
AWS
re:Invent
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AMZ204

Beyond the EHR: Delivering timely, accessible care with One Medical

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One Medical

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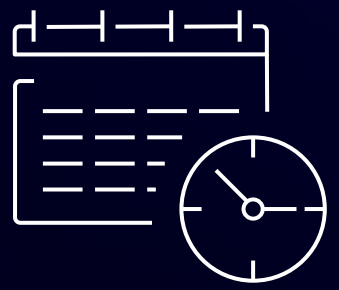
AWS

Beyond the EHR

DELIVERING TIMELY, ACCESSIBLE CARE WITH ONE MEDICAL'S TECH ECOSYSTEM



Today's session:

Learn how One Medical's technology platform connects to and scales with a wide range of AWS services. This platform ranges from operational tasks, such as claims and office management, to enabling proactive care for patients through advanced population health tooling and machine learning

Who we are

One Medical + Amazon

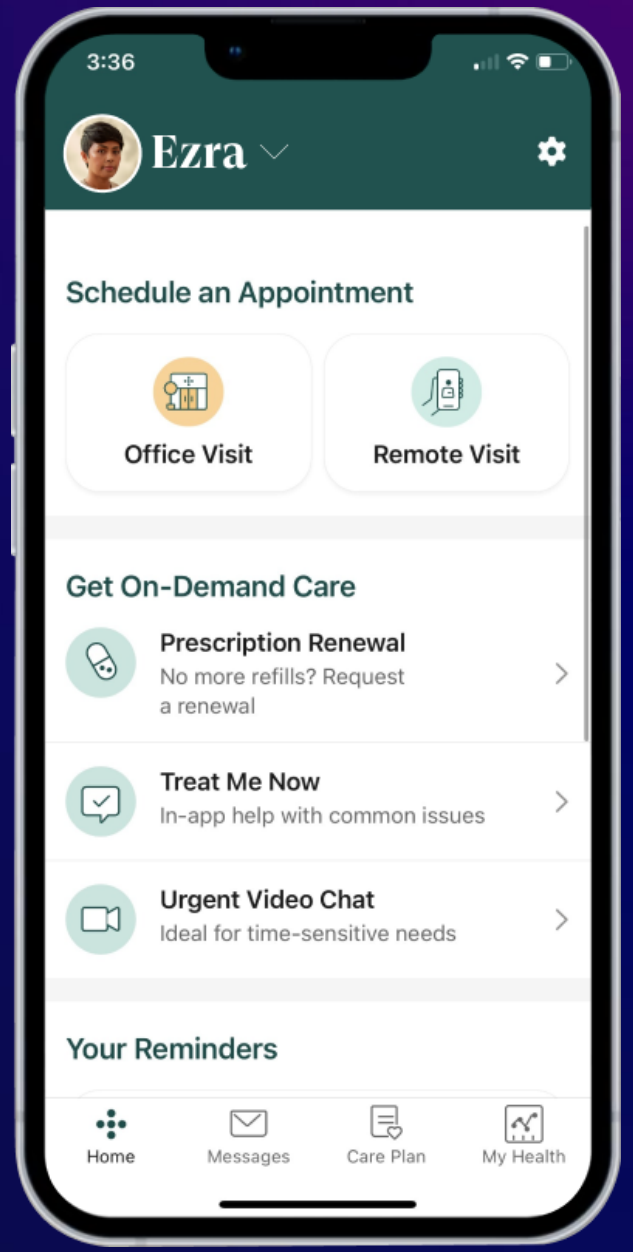
Stuart

Patrick

Jeffrey

Who we are

- Founded in 2007, joined Amazon in 2023
- Technology-enabled primary and specialty care
- Membership-based care model
- Same/next day in-office care and 24/7 virtual care
- 800K+ members served across 19+ US metro regions



What we're here to talk about today

01 Why we've built our own technology platform, 1Life

02 The building blocks of 1Life

03 How AWS simplifies building 1Life

04 What we've built on 1Life

Key takeaways

Developing secure and scalable systems in healthcare is hard, but AWS makes it easier

How adopting modern healthcare standards enables building a patient-centered experience

How Machine Learning can be applied to solve real healthcare problems

Why we've built our own technology platform

Healthcare today

The healthcare experience needs fixing

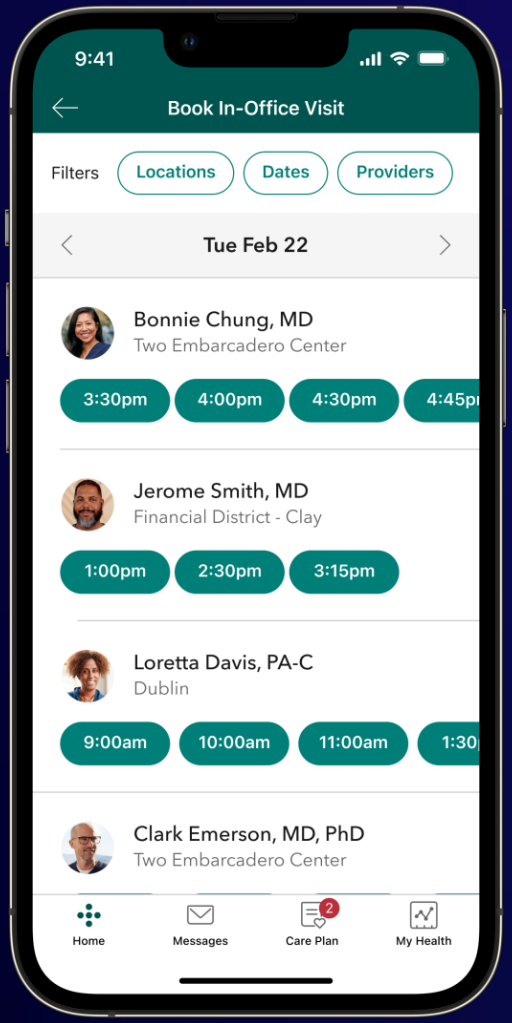
Appointments are scheduled long in advance

Wait times are long

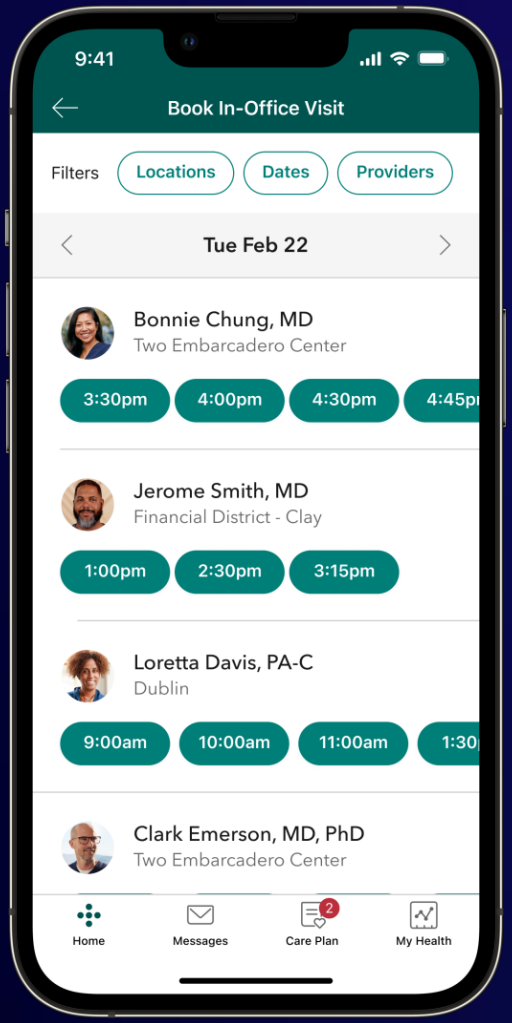
Your data doesn’t move with you

We work differently

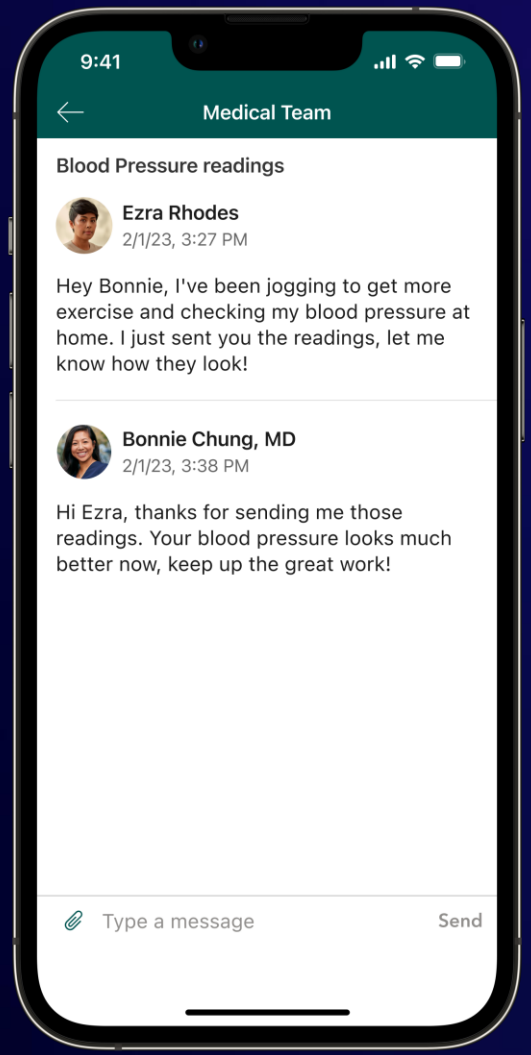
You can book same or next day appointments



