AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

BSI203

Enhance your apps with Amazon QuickSight embedded analytics

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Amazon QuickSight

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3M

Usman Ismail
Sr. Engineering Manager
Bolt

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Agenda

Why embed analytics?

Amazon QuickSight

Embedding in your apps

3M

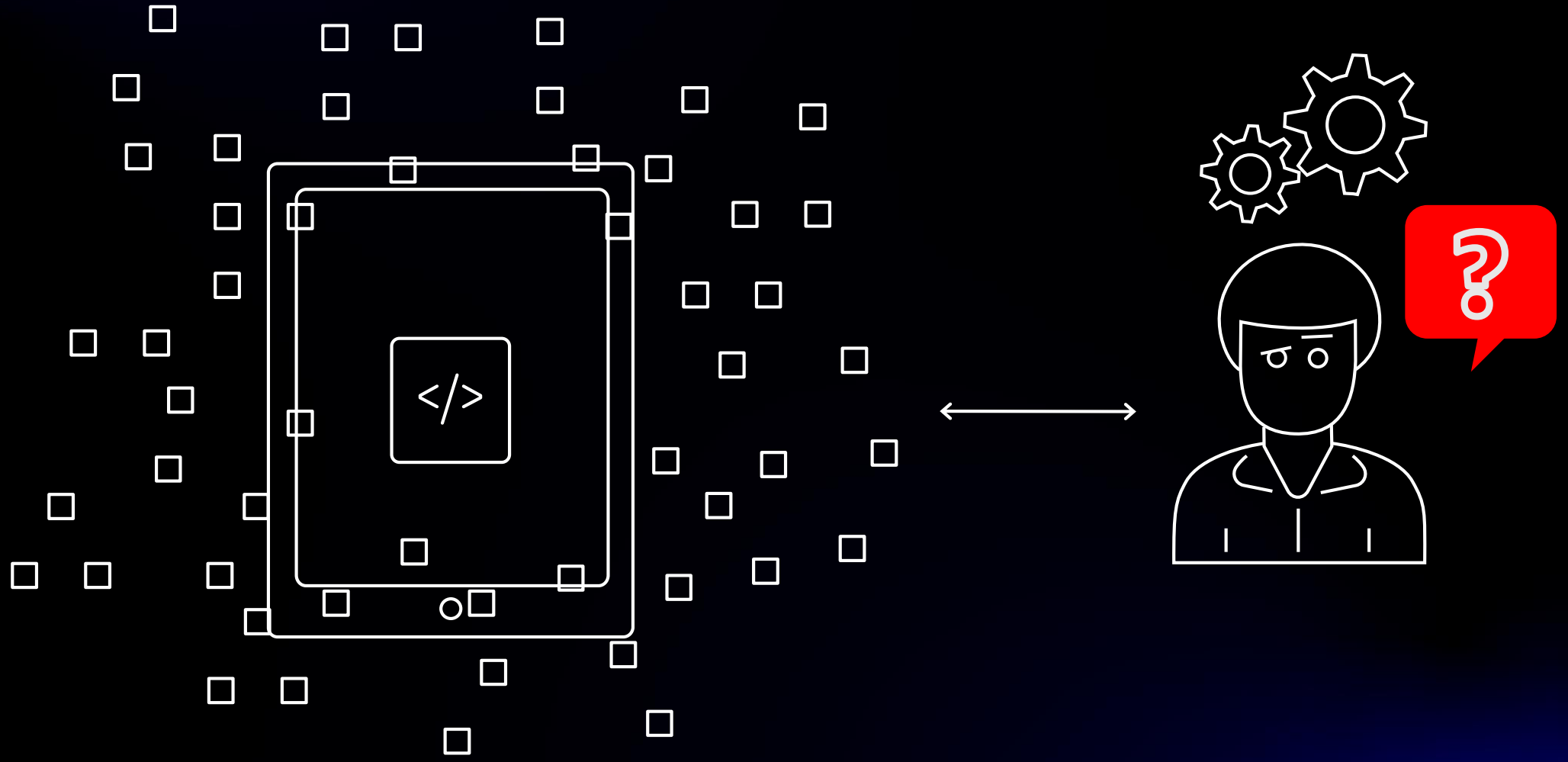
Bolt

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Why embed analytics?

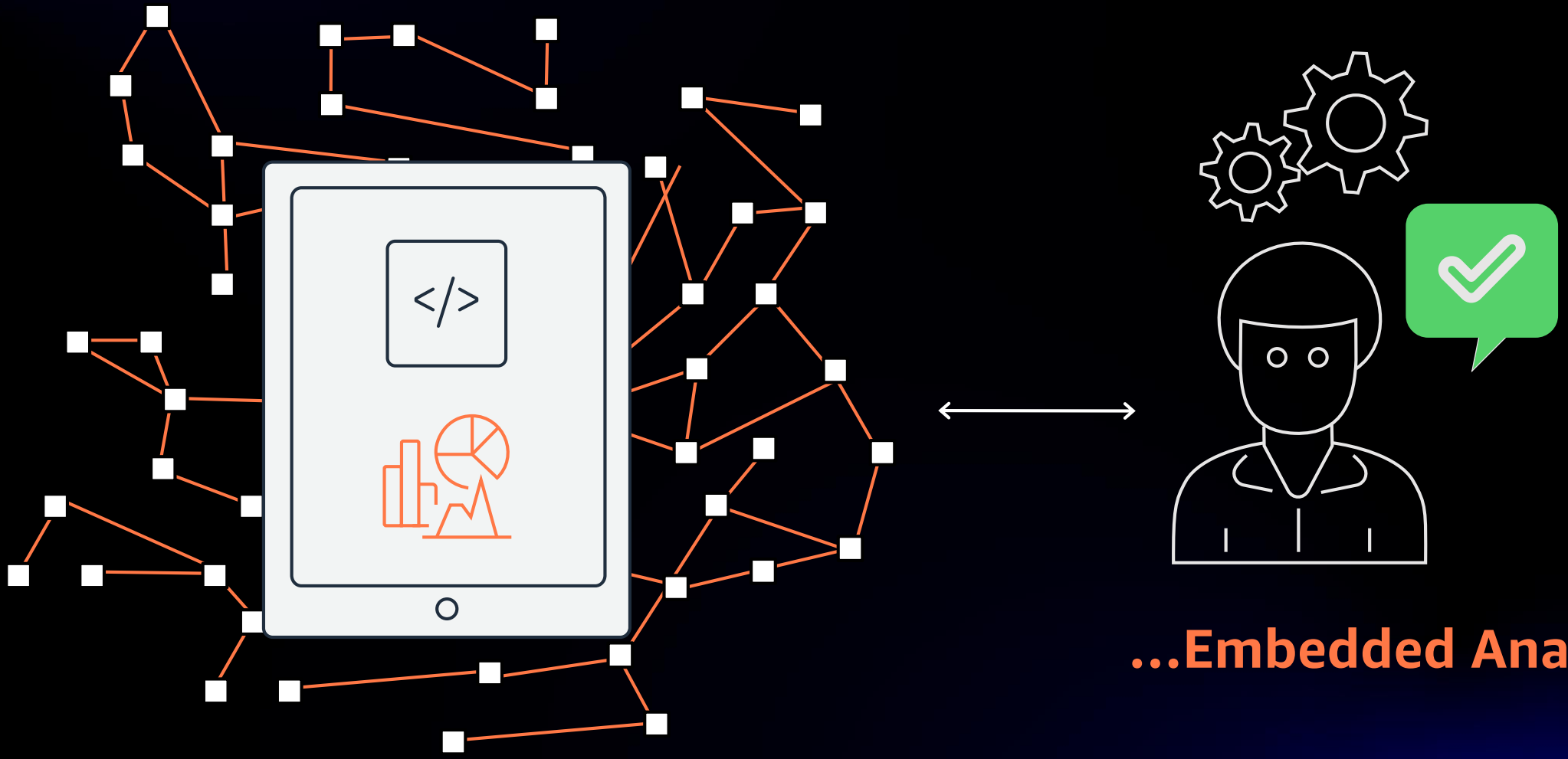
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Applications generate a lot of data...



