
AWS
re:Invent
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bp's energy trading digital transformation on AWS

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Agenda

01 Cloud adoption and digital transformation

02 About bp Supply, Trading & Shipping

03 bp Trading Cloud Journey

04 Realized benefits of AWS migrations

05 Complex trading app migration

06 Modernization in the cloud

07 Cloud-native products

08 Innovating with AWS

Cloud adoption and digital transformation

Migration

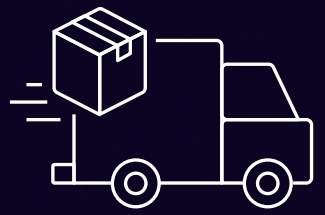
Business transformation

Reinventing and innovating

About bp Supply, Trading & Shipping

bp Trading digital transformation journey

Realized benefits of migration



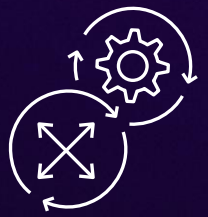
Delivery speed improvement

Cost reduction

Scalability improvements

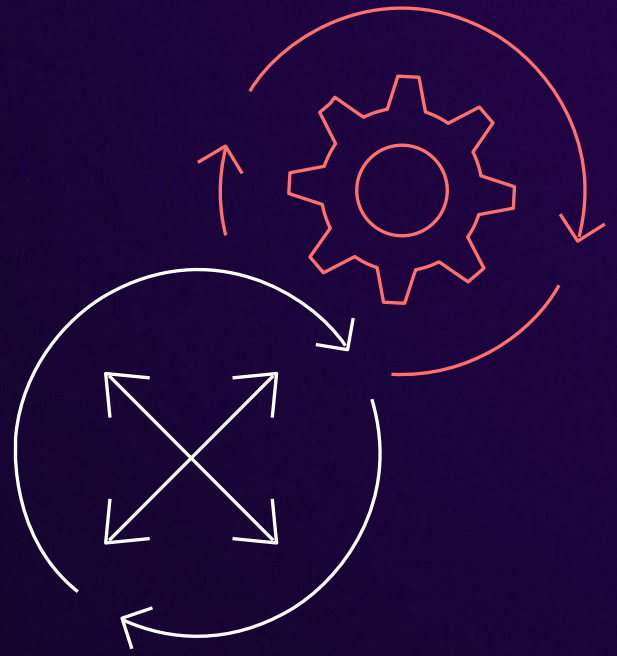
Security improvements

Database transformation



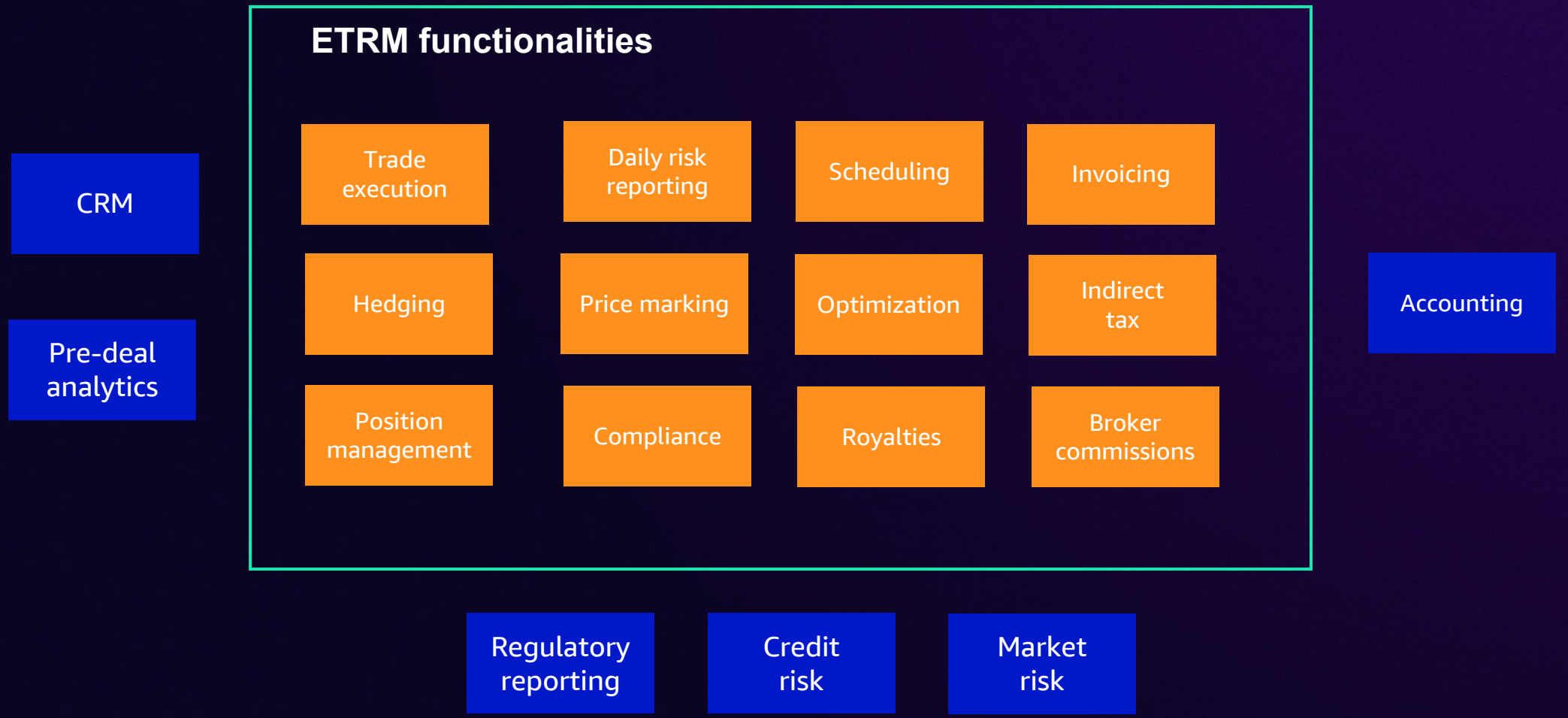
Availability improvements

Migrating critical trading applications from on-prem to AWS



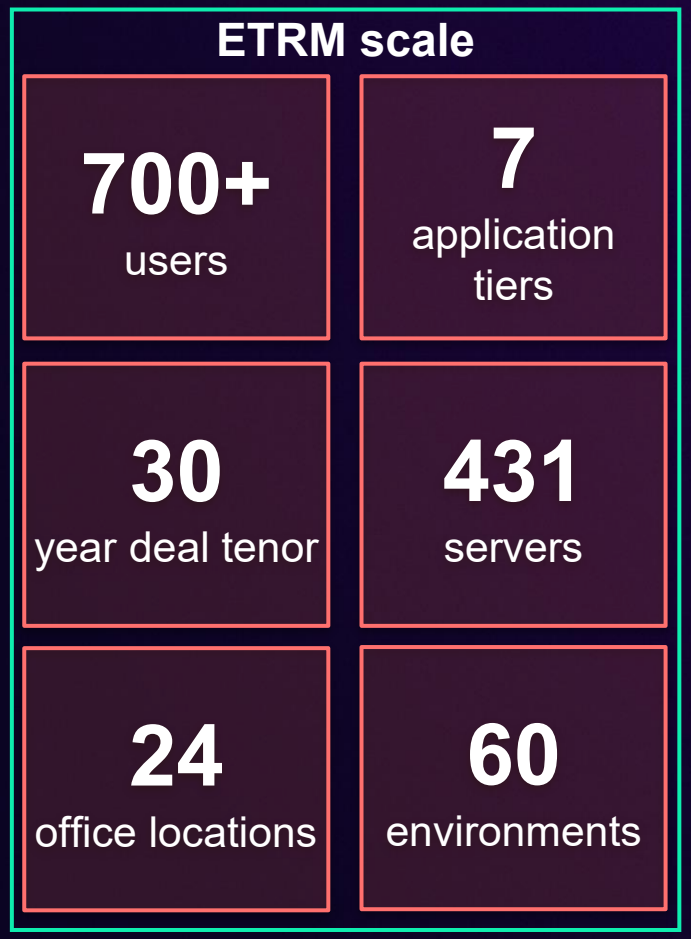
Migrating critical trading applications

About ETRMs



Migrating critical trading applications

bp Endur Scale



Migrating critical trading applications

Migrating Endur to AWS

Lift and shift

Migrate a replica of on-prem application to AWS including cold DR

Optimize

Optimize instance types, clusters, cloud cost vs. license cost, environment scheduling, self-service, creation of small/medium/full-size environment templates

Refactor

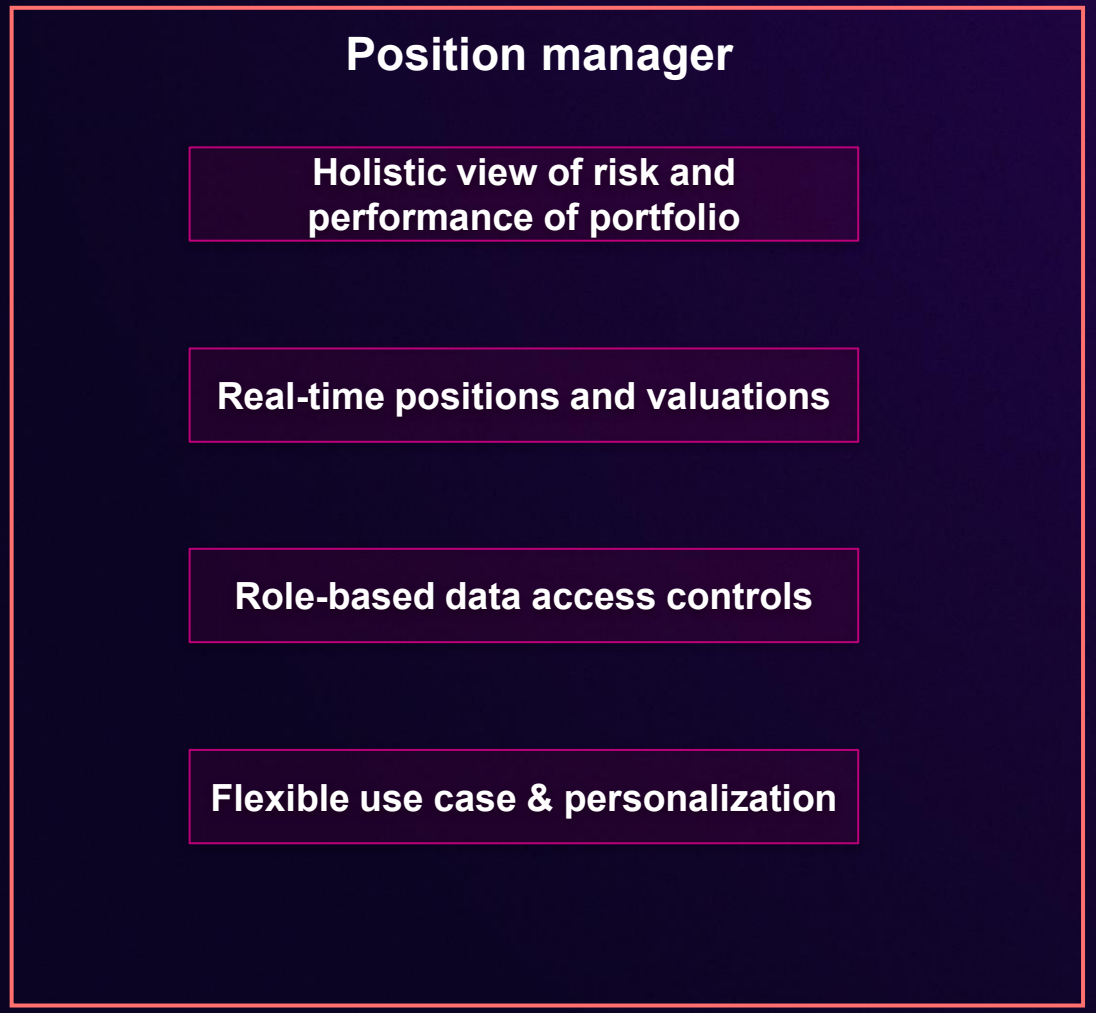
Refactor to modernize DR/HA approach, leverage cloud observability, CI/CD (blue/green), and internal service lines

