
AWS
re:Invent

INO203

Amazon.com’s architecture evolution and AWS strategy

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AWS

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AWS Well-Architected
AWS

AWS re:Invent

The beginning – Obidos

AMAZON'S ORIGINAL MONOLITH SYSTEM

Hosted in multiple data centers in Seattle

Large binary = slow developer productivity

Tightly coupled = stacked release and slow cadence

Architecture slowed the pace of innovation

Breaking down the monolith

Monolith

1995

Obidos
One binary
One database
All the business logic

Start transition to SOA

2000

Distributed computing manifesto

Break up Obidos
Customer service
Order service
Item service

Start of microservices

2006

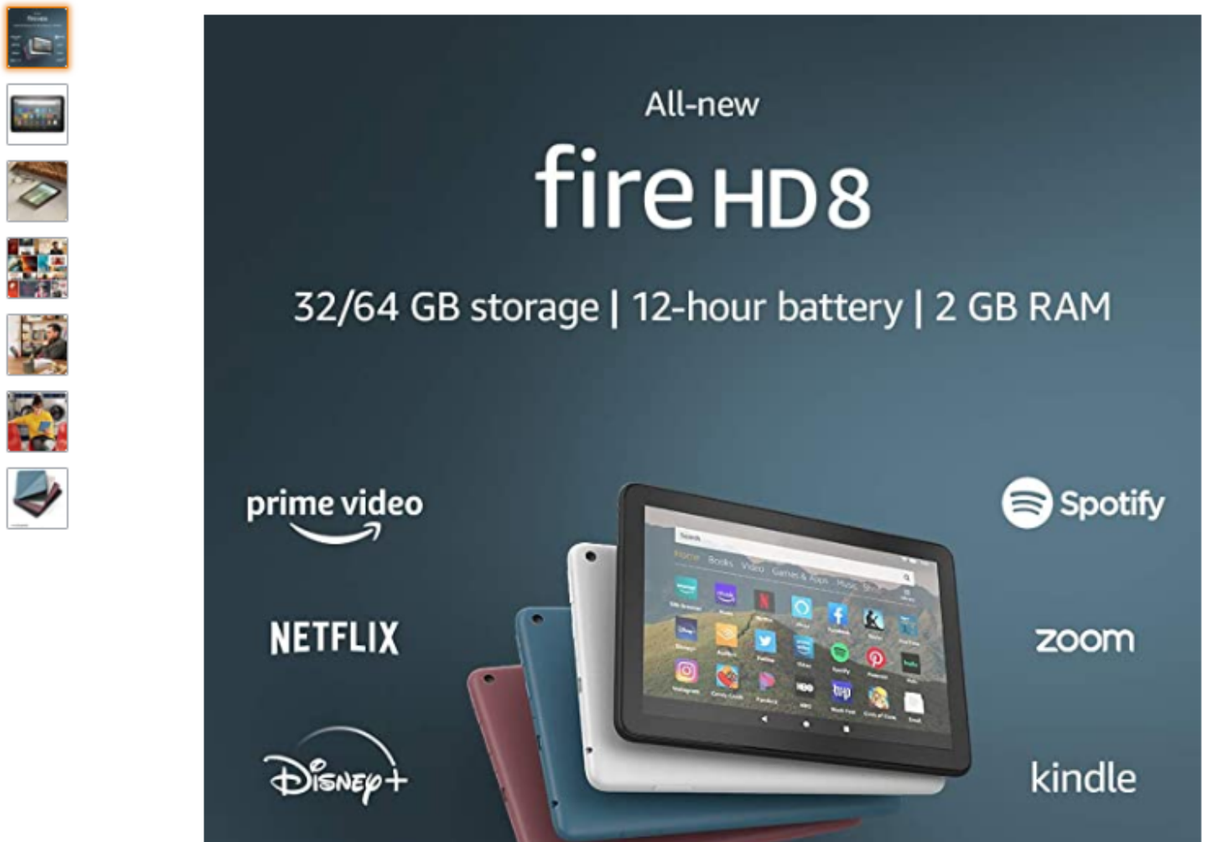
Gurupa
Replaced Obidos
Page assembly engine
Hundreds of services → page

Break up mini-monoliths
“Business bottleneck”–driven rearchitecture
Rearchitect in pieces

Amazon “detail page”

Hello Select your address | Best Sellers | Customer Service | Today's Deals | New Releases | Find a Gift | Whole Foods | Gift Cards | Free Shipping | Registry | Sell | Coupons | AmazonBasics | #FoundItC | Sign in | New customer? Start here. | Shop College Essentials

Amazon Devices | Echo & Alexa | Fire Tablets | Fire TV | Kindle | Home Security | Smart Home | Pre-Owned | Device Deals | Accessories | Device Suppor | ent and Devices



All-new Fire HD 8 tablet, 8" HD display, 32 GB, designed for portable entertainment, Black

by Amazon

5,055 ratings | 1000+ answered questions

Amazon's Choice for "8 inch tablet"

Price: $89.99 & FREE Shipping. Details

In Stock.

Arrives: **Monday, Aug 10** Details

Fastest delivery: **Friday, Aug 7** Details

Ships from and sold by Amazon.com Services LLC.

