



LOS ANGELES LEARNING DAYS

# Powering Public Sector Innovation Using the AWS Cloud

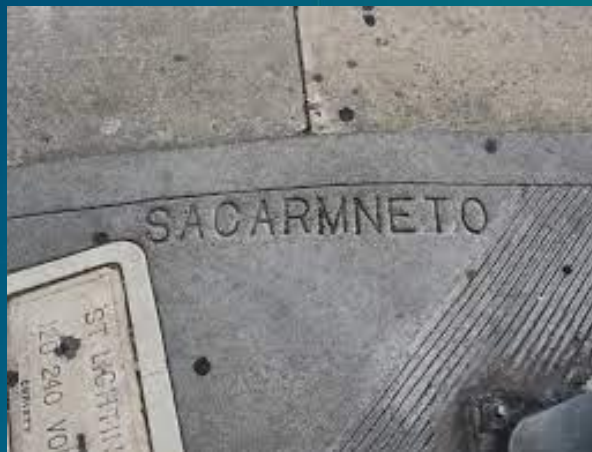
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Principal Solutions Architect

AWS

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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

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Modernizing Digital  
Services and  
Platforms

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## Reducing Risk

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Enhancing Cybersecurity,  
Compliance Posture.  
Improving Resilience

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## Increasing Organizational Efficiency

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Increasing Productivity,  
Reducing repetitive and  
menial tasks

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**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**



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**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:

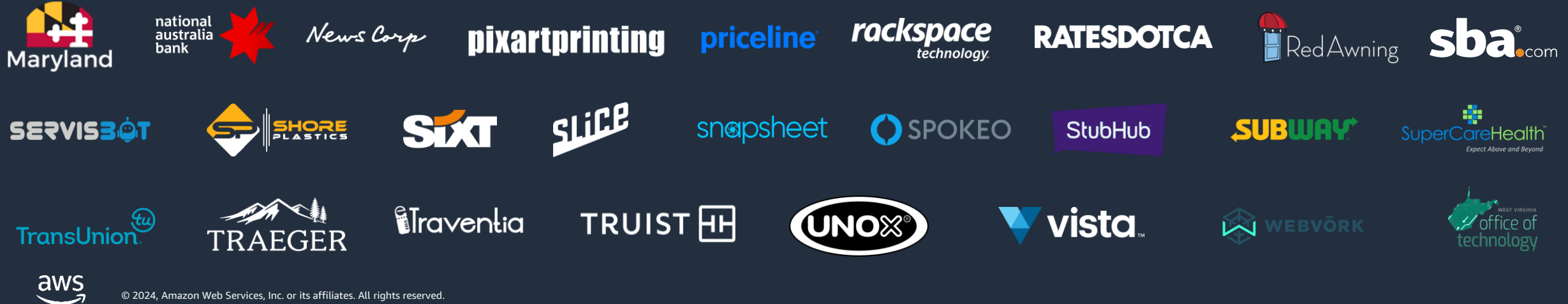
- Implemented Amazon Connect cloud contact center
- Deployed chatbot "Miles" using natural language processing
- Whisper feature briefs agents on call topic before connecting
- Real-time chat and data analytics to discern caller intent

**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



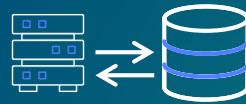
## Code deployments and configuration

e.g. bad deployment, cred expiration



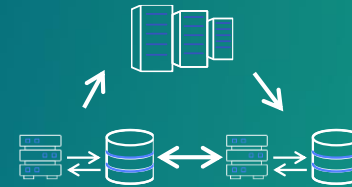
## Core infrastructure

e.g. datacenter failure, host failure



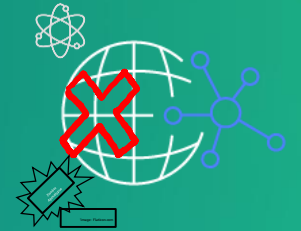
## Data and state

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.

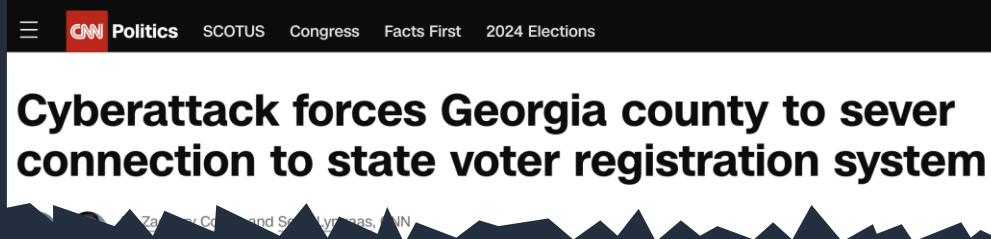
COMMUNITY DETAILS

 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.

**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 SONIA FOX-OWELL • MAY 6, 2017

Service Delivery Outages and Cyber Events are Now Front Page News



# 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

53%

had their data encrypted during the attack

34%

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



36% of organizations restored to a sandbox before production



12% recovered without paying the ransom



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



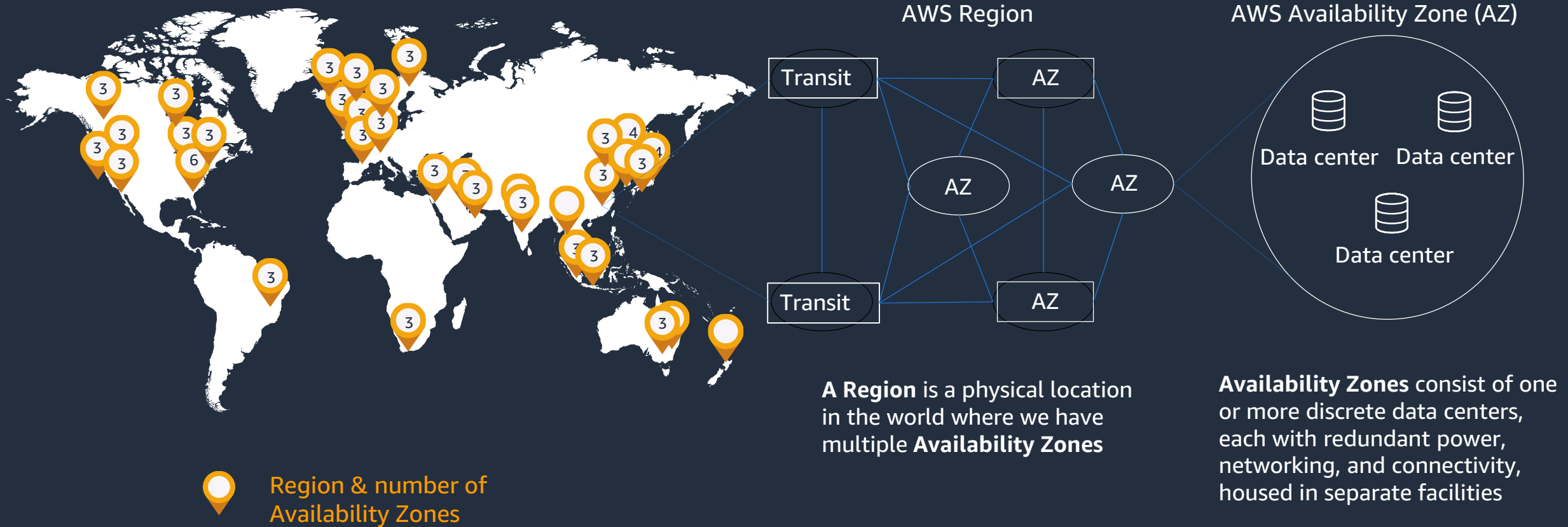
Backup and recovery, data bunkering, managed recovery objectives