Consolidate

Consolidate disjointed instances within AWS

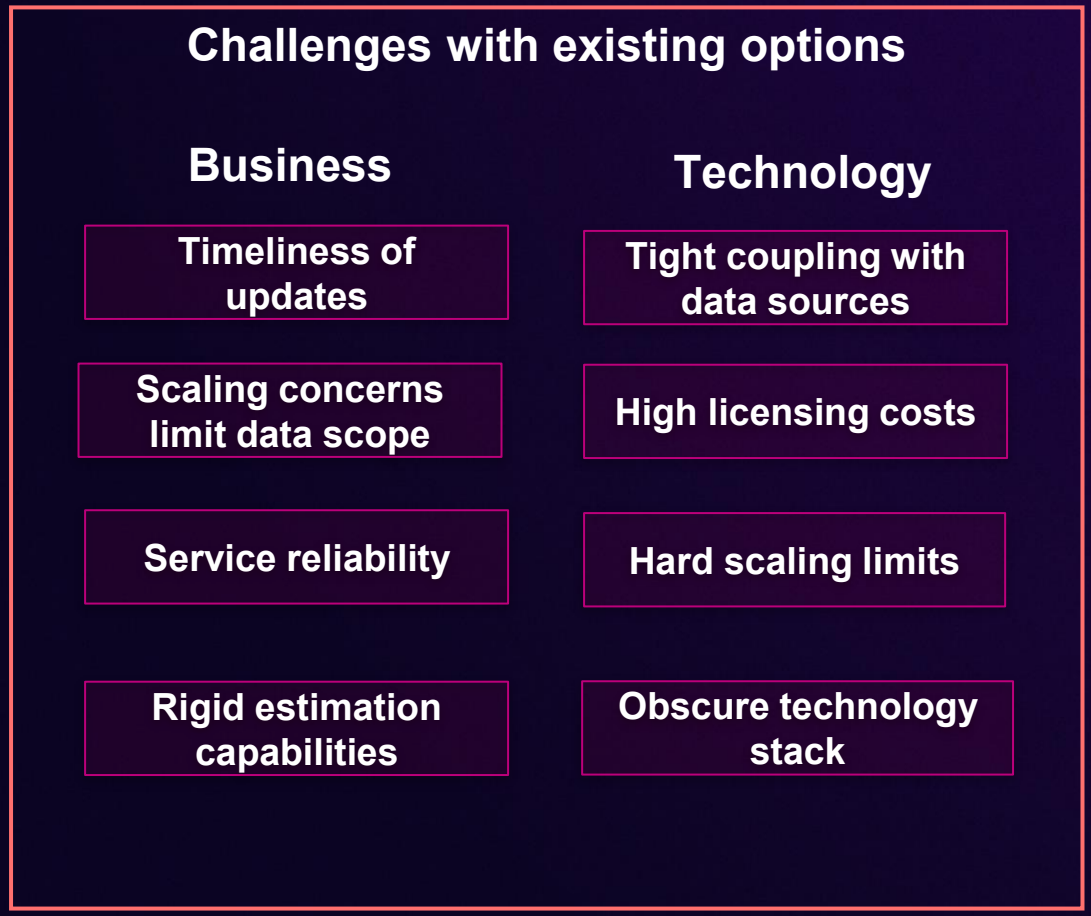
Migrating critical trading applications

Real-time position management



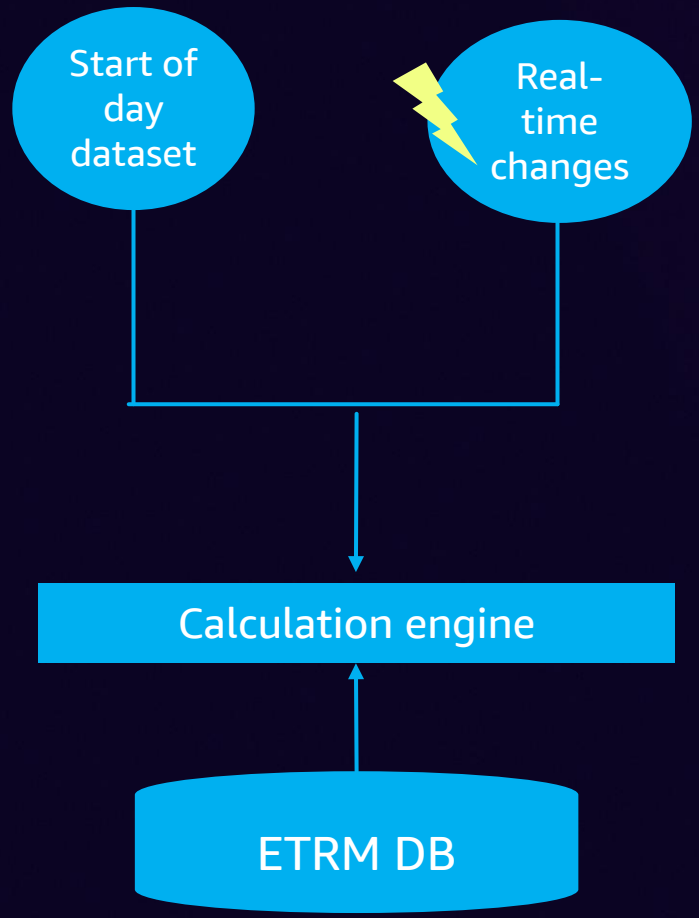
Migrating critical trading applications

Realtime Position Management - Challenges



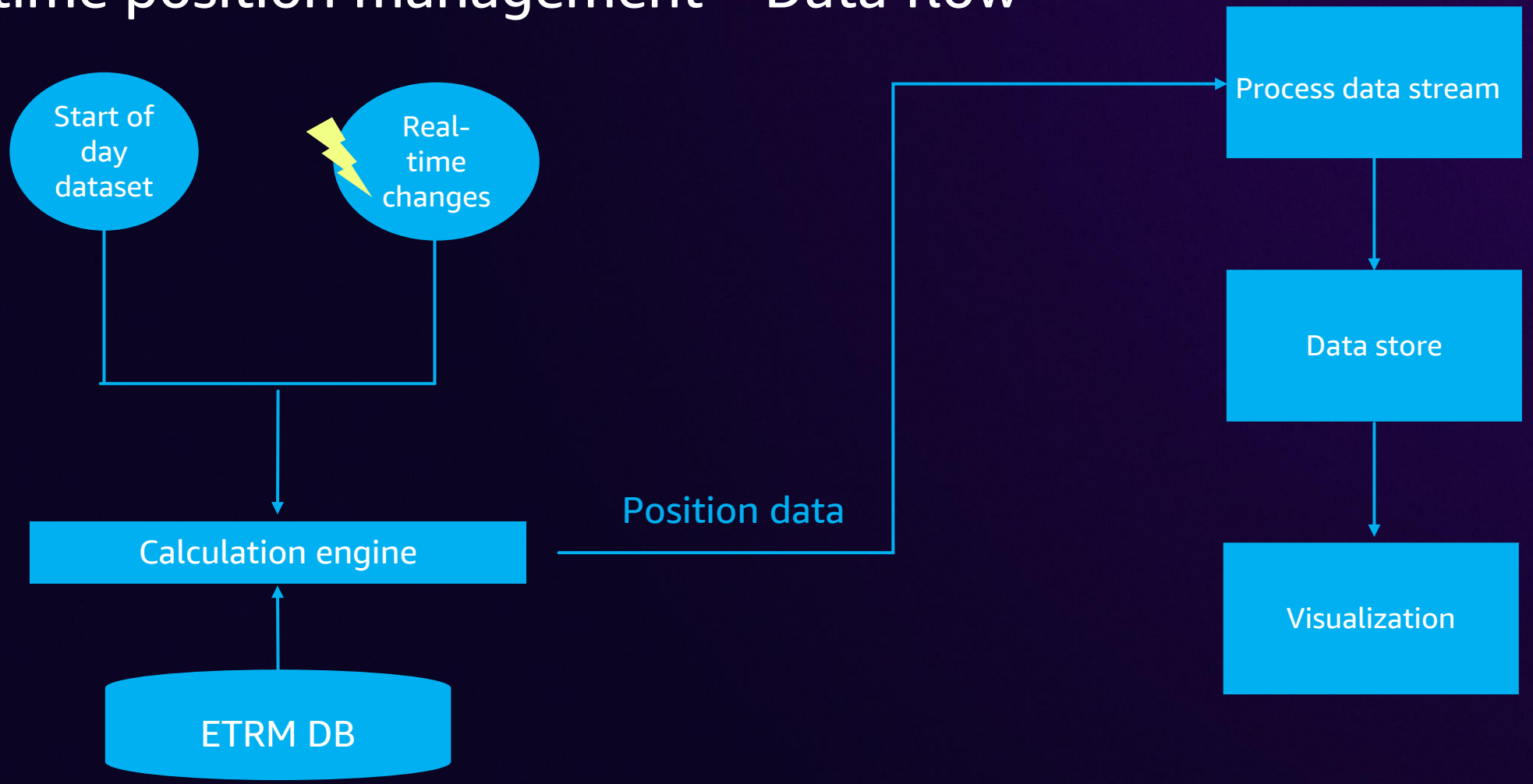
Migrating critical trading applications

Real-time position management – Data flow



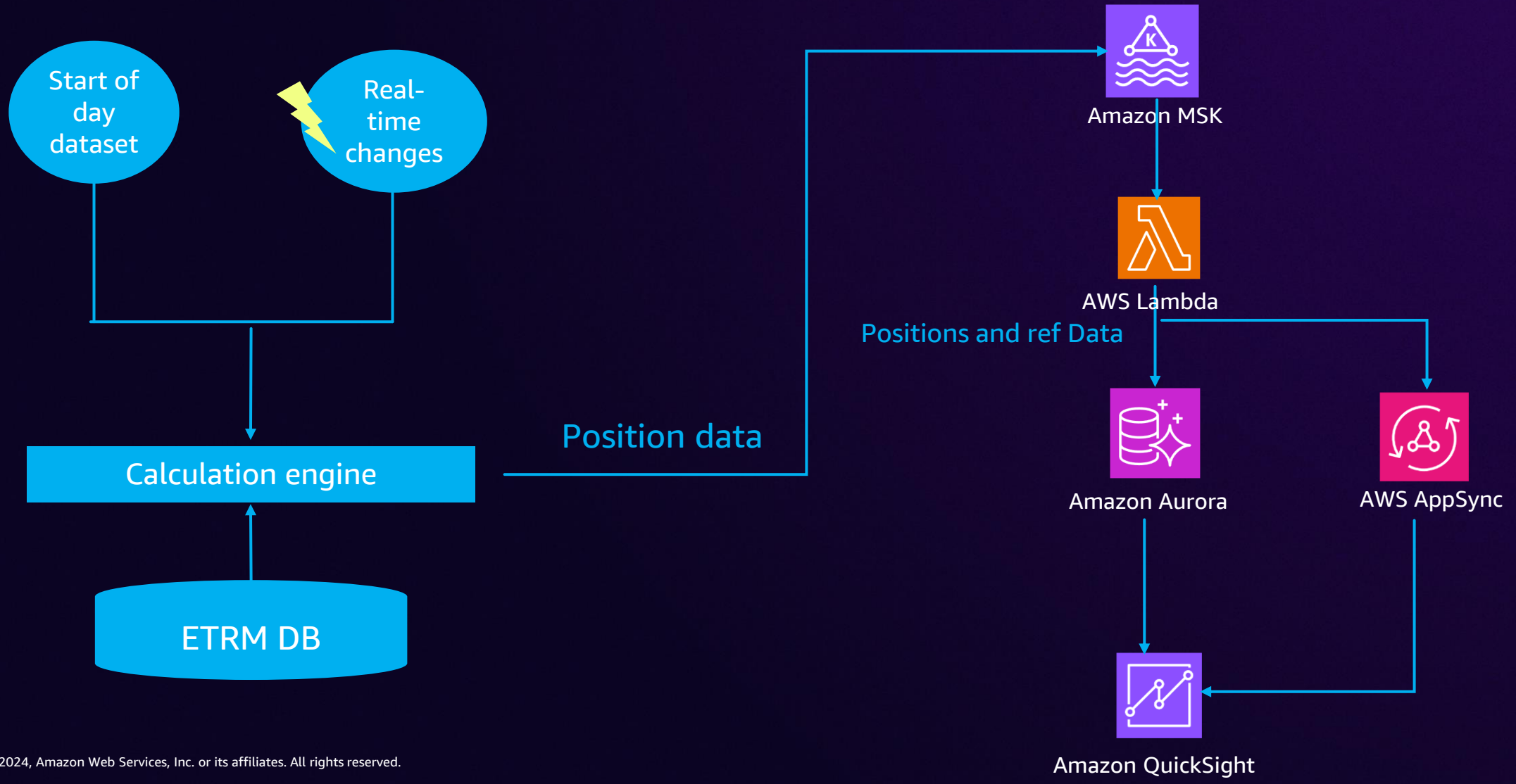