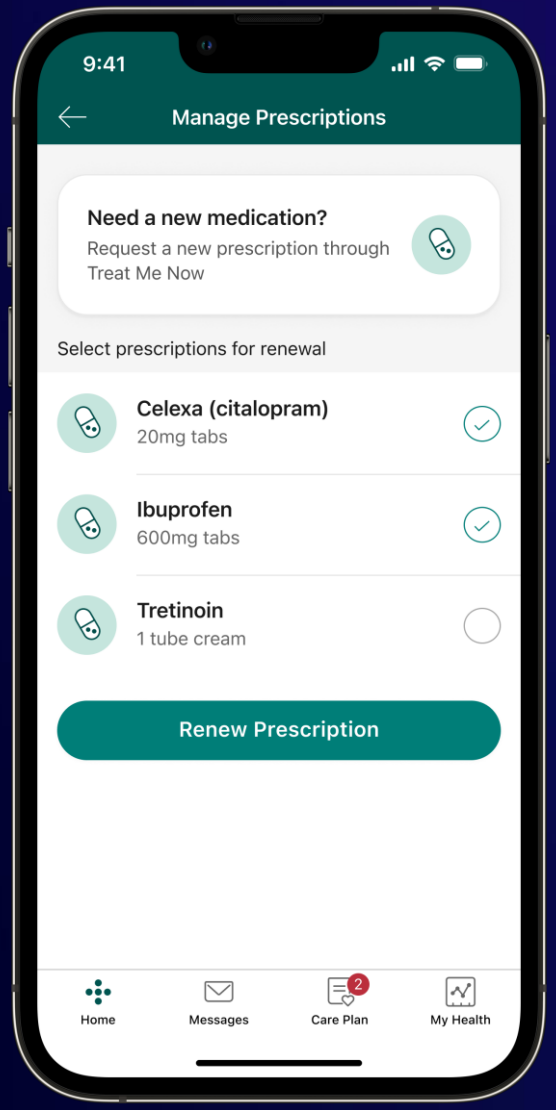
And these appointments start on time



You can message your provider anytime

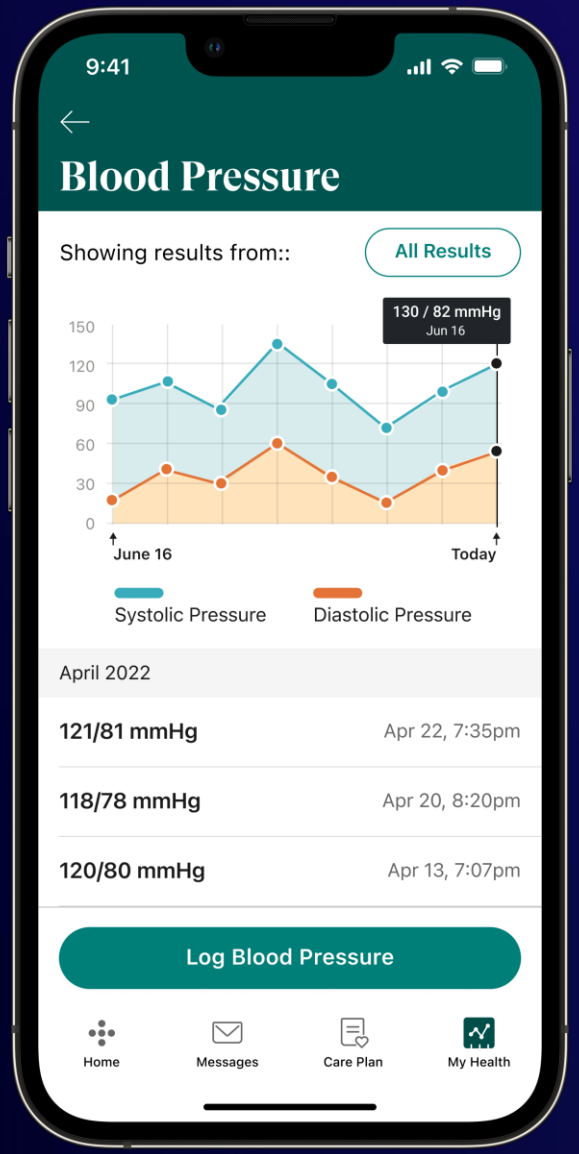


You can renew prescriptions from home



You can receive care in person or via video

Your health records are in one place



We’re delivering a better experience

8%

Total cost savings

41%

Fewer ER visits

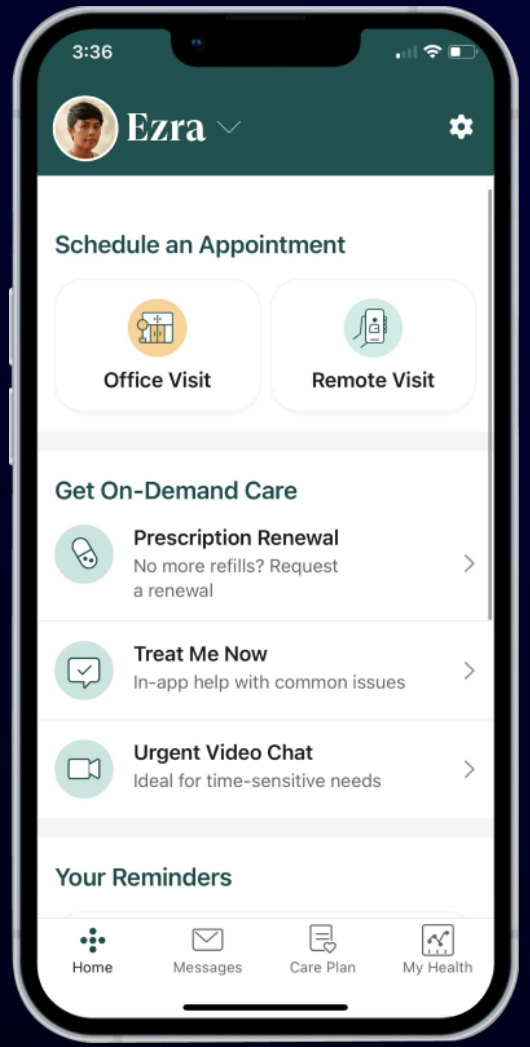
90th

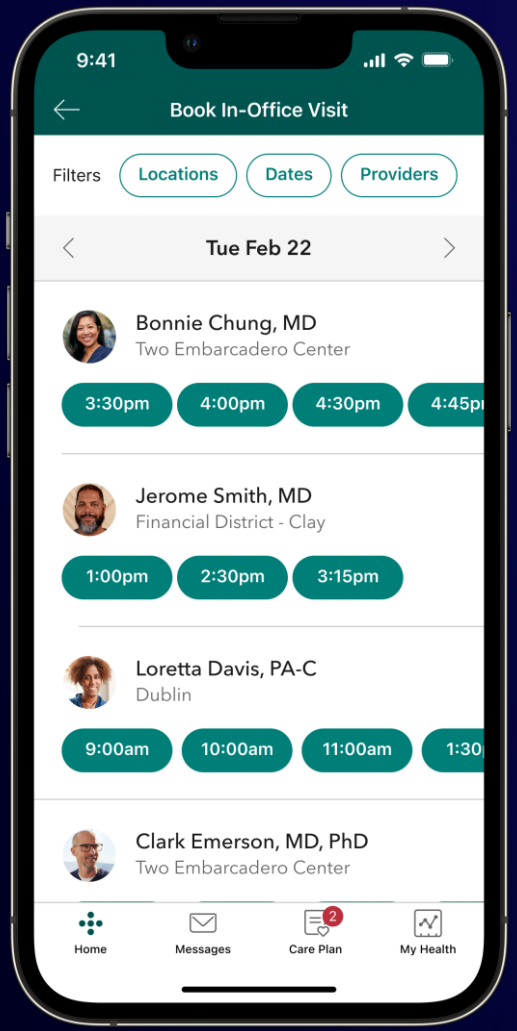
Percentile in quality HEDIS scores

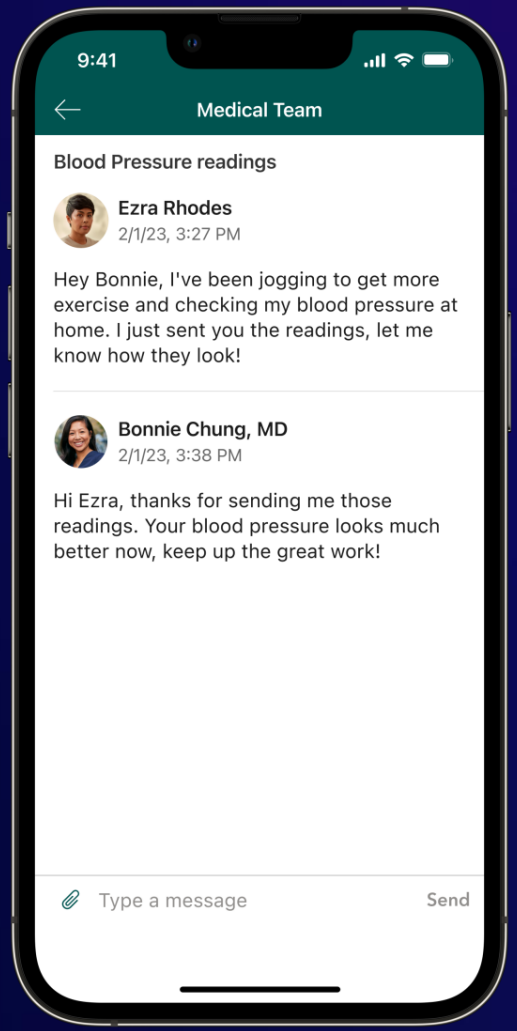
90

Net Promoter Score

We achieve this via our technology platform, 1Life



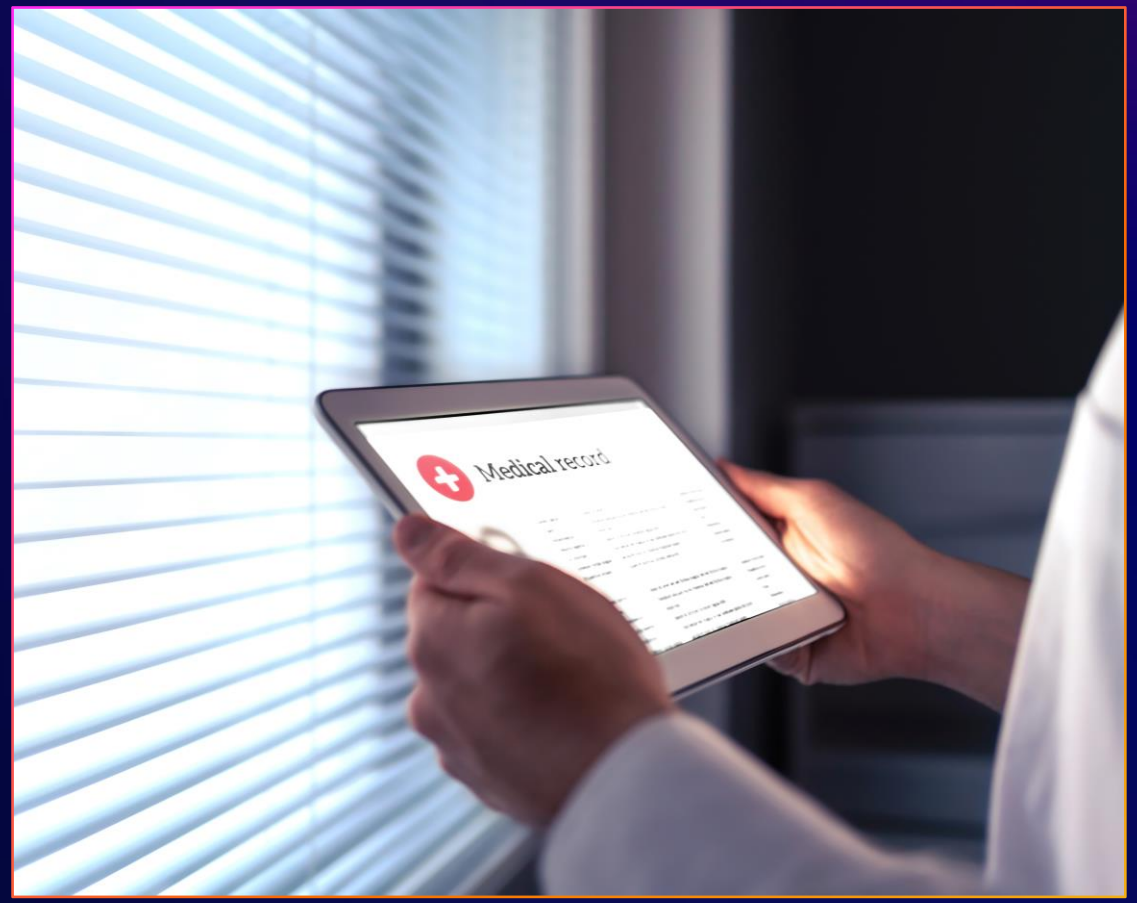




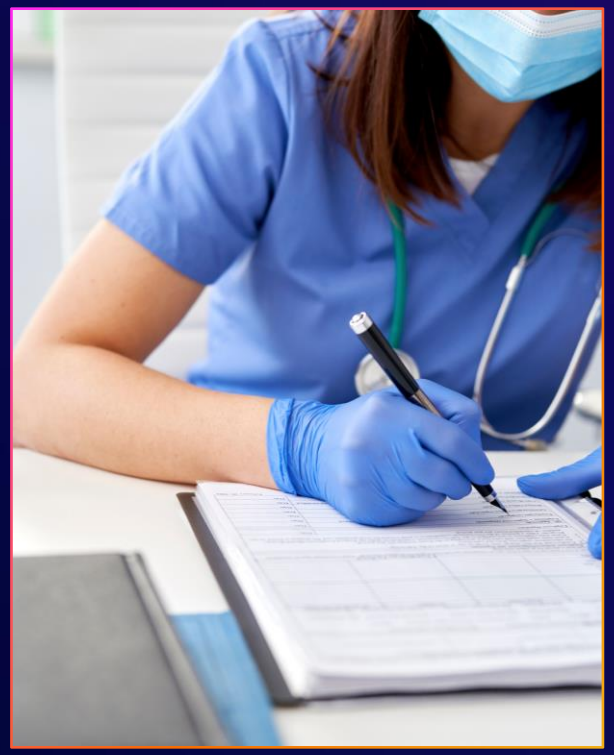
Why build our own technology?

Healthcare started with paper

EHR = Electronic health record



There was much more than just a paper chart



It takes more than just an EHR to deliver care

EHR

Scheduling

Mobile applications

Billing

CRM

Surveying

Analytics

Interoperability

Population health

AI

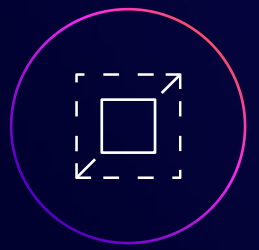
Video chat

…and more

And it’s not as simple as buying new SaaS tools

THESE TOOLS MUST ALSO BE:

Secure



Scalable

Interoperable

Human-centered

HIPAA

Security means more than HIPAA

Healthcare applications have consumer SLAs

Interoperability is not a simple integration

Many standards

Many transmission protocols

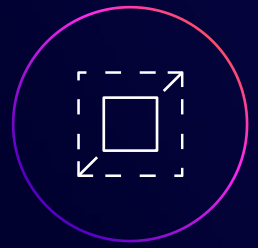
Many consumers

Tooling needs to be usable

These challenges apply to every application

Secure

?



Scalable

?

Interoperable

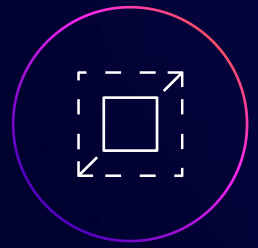
?

Human-centered

?

Oftentimes usability is hard to achieve

Secure



Scalable

Interoperable

?

Human-centered

?

We wanted to build technology that elevates care

The building blocks of 1Life

Our platform underpins all of our applications

EHR

Scheduling

Mobile applications

Billing

CRM

Surveying

Analytics

Interoperability

Population health

AI

Video chat

…and more

1Life Platform

An example: Vital signs

- Height
- Weight
- Temperature
- Respiratory rate
- Heart rate
- Blood pressure
- Oxygen saturation

Our platform is built on key domain-oriented primitives

The data models and APIs align to open standards

HL7® FHIR® provides standard data models for the healthcare domain

```
{
 ”id" : ”123",
 "resourceType" : "Observation",
 "code" : {
  "coding" : [
   {
    "system" : "http://loinc.org",
    "code" : "8310-5",
    "display" : "Body temperature"
   }
  ],
 },
 "subject" : {
  "reference" : "Patient/example",
 },
 "effectiveDateTime" : "1999-07-02",
 "valueQuantity" : {
  "value" : 36.55556,
  "unit" : "Cel",
  "system" : "http://unitsofmeasure.org",
  "code" : "Cel"
 }
 ...
}
```

And standard REST and Graphql APIs

```
POST  /Observation
PUT  /Observation/123
GET  /Observation/123
GET  /Observation?patient=example
PATCH /Observation/123
DELETE /Observation/123
```

```
{
 “id”: “123”,
 "resourceType" : "Observation",
 "code" : {
  "coding" : [
   {
    "system" : "http://loinc.org",
    "code" : "8310-5",
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  "value" : 36.55556,
  "unit" : "Cel",
  "system" : "http://unitsofmeasure.org",
  "code" : "Cel"
 }
 ...
}
```

It makes data readable across systems

```
{
 ”id" : ”123",
 "resourceType" : "Observation",
 "code" : {
  "coding" : [
   {
    "system" : "http://loinc.org",
    "code" : "8310-5",
    "display" : "Body temperature"
   }
  ],
 },
 "subject" : {
  "reference" : "Patient/example",
 },
 "effectiveDateTime" : "1999-07-02",
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  "value" : 36.55556,
  "unit" : "Cel",
  "system" : "http://unitsofmeasure.org",
  "code" : "Cel"
 }
 ...
}
```

And it anticipates common data needs

```
{
 ”id" : ”123",
 "resourceType" : "Observation",
 "code" : {
  "coding" : [
   {
    "system" : "http://loinc.org",
    "code" : "8310-5",
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 "subject" : {
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 "effectiveDateTime" : "1999-07-02",
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  "value" : 36.55556,
  "unit" : "Cel",
  "system" : "http://unitsofmeasure.org",
  "code" : "Cel"
 }
 ...
}
```
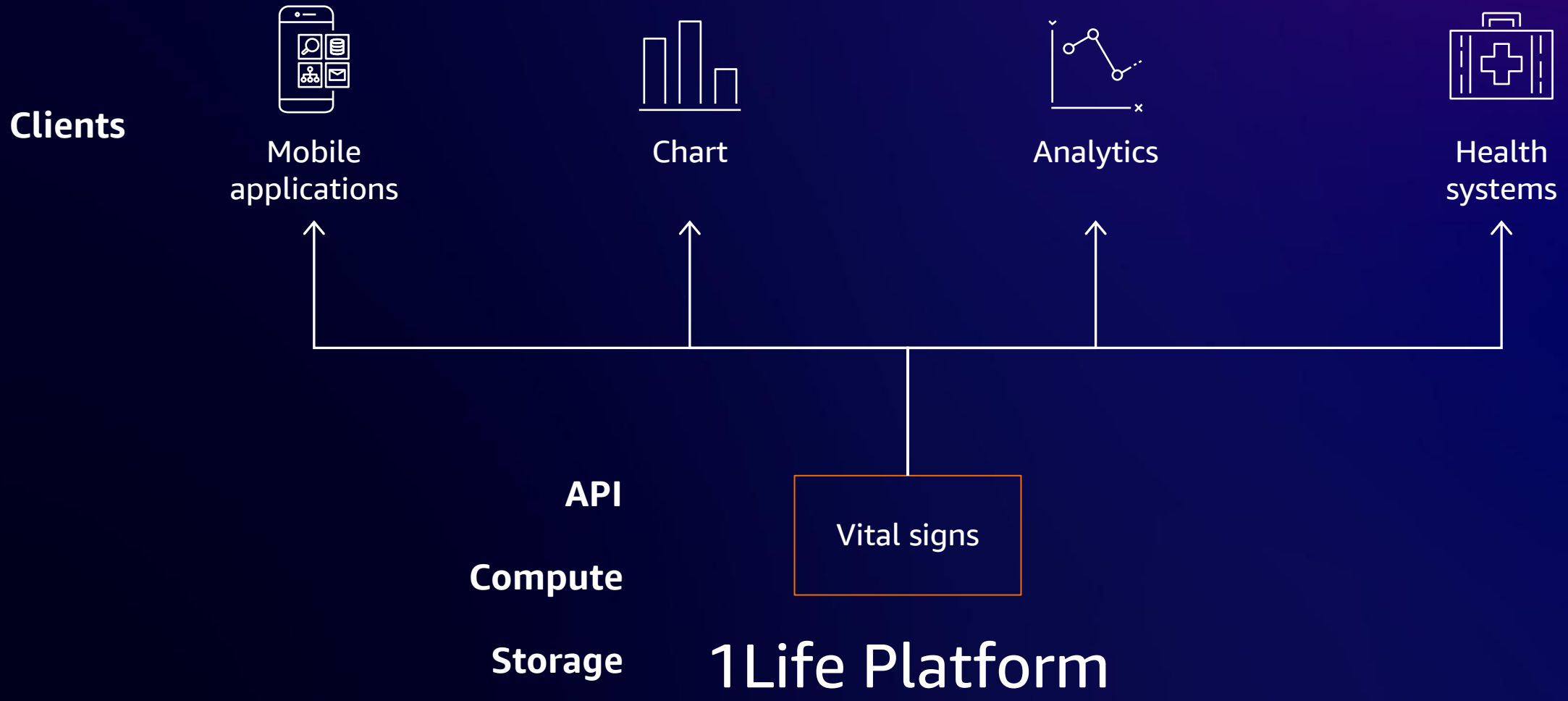

These primitive data types serve many customers and applications

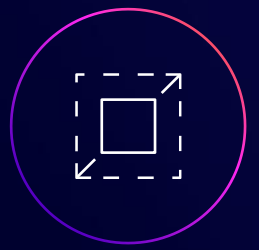
These primitive data types leverage standardized infrastructure