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Turn data into insights with embedded analytics

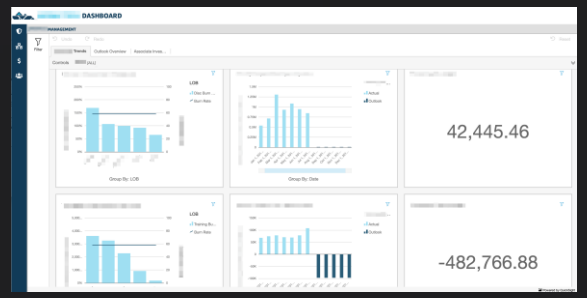


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Data-driven experiences for every user



SaaS apps



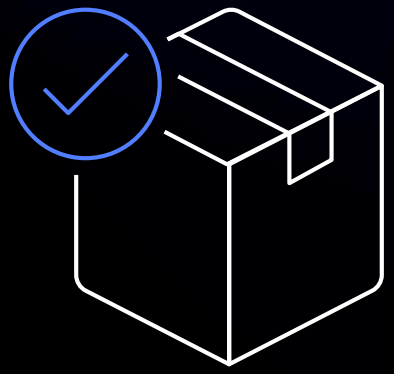
Enterprise web apps



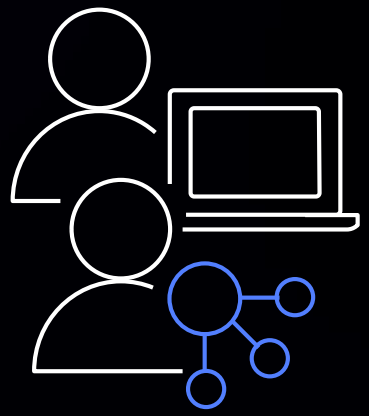
Public portals

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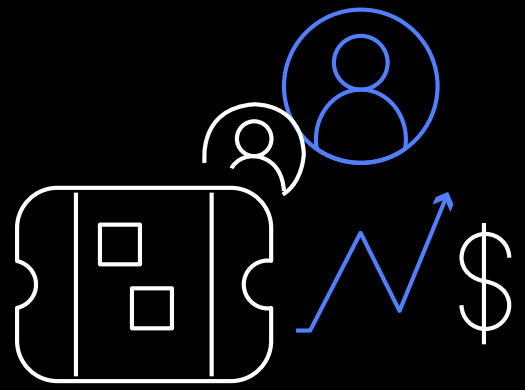
Accelerate business growth



Product differentiation



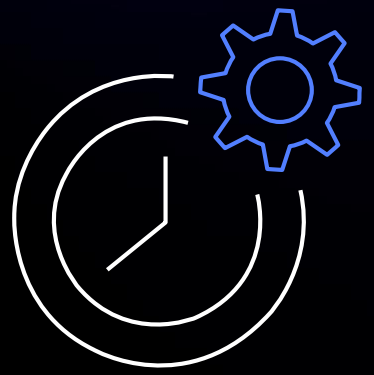
Data-driven user experiences



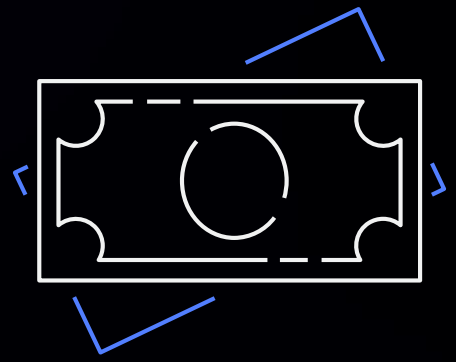
New monetization opportunities

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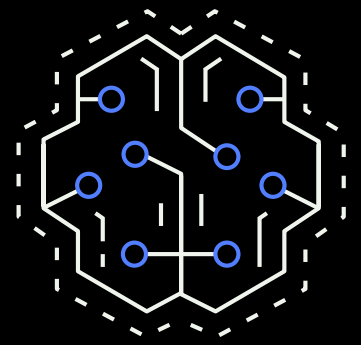
Reduce technical complexity



Time
to market



Reduce ongoing
expenditure



Deep analytical
capabilities

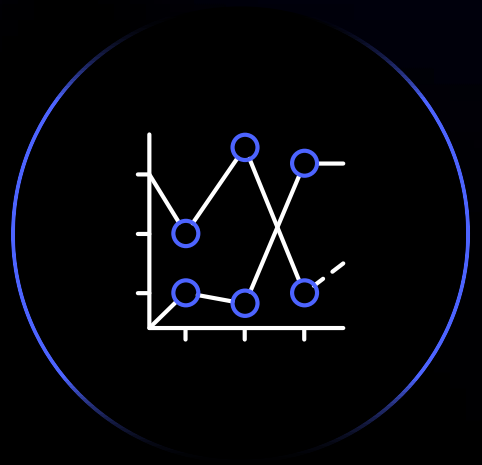
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Amazon QuickSight

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Amazon QuickSight

SCALABLE, EMBEDDABLE, ML-POWERED BI SERVICE



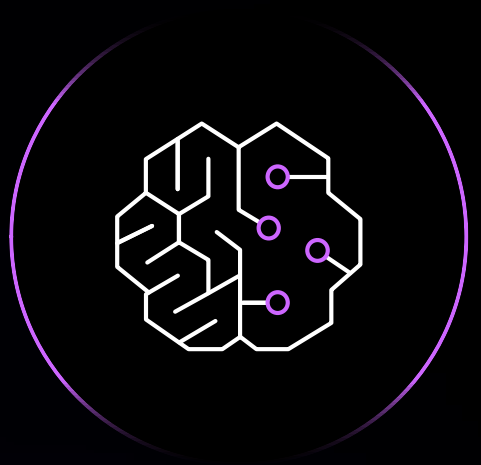
Built for scale

Easily scale from 10s to 100K+ users without servers; Securely works with data lakes, operational databases, and data warehouses



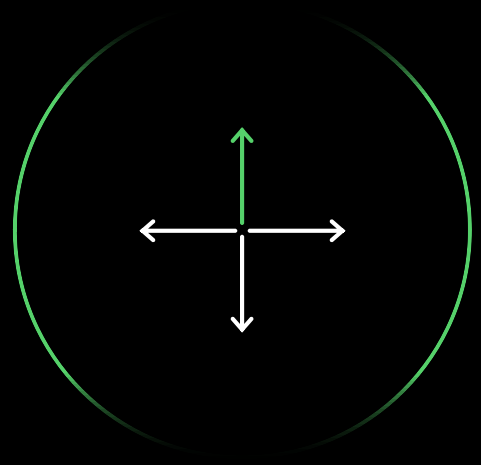
Developer focused

Quickly embed dashboards in web apps with rich API support via AWS SDK, native multi-tenancy and deep customization options



ML-powered insights for end users

Benefit from Amazon's expertise in ML with built-in NLQ, outlier detection, forecasting, and auto-narratives



Enterprise ready

High Availability, compliance, data security, granular access-control, and easy connectivity to your data wherever it may be

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QuickSight for all your embedded analytics needs

Interactive dashboards



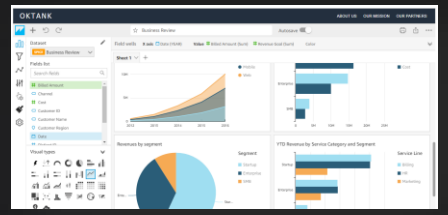
Rich, interactive dashboards with drill-down, filtering and data export capabilities for in-app analytics for 100s of 1,000s of users

Personalized email reports



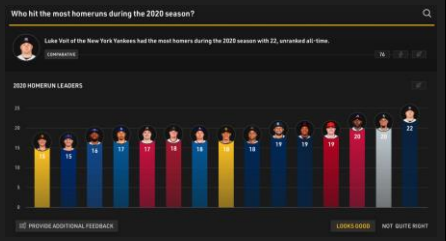
Schedule and send emails to 1,000s of users enforcing data security, user-level defaults and customized branding

Self-service authoring



Customizable QuickSight authoring experience with multi-tenancy controls and governed data access for power users of apps

Natural Language Querying with Q



Embed natural language querying in your applications to provide easy access to deep insights; curate and manage known pattern

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Get started in minutes

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1. Author rich, interactive dashboards