Migrating critical trading applications

Real-time position management – Data flow

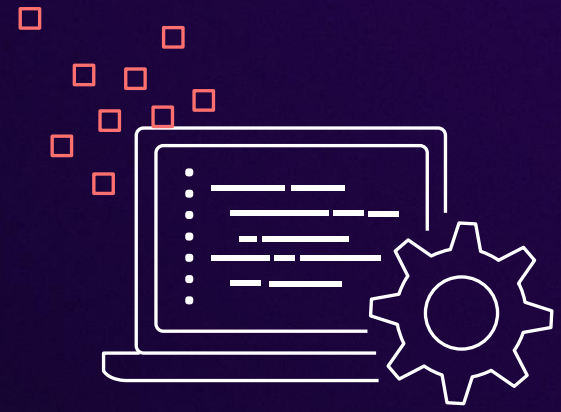


Migrating critical trading applications

AWS-native architecture – Real-time position management

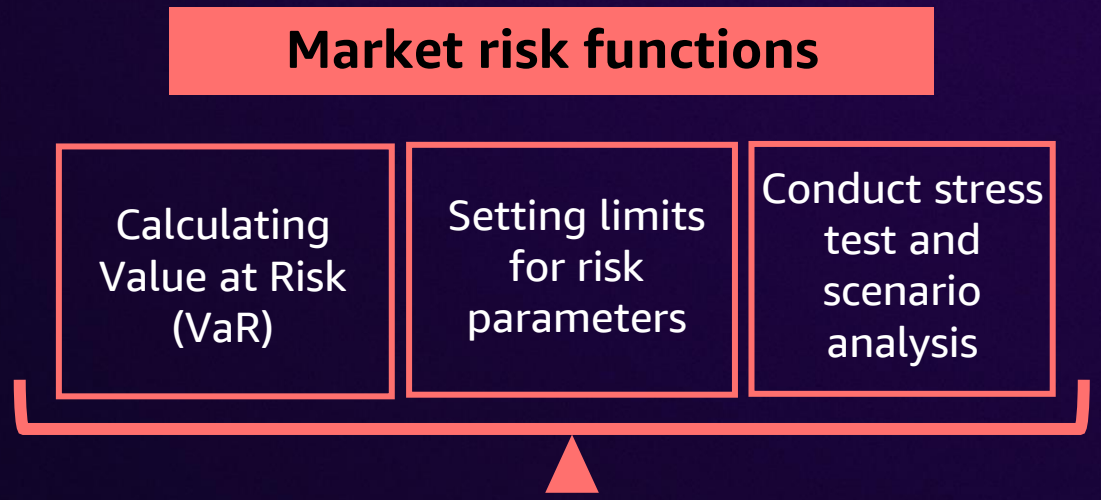


Modernization in the cloud



Modernization in the cloud

What is Market Risk Engine



Modernization in the cloud

bp's Market Risk Engine

Market risk scale

