALTHCARE

- FREQUENT OPERATIONAL BUDGET REDUCTIONS
- GOVERNANCE / POLICY DEVELOPMENT
- AGING INFRASTRUCTURE ASSETS
- INCREASED DEMAND FOR REMOTE ACCESS
- WORKFORCE DEMOGRAPHIC SHIFTS/PENDING RETIREMENT
- SCRUTINIZED EXPENDITURES
- PERSISTENT CYBERSECURITY RISKS
- FORCED RISK ACCEPTANCE

Driving Innovation in Public Sector in Three Ways

Improving Constituent/Student Experience

Modernizing Digital
Services and
Platforms

Reducing Risk

Enhancing Cybersecurity,
Compliance Posture.
Improving Resilience

Increasing Organizational Efficiency

Increasing Productivity,
Reducing repetitive and
menial tasks



Cloud Enables Organizations to...

**Improve
Constituent/Student
Experience**



Common challenges we hear

**Inconsistent and
repetitive experience
across channels**

CUSTOMERS



**Many disjointed
applications requiring
weeks of training**

AGENTS



**Disconnected, limited,
& incomplete data**

SUPERVISORS



**Slow innovation with
high cost and long
implementation times**

ADMINISTRATORS



**How happy are you with your
customer experience?**





Amazon Connect

One application. One seamless experience.

TENS OF THOUSANDS
OF CUSTOMERS

MORE THAN 10 MILLION CONTACT
CENTER INTERACTIONS A DAY

USED BY +100,000 AMAZON
CUSTOMER SERVICE ASSOCIATES



CUSTOMER

OMNICHANNEL CUSTOMER EXPERIENCE



High quality
voice



Conversational IVR
and chatbots



Chat, SMS,
and messaging



In-app/web
calling and video



Outbound
campaigns



Voice
authentication



Task
management



AMAZON
CONNECT

AI at the heart of every interaction

- ✓ Understand what the customer wants
- ✓ Analyze and authenticate customers' using their voice

From 15 minutes to 30 seconds



TEXAS

The University of Texas at Austin

"Student wait time also dropped to less than 30 seconds to talk to an agent at similar staffing levels, compared to average wait times of greater than 15 minutes before the implementation."

—Antonino Cummings
Principal Project Manager, UT Austin

app built by



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CA DMV Implements a Faster, Customer-Centric Contact Center



"We understand our customers' time is valuable, and we want to shorten their interaction with us."

Sonia Huestis, Deputy Director,
DMV's Customer Service Division

Challenge:

- Increased call volumes due to REAL ID requirements
- Long wait times (up to 2 hours) during COVID-19 office closures
- Agents' concerns about remote work tools/systems

Solution:

- Implemented Amazon Connect cloud contact center
- Deployed chatbot "Miles" using natural language processing
- Whisper feature briefs agents on call topic before connecting
- Real-time chat and data analytics to discern caller intent

55% of calls answered within 30 mins

50% of callers use self-service chatbot



Amazon Connect has **tens of thousands of customers** supporting more than **10 million contact center interactions a day**



Cloud Enables Organizations to...

Reduce Risk



Categories of failure



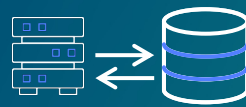
Code deployments and configuration

e.g. bad deployment, cred expiration



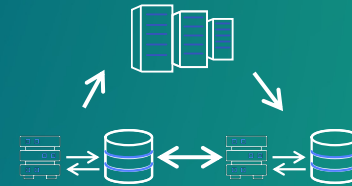
Core infrastructure

e.g. datacenter failure, host failure



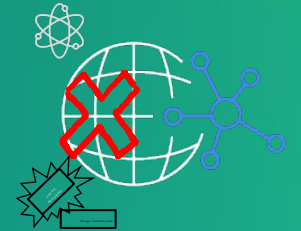
Data and state

e.g. data corruption



Dependencies


e.g. infrastructure, external APIs




Highly unlikely scenarios








e.g. All of internet failure, environmental disasters,


Why backup – or, tell a story in one sentence

 reddit

 r/cscareerquestions

Search



 r/cscareerquestions

Posts FAQ / Wiki

↑

26.0k


↓

Posted by u/cscareerthrowaway567 2 years ago 📄 🔒 🏆 8

Accidentally destroyed production database on first day of a job, and was told to leave, on top of this i was told by the CTO that they need to get legal involved, how screwed am i?

Today was my first day on the job as a Junior Software Developer and was my first non-internship position after university. Unfortunately i screwed up badly.