How AWS simplifies building 1Life

AWS simplifies these infrastructure needs

Secure

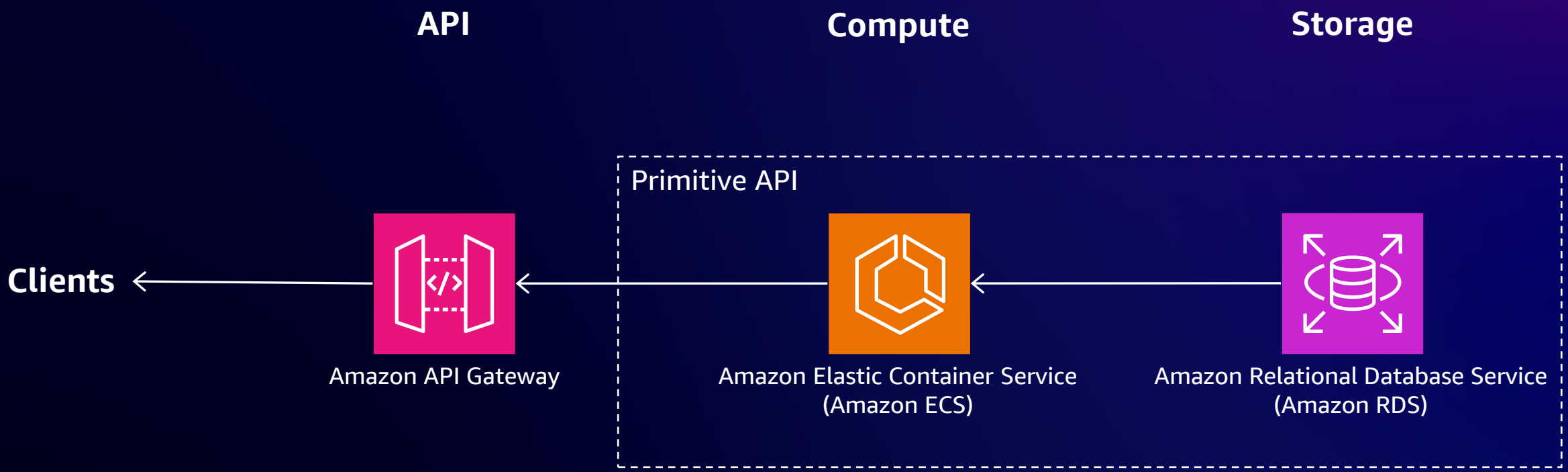


Scalable

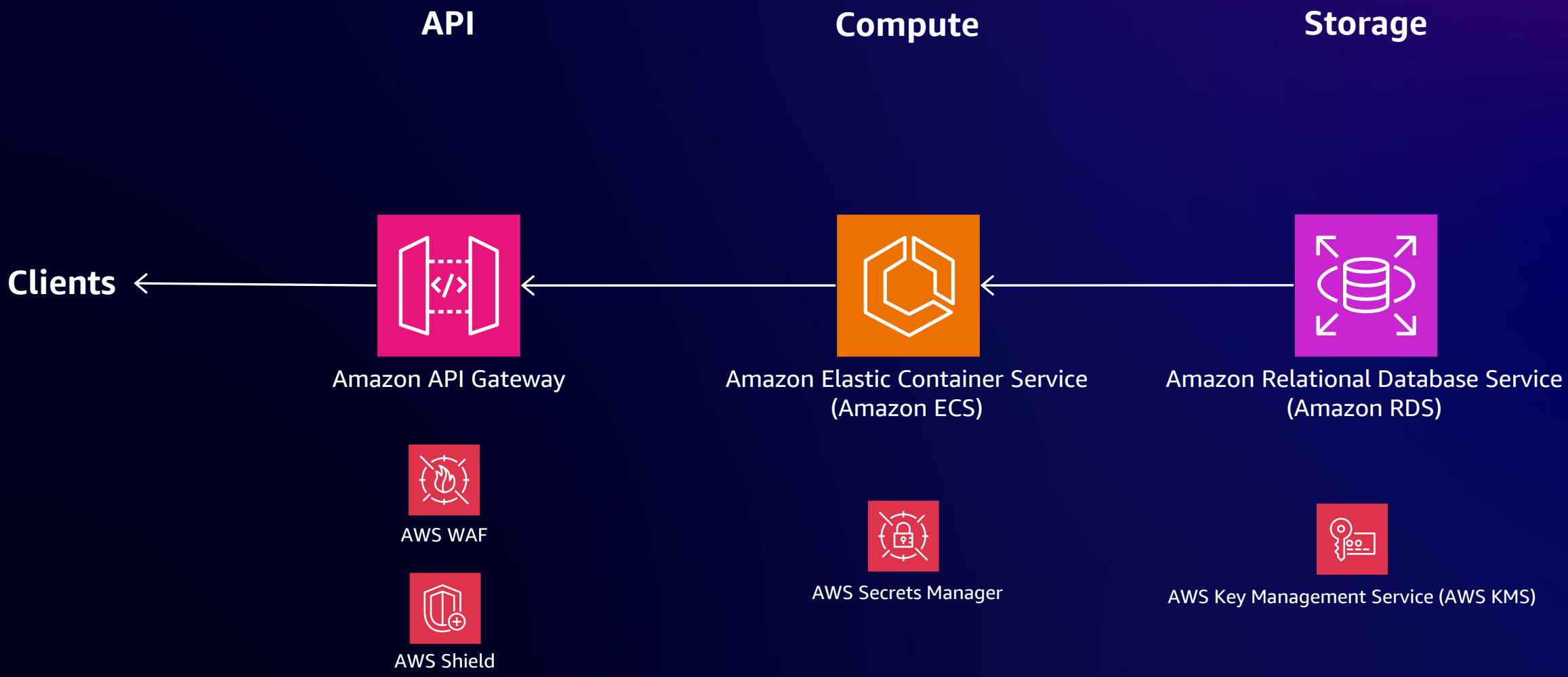
Interoperable

Human-centered

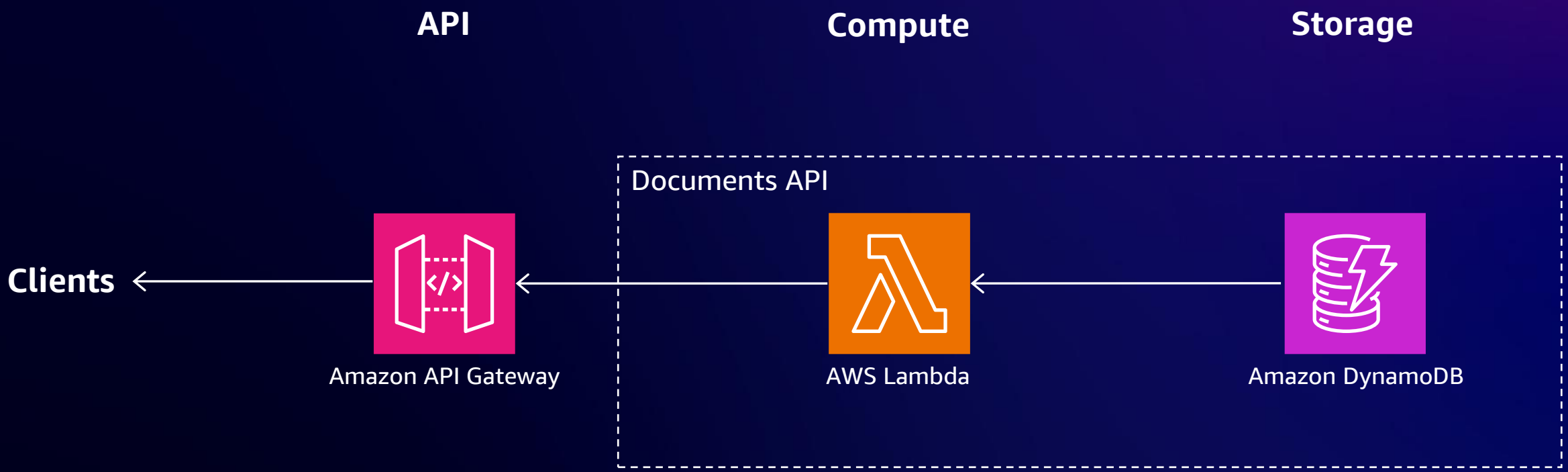
Our primitive data types follow a standard service template



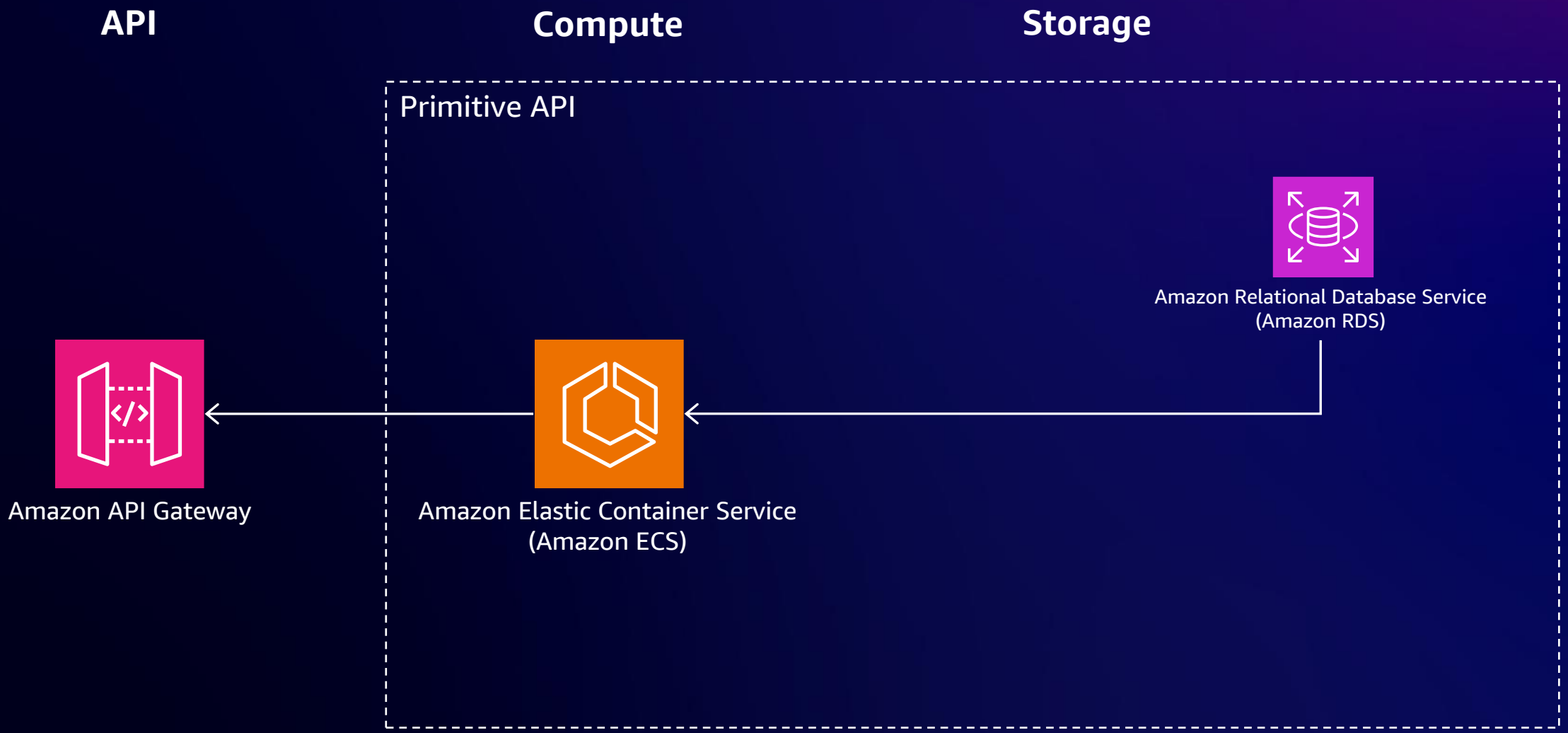
AWS security tooling plugs into our stack



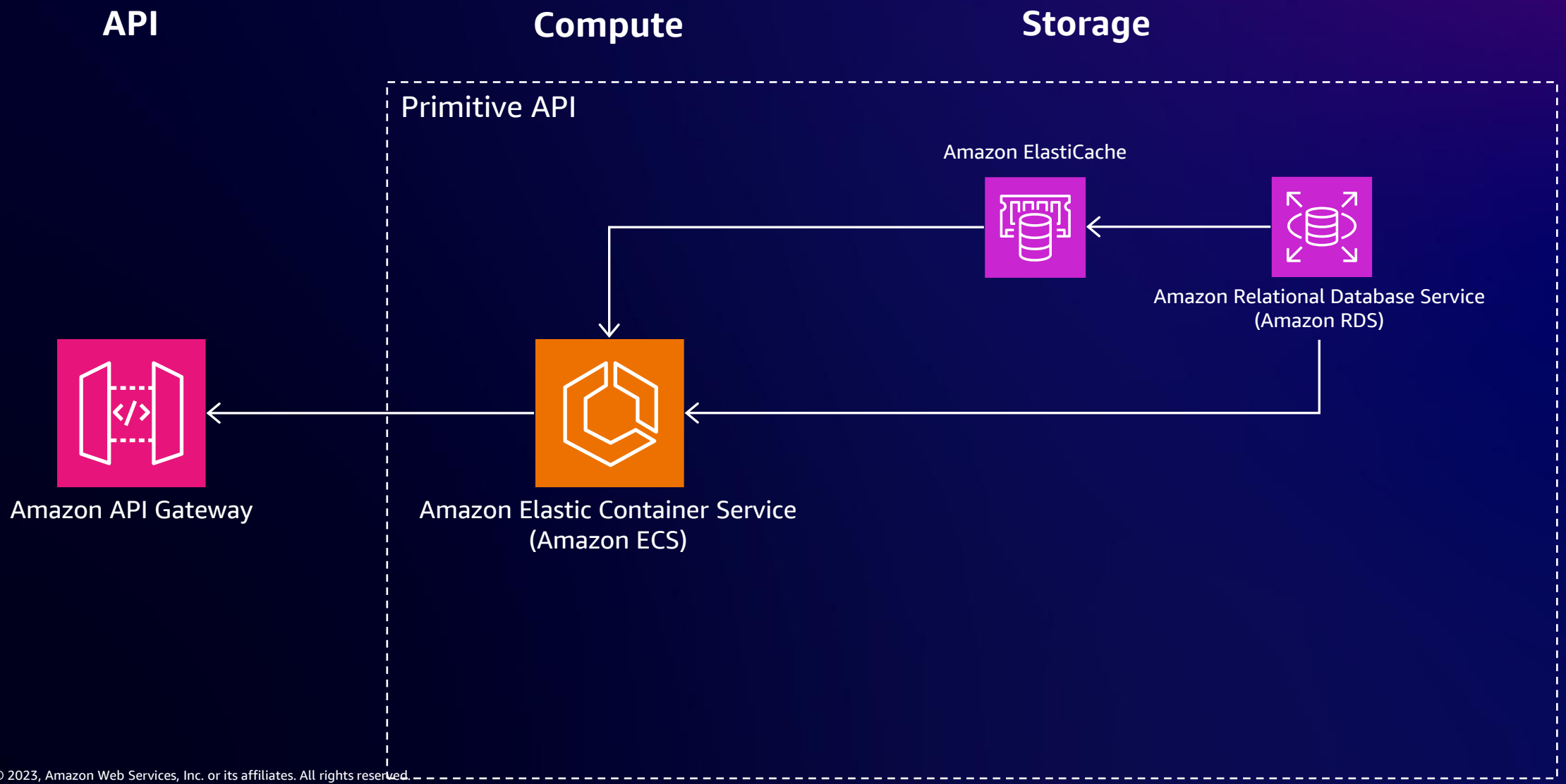
This service template is composable by use case



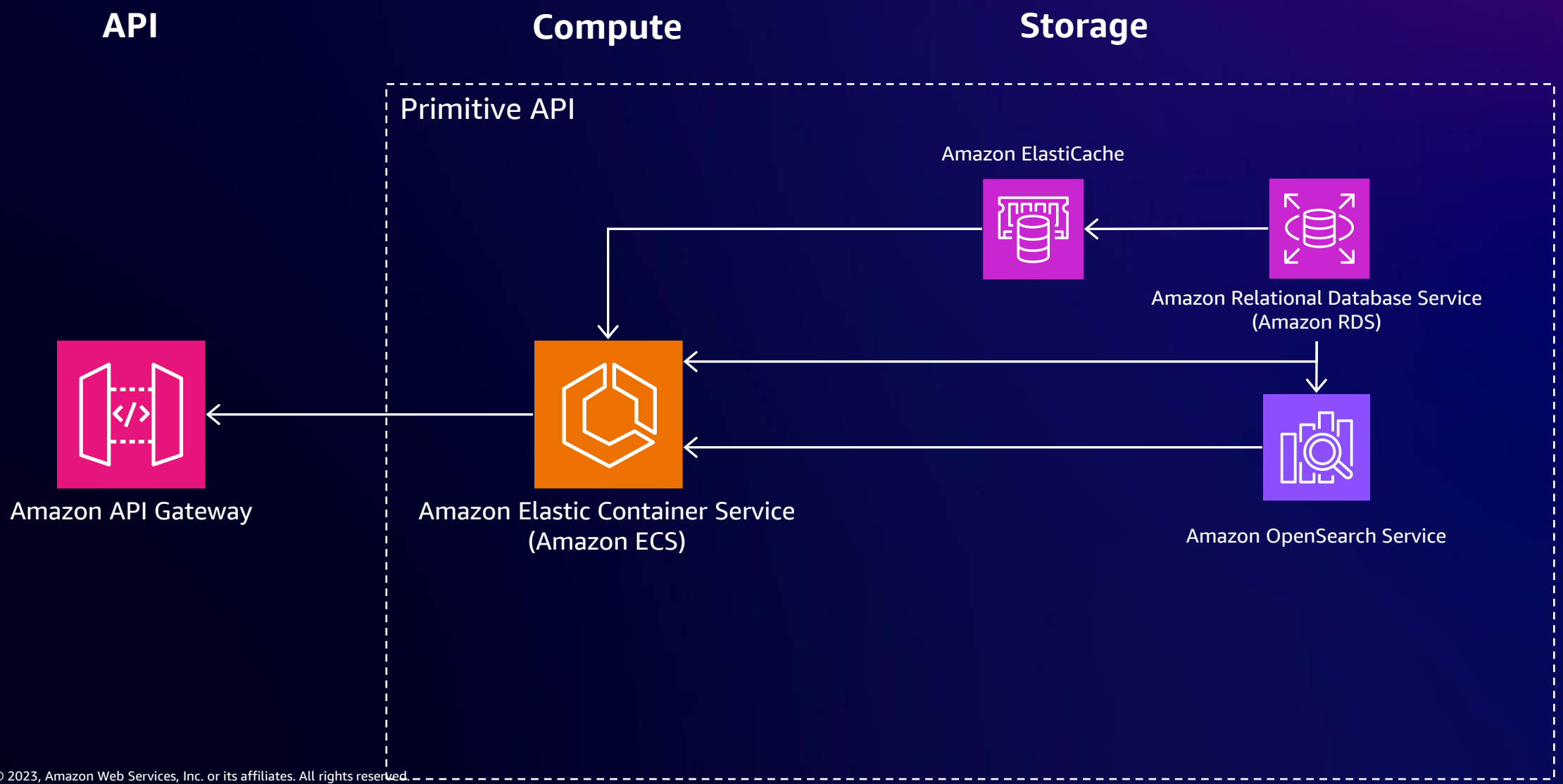
We can layer on infrastructure as we scale



