

 Atlas of Living
Australia
ala.org.au

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The ALA is the AU node of GBIF, and receives support from the Australian Government through the National Collaborative Research Infrastructure Strategy (NCRIS) and is hosted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).



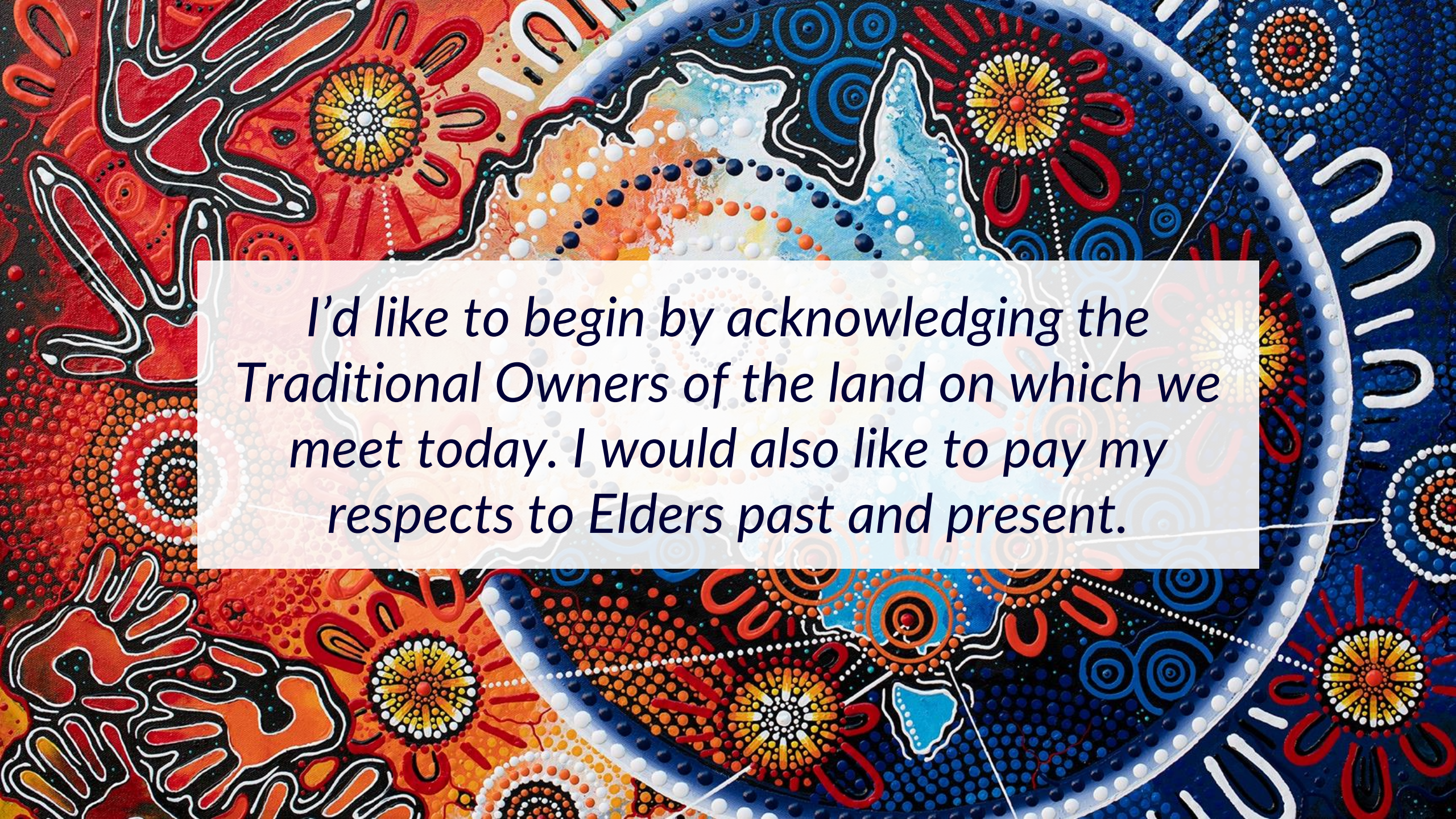
Great Egret (*Ardea alba*)
Photo Credit Leo NatureMapr CC BY NC



Thorny Devil (*Moloch horridus*)
Photo Credit John Sullivan CC BY NC



Clownfish (*Amphiprion bicaculeatus*)
Photo Credit Maryanne Wirkkanen CC BY NC



I'd like to begin by acknowledging the Traditional Owners of the land on which we meet today. I would also like to pay my respects to Elders past and present.

