"Alexa, Be My Tutor!" - Voice Assistant Pilot

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Defense Acquisition University

DAU

“Alexa, Be My Tutor!” Voice Assistant Pilot

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Mr. Thomas Shaffner
Mr. Sriraman Raman
Mr. Mike Dorohovich
Dr. Qun Zhang
Dr. Ann Wong

Let's meet Your Personal Tutor--Alexa

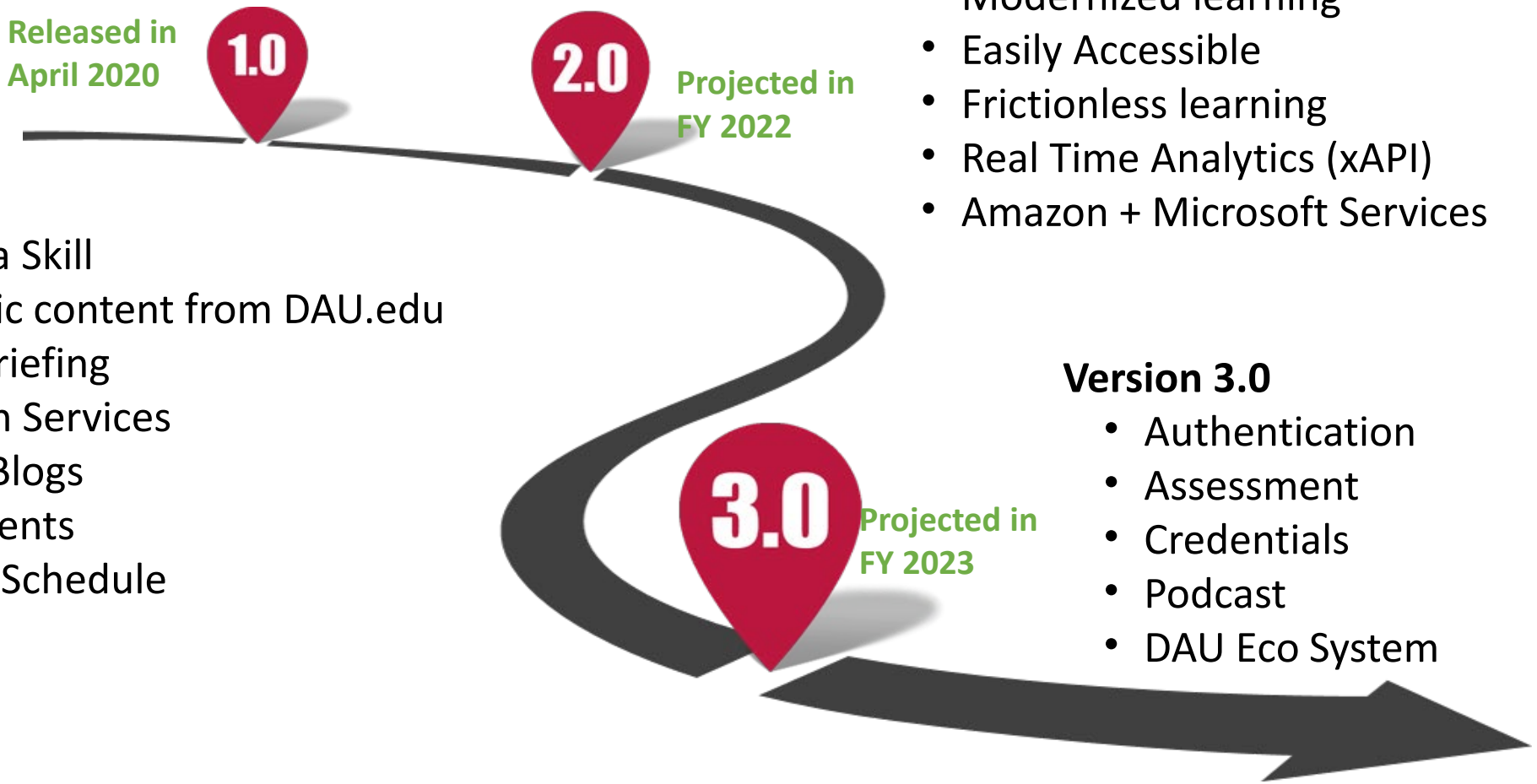
- *Origin Story of Alexa, the Tutor*
- *Demo Featuring Ms. Pooja Mohaan*
- *Alexa Real-time learning analytics*
- *Future Vision*

Origin Story

- DAU created Alexa skill to feature University-wide info on our main webpage
- As Faculty…we asked…..

WHAT IF?

DAU Alexa Roadmap



Version 1.0

"DAU" Alexa Skill

- Dynamic content from DAU.edu
- Flash Briefing
- Amazon Services
- News, Blogs
- DAU Events
- Course Schedule

Version 2.0 (Current)

"Digital Engineering" Tutor

- Modernized learning
- Easily Accessible
- Frictionless learning
- Real Time Analytics (xAPI)
- Amazon + Microsoft Services

Version 3.0

- Authentication
- Assessment
- Credentials
- Podcast
- DAU Eco System

Why? Alexa Skill Value Propositions

Advancing the Learner

- Bringing Learning to the Learner @ their time and place!
  - More telework post COVID
  - Learning on their own devices—device agnostic
- Tailored content and flow to the Learner
  - Voice-first multi-modal UX makes learning more engaging and frictionless
  - Serves as Virtual tutor / refresher

Advancing the Quality of Teaching

- Promote DAU branding & offering (courses, flash briefing) on Amazon market

Advancing the Infrastructure

- Innovative xAPI-enabled LRP leverages DAU Veracity LRS
- Common infrastructure as DAU Chatbot eases the integration, and increases reusability (author once and publish to multiple places) and return on investment

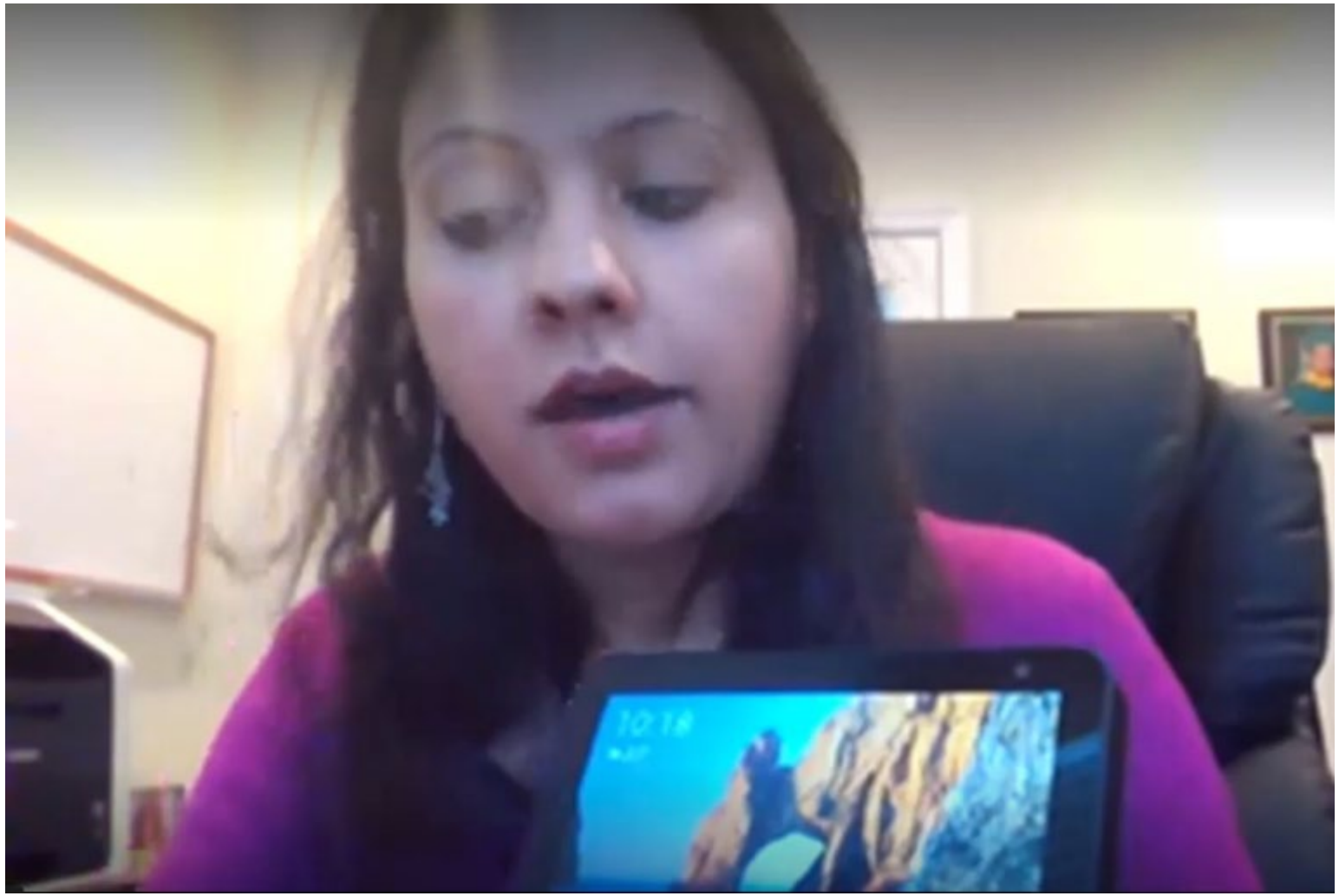
www.DAU.edu

Alexa Live Demo - Features

- *Dual Modes – Lecture Mode and QnA Mode*
- *Karaoke effect*
- *DAU Kaltura Video integration*
- *Visuals / Images*
- *Follow up prompts*
- *In-skill feedback*
- *xAPI capability*