COMMUNITY DETAILS

 r/cscareerquestions

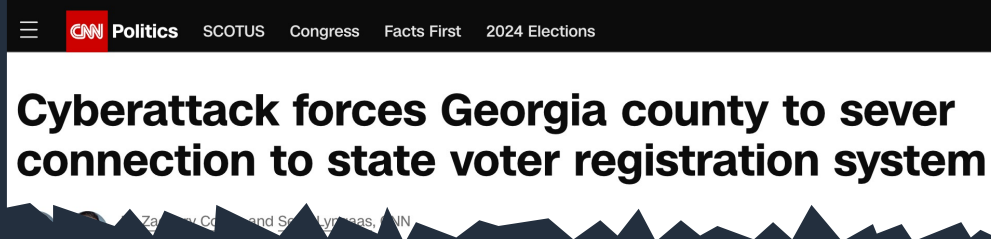
279k

Members

2.5k

Online

A subreddit for those with questions about



Illinois county government, local college affected by ransomware attacks

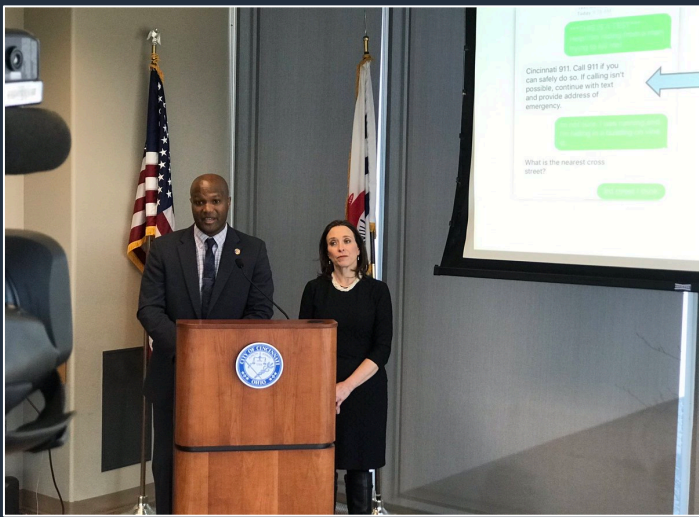
An Illinois county on the border with Iowa is the latest local government in the U.S. to fall victim to a ransomware attack.

Service Delivery Outages and Cyber Events are Now Front Page News

Wichita, Kansas, shuts down network after ransomware attack

Officials in Wichita, Kansas, shut down some network services to contain a ransomware attack over the weekend.

BY SCOTT FOX, KANSAS CITY FOX 6, MAY 6, 2022



REPORTED RANSOMWARE INCIDENTS NATIONWIDE IN 2023



State/Local
Government
Agency

95



Post Secondary

72



K12 School Districts

108

SURVEY OF IT LEADERS FOLLOWING RANSOMWARE ATTACKS

97%

of the attacks attempted to infect backup repositories



36% of organizations restored to a sandbox before production

53%

had their data encrypted during the attack



12% recovered without paying the ransom

34%

of organizations who paid the ransom still could not recover their data



64% believe a complete overhaul is needed

Resilience

Ability of a workload to recover from infrastructure or service disruptions

The mental model

High availability

Resistance to common failures through design and operational mechanisms at a **primary site**



Core services, design goals to meet availability goals

Disaster recovery

Returning to normal operation within specific targets at a **recovery site** for failures that cannot be handled by HA



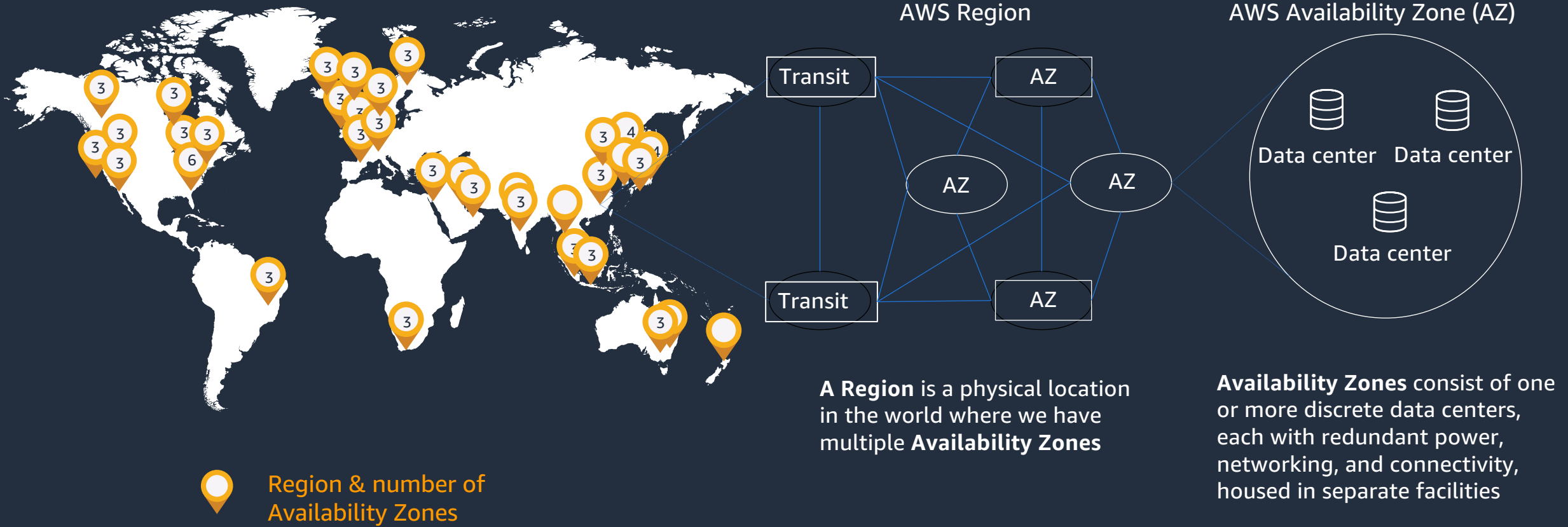
Backup and recovery, data bunkering, managed recovery objectives