Style: **Fire HD 8**

Fire HD 8 | Fire HD 8 Plus | Fire HD 8 Plus + Wireless Charging Dock

Digital Storage Capacity: **32 GB**

32 GB | 64 GB

Offer Type: **With Special Offers**

With Special Offers | Without Special Offers

Color: **Black**

Share

Upgrade and save with Trade-In

Qty: 1

Add to Cart

Buy Now

Secure transaction

This is a gift

Link to my Amazon account to simplify setup. Why is this important?

Select delivery location

Add Additional Items

Amazon Standing Case: Charcoal Black $29.99

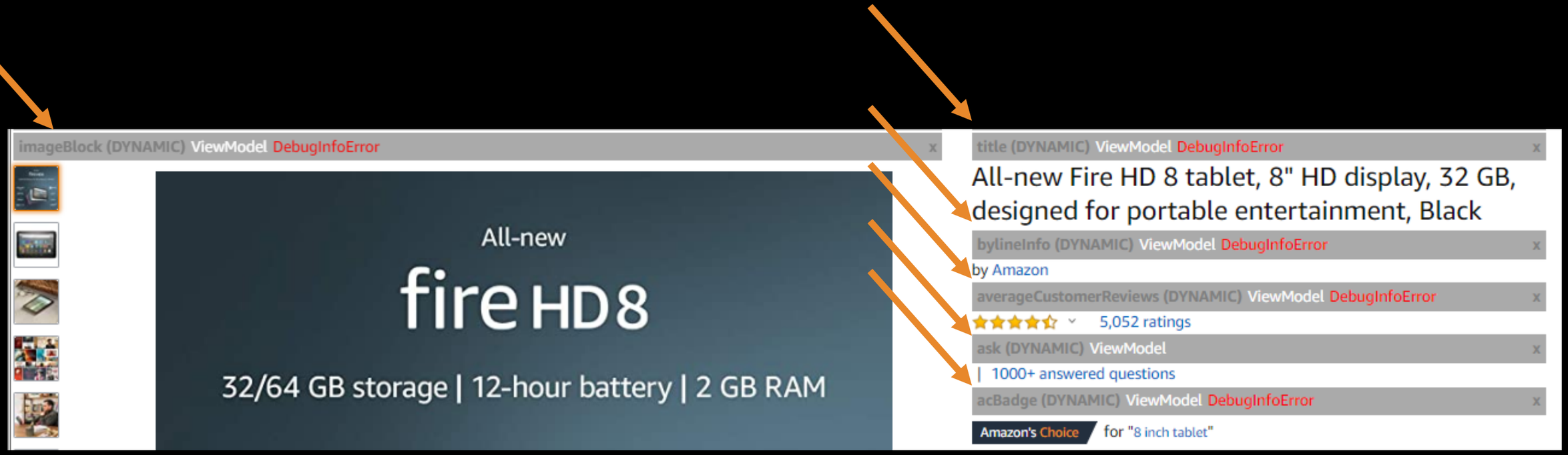
Extended Warranty: 2 year $16.99

Themed cases made for Amazon: Mickey No Bad Days $34.99

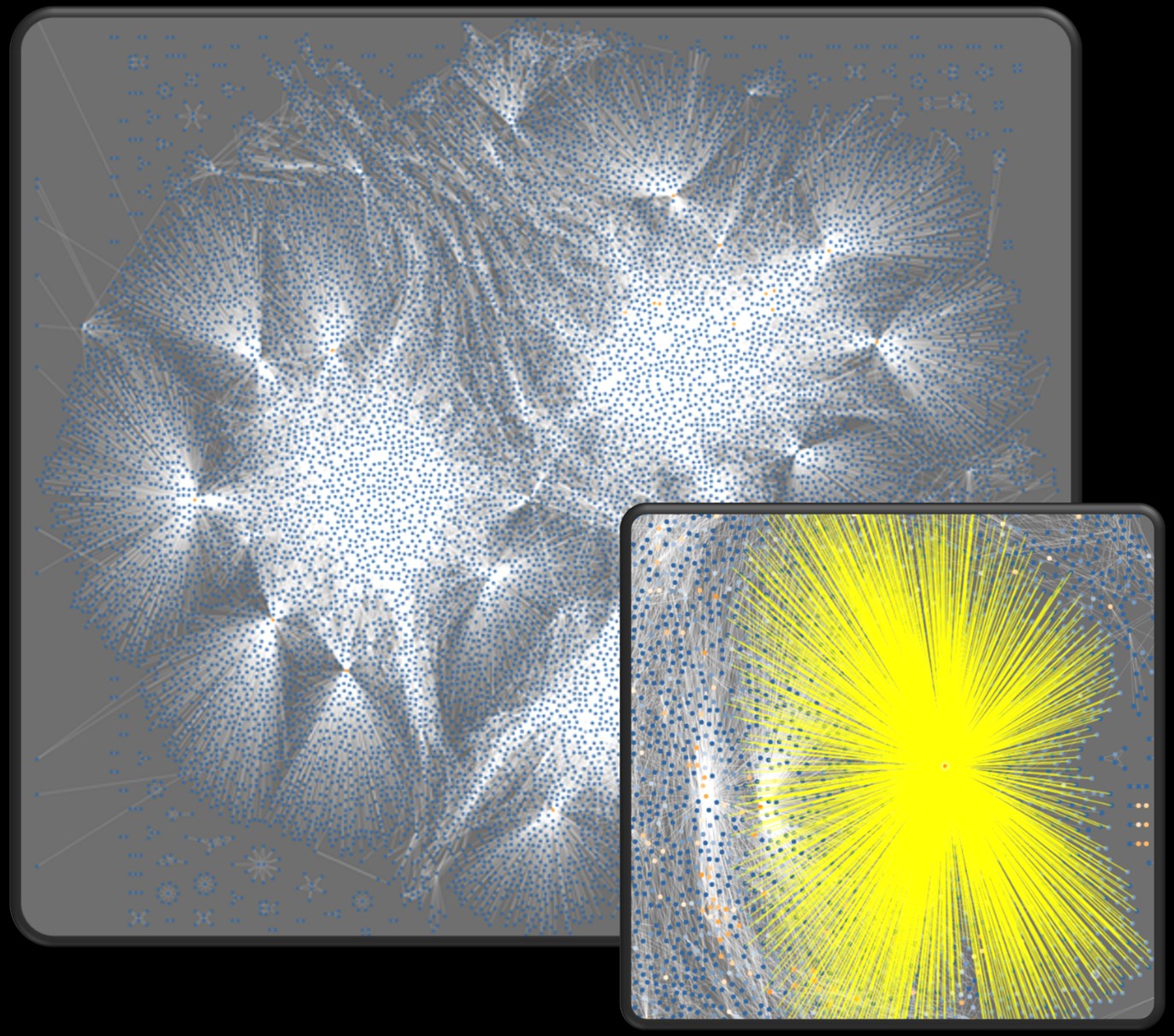
Screen Protector: Clear $12.99

Memory Card: 32 GB ~~$19.99~~

Amazon “detail page” makes hundreds of service calls



Current state – microservices and AWS usage



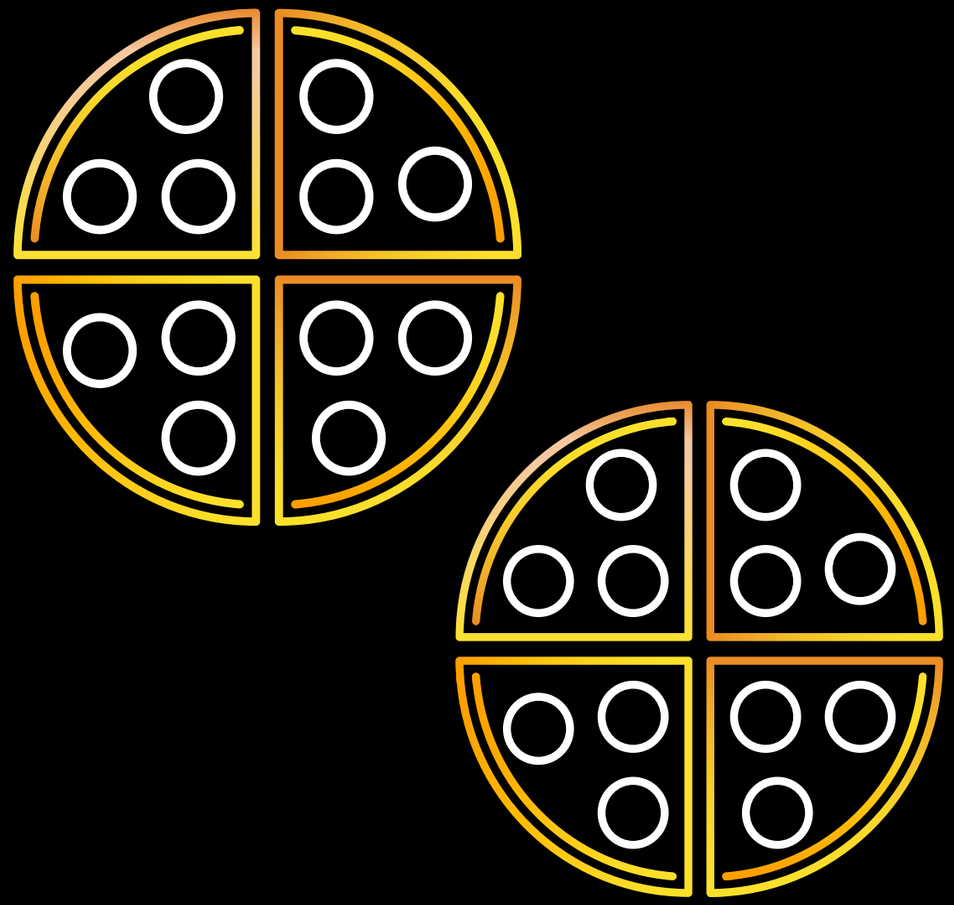
100,000+ microservices

Simplified migration
of components / functions