Our Mission

Australia's national biodiversity data infrastructure

- Provide reliable and comprehensive biodiversity data
- Facilitate data use and sharing
- Support research, conservation and sustainable management of Australia's natural heritage
- Aggregate data from natural history collections, government departments, researchers, community groups and individuals all over Australia

Data Providers



Data Types

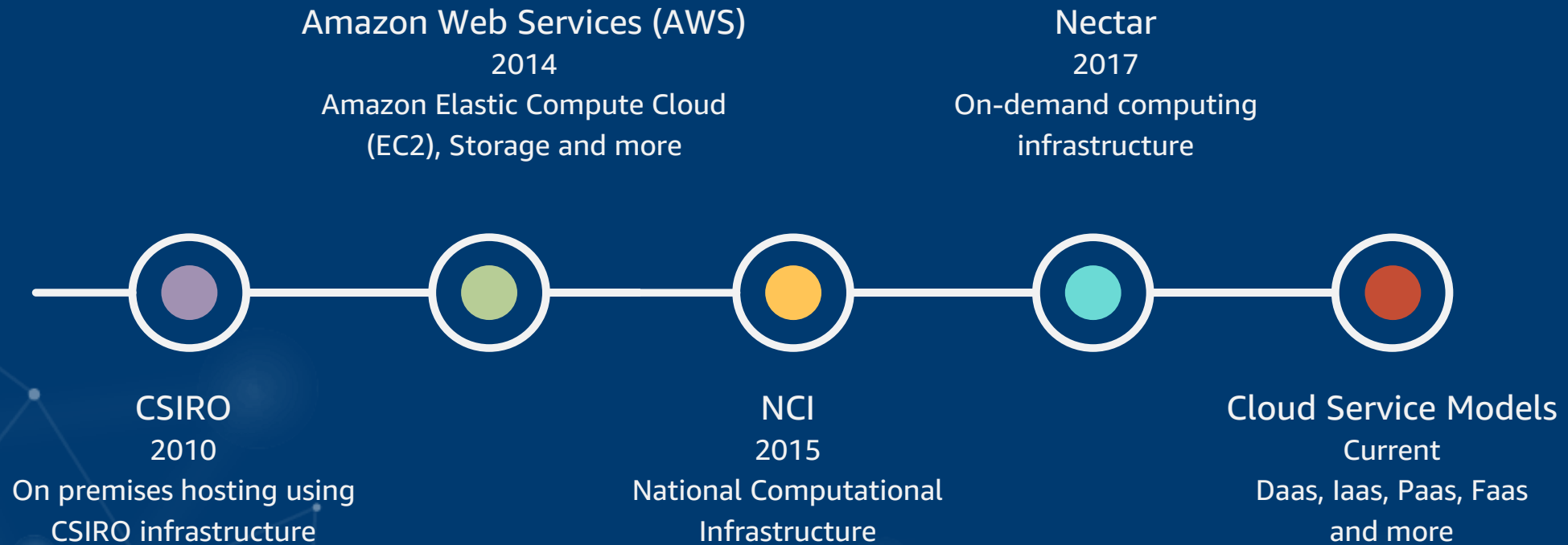


Australian Biodiversity Knowledge

- 130M species occurrence records
- 800 data providers
- 150 web services



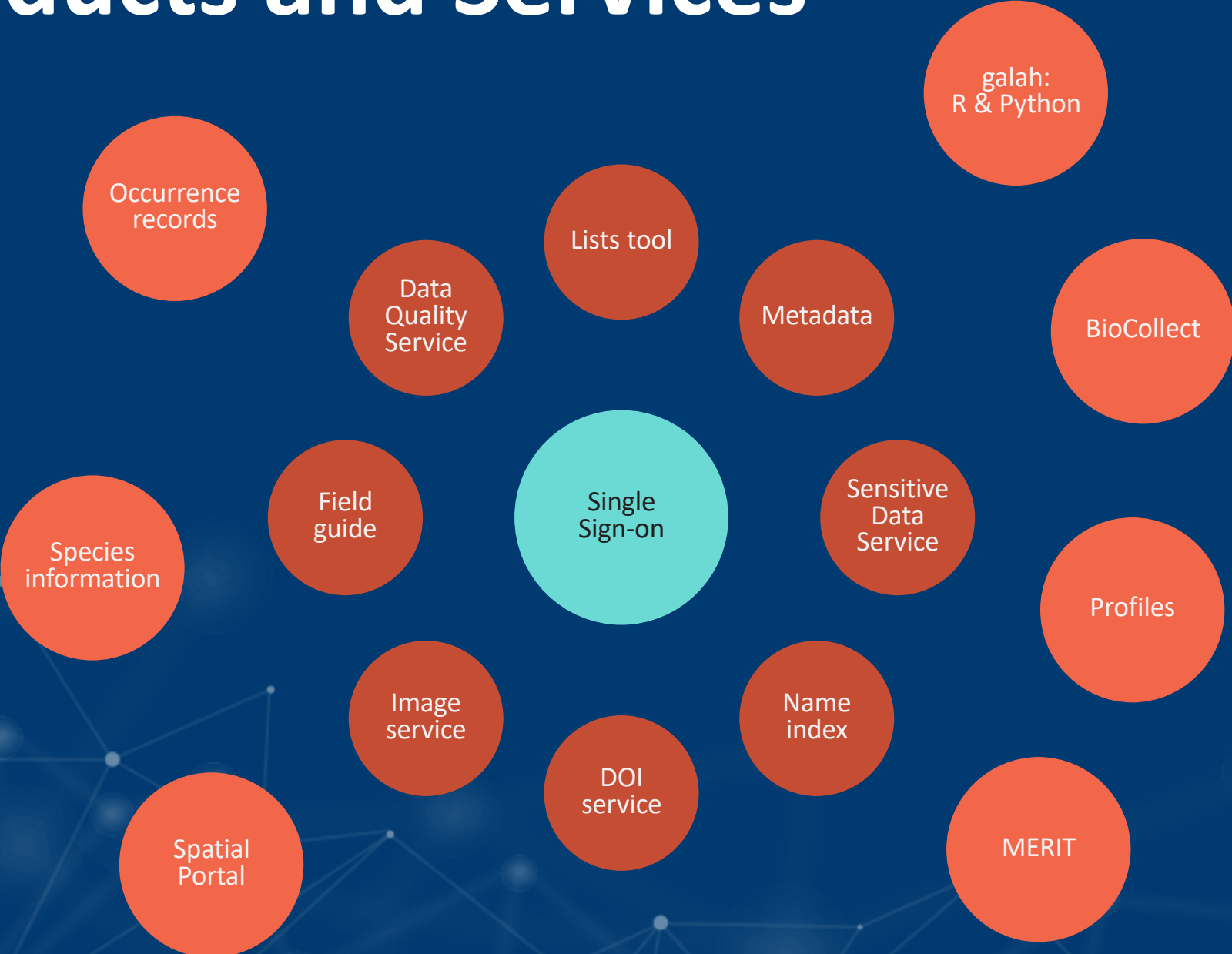
ALA's Multi Cloud Approach



Our Products and Services



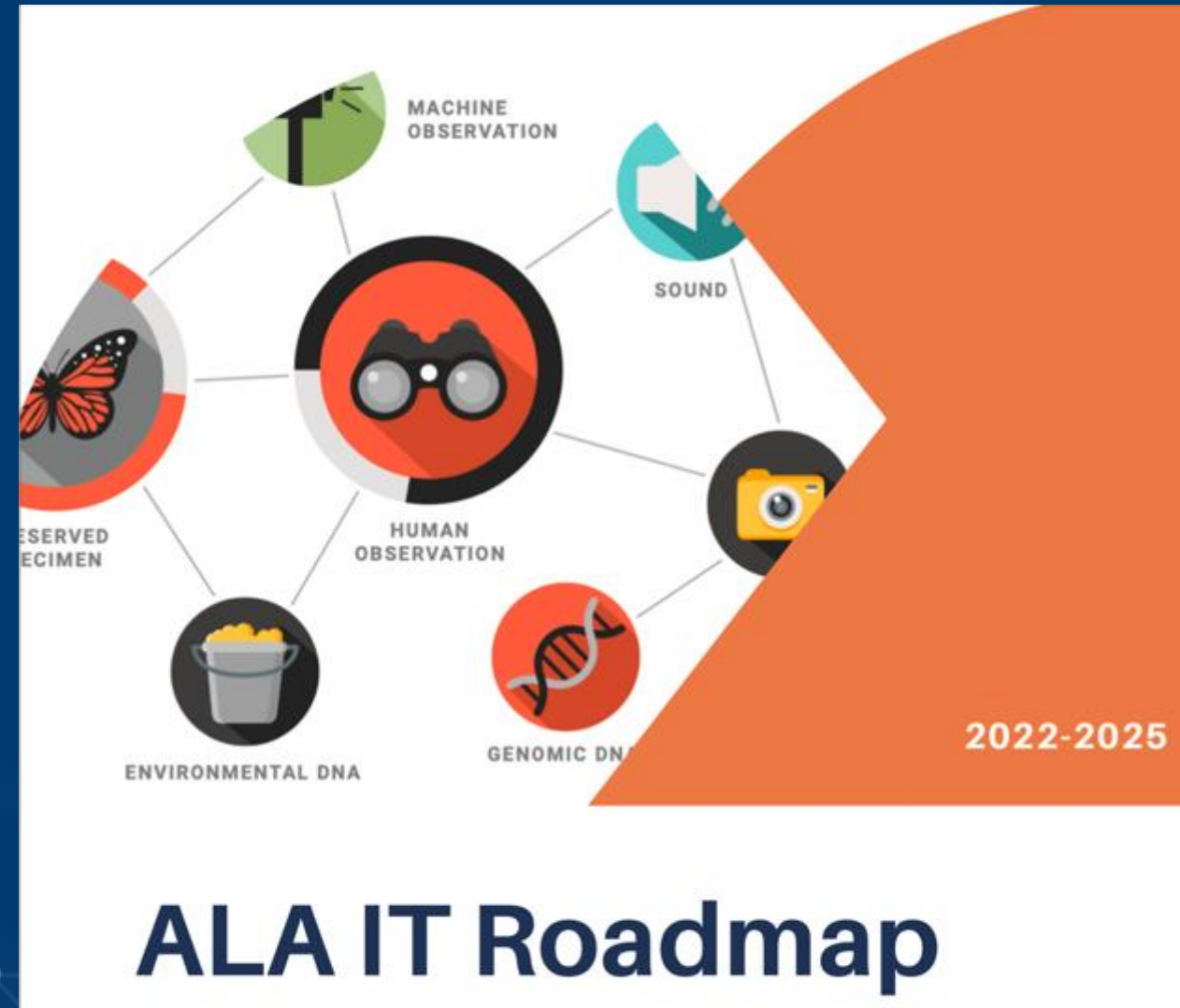
Our Products and Services



Digital Transformation Program

Goals:

- Establish a cohesive digital ecosystem by integrating biodiversity products and platforms
- Improve security access for end-users (e.g. biodiversity researchers, scientists, industry, government and citizen scientists)
- Improve efficiency and deliver costs reductions



ALA's IT Roadmap Highlights (2022-25)



SOFTWARE

- UPLIFTING AUTHENTICATION PROTOCOL WITH OPENID CONNECT
- Managed API gateway
- Cognito User Management



INFRASTRUCTURE

- Continuous Integration and Continuous Deployment (CI/CD)
- Infrastructure as Code (IaC)
- Containerisation and Orchestration



SECURITY

- Tenable - To manage and measure cybersecurity readiness
- Application security scanning - To proactively discover and address security issues
- Web Application Firewall



TRAINING

- Cloud security best practices
- IaC principles and benefits
- Orchestrating application services and scaling dynamically

Key ALA IT Roadmap Activities



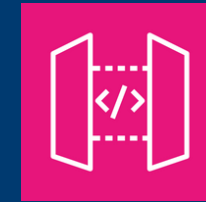
OpenID Connect
to enhance authentication and security