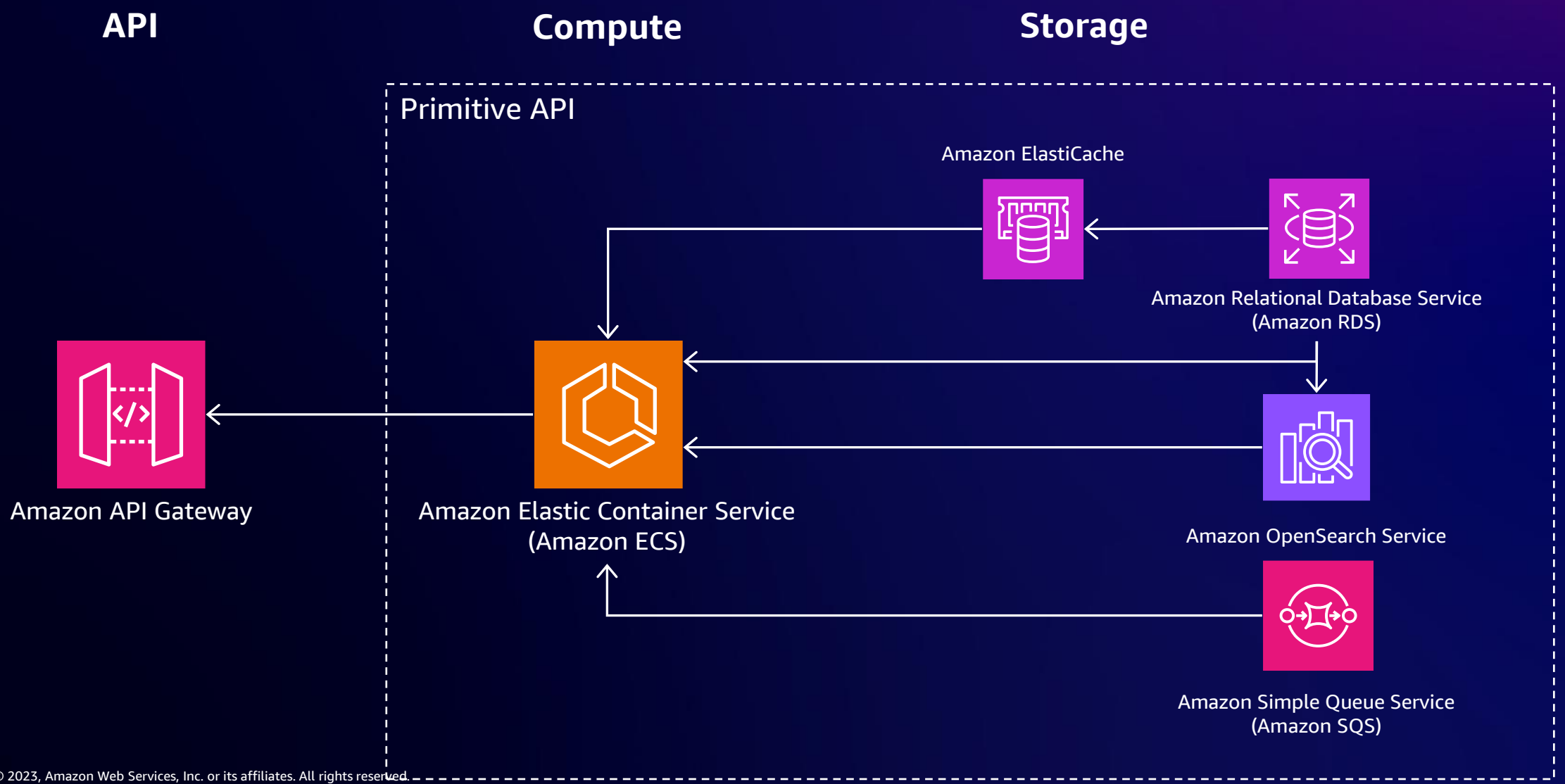
Adding a cache reduced load from hot keys



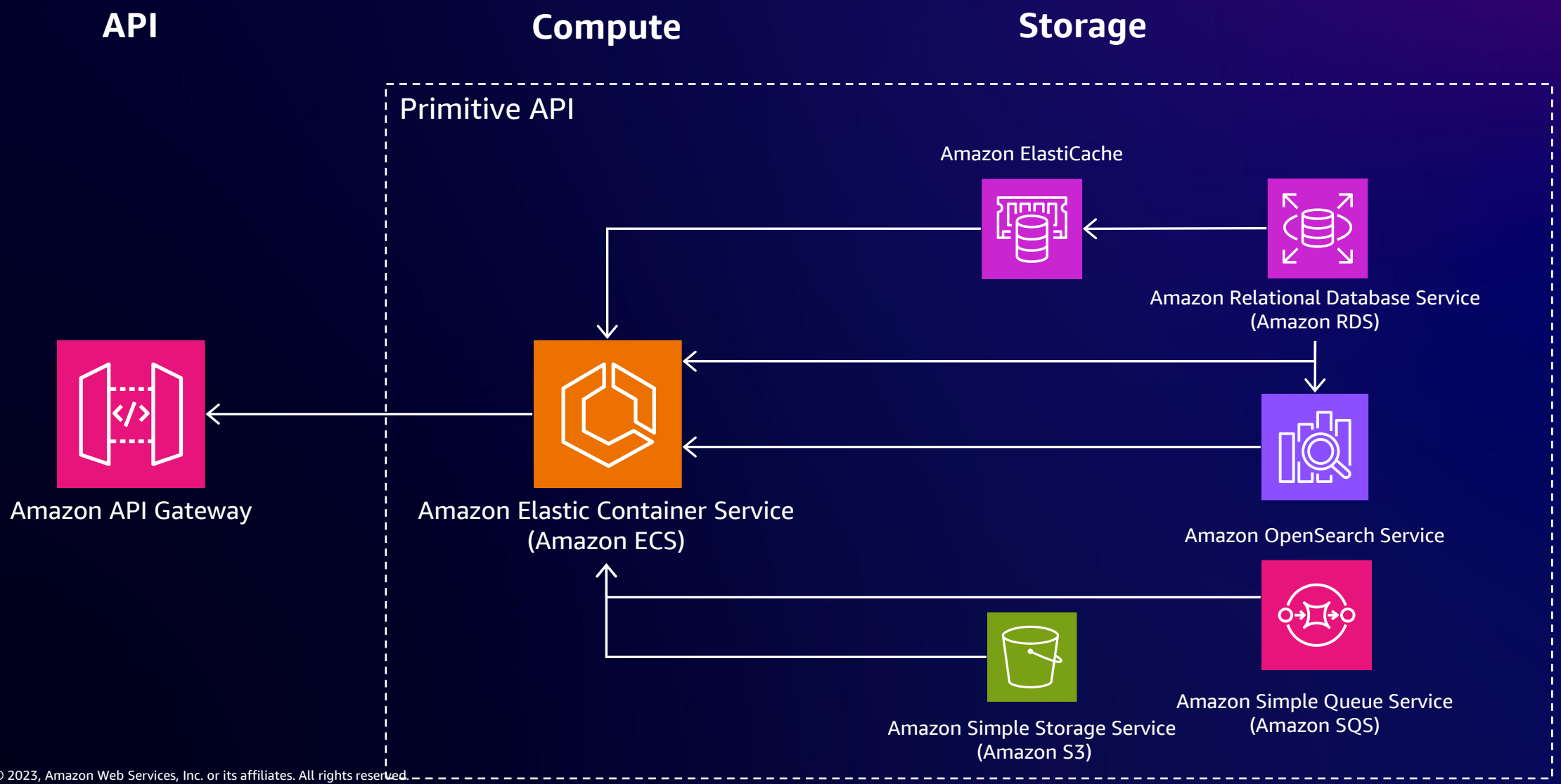
Adding a search index sped up search and typeahead



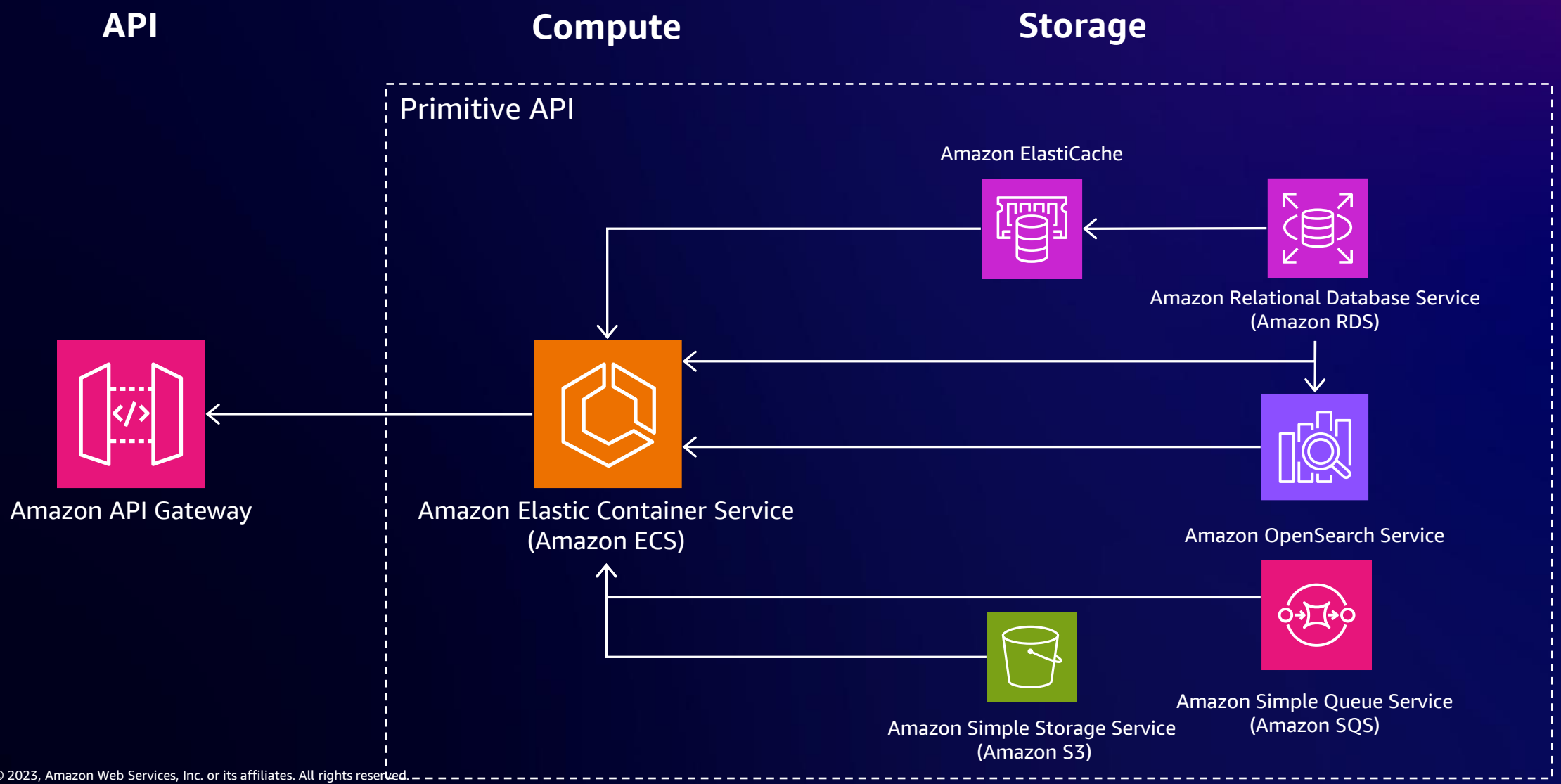
Adding a task queue enabled asynchronous work



Adding object storage allowed storing documents



These are all HIPAA eligible services



Things our engineers don't have to do anymore

Deploy our own hardware security modules

Deploy distributed systems to run one tool

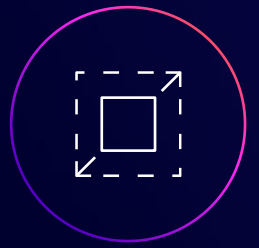
Support custom image build pipelines

Perform risky in-flight upgrades to underlying infrastructure

The list goes on . . .