Decreased size / scale of code base

All AWS services utilized in some form

Two-pizza teams are fast and agile

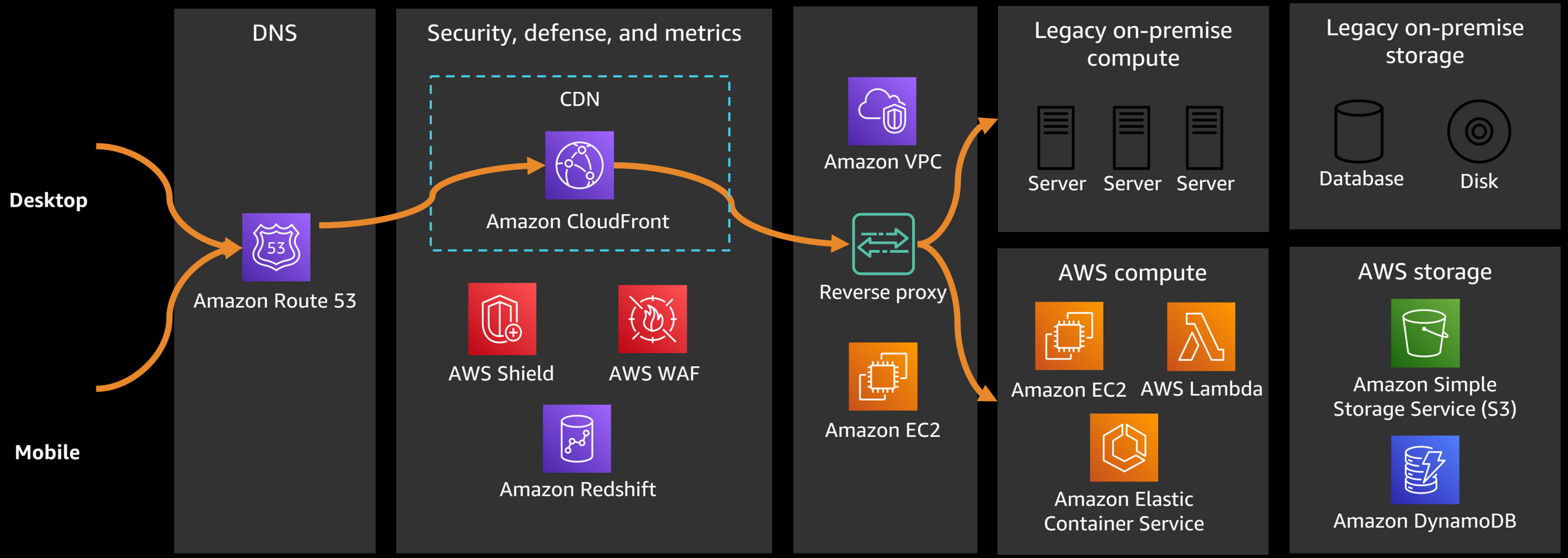


Full ownership and autonomy

You build it, you run it

Choice of programming language (with standard / supported tools)

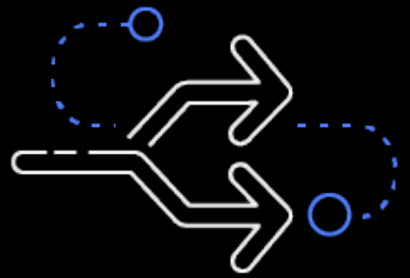
Amazon.com hybrid architecture



Migration to AWS approach

There is no one-size-fits-all approach –
in general, migrations follow three core steps