Continuous improvement

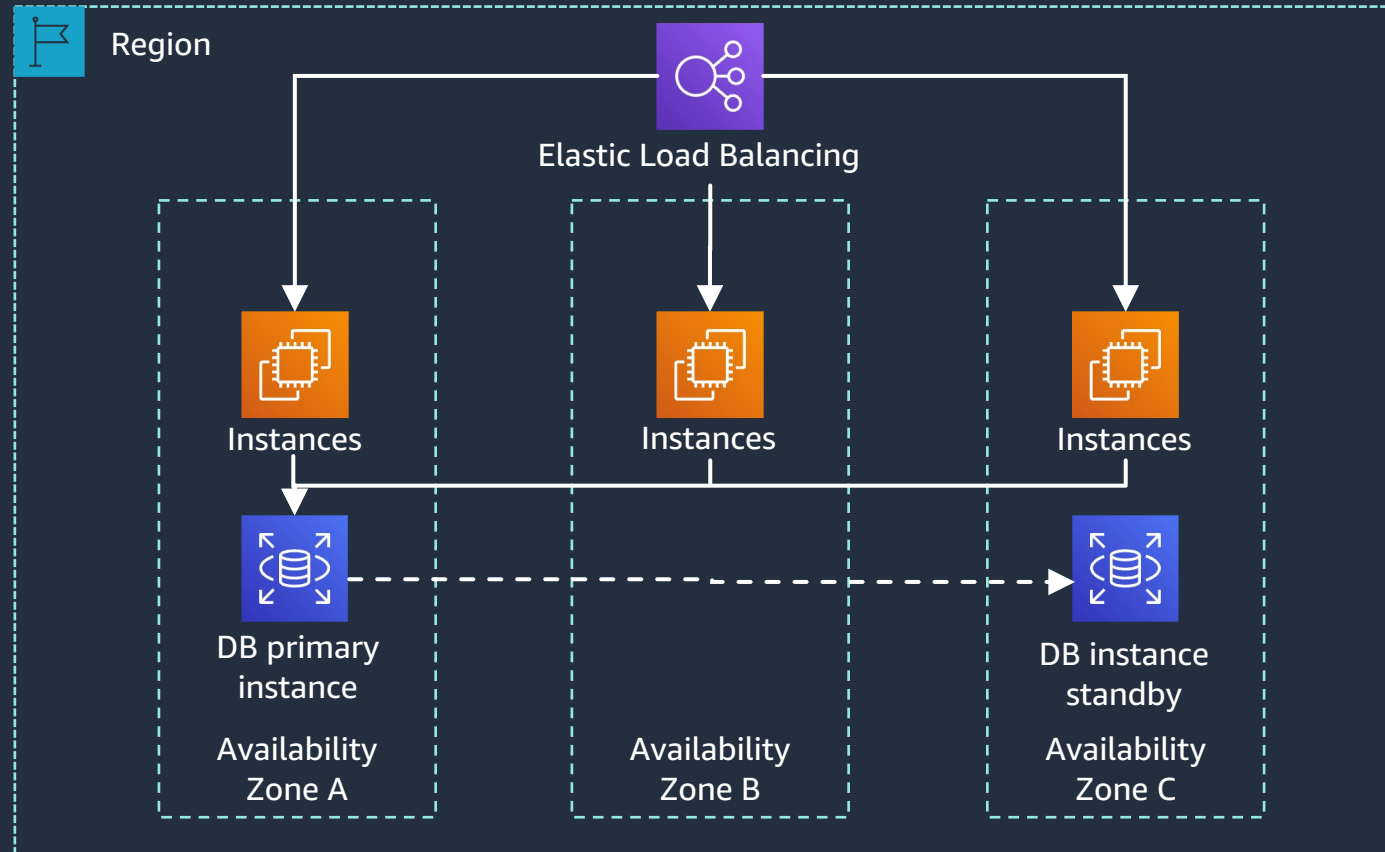
← CI/CD, observability, moving beyond pre-deployment testing towards chaos engineering patterns →

Enabling **resilience** of the cloud

We offer 200+ fully featured services from 105 Availability Zones (AZs) across 33 Regions, globally



Multi-AZ application



Ransomware mitigation on AWS

Use AWS Elastic Disaster Recovery for ransomware protection, detection, response, and recovery



Account isolation

Protect your workloads by isolating your staging account from your production and recovery accounts



Immutable snapshots

Keep your data safe with immutable snapshots that can't be altered or overwritten



Endpoint detection and response (EDR)

Detect and eliminate threats using integrated solutions from AWS Partners



Point-in-time recovery

Recover your servers by using unlocked and unencrypted point-in-time snapshots

AWS Elastic Disaster Recovery key benefits



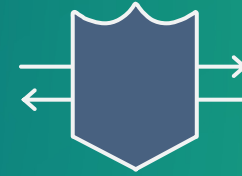
Faster recovery

Recovery time objectives (RTOs) of minutes



Lower costs

No need to pay for idle recovery site resources



Data protection

Recovery point objectives (RPOs) of seconds



Easy testing

Conduct non-disruptive drills to verify readiness



Ransomware recovery

Launch unlocked and unencrypted versions of your applications

AWS Elastic Disaster Recovery patterns



On premises to AWS



Other cloud to AWS



AWS Region to AWS Region



AWS Availability Zone to
AWS Availability Zone

A Highly Performant, Efficient DR Solution for Tyler



"We are confident in our recoverability. Using AWS Elastic Disaster Recovery helps us to sleep better at night."

Christopher Armstrong,
Director of Information Security,
Tyler Technology

- Provider of integrated software and technology services to the public sector, Tyler Technologies (Tyler) required a disaster recovery (DR) solution that could quickly restore large, complex systems involving thousands of servers.

Solution:

- Implemented AWS Elastic Disaster Recovery with help from AWS Professional Services
- 12x Faster Recovery Time
- Achieved 20 minute recovery time vs 4 hour SLA

20 minute recovery time

12x faster recovery compared to legacy DR



Mississippi Department of Employment Security



"The risk factor is considerably less because all the data is encrypted in the cloud and no personally identifiable information is stored on premises."

