
AWS
re:Invent
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TLC307

Telenet's journey to become a next-generation, data-driven organization

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Telenet



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Agenda

Trends and challenges

Brief introduction to our story

High-level overview on our data cloud journey

Architecture overview

Key decisions & learnings

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Trends and challenges

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Trends around the world



Explosion of data



Explosion of personas



Demand for faster decision-making on real-time data

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Challenges with becoming data-driven



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Data-driven decisioning is key for the future

Data-driven organizations are **growing an average of 30%+ annually**

Forrester, "Insights-Driven Businesses Set the Pace for Global Growth," https://bit.ly/3r4uRiL

68% of organizations reported they're still unable to realize value from data

Accenture, "Closing the Data-value Gap," https://accntu.re/33V6sU3

Only **28% of survey respondents** have a data strategy in place

Accenture, "Closing the Data-value Gap," https://accntu.re/33V6sU3

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Brief introduction to our story

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Leader in entertainment & telecom services

Evolving from **leading connectivity to customer-centricity** by investments in data, digitization, and automation

- Be always around to rely on
- Be respectful for privacy, don't be intrusive
- Bring more value at the right moment



Founded in 1996	Market leader	$2.5B revenue	Liberty Global	Fiber joint venture	Focus on data & digital

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Our key use cases



Connectivity

- **Proactively improve WiFi**
- **Steer technical engineers in the field**
- Optimize **network investments**



Interactions

- **The right message, at the right time, through the right channel**
- Hyper-personalized via our "**Segment of one**" solution
- Always-on marketing brain with tons of **relevant customer features**



Viewing behavior

- Deliver **targeted advertising**
- **Best entertainment recommendations**
- **Provide broadcasters with insights** about their programming

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What cloud needs to enable for us




Evolve insights to value impact & profiling to meaningful interactions




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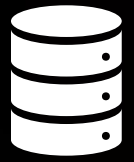
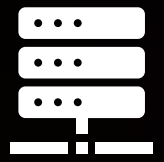
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Why the time was right




Evolve insights to value impact & profiling to meaningful interactions



Migrate from Cloudera to AWS and from Exadata to Snowflake





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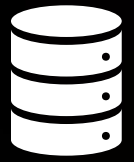
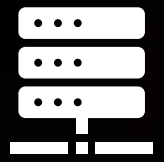
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Our environment in numbers




Evolve insights to value impact & profiling to meaningful interactions



Migrate from Cloudera to AWS and from Exadata to Snowflake





> 1 PB	50 sources	70 projects	100+ use cases	50+ ML models	150 specialists

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High-level overview of our data cloud journey

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High-level overview of our data cloud journey

Foundation

- Gather market insights
- Identify main actors and stakeholders
- **Align on vision & strategy**
- Build business case and get leadership approval

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Mobilization

- **Assign a team with clear ownership**
- Experiment and share
- Mobilize the different communities
- Map out the migration work
- Select external partner to scale

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Migration

- Build the data analytics platform in AWS
- Migrate all data projects
- Install governance for operations and cost management
- **Involve and train all impacted people**

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Optimization

- Baseline cost and do targeted optimizations
- Monitor SLA and improve
- Explore specialized cloud services
- **Further adapt way of working to benefit from cloud**