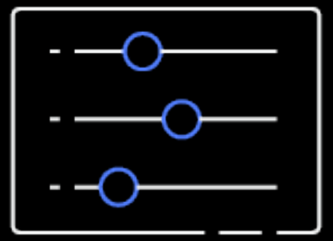
Secure



Migrate

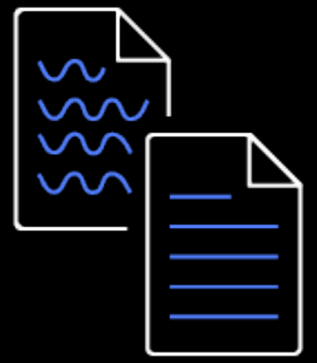
Rearchitecture / Replatform

Continuous rearchitecture *is an opportunity*



Speed
of execution

Increase
functionality

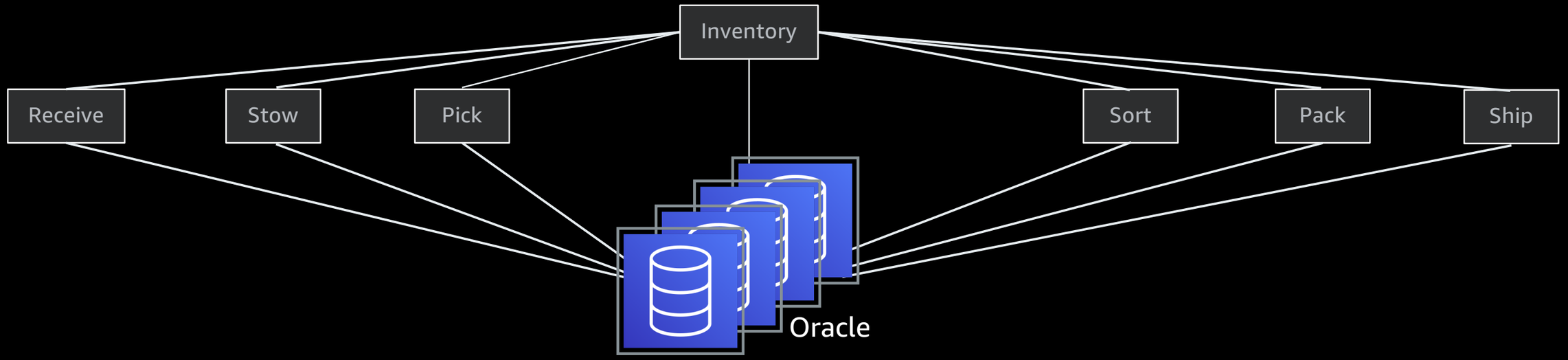


Improve code
base

Amazon fulfillment technologies

Amazon fulfillment technologies

Previous architecture

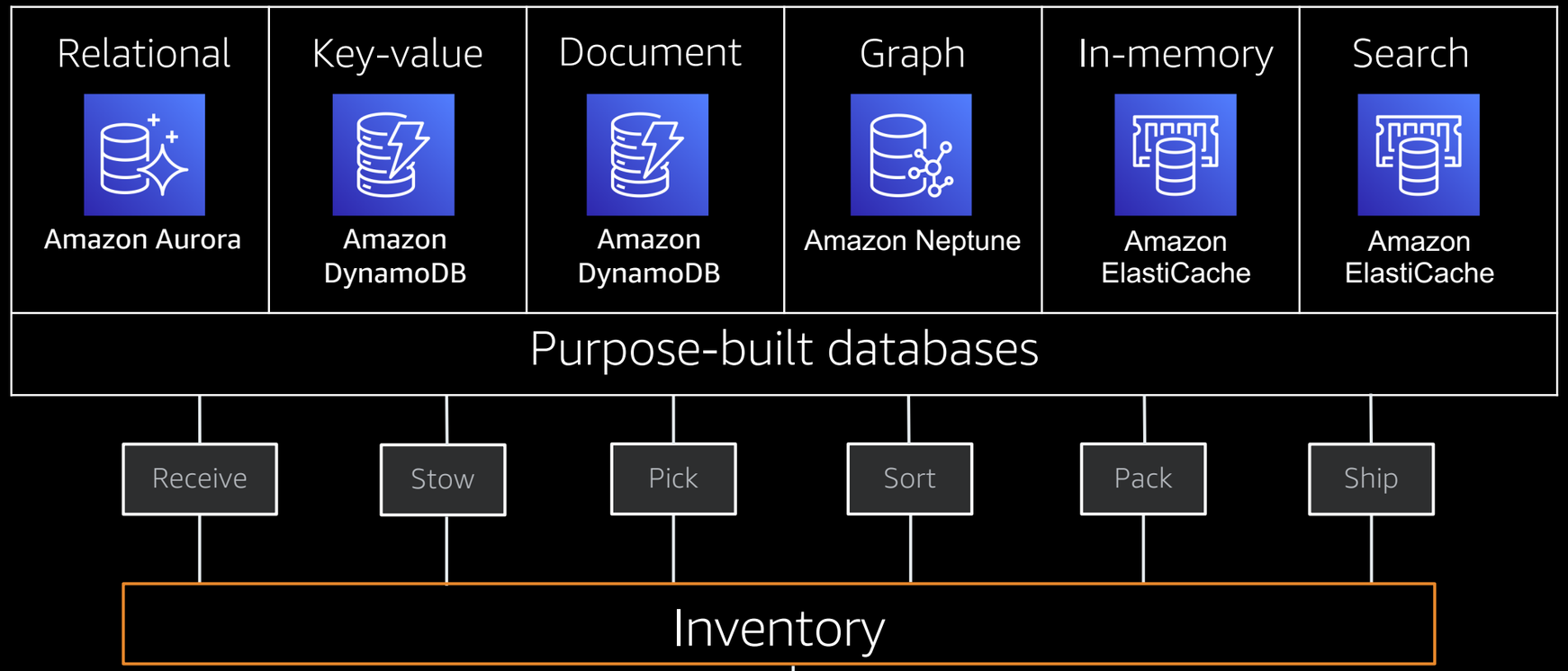


300+ Oracle source databases

Issues with:

- Scaling
- Availability when failures occurred
- Forecasting

Amazon fulfillment technologies



Amazon Aurora PostgreSQL

Improved performance and availability

Reduced costs

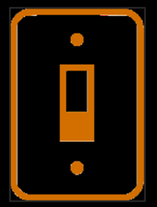
Eased scalability and reduced overhead

Transition to serverless

No infrastructure provisioning, no management

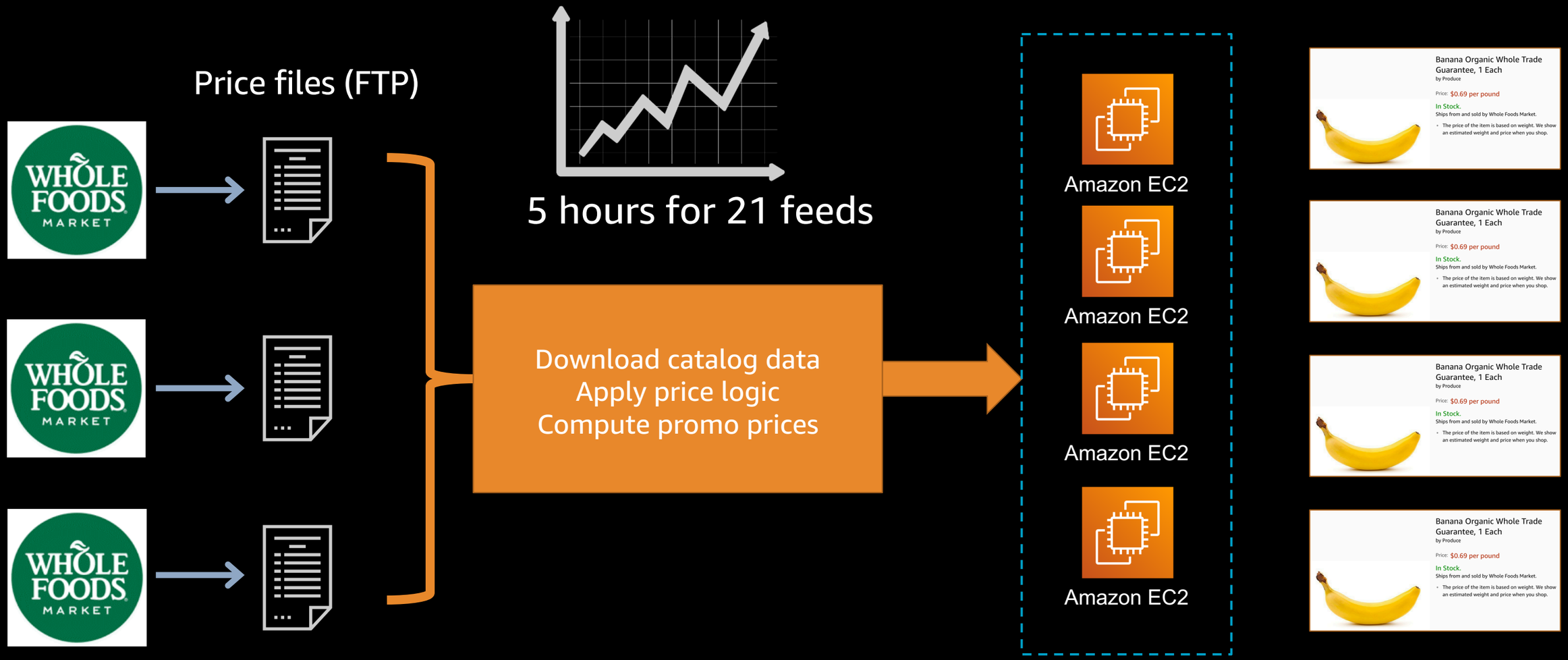
Automatic scaling

Pay for value

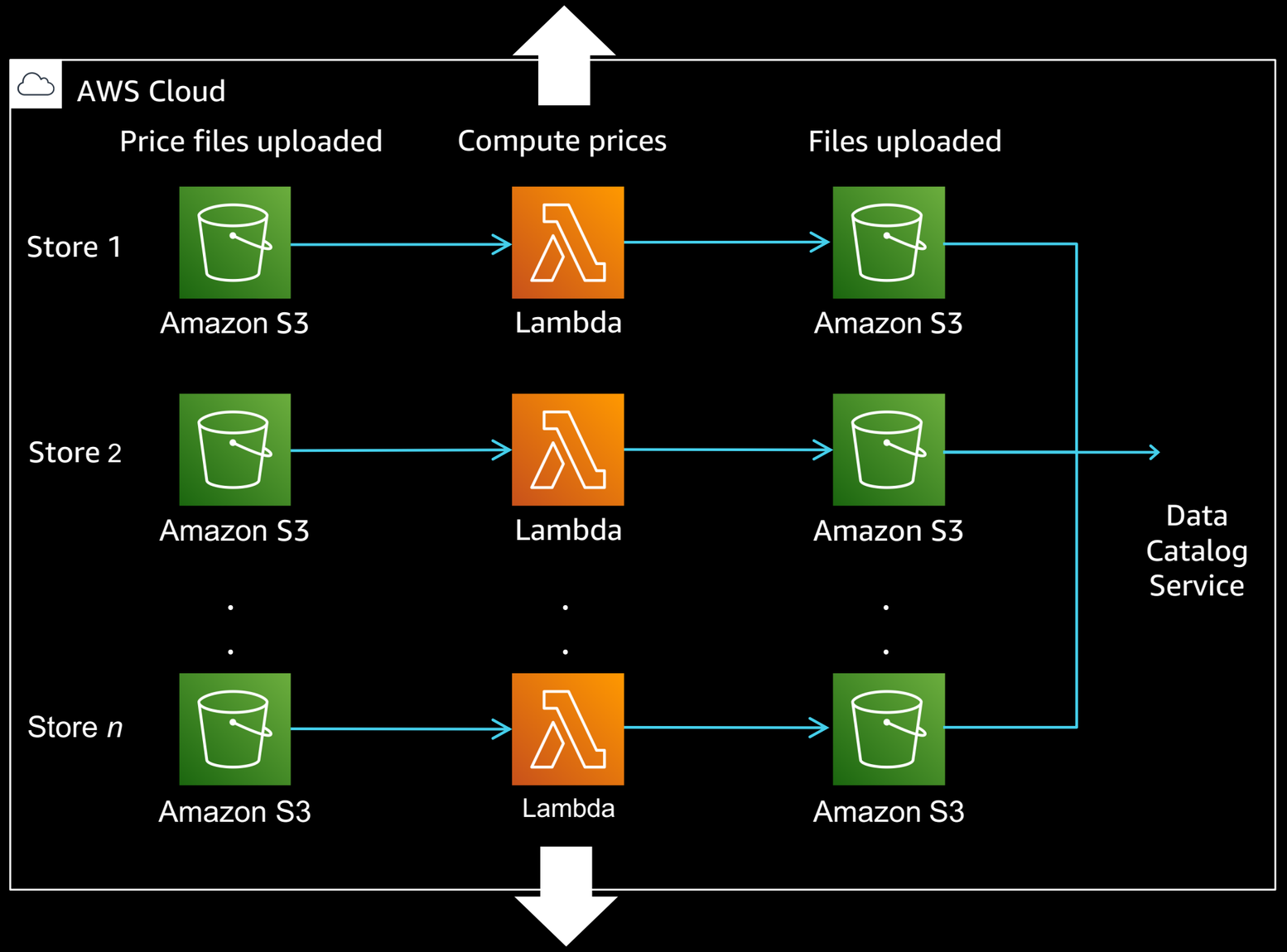


Highly available and secure