### Continuous improvement

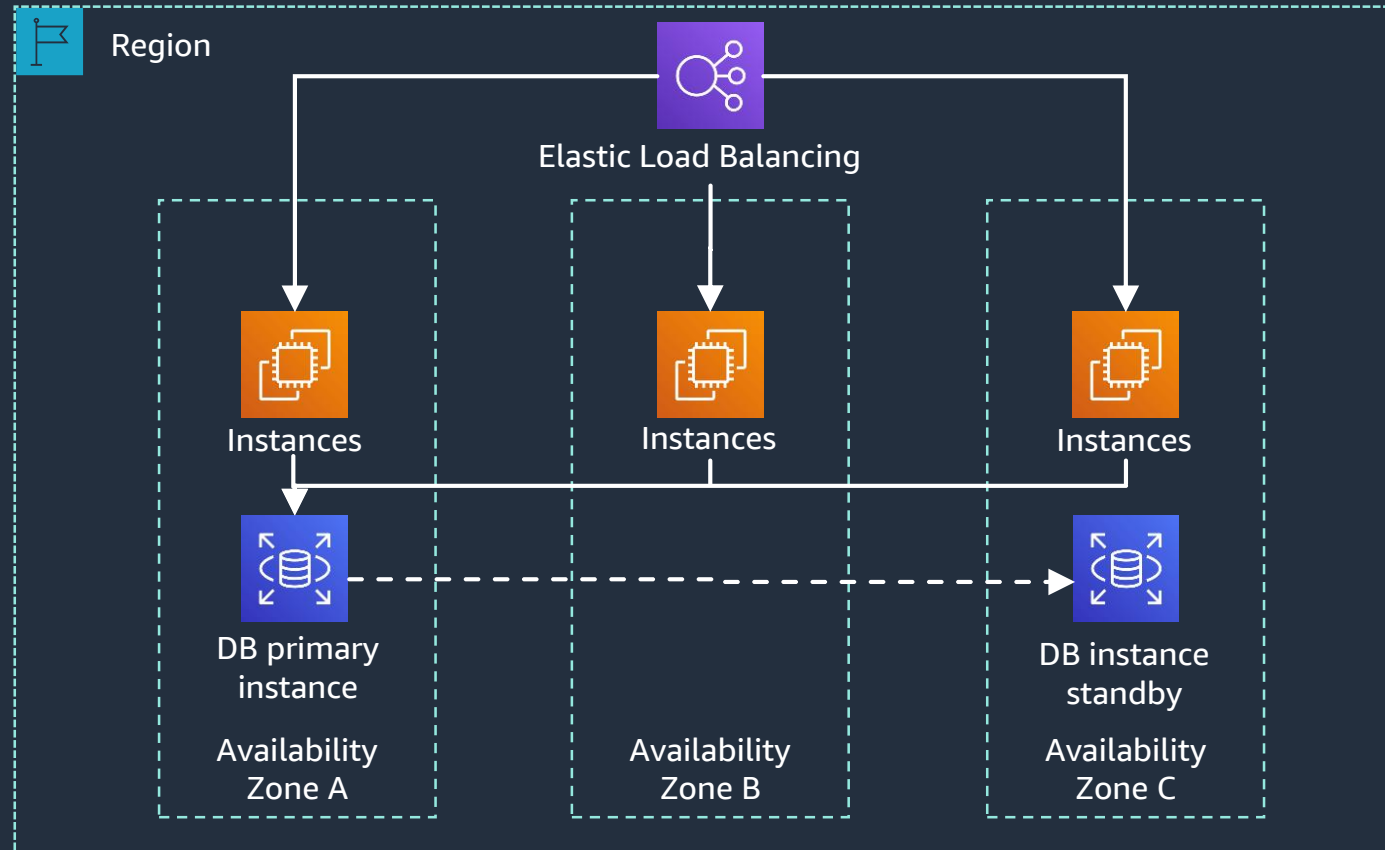
← CI/CD, observability, moving beyond pre-deployment testing towards chaos engineering patterns →

# 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



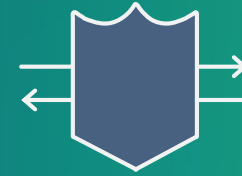
## Faster recovery

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

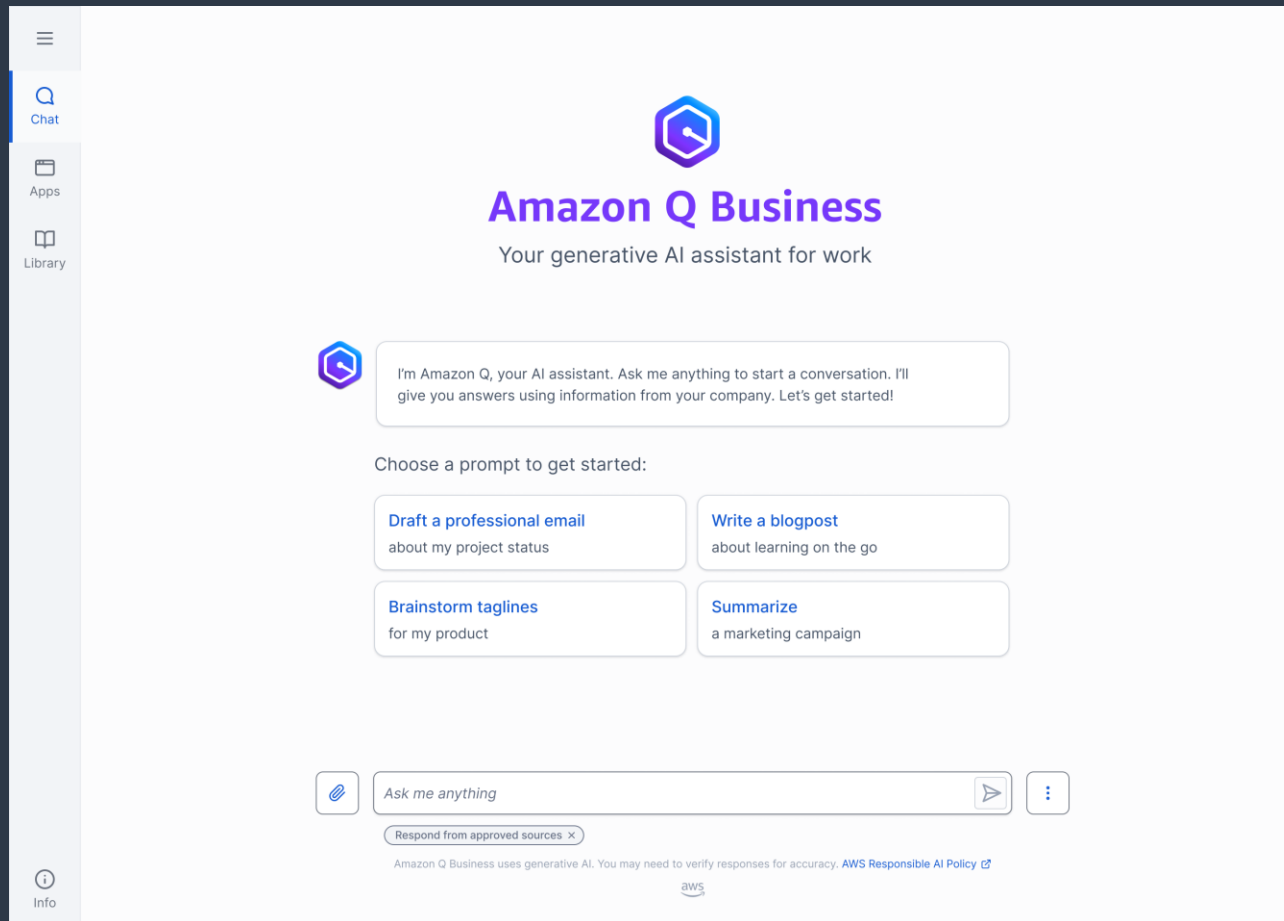
Available **wherever your work**

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 header with a 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

