
AWS
re:Invent
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AIM340

Transform your business with intelligent search powered by Amazon Kendra

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Services Operations
Twilio

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Today’s agenda

Amazon Kendra overview

Building an intelligent search application with Amazon Kendra – Architecture

Demo: Intranet/departmental search

Customer use case – Twilio

Demo: Self-service chatbot

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Extracting insights from your data is getting harder

80%

of data at the enterprise is **unstructured** **(documents, help website, support documentation, and so on)**[1]

It is proliferating and often scattered and inaccessible

Customer challenges



Inaccurate keyword search



Complex implementation



Manual tuning



Ongoing maintenance

[1] Capgemini, Reorganizing unstructured data

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Business impact

INTERNAL IMPACT

Lower employee productivity and work duplication

Extensive time spent finding answers

Difficult to search multiple repositories

Stalled innovation

Increased risk and liability

Compliance and risk mitigation difficult when answers are not easily found within documents

CUSTOMER IMPACT

Negative customer interaction and engagement

Websites are difficult to search

Call center agents not able to find answers quickly

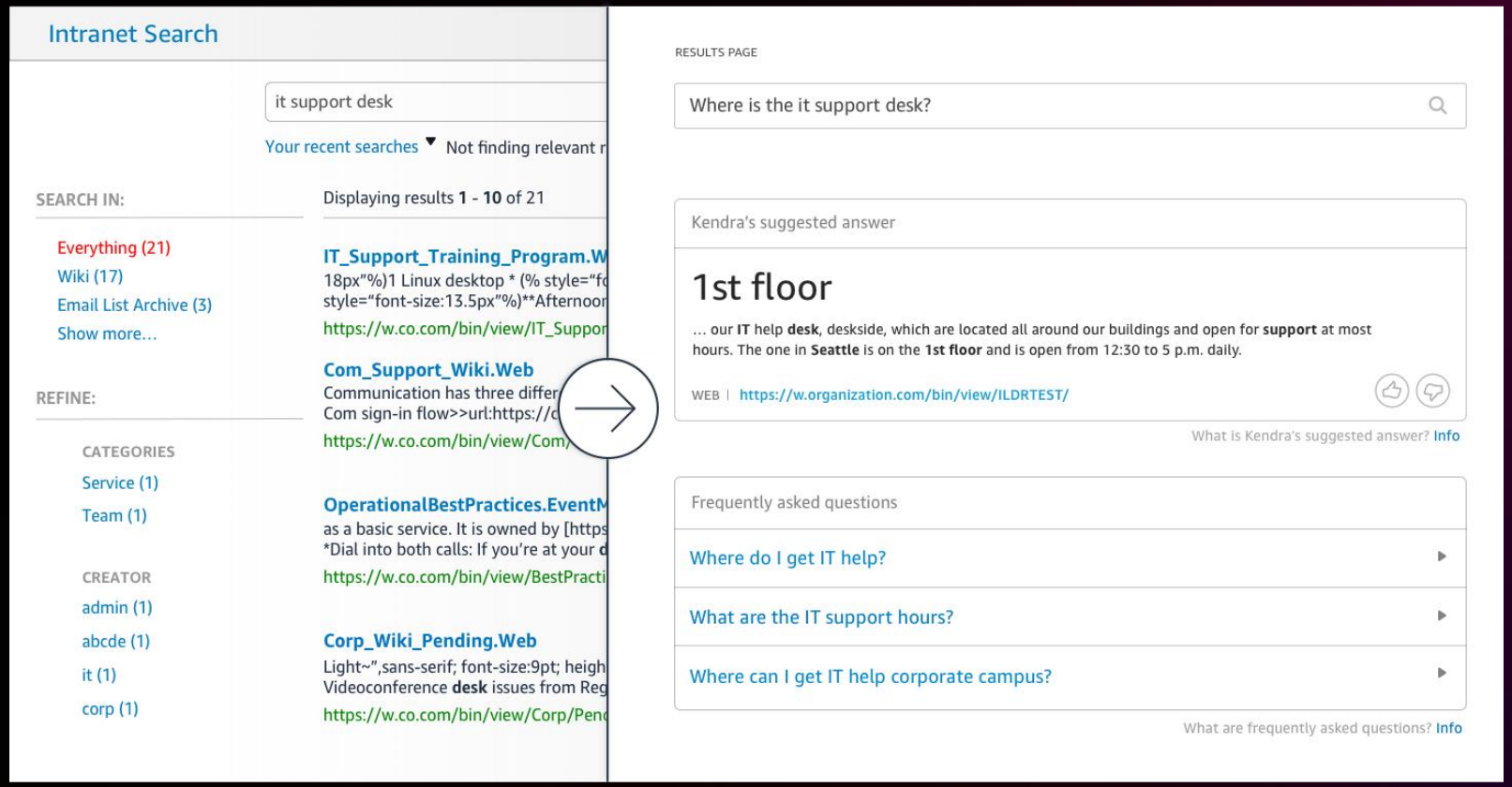
Limited access to documents through self-service bots

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Employees and customers want answers quickly

Traditional search



Intelligent search

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Find more accurate answers with Amazon Kendra