Our engineers can focus on what differentiates us

Secure



Scalable

Interoperable

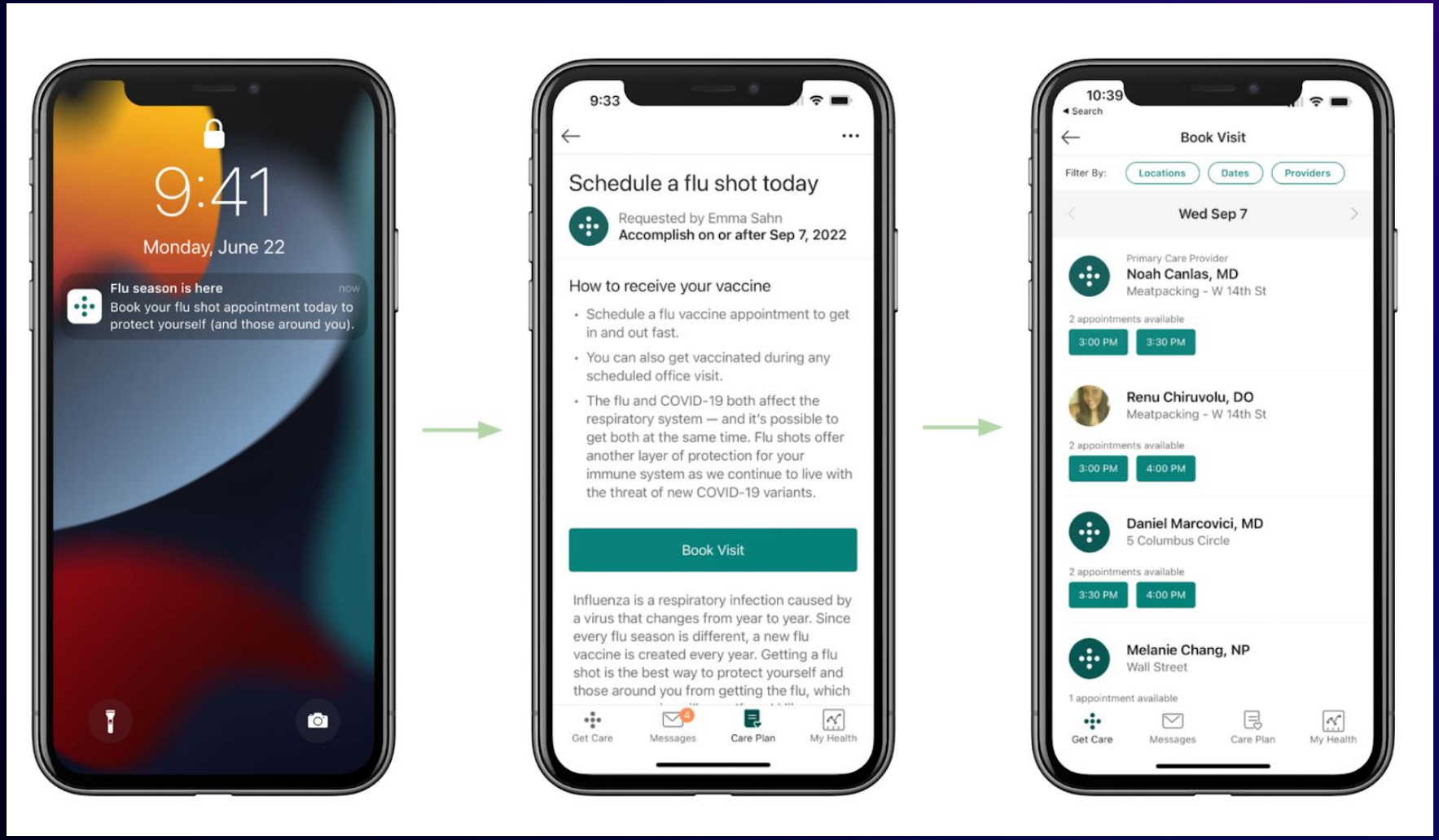
Human-centered

What we've built on 1Life

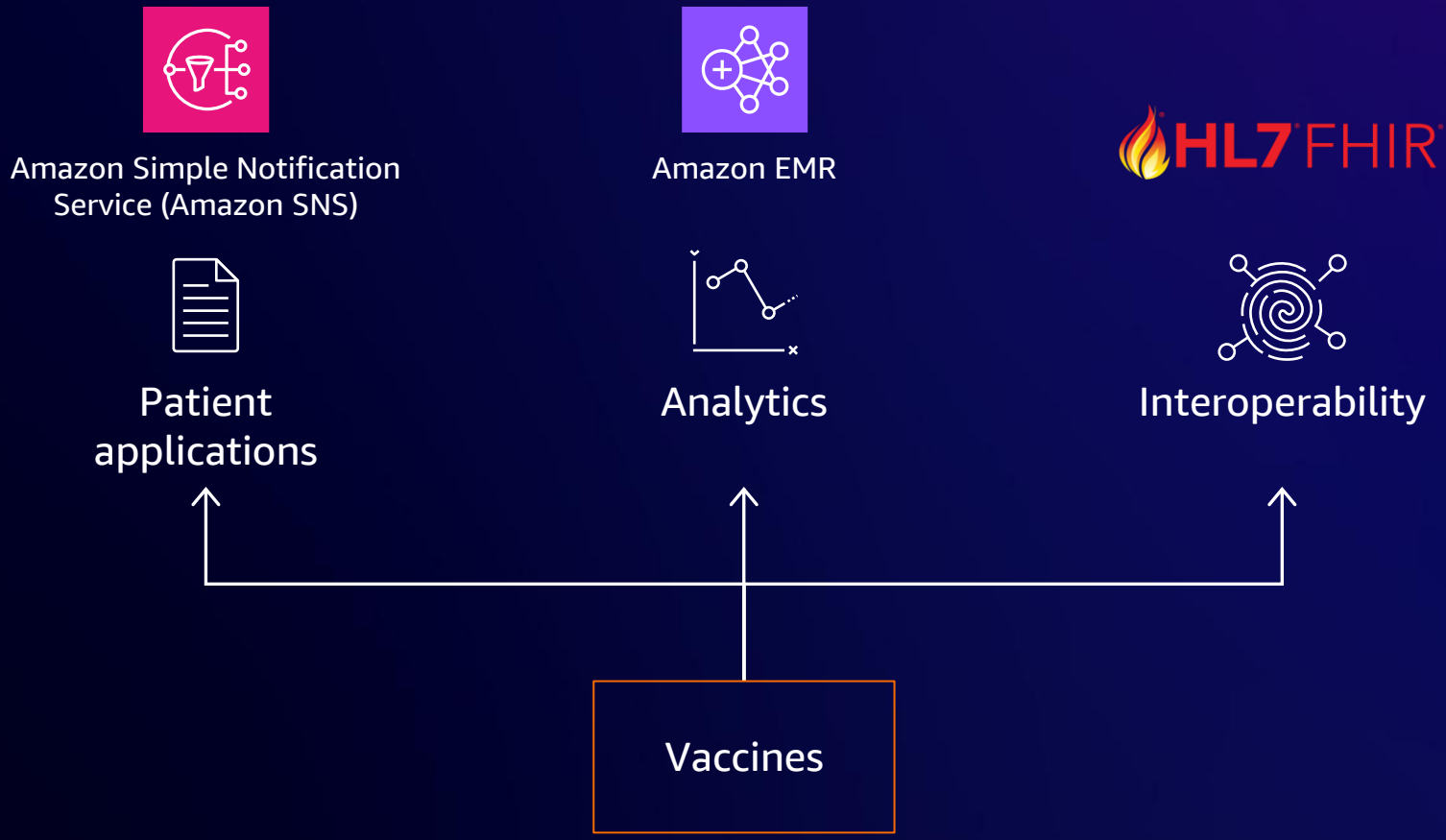
Flu season is upon us

Vaccine administration can be confusing

We solve this via action items



Vaccine administration is “smart” thanks to a common platform



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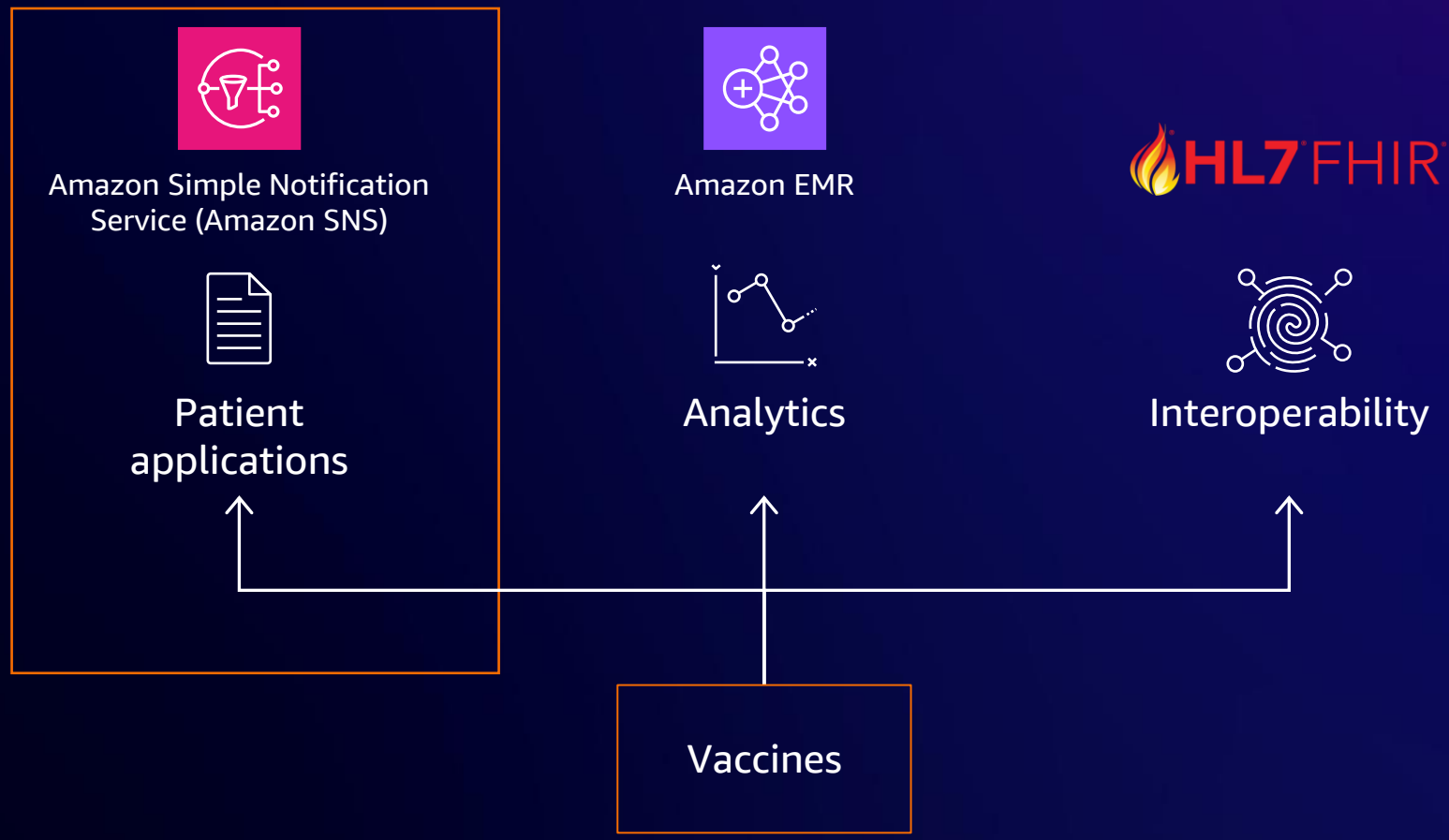

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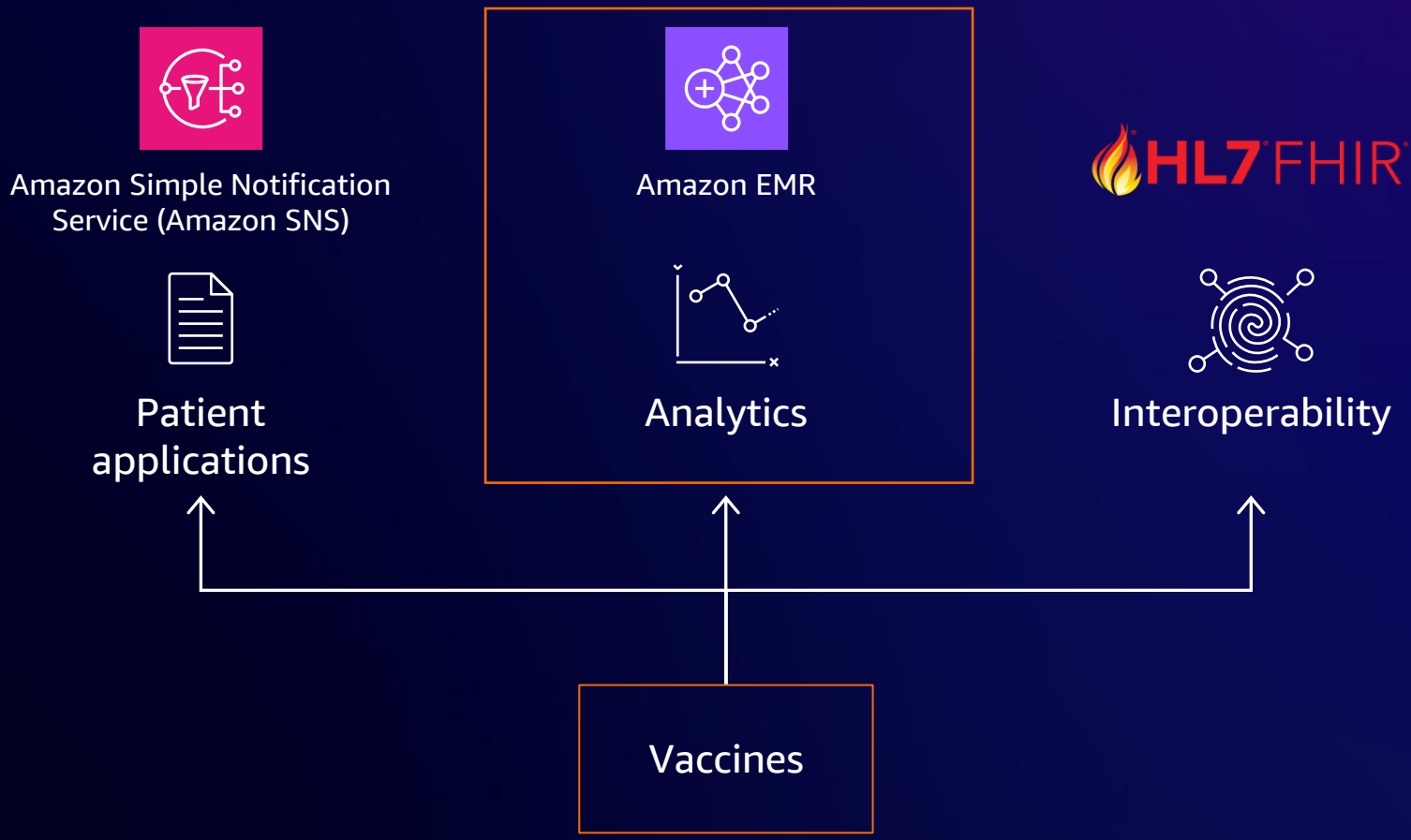