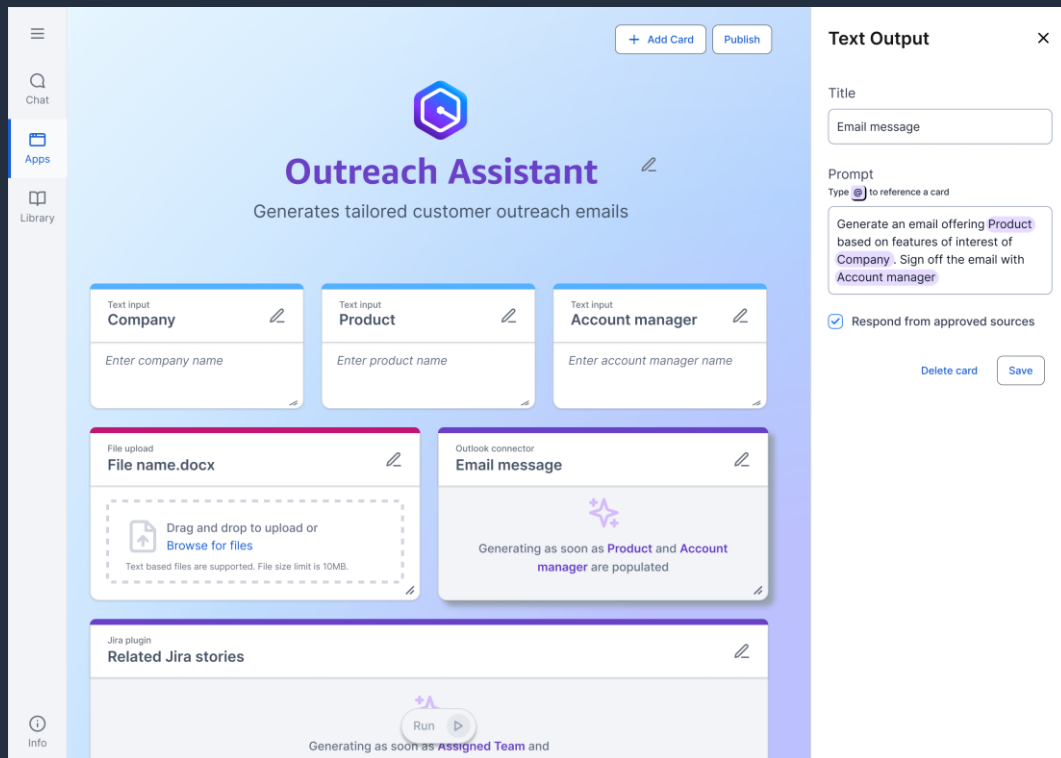
Employees can share their applications with other employees or publish them to the organization's catalog for others to use as is, or modify them to their particular needs

Leverages your enterprise data through Amazon Q 40+ connectors

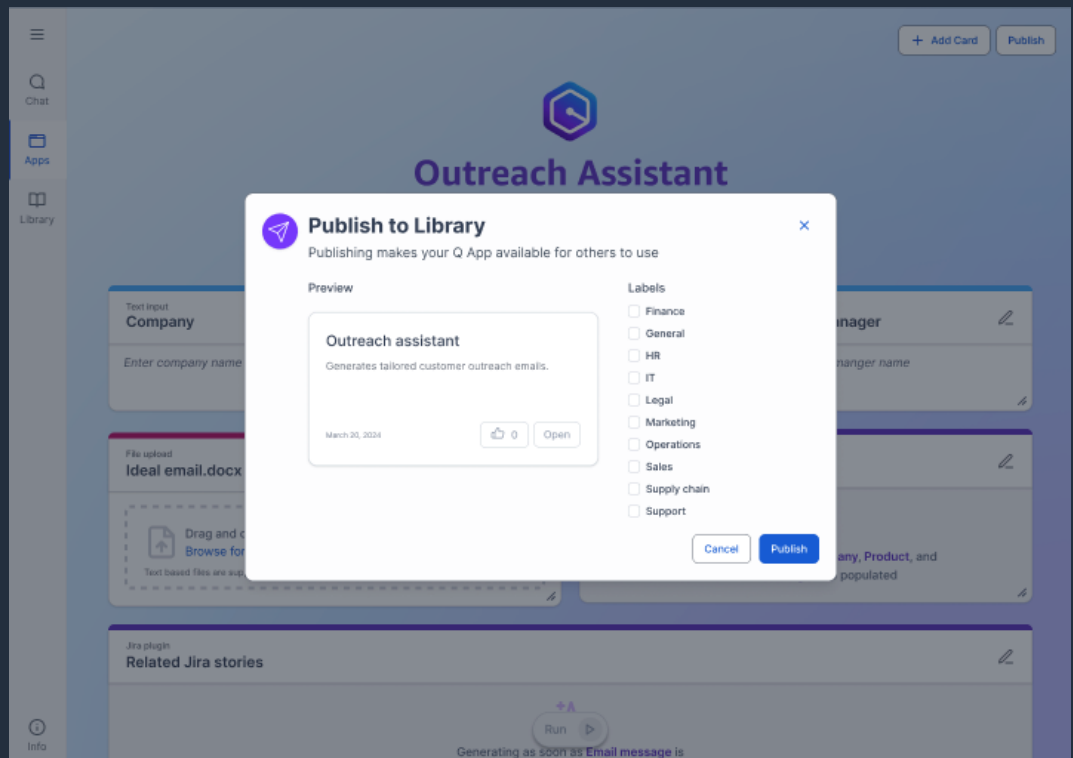
Inherits Amazon Q security and governance controls, including user authentication and access controls



# 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 navigation options: a menu icon, 'Chat', 'Apps', and 'Library' (which is highlighted). The main content area features the Amazon Q logo at the top, followed by the title 'Amazon Q App Library' and the subtitle 'Get started with a collection of published Q Apps'. Below this is a horizontal row of category filters: '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 card includes the app name, a brief description, relevant category tags, the publication date (March 20, 2024), a thumbs-up icon with a count, and an 'Open' button.

App Name	Description	Categories	Published on	Thumbs Up	Action
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](http://www.amazon.com/Campus) & [berkeley.amazon.com](http://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](http://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](http://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](http://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](https://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.

