

AWS State, Local, and Education Learning Days

Phoenix, Arizona



Practical AI for Public Sector

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AI/Machine learning (ML) is at an inflection point

Key drivers: Compute capacity increase | Data growth | Model sophistication

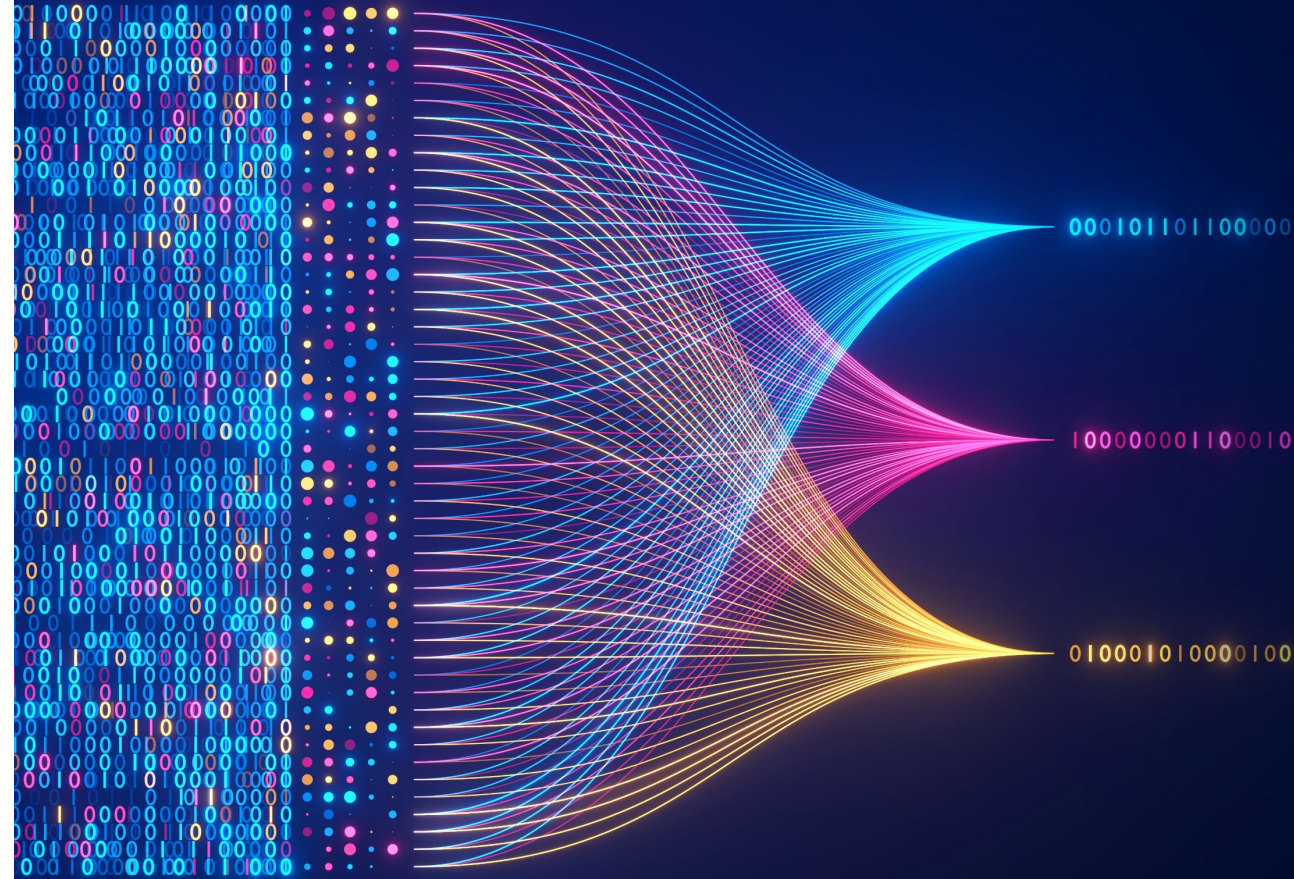
Generative AI is powered by foundation models

Pretrained on vast amounts of unstructured data

Contain large number of parameters that make them capable of learning complex concepts

Can be applied in a wide range of contexts

Customize FMs using your data for domain specific tasks





Generative AI Application



Generative AI
Application

Data Foundation

STORAGE

**GOVERNANCE
& COMPLIANCE**

**DATABASES,
ANALYTICS,
& DATA LAKES**

**DATA
INTEGRATION**

What could go wrong?



Inaccuracies

Answers that are factually incorrect, irrelevant, or nonsensical, because of limitations in their training data and architecture

“The world record for crossing the English channel on foot is 15 hours”



Bias

Answers that display discriminatory behaviour resulting in prejudiced or unequal treatment of a particular group or groups

“Generate a picture of a person cleaning” returns overwhelmingly women



Copyright and IP

The rights of content creators from whom training data is collected remains uncertain and is currently being challenged

Artists suing creators of foundation models alleging the improper use of its photos