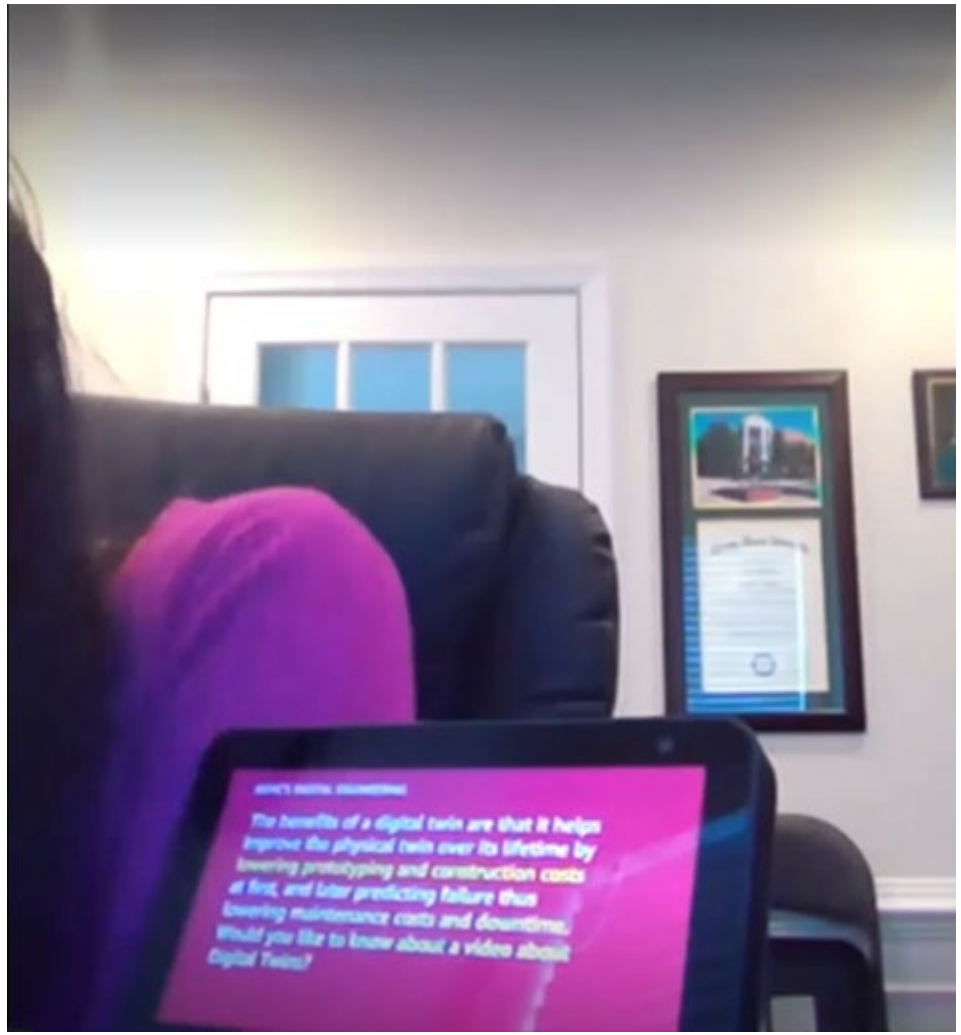
Alexa Live Demo – Features Part 1

- *Dual Modes*
  - *Lecture Mode and QnA Mode*
- *Karaoke effect*
- *DAU Kaltura Video integration*
- *Visuals / Images*
- *Follow up prompts*
- *In-skill feedback*
- *xAPI capability*



Alexa Live Demo – Features Part 2

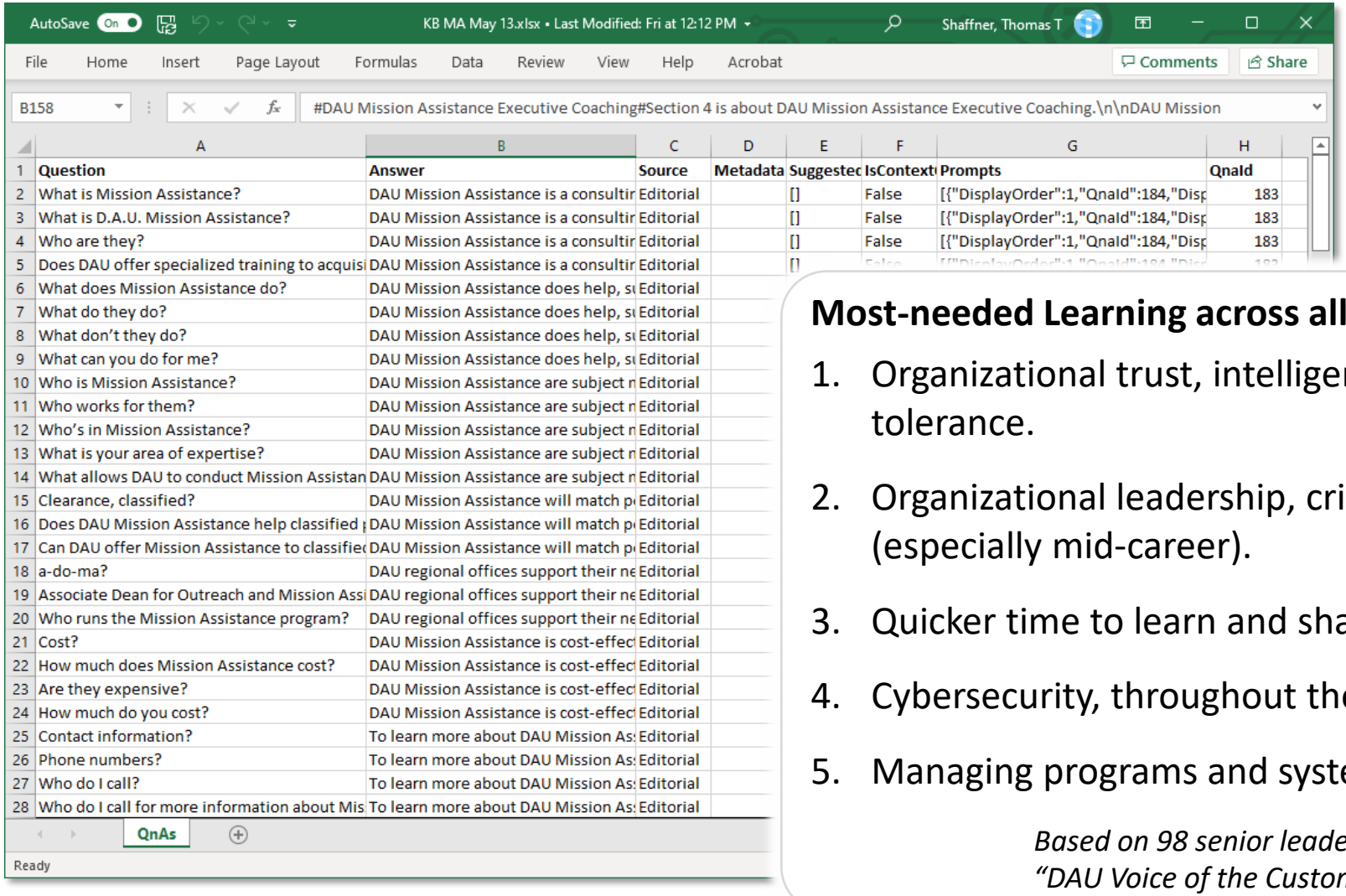
- *Dual Modes*
  - *Lecture Mode and QnA Mode*
- *Karaoke effect*
- *DAU Kaltura Video integration*
- *Visuals / Images*
- *Follow up prompts*
- *In-skill feedback*
- *xAPI capability*



Alexa Live Demo – Features Part 3

- *Dual Modes*
  - *Lecture Mode and QnA Mode*
- *Karaoke effect*
- *DAU Kaltura Video integration*
- *Visuals / Images*
- *Follow up prompts*
- *In-skill feedback*
- *xAPI capability*