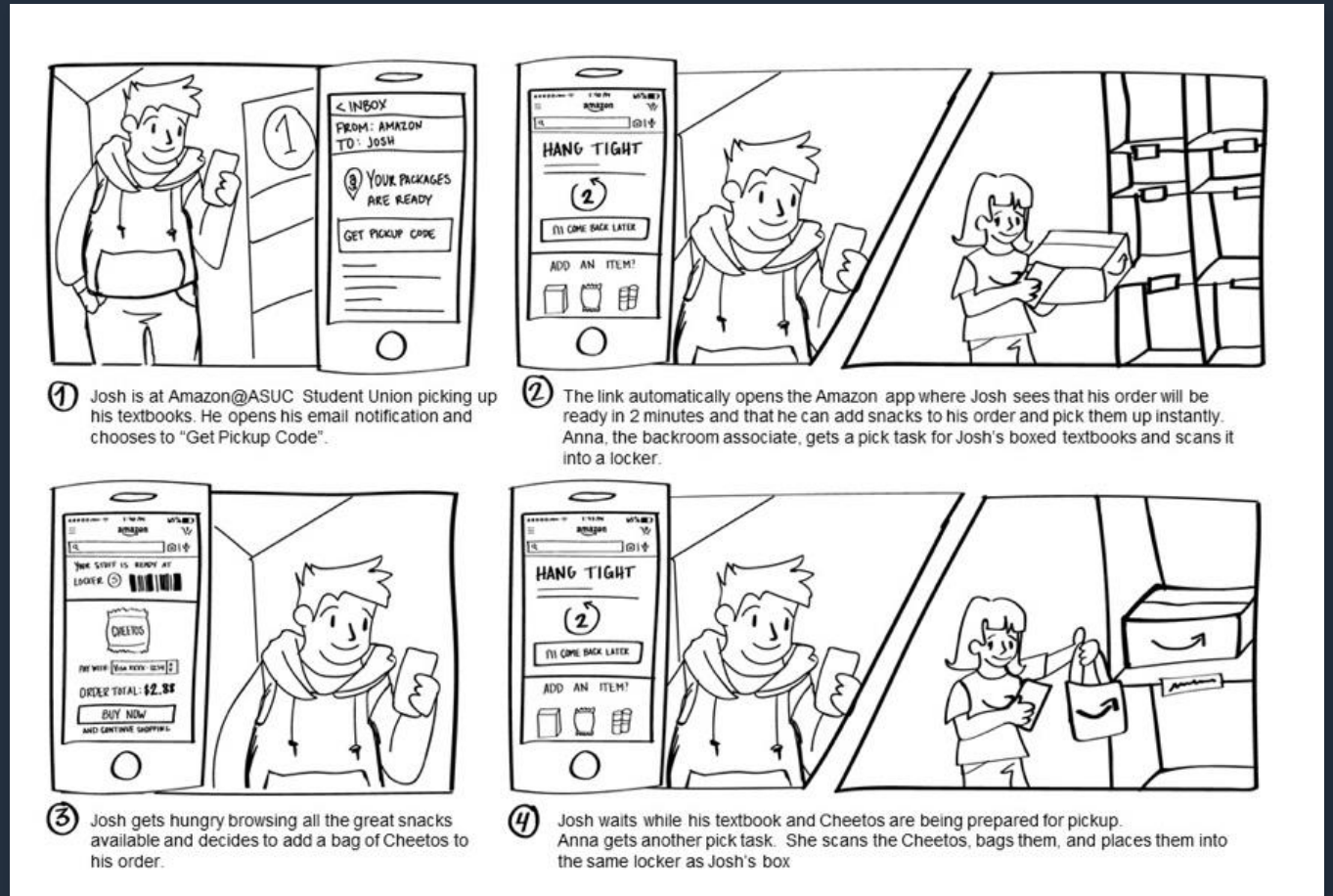
## III: Internal FAQs:

**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



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# AWS customer skills enablement

Migrate and build faster in the cloud



# Please Provide Your Feedback



Step 1: Select Exec Track

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



# Thank you!

# **How Cloud is Driving Innovation and Modernization**



# 1. Cloud Enables Organizations to be Data Driven

“Data is every organizations most valuable asset.”

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By making 10% more data accessible, a typical Fortune 1000 company will see a **\$65 million increase in net income.**<sup>1</sup>

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**415%**  
five-year ROI<sup>2</sup>

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**48%**  
reduced total  
cost of operations<sup>2</sup>

# More data is being generated than ever before



INCOME TAX  
ECONOMIC DEVELOPMENT  
WATER / SEWER  
PARKS & RECREATION  
PUBLIC SERVICES  
TRAFFIC & ENGINEERING



Taxpayer Records  
Social Security #'s  
Tax ID's  
Budget & Finance Data  
Contracts & Agreements  
Employment Records  
Payroll Information  
Bank Account & Routing #'s  
Legal Documents



ENROLLMENT  
STUDENT DEMOGRAPHICS  
ATTENDANCE / GRADED  
RESEARCH DATA  
GRADUATION RATES  
FACULTY RECORDS



Student Transcripts  
Admission Data  
Assessment Data  
Enrollment Forms  
Financial Aid Records



PUBLIC SAFETY  
PUBLIC HEALTH  
ENVIRONMENTAL SERVICES  
JOB & FAMILY SERVICES  
EMERGENCY MANAGEMENT  
COURTS & CORRECTIONS



Emergency Response Metrics  
Patient Care Records  
Criminal Records  
Environmental Data  
Offender Data  
Conviction / Arrest Rates  
Crime Activity

# 3x

Growth of enterprise  
data stored by  
organizations by  
2025

# 87%

of enterprise data will  
be stored in cloud  
environment by 2025

# Cloud Enables Organizations to be Data Driven

## **View data as an organizational asset**

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No longer kept in silos  
or as the property of  
individual departments

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## **Data must be accessible**

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Available easily and  
securely to anyone  
who needs  
access to it

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## **Put data to work**

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Used in analytics and ML  
to make better decisions,  
create efficiencies, and  
drive innovation

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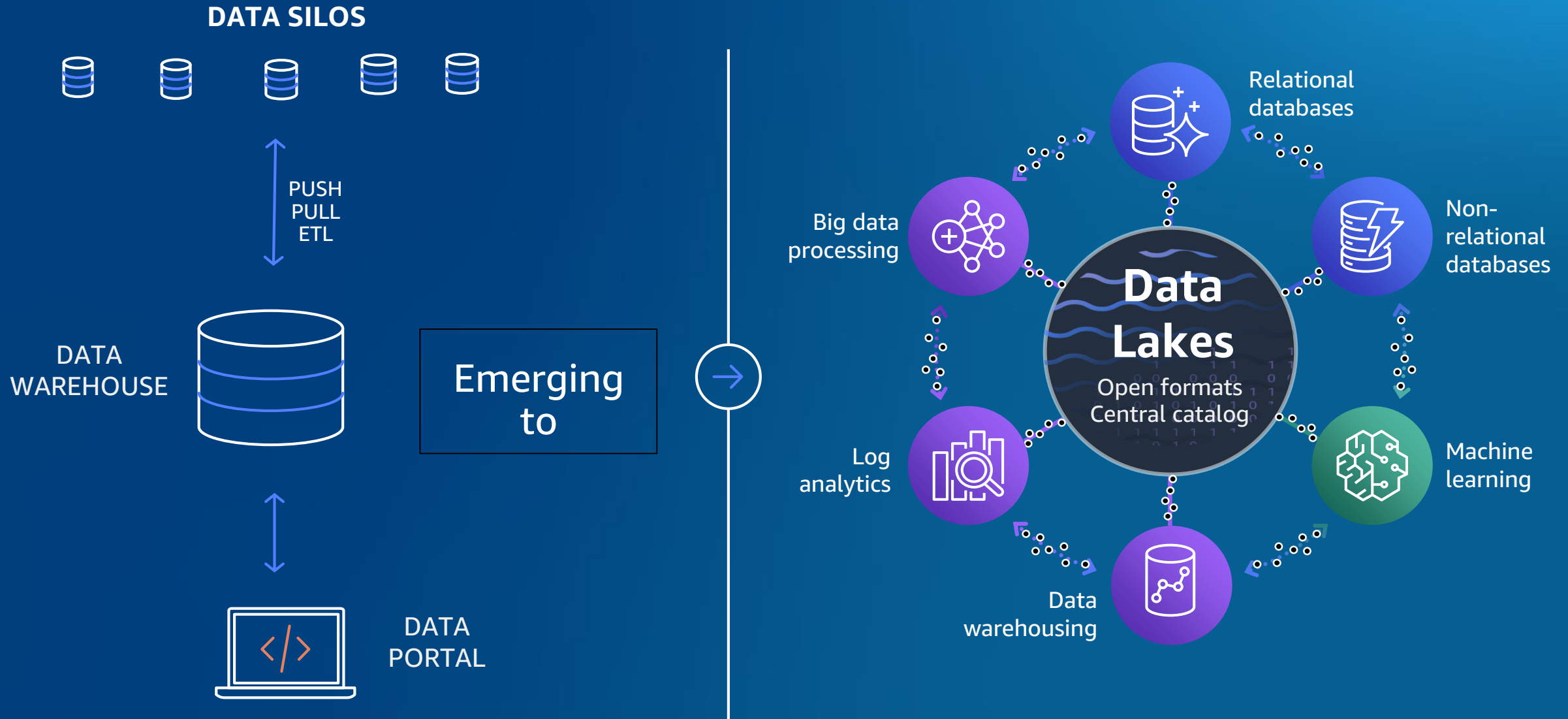
## **Improve operational efficiency**