Amazon Cognito



Integrate a robust and scalable
user-management system



Amazon API Gateway



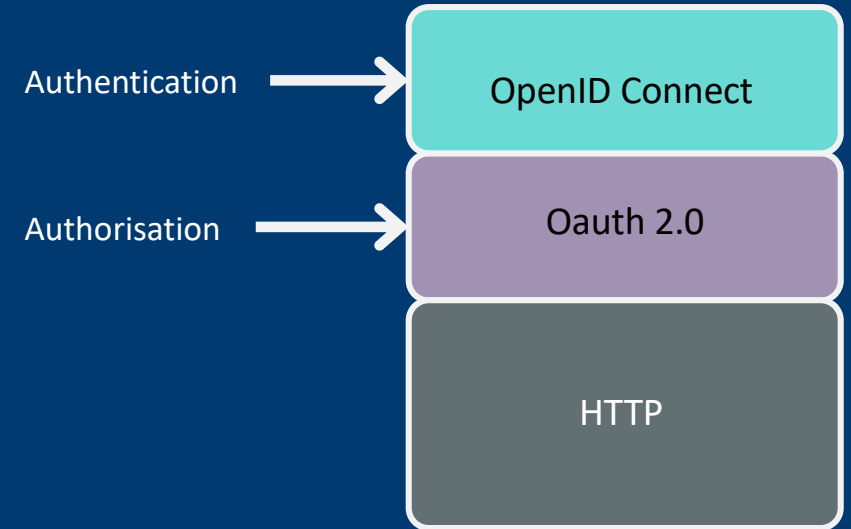
AWS Lambda



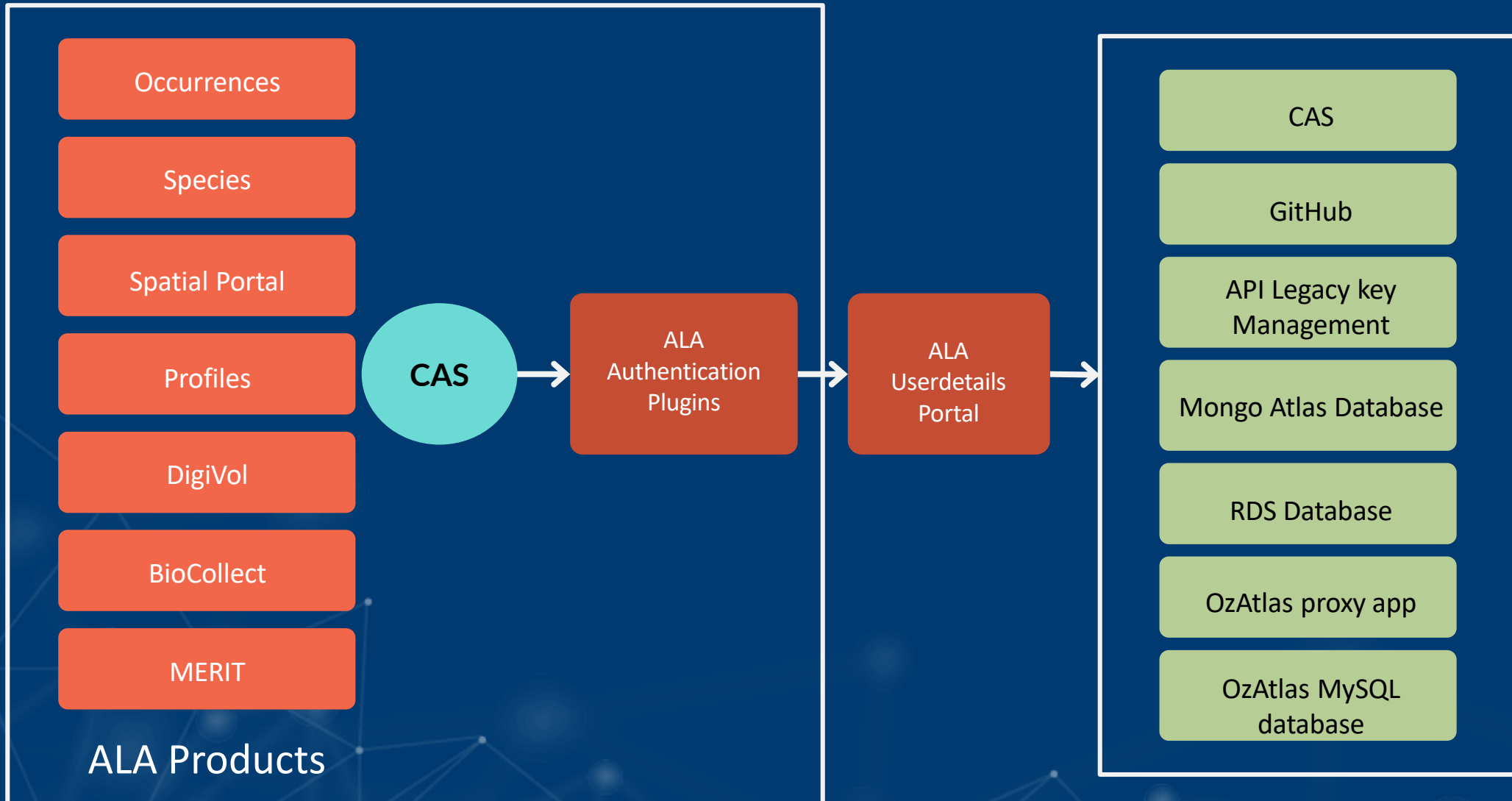
Deploy an API Gateway
to manage and secure API communications

What is OpenID Connect?

