Powering Public Sector Innovation Using the AWS Cloud

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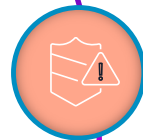
aws Learning Days
State, Local, and Education

Public sector work has never been more important

32 extreme weather events in the U.S. this year have cause 200 deaths and $14 billon in damages
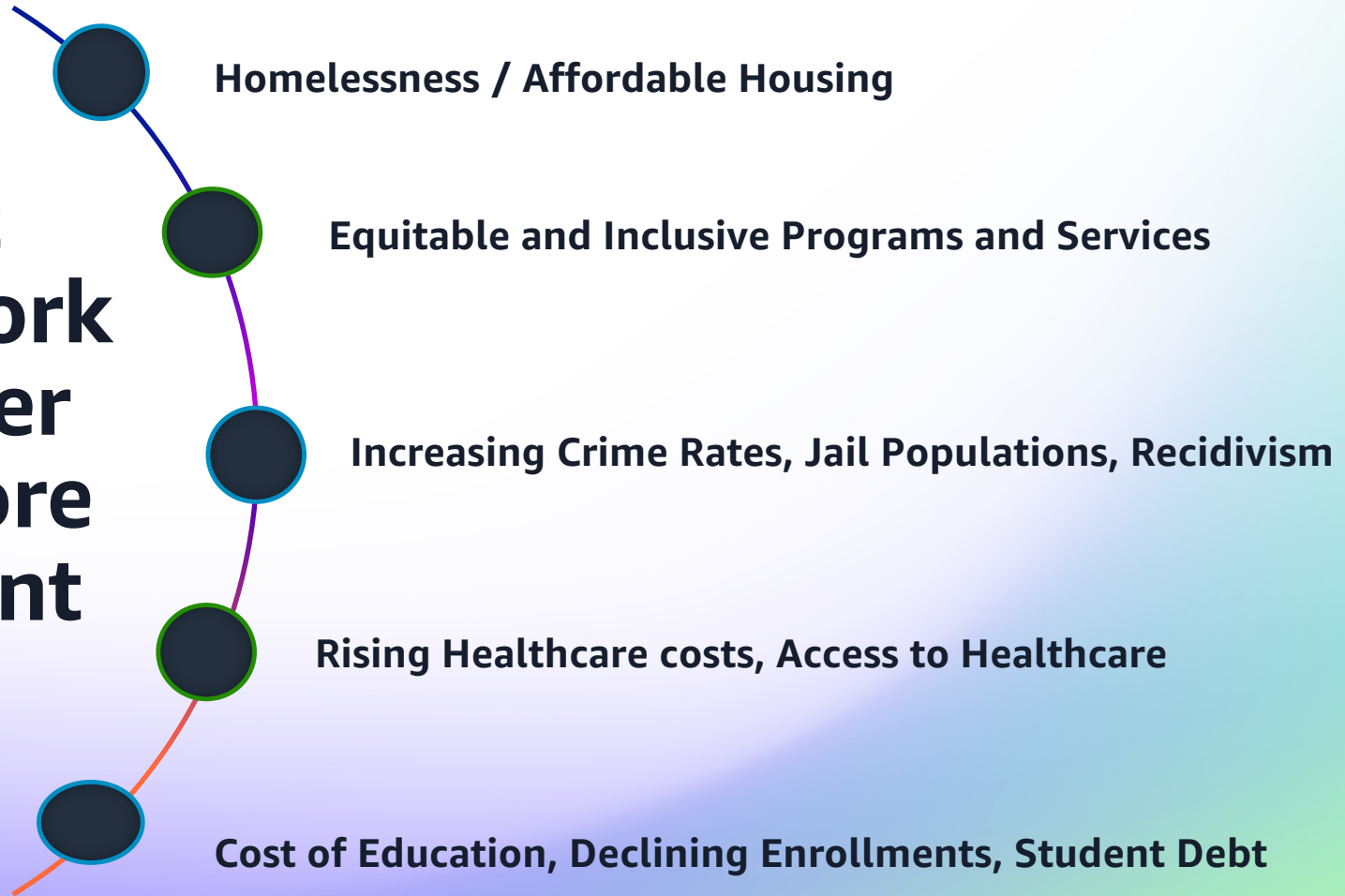

75% of all IT organizations will have a ransomware event by 2025. In 2023, Education, Healthcare, and Government were top 5 targets. Average cost of a cyber event was $4.5 million

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

Public sector work has never been more important

Homelessness / Affordable Housing

Equitable and Inclusive Programs and Services

Increasing Crime Rates, Jail Populations, Recidivism

Rising Healthcare costs, Access to Healthcare

Cost of Education, Declining Enrollments, Student Debt

In·no·va · tion (noun)

A new method, idea, product, or device. The introduction of something new.