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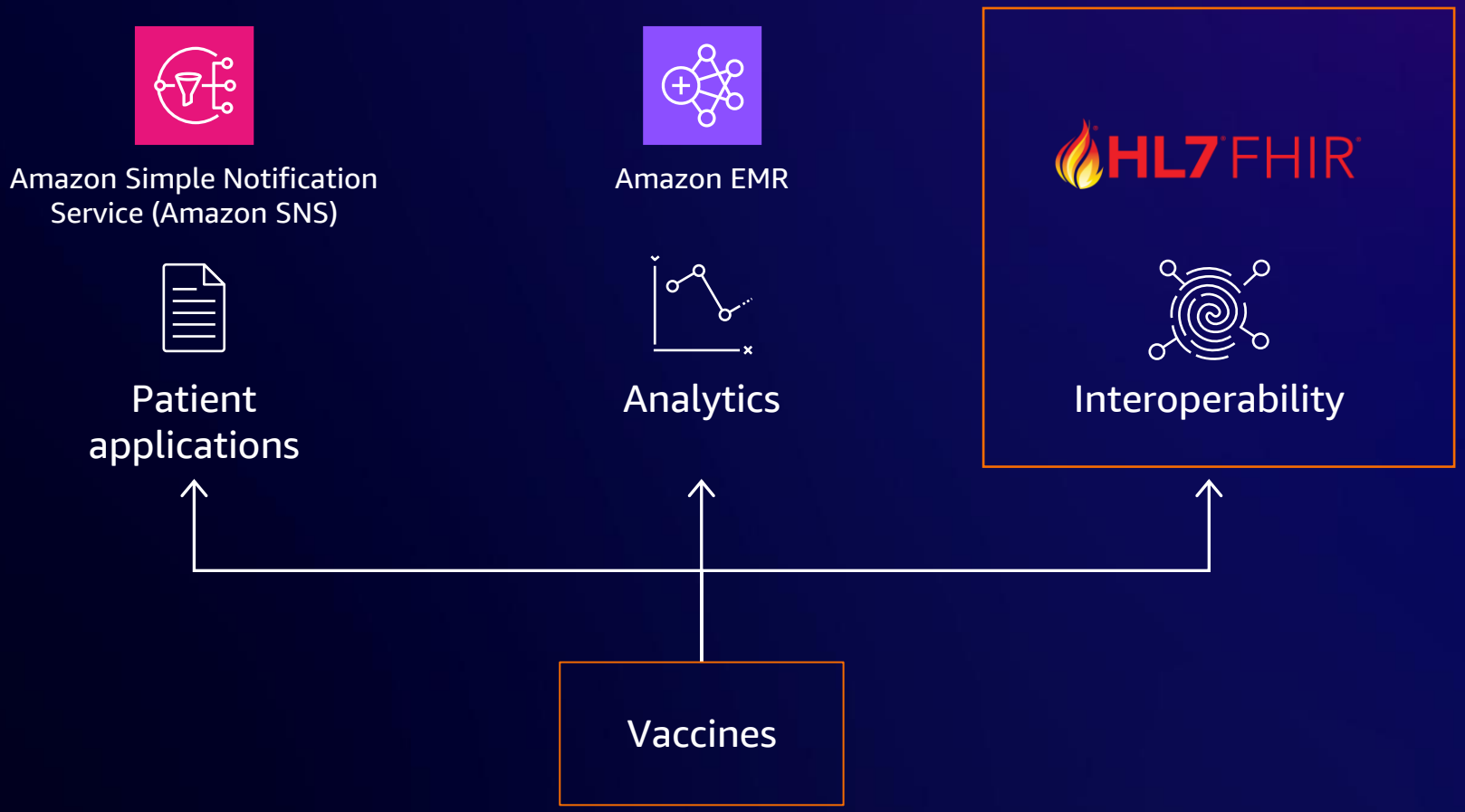
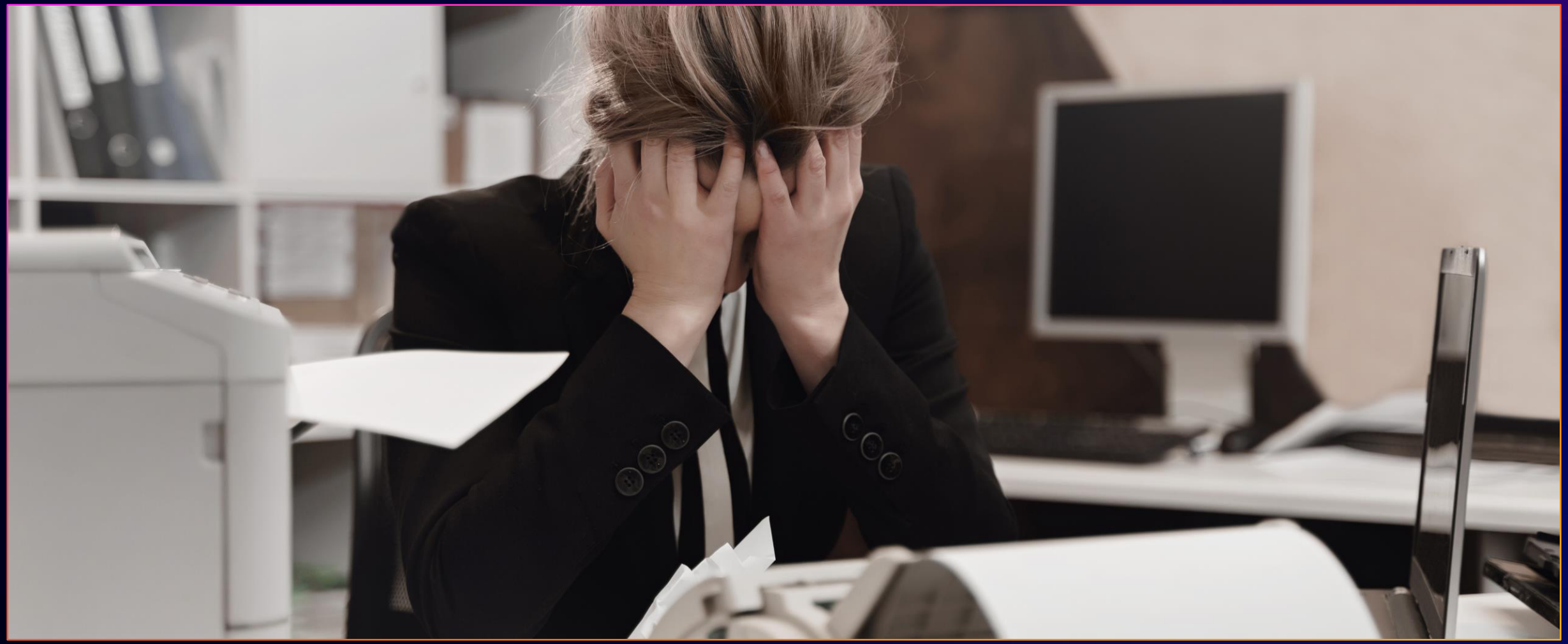
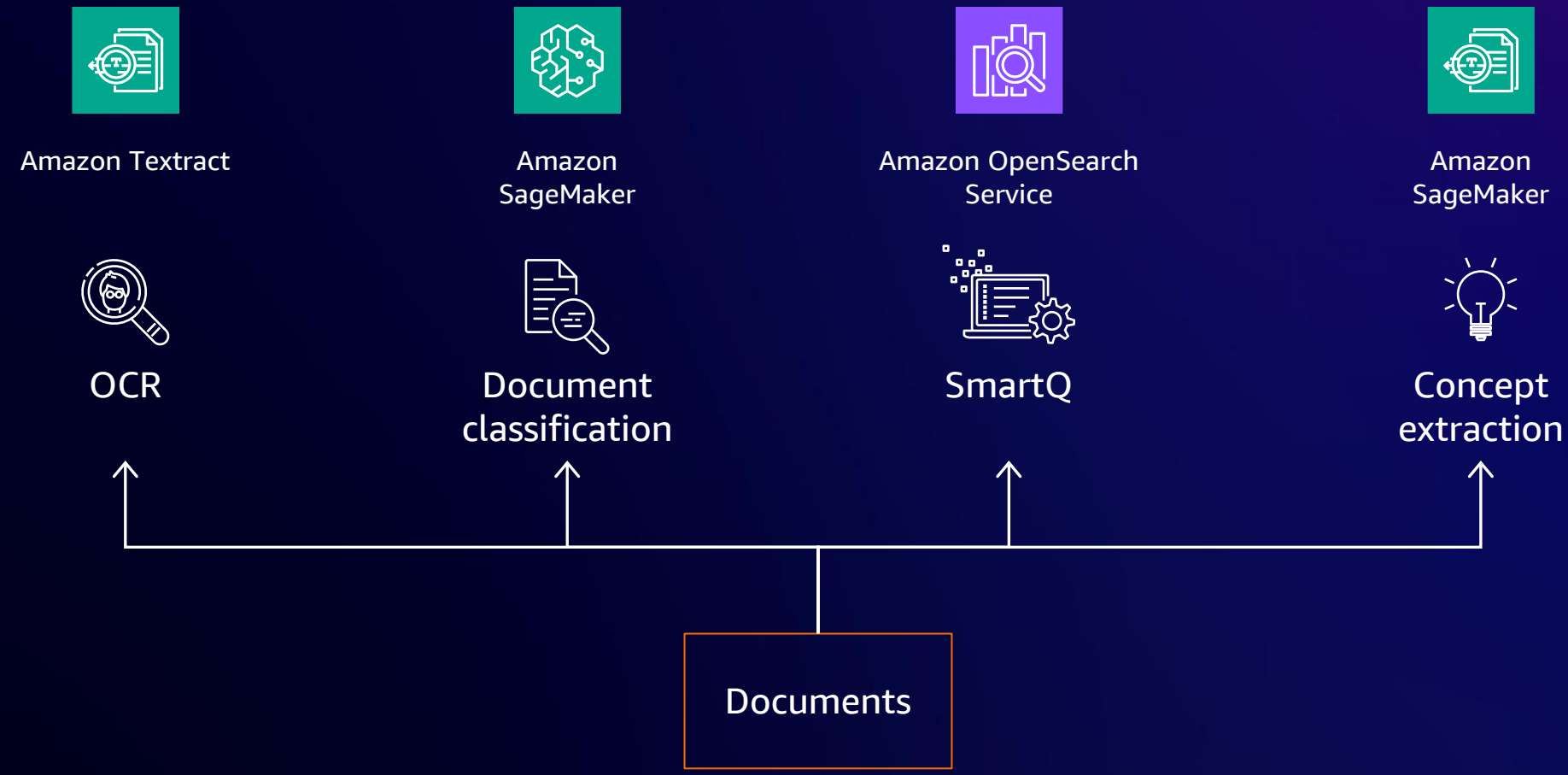


Faxes are still the protocol of last resort

Yes, faxes still exist, and they’re hard to use

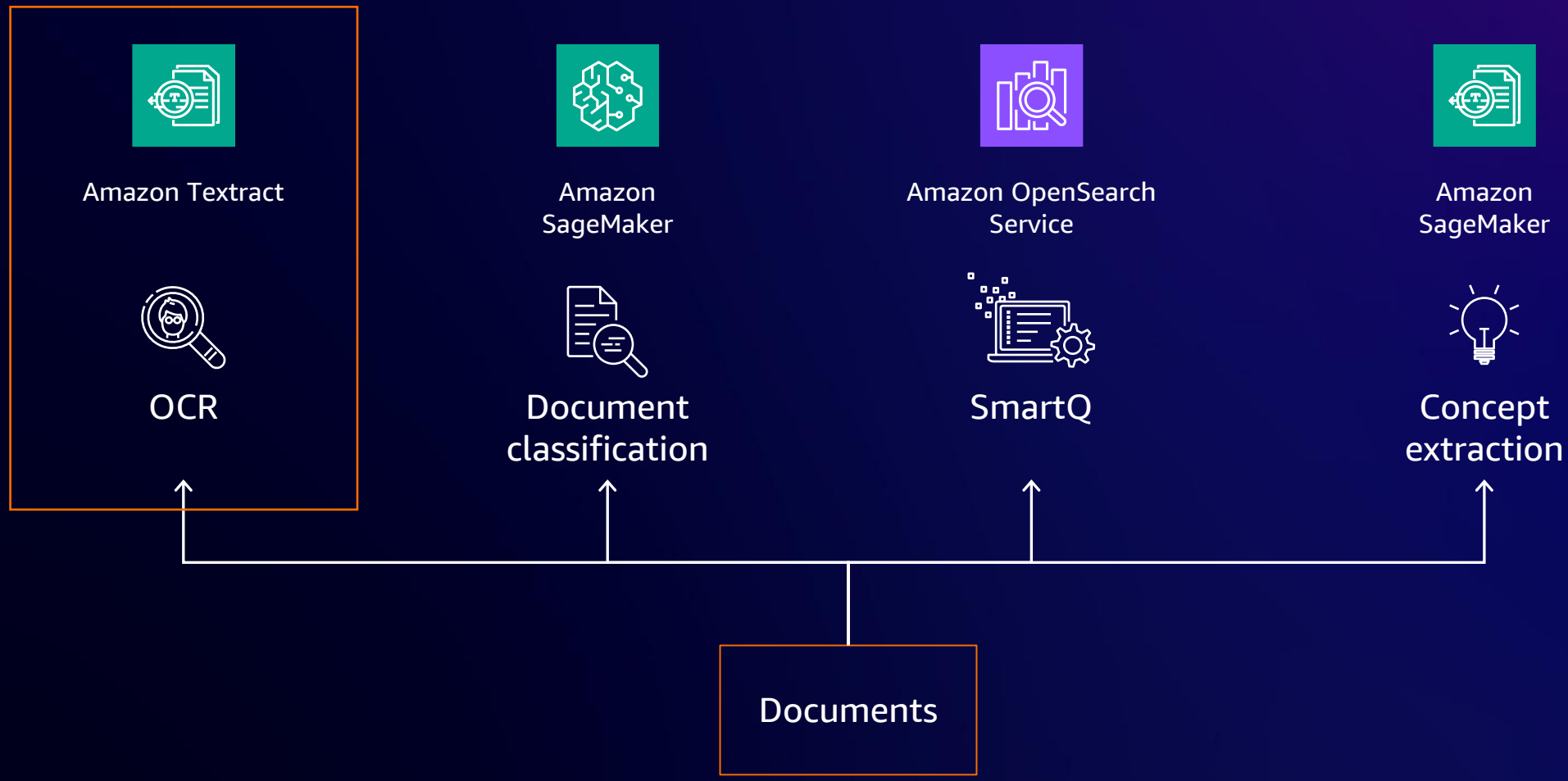


Machine learning makes faxes usable



1Life Platform

Machine learning makes faxes usable



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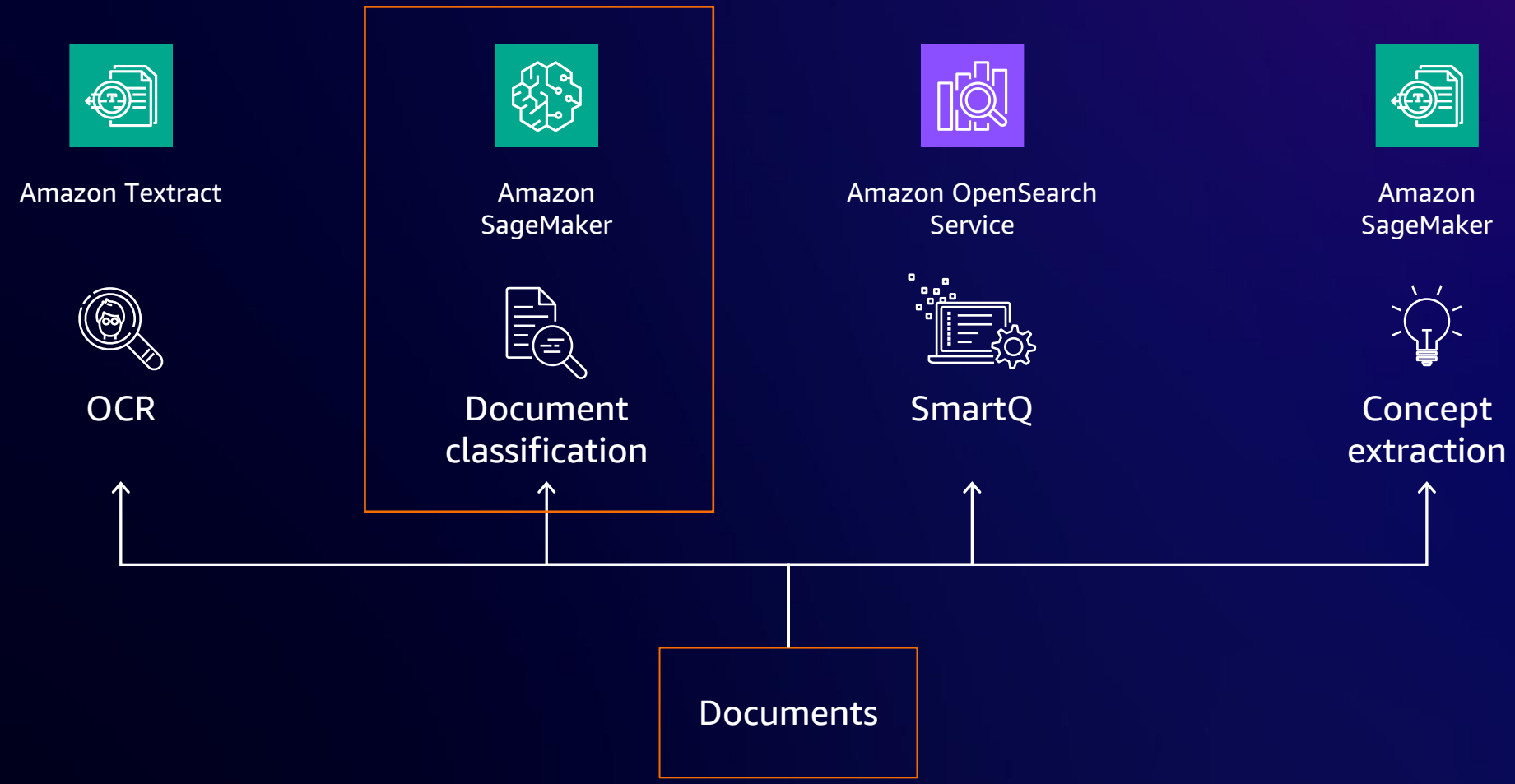

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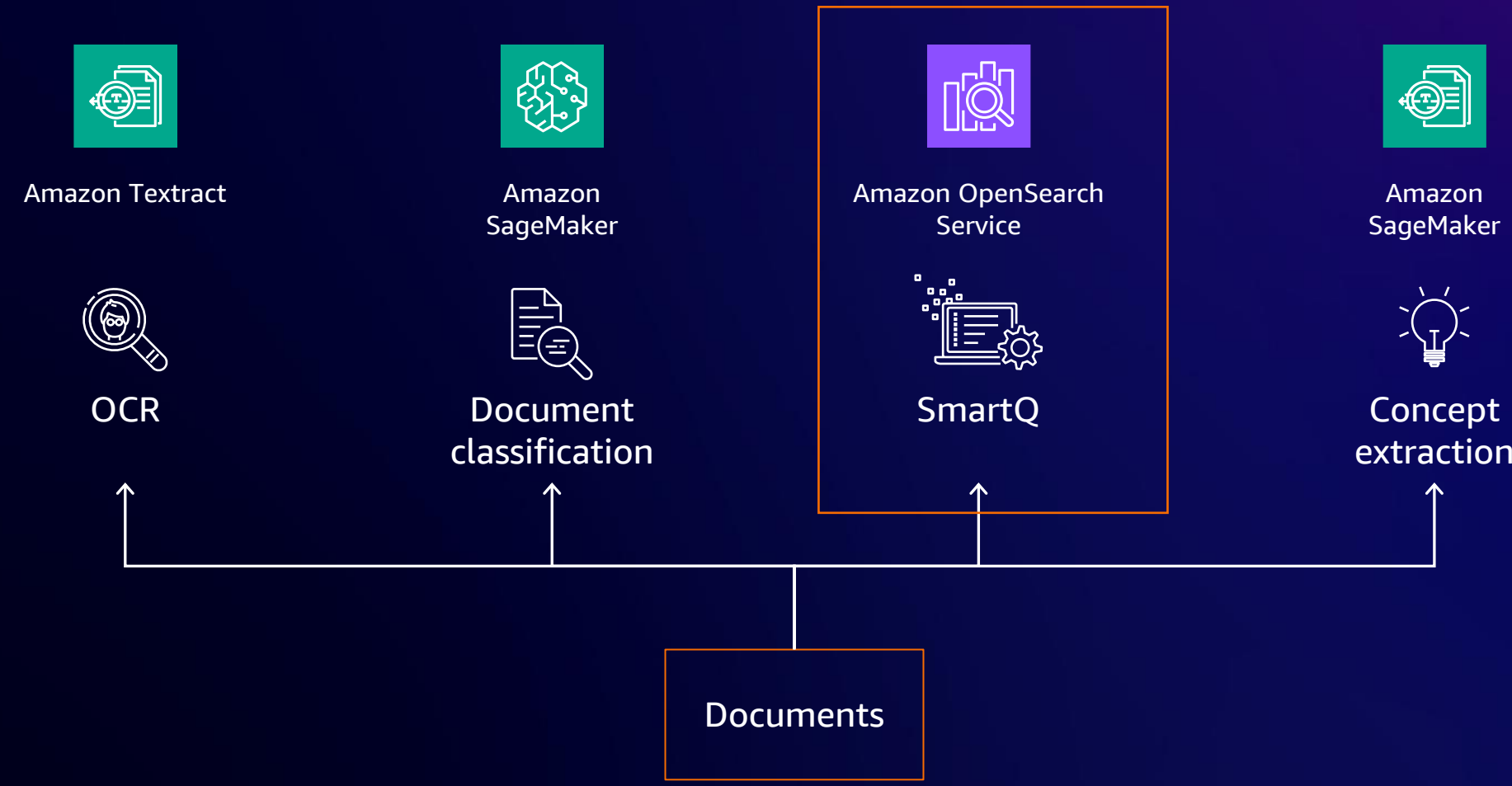