Knowledge base and use cases



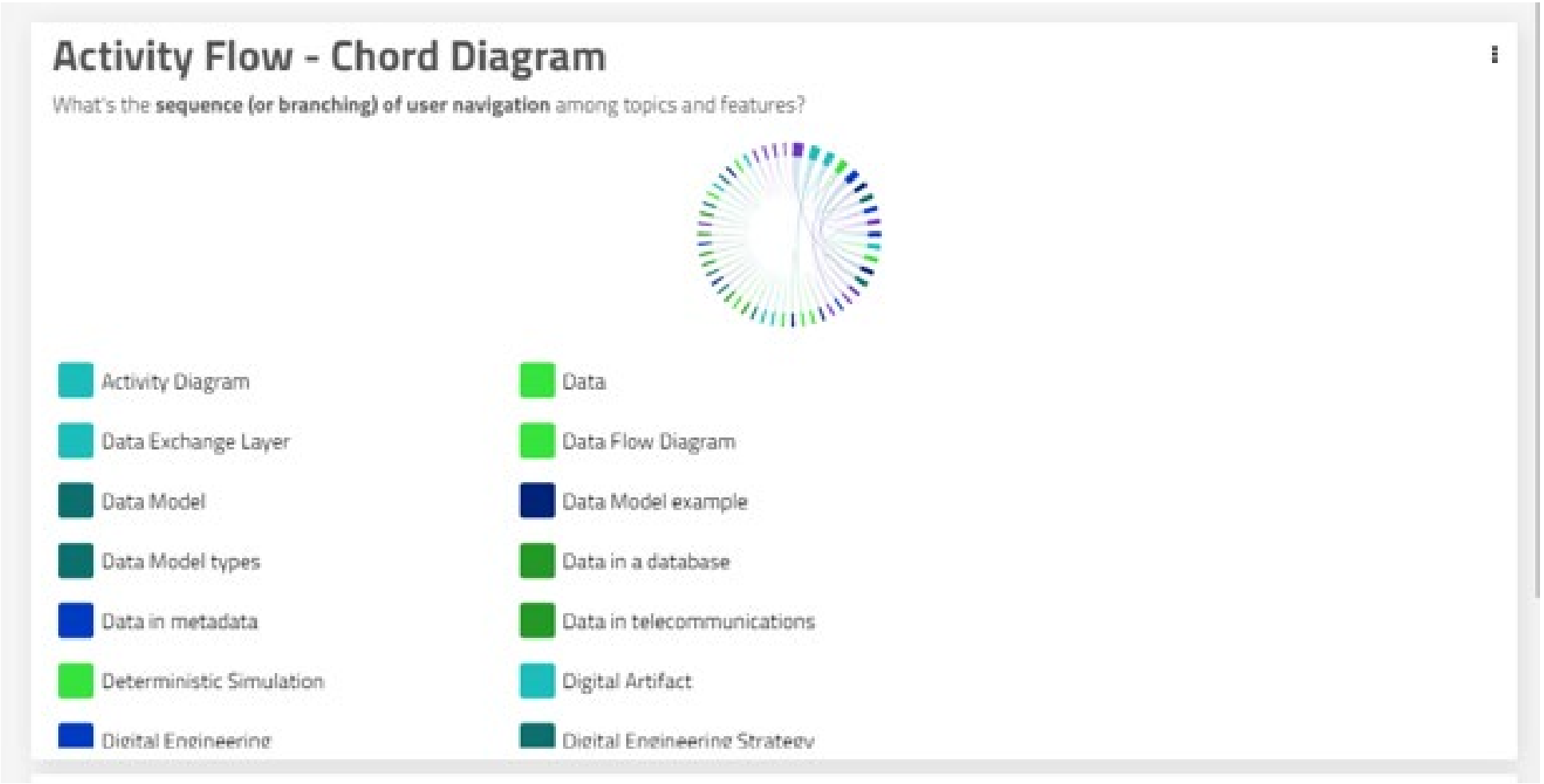
	Question	Answer	Source	Metadata	Suggestec	IsContext	Prompts	QnaId
2	What is Mission Assistance?	DAU Mission Assistance is a consultir	Editorial		[]	False	[{"DisplayOrder":1,"QnaId":184,"Disp	183
3	What is D.A.U. Mission Assistance?	DAU Mission Assistance is a consultir	Editorial		[]	False	[{"DisplayOrder":1,"QnaId":184,"Disp	183
4	Who are they?	DAU Mission Assistance is a consultir	Editorial		[]	False	[{"DisplayOrder":1,"QnaId":184,"Disp	183
5	Does DAU offer specialized training to acquisi	DAU Mission Assistance is a consultir	Editorial		[]			
6	What does Mission Assistance do?	DAU Mission Assistance does help, s	Editorial					
7	What do they do?	DAU Mission Assistance does help, s	Editorial					
8	What don't they do?	DAU Mission Assistance does help, s	Editorial					
9	What can you do for me?	DAU Mission Assistance does help, s	Editorial					
10	Who is Mission Assistance?	DAU Mission Assistance are subject n	Editorial					
11	Who works for them?	DAU Mission Assistance are subject n	Editorial					
12	Who's in Mission Assistance?	DAU Mission Assistance are subject n	Editorial					
13	What is your area of expertise?	DAU Mission Assistance are subject n	Editorial					
14	What allows DAU to conduct Mission Assistan	DAU Mission Assistance are subject n	Editorial					
15	Clearance, classified?	DAU Mission Assistance will match p	Editorial					
16	Does DAU Mission Assistance help classified p	DAU Mission Assistance will match p	Editorial					
17	Can DAU offer Mission Assistance to classifie	DAU Mission Assistance will match p	Editorial					
18	a-do-ma?	DAU regional offices support their ne	Editorial					
19	Associate Dean for Outreach and Mission Assi	DAU regional offices support their ne	Editorial					
20	Who runs the Mission Assistance program?	DAU regional offices support their ne	Editorial					
21	Cost?	DAU Mission Assistance is cost-effec	Editorial					
22	How much does Mission Assistance cost?	DAU Mission Assistance is cost-effec	Editorial					
23	Are they expensive?	DAU Mission Assistance is cost-effec	Editorial					
24	How much do you cost?	DAU Mission Assistance is cost-effec	Editorial					
25	Contact information?	To learn more about DAU Mission As	Editorial					
26	Phone numbers?	To learn more about DAU Mission As	Editorial					
27	Who do I call?	To learn more about DAU Mission As	Editorial					
28	Who do I call for more information about Mis	To learn more about DAU Mission As	Editorial					

Most-needed Learning across all DoD Services and Agencies

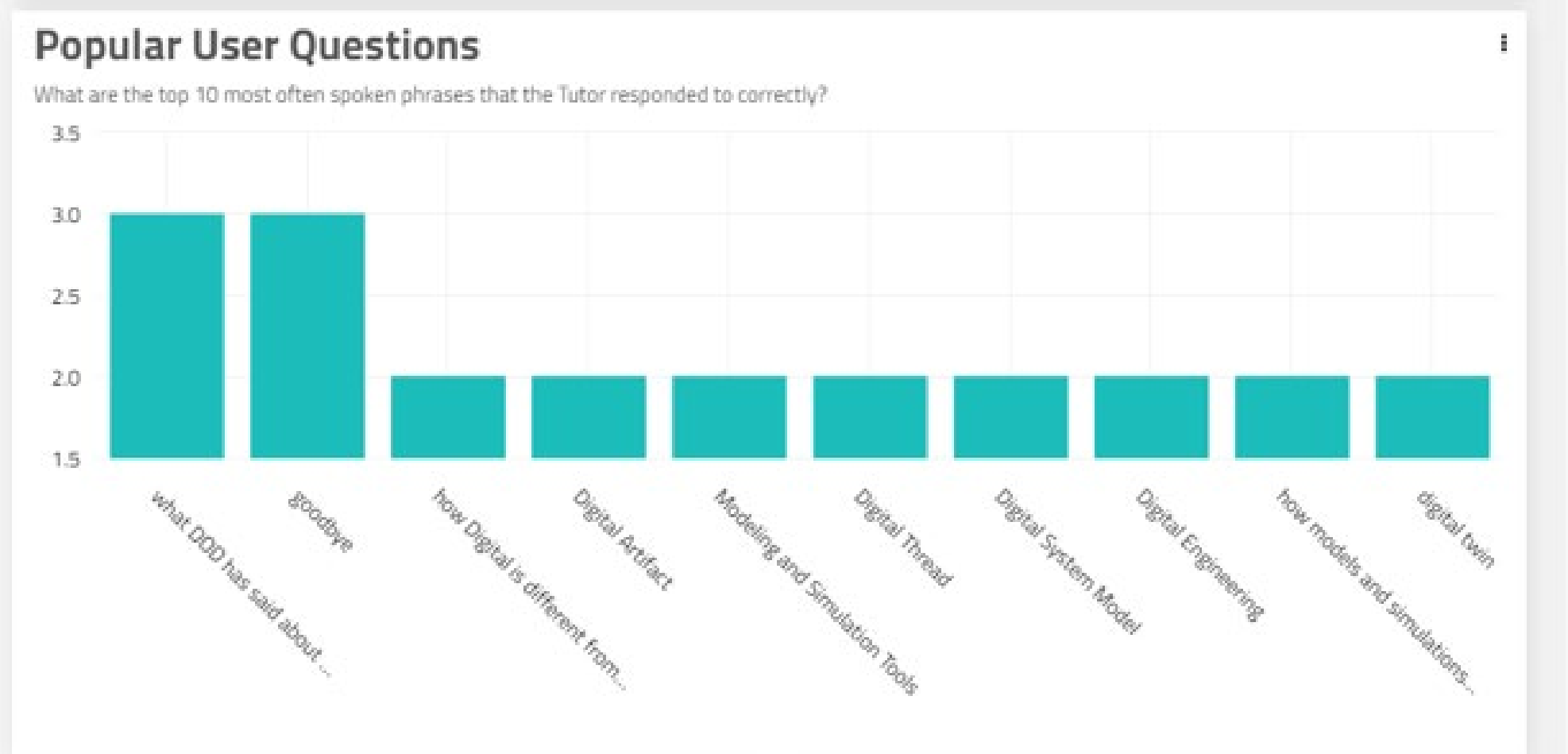
1. Organizational trust, intelligent risk-taking, and risk tolerance.
2. Organizational leadership, critical thinking, and soft skills (especially mid-career).
3. Quicker time to learn and share best practices.
4. Cybersecurity, throughout the lifecycle.
5. Managing programs and systems, in the sustainment phase.

Based on 98 senior leader interviews and 500+ workforce surveys
"DAU Voice of the Customer Report, MARCORSYSCOM", July 2018