250M price predictions

625M price correlations across markets

100M exposure data points

Complex physical formula deals and option valuations

Business value

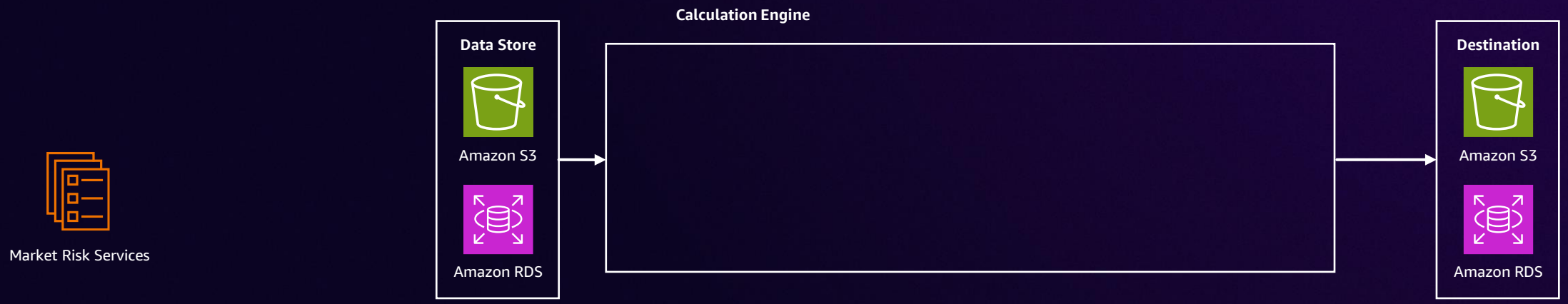
- **Manage price volatility**
- **Protect profit margins**
- **Mitigate FX risks**
- **Optimize hedging strategies**
- **Manage market liquidity risks**
- **Regulatory compliance**
- **Operational continuity**
- **Safeguard reputation and cost**