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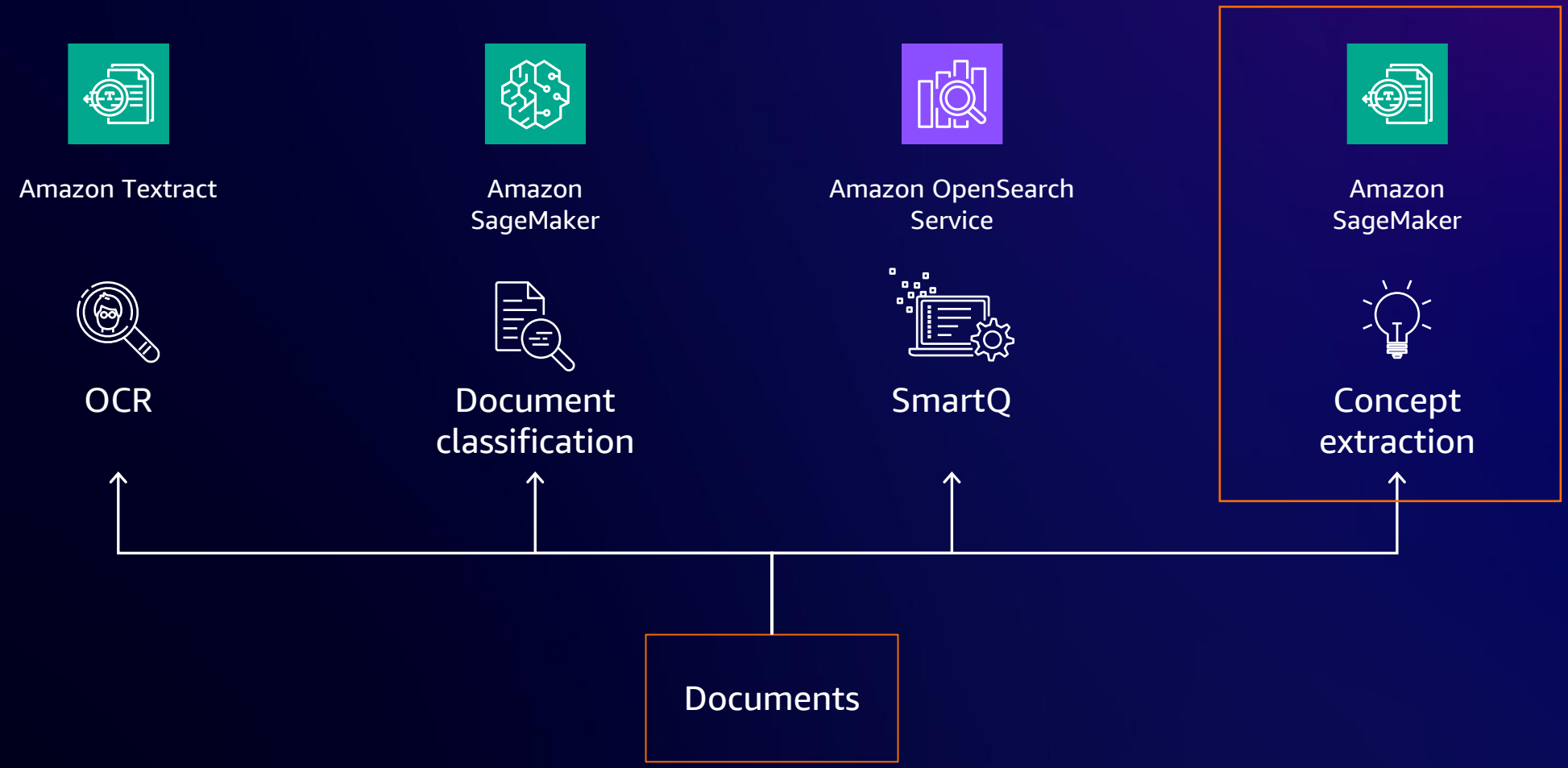
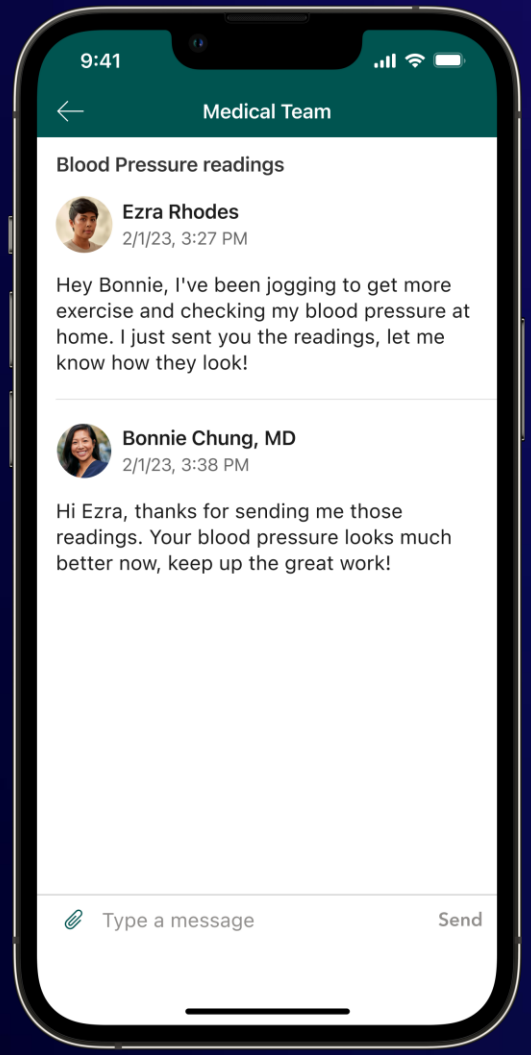
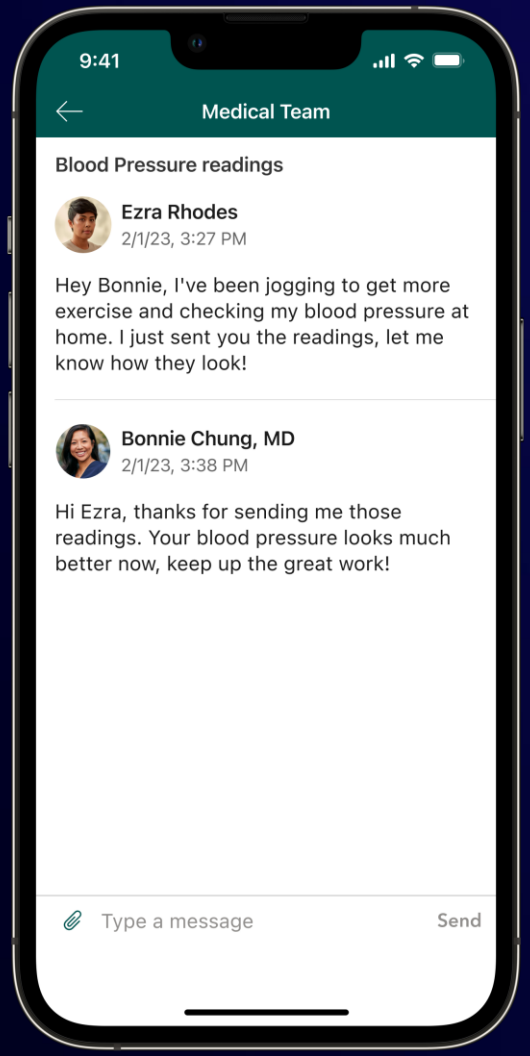


1Life Platform

Messaging is a powerful care model



But messaging can be hard to scale



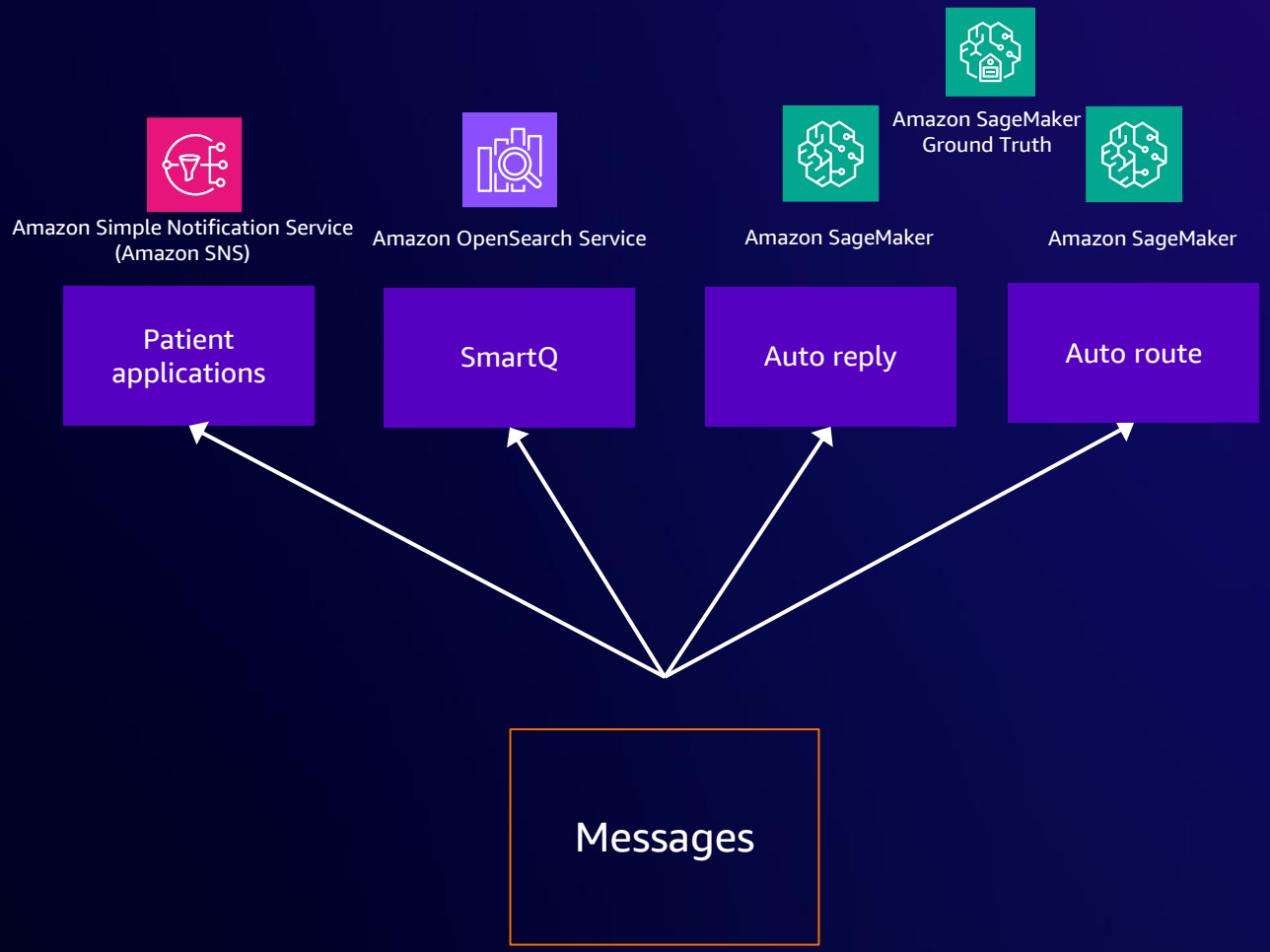
PCP

Medical team

Admin team

Tech support

Machine learning allows us to provide more timely responses



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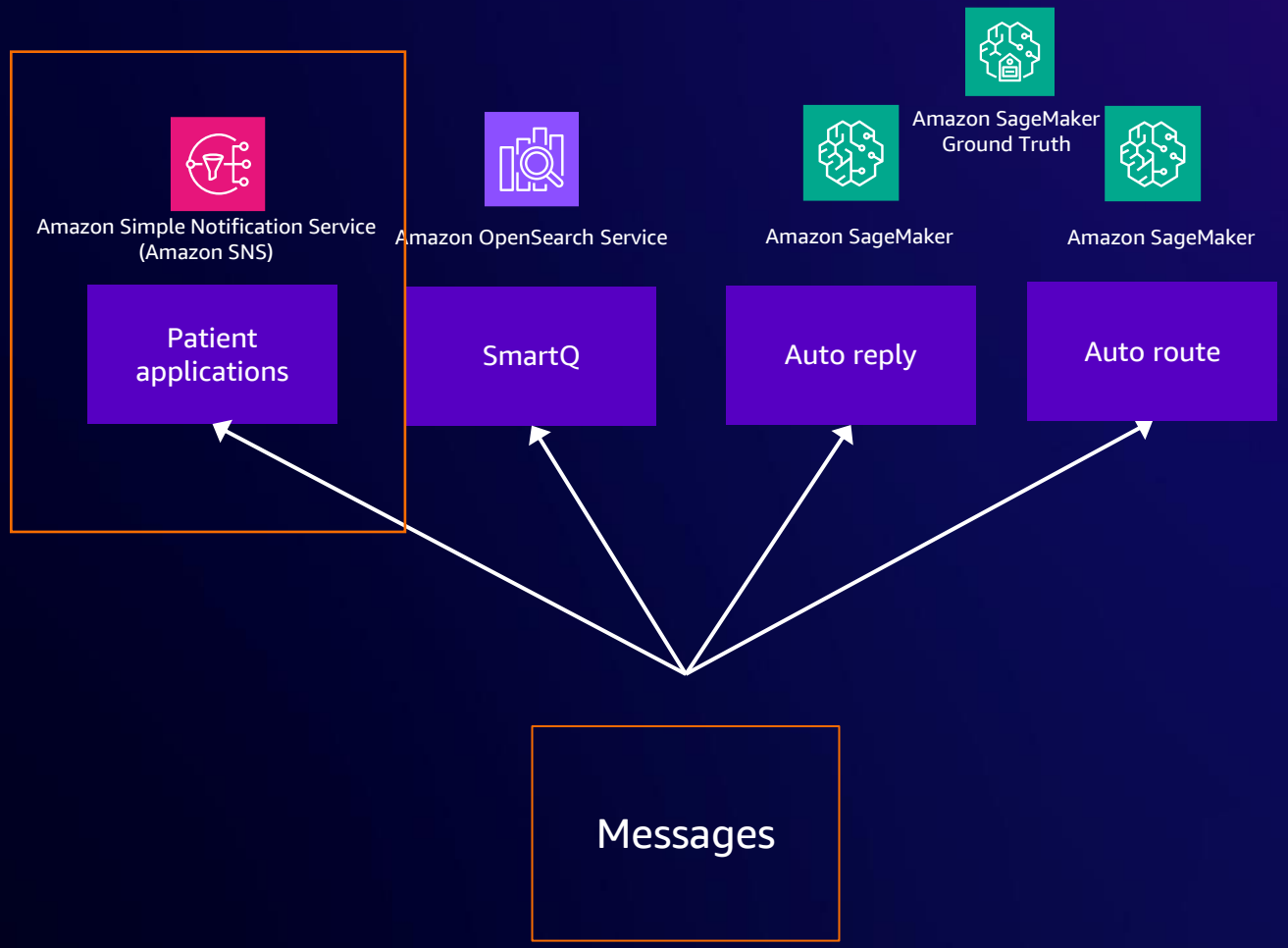
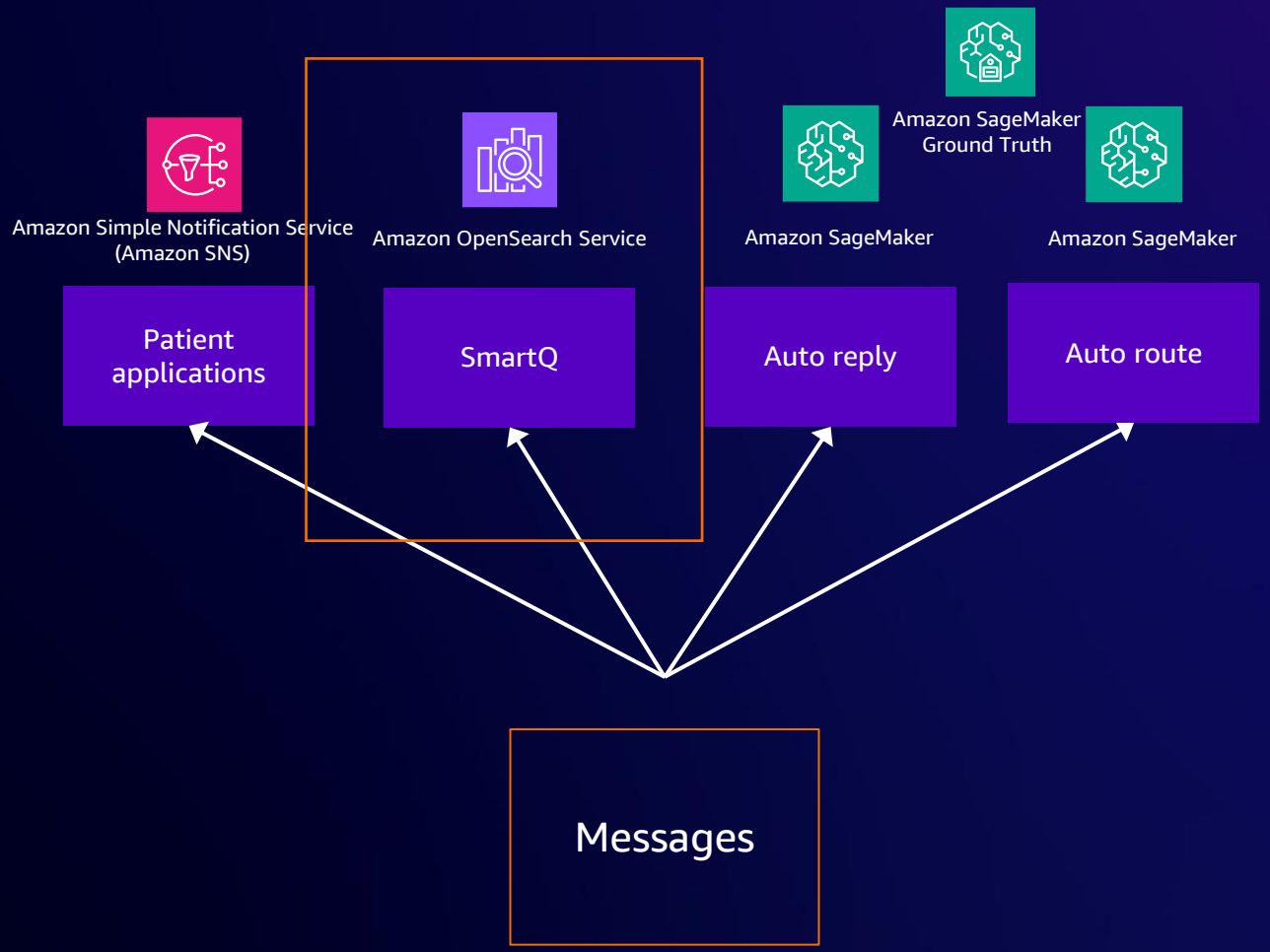