## **Make more informed decisions**

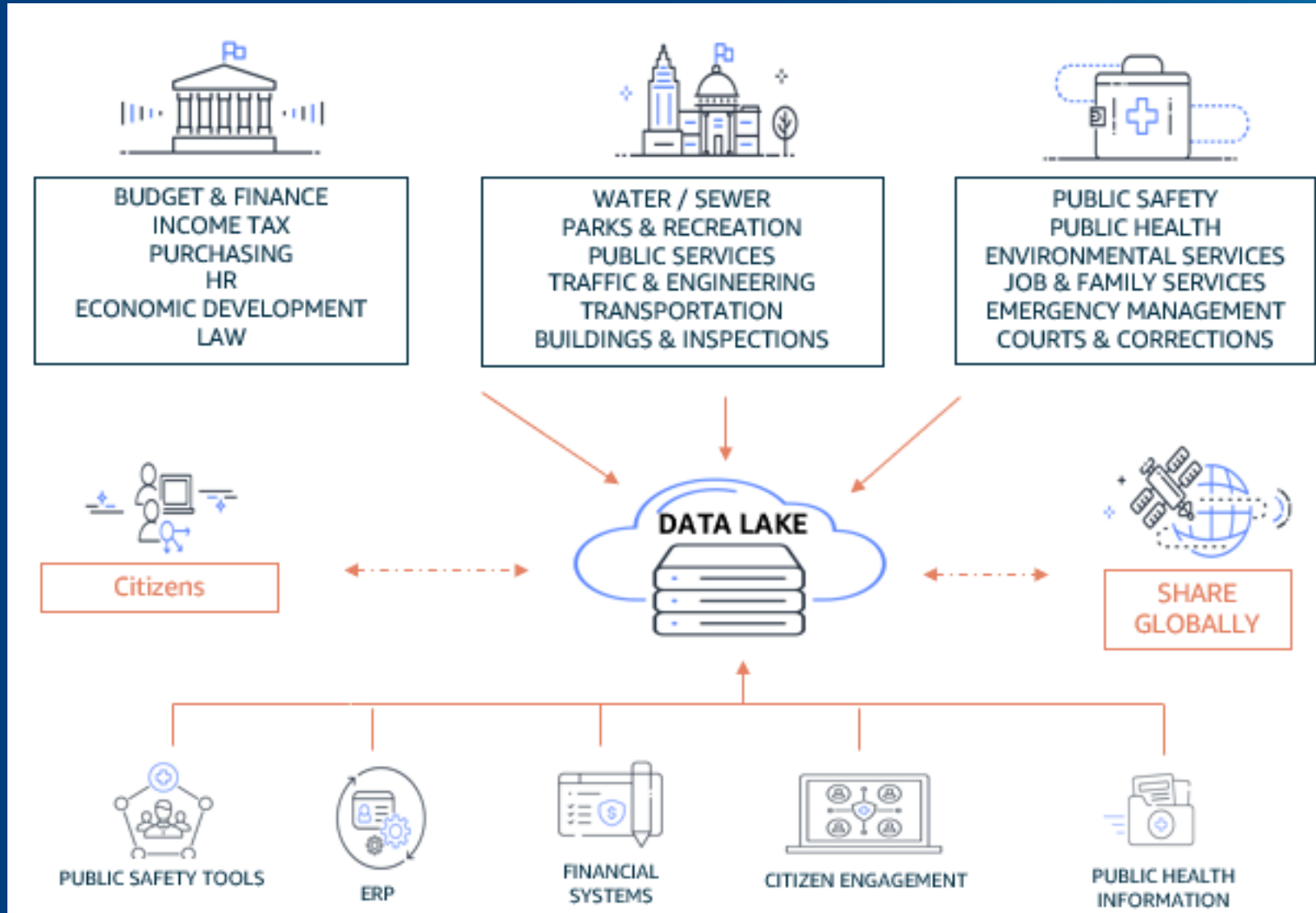
## **Accelerate innovation**



# Cloud Enables Organizations to be Data Driven



# Cloud Enables Organizations to be Data Driven



ENABLE DATA SHARING BETWEEN ORGANIZATIONS

SIMPLIFY DATA MOVEMENT BETWEEN SYSTEMS

ENABLE OFF NETWORK SYSTEM ACCESS

ENHANCE BUSINESS DECISION MAKING

POSITION ORGANIZATION FOR FUTURE INNOVATION



# GEORGIA DATA ANALYTICS CENTER

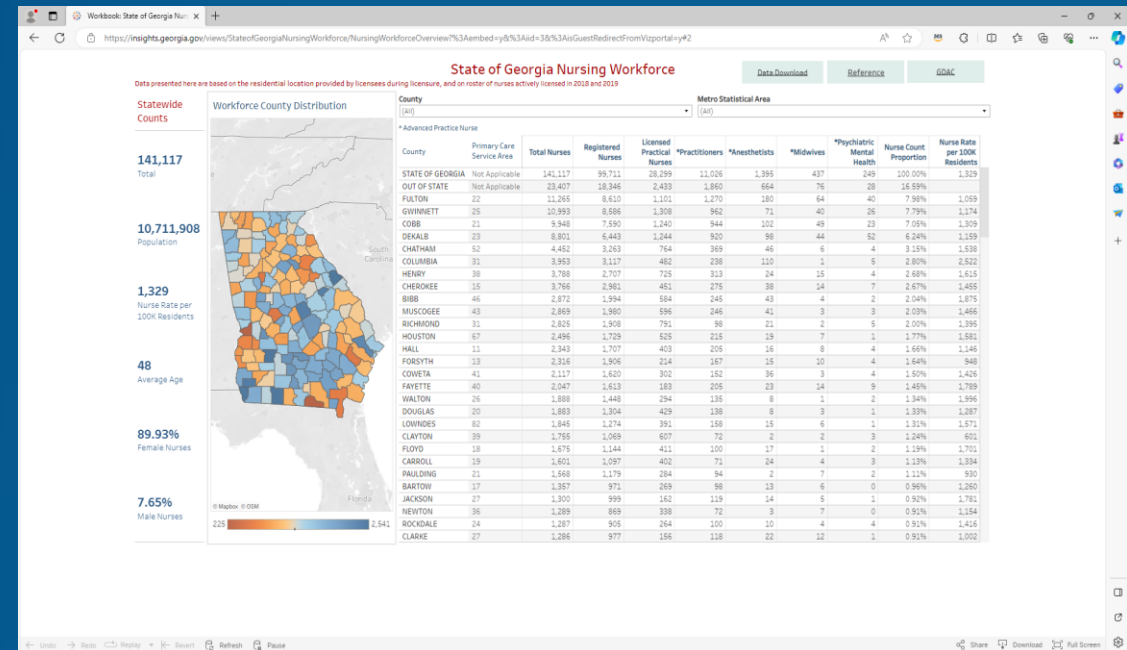
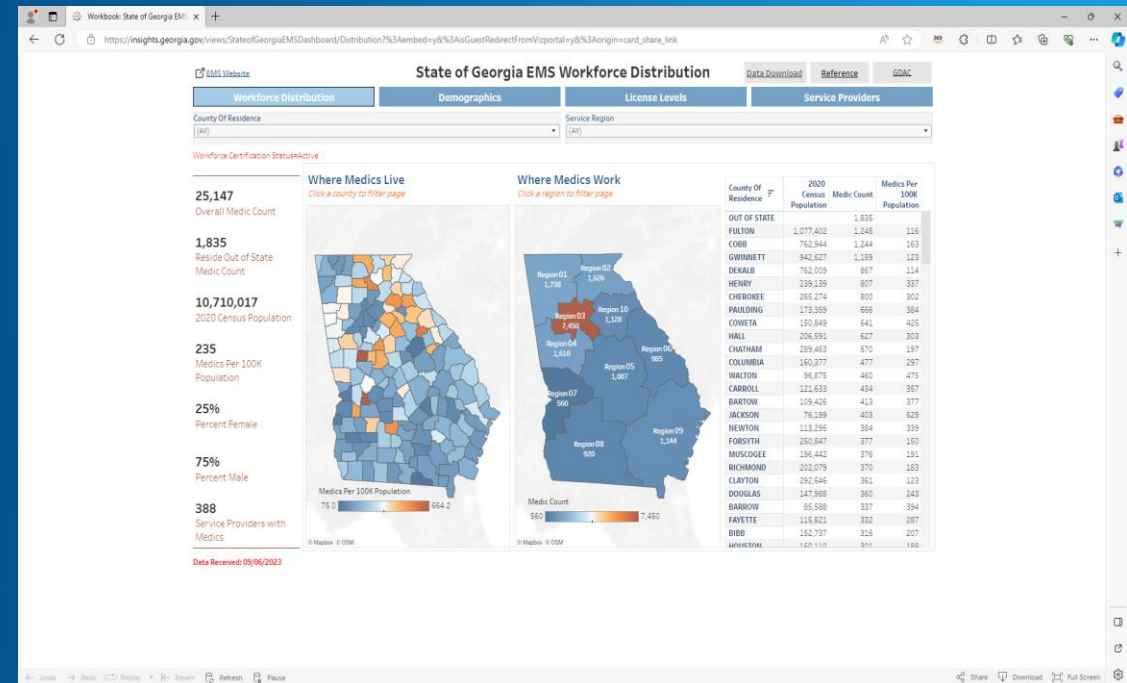