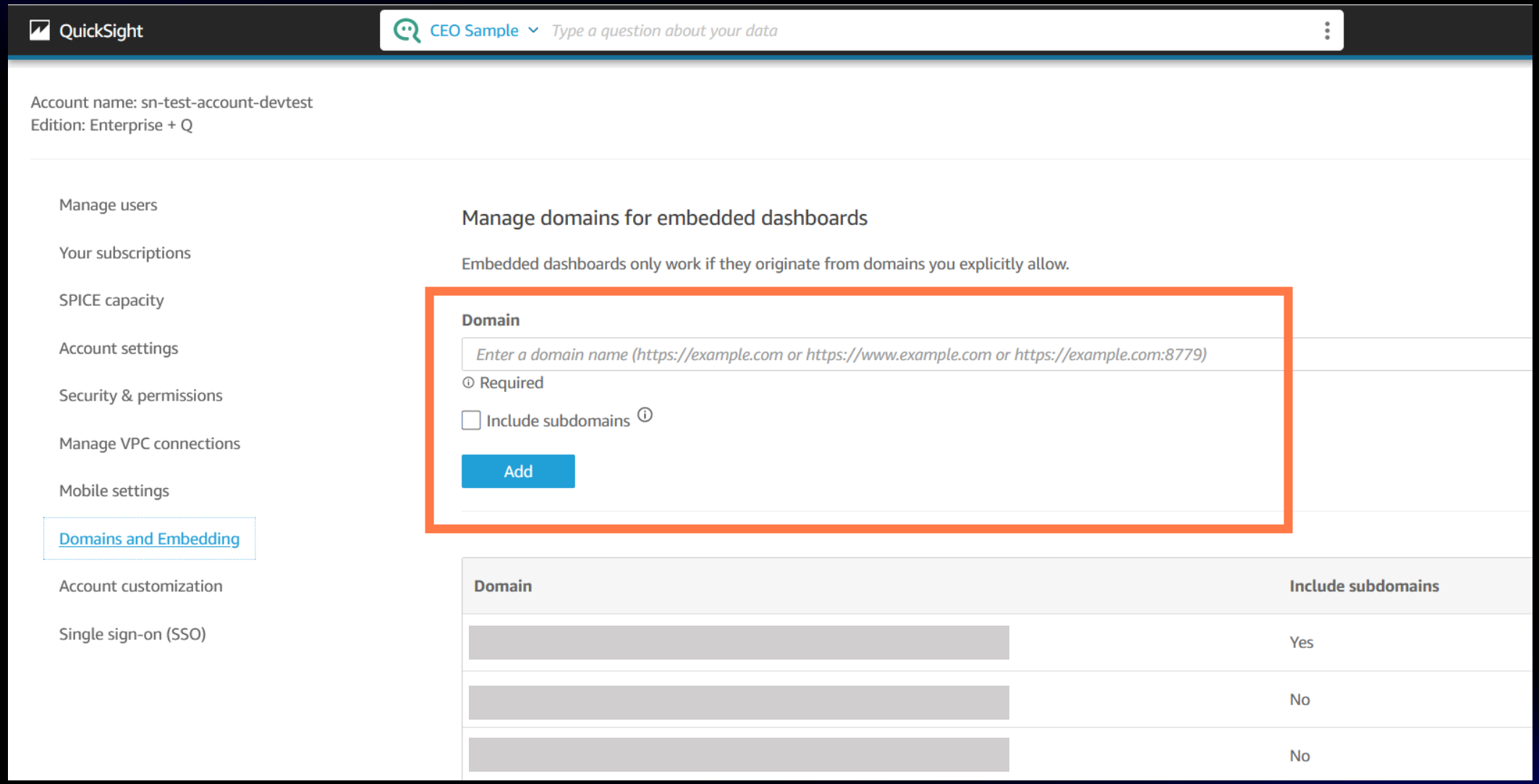


	01-JAN	02-FEB	03-MAR	04-APR	05-MAY	06-JUN	07-JUL	08-AUG	09-SEP	10-OCT
Revenue stream 1	587.0	596.3	605.8	615.4	625.2	635.1	645.2	655.4	665.8	676.4
Revenue stream 2	145.6	147.9	150.2	152.6	155	157.5	160	162.5	165.1	167.7
Total Net Revenue	711.6	722.9	734.3	746	757.8	769.9	782.1	794.5	807.1	819.9
Cost of Goods Sold	269.6	273.9	278.2	282.7	287.1	291.7	296.3	301	305.8	310.7
Gross Profit	442.0	449.0	456.1	463.3	470.7	478.2	485.7	493.5	501.3	509.2
Expenses:										
Advertising & Promotion	18.7	19.1	19.5	19.8	20.2	20.6	21	21.5	21.9	22.3
Rent	5.8	5.9	6	6.2	6.3	6.4	6.5	6.7	6.8	6.9
Salaries, Benefits & Wages	251.2	256.2	261.3	266.5	271.8	277.2	282.7	288.3	294	299.9
Travel	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7
Total Expenses	403.0	411.0	419.2	427.5	436.0	444.7	453.5	462.5	471.7	481.1
Earnings Before Interest & Taxes	39.0	38.0	36.9	35.8	34.7	33.5	32.2	30.9	29.6	28.2
Interest Expense	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Earnings Before Taxes	36.5	35.5	34.4	33.3	32.2	31	29.7	28.4	27.1	25.7
Income Taxes	10.9	10.6	10.3	10	9.7	9.3	8.9	8.5	8.1	7.7
Net Earnings	25.5	24.8	24.1	23.3	22.5	21.7	20.8	19.9	19	18

→ Conditionally rendered visual based on parameters

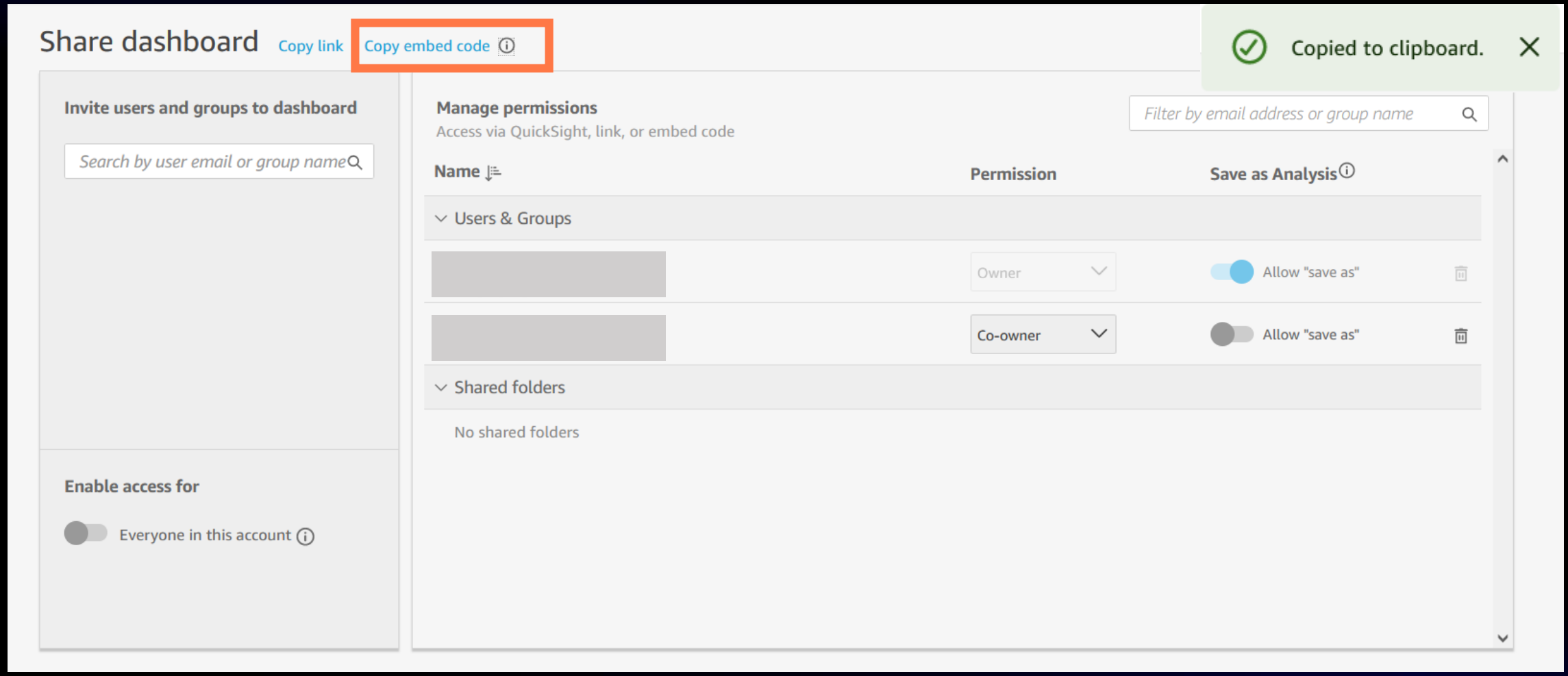
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2. Allow domains for embedding



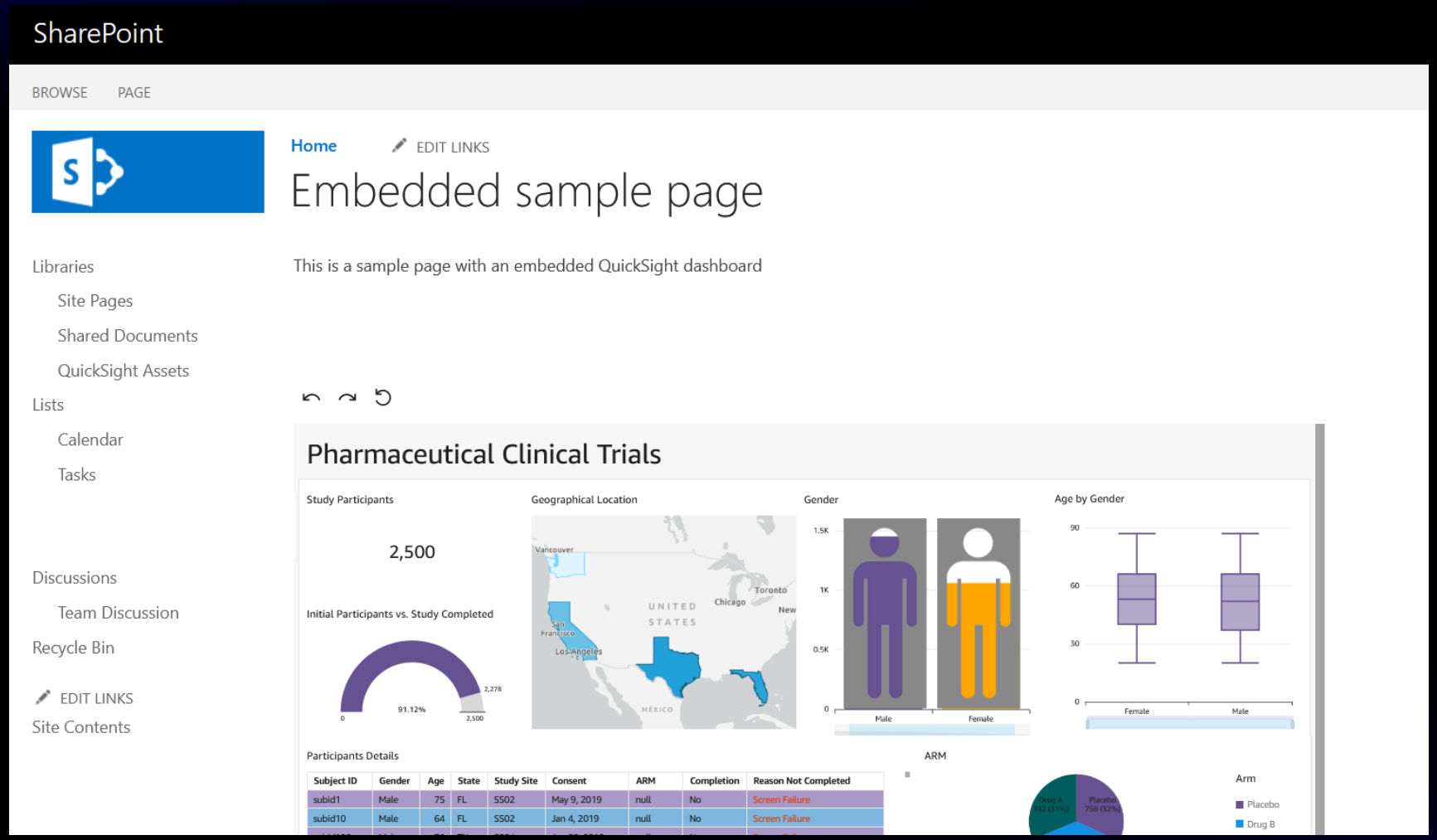
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3. 1-click embed