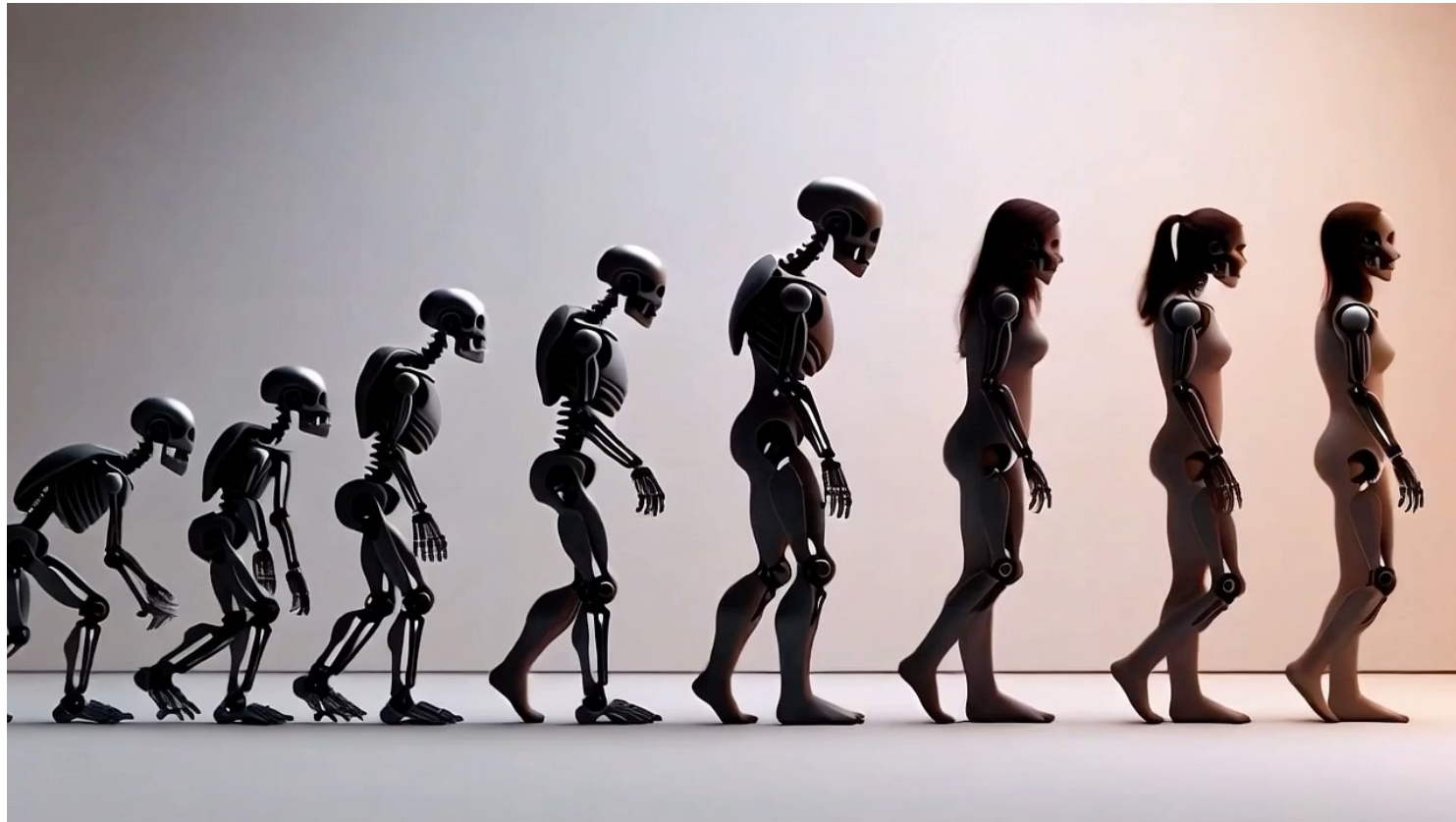


Security and privacy

Some model providers use and store data for training purposes. Entire end-to-end data pipelines require security and data privacy controls.

Engineers accidentally releasing source code by putting into a foundation model for debugging

The evolution of Enterprise Generative AI



Generated with Amazon Reel model

Your data is the **differentiator**



Generic
generative AI



Generative AI that
knows your business
and your customers

STEP 1 – Your unstructured information



Documents
Web Content



Generative AI that
knows your business
and your customers

Images generated with Amazon Canvas

Engage citizens and drive improvements in customer satisfaction

- Improve contact center agent effectiveness with real-time translation and decision support using Amazon Connect and Contact Center Intelligence
- Analyze call and text interactions with citizens to spot issues and trends and drive improvement
- Improve self service



The graphic features a central illustration of a laptop with a magnifying glass over the screen, which displays a blue square icon with a white circle inside. To the right of the laptop are three wavy lines. Below this illustration is a blue rectangular box containing the text 'AWS CCI Solutions' in white. Underneath the box is the text 'Add AI/ML to existing contact centers' in a smaller, italicized font. To the right of the central illustration are three vertically stacked icons: a chatbot with a smiley face, a person at a computer with a speech bubble, and a bar chart with a line graph.

AWS CCI Solutions

Add AI/ML to existing contact centers

Using AI to improve agent 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



Transcript Processing: Illinois Tech

60,000 pages of international academic transcripts required review annually.
Automating transcript processing for faster student record updates

Converting international grades to US equivalents

Enhancing the user interface to visualize extracted information

Integrating insights with the university's CRM system for quicker academic data handling and reduced manual labor

Providing multilingual support for international students



King County Assessor's Office



CHALLENGE

Reduce data entry, eliminate data errors, and improve data time lines.

SOLUTION

Intelligent documents processing for documents and electronic files, streamlining and unlock data and information from paper documents and electronic files

RESULT

King County employees will focus on higher value, more satisfying work, and ultimately help the county realize its vision for connected communities, connected data, and connected government."



This Photo by Unknown Author is licensed under CC BY

STEP 2 – You structured information Democratizing Data Access.



Data Bases

CRM

ERP

Legacy Systems



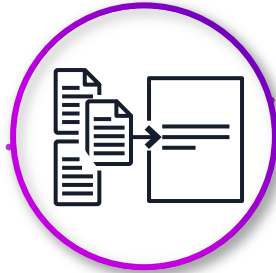
Generative AI that
knows your business
and your customers

Images generated with Amazon Canvas

Discover



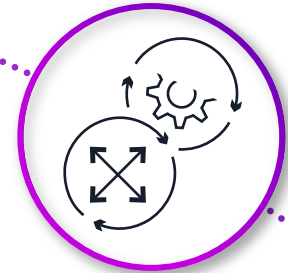
Analyze



Take action



Automate

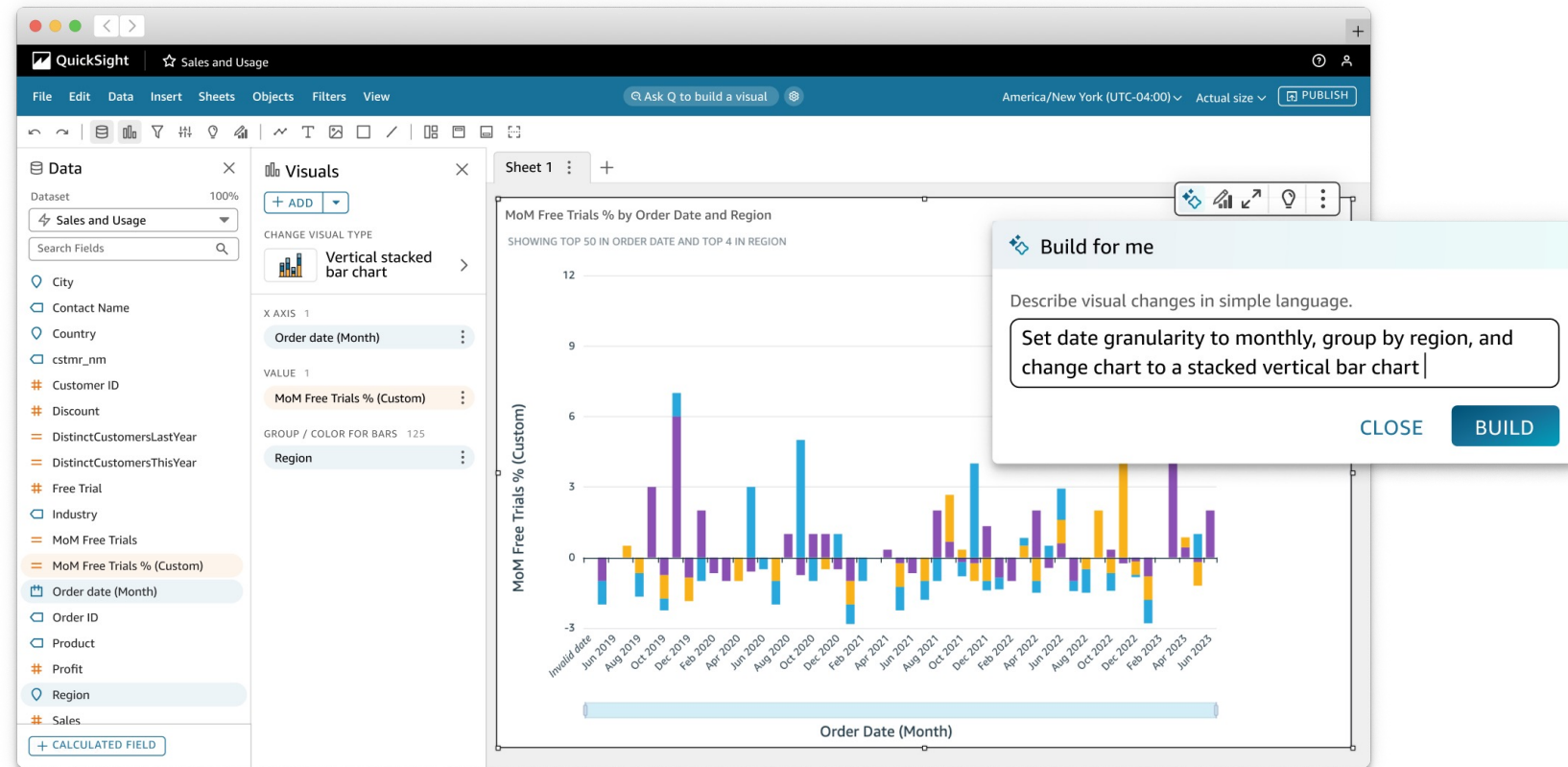


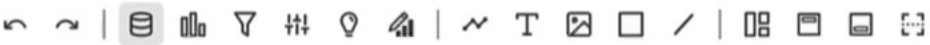
Amazon Q Business

The most capable generative AI-powered assistant for finding information, gaining insight, and taking action at work