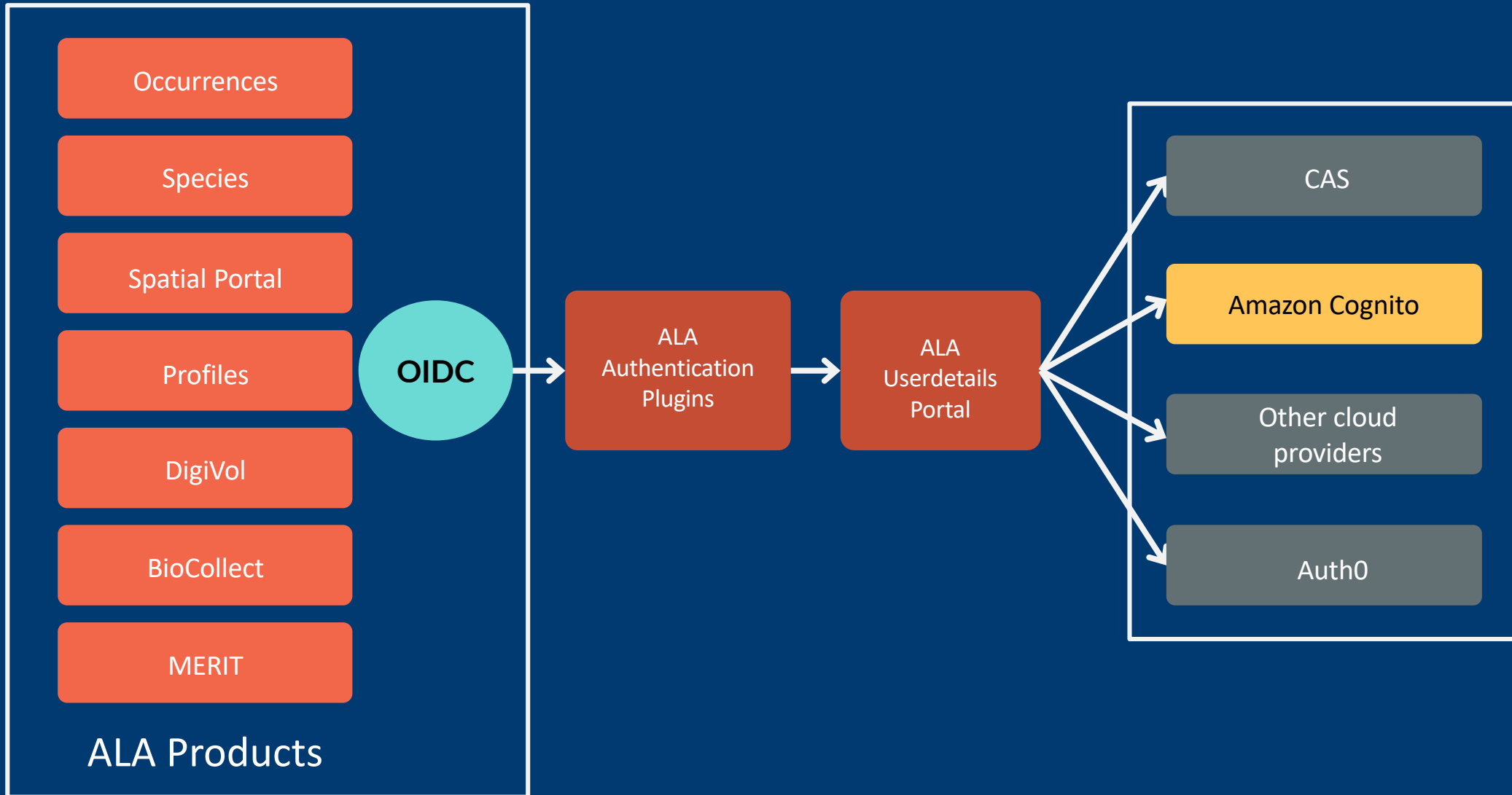
- Protocol built on OAuth 2.0
- OAuth 2.0: Authorisation via access token with scopes
- OpenID Connect: Authentication using the ID token with identity scopes and claims
- Enables Single Sign-On (SSO)
- Enhances security and user experience