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3. 1-click embed



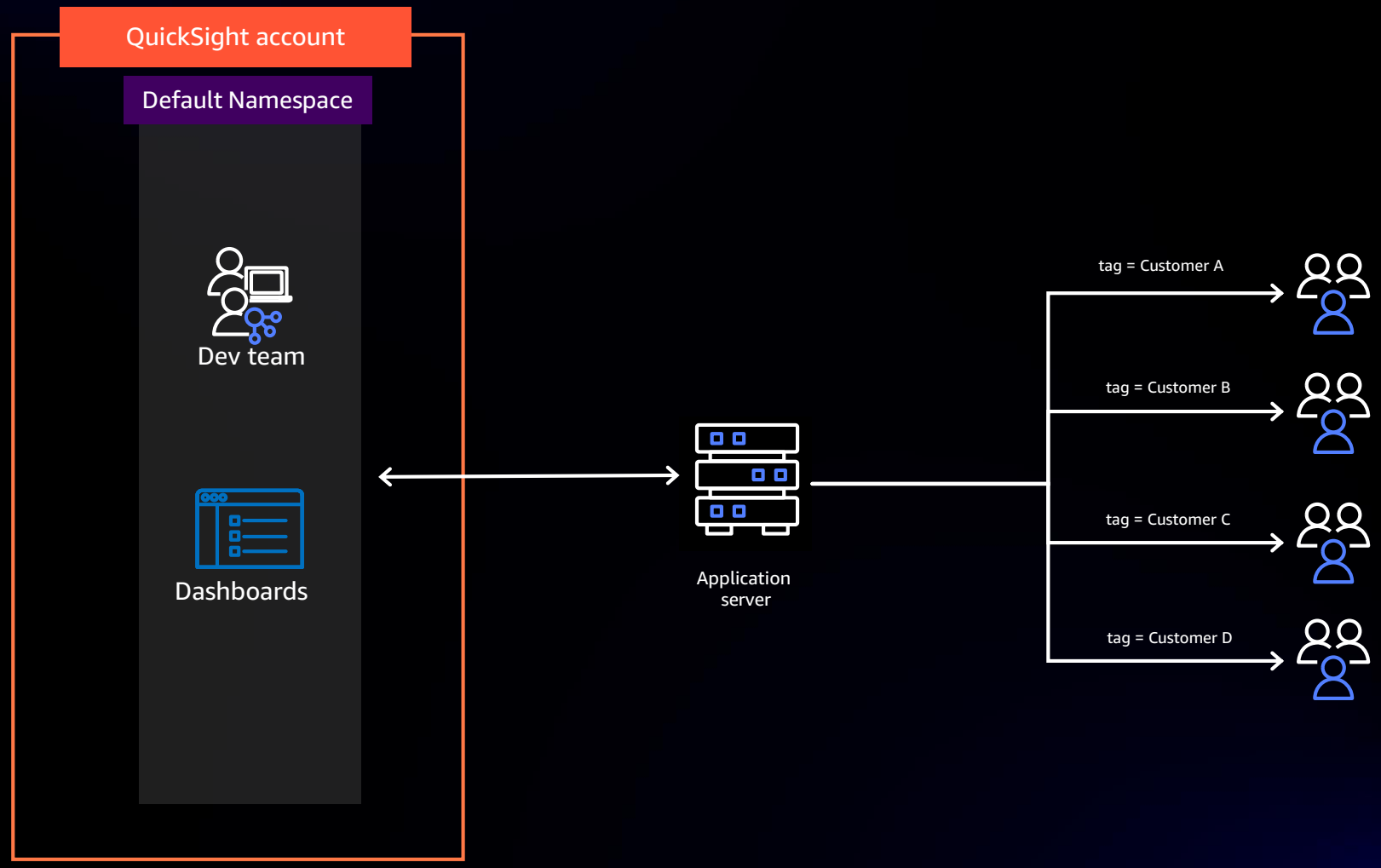
Share with all users

No servers needed!

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Multi-tenant dashboards for end users

EMBED DASHBOARDS WITHOUT PROVISIONING OR MANAGING ANY USERS IN QUICKSIGHT

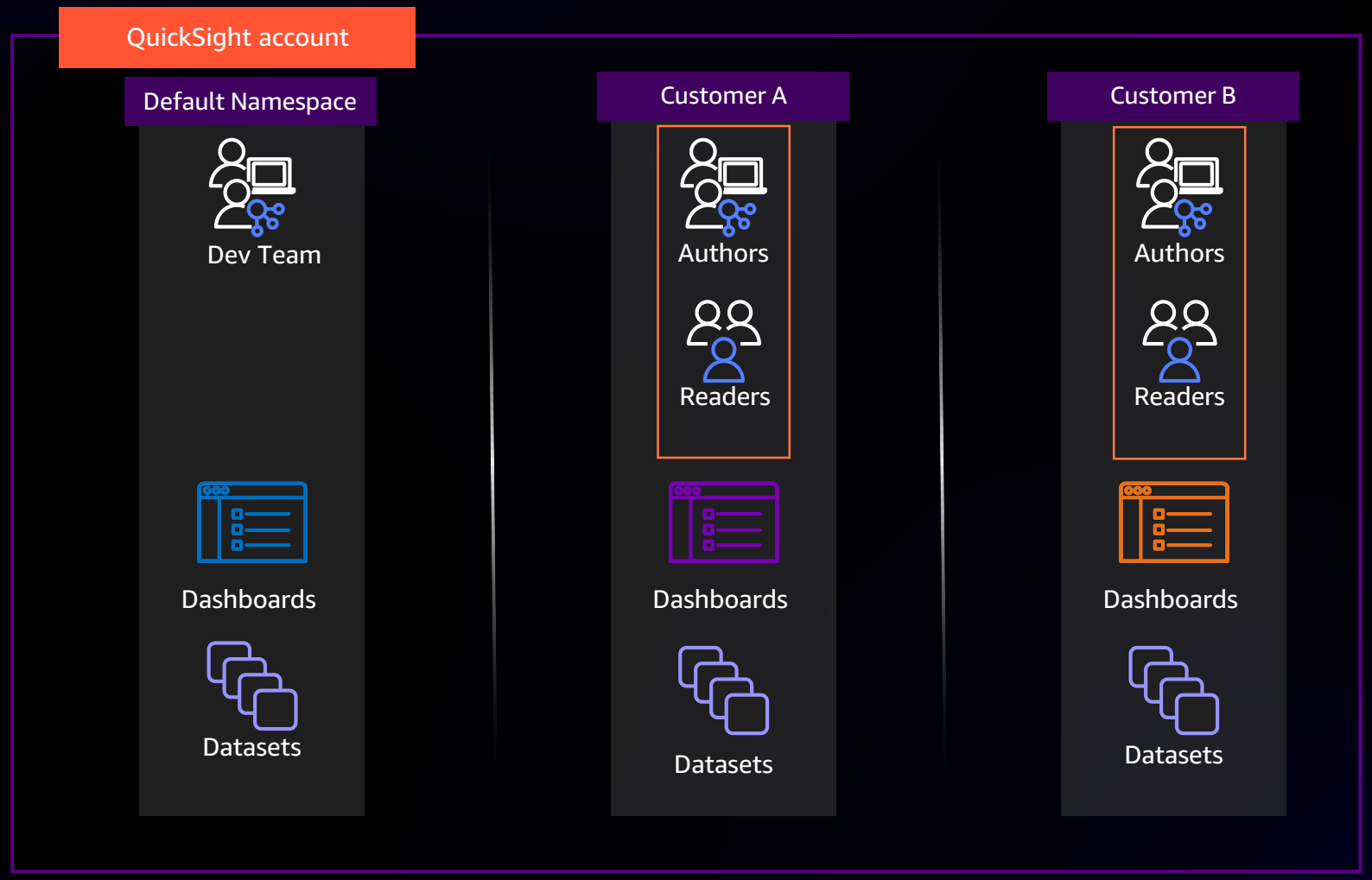


- Data filtered via row-level security with tags specific to each tenant
- No need to create or manage end users in QuickSight