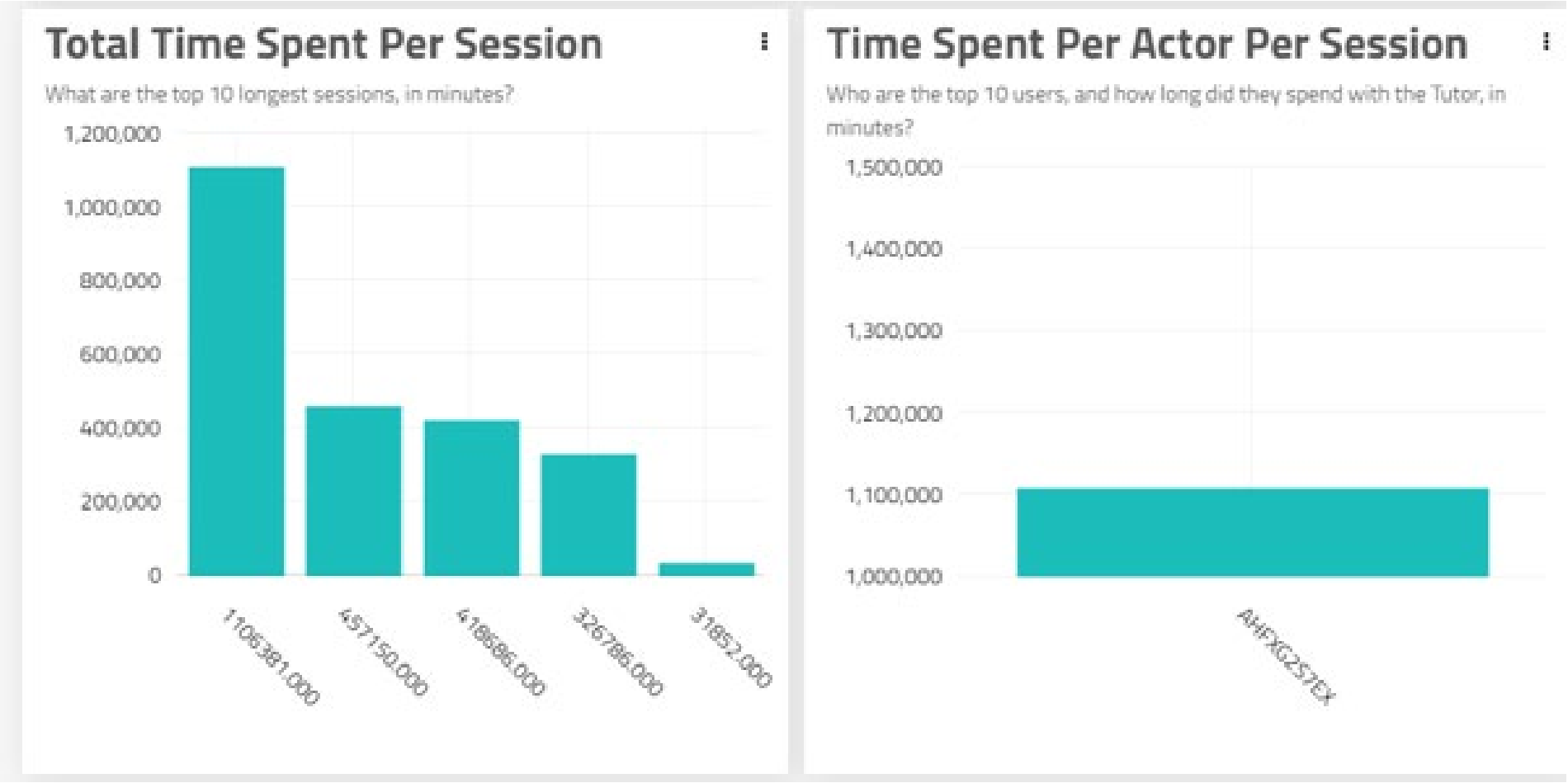
Dashboard example – Activity Flow



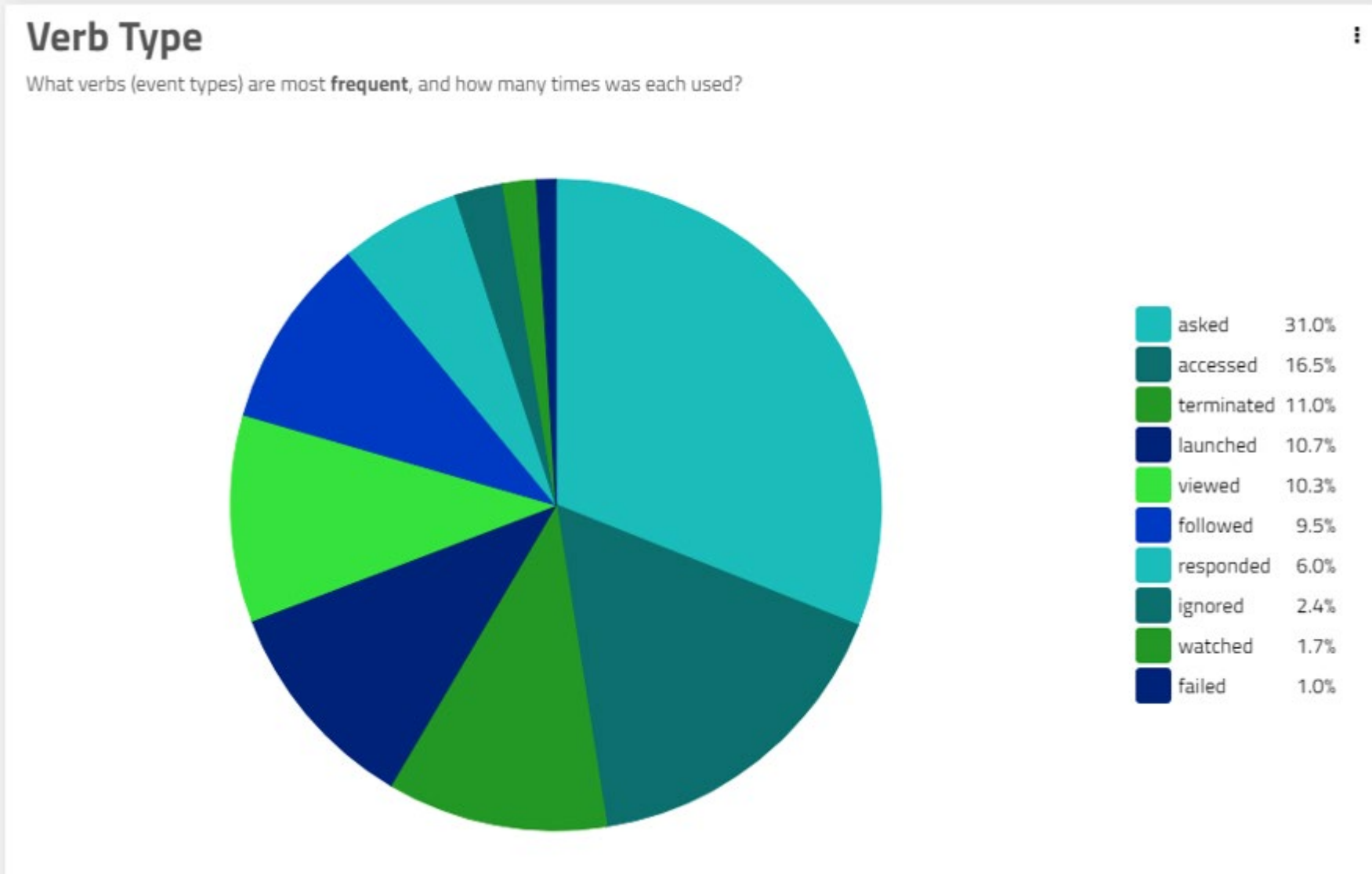
Dashboard example – Popular User Questions



Dashboard example – Popular User Questions



Dashboard example – Verb Type



Call to Action!

Where could the community take Alexa next?

WHAT IF?

Q&A
Thank you!

Future

- Single Sign on Authentication feature on Alexa Skill
  - Meaningful insights data using DAU ID
  - Assessment
  - Ask A Professor
- Integrate into DAU Ecosystem
  - DAU AWS Account
  - DAU Veracity LRS
  - Reusable Knowledge base
- Replicate to lower level courses
- Gettin

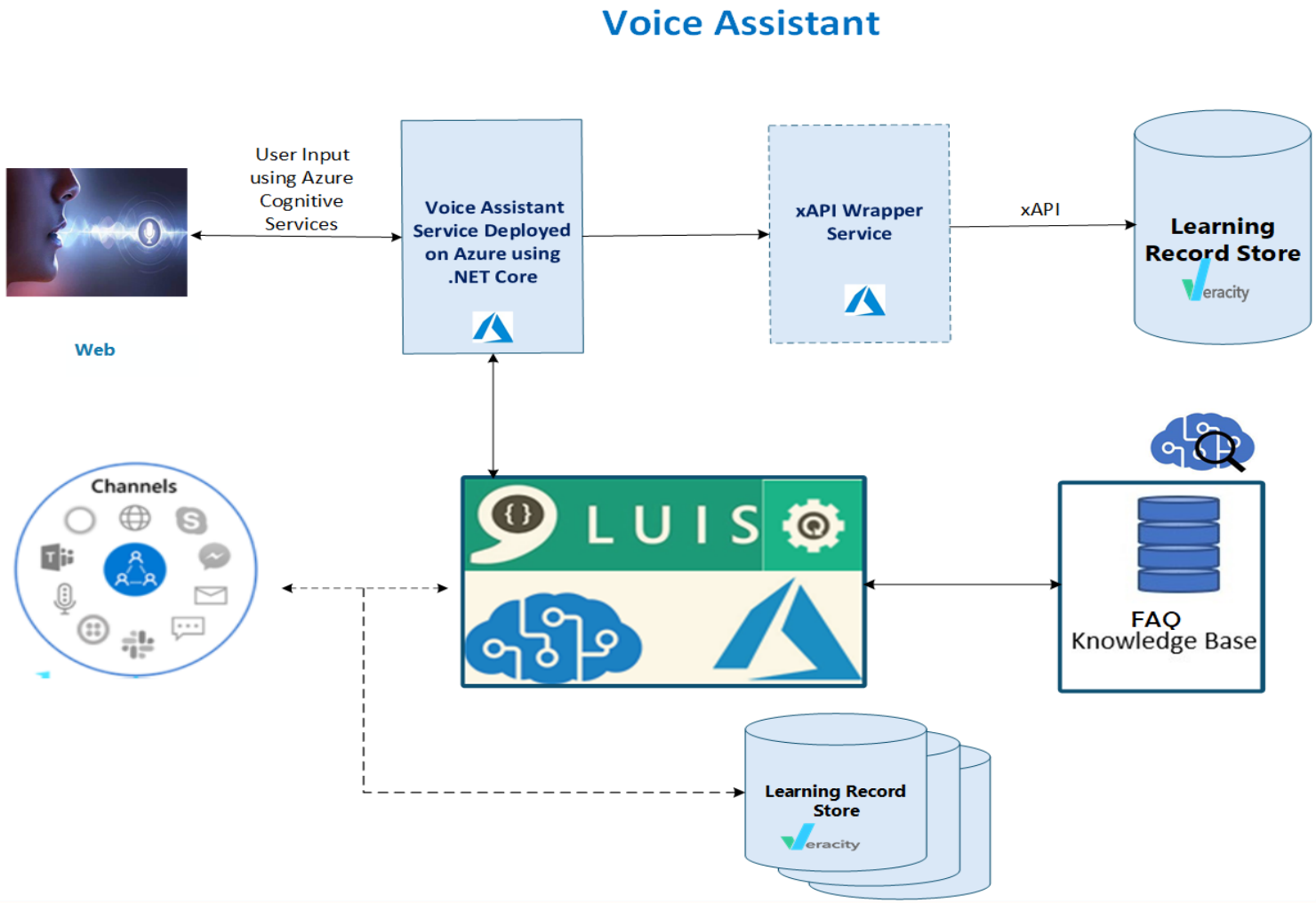
xAPI verbs used in Digital Engineering

Verbs	Use Case	Antonym	Notes
Launched	User Initiated the Skill		Type of Device Learner ID – first 10 digit Device Token
Accessed	User accessed the lesson	Unviewed	
Asked	User asked a question	Unasked	If any terms or questions are missing in the course content then it is notified via Analytics dashboard.
Viewed	User viewed content with the images	Skipped	
Watched	User watched a video on the skill	Skipped	
Responded	User provided the feedback		Yes / No
Followed	User followed a prompt	Unfollowed	
Ignored	User did not follow the prompt		
Terminated	User terminated the skill	Started	Time spent per session (If user terminated the skill appropriately)