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Architecture overview

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Legacy architecture

Ingest

Processing and storage

Consumption

















Qlik



Data sharing

Governance



In-house frameworks

UC4



Jenkins



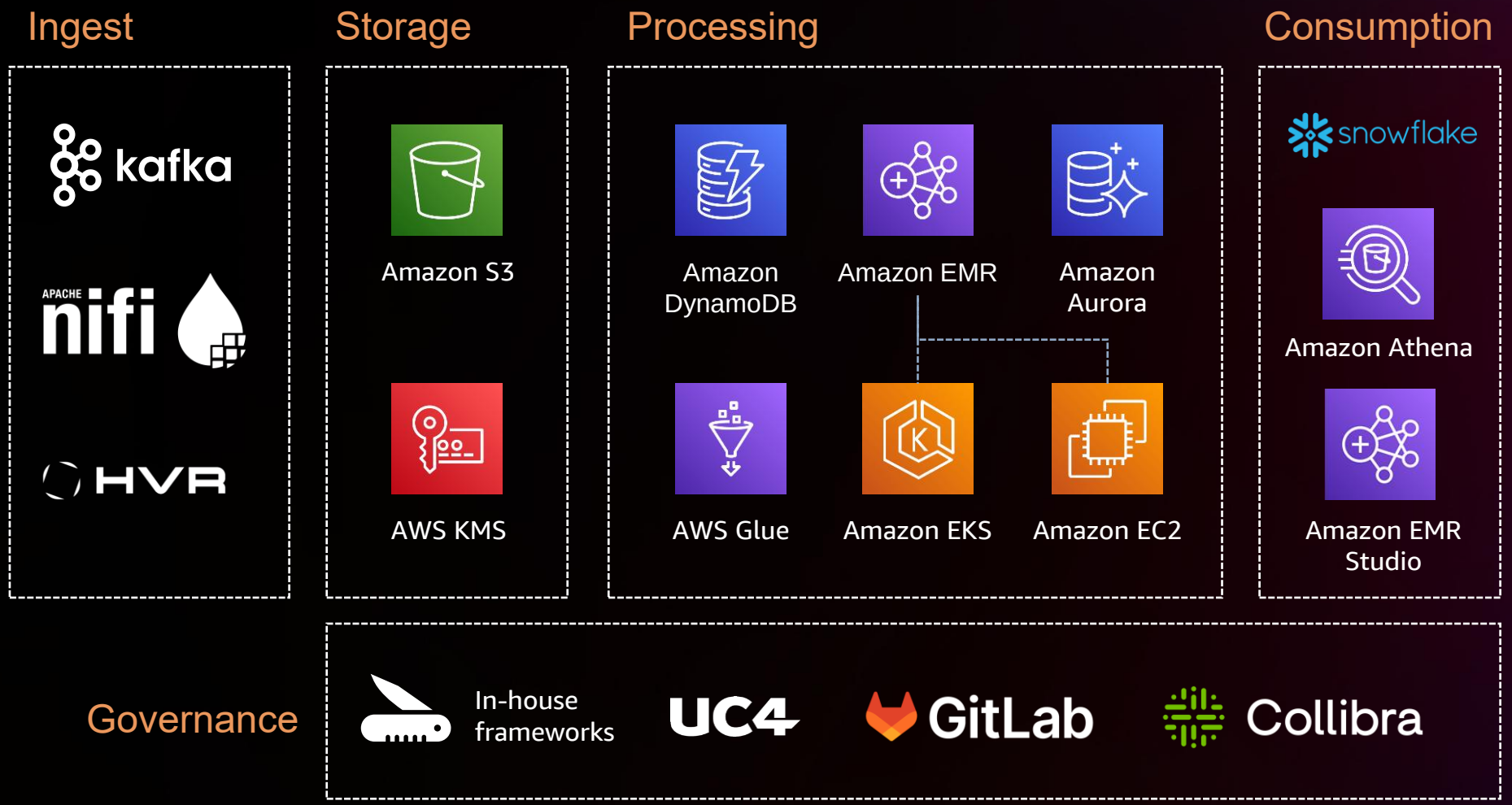
Collibra

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AWS Architecture



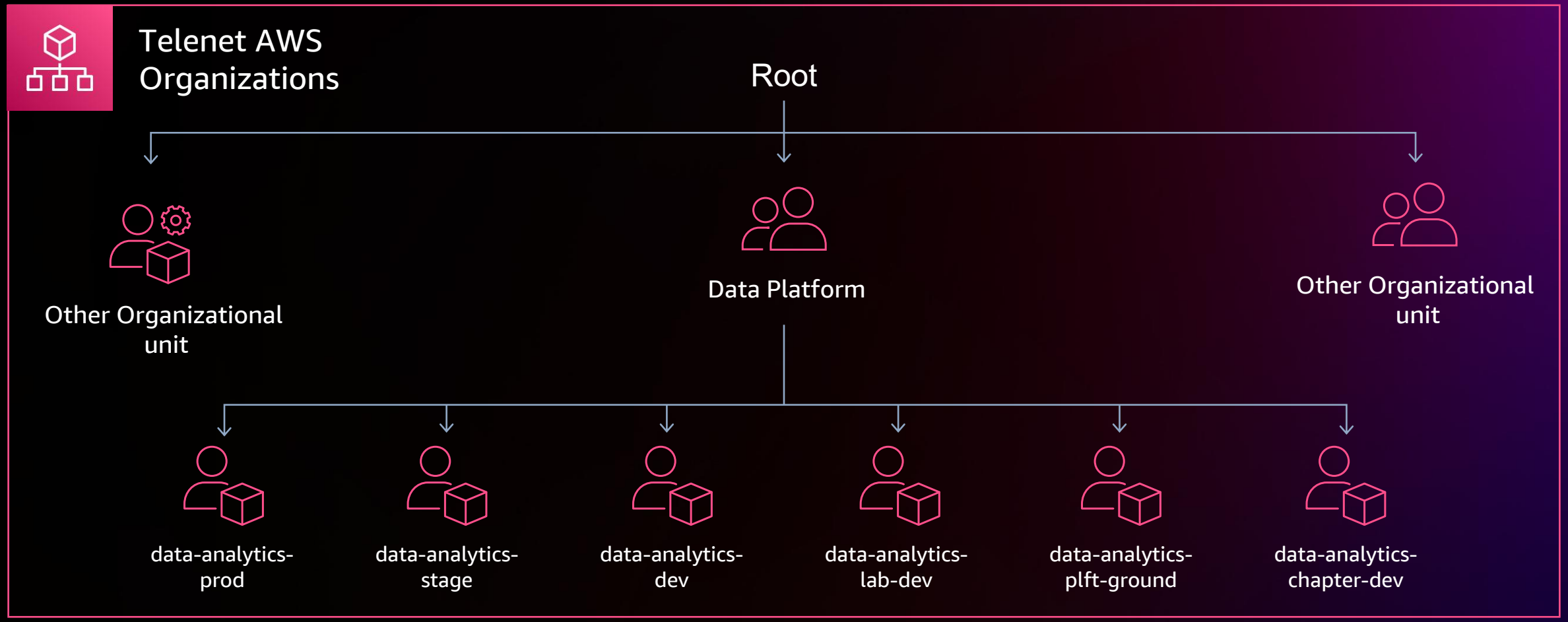
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Data sharing