CAS - User Management



OIDC Pluggable – User Management



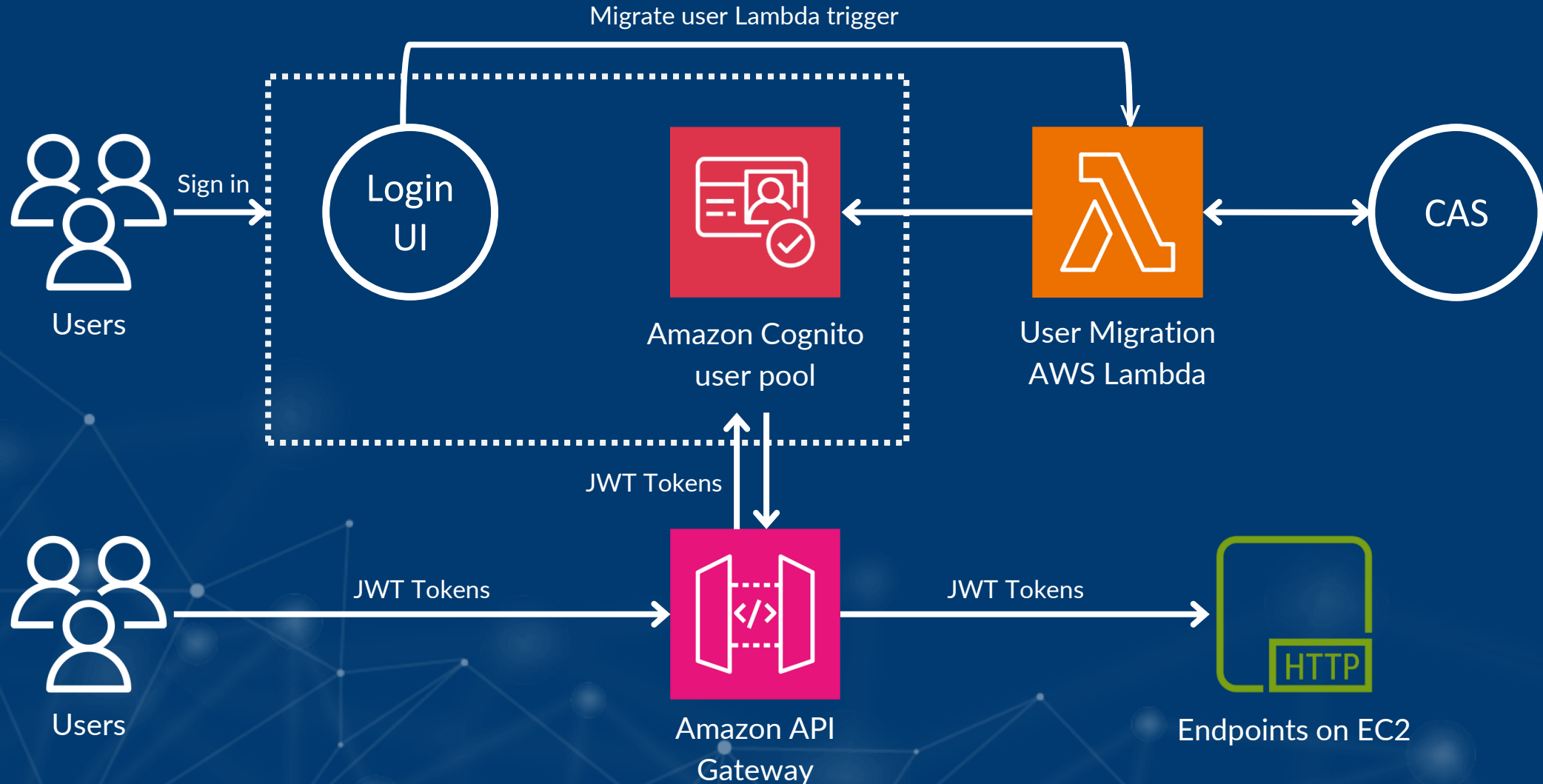
ALA user management with Amazon Cognito

Capabilities and Benefits