Modernization in the cloud

Market Risk Engine – Data flow diagram

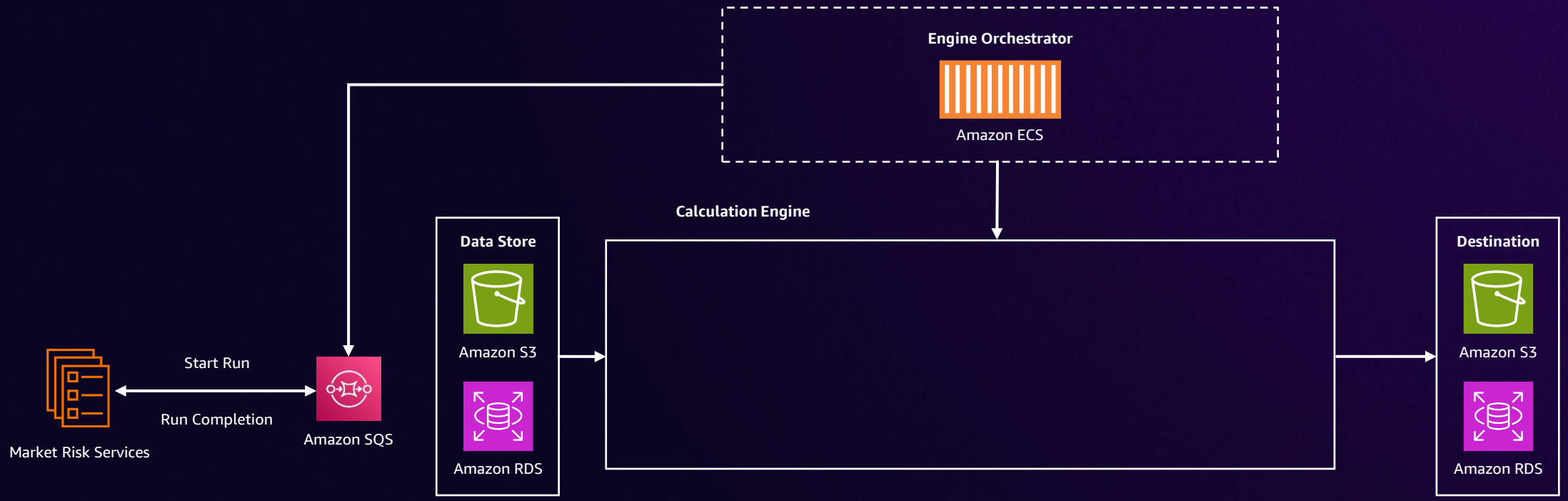
Modernization in the cloud

Market Risk Engine - Architecture



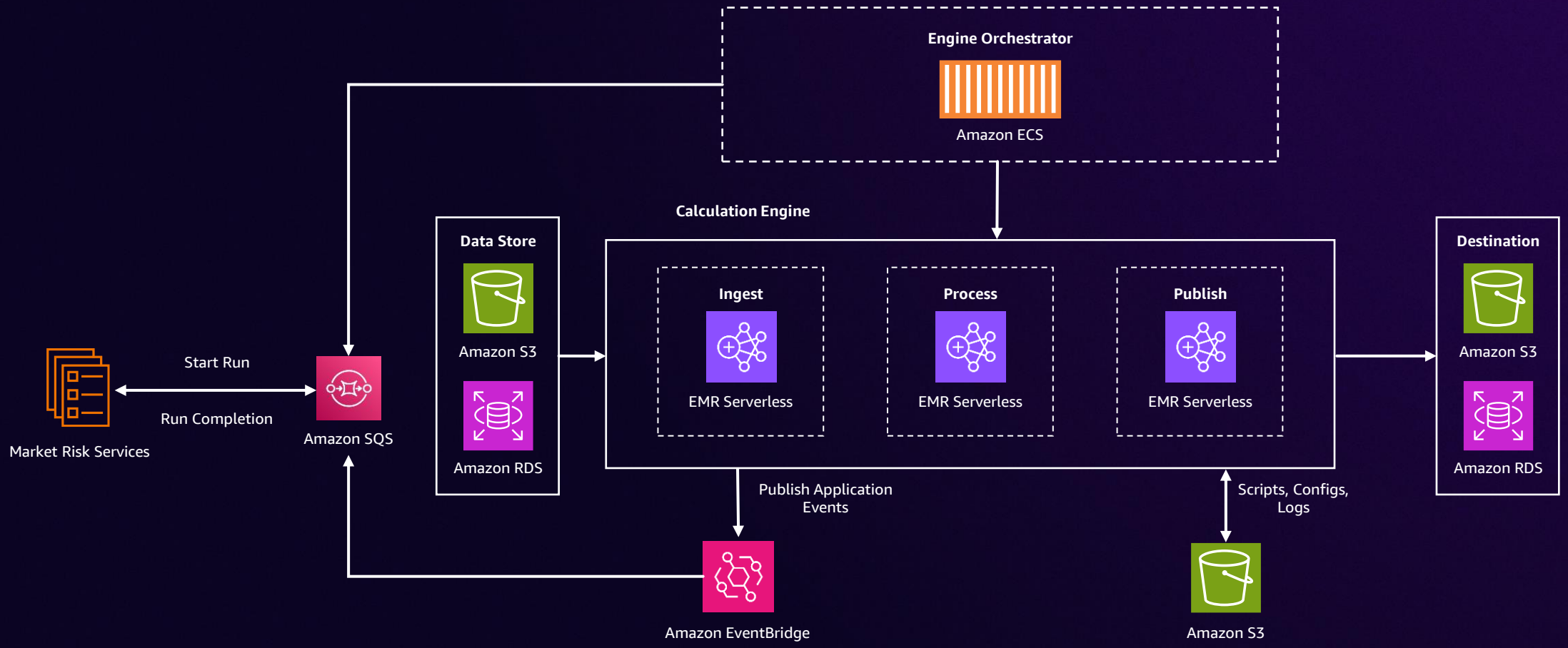
Modernization in the cloud

Market Risk Engine - Architecture



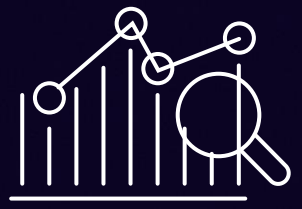
Modernization in the cloud

Market Risk Engine - Architecture

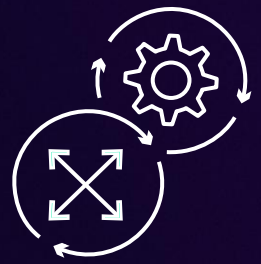


Modernization in the cloud

Market Risk Engine – Modernization benefits

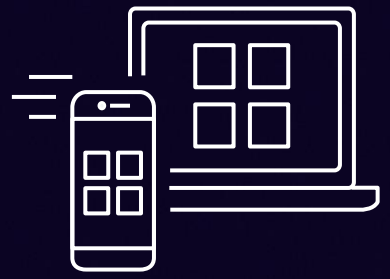


Meet growing business needs including what-if analysis

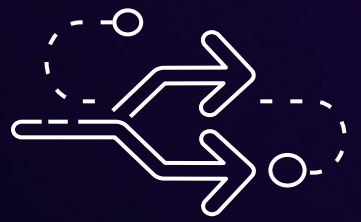


High performance and scalability with EMR Serverless

Licensing cost reduction



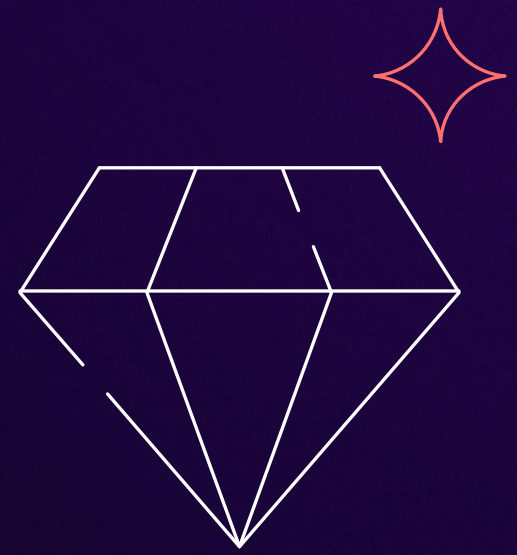
Faster engine runtimes



Cloud-native architecture patterns

Operational excellence

Building cloud-native architectures



Building cloud-native architectures

Pricing platform

Collaboration

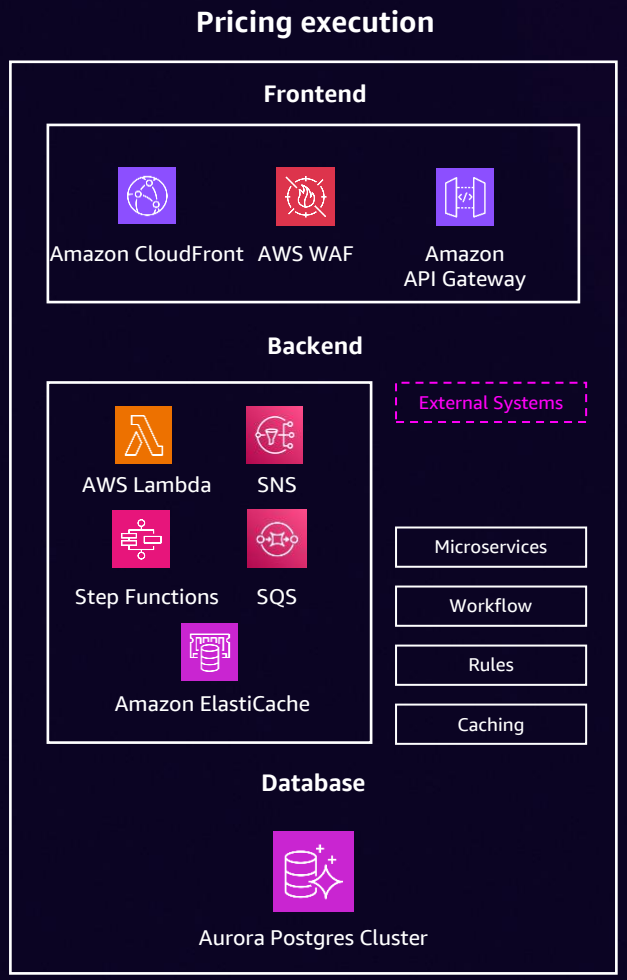
Integration

Optimization

- Data, digital, and AI teams partnering even more closely with the business
- Developing solutions for advancement that drive value across regions and teams
- Standardized tools to simplify, focus, and support analysts – for better decisions, faster