Machine learning allows us to provide more timely responses



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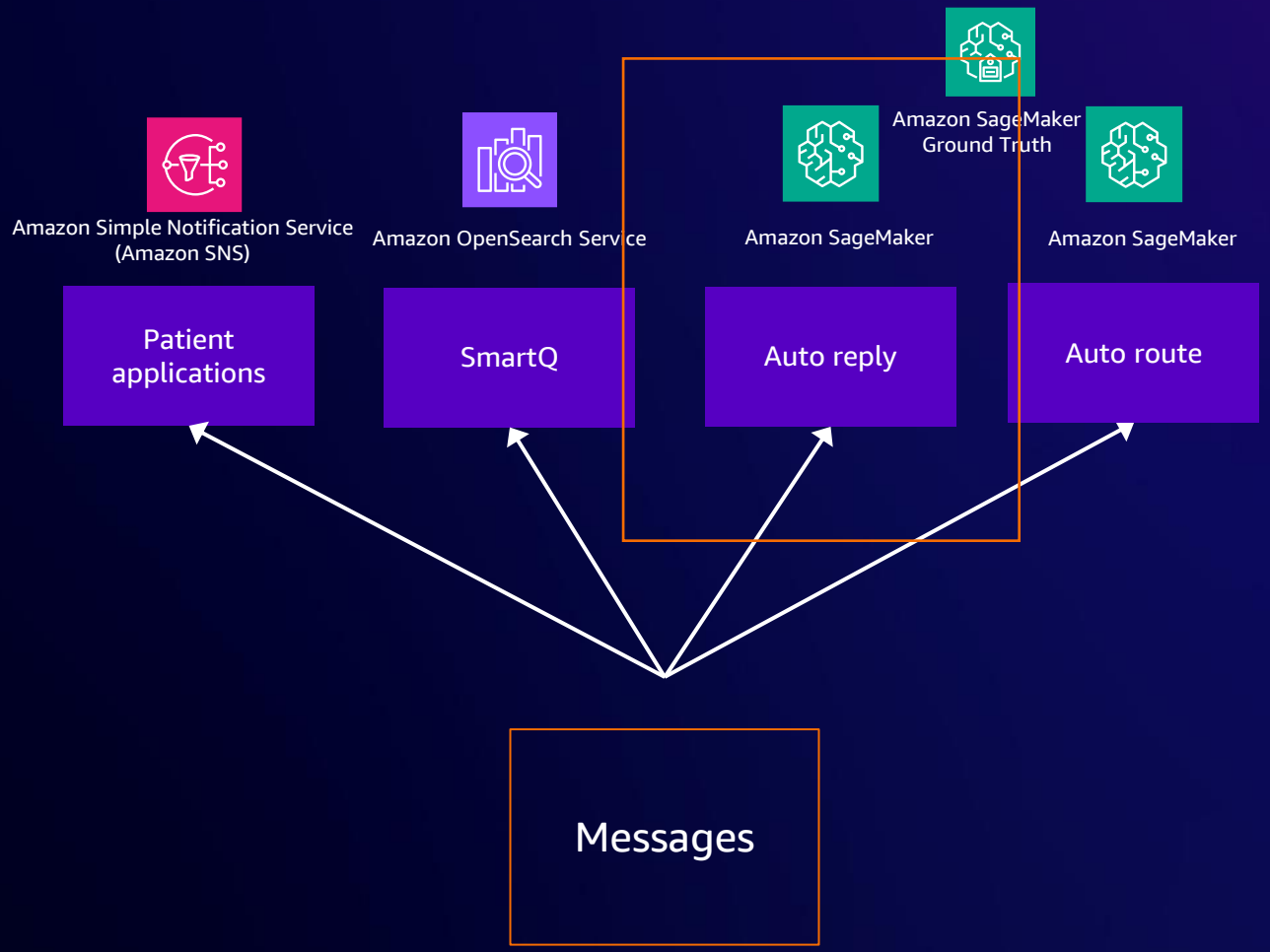
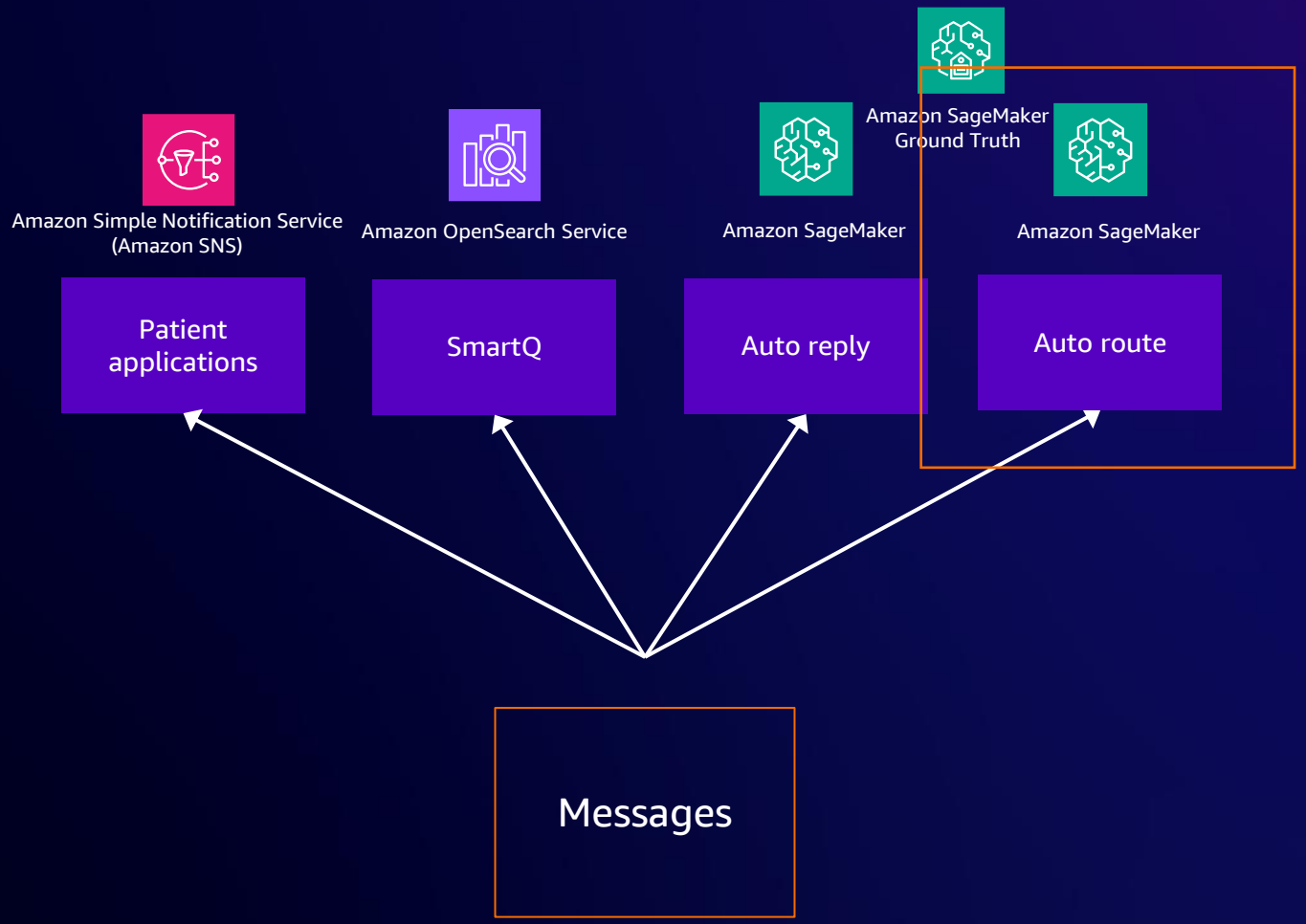
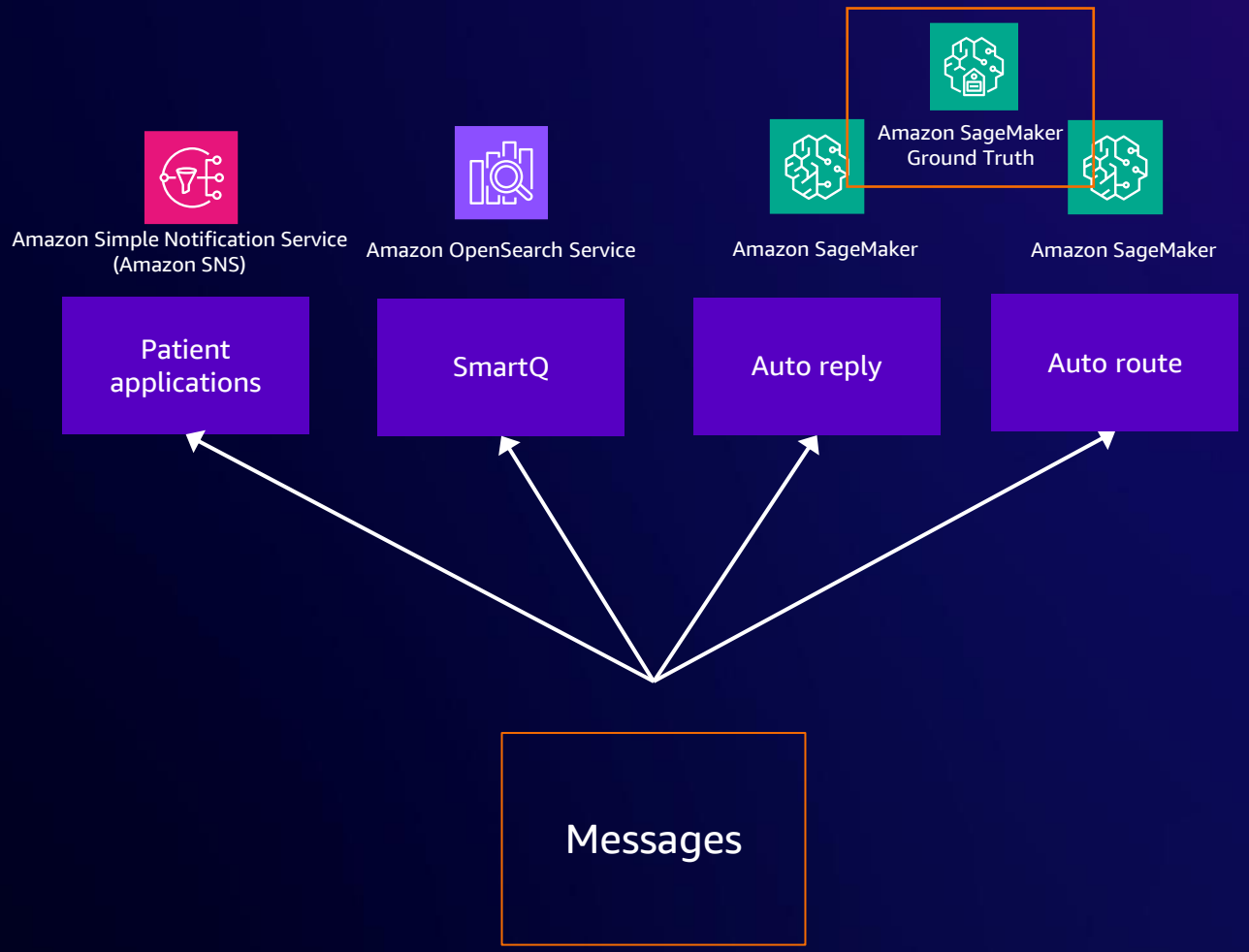


Machine learning allows us to provide more timely responses

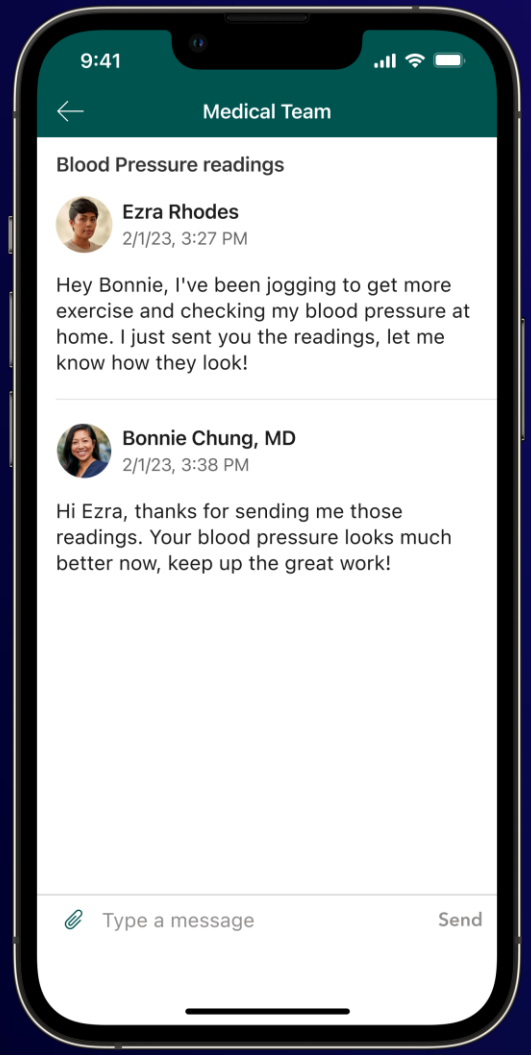


Machine learning allows us to provide more timely responses



We’re building a flywheel

And we're using this flywheel to apply generative AI



AWS HealthLake unlocks these capabilities

AWS HealthLake

HL7 FHIR

Key takeaways

Developing secure and scalable systems in healthcare is hard, but AWS makes it easier

How adopting modern healthcare standards allows us to build a patient-centered experience

How machine learning can be applied to solve real healthcare problems

Health sessions at re:Invent

HLC201 – Meeting new healthcare data interoperability and AI/ML regulations

AIM317 – AI-powered patient 360 experiences using AWS HealthLake

AIM318 – Automatically create clinical documentation with generative AI

Thank you!

Please complete the session survey in the mobile app

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Q&A