- Mohammed Jalaluddin, Chief Technology Officer, Mississippi Department of Employment Security



Migrated multistate unemployment insurance system to AWS in less than 8 hours, cutting costs by 72% and scaling up 4,000%



Implemented AWS Elastic Disaster Recovery as security solution to minimize downtime and data loss in case of a ransomware attack



Gained reliable, non-disruptive testing and real-time visibility into health of servers



Enabled fast and reliable recovery of physical, virtual, and cloud-based servers in case of an outage

Cloud Enables Organizations to...

**Increase
Organizational
Efficiency**





Generative AI is likely to be **the most disruptive innovation yet encountered in the digital workplace.**

Productivity is improved by over **30%**, on average."

Gartner, Four Generative AI Use Cases for the Digital Workplace 2023



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Challenges with using existing generative AI assistants at work

→ **Lack of context**

→ **Security**

→ **Data privacy**

→ **Compliance**



Amazon Q

Reinvent work with AWS'
generative AI-powered assistant

Generally Available

Knowledgeable of **your**
company, code and systems

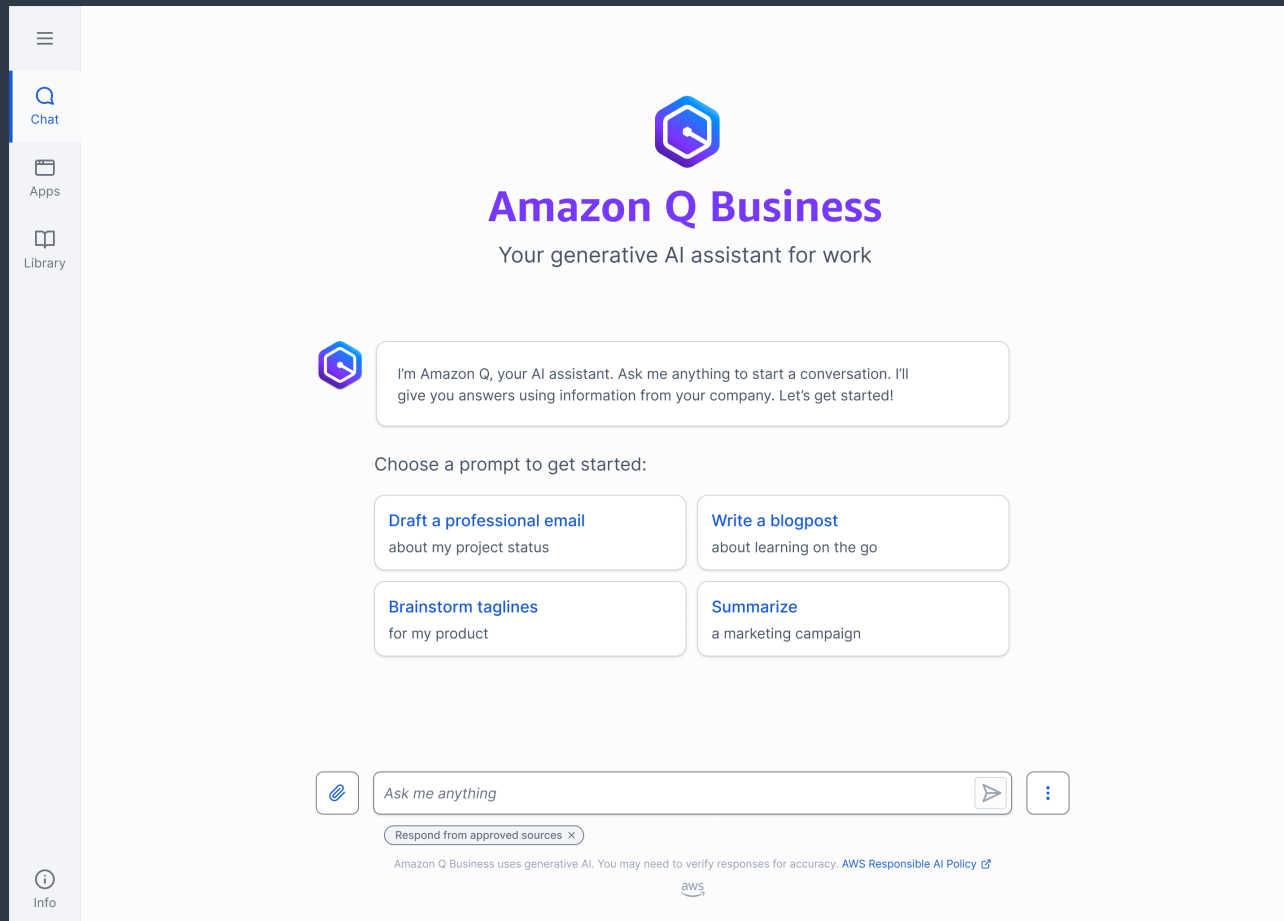
Available **wherever your work**

Attains **superior**
generative AI performance on tasks



Amazon Q Business Overview

BOOST YOUR WORKFORCE PRODUCTIVITY WITH GENERATIVE AI



Delivers quick, accurate, and relevant answers to your business questions, securely, and privately

Execute actions using out-of-the-box or custom plugins

NEW

Respects existing access control based on user permissions

Connects to over 40 popular enterprise applications and document repositories

Enables administrators to easily apply guardrails to customize and control responses

Streamlines daily tasks with user-created lightweight applications

NEW



Built-in connectors

UNIFY CONTENT FROM ALL
YOUR ENTERPRISE SOURCES
TOGETHER
IN A FEW CLICKS!