Mod·ern·ize (verb)

Adapt (something) to modern needs or habits, typically by installing modern equipment or adopting modern ideas or methods.

Op·por·tu·ni·ty Cost (noun)

The loss of potential gain from other alternatives when one alternative is chosen.

PUBLIC SECTOR INNOVATION CHALLENGES

GOVERNMENT

EDUCATION

NON-PROFIT

HEALTHCARE

- FREQUENT OPERATIONAL BUDGET REDUCTIONS

- GOVERNANCE / POLICY DEVELOPMENT

- AGING INFRASTRUCTURE ASSETS

- INCREASED DEMAND FOR REMOTE ACCESS

- SILVER TSUNAMI / DECLINING SKILLS

- 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

Common challenges we hear

Faster Service
Immediate Response
Easier Access to Info
Consistent Experience

CUSTOMERS

Multiple Applications
Complex Workstreams
Increasing Demands

AGENTS

Real-Time Data
Performance Metrics
Workforce Mgmt Tools

SUPERVISORS

Change Management
Multiple Platforms
Difficult to Innovate

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

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

Non-emergency call diversion Chatbot

Amazon Connect

Jefferson County 911

- ○ **9-1-1 staffing shortages**
  - ▪ Can range from 10% to over 30%
  - ▪ Non-emergency calls placed to 9-1-1 create extended wait times for actual emergencies

- ○ **Non-emergency lines** (10 digit lines)
  - ▪ 2:1 ratio of 9-1-1 to non emergency calls)
  - ▪ Some centers have wait times over 10 minutes
  - ▪ Some centers not answering 10 digit lines at all

If needed, Non-emergency calls (10 digit lines) can still be automatically routed to 9-1-1 Automate the answering of non-emergency calls placed to 10 digit lines

Q&A Chatbot

Text Generation

Audio Analysis

12

Using AI to Improve Call Center Efficiency

"During peak hours, previously you're 45-50 minutes on hold, and now that's has been reduced to about three and a half minutes.

One of the other benefits we've gotten from Amazon Connect is sentiment analysis. On a call, we get real-time feedback on whether or not the customer was happy, frustrated, or angry…"

- **Benny Chacko**, Deputy General – LA County Internal Services Department

Q&A Chatbot

Text generation

Audio Analysis

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

Cloud Enables Organizations to…

Reduce Risk

REPORTED RANSOMEWARE 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

More data is being generated than ever before

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

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

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

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

Student Transcripts
Admission Data
Assessment Data
Enrollment Forms
Financial Aid Records

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

Categories of failure

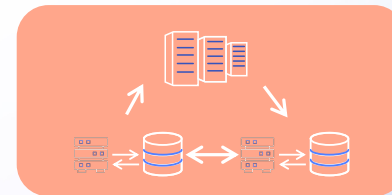**Code deployments and configuration**
e.g. bad deployment, cred expiration
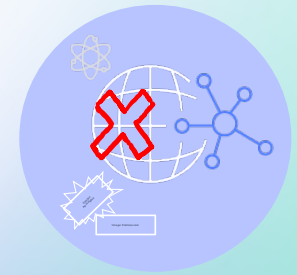
Core infrastructure
e.g. datacenter failure, host failure

Data and state
e.g. data corruption

Dependencies
e.g. infrastructure, external APIs

Highly unlikely scenarios
e.g. All of internet failure, environmental disasters,

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

Cyberattack forces Georgia county to sever connection to state voter registration system

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 SOPHIA FOX-SOWELL • MAY 6, 20

aws ELASTIC DISASTER RECOVERY SERVICE

EDR   Orchestration   Recovery

Flexible

- Any source
- Wide range of OS
- Cloud/on-premises

Reliable

- Non-disruptive
- Recover in minutes
- Business Continuity
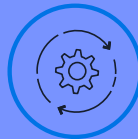
Highly Automated