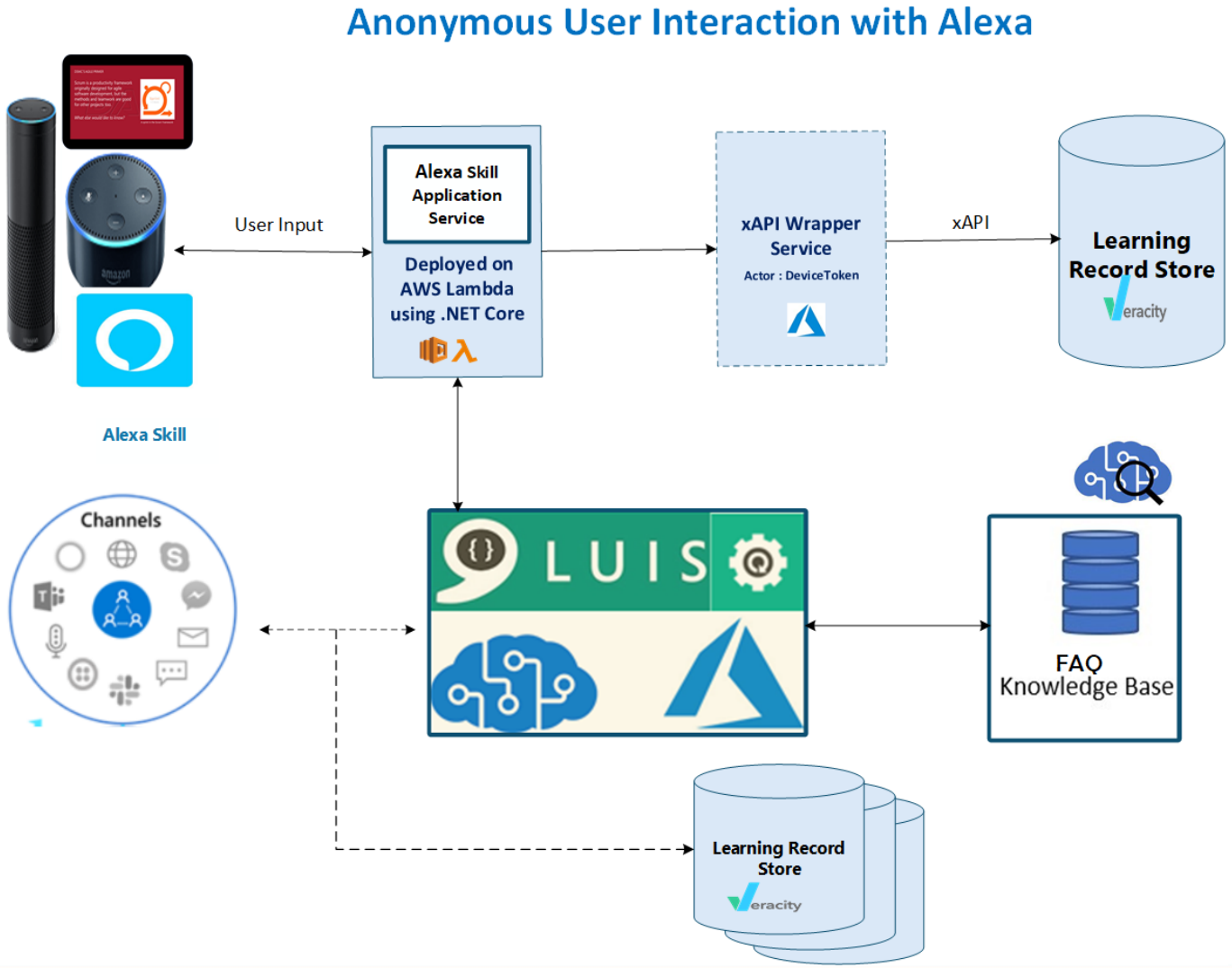
Capabilities support as of today

Features	APL Supported	APL Not Supported
	Echo Show, Fire tablet, etc.	Alexa App using Smart Phones
Text	✓	✓
Visual / Images	✓	
Video	✓	
Question Mode	✓	✓
Follow Up Prompt	✓	✓
Lecture Mode	✓	✓
Karaoke Effect	✓	
In Skill Feedback	✓	✓
xAPI capability	✓	✓

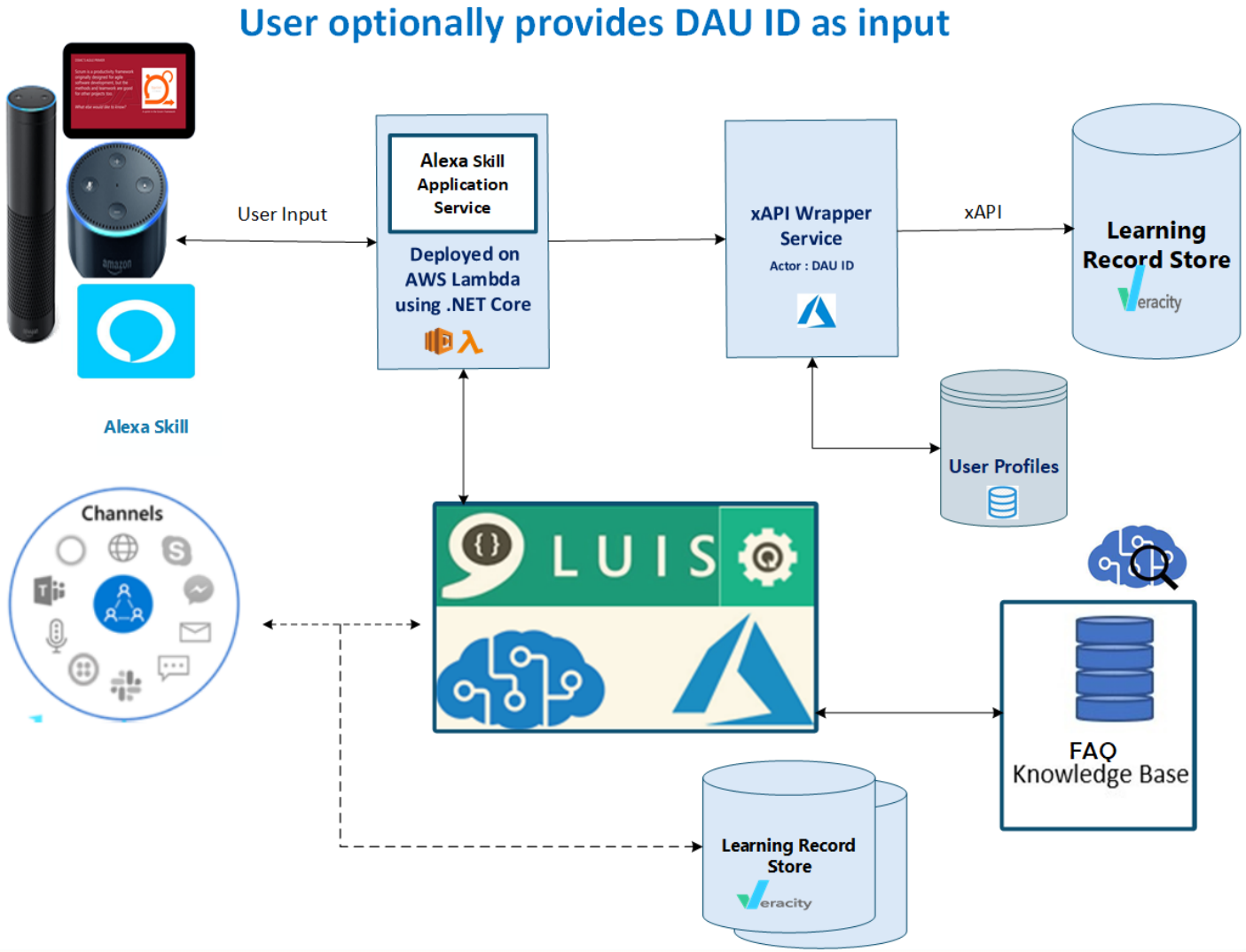
Web Voice Assistant LRS Integration Solution Architecture



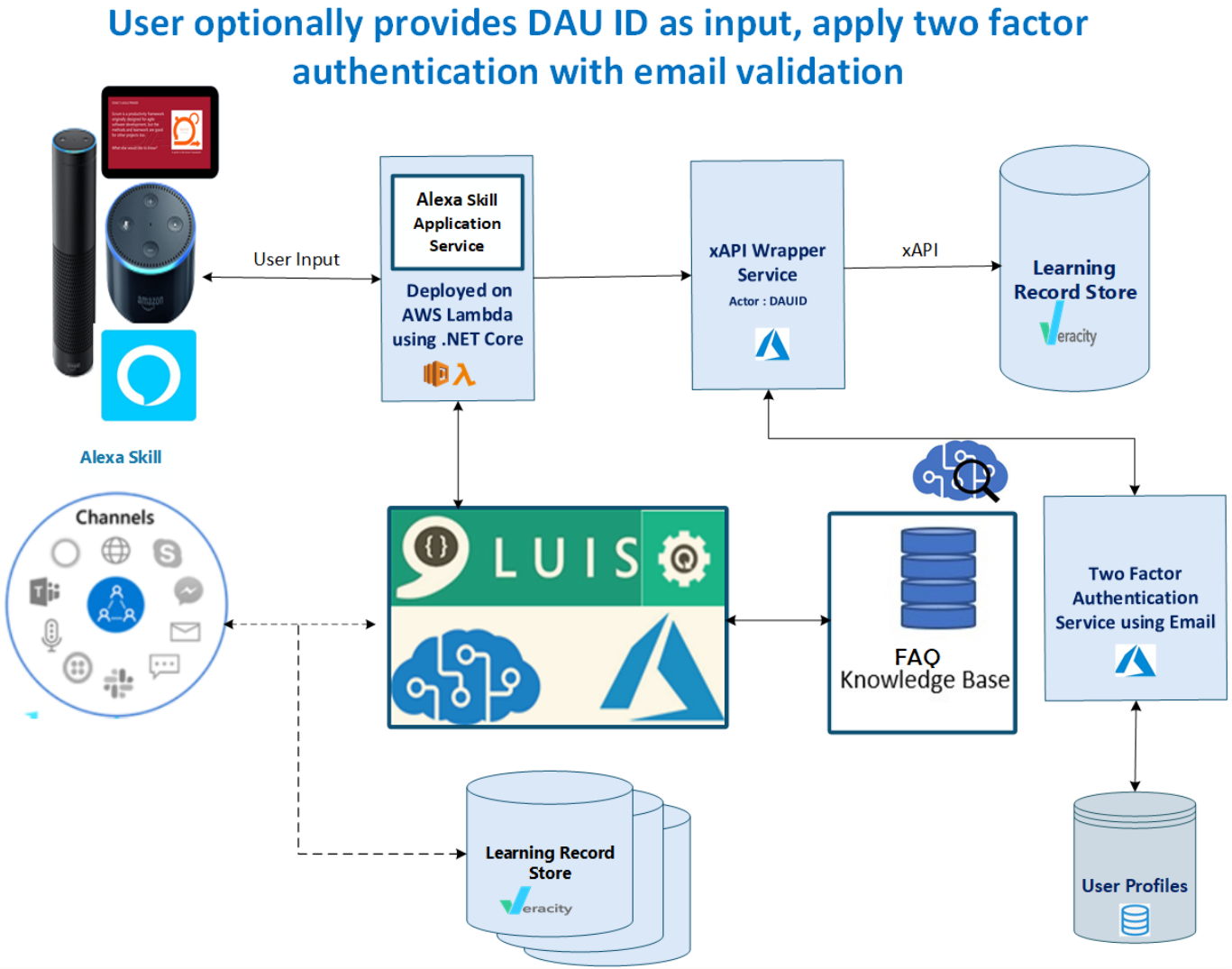
Alexa LRS Integration Solution Architecture – Phase 0



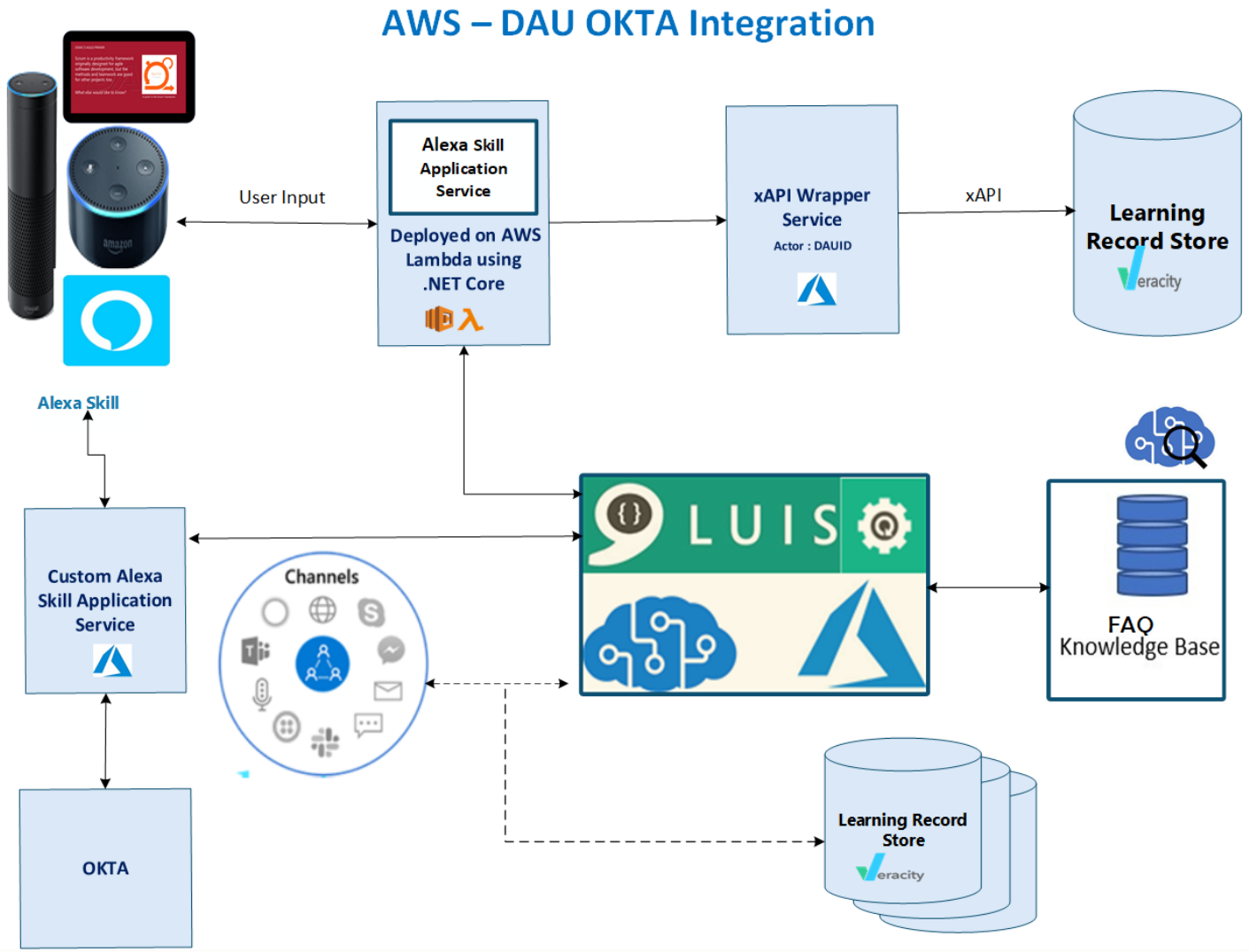
Alexa LRS Integration Solution Architecture – Phase 1



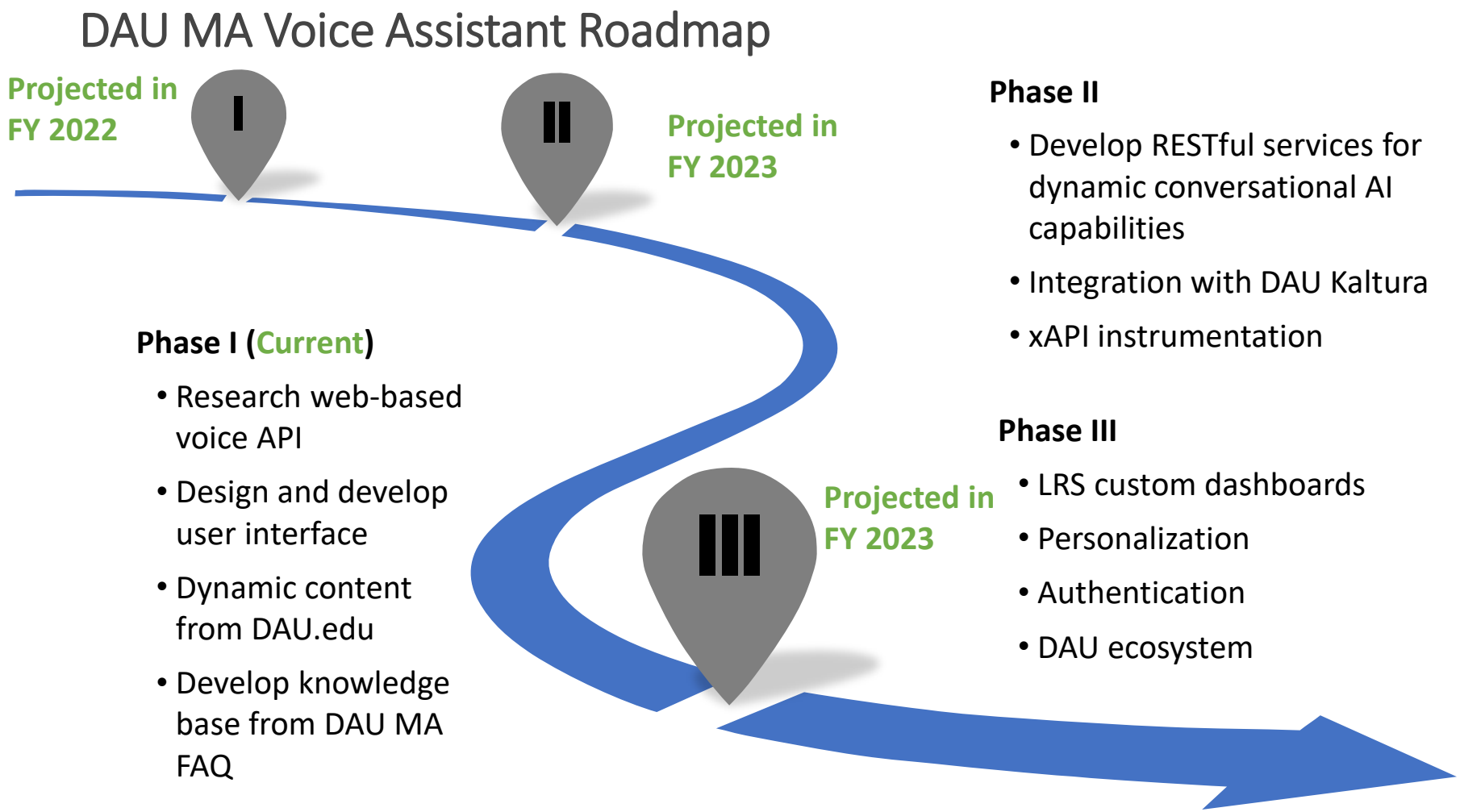
Alexa LRS Integration Solution Architecture – Phase 2



Alexa LRS Integration Solution Architecture – Phase 3



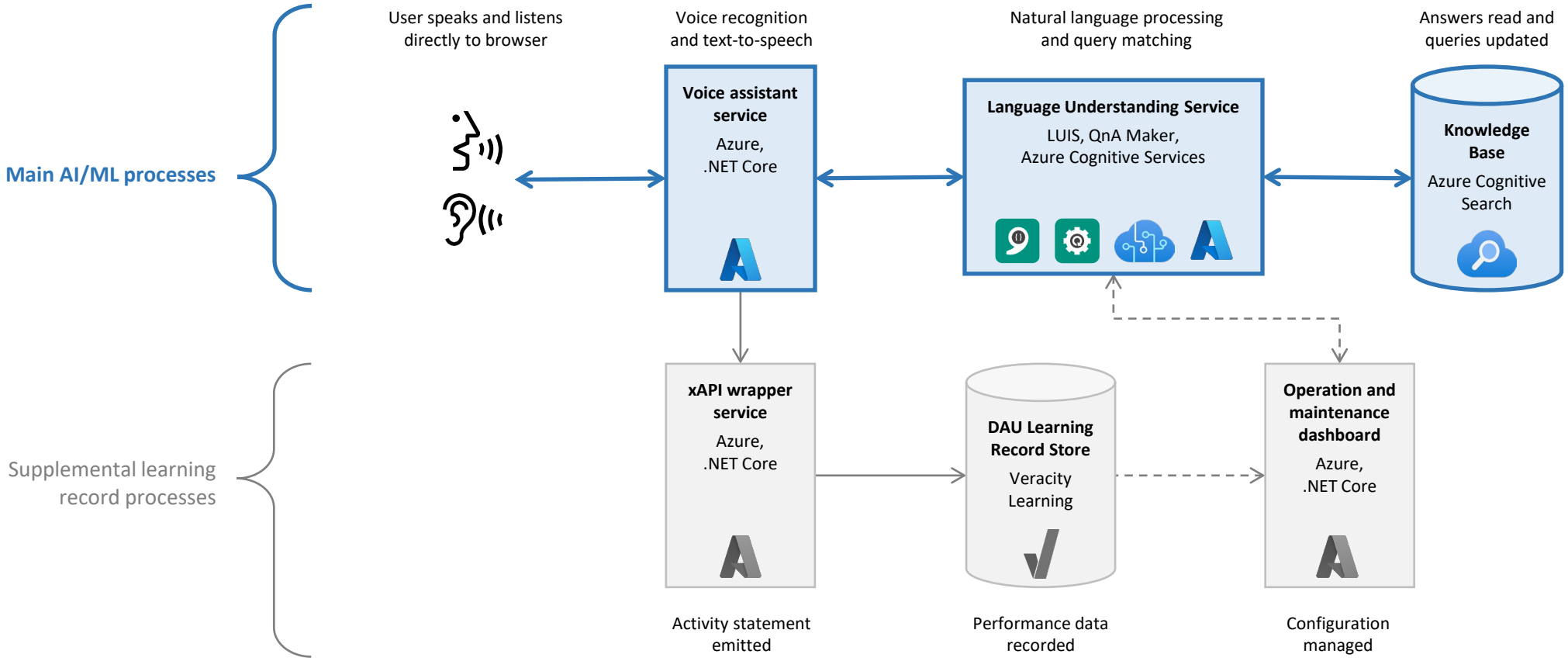
Where are we with Voice Assistant



Voice Assistant – Solution Architectures for LRS Integration

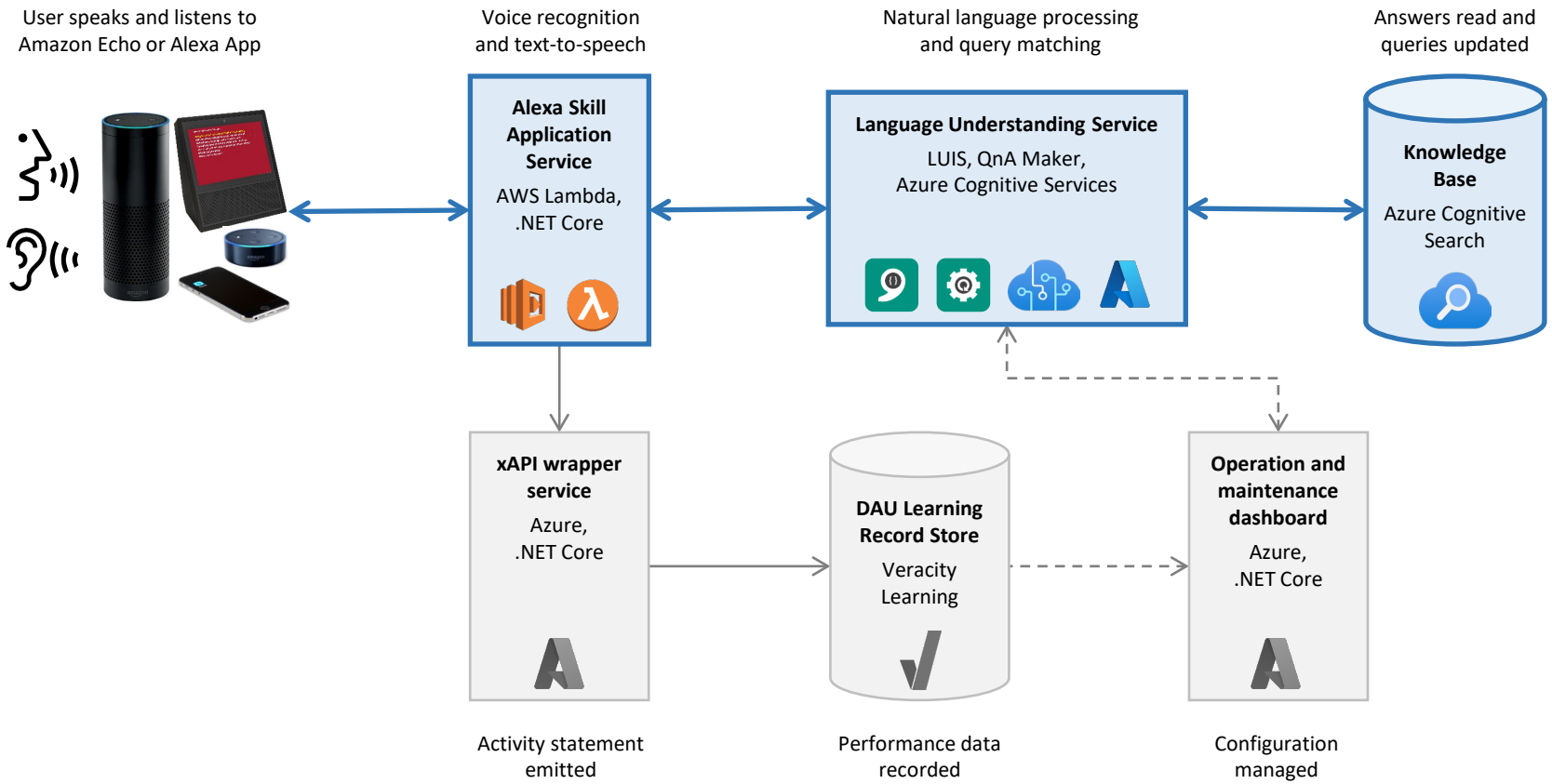
Web-based and Alexa-based Voice Interfaces

Web-based Voice Assistant



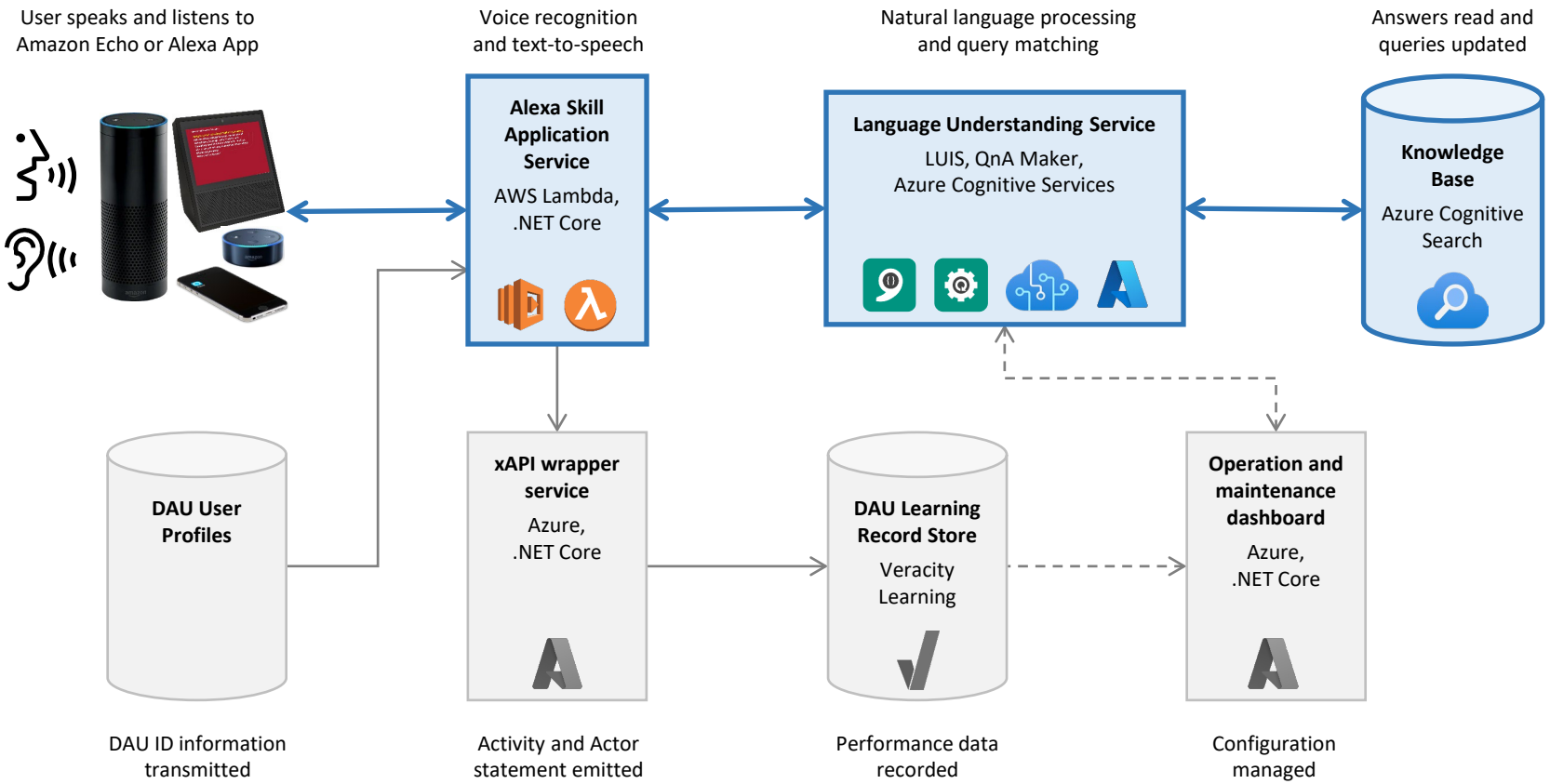
Alexa-based Voice Assistant – Phase 0 Implementation

Anonymous user



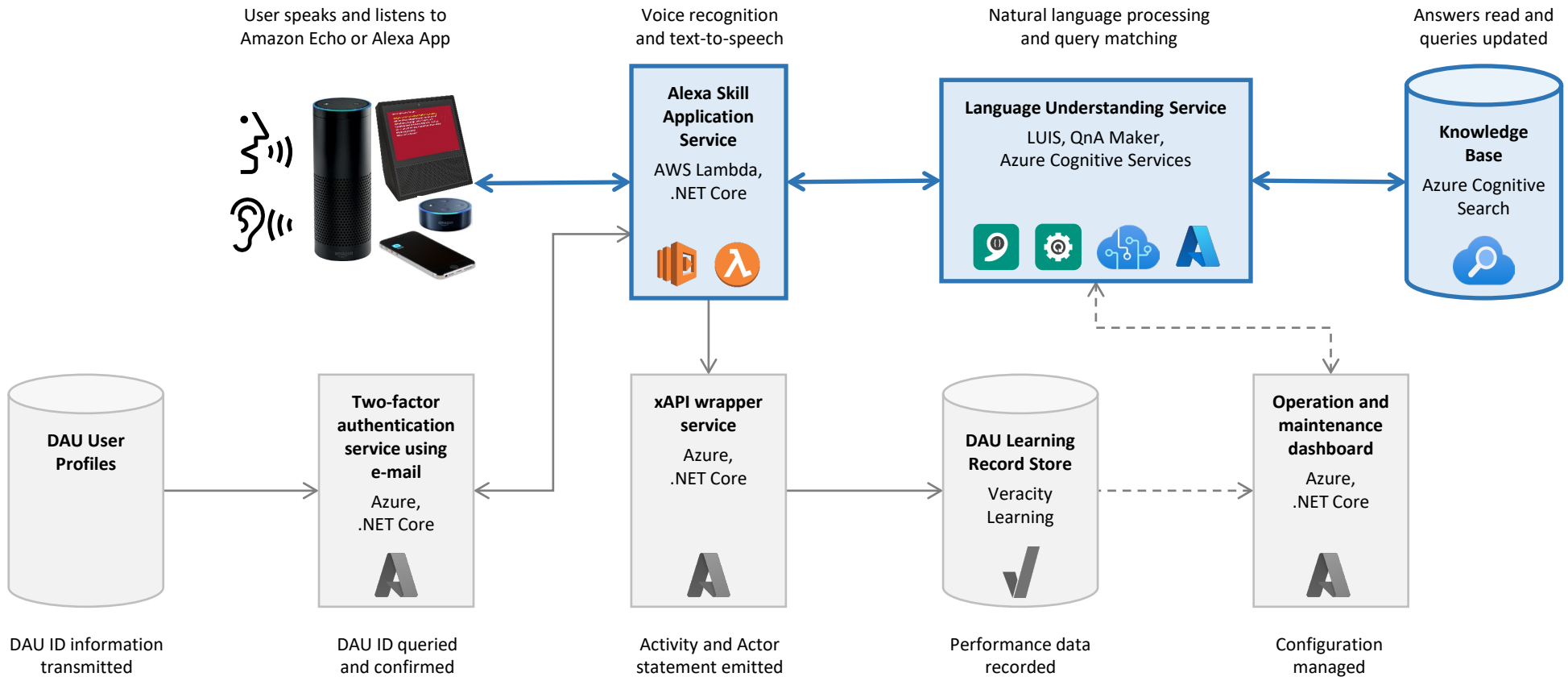
Alexa-based Voice Assistant – Phase 1 Implementation

User inputs DAU username



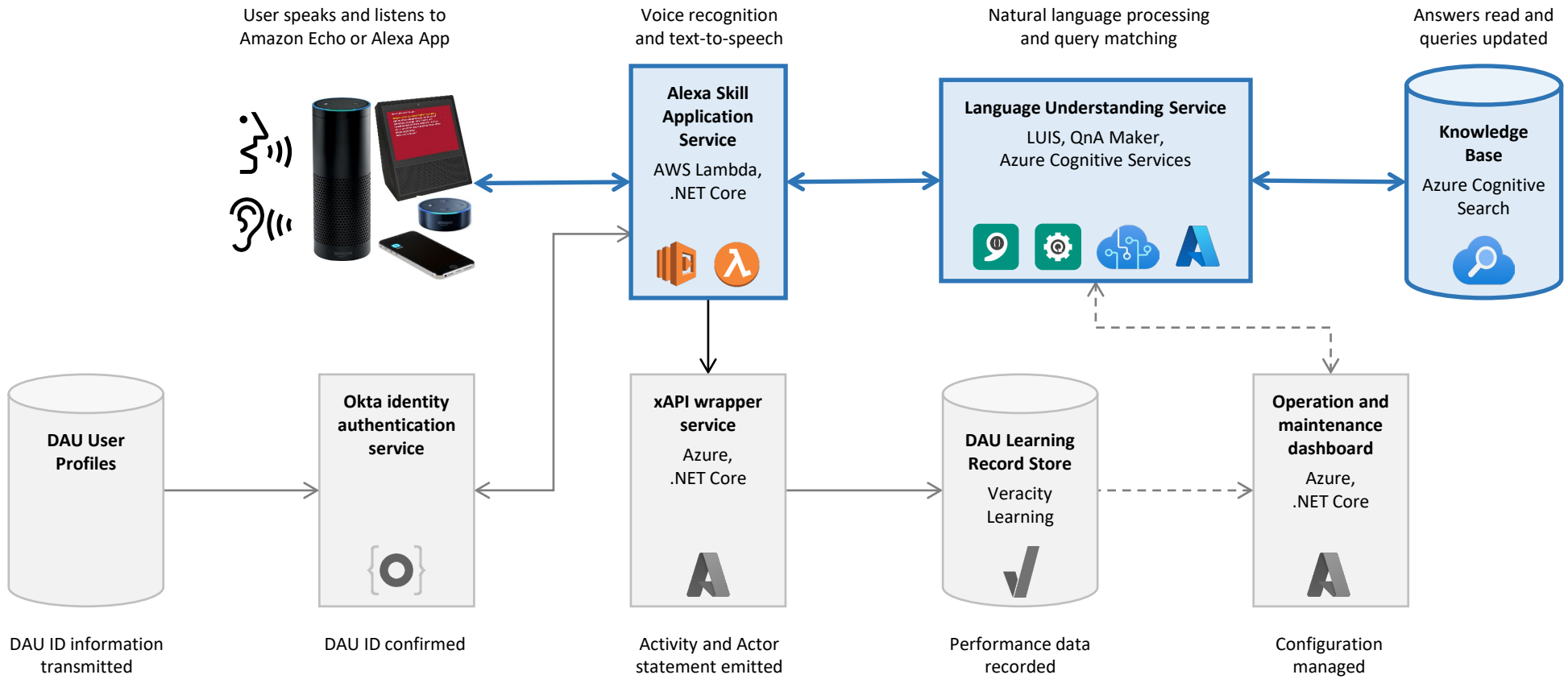
Alexa-based Voice Assistant – Phase 2 Implementation

Skill retrieves full DAU ID using two-step authentication, via e-mail



Alexa-based Voice Assistant – Phase 3 Implementation

Skill retrieves full DAU ID in one step, using AWS/Okta integration

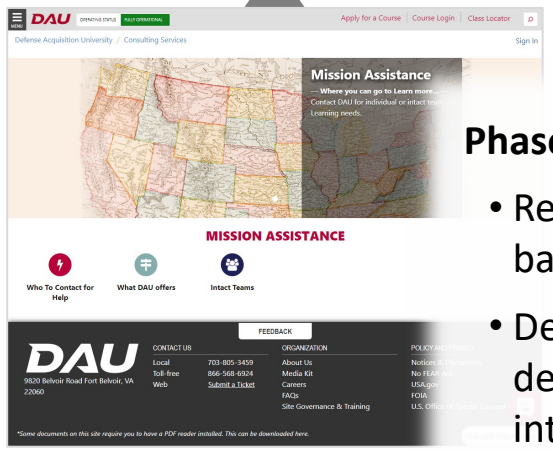


Where are we with Voice Assistant

DAU MA Voice Assistant Roadmap

Projected in FY 2022

I



Phase I (Current)

- Research web-based voice API
- Design and develop user interface
- Dynamic content from DAU.edu
- Develop knowledge base from DAU MA FAQ

Projected in FY 2023

II

Phase II

- Develop RESTful services for dynamic conversational AI capabilities
- Integration with DAU Kaltura
- xAPI instrumentation

Projected in FY 2023

III

Phase III

- LRS custom dashboards
- Personalization
- Authentication
- DAU ecosystem