Visual authoring in QuickSight

Use everyday language to generate and fine-tune visuals in seconds





- Data [close icon]
- Dataset: SaaS-Sales_2023 (100%)
- Search Fields [search icon]
- City
- Contact Name
- Country
- cstmr_nm
- # Customer ID
- # Discount
- = DistinctCustomersLastYear
- = DistinctCustomersThisYear
- # Free Trial
- Industry
- = MoM Free Trials
- = MoM Free Trials %
- 📅 Order date
- Order ID
- Product
- # Profit
- 📍 Region
- # Sales

Sheet 1 [plus icon]

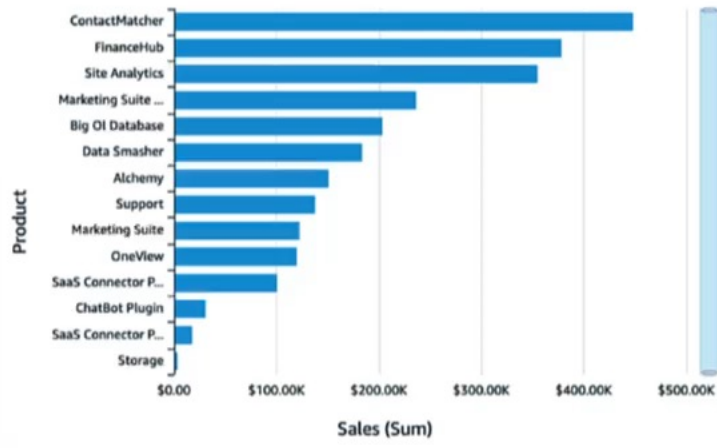
Sales

YTD sales	Sales last quarter	Month-over-month sales
\$189,948	\$81,908	Sales for Jun 2023 increased by 97.41% (\$22,188.88) from \$22,779.48 to \$44,968.36.

Quarterly sales trend



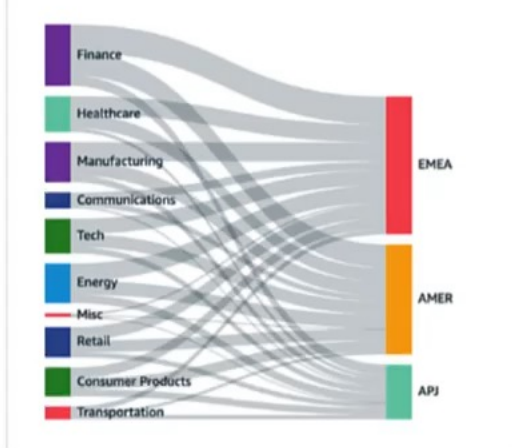
Sales by product



Sales by city



Product sales by industry



Usage

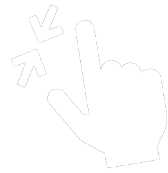
Usage	Active customers	Trial sign-ups	Month-over-month usage	Product usage by industry
MTD usage sessions	MTD	MTD	Total Usage Sessions for Jun 2023	

+ CALCULATED FIELD

Amazon Quick Suite



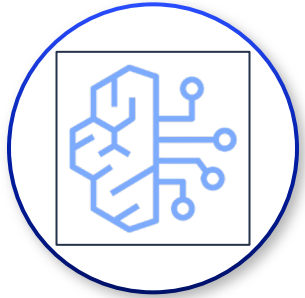
Get the right
answers, quickly,
using all your data



Go from answers
to action



Your company
will love it



Amazon Bedrock

The easiest way to build and scale generative AI applications with foundation models

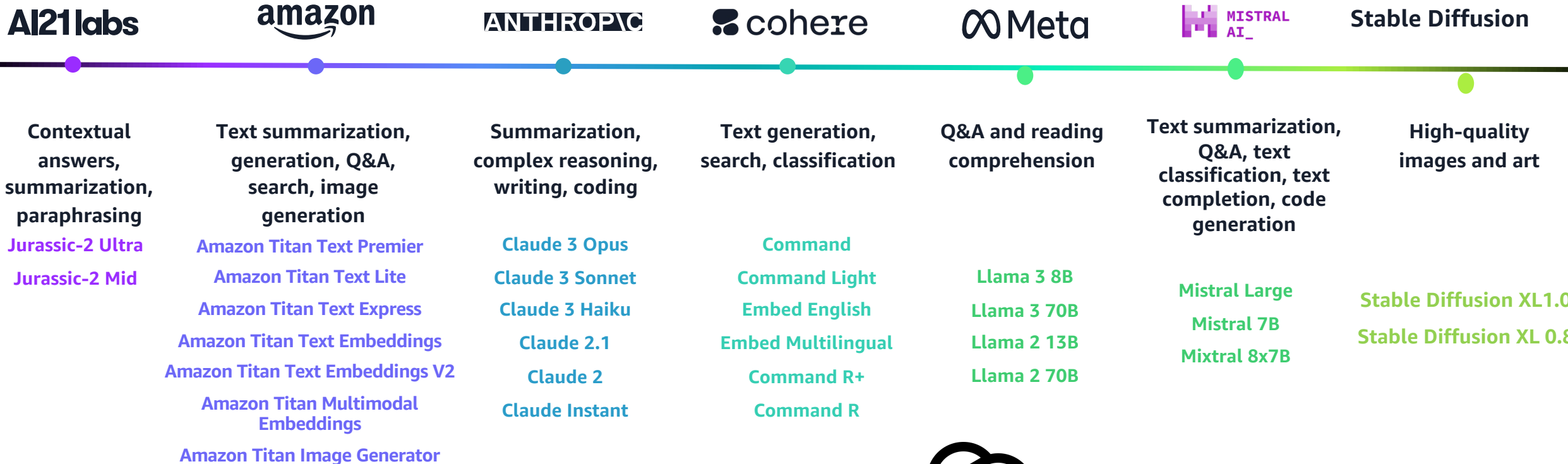
Choice of industry-leading FMs available via a single API

Customize your models using your organization's data

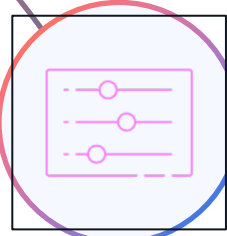
Enterprise-grade security and privacy

Amazon Bedrock

stability.ai



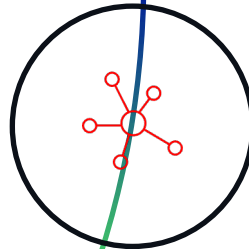
Guardrails for Amazon Bedrock



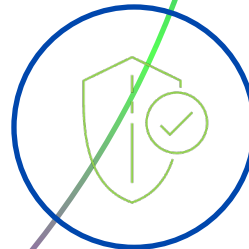
Apply guardrails to multiple foundation models and Agents for Amazon Bedrock



Configure harmful content filtering based on your responsible AI policies



Define and disallow denied topics with short natural language descriptions



Redact sensitive PII information in FM responses

AWS Generative AI Stack

APPLICATIONS TO BOOST PRODUCTIVITY



Amazon Q Business
Amazon Q in QuickSight
INSIGHTS AND AUTOMATION



Amazon Q Developer
SOFTWARE DEVELOPMENT LIFECYCLE

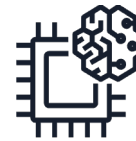
MODELS AND TOOLS TO BUILD GENERATIVE AI APPS



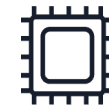
Amazon Bedrock
AMAZON MODELS | PARTNER MODELS

INFRASTRUCTURE TO BUILD AND TRAIN AI MODELS

Amazon SageMaker
MANAGED INFRASTRUCTURE



AWS Trainium
AWS Inferentia



GPUs

HIGH PERFORMANCE COMPUTE

STEP 3 – Your Business Processes



CRM, ERP, Legacy, Other Agencies or school processes



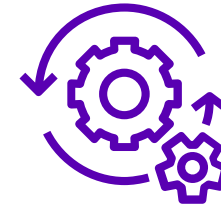
Generative AI that knows your business and your customers

Images generated with Amazon Canvas

Gen AI Agent?