Whole Foods/Prime Now price feeds



Scale pricing feeds to 450+ stores



20 seconds per feed

The feeds are computed in parallel

Can use cached catalog data stored in Amazon S3

Resilience score

ADOPTING BEST PRACTICES FOR RESILIENCY – AMAZON.COM SERVICES

Testing

- Chaos
- Load

Risk assessment

- Limit retries
- Log file cleanup
- And more

Automated policies

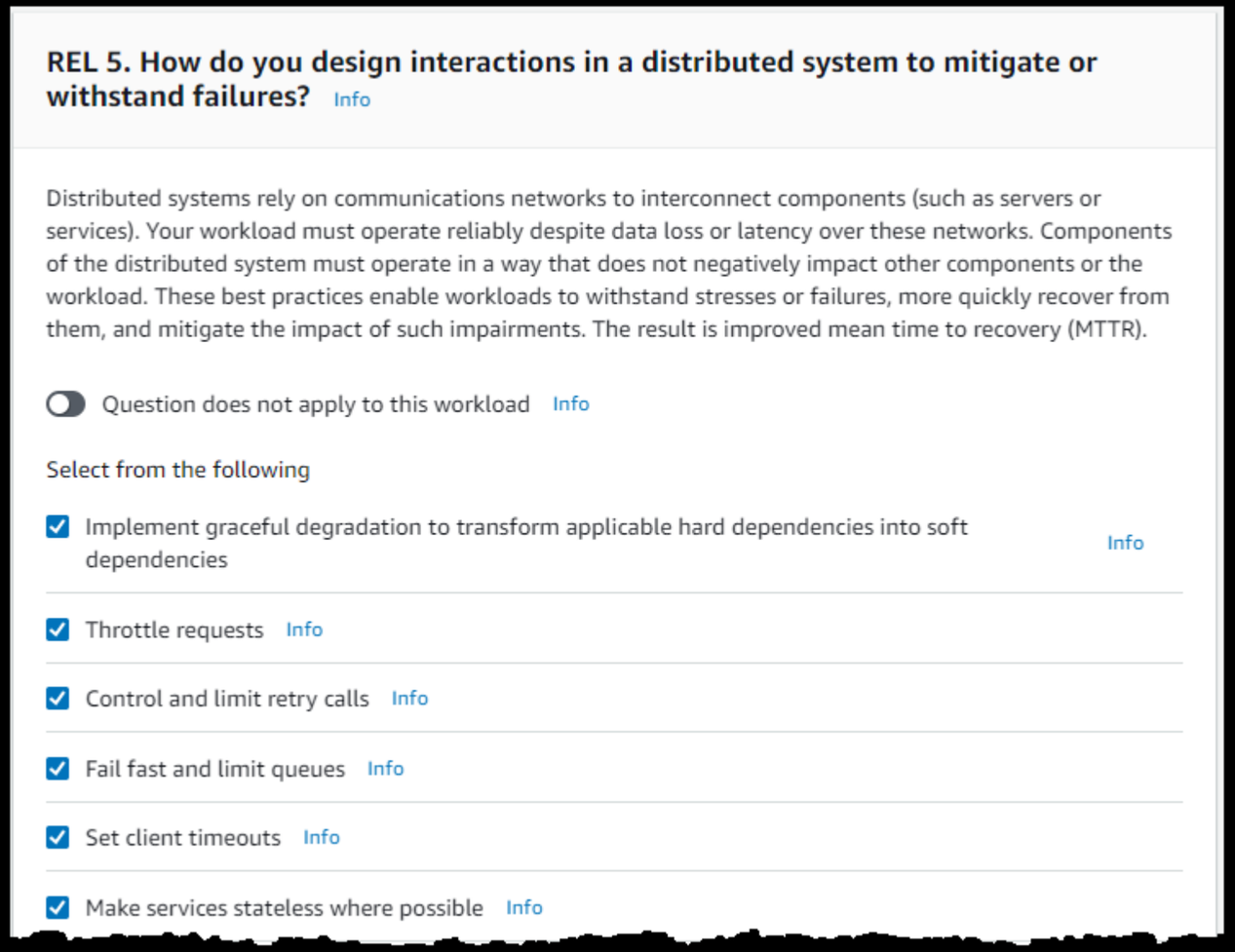
- TLS certificates valid
- Autoscaling
- And more