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AWS Account Structure

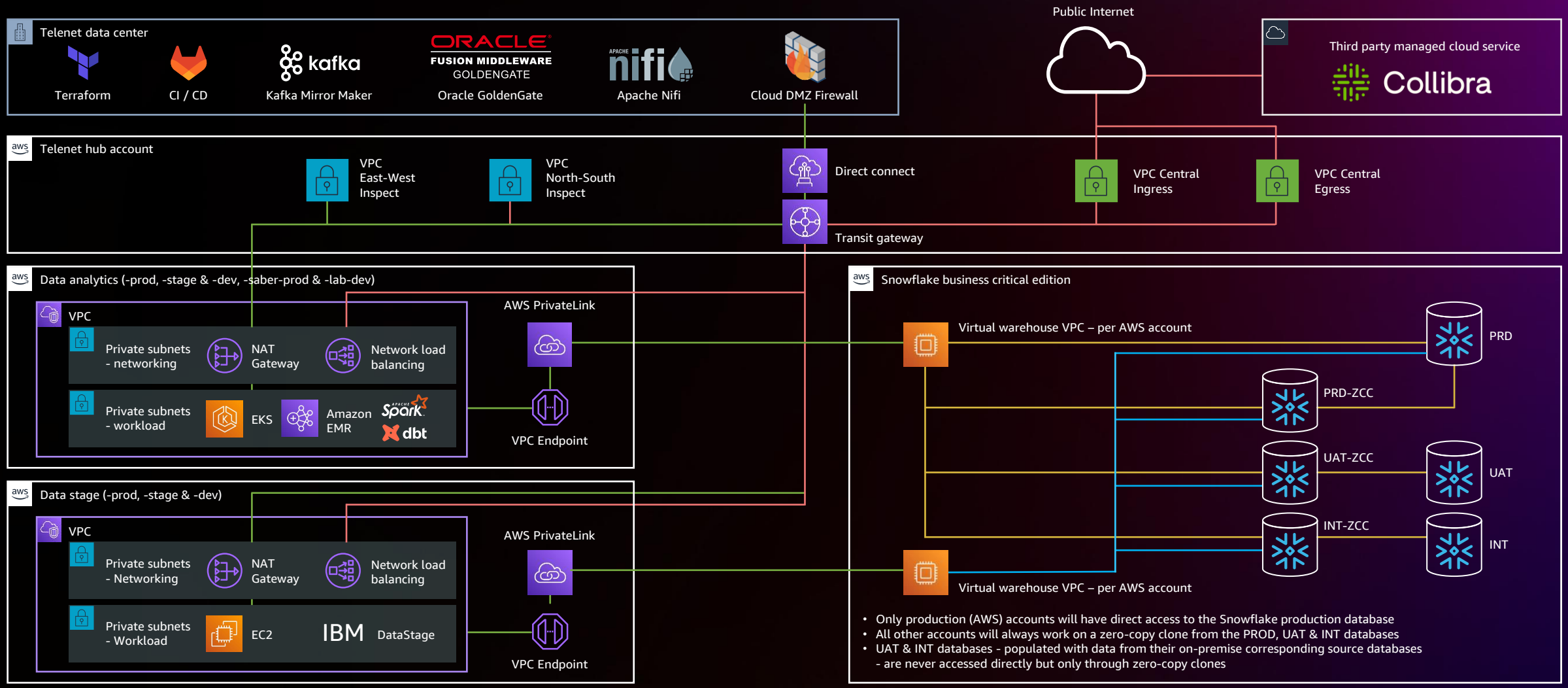
We have set up AWS accounts with a number of functional goals



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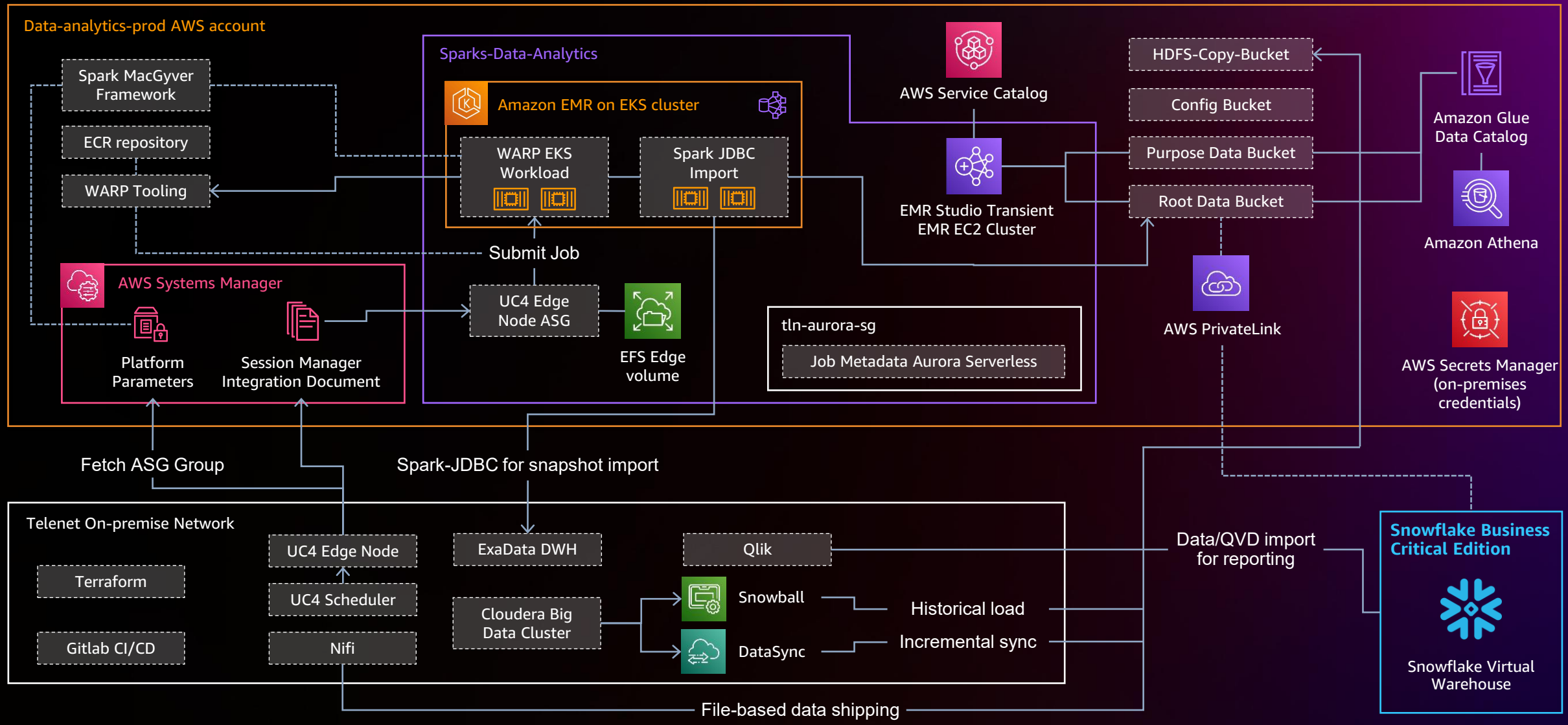
Network topology overview

AWS Account Structure



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Architecture Overview



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Key decisions & learnings

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Key decisions

Architecture



Amazon EMR on EKS



EMR Studio



S3 Intelligent-Tiering

Governance



Purpose-based access



KubeCost



Karpenter Autoscaler

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Architecture key decisions

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Amazon EMR on EKS

Amazon EMR provides us with **improved Spark performance** and **a strong ecosystem**

Amazon EKS is a future-proof component that provides **flexibility & scalability**

And the future is bright with **Amazon EMR Serverless**



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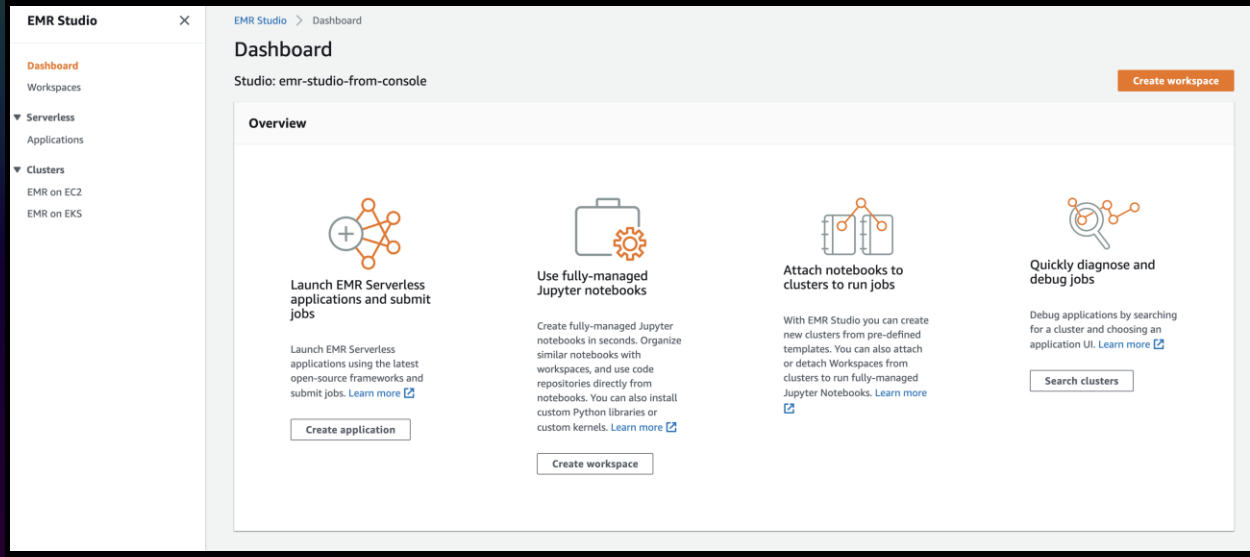
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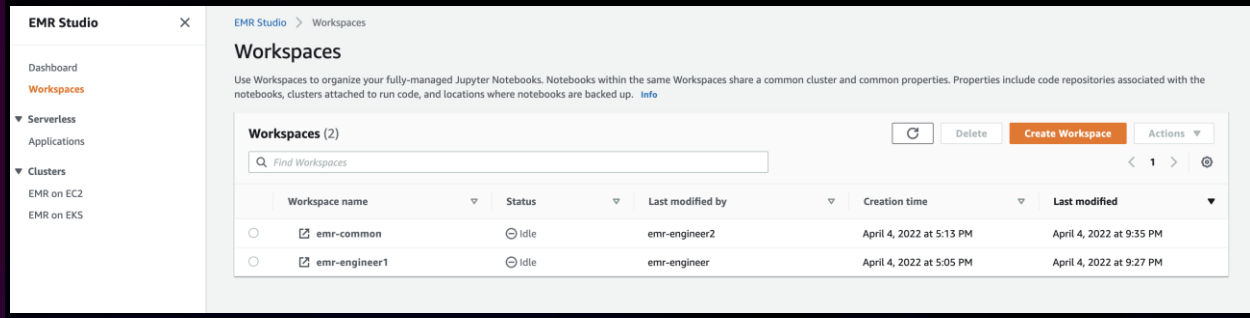
EMR Studio

EMR Studio provides us with **seamless connectivity to Amazon EMR**

Through AWS Service Catalog & IAM Identity Center, an **easy experience to developers** is provided

With the addition of **SQL Explorer**, it evolves to a **single toolkit for engineers & scientists**