Intelligent,
autonomous
systems



Plan, reason,
and act

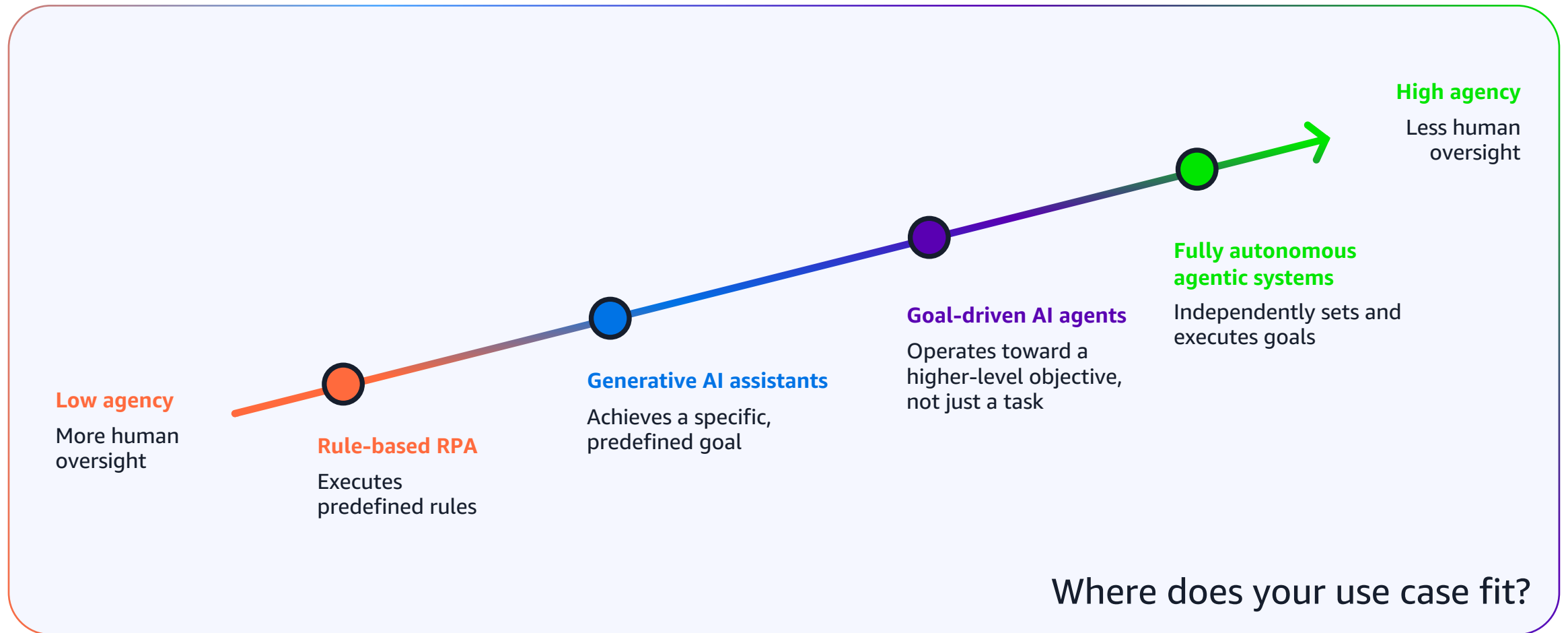


Access to
enterprise data

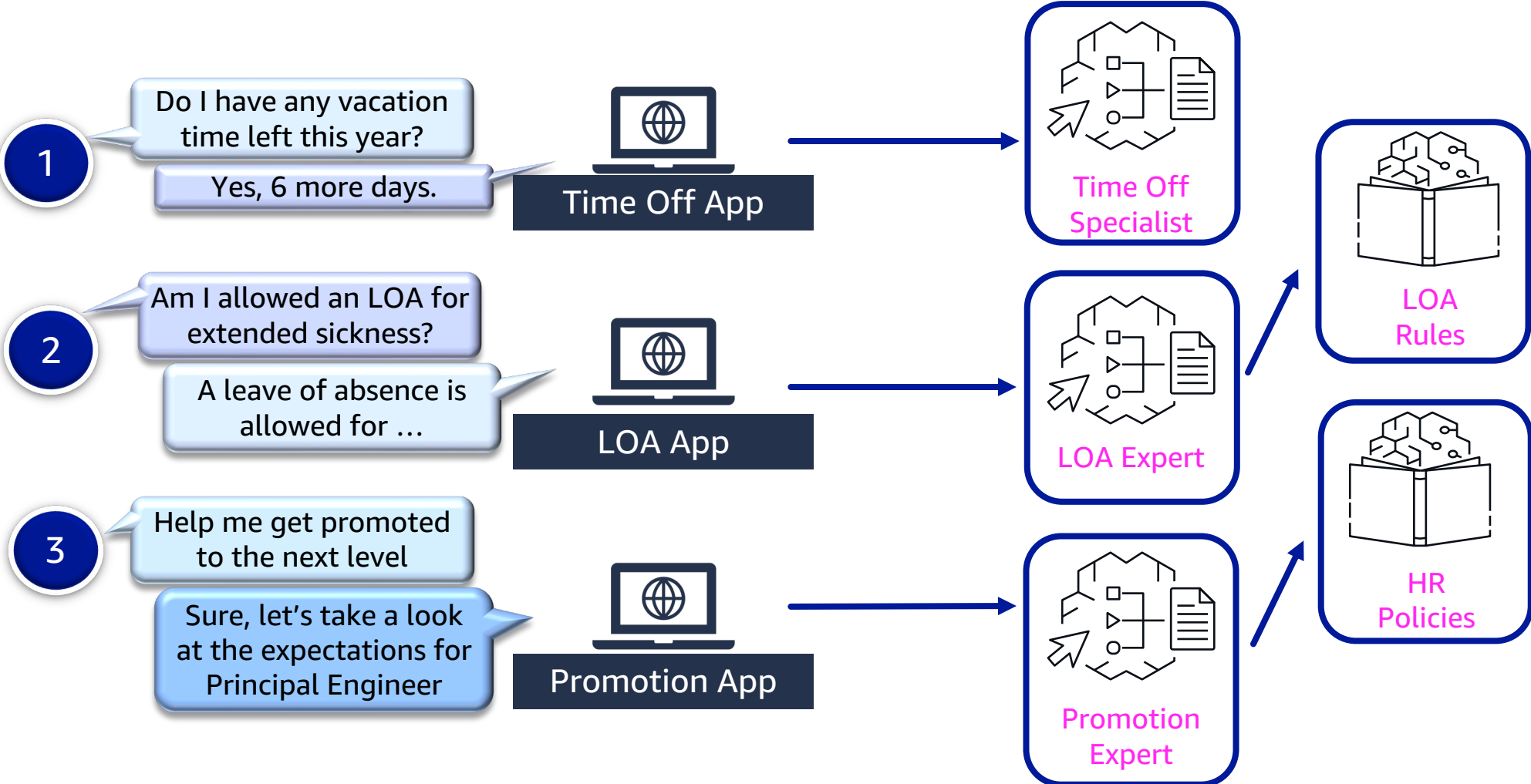


Ability to use
tools

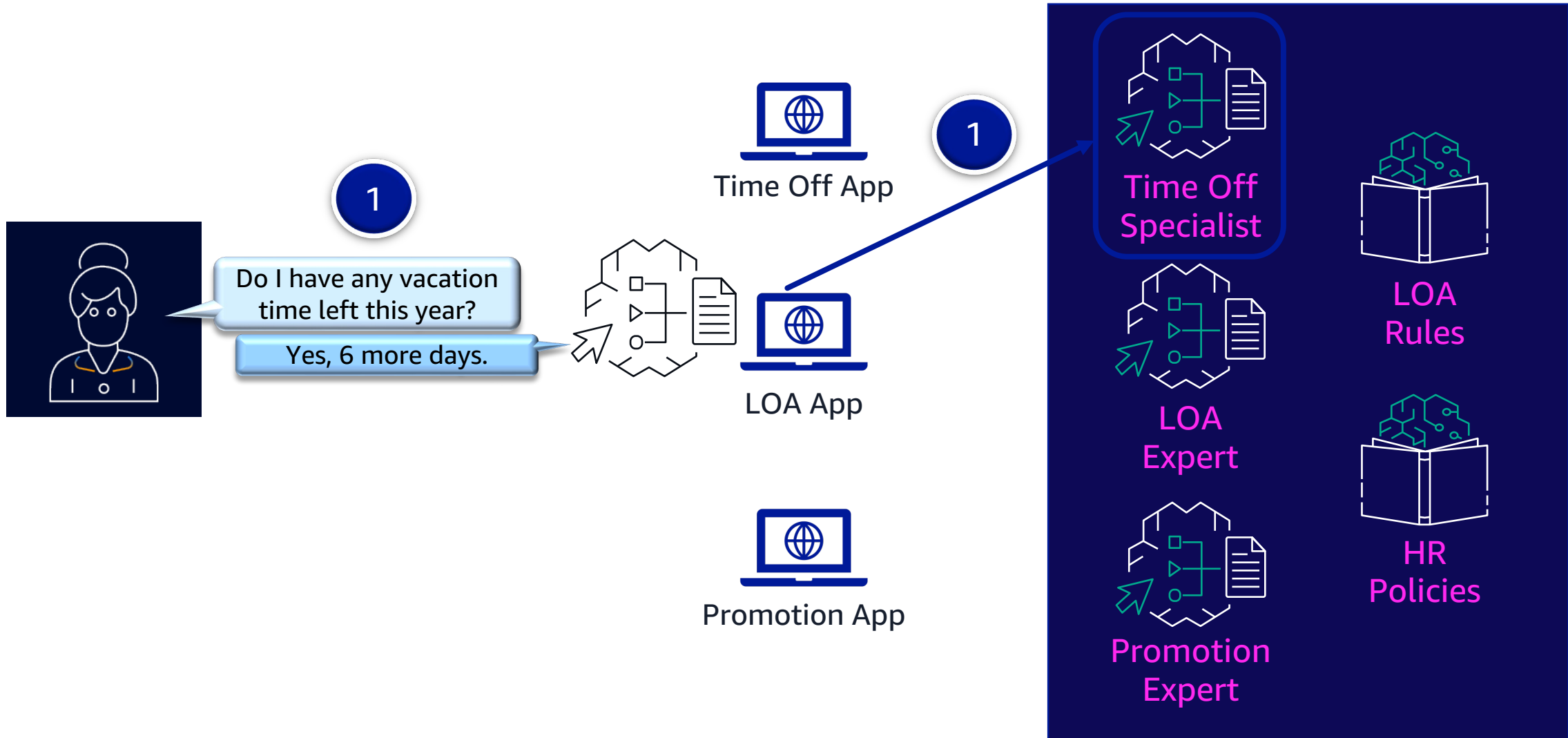