- Easy to use
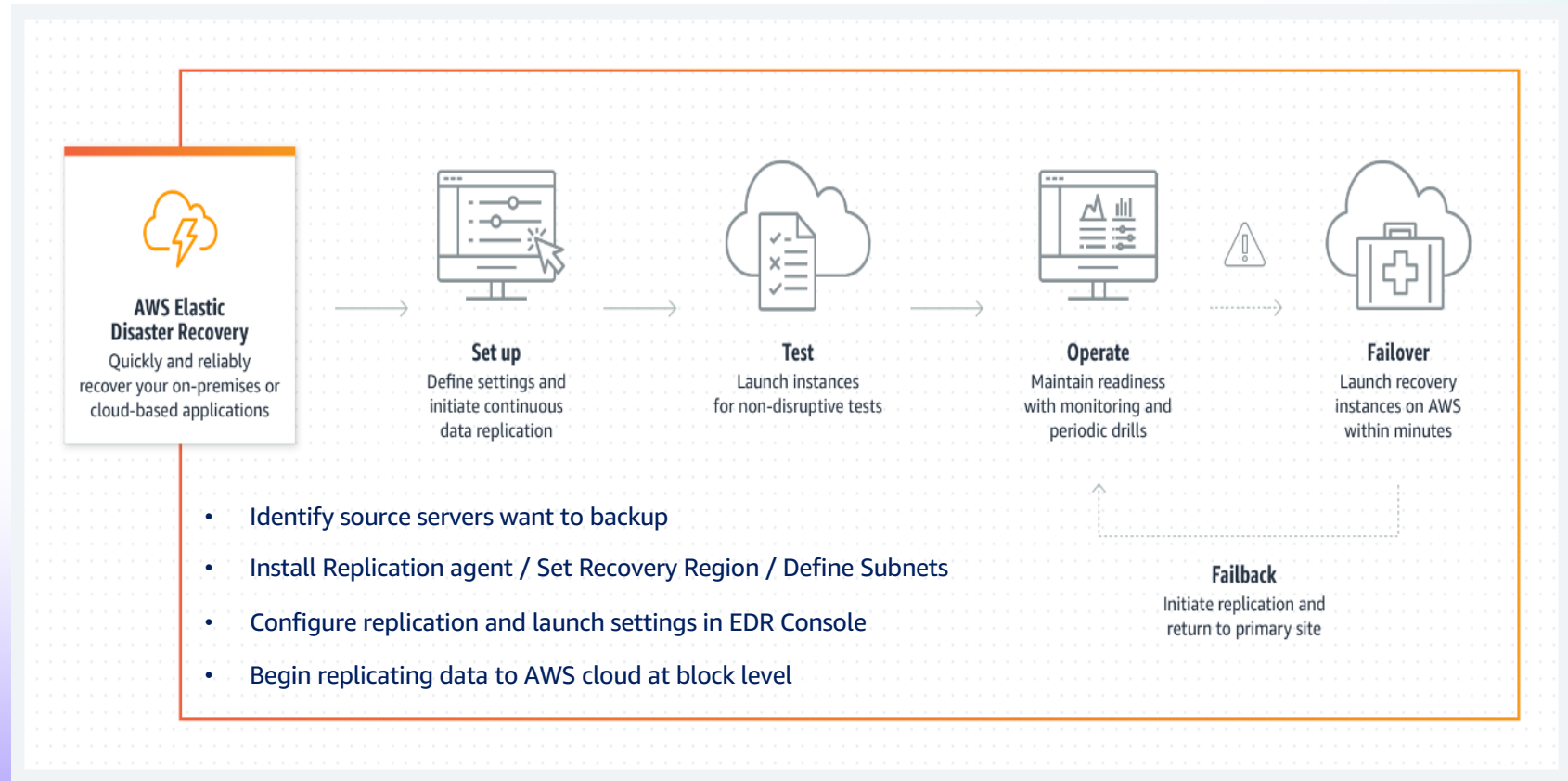- No impact testing
- Lower TCO

01. Fast recovery ✔

02. Flexible, hourly billing ✔

03. Simple and reliable ✔

04. Minimizes complexity ✔

05. Easy failover ✔

06. Orchestrated failback ✔

HOW ELASTIC DISATER RECOVERY WORKS:

AWS Elastic Disaster Recovery
Quickly and reliably recover your on-premises or cloud-based applications

Set up
Define settings and initiate continuous data replication

Test
Launch instances for non-disruptive tests

Operate
Maintain readiness with monitoring and periodic drills

Failover
Launch recovery instances on AWS within minutes

Failback
Initiate replication and return to primary site

- Identify source servers want to backup
- Install Replication agent / Set Recovery Region / Define Subnets
- Configure replication and launch settings in EDR Console
- Begin replicating data to AWS cloud at block level

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

25

Mississippi Department of Employment Security

Mississippi Department of Employment Security (MDES)

"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

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

Cloud Enables Organizations to…

Increase Organizational Efficiency

Using AI to improve case management

- The Los Angeles County Public Defender's office implemented an AI-powered client case management system.

- The AI tool helped reduce manual data entry from documents 85%.

- Eliminated the need for the public defender staff to manually scan in thousands of paper files received daily.

- 160 million records stored in 23 different legacy systems were consolidated in one cloud based application.

- The AWS AI/ML Lab developed a custom system that ingests scanned PDFs, classifies useful pages, extracts agency-specific information and allows the Public Defender's office staff to verify results.

Text generation

Text extraction

Text summarization

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

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
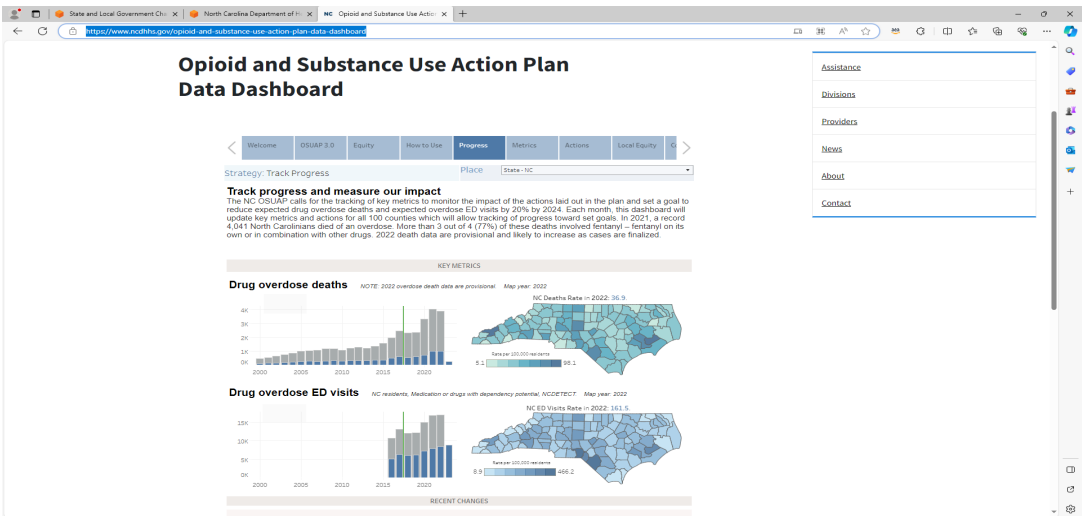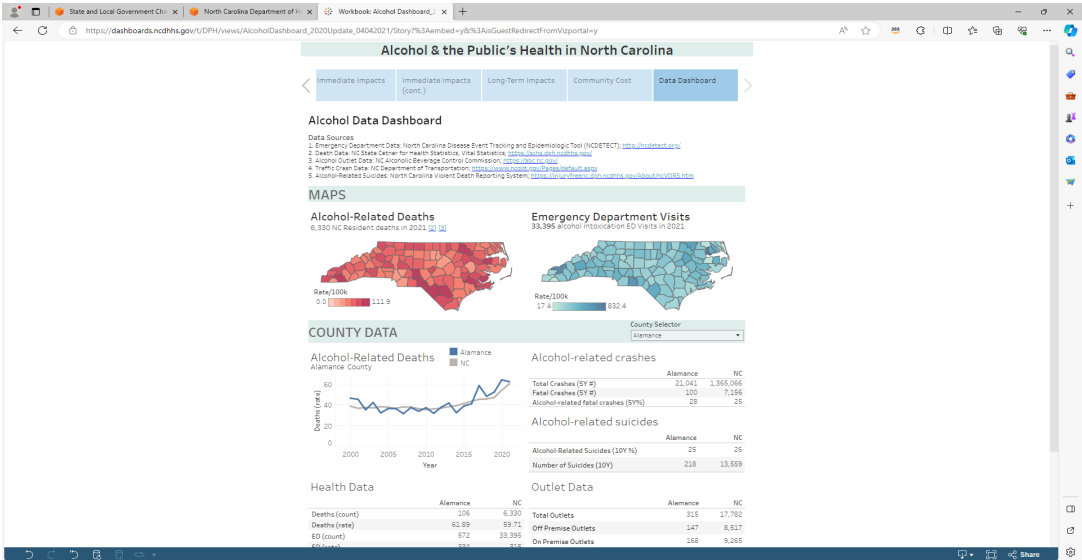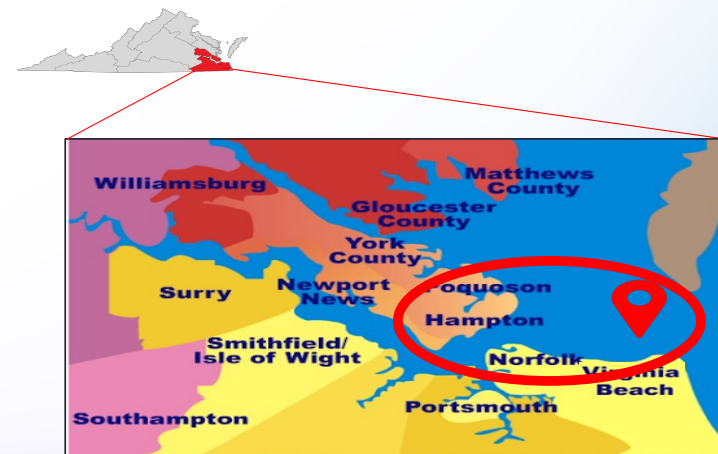
Using AI to alert citizens