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Multi-tenant authoring for power-users

NATIVE MULTI-TENANCY USING NAMESPACES ALLOWS ISOLATION ACROSS USERS WHILE SUPPORTING MULTIPLE WORKLOADS WITHIN THE SAME QUICKSIGHT ACCOUNT

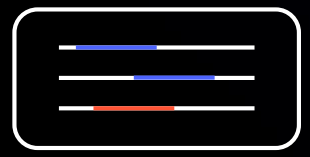


- Data filtered via row or column-level security for datasets and dashboards
- Power-users within each tenant can create and share dashboards with others
- Replicate and manage canned, curated dashboards using APIs

https://democentral.learnquicksight.online/

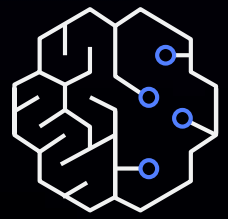
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Augment your data with machine learning



Auto narratives

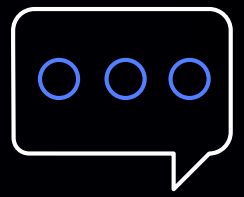
Summarize your business metrics in plain language



ML predictions

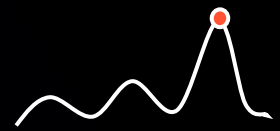
Visualize and build predictive dashboards with Amazon SageMaker models

NEW



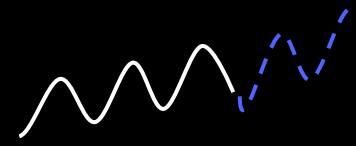
Q

Ask questions using natural language



Anomaly detection

Discover unexpected trends and outliers against millions of business metrics



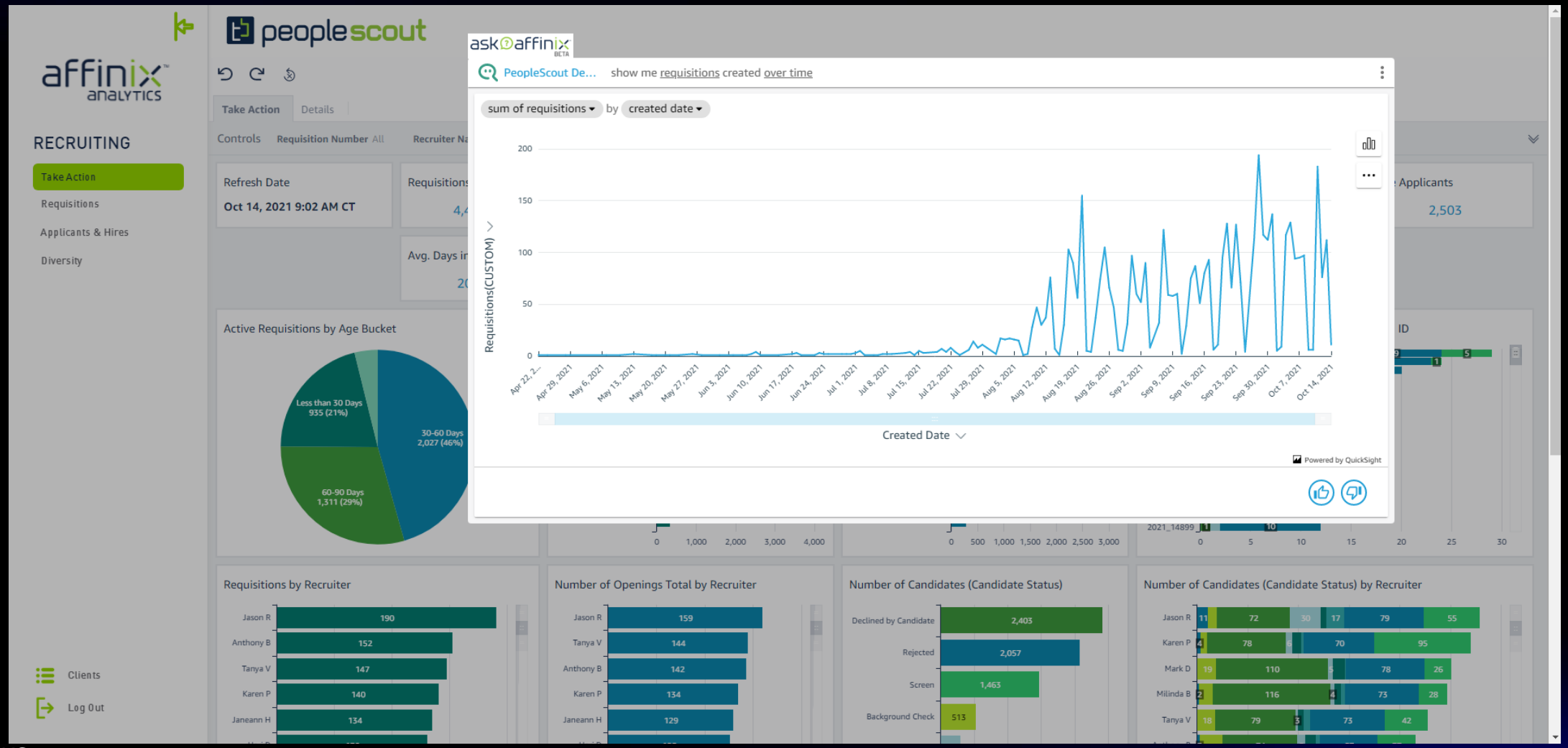
Forecasting

Machine learning forecasting with point-and-click simplicity

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Ask questions in your app with QuickSight Q



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3M



Dhanraj Shriyan
Enterprise Data Architect

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3M at a glance

- Sales in ~200 countries
- $32 billion in sales; ~6% invested in R&D
- 109K+ patents → One of the world's top 10 companies owning healthcare/NLP-related patents and patent applications
- Health Care Business Group sales: $7.4 billion

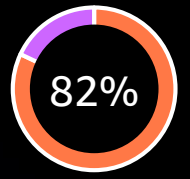


3M Health Information Systems:

274 million clinical documents processed in a month

20 country use 3M HIS products

300+ active industry partnerships

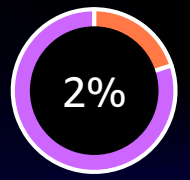


of U.S. hospitals use the 3M encoder software

2,000+ facilities send data through our AI-based NLP/NLU engine every day

41 states use 3M methodologies as their basis of payment

30+ years in contract with CMS and other government agencies



of the U.S. GDP is risk adjusted with a 3M methodology

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Where we were...

360 Emergency Room (ER) Application

- GDPR requirements
- Lack of embedded analytics solution within application
- Desktop application installed at hospital sites
- Pseudonymization of PII data fields
- Intake of patients entering the system through Emergency (ER) requests
- Rich information related to coding (diagnosis/procedures) for each patient

Users

- Administrative/management
- Coding specialist

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Where we were...

How?

- Basic KPIs existed via the Electronic Health Record (EHR) system
- Requests need to made for any customized data analysis

Shortcomings

- Data access limited to just one hospital/facility
- Static KPIs
- Expensive to maintain
- Time consuming due to back-office processing
- Not real-time
- Lack of use of diagnoses data in reporting

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Our journey in exploring the right solution