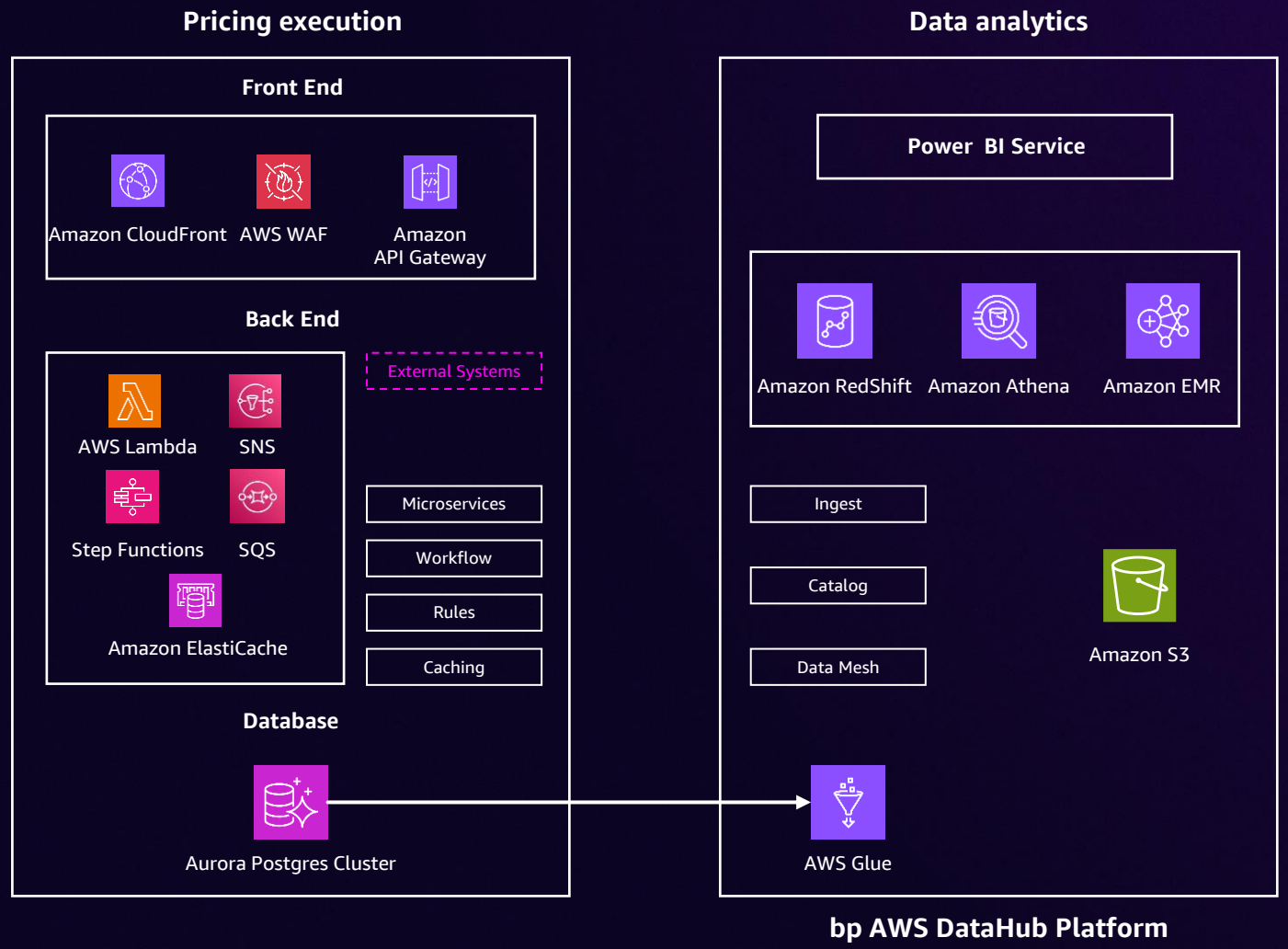
Building cloud-native architectures

Pricing platform architecture



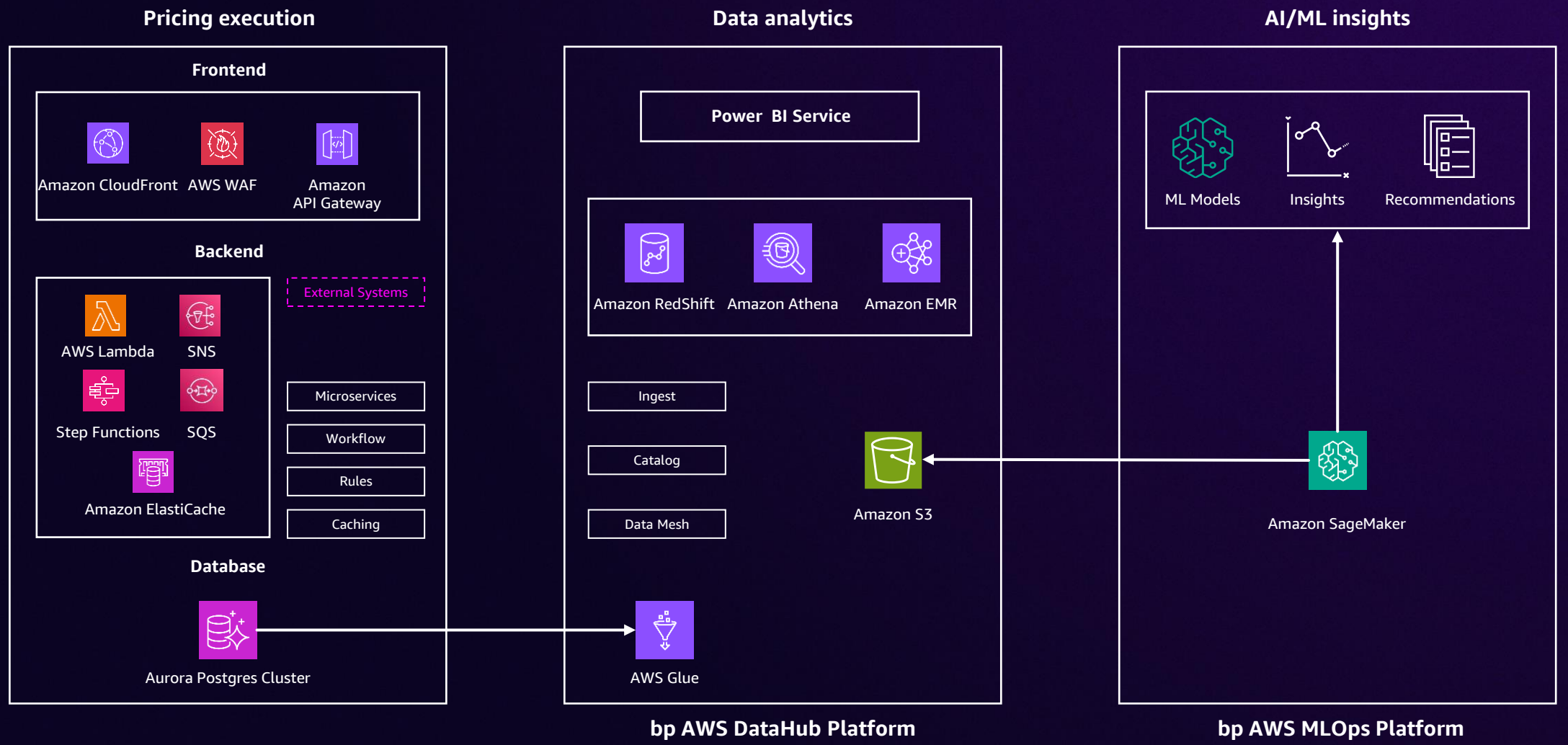
Building cloud-native architectures

Pricing platform architecture



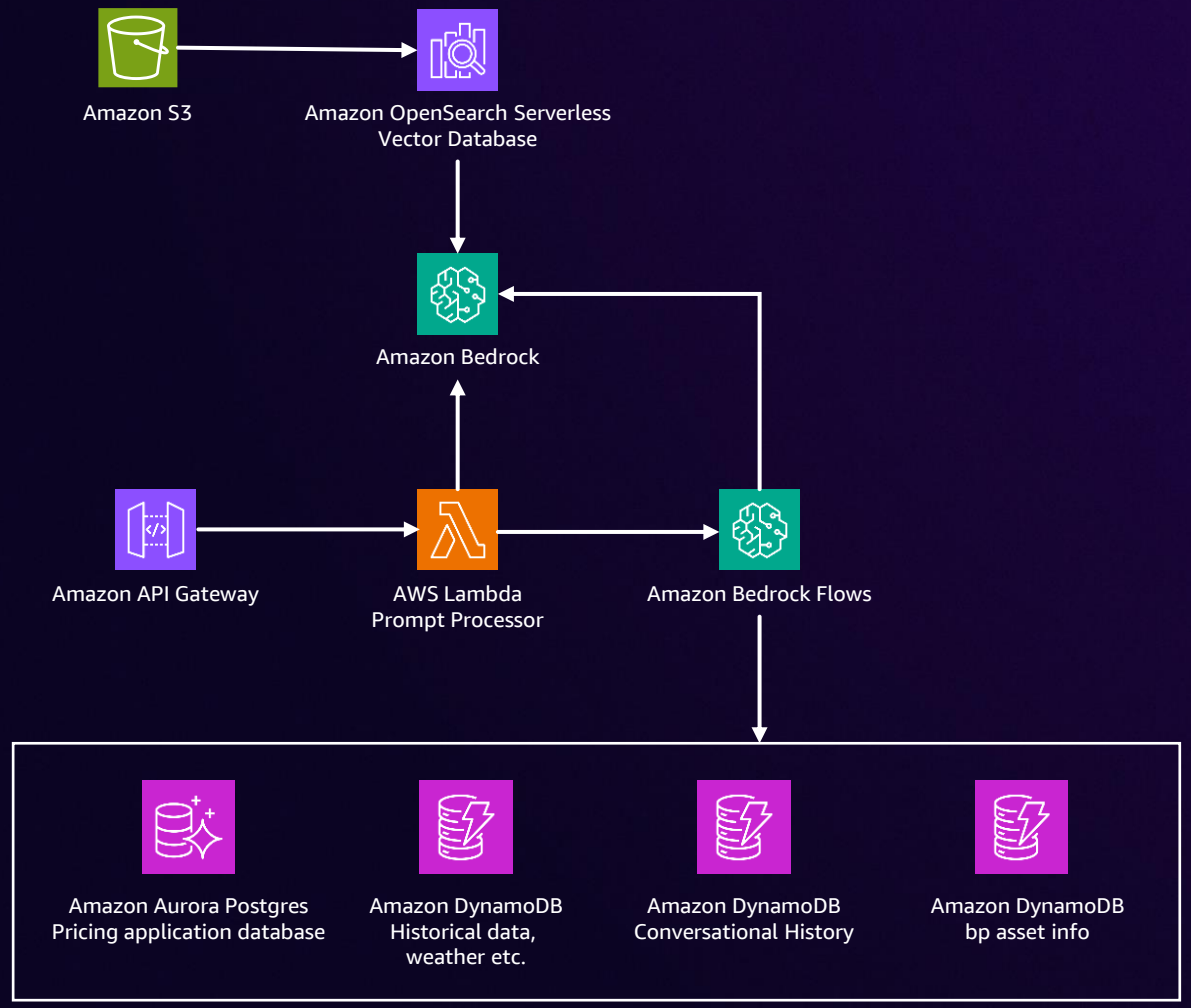
Building Cloud-native architectures

Pricing platform architecture



Building cloud-native architectures

Generative AI-based pricing analyst assistant



Building cloud-native architectures

Pricing platform – Cloud-native build benefits

Faster

Enhanced responsiveness

More automation

Faster output

Smarter

Single source of truth

Greater certainty

Deeper insights

Scalable

Global application for pricing

Enabled by data, ML, and AI

Enhanced, harmonized capability

Innovating with AWS

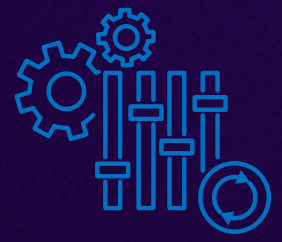
Working with AWS

Engaging AWS Solution Architecture and rapid prototyping teams to accelerate building out MVPs

AI/ML & generative AI

Summarize and extract relevant information

ML-based risk calculations for pre-trade analytics



AWS methodology

Working backwards, product-led approach

Resources

ML-based price capture

bp Trading – AWS Energy Symposium session

Amazon Bedrock Flows

Thank you!

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