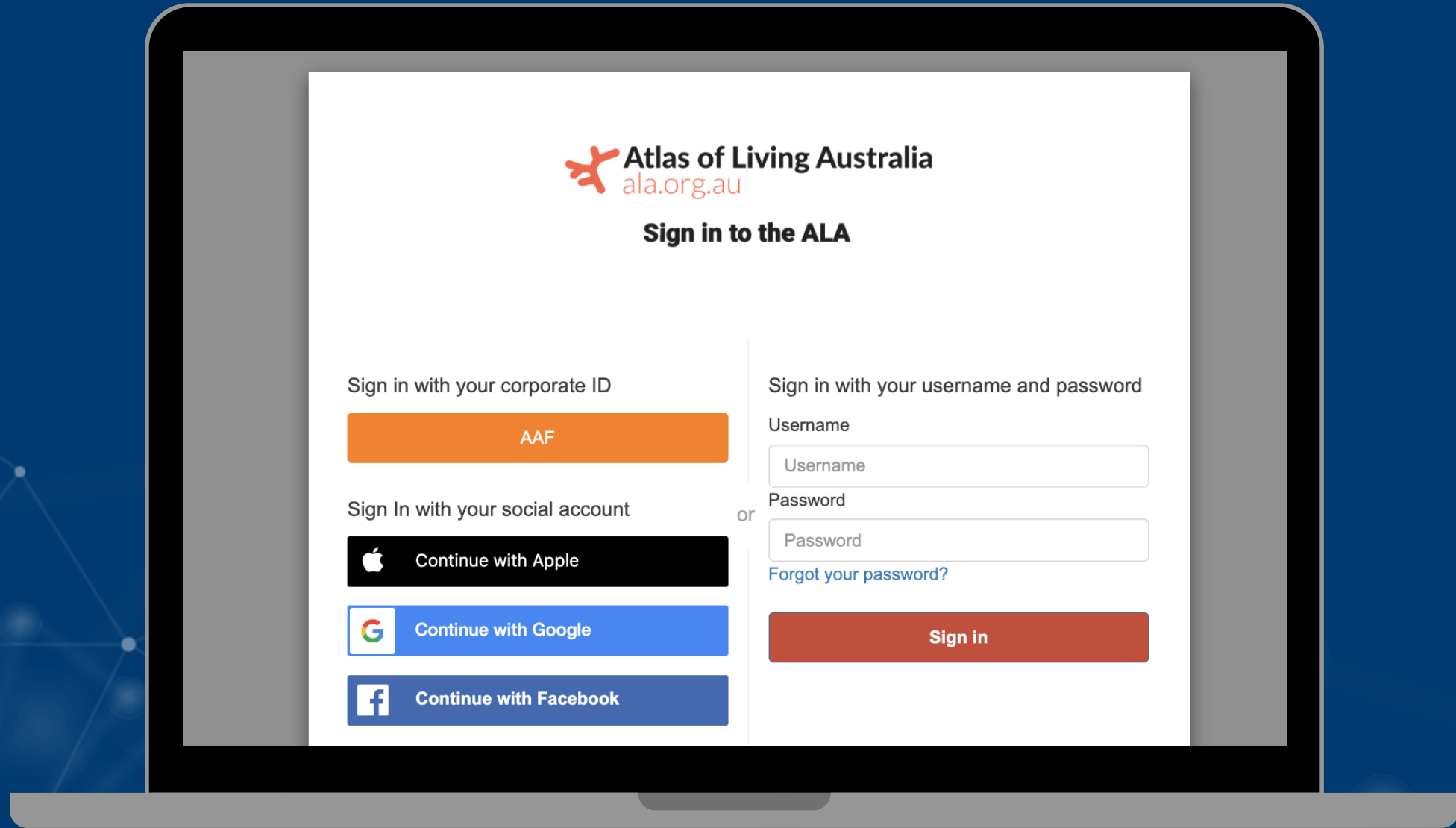
- Multi Factor Authentication (MFA) for ALA users
- Enhanced privacy with Apple account login option
- Audit Trail
- User data encryption
- Device Fingerprinting



How it works - Amazon Cognito & API Gateway



SSO experience for ALA users



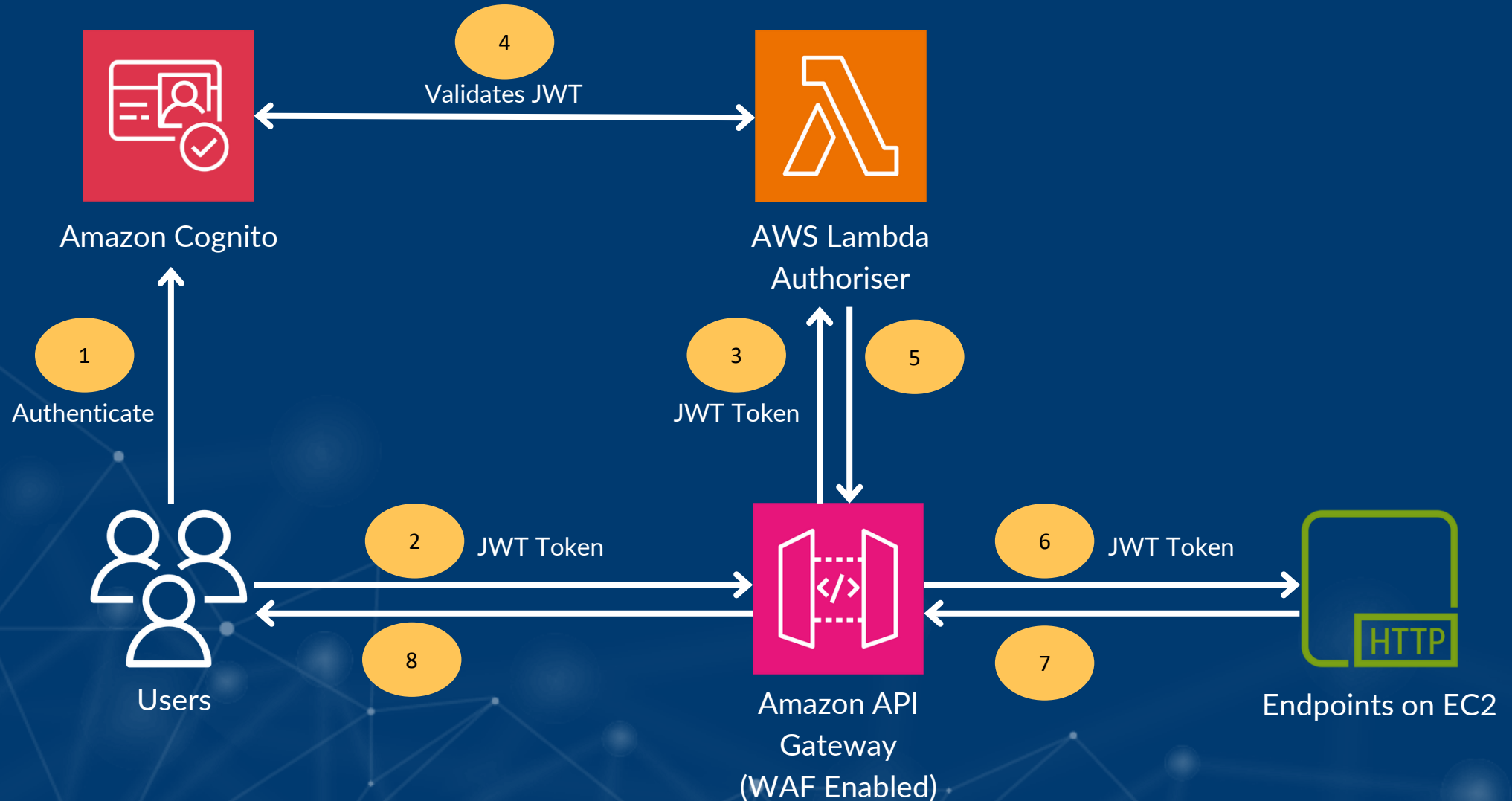
Demonstration:

Sign in experience for ALA users

ALA User Management Demonstration



How it works - API Gateway



How it works



Demonstration:

Amazon API Gateway: accessing public APIs

Accessing Public APIs Demonstration

Demonstration:

Amazon API Gateway: accessing protected APIs

Accessing Protected APIs Demonstration

ALA infrastructure will support four use cases

New capabilities

1

Machine 2
Machine

2

Single Page Apps
(SPA)

3

Federated
Authentication

4

API Access
via Gateway

Legacy API Key → Open ID Connect + Auth 2.0 + JWT

Thank You

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Cloud Uplift Program Manager



> 125 million
Occurrence records



> 100,000
Registered users



> 800
Data partnerships



27 countries
Use the ALA's infrastructure



> 4000
Scientific publications enabled



99 % of data in the ALA has a
Creative Commons license



Infrastructure node for:

