AWS re:Invent

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RET201

Reengineering infrastructure and data architecture at Tapestry

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Born from retail, built for retailers



Amazon Web Services combines the agility of a startup with the experience of an enterprise retail leader to help you power innovation and sustain growth

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AWS works with the industry's leading retailers

Thousands of AWS retail customers | Across most retail segments | For virtually all retail workloads

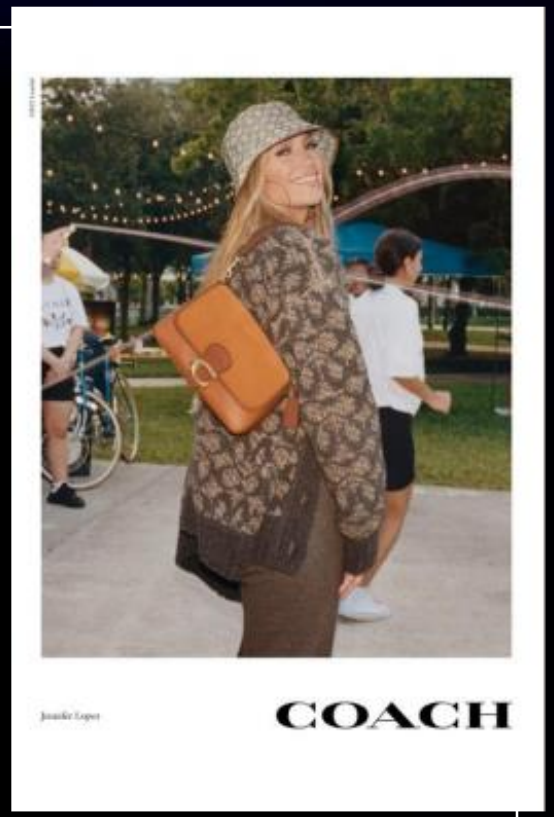


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Who are we?

tapestry



Established 1941

Authentic, courageous, inclusive



Established 1986

Stylish, confident, sophisticated



Established 1993

Joyful, optimistic, colorful

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Data center transformation journey

Where did we begin?

Multiple data centers as a result of mergers

Aging infrastructure due to lack of investment

Disparate disaster recovery approaches

Lack of agility and scale

Where are we now?

Enterprise-scale AWS landing zone capable of securely hosting workloads across three continents

Fully redundant and scalable network connectivity for cloud hosting

Infrastructure as code for provisioning of cloud resources to achieve consistency, increase security, and improve deployment speed

Harmonized disaster recovery across all three brands (Coach, Kate Spade, Stuart Weitzman) with better RTO and RPO

What did we accomplish?

9
data center closures

Eliminated or consolidated
40%
of Tapestry's server footprint

Eliminated or upgraded
65%
of our legacy operating systems

Tapestry business applications in the cloud:
48%
(beats industry average of ~38%)

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Our approach to cloud foundations addressed the 3 pillars of change: People, processes, technology

People

- ✓ TCS – operations support
- ✓ Cloud platform engineering
- ✓ Internal SMEs – InfoSec, NW
- ✓ CCoE team

Processes

- ✓ ServiceNow forms
- ✓ Cloud SLA management
- ✓ Cloud cost management (auto parking process, right-sizing process)
- ✓ Cloud inventory management
- ✓ Cloud standards (tagging, resource naming)
- ✓ Intake process

Technology

- ✓ Landing zone/technologies
  - AWS Regions
  - AWS account structure
  - AWS Organizations
  - AWS Cloud network
  - AWS Cloud security
  - Name resolution
  - Directory services
  - Monitoring services
  - Backup and recovery services
  - Standard AMIs
  - IaC tooling

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Tapestry is an enabling platform that enhances opportunities for our brands

COACH
NEW YORK



SW

Tapestry's differentiated platform provides:

Consumer insights

Globally diversified supply chain

Digital infrastructure and capabilities

Access to global talent

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tapestry COACH | kate spade | STUART WEITZMAN

Tapestry analytics team



Data engineering

Standardize and automate the collection, integration, and preparation of global, cross-brand data on our customers, products, and stores

Software development

Create dashboards, APIs, and interactive tools that provide access to data and support the data-driven culture of Tapestry employees

Data science and analytics

Deliver actionable insights, AI/ML models, and statistical analyses that optimize current business practices and develop new capabilities

Tapestry serves as a platform to empower our iconic fashion brands.

We provide world-class capabilities in corporate responsibility, finance, ecommerce, and analytics to grow our brands, better serve our customers and communities, make the fashion industry more sustainable, and build a culture that is equitable, inclusive, and diverse.

The analytics team at Tapestry brings expertise in data engineering, software development, data science, and analytics to establish and support data-driven methodologies across our brands.

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Optimizing demand planning with data science

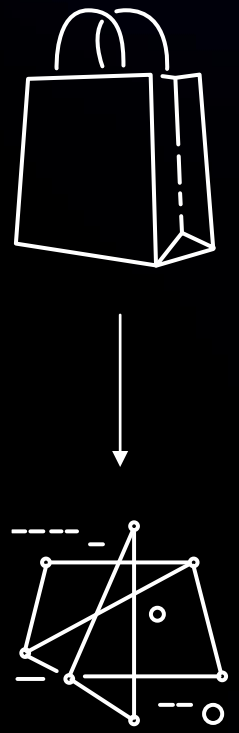
The right product in the right place at the right time to best serve the needs of our customers

	Design	Assortment planning	Allocation
Process definitions	Develop products that appeal to our customers with a focus on inclusivity and sustainability	Decide what products to sell in upcoming seasons	Distribute specific product quantities to each warehouse and brick-and-mortar store
Challenges	A diverse set of unstructured text/image data is manually created and used to plan the theme and scope of a collection	Limited data based on sales of similar products from previous seasons are used to estimate the demand of new products	Inaccurate demand estimates for each store, SKU, and week lead to stock outs and/or excess inventory
Data science solutions	Automate and enhance image and text data collection to support product analytics	Define assortment diversity, measure product similarity, forecast sales with limited data, and identify white space	A high number of granular forecasts for online and in-store demand that optimize for inventory, space, and business constraints

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Turning handbags into numbers with embeddings



An embedding is a learned, **low-dimensional numerical representation** of high-dimensional categorical/non-numeric data

Data mapping	Model features	Product similarity
Purpose-driven numerical transformation of diverse data, such as images and text, into embeddings by training a neural network in a supervised task (e.g., classify handbag images into types)	Embeddings can be used directly as features in ML models, separate from those used for creating them (e.g., forecasting, classification, product recommendations)	Calculating the distance between embeddings is a direct measure of product similarity that can be used for clustering, calculating comparable product metrics, etc.

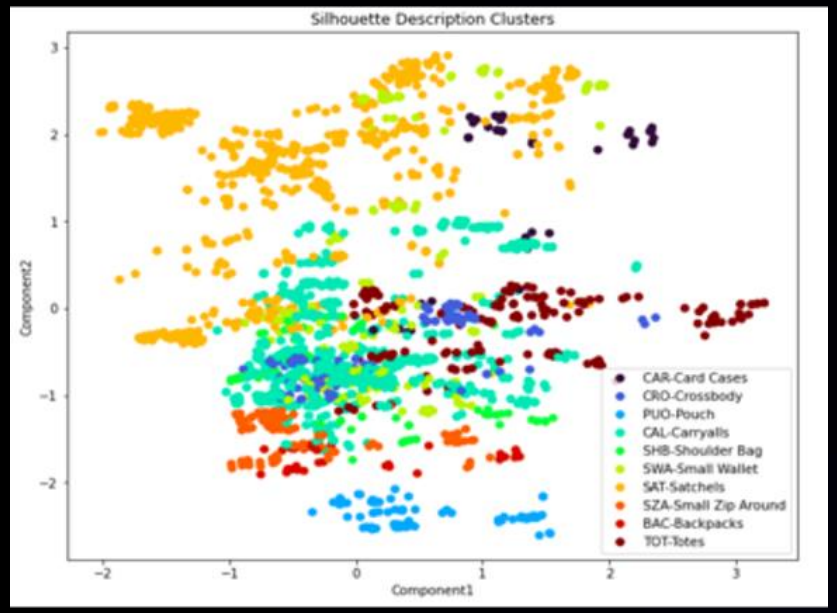
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Using embeddings to improve demand planning

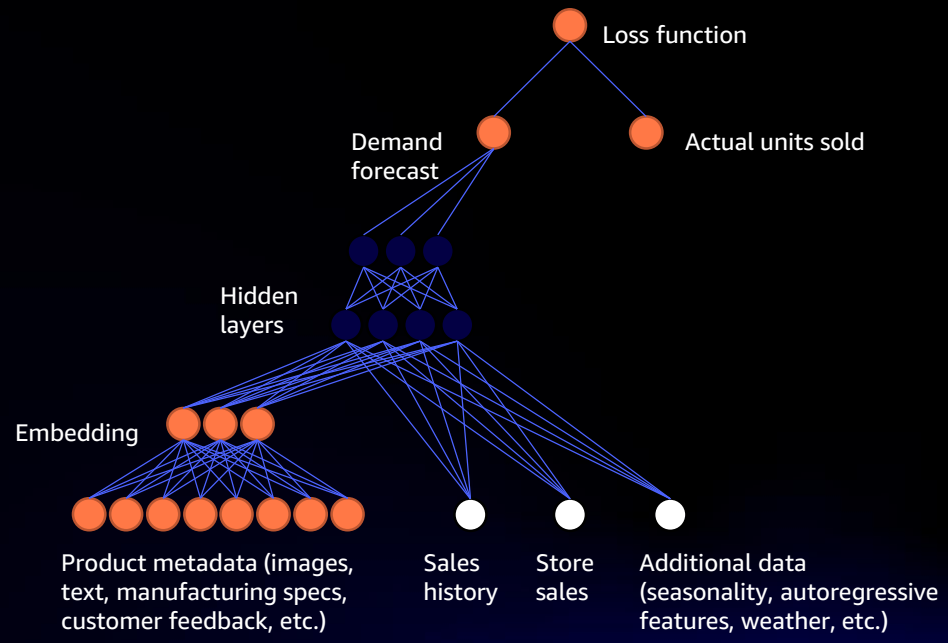
Product similarity

- With standardized product metadata produced during design, similarity can be determined before a product sample is made
- Expert judgment on comparable products can be automated and made accessible for every Tapestry employee across all brands



Forecasting

- Data used for creating forecasts for fashion products is often of limited length, consists of many related time series, and has high-dimensional categorical metadata
- Neural network embeddings allow us to tackle all these issues jointly



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Thank you!

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