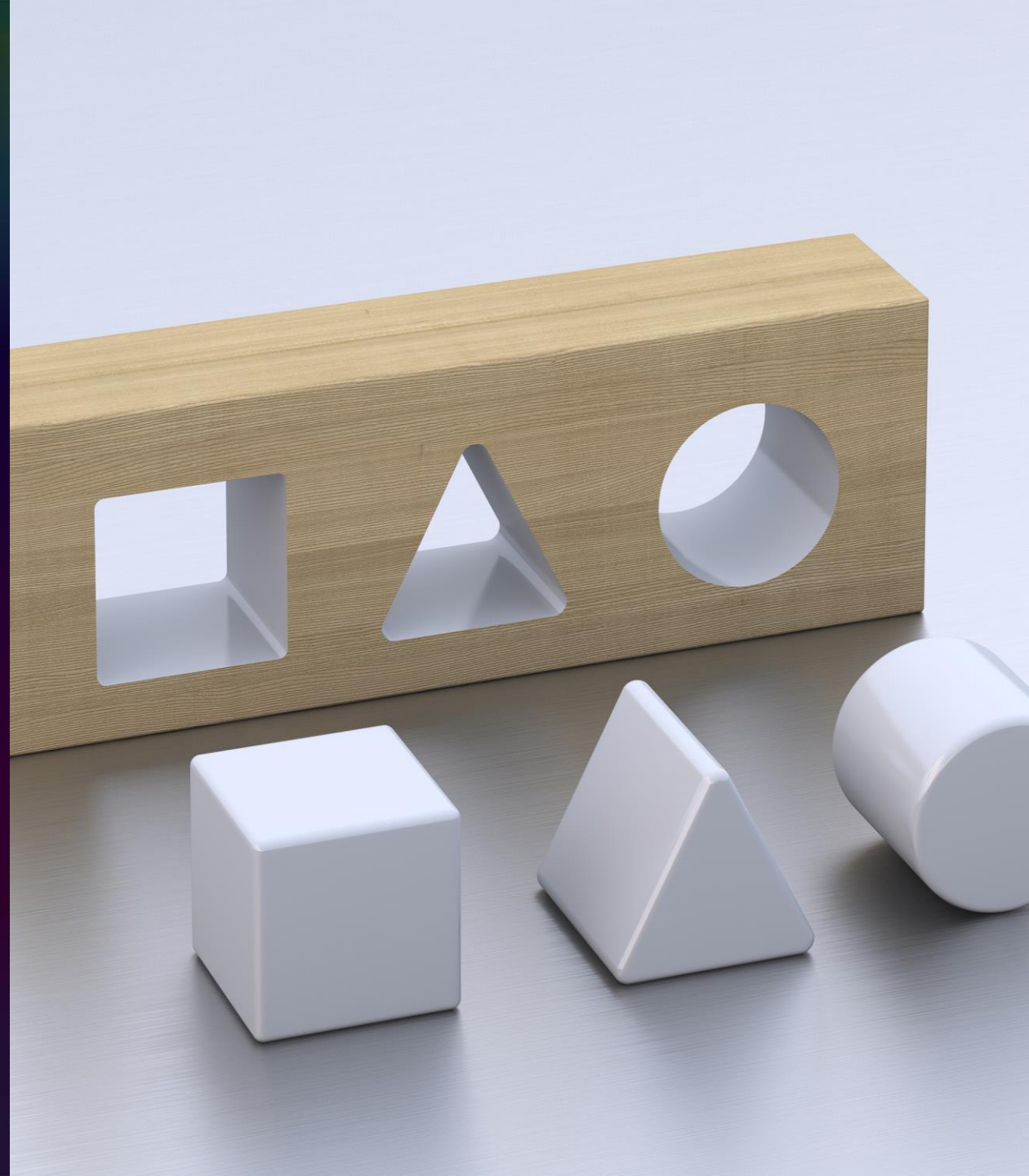
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S3 Intelligent-Tiering

Monitoring **costs** for **small objects;** smaller are **removed**

Support for **S3 Glacier Instant Retrieval**

No additional cost to jump **between tiers** (direct write into IT is possible with Hadoop 3.3)



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Governance key decisions

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Purpose-based access

The **concept of profiles** in AWS allows us to be **more granular than RBAC**

With PBAC **data access**, **service access** and **policies** are grouped for a **purpose** e.g., in-home connectivity

