Fighting Fraud at Mastercard

Thousands of times every second

Ted Boehm

October 23, 2019

Forward-Looking Statements

During the course of this presentation, we may make forward-looking statements regarding future events or plans of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results may differ materially. The forward-looking statements made in the this presentation are being made as of the time and date of its live presentation. If reviewed after its live presentation, it may not contain current or accurate information. We do not assume any obligation to update any forward-looking statements made herein.

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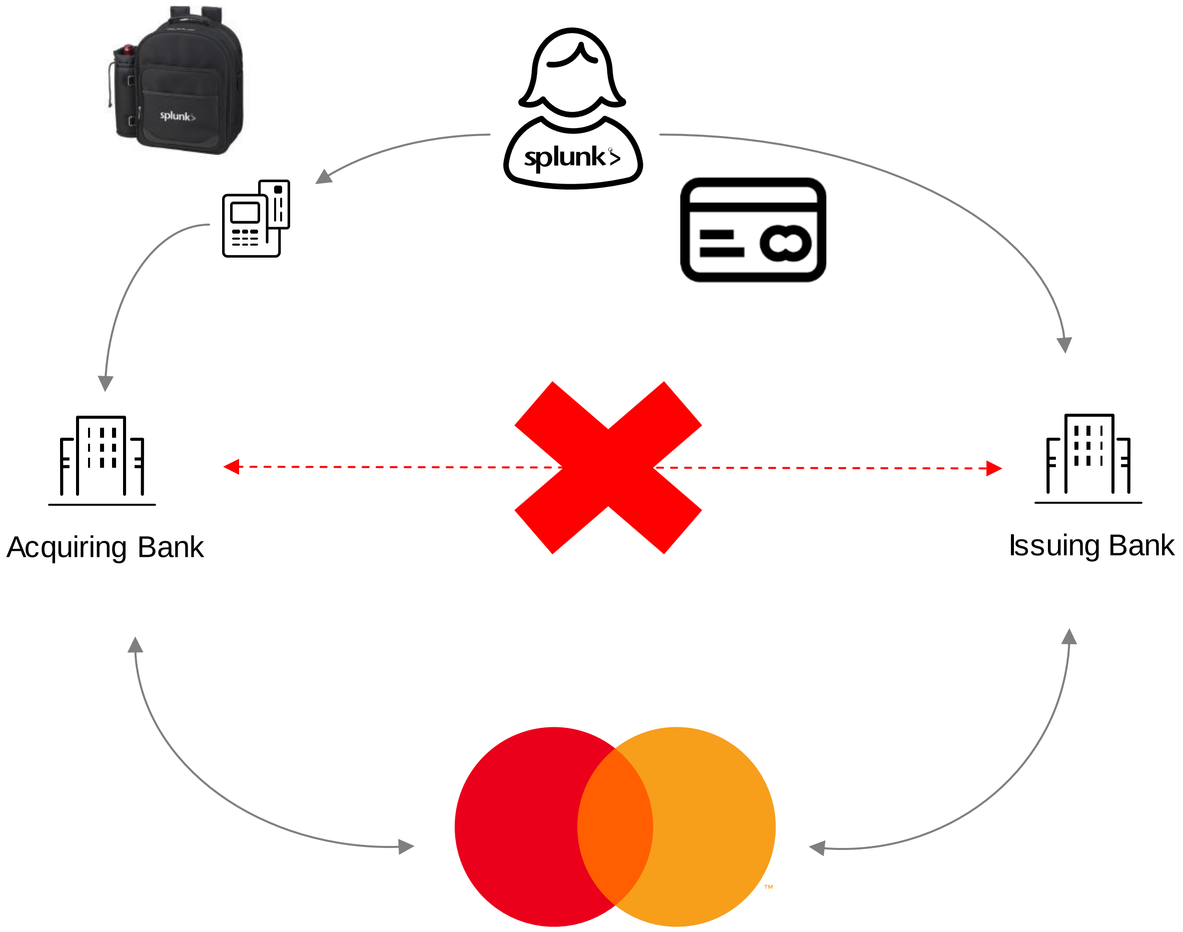
Mastercard

Every day, everywhere, we use our technology and expertise to make payments safe, simple and smart.

The Payment Transaction

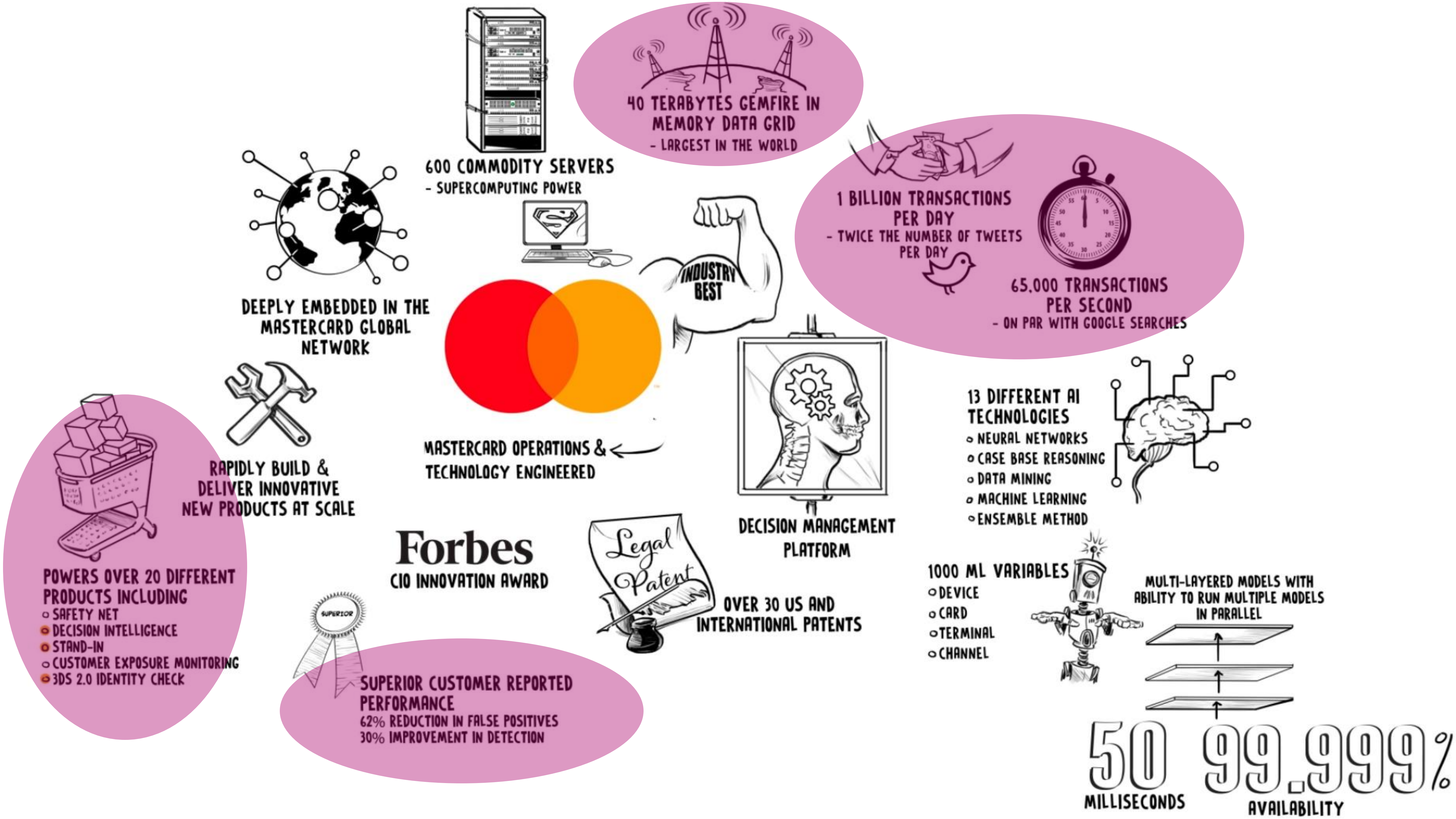


Acquiring Bank

Issuing Bank

Sensor Sensei

The Decision Management Platform



600 COMMODITY SERVERS
- SUPERCOMPUTING POWER

40 TERABYTES GEMFIRE IN MEMORY DATA GRID
- LARGEST IN THE WORLD

DEEPLY EMBEDDED IN THE MASTERCARD GLOBAL NETWORK

1 BILLION TRANSACTIONS PER DAY
- TWICE THE NUMBER OF TWEETS PER DAY

65,000 TRANSACTIONS PER SECOND
- ON PAR WITH GOOGLE SEARCHES

MASTERCARD OPERATIONS & TECHNOLOGY ENGINEERED

RAPIDLY BUILD & DELIVER INNOVATIVE NEW PRODUCTS AT SCALE

DECISION MANAGEMENT PLATFORM

13 DIFFERENT AI TECHNOLOGIES
- ○ NEURAL NETWORKS
- ○ CASE BASE REASONING
- ○ DATA MINING
- ○ MACHINE LEARNING
- ○ ENSEMBLE METHOD

POWERS OVER 20 DIFFERENT PRODUCTS INCLUDING
- ○ SAFETY NET
- ● DECISION INTELLIGENCE
- ● STAND-IN
- ○ CUSTOMER EXPOSURE MONITORING
- ● 3DS 2.0 IDENTITY CHECK

Forbes
CIO INNOVATION AWARD

OVER 30 US AND INTERNATIONAL PATENTS

SUPERIOR CUSTOMER REPORTED PERFORMANCE
62% REDUCTION IN FALSE POSITIVES
30% IMPROVEMENT IN DETECTION

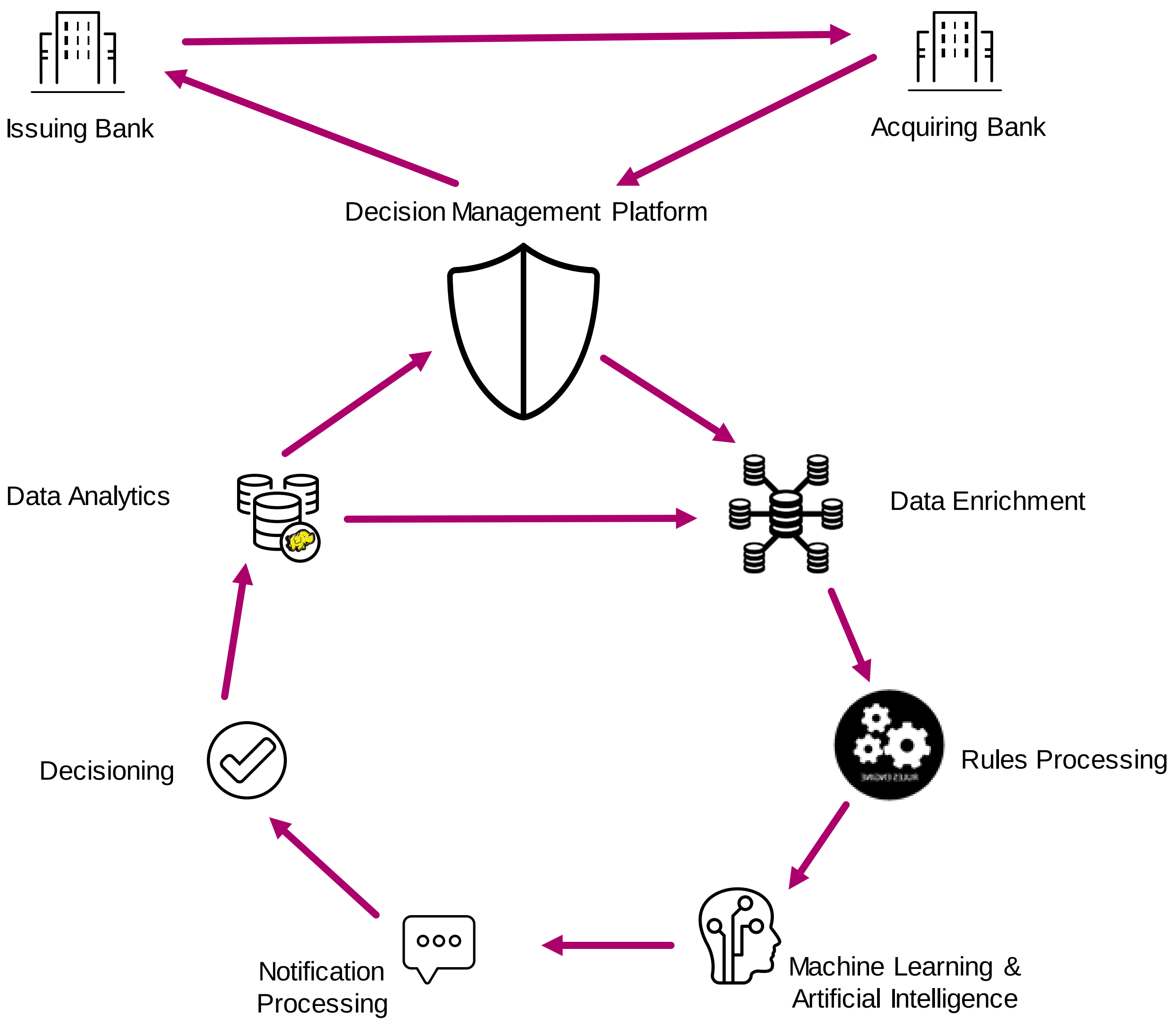
1000 ML VARIABLES
- ○ DEVICE
- ○ CARD
- ○ TERMINAL
- ○ CHANNEL

MULTI-LAYERED MODELS WITH ABILITY TO RUN MULTIPLE MODELS IN PARALLEL

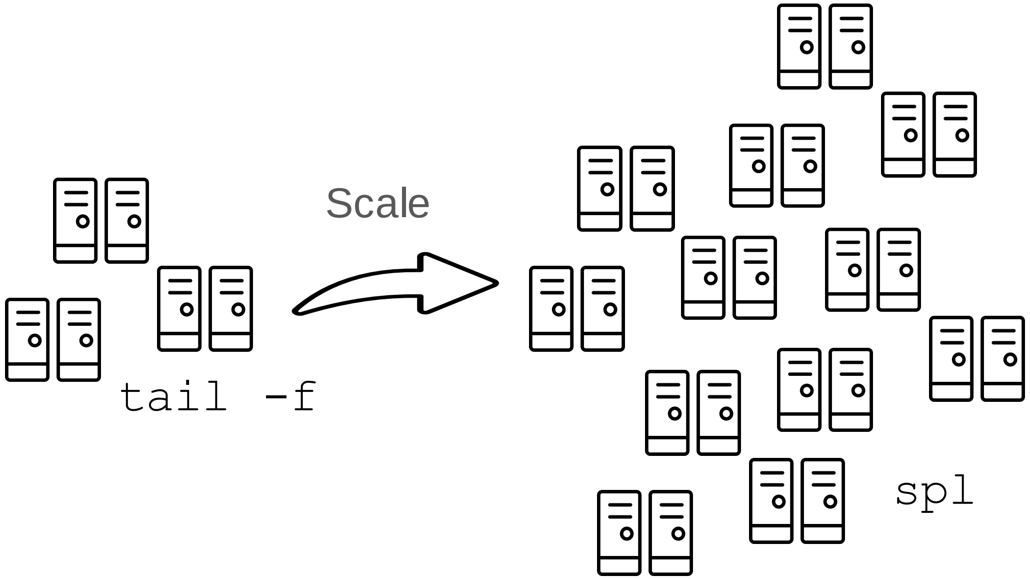
50
MILLISECONDS

99.999%
AVAILABILITY

What is the Decision Management Platform?


Issuing Bank
Acquiring Bank
Decision Management Platform
Data Analytics
Data Enrichment
Rules Processing
Decisioning
Machine Learning &
Artificial Intelligence
Notification
Processing

Mastercard Journey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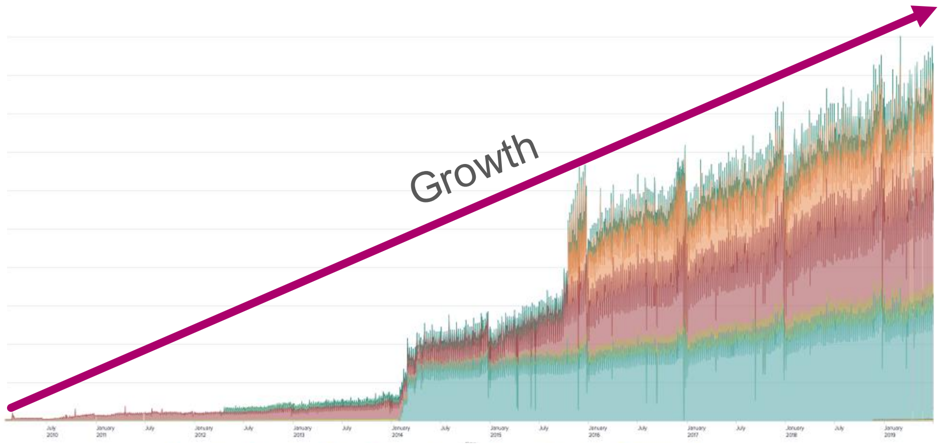
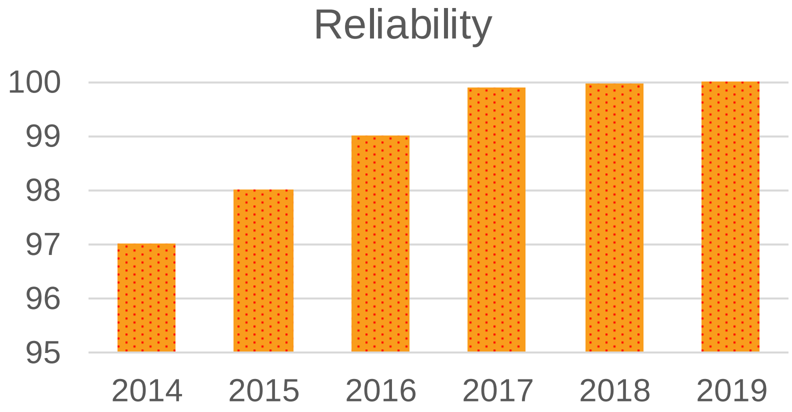
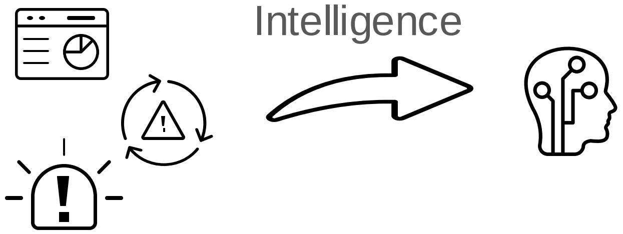





Intelligence

Best Practices

Design

Hardware

Continual

Report & Review

Avoid “The Blame Game”

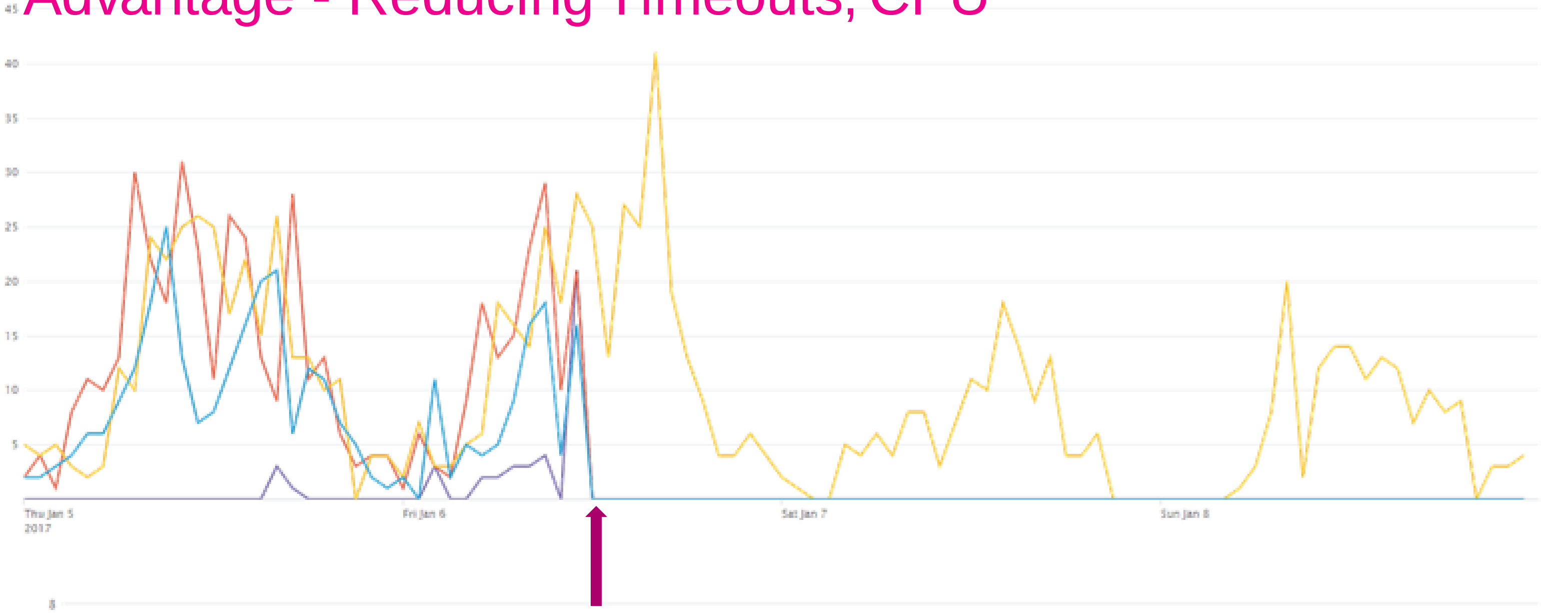
Looking for trouble.

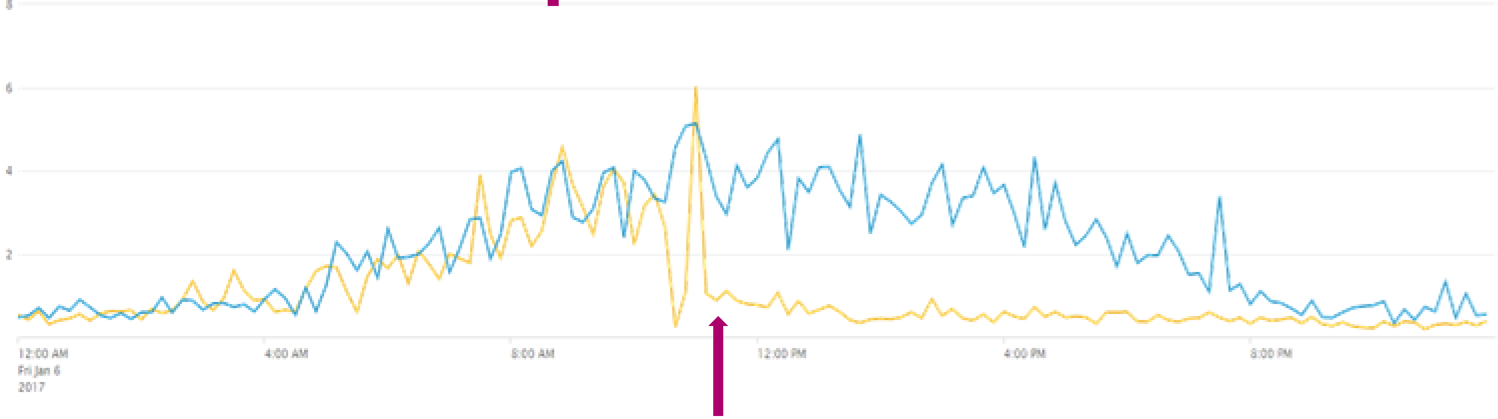
Use Case

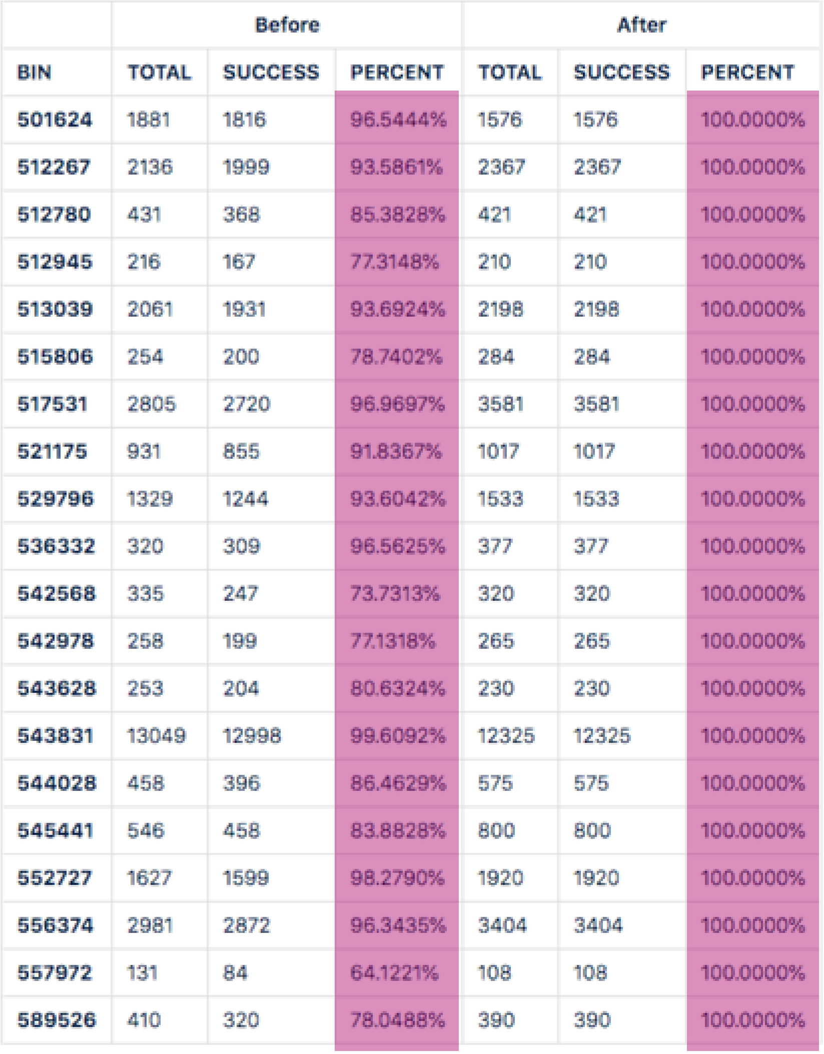
Transactions timing out for smaller customers

Use Case

Advantage - Reducing Timeouts, CPU



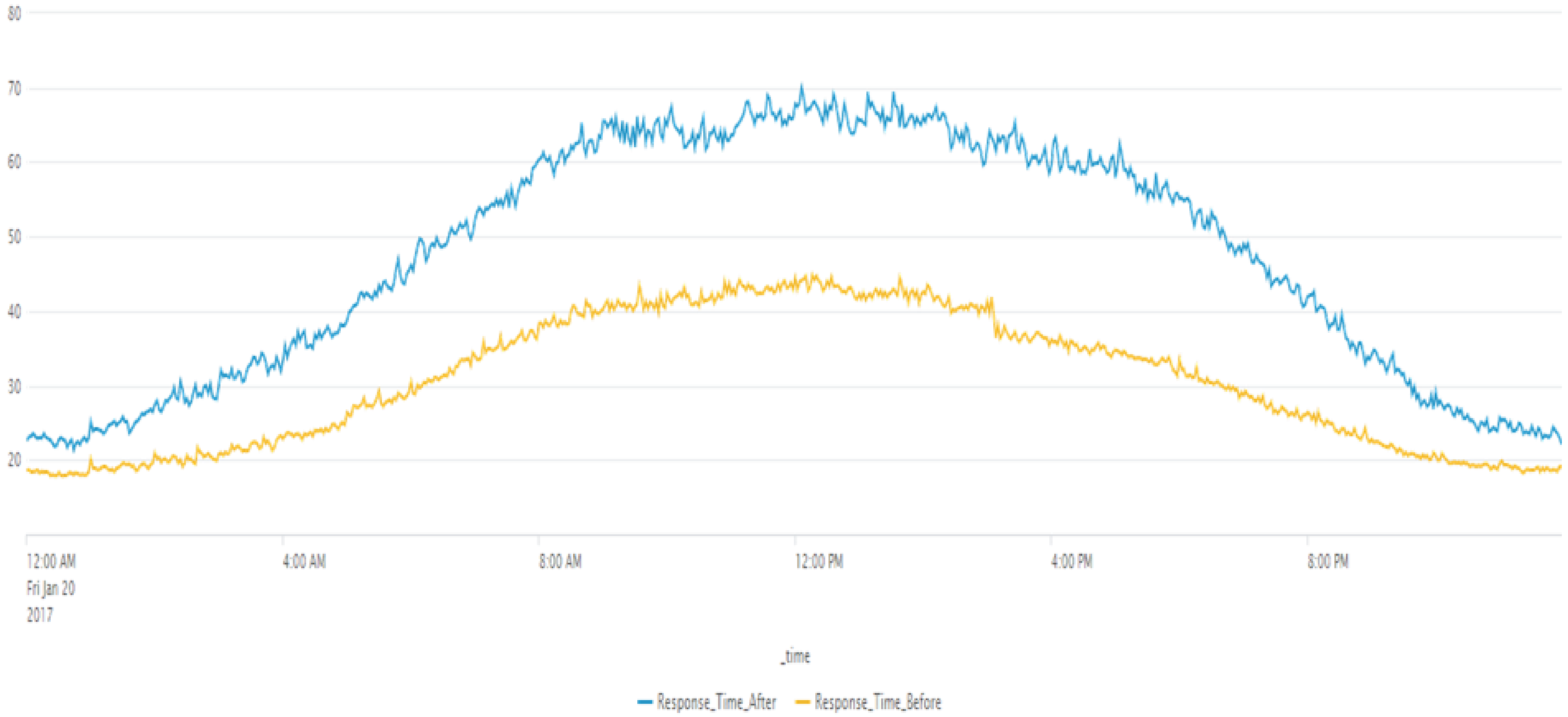




	Before			After		
BIN	TOTAL	SUCCESS	PERCENT	TOTAL	SUCCESS	PERCENT
501624	1881	1816	96.5444%	1576	1576	100.0000%
512267	2136	1999	93.5861%	2367	2367	100.0000%
512780	431	368	85.3828%	421	421	100.0000%
512945	216	167	77.3148%	210	210	100.0000%
513039	2061	1931	93.6924%	2198	2198	100.0000%
515806	254	200	78.7402%	284	284	100.0000%
517531	2805	2720	96.9697%	3581	3581	100.0000%
521175	931	855	91.8367%	1017	1017	100.0000%
529796	1329	1244	93.6042%	1533	1533	100.0000%
536332	320	309	96.5625%	377	377	100.0000%
542568	335	247	73.7313%	320	320	100.0000%
542978	258	199	77.1318%	265	265	100.0000%
543628	253	204	80.6324%	230	230	100.0000%
543831	13049	12998	99.6092%	12325	12325	100.0000%
544028	458	396	86.4629%	575	575	100.0000%
545441	546	458	83.8828%	800	800	100.0000%
552727	1627	1599	98.2790%	1920	1920	100.0000%
556374	2981	2872	96.3435%	3404	3404	100.0000%
557972	131	84	64.1221%	108	108	100.0000%
589526	410	320	78.0488%	390	390	100.0000%

Use Case

Disadvantage - Increasing Latency