Coastal communities are impacted by changing weather patterns, flooding from storm surges, rain, wind, and rising tides

Stormsense uses **cloud, IoT and AI to** streamline and combines **data from multiple agencies** to **proactively** address impending flooding issues.

Uses autonomous water level sensors and **Alexa** to provide water levels in real-time to the community.

Virginia Beach
StormSense

Text generation

storm sense
★★★★★ ˅ 2
Free Download
Available instantly on your connected Alexa device.
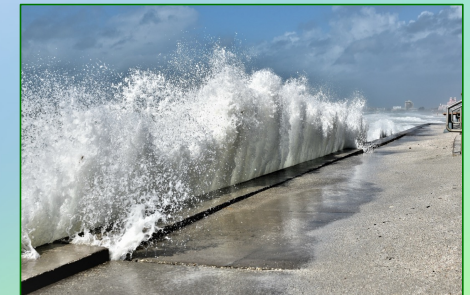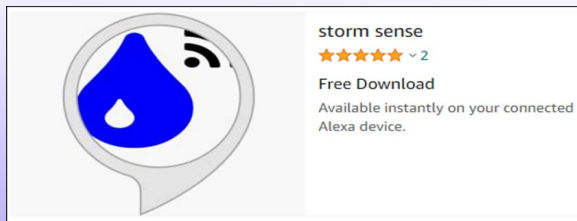
Cloud Enables Predictable Infrastructure Utilization

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

Public Sector on AWS

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

AWS Training and Certification
Build skills and validate expertise

AWS Support
People, technology, and programs to optimize and secure your environment

AWS Managed Services
Operate your AWS infrastructure on your behalf

AWS IQ
On-demand help from AWS Certified third-party experts

AWS Professional Services
Accelerate your business outcomes

Professional Services in AWS Marketplace
Services to configure, deploy, and manage third-party software

AWS Partners
A global network with deep AWS expertise

Additional resources

QR Code

Title (Linked)
Brief description

QR Code

Title (Linked)
Brief description

QR Code

Title (Linked)
Brief description

Thank you!

Please complete the survey for this session
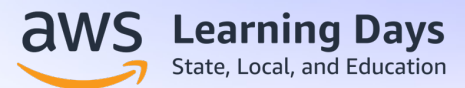
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Job title
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Track Name
Session Name

aws **Learning Days**
State, Local, and Education