<https://gdac.georgia.gov/>

GDAC is the states central data repository and the go-to entity for data driven decision making

Data access is governed to answer critical questions for agencies, executive leaders, and legislators

“With agency data that spans decades, GDAC’s impact would not be possible without the cloud”

*Kanti Chalasani, GDAC Director*





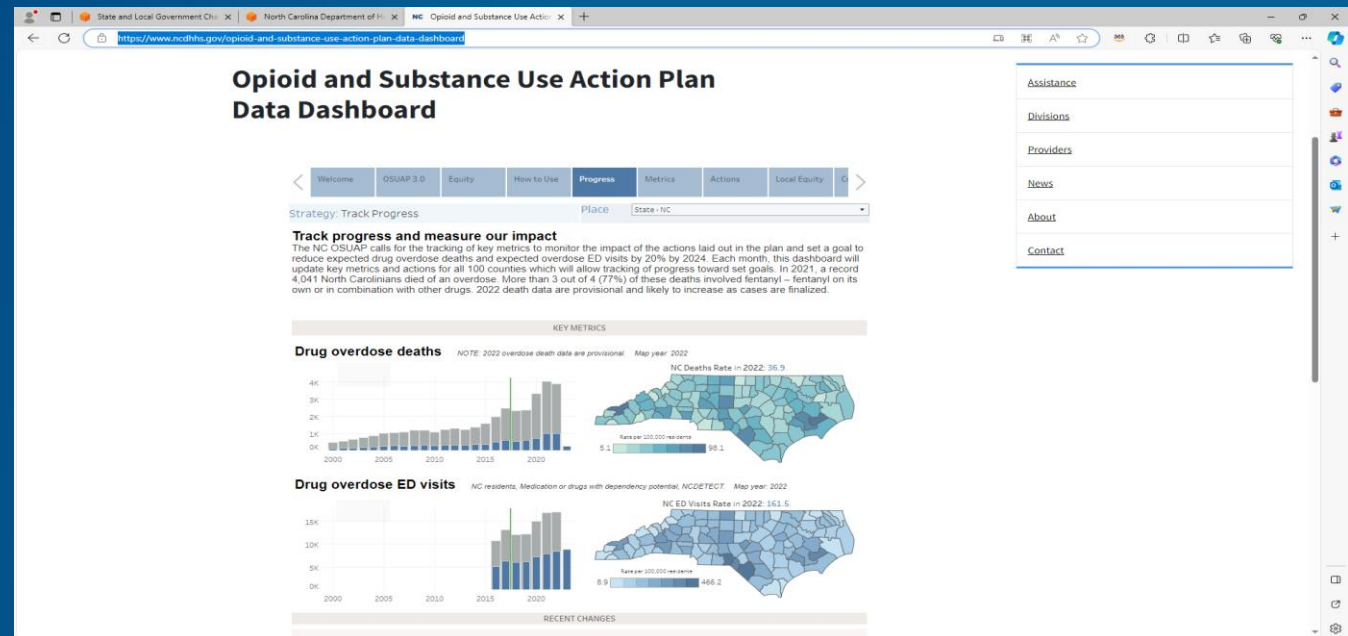
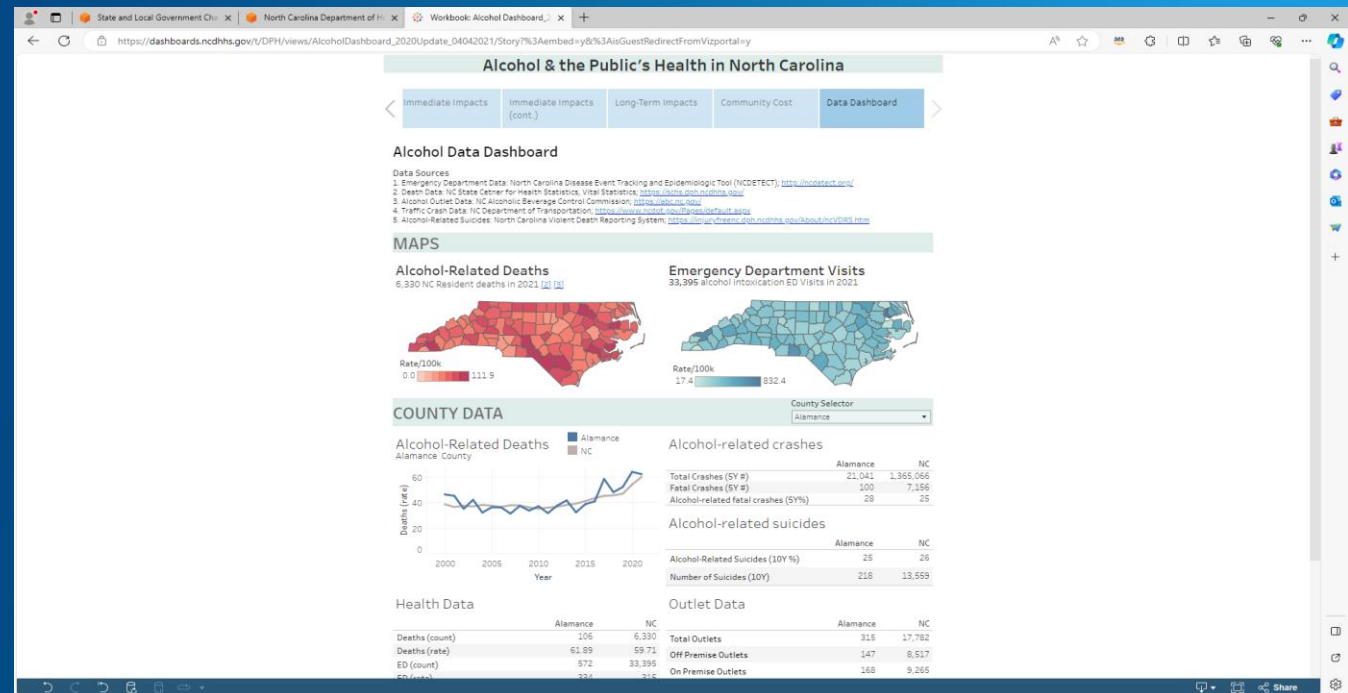
NC DEPARTMENT OF  
**HEALTH AND  
HUMAN SERVICES**