Agentic AI maturity scale – from rules to reasoning



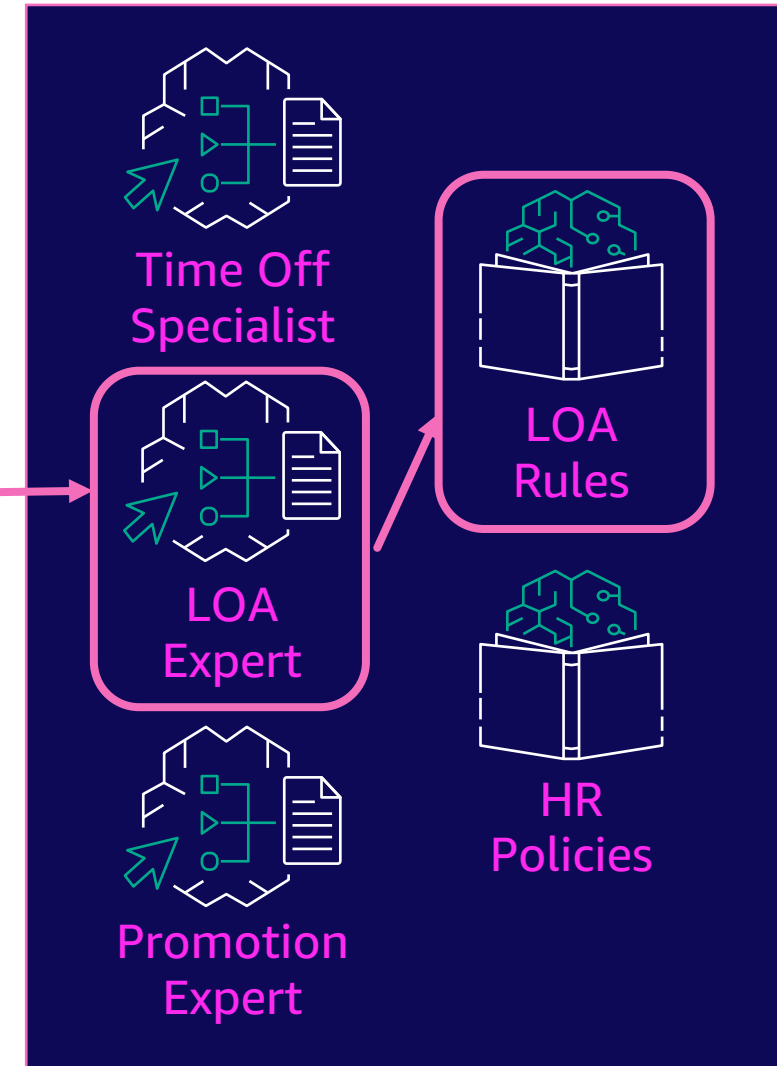
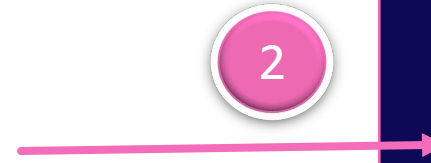
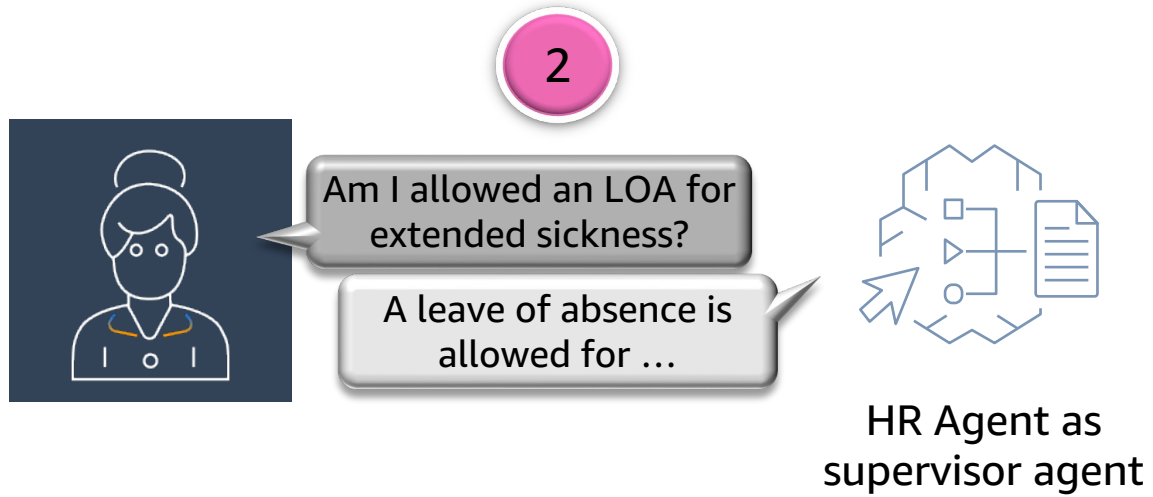
Using multiple agents helps . . .



1. Unify customer experience



1. Unify customer experience



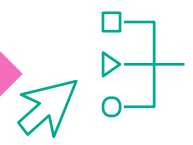
1. Unify constituent experience



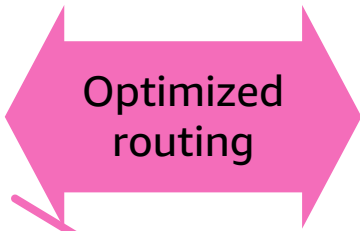
Supervisor provides one-stop shop for customers, with optimized routing and seamless conversation handling



Help me get promoted
One-stop shop
Sure, let's take a look at the expectations for Principal Engineer



HR Agent as supervisor agent



AI Assisted Financial Aid: Highline College

- Quicker and more transparent way for students to access their information—anywhere and anytime.
- Drastically reduced the manual burden on the financial aid department,
- lowered the number of emails, calls, and visits about an applicant's status by 75%





Innovating for public sector

No-cost, no-contract rapid POC + open-source solution development

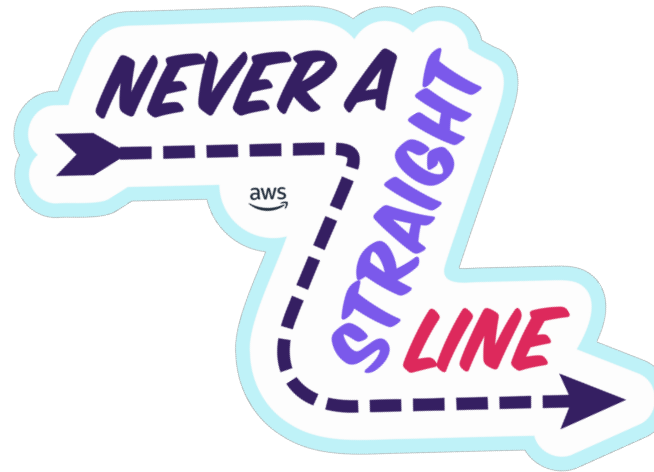
Colleen Schwab

Global Innovation Strategist, Head of AI
Cloud Innovation Center

AWS

cmschwab@amazon.com

Organizing for innovation



Cloud Innovation Centers (CICs)



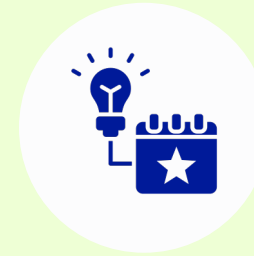
Leading innovation
processes



Cloud
expertise




Prototype
development



Innovation
events

ASU Artificial Intelligence
Cloud Innovation Center
Arizona State University

powered by 




CAL POLY
Digital Transformation Hub

powered
by 



University of
Pittsburgh

Health Sciences and
Sport Analytics

Cloud Innovation Center
powered by 

Student workers

- Undergraduate and graduate students
- Paid hourly
- Work with CIC for 1+ year
- **Roles**
 - Cloud developer
 - UI/UX
 - Marketing



Sample of CIC customers



Oregon State University



Alameda County



BreastCancer.org



Brightpoint



City of San Diego



City of Chandler Police Department



CalFire



Orthodox Union



Disability Rights Texas



City of San Luis Obispo



Colorado State University



Phoenix Children's Hospital



St. Louis Zoo



University of Pittsburgh



The Ohio State University



WorldBank



U.S. Department of Agriculture (USDA)



Wisconsin State Laboratory of Hygiene



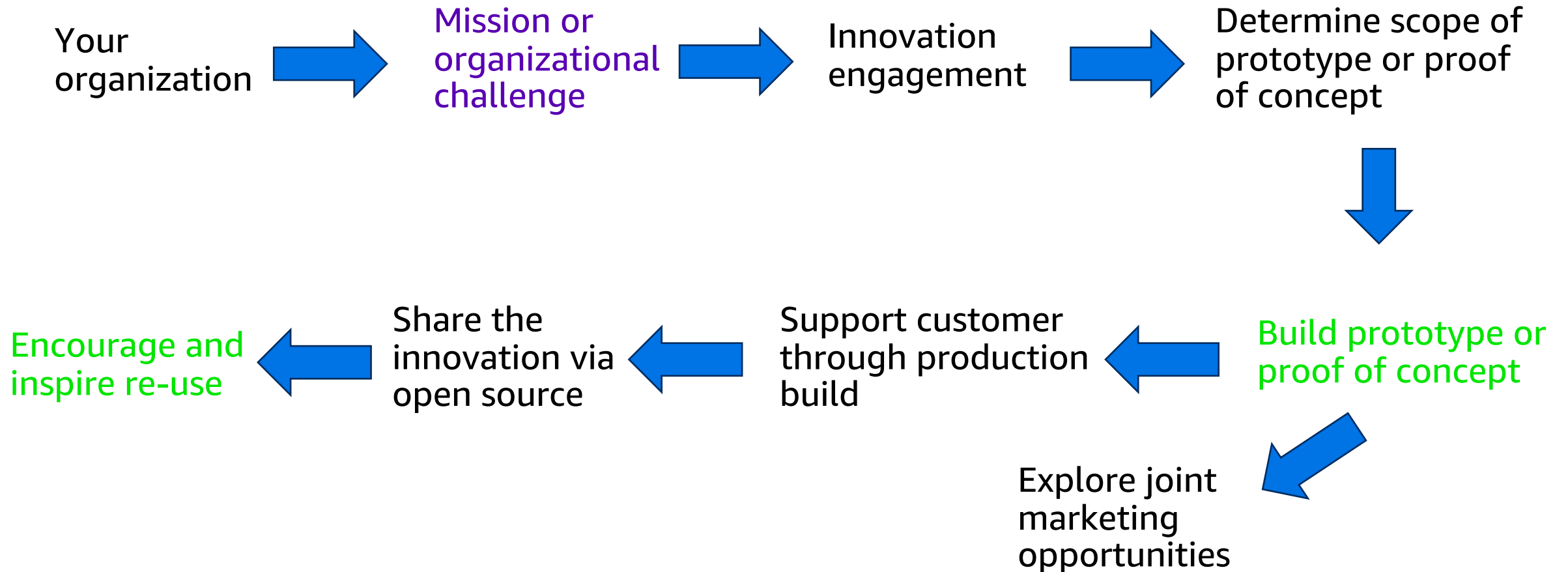
Catholic Charities



Virginia Department of General Services
Division of Consolidated Laboratory Services



Developing prototypes in 6-10 weeks



PDF Remediation: The Ohio State University

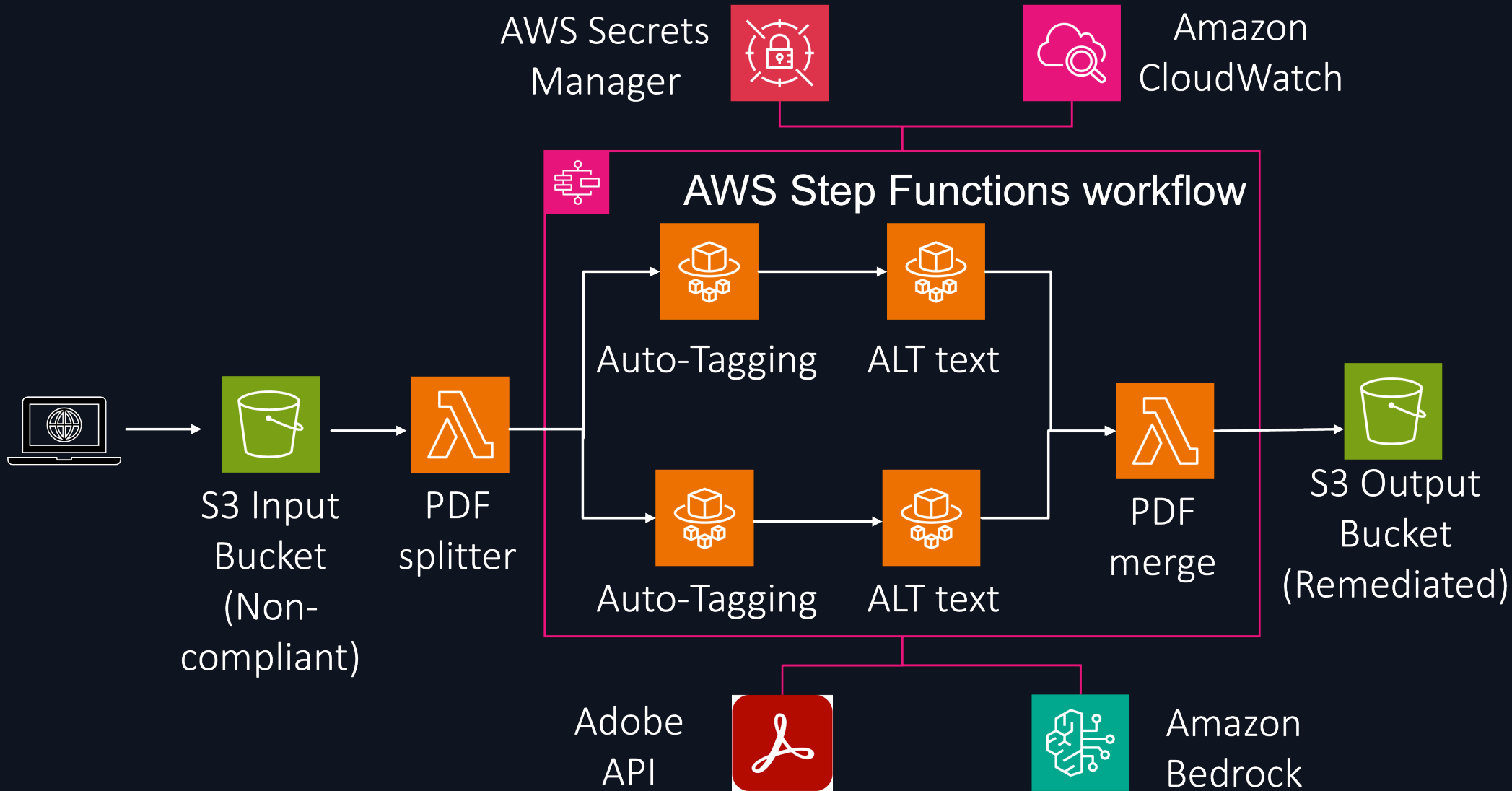
Problem statement: Many public sector organizations have document collections containing hundreds of thousands of PDF documents, many of which do not meet the Web Content Accessibility Guidelines (WCAG) 2.1 Level AA standards, making it difficult or impossible for individuals relying on assistive technologies to access those documents.

Solution

Our team combined AWS services + Adobe Auto Tag API to create a comprehensive solution to remediate PDF documents.

Other applications

AWS also has an open-source PDF-to-HTML solution.



Assessor Assistant: State of CA

Problem statement: Understanding property tax regulations in California is complicated and confusing for most homeowners. This conversational AI assistant uses natural language processing and semantic search to provide accurate, cited answers from sources like the California Assessor's Handbook, Tax Codes, and Letters to Assessor documents. The chatbot also features an intelligent exemption form finder that guides citizens through tailored yes/no questions, recommending appropriate exemption forms.

Solution

This solution significantly enhances citizen interactions, reduces assessor workloads, and streamlines training, transforming regulatory navigation.

Other applications

Complex information ecosystems that are hard or nuanced for people to navigate.

Chat

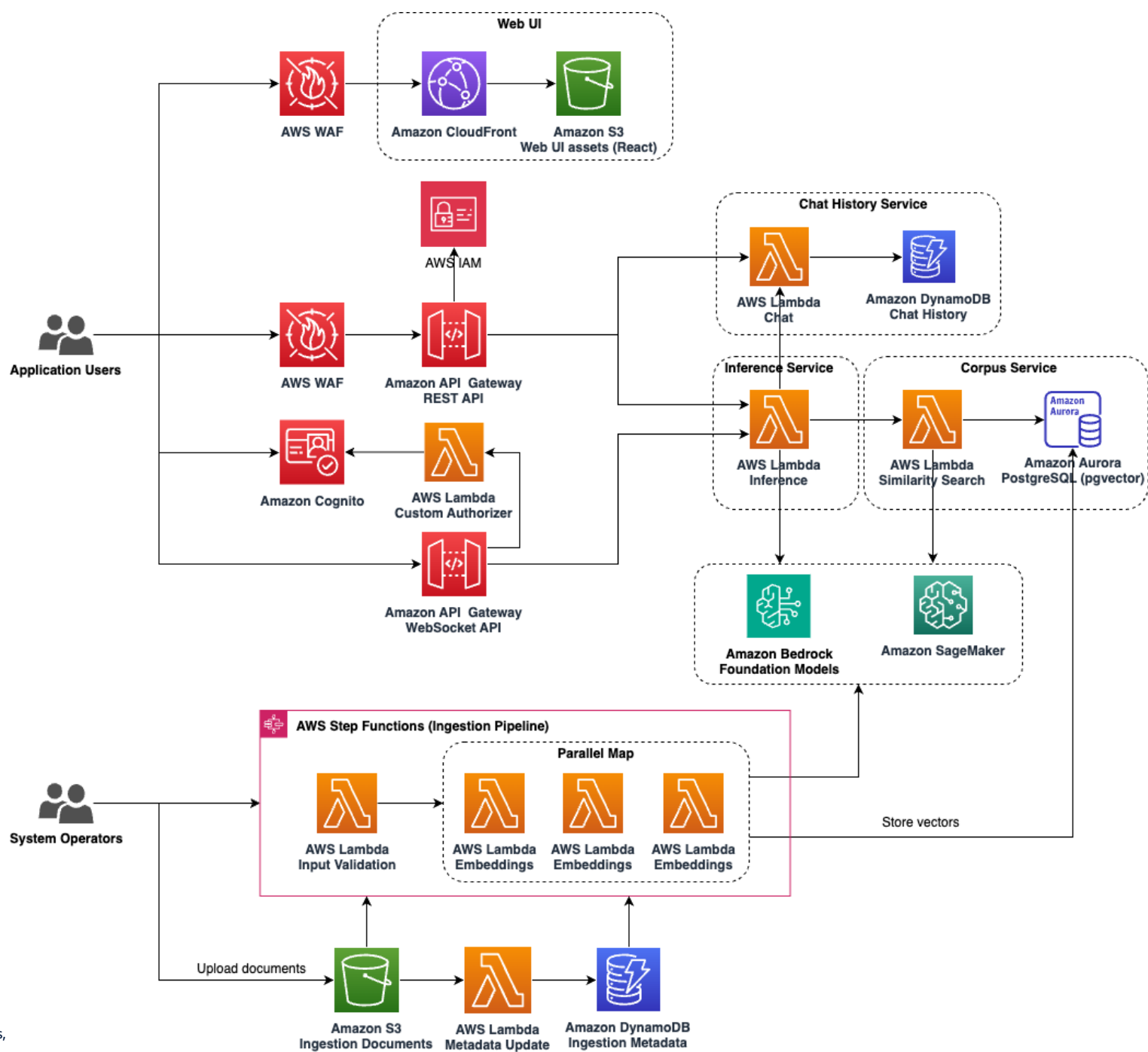
Chat [Info](#)

Content creation chats

Chats [+ Create Chat](#)

< 1 >

No chats
No chats to display.



Blueberry Bot: Oregon State University

Problem statement: Additionally, there is often a natural lag between the completion of research and the publication or communication of results. As a result, the most up-to-date insights may not always be immediately available in responses to growers. The current system also lacks a feedback loop to track common questions and integrate answers into a shared knowledge base, making it harder to streamline support and ensure consistent dissemination of new information.

Solution

Seamlessly connect people to the information they need w/ a commitment to accuracy. When the bot encounters questions beyond its current knowledge base, it seamlessly transitions to a smart email routing system, connecting growers directly with Dr. Yang for personalized expertise.

Other applications

Knowledge capture of a long-time employee; healthcare professionals accessing the latest medical protocols, legal teams querying vast case law databases, or engineers referencing technical specifications. Anywhere that disparate bodies of information exist that need to be tapped to answer questions



About us

Powered by AI-driven insights, Blueberry Bot provides real-time guidance on best farming practices, pest control, and sustainable harvesting techniques.

FAQs

What is meant by Maximum Residue Limit?

Tell me about Postharvest Handling

Give me the best practice for pest management.

What is the best way to grow blueberries in Central Oregon?

Blueberry AI Assistant



Welcome user! In order to provide the most accurate responses, can you please tell me where you are growing blueberries?

Oregon



Thank you for sharing that information! How can I help you today?

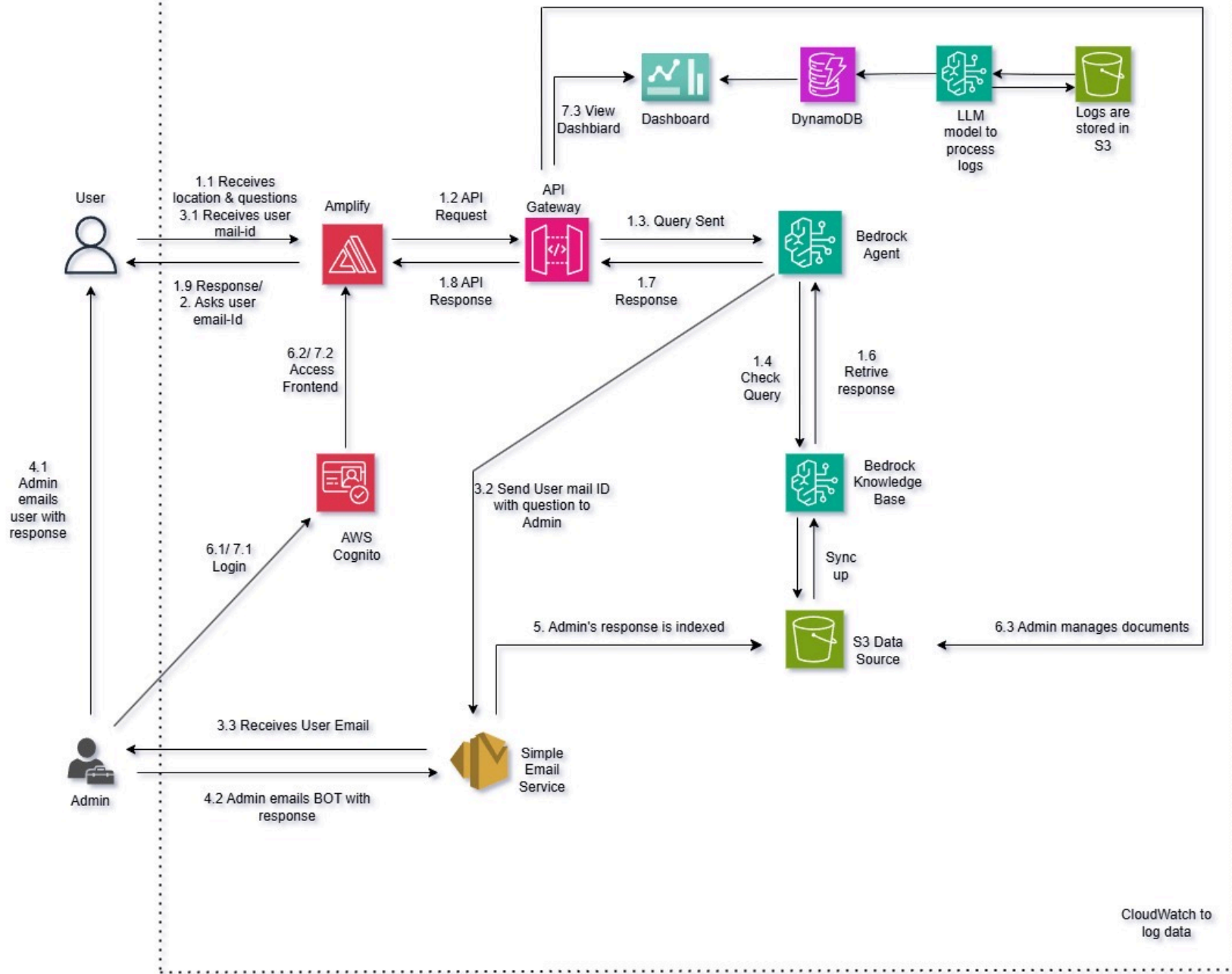
What is the blueberry shock virus?



The blueberry shock virus (BIShV) is a viral disease that affects highbush blueberry plants. It was first identified in 2004 in a single 'Bluetta' plant. The virus causes shock symptoms such as the death of flowers and foliage. Plants may recover from the virus in subsequent years and produce a normal fruit load, even though they remain infected. The virus spreads gradually through susceptible plants, as depicted in an animation showing its nine-year spread through a half-acre of blueberry plants.

Type a Query...







Thank you!

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**Please complete the survey
for this session**



Generative AI/ML and AI governance
for the public sector