Explored various BI tools in the market

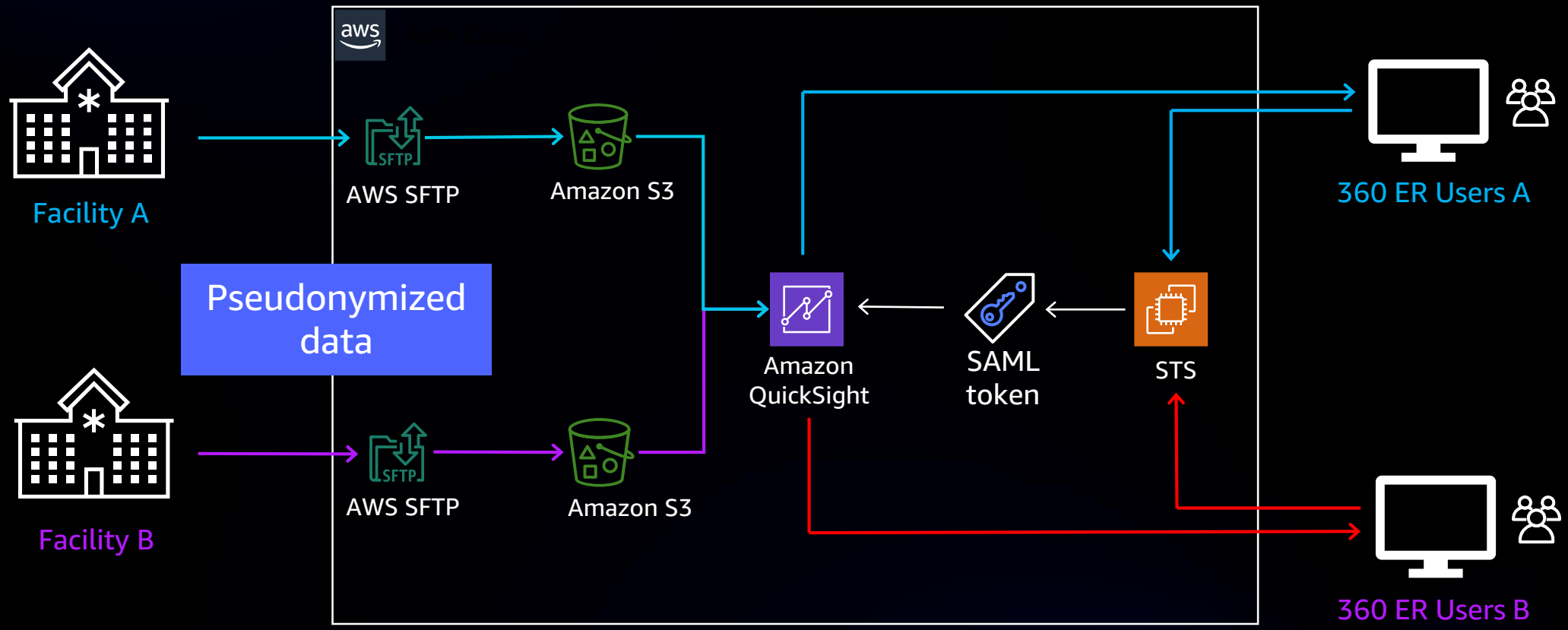
Most of our production workload runs on AWS

Criteria for choosing the BI tool

- SaaS solution
- Embedding
- Support for multi-tenancy
- Security & logging
- Cost
- Report delivery

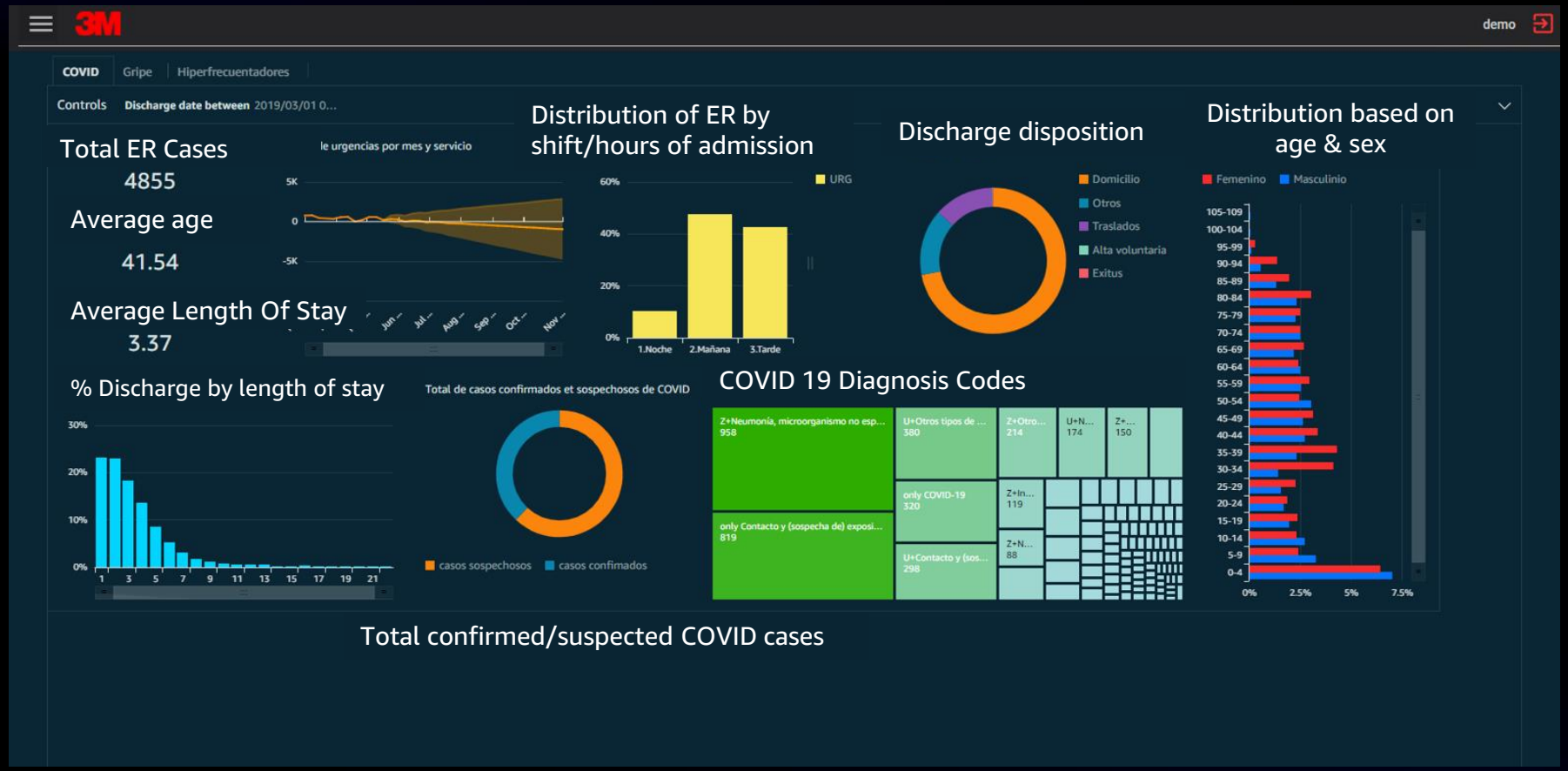
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High-level architecture



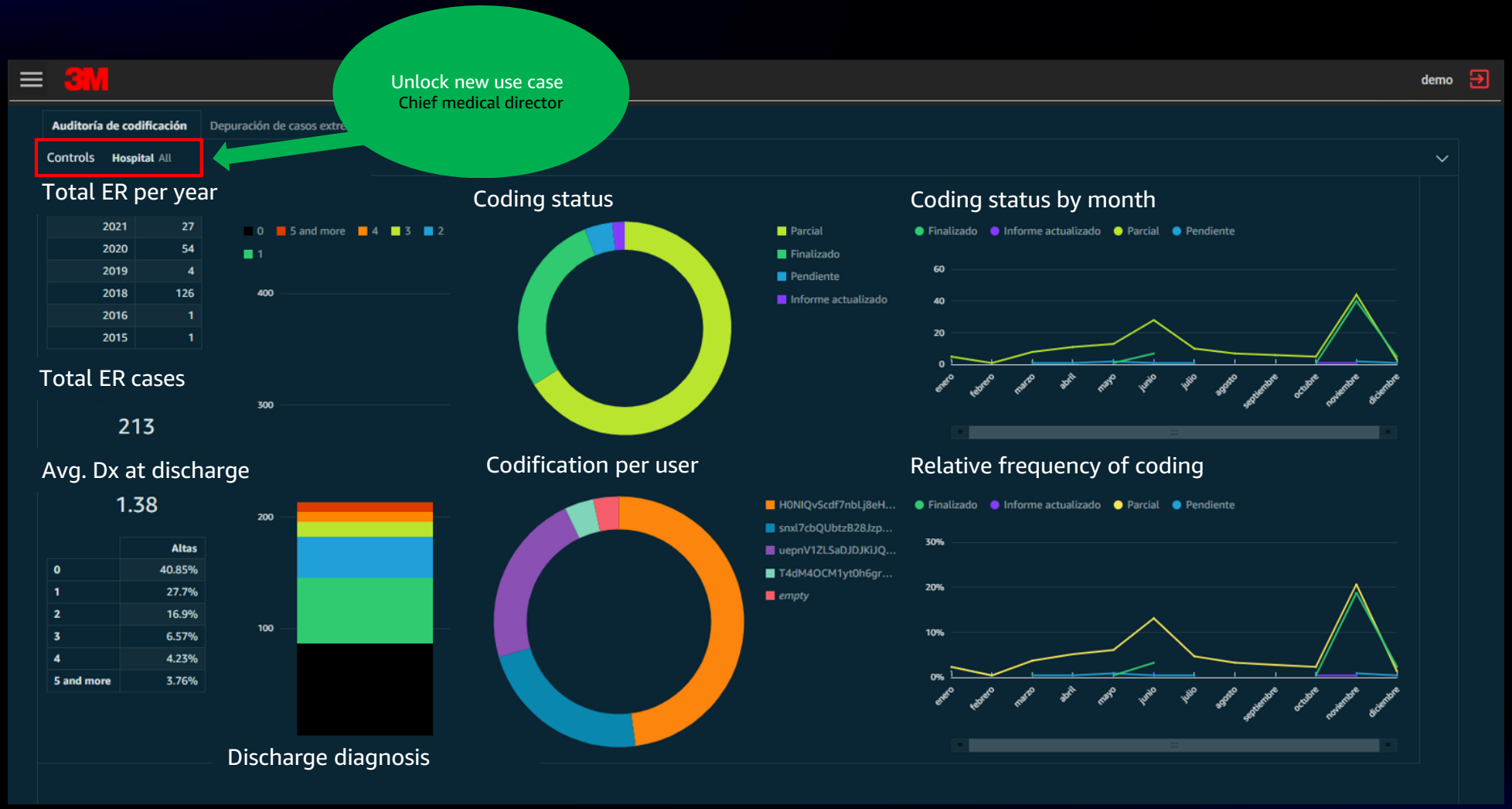
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360 ER application using QuickSight



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360 ER application using QuickSight



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360 ER application using QuickSight

Customer feedback

- Love the ability to slice & dice/filter data on the fly
- Drill up/down capability
- Heat map for exploring coding data

“Empower ER Healthcare supervisors to take decisions backed by data in near real time with Amazon QuickSight Interactive Dashboard”

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Where we are today…

- Migrated from Client Server to Web application
- Embedded QuickSight Dashboards in the web application
- Automated dataset refresh and reporting on latest data
- Automated deployment of QuickSight assets
- **Exploring QuickSight Q for Advanced Natural language Querying (NLQ)**

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QuickSight wishlist

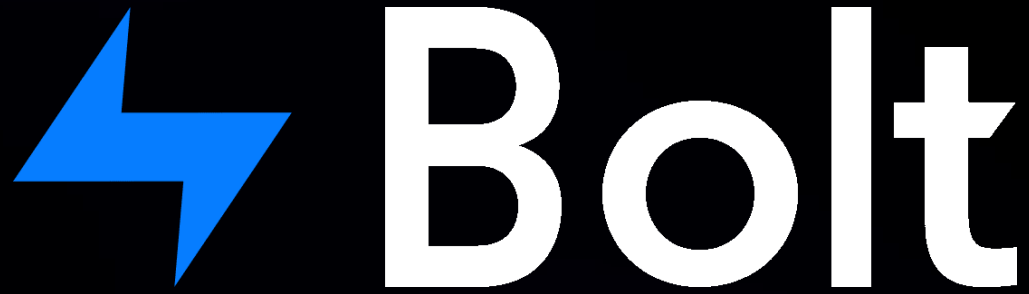
Finer grain control on visual display (free-form layout mode)

- Overlay of visuals, precise control over tabular visuals
- Tool tips (enable/disable)
- Multi-column sort capability

Simplified development for QuickSight

- Managing QuickSight assets as code

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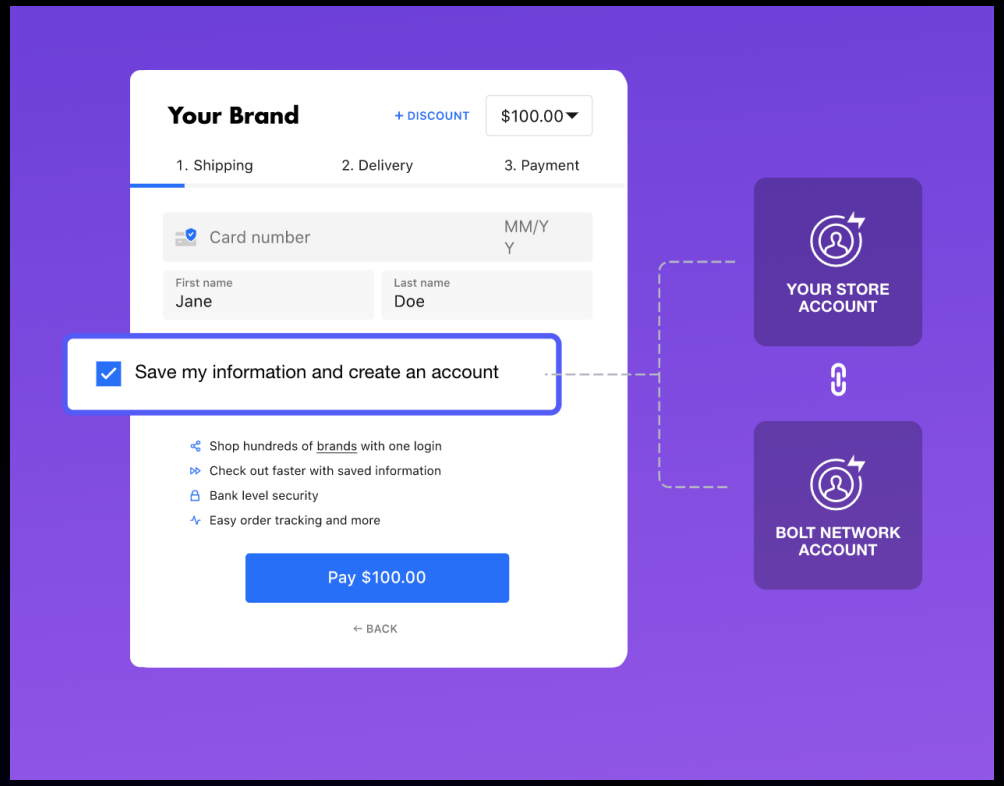
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Checkout

Fraud protection

$2+ billion payments processed annually

10M+ shopper accounts



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Business intelligence as a service

- White labelled solution embedded into our application
- Visualization for internal data analysts
- Filtering data along multiple dimensions
- Dynamic selecting segments

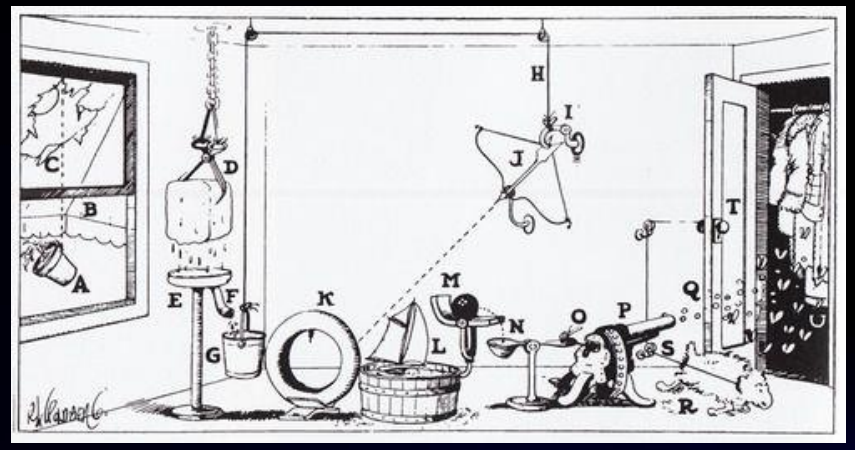
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Prior to QuickSight

Metabase

mixpanel

Looker

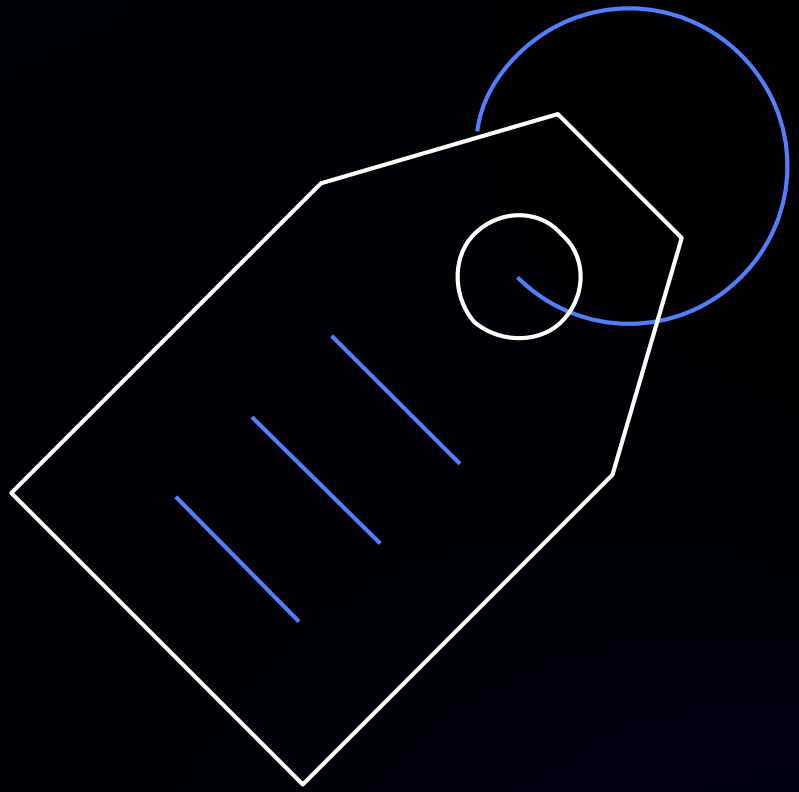


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Why QuickSight?

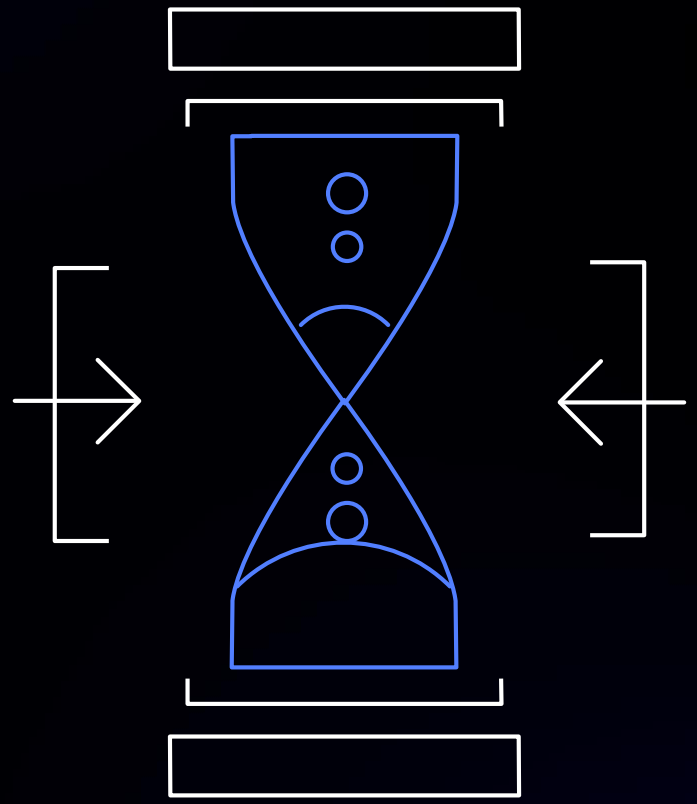
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Pricing flexibility



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Time to market



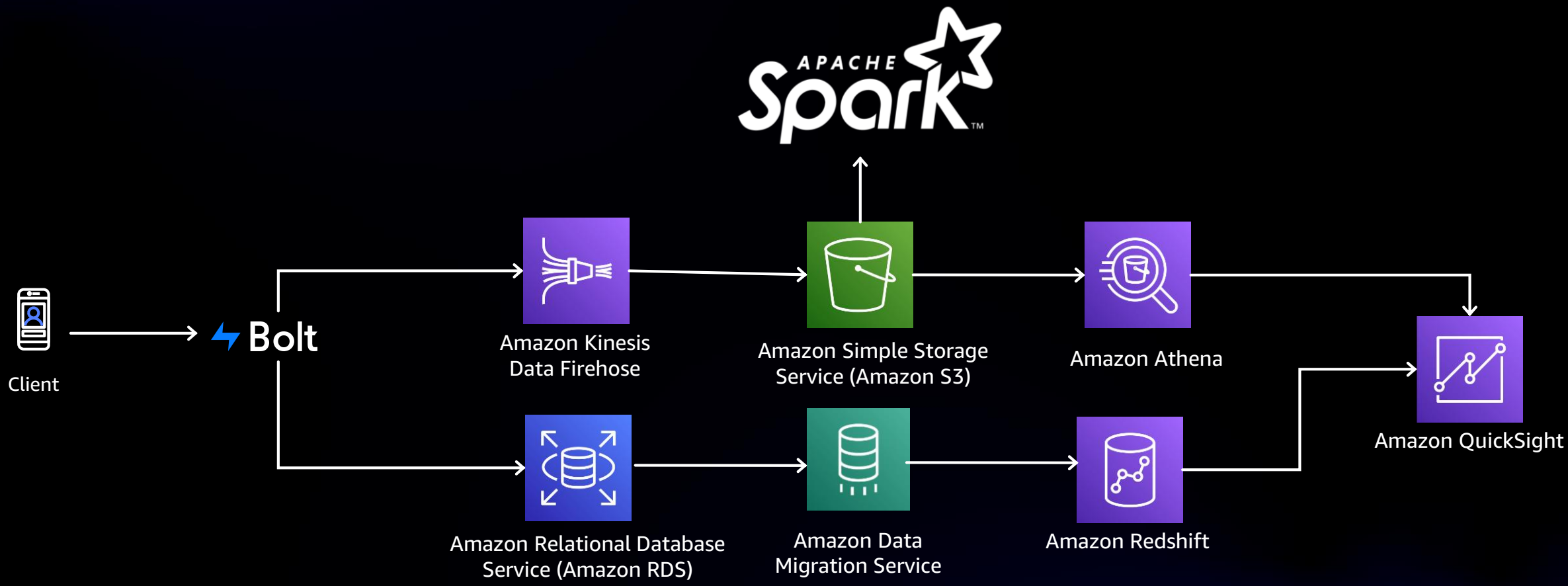
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Integrations



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Architecture



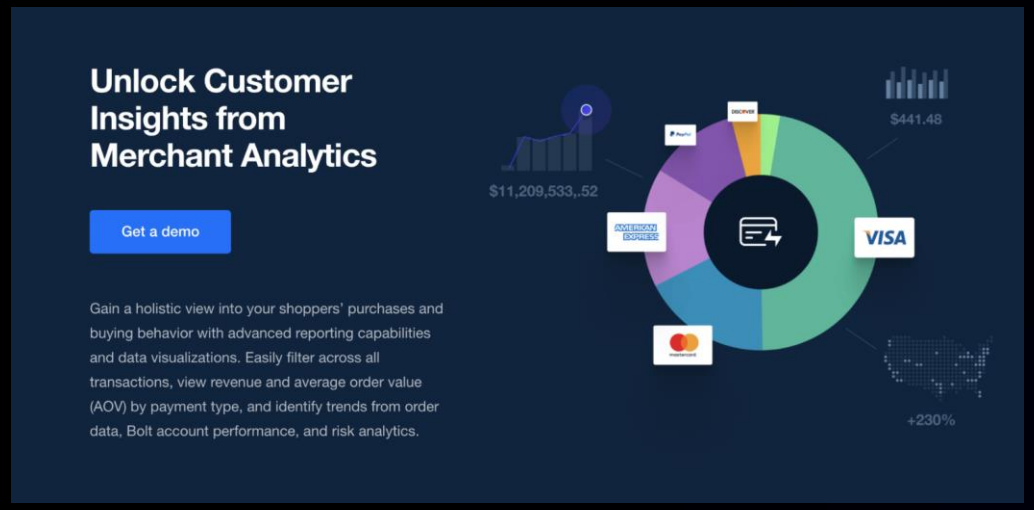
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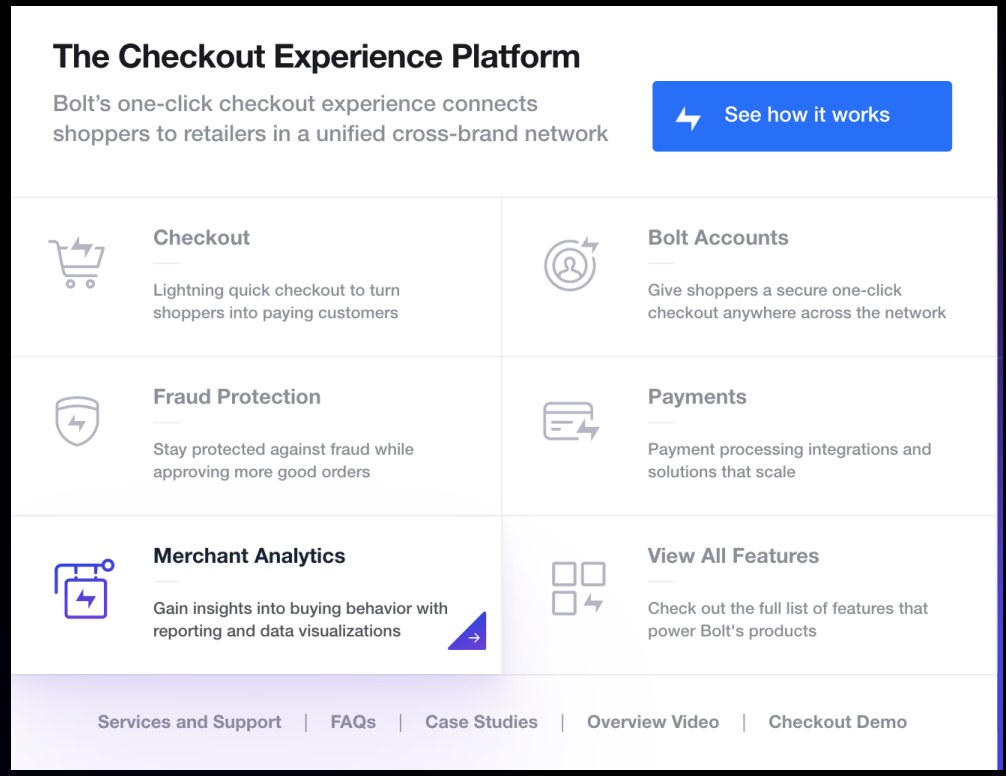


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Business benefits

- 1 of our 5 pillars in the sales pitch
- 40% estimated savings in headcount
- 60% faster time to market
- Using Tag-based RLS to share dashboards between merchants





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Continued enhancements

Continuous integration & deployment as code

BigQuery support

UI-based asset management

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Related sessions

BSI201 – Self-service analytics for everyone with ML-powered Amazon QuickSight Q

BSI202 – Modernize your BI and reporting with Amazon QuickSight

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Continuous innovation



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9. Email: quicksight-embedding@amazon.com

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Thank you!

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