Fighting Fraud at Mastercard

Thousands of times every second

Ted Boehm
October 23, 2019
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Mastercard

Every day, everywhere, we use our technology and expertise to make payments safe, simple and smart.
The Payment Transaction
Deeply embedded in the Mastercard global network

600 commodity servers
- supercomputing power

40 terabytes ZemFire in memory data grid
- largest in the world

1 billion transactions per day
- twice the number of tweets per day

65,000 transactions per second
- on par with Google searches

Rapidly build & deliver innovative new products at scale

Mastercard operations & technology engineered

Forbes
CIO Innovation Award

Decision management platform

13 different AI technologies
- neural networks
- case base reasoning
- data mining
- machine learning
- ensemble method

Over 30 US and international patents

1000 ML variables
- device
- card
- terminal
- channel

Superior customer reported performance
- 62% reduction in false positives
- 30% improvement in detection

Multi-layered models with ability to run multiple models in parallel

50 milliseconds
99.999%
Availability
What is the Decision Management Platform?

Issuing Bank | Decision Management Platform | Acquiring Bank

Data Analytics | Decisioning | Rules Processing

Data Enrichment

Notification Processing

Machine Learning & Artificial Intelligence
Mastercard Journey

Reliability


95 96 97 98 99 100

Scale

tail -f

Growth

Intelligence
Best Practices

Design

Hardware

Continual

Report & Review

Avoid “The Blame Game”
Use Case

Transactions timing out for smaller customers
Use Case

Advantage - Reducing Timeouts, CPU
Use Case

Disadvantage - Increasing Latency
Use Case

Draining Optimizations
Use Case

Draining Optimization
Use Case
Draining Optimization

66% Less Time
Q&A

Ted Boehm – Chief Platform Architect
Thank You!

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