Adobe Experience Manager

Alfresco

Amazon Simple Storage Service
(Amazon S3)

Atlassian Confluence

Aurora (MySQL, PostgreSQL)

Box

DB2

Dropbox

Drupal

Custom Connector

FSX for Windows

Github

Gmail

Google Drive

Jira

Microsoft Exchange

Microsoft OneDrive

Microsoft SharePoint

Microsoft Teams

Microsoft Yammer

Microsoft SQL Server

Quip

Salesforce

ServiceNow

Slack

Web Crawler

Workdocs

Zendesk



Amazon Q Apps (Preview)

NEW

EASILY BUILD AND SHARE CUSTOMIZED, SECURE, LIGHTWEIGHT APPLICATIONS

The screenshot shows the 'Interview Question Generator' app interface. At the top, there's a blue menu icon and the Amazon Q logo. The title 'Interview Question Generator' is in purple, with a subtitle 'Generates relevant interview questions based on a job description and resume'. Below this are two side-by-side file upload areas. The left one is labeled 'Job Description' and the right one 'Resume'. Both have a dashed box for file upload with instructions: 'Drag and drop to upload or Browse for files' and a note 'Text based files are supported. File size limit is 10mb'. At the bottom, there's a 'Text output' section titled 'Interview Questions' with a placeholder text 'Click "Run" to run the app'. At the very bottom, there are 'Run' and 'Reset' buttons.

Easily convert an Amazon Q conversation into a lightweight application or describe what you want to build using natural language

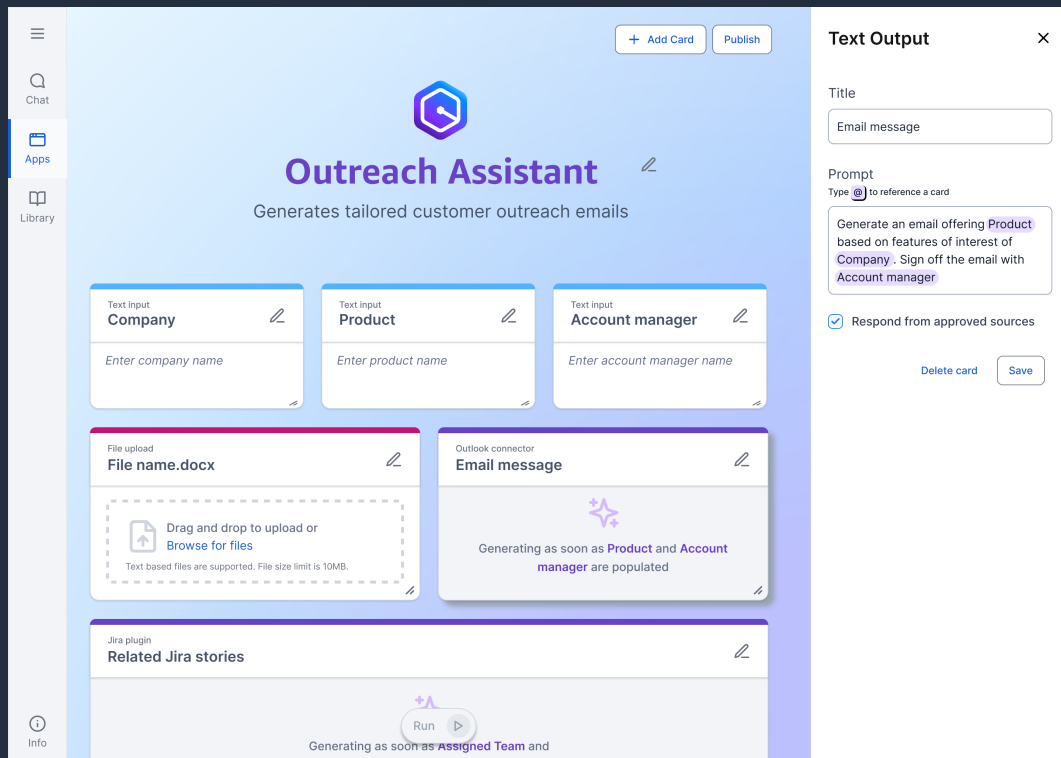
Employees can share their applications with other employees or publish them to the organization's catalog for others to use as is, or modify them to their particular needs

Leverages your enterprise data through Amazon Q 40+ connectors

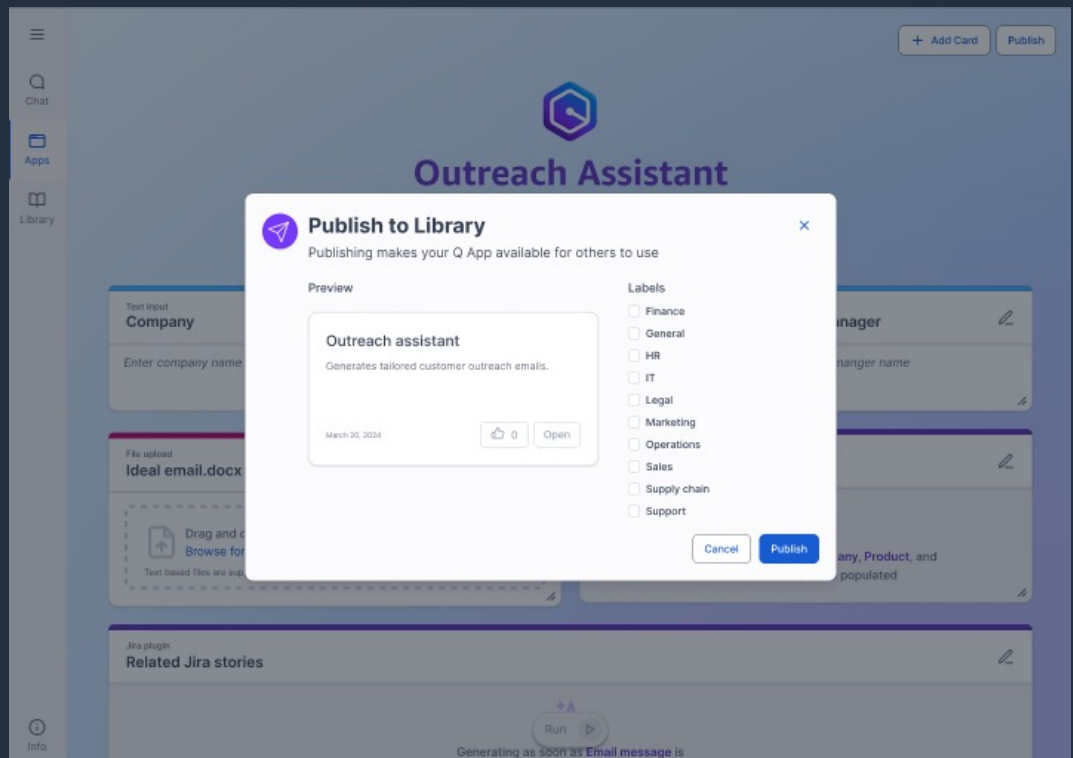
Inherits Amazon Q security and governance controls, including user authentication and access controls



Using, customizing, and publishing the app



Using or customizing the app



Publishing the app in the library

Discovering apps in the library

The screenshot displays the Amazon Q App Library interface. On the left is a sidebar with a menu icon, 'Chat', 'Apps', and 'Library' (which is highlighted). The main content area features the Amazon Q logo and the title 'Amazon Q App Library' with the subtitle 'Get started with a collection of published Q Apps'. Below this is a horizontal filter bar with buttons for 'All Q Apps', 'Finance', 'General', 'HR', 'IT', 'Legal', 'Marketing', 'Operations', 'Sales', 'Supply chain', and 'Support'. The main area contains a grid of app cards, each with a title, description, category tags, a 'Published on' date, a thumbs-up icon with a count, and an 'Open' button.

| App Name | Description | Categories | Published on | Thumbs Up | Open |
|-----------------------------|---|---------------------|----------------|-----------|------|
| Outreach assistant | Generates tailored customer outreach emails | Marketing, Sales | March 20, 2024 | 132 | Open |
| Transformer troubleshooter | References the transformer troubleshooter guide | Operations, Support | March 20, 2024 | 130 | Open |
| Content creator | Crafts targeted marketing content | Marketing | March 20, 2024 | 129 | Open |
| HR Assistant | Advises on HR related topics | HR, Support | March 20, 2024 | 125 | Open |
| Newsletter Generator | Generates tailored newsletters | General, Operations | March 20, 2024 | 123 | Open |
| Debugging Assistant | Assists and advises in debugging | IT | March 20, 2024 | 122 | Open |
| Task Manager | Prioritizes tasks | | | | |
| Incident Processing Planner | Processes incidents | | | | |
| Promo Doc Assistant | Generates content for promotion documents | | | | |

Working Backwards



Working backwards process

Step 1: Start with the Customer

Step 2: Craft the Working Backwards documents

Step 3: Refine the documents



5 Questions

1. Who is your **customer**?
2. What is the customer **problem** or **opportunity**?
3. What is the most important **customer benefit**?
4. How do you **know** what your customer needs or wants?
5. What does the **experience** look like?

Working backwards documents



Press Release



FAQ



Visuals

Press release



- Focus on the customer need
- The customer quote is key
- Leap into the future: Think BIG
- Avoid jargon
- Say it simply and clearly

Amazon Campus Launches First Multi-Channel Student Store at the University of California Berkeley

www.amazon.com/Campus & berkeley.amazon.com

SEATTLE-(BUSINESS WIRE) – August 31st, 2014 – Since returning to school for the Fall semester, Berkeley students have experienced a fresh take on the college bookstore as the new Berkeley Student Store opened at an online address: berkeley.amazon.com.

The Amazon-run online Student Store brings Amazon's broad selection, low prices, and convenient shopping experience to the heart of Berkeley's campus and offers a number of additional student-focused features. With the launch of the Student Store, Berkeley students can now pay for any purchase on Amazon with their Cal1Card, buy course materials in any format via links in Berkeley's Learning Management System or directly on Amazon.com, pick up orders at convenient locations across campus, and receive FREE One-Day Shipping on textbooks sent to the campus area. Amazon Student members at Berkeley are eligible for FREE One-Day Shipping to campus on millions of additional products plus FREE Two-Day shipping on millions more.

"I've been an Amazon Student member for two years," explained Senior Aubrey Primason, "Getting the extra free one day shipping was huge. I've been ordering everything from Amazon since I got back to school. I may never have to leave campus again."

Students can access these campus-specific payment methods and shipping benefits, along with the full selection of custom textbooks - typically available only through the university's licensed bookseller - by activating the Berkeley co-branded Amazon experience when they visit berkeley.amazon.com, sign up for Amazon Student and select 'Berkeley' as their school, or click on links to Amazon within the Berkeley Learning Management System.

In place of a traditional campus bookstore, Amazon has deployed Lockers across campus and built the first Amazon Student Lounge, a space that features a package pick up desk, technology showroom, and lounge area for students to study, meet, read or just relax in between classes. "Getting my textbooks was way easier this year. Instead of making the trip to the store to pick out my books and wait in line, I simply went to berkeley.amazon.com, paid for my books with my Cal1 Card, and came down to the Student Lounge to pick them up the next day," said Gloria Min, sophomore, "I spent less than 10 minutes on the entire process." Inside the Student Lounge, Amazon offers students free access to Prime Instant Video and Prime Music streaming. "It's my new favorite spot to crash in between classes," said John White, Junior, "I didn't even know Amazon had so much streaming video until I logged on to the Wi-Fi network in the lounge, and I definitely didn't know you got it for free with Amazon Student. I just cancelled my Netflix subscription."

The FAQ



- Include both customer FAQs and stakeholder FAQs
- Include the hard questions
- Share your Press Release early to gather questions

II: Student Customer FAQs

Q4: What do I get when Amazon is on my campus? Students get a number of benefits when Amazon is on campus. By activating the co-branded experience on Amazon, students receive Free One Day shipping on textbooks to campus addresses, access to custom textbook selection, the ability to pay with their university ID card, and the ability to pick up Amazon.com orders at pick up points on campus. On campus, all students will have access to an Amazon Student Lounge.

Q5: How do I activate the co-branded experience? Students at client universities will have four methods for opting into the co-branded experience: 1) visiting the co-branded subdomain directly by typing the URL (berkeley.amazon.com) in their browser, or clicking an external link, 2) joining the Amazon Student program and selecting their school, 3) shopping for textbooks via links in their school's Learning Management System, 4) clicking on a Student Store merchandising placement on Amazon.com. Once customers have opted in, they will see a persistent co-branded toolbar on the top of the page whenever they return to Amazon.com. Customers can turn the experience off at any time by navigating to the 'Account Settings' menu in 'YourAccount'.

Q6: What do I get if I sign up for Amazon Student when Amazon is on my campus? Amazon Student members at your school get all the standard benefits of the program *plus* Free One Day shipping to the campus area on millions of top selling products. Standard benefits include Free Two-Day shipping on Prime eligible items, unlimited instant streaming of Prime Instant Video content and access to the Kindle Owners' Lending Library. The cost of a Student membership will remain \$39/year.

Q7: Why aren't there any 'grab and go' items available for purchase at the Student Lounge? At launch, we will not be able sell products to customers "on demand" at the Student Lounge because we do not have a Point of Sale system or the ability to stock inventory for sale on site. However, we intend to offer this in the future for a small selection of top-selling products. In the meantime, customers may order items displayed in the Lounge by using the bar code scan feature in the Amazon Mobile App.

Q8: Why is Free One Day shipping limited to campus addresses? Why don't I get Free One Day shipping to my parent's house? By working directly with a university, Amazon is able to reduce costs associated with shipping orders to campus, a savings we want to pass on to all students at the school via Free One Day shipping for textbooks, and to our Amazon Student members via Free One Day shipping on millions of other eligible products. However, in order to provide these benefits at no additional cost, we must limit the geography in which we offer this benefit to those zip codes served from our on campus delivery station. Amazon Student members always receive Free Two-Day shipping on Prime eligible items, to campus or most other addresses in the continental US.

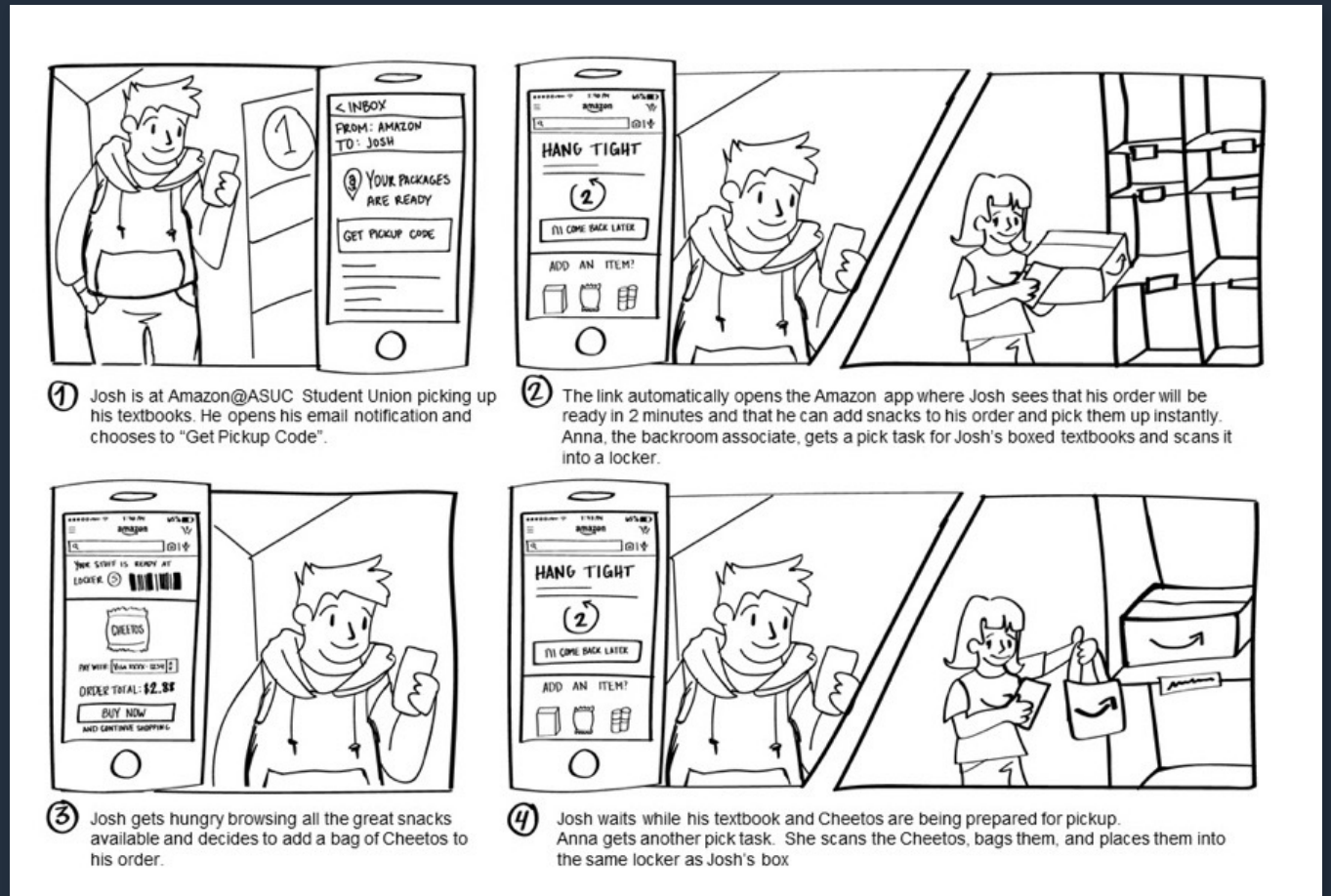
III: Internal FAQs:

Q12: How will on campus delivery work? Our on campus delivery model will leverage a sort center (or fulfillment center) as an origination point for daily milk runs to the campus area, where palletized orders are delivered to multiple drop points/stops on campus. These drop points would include 1) the Amazon Lounge (pick up desk), 2) Lockers or large dorms, dorm complexes, or large multi-dwelling units, and 3) the campus delivery station, where 'off campus' residential deliveries will be sorted for local delivery by

The Visuals



- Rough idea – rough drawing
- Match fidelity to maturity of your idea
- Don't be afraid to be provocative
- Create discussion



Working Backwards Workshop

Source: Working Backwards
Published: 2019

August 1

Working Backwards at Amazon

"The Working Backwards process is a huge amount of work.
But, it will save you even more work later on." - Jeff Bezos

We begin the process of Working Backwards with 5 questions:

1. Who is the customer?
↳ consider the time, place, and situation.
2. What is the customer problem or opportunity?
↳ Specify a problem you are going to solve.
↳ Define the size of the problem.
3. What is the most important customer benefit?
↳ Prioritize what the customer values.
4. How do you know what customers want or need?
↳ Recognize that your personal experiences may not be representative of customers.
↳ Challenge yourself to use data to back your thinking.
5. What does the customer experience look like?
↳ Whiteboard sketch
↳ Storyboard
↳ User journey map
↳ Wireframe
↳ Technical architecture diagram



Over 150 AWS Consulting Partners to help migrate



- AWS Migration Competency Partners (150+)
- Established AWS migration practice

- At least advanced level AWS Consulting Partner
- AWS certifications and certified consultants



AWS customer skills enablement

Migrate and build faster in the cloud



Please Provide Your Feedback

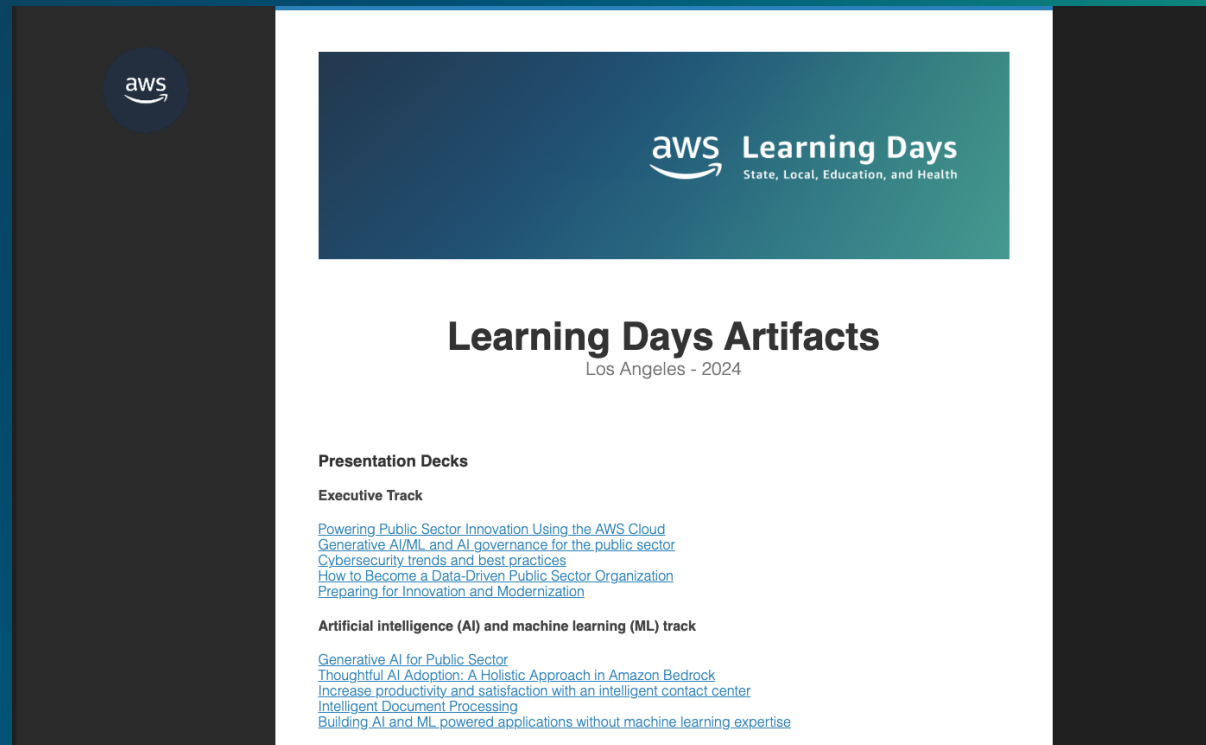


Step 1: Select Executive Track

Step 2: Select Powering Public Sector Innovation Using the AWS Cloud

Learning Day Content

<https://sanfrancisco2024.awslearningday.com/>





Thank you!

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