EASY TO FIND WHAT YOU ARE LOOKING FOR



Natural language queries

Intuitive search within unstructured content

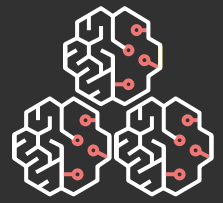


NLU and machine learning (ML) core

Instant answers

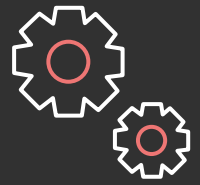
FAQ matching

Document ranking



Broad domain expertise

Pre-trained for 14 domains and industries



Continuous improvement

Incrementally learns from user feedback

QUICK SETUP



Accelerators

Native and partner connectors

Automate ingestion with custom metadata enrichment

No-/low-code UI builder

SECURE



Secure search

Encrypted in transit and at rest

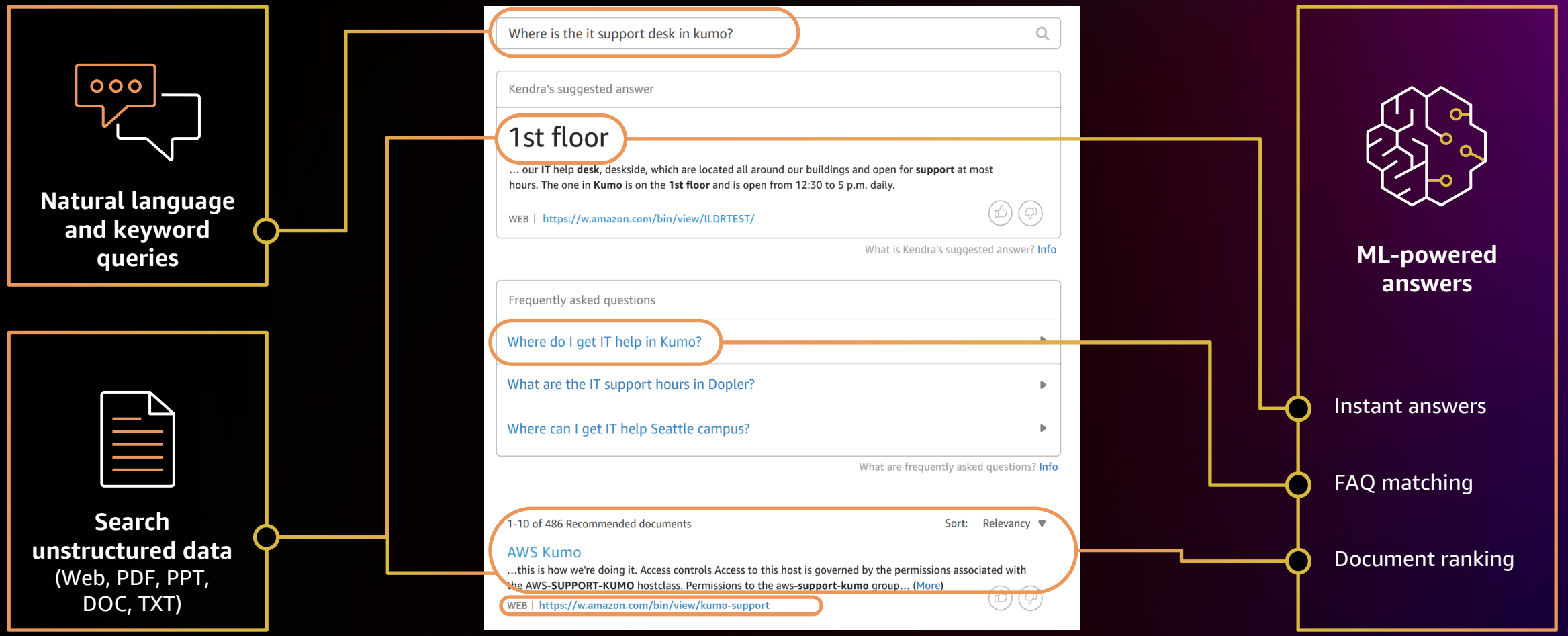
Token-based access control

AWS IAM Identity Center integration

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Better experience through better answers