Developers can access multiple purposes but **never at the same time**



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KubeCost

Break down costs by any Kubernetes concept and view costs across clusters

Get **dynamic optimization insights** to reduce spend without performance impact

Set up **alerts & governance** with real-time notifications



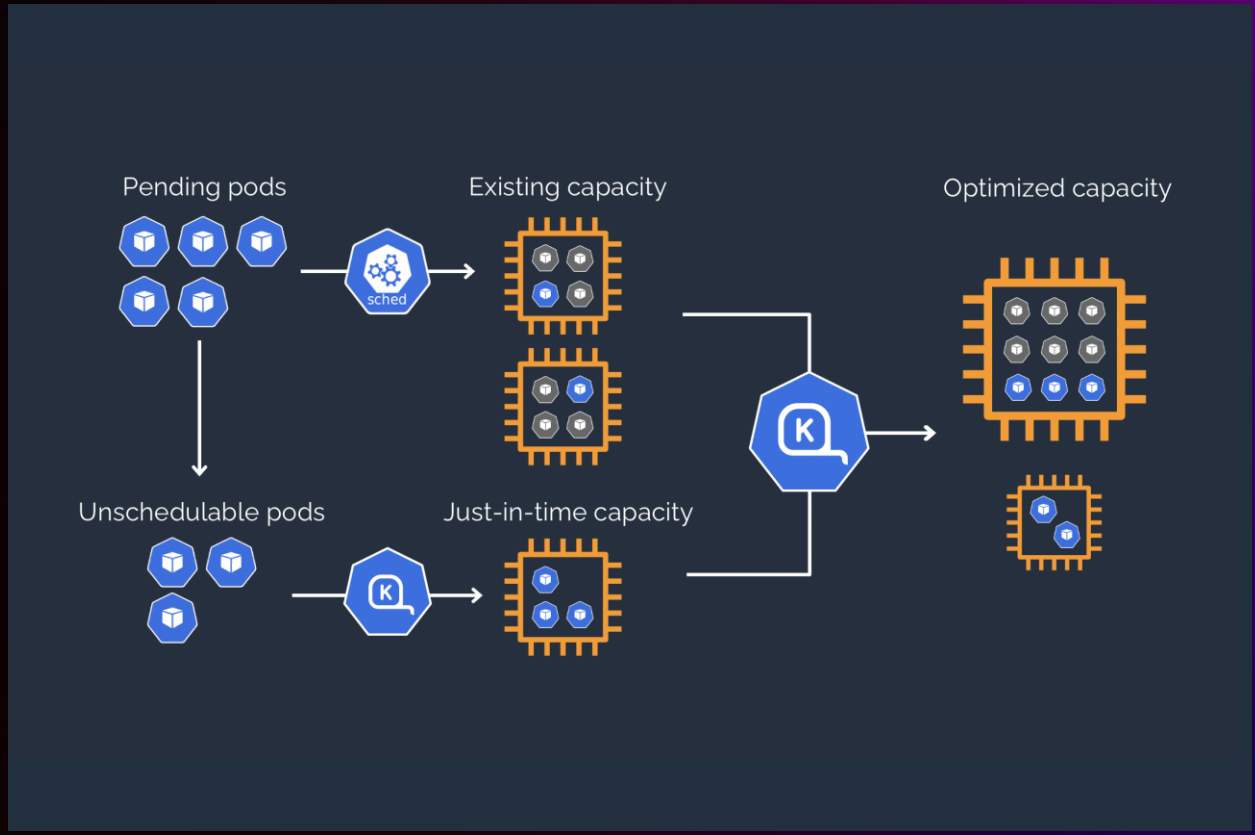
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Karpenter

One provisioner for all node types instead of different groups

Faster **provisioning times from minutes to seconds**

Easy integration and configuration on Amazon EKS resulting in **immediate spot improvements**



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Key learnings

Change



Vision and strategy



Early wins in our journey



Build community

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Vision and strategy

Radical simplification in landscape

One experience for developers, which does not equal to one technology

Evolve from **data sets to data products** by guaranteeing quality & availability



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Early wins

Storage & job **price/performance ratio** comparison with on-premise

Time to market for new capabilities and isolated environments

Cost transparency driving business discussions and savings



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Build community

In order to reap the benefits of cloud **you need everyone** to change their way of work

Migration is a difficult time with discussions about the future and frustration about legacy

Install a **shared goal** and a **we're-in-this-together** feeling



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Q&A



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Thank you!

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