AWS Well-Architected

ADOPTING BEST PRACTICES FOR RESILIENCY – YOUR WORKLOADS

Well-Architected Tool

https://aws.com/well-architected-tool

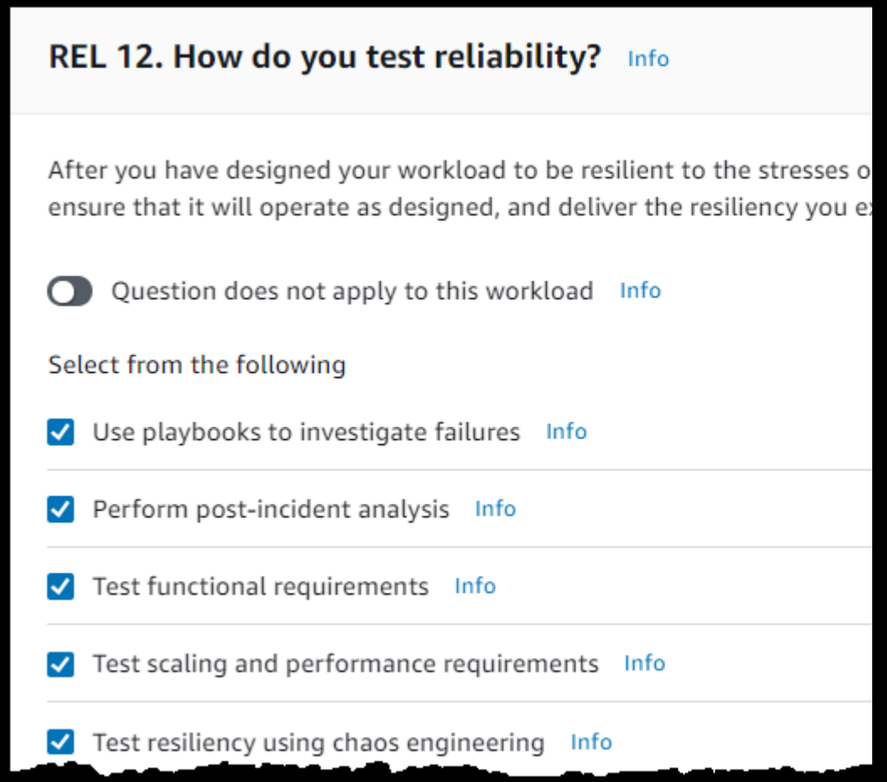


AWS Well-Architected

ADOPTING BEST PRACTICES FOR RESILIENCY – YOUR WORKLOADS

Well-Architected Tool

https://aws.com/well-architected-tool



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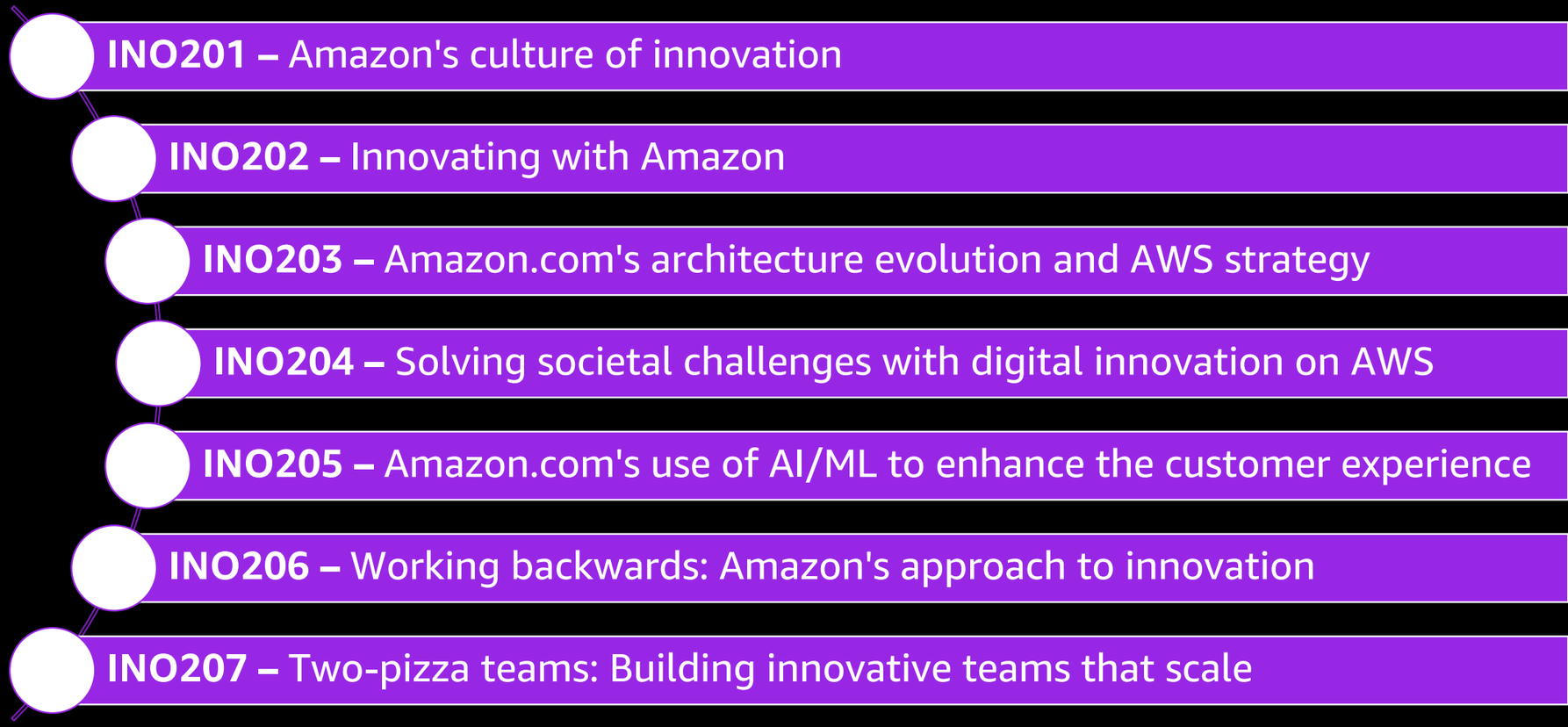

To further explore Amazon’s approach to innovation, please contact your AWS Account Team.

Thank you!

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