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Top use cases

ENTERPRISE SEARCH

Intranet portal

Centralized search

Department focused

R&D

Compliance/risk mitigation

HR

IT

Legal







CUSTOMER SERVICE

Call center agent assist

Self-service virtual agents/bots

Website search







EMBEDDED SEARCH

ISV/SaaS applications

CMS

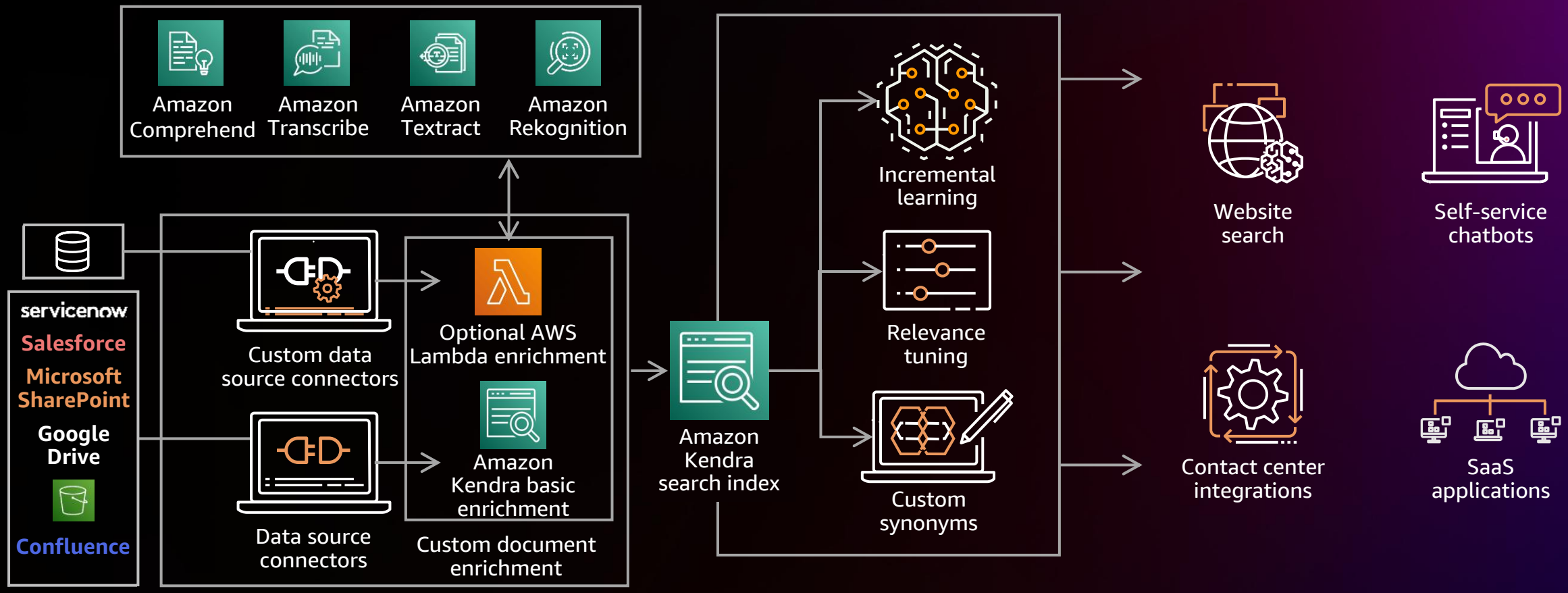
CRM

Productivity apps

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Building an intelligent search application with Amazon Kendra



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Amazon Kendra at Twilio

Nelson Axelrod
Director of Engineering, Services Operations at Twilio

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The Twilio Customer Engagement Platform

CHANNELS

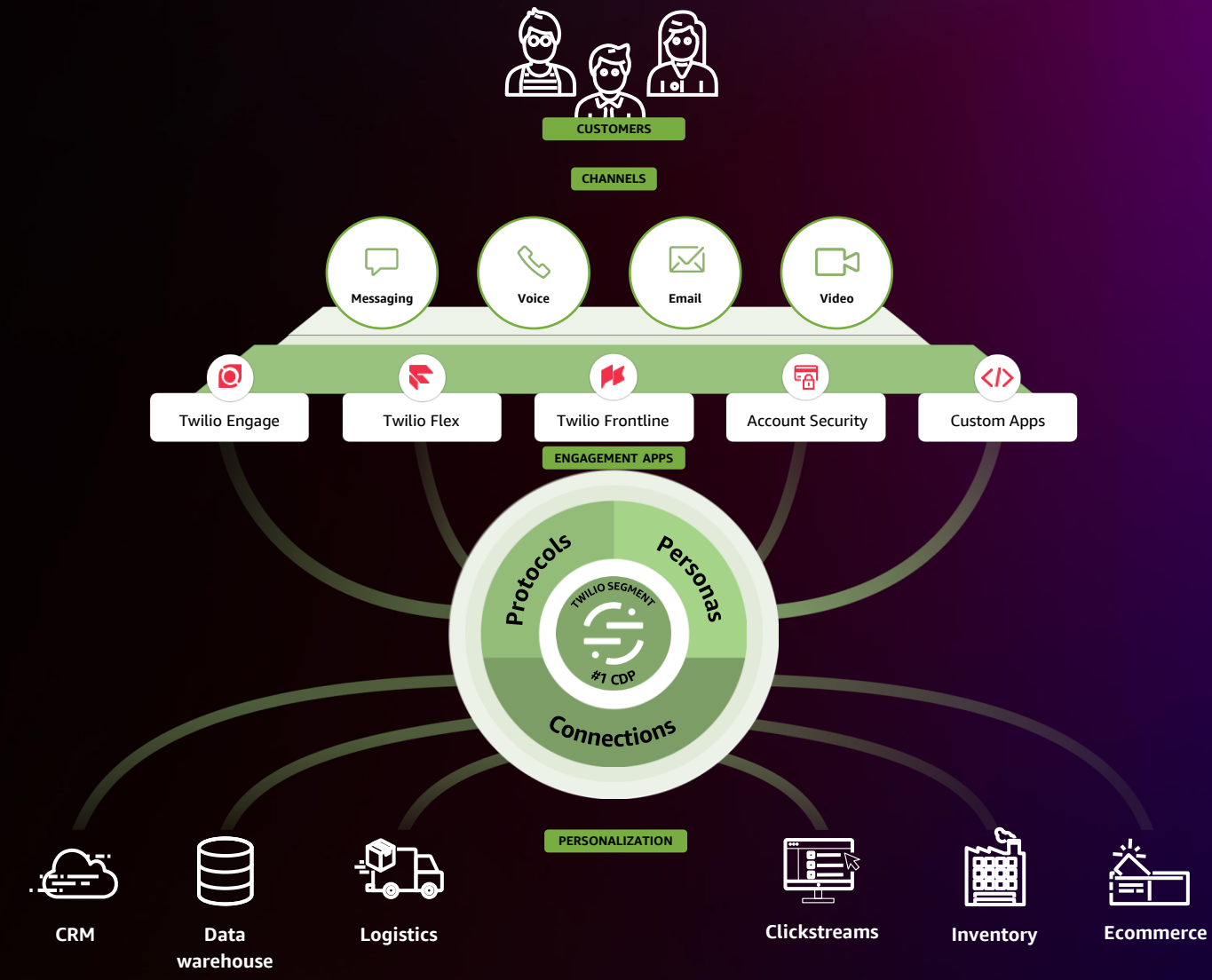
Engage through digital channels, anywhere customers prefer – offered natively from a single trusted provider

ENGAGEMENT APPS

Enabling your teams to attract, service and delight customer across their entire journey

PERSONALIZATION

At scale, tapping into the full power of ALL your customer data with democratized access



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Global customer support at Twilio

Challenge

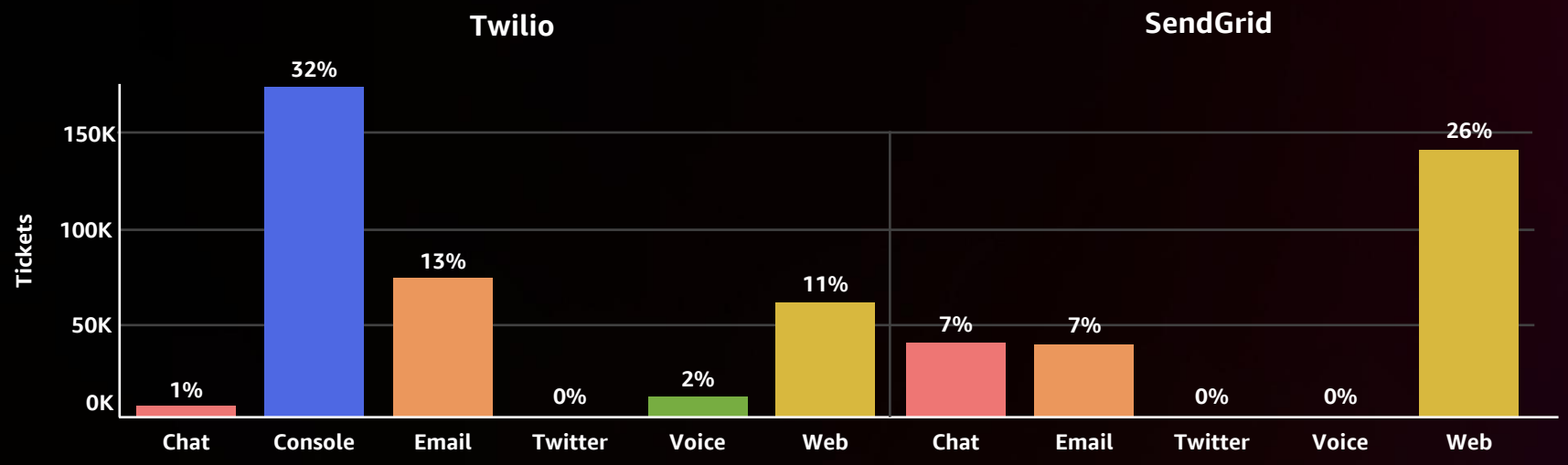
To keep up with the growing global demand for customer support, we set out to deliver an improved search and ticket submission flow, in order to deflect tickets and reduce costs, while improving our overall customer experience

275k
Customers globally

500k+
Tickets per year

~17%
YoY ticket growth

Ticket volume by inbound channels (Twilio, SendGrid)



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Global customer support at Twilio

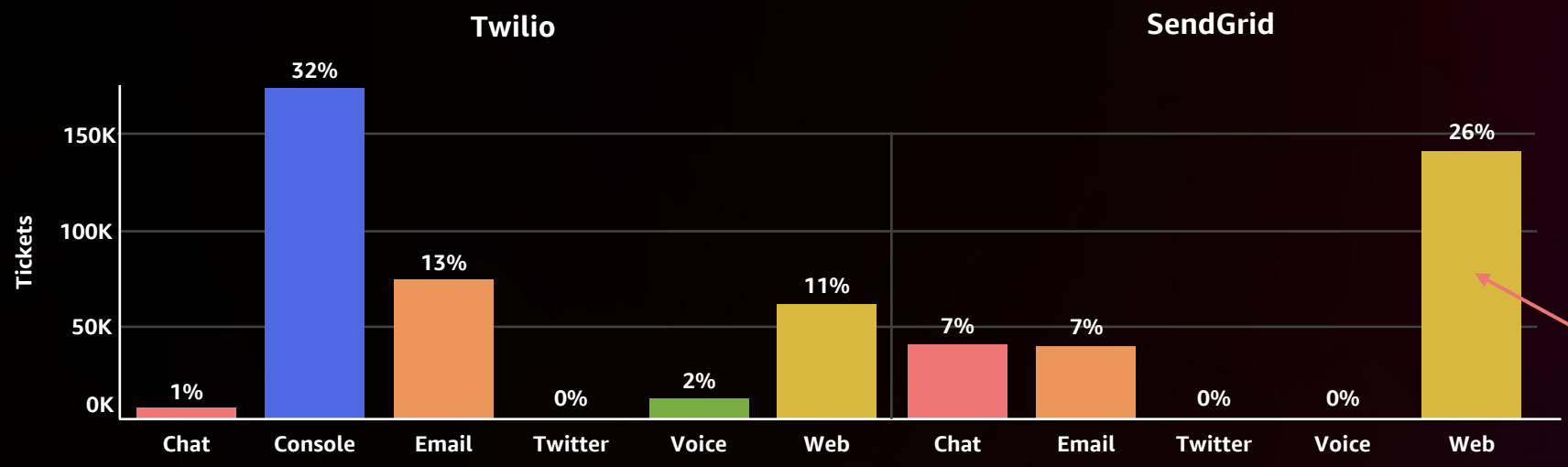
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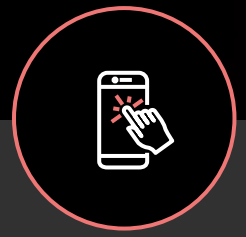


~17%
YoY ticket growth

Targeting deflection in SendGrid Help Center

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Why Amazon Kendra?

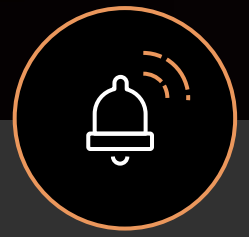


TICKET DEFLECTION

Fit for purpose –
To reduce the volume of support tickets to our internal teams and offer immediate answers.

What we call . . .

Agent



INTELLIGENT SEARCH

Reading comprehension –
To allow users to ask a question in their natural language.

Answer Extraction –
To find the specific segment of text within any article that is the recommended answer in our knowledge base.



MANAGED SERVICE

Out-of-the-box solution – We use the website crawler to index our support articles, product and API docs, and blogs. And Amazon Kendra analytics to improve our knowledge base.

What we wanted

- Question and answer support experience
- Works out of the box
- Flexible data connectors
- Website crawler
- Auto-learning capabilities (user feedback loops)
- Managed service
- Preferred cloud vendor

Options we considered

- Elasticsearch
- Swiftype
- Google site search
- Solvvy Answers
- Zendesk Answer Bot
- Google Document AI
- Coveo
- Custom-build from scratch

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Before and after example

Traditional search

how do I update my credit card

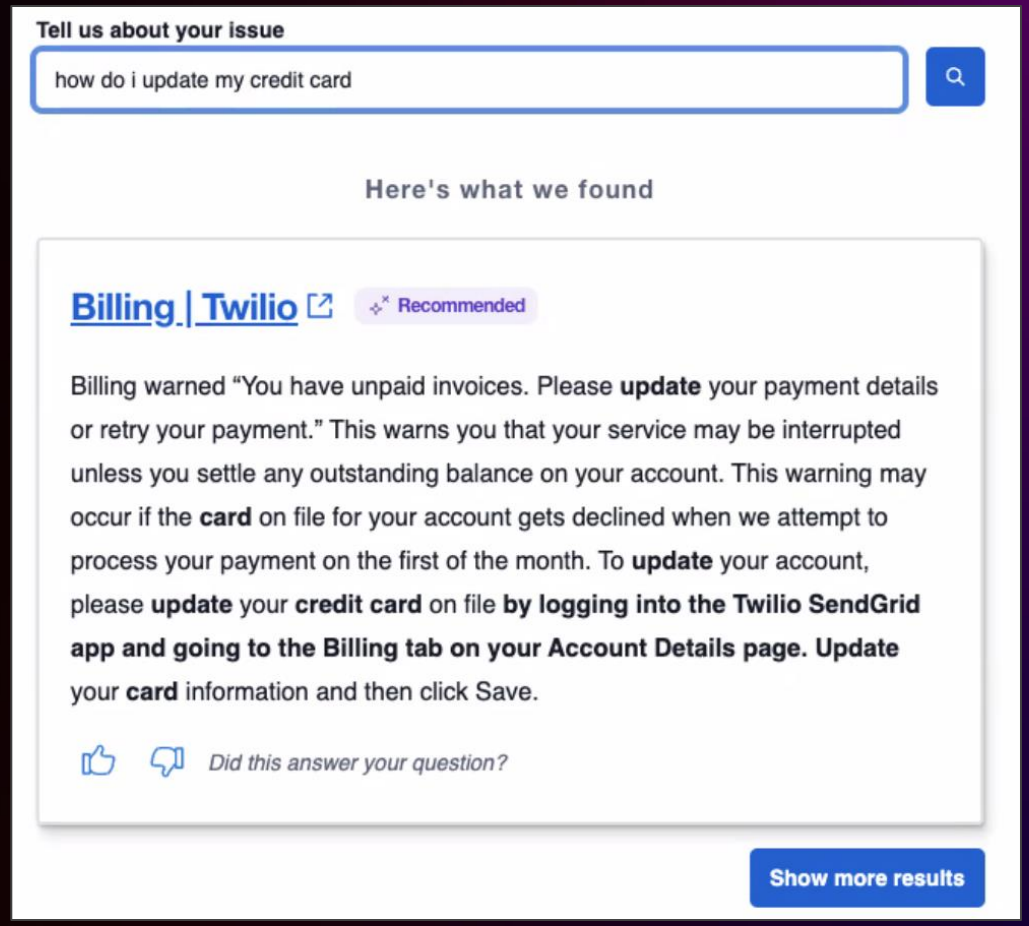
How do I Remove the Sendgrid.net **Domain** from Links **in my** Emails? – SendGrid

Read More. Log In Knowledge Center Support Status Sign Up Knowledge Center Support Status Log In Sign Up SendGrid Sending Best Practices Best Practices **How do I** Remove the Sendgrid.net Domain from Links in **my** Emails? When Twilio SendGrid receives your email request, we look at the domain used

Is Twilio SendGrid PCI Compliant? – SendGrid

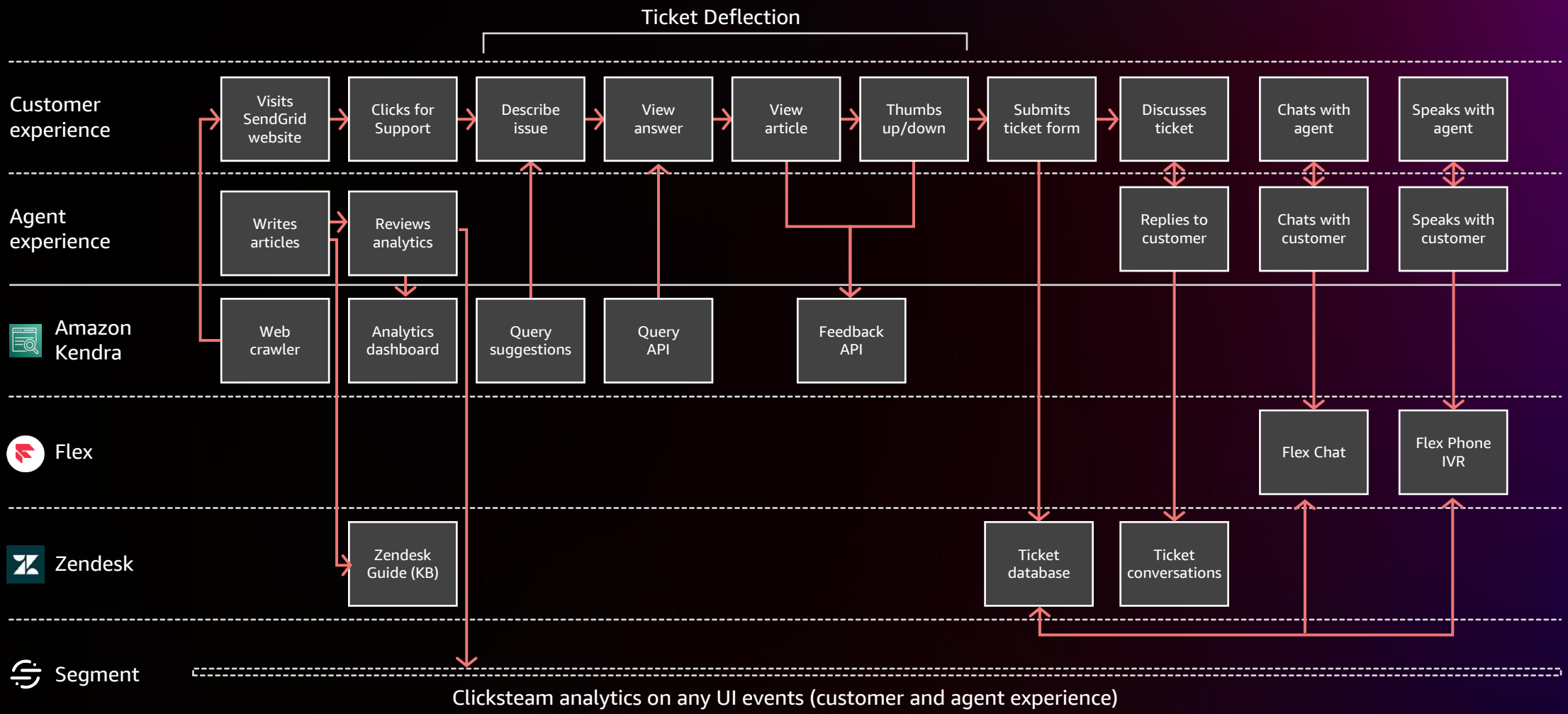
Read More. Log In Knowledge Center Support Status Sign Up Knowledge Center Support Status Log In Sign Up SendGrid General FAQ Is Twilio SendGrid PCI Compliant? Yes! We **do** not store your **credit card** information anywhere in our systems. We are happy to provide a PCI-DSS (Payment **Card** Industry Data

Amazon Kendra



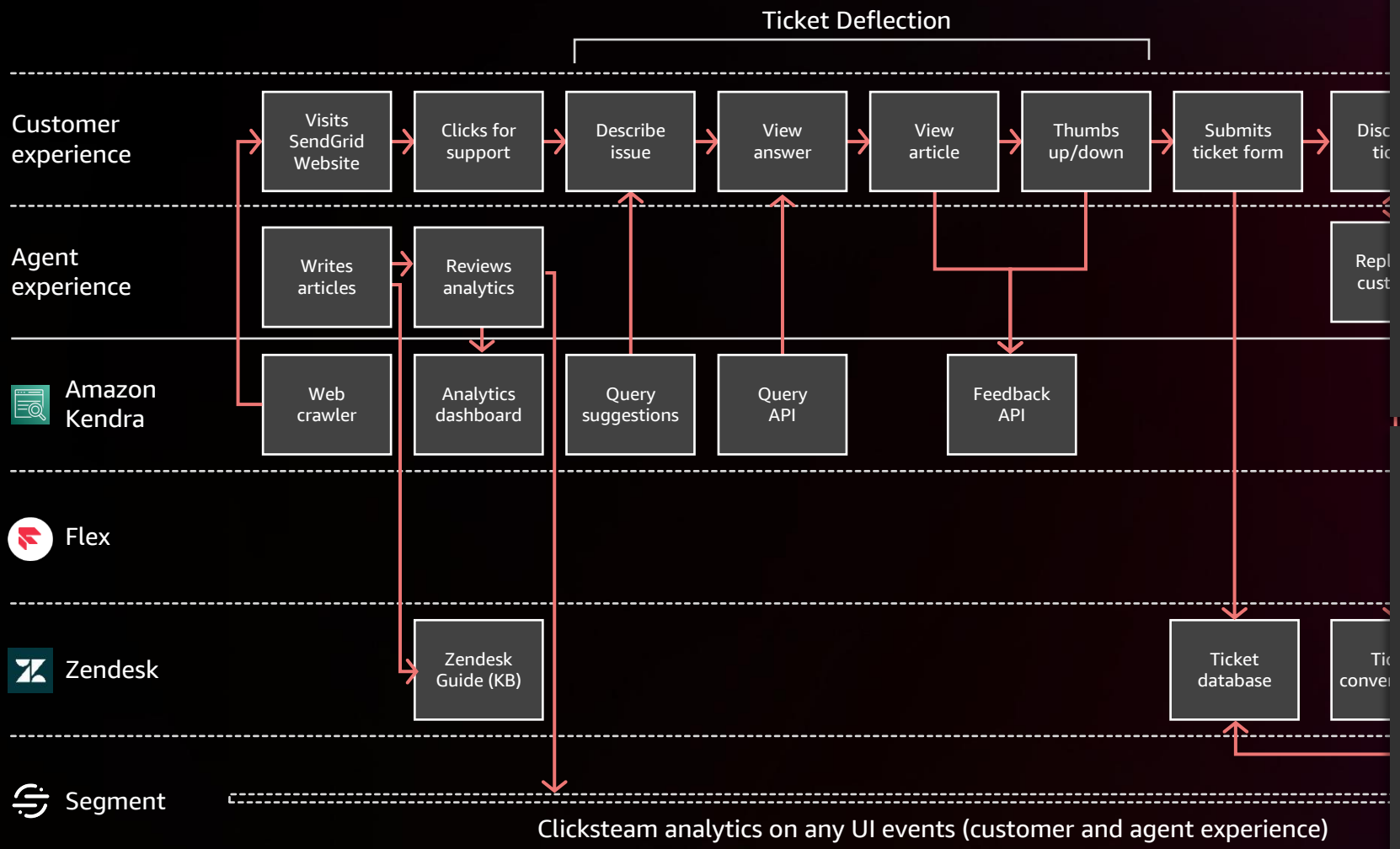
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System interactions in the support journey



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System interactions in the support journey



What's not shown

- **API orchestration layer**
- **Event-based architecture**
- **Just-in-time entitlements**
- **Ticket routing**
- **Use of Amazon Comprehend**
  - Custom Classification
  - Ticket sentiment
  - Ticket language

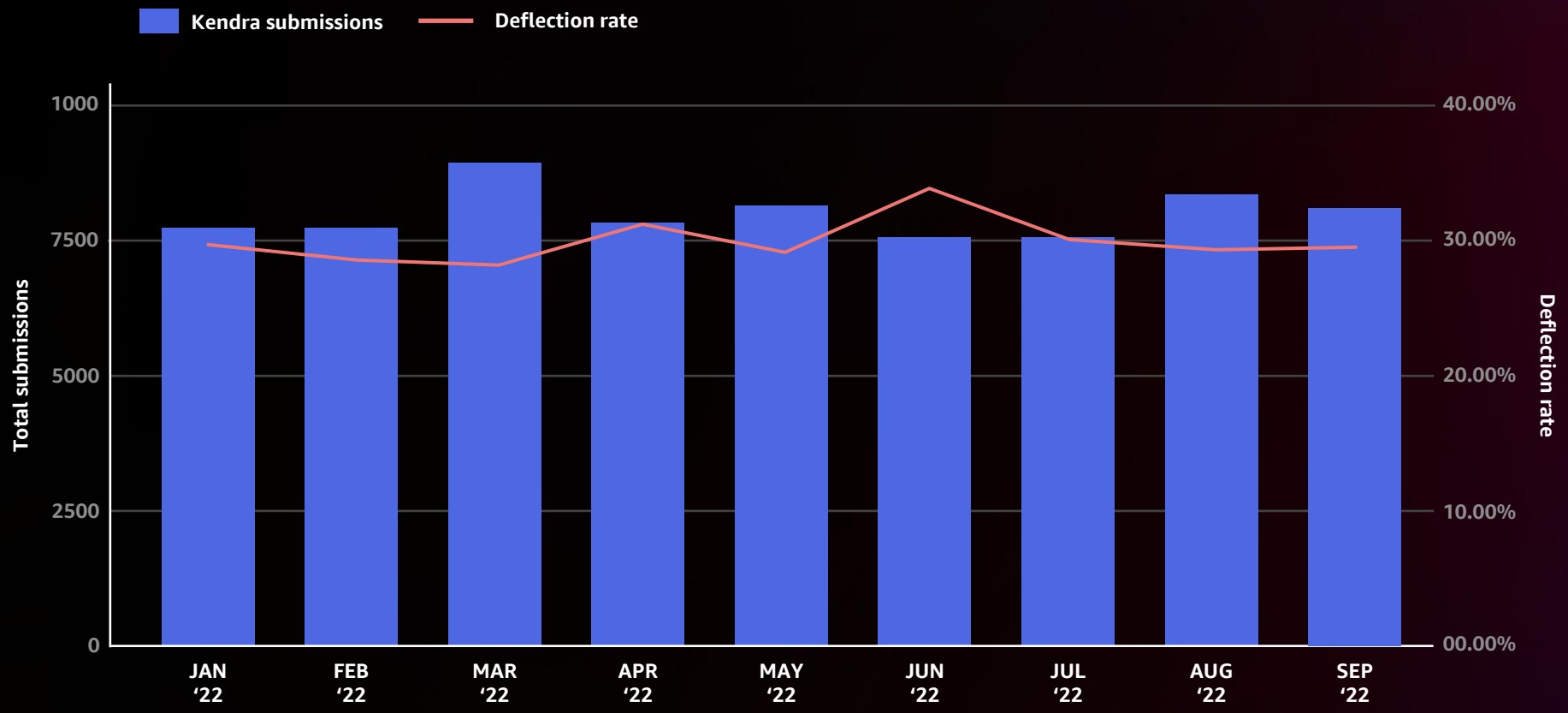
What's next

#1 priority is to reduce time to resolve tickets

- **Skills-based routing –** Getting the ticket to the right agent the first time
- **Issue-specific ticket forms –** Getting the right info from customers up front
- **Custom workflows –** Solving customer issues with guided configurable workflows designed for our top customer issues (e.g., Q&A or chatbot)

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Amazon Kendra helps us reduce ticket volume by 30%



30.2%
ticket deflection

77
tickets/day solved automatically

$43
cost/ticket for support

$1.21M
yearly savings

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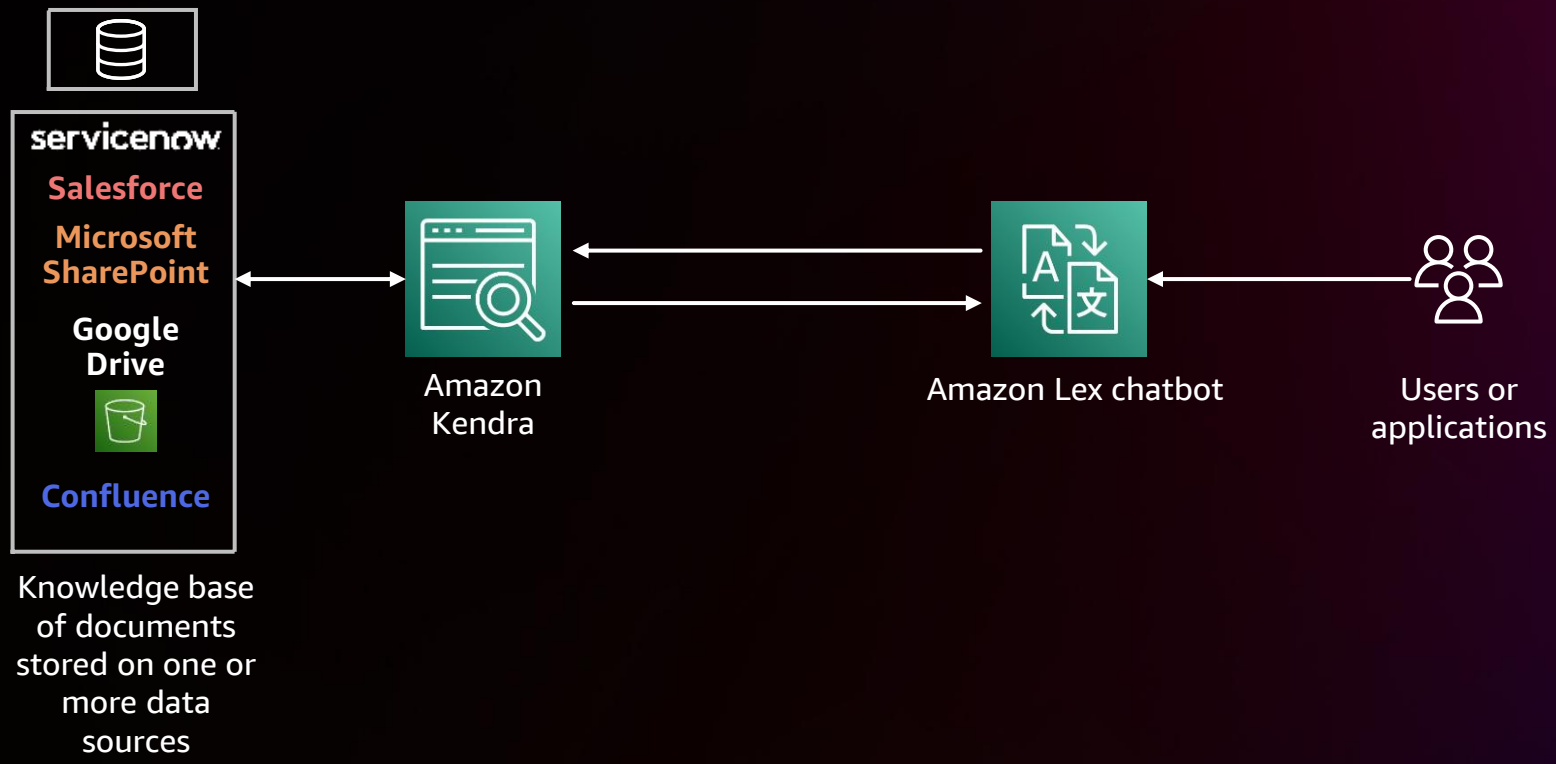
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Chatbot interface to Amazon Kendra



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Additional resources

- Amazon Kendra Essentials+ workshop
  https://kendra-essentials.workshop.aws
- Amazon Kendra Developer Guide
  https://go.aws/3u9UDn5
- Amazon Kendra category of the AWS Machine Learning Blog
  https://go.aws/3KieeY0

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