<https://www.ncdhhs.gov/>

**NCDHHS manages health and human  
service delivery for all state citizens**

**Data was spread out among numerous  
systems across the state. ETL processes were  
manual and data was not always up to date**

**During COVID stood up a new Business  
Intelligence Data Platform in 48 hours,  
enabled real-time data sharing, analytics,  
and reporting**

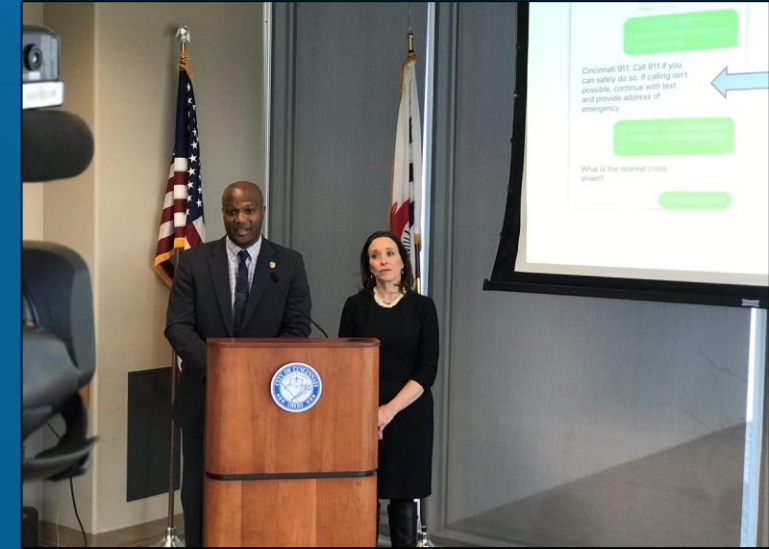




## 2. Cloud Improves Business Resilience and Disaster Readiness



Service Delivery  
Outages and Cyber  
Events are Now  
Front Page News



# REPORTED RANSOMWARE INCIDENTS IN FLORIDA SINCE 2017



**Public Safety**

**13**



**State/Local  
Government  
Agency**

**51**



**Education**

**13**

# SURVEY OF IT LEADERS FOLLOWING RANSOMWARE ATTACKS

97%

of the attacks attempted to infect backup repositories

53%

had their data encrypted during the attack

34%

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



36% of organizations restored to a sandbox before production



12% recovered without paying the ransom



64% believe a complete overhaul is needed between their backup and security teams

# Cloud Improves Business Resilience and Disaster Readiness

## COMMON RECOVERY CHALLENGES

- ➔ High costs to maintain duplicate infrastructure
- ➔ Lack of backup and recovery strategies prioritized by application
- ➔ Inability to test backups and meet recovery objectives
- ➔ Lack of technical capabilities and security training
- ➔ Increased Cyber Liability Insurance costs and requirements



# Cloud Improves Business Resilience and Disaster Readiness



## Disaster Ready Operations

Achieve steadfast reliability and availability based on top-tier recovery objectives and security best practices.



## Operational Efficiency

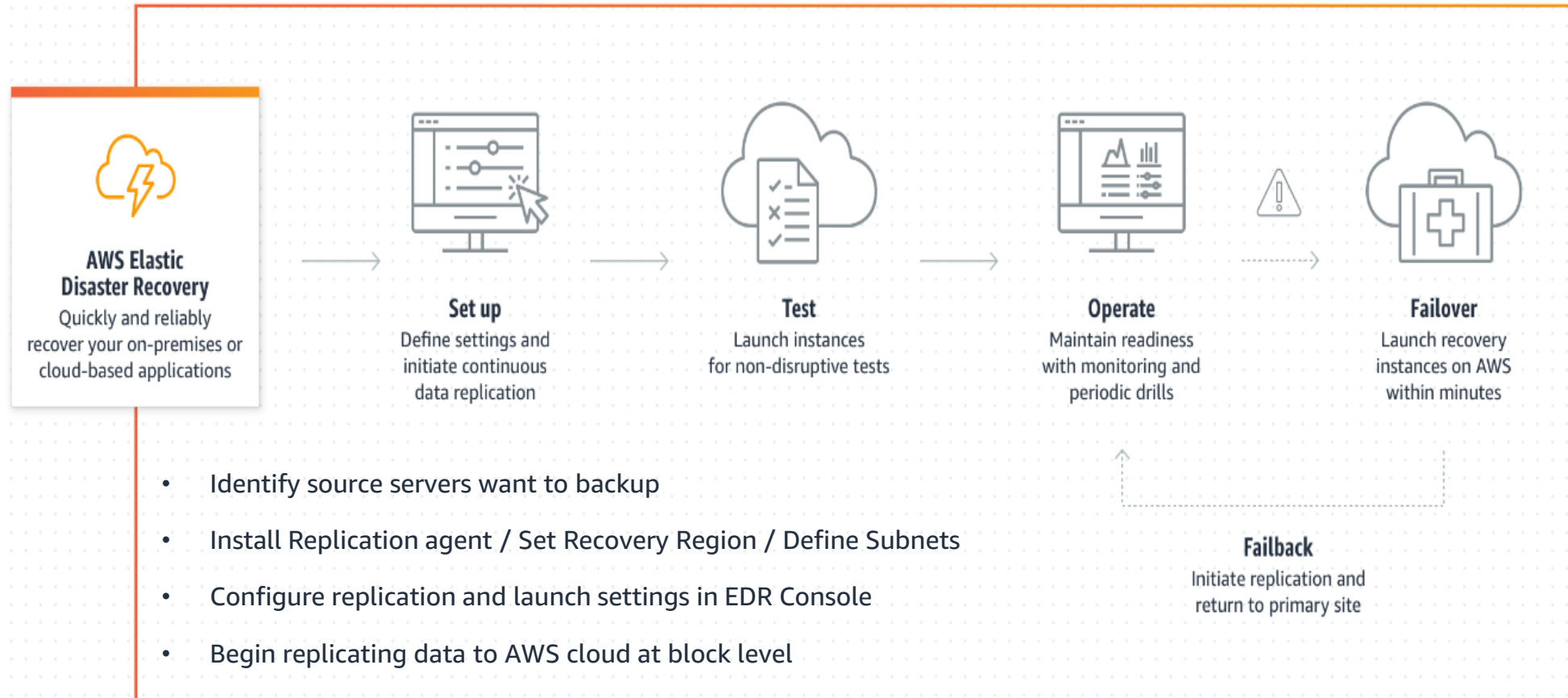
Obtain substantial cost savings by reducing the need for duplicate infrastructure and licensing.



## Business Continuity & Resilience

Minimize downtime and data loss by frequently conducting easy-to-launch, non-disruptive disaster recovery drills to gain peace of mind.

# Cloud Improves Business Resilience and Disaster Readiness



# Children's Health Orange County (CHOC)



**"We gained a sense of confidence and relief in knowing that our systems are ready. We can spin up workloads at scale on AWS at any time, with the RPOs and RTOs we require."**

- Adam Gold, Chief Technology Officer,  
CHOC



Easy deployment, management, and testing to ensure recovery from IT events involving data corruption such as ransomware



Significantly improved RTOs and RPOs for 400+ servers



Single DR service supports and protects multiple healthcare applications



Improved data visibility with dashboards and reports



# Michigan Health Information Network (MiHIN)

**“We have a new level of flexibility in the cloud. Before, we always had to procure servers and storage to add more capacity for new services. That whole process would take a month or longer. We’re a much more responsive and agile organization using AWS, and that helps us grow our organization.”**

**- Tim Pletcher, Executive Director, MiHIN**



12 million patient health information messages pass through MiHIN network weekly



Collocated data center costs increased technical debt, limited scalability, and created information security risks



MiHIN migrated to the AWS cloud and greatly reduced hardware costs and licensing while increasing security, flexibility, and scalability.



Improved data visibility with dashboards and reports

# Florida State University (FSU)



Florida State University already understood the need for a long-term continuity of operations plan, and the devastation Hurricane Michael wrought on the surrounding areas solidified how critical a disaster recovery service is to their overall operations.



**Needed to protect key learning systems and sensitive student data from unplanned outages, particularly during hurricane season**

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**Implemented AWS Elastic Disaster Recovery to minimize manual intervention and leverage automation**

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**Gained peace of mind with advanced solution to manage unexpected disruptions**

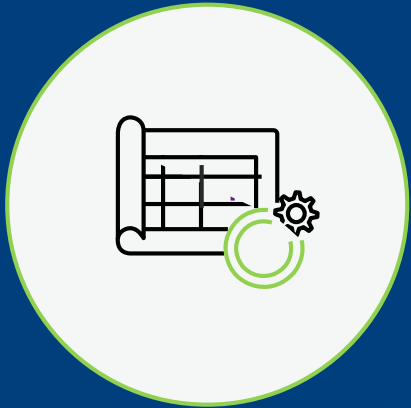
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**Delivered a near-zero data loss with less than one hour of RPO, a four-hour RTO for Tier-1 services, and an overall RTO of 12 hours**

# 3. Cloud Enables Predictable Infrastructure Utilization

Plan



**Plan & Evaluate**

TCO Calculator  
Migration Evaluator  
AWS Pricing Calculator  
AWS Budgets

Run



**Manage & Control**

AWS IAM  
Billing Console  
AWS Purchase Order  
Management  
AWS Budget Actions

See



**Organize & Report**

AWS Cost Explorer  
AWS Cost & Usage Reports  
AWS Cost Categories  
AWS Cost Anomaly Detection

Save



**Optimize & Save**

Savings Plans  
Reserved Instances  
Recommendations



# Cloud Enables Predictable Infrastructure Utilization



## Cost savings (TCO)

Infrastructure cost savings/  
avoidance from moving to the cloud

Example: 50%+ reduction in  
TCO (GE)

## Cost impact

### KPI

- IT spend on app per user
- Total IT infrastructure spend



## Staff productivity

Efficiency improvement by function  
on a task-by-task basis

Example: Over 500 hours per year of  
server configuration time saved  
(Sage)

### KPI

- VM's managed per admin
- TB's managed per admin



## Operational resilience

Benefit of improving SLAs and  
reducing unplanned outage

Example: Critical workloads run in  
multiple AZs and Regions for robust  
DR (Expedia)

### KPI

- Application availability
- Total monthly incidents
- Critical (P1/P0) incidents
- Security incidents
- Mean-time-to-resolution (MTTR)
- App resilience rating
- App security rating



## Business agility

Deploying new features/ applications  
faster and reducing errors

Example: Launch of new products 75%  
faster (Unilever)

## Value impact

### KPI

- Time to market
- Time to deploy
- Code deployment frequency
- Customer satisfaction
- Employee satisfaction

# Business drivers for migrating to the cloud





# 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



# KEY TAKE AWAYS / Q & A

NOT ACTING HAS GREATER CONSEQUENCES  
THAN A FAILED MODERNIZATION



INFORMATION SECURITY CONSIDERATIONS  
MUST BE PRIORITIZED



BALANCE THE ART OF THE POSSIBLE AND THE  
REALITY OF THE FEASIBLE



A/I AND PREDICTIVE ANALYTICS REQUIRE A  
STRONG DATA FOUNDATION



CLOUD CAN ACCELERATE  
MODERNIZATION EFFORTS



WELL PLANNED MODERNIZATION PROJECTS  
CAN REDUCE TECHNICAL DEBT AND  
OPERATING COSTS

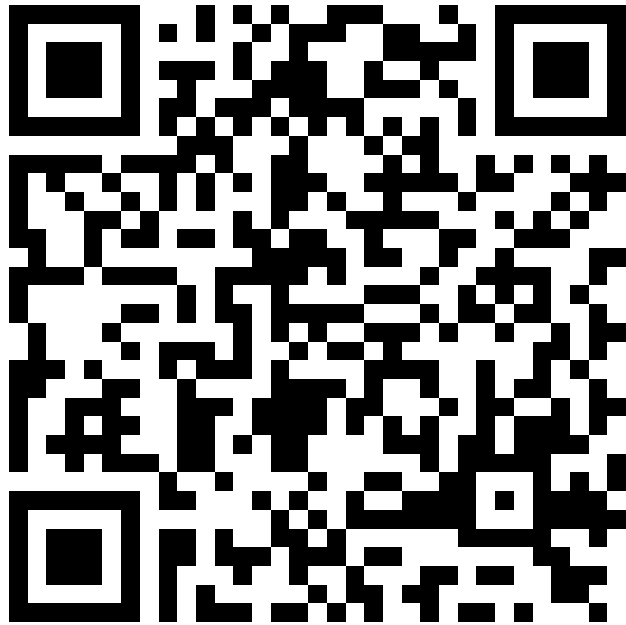


# AWS customer skills enablement

Migrate and build faster in the cloud



# Thank You!



Please  
Complete Our  
Session Survey  
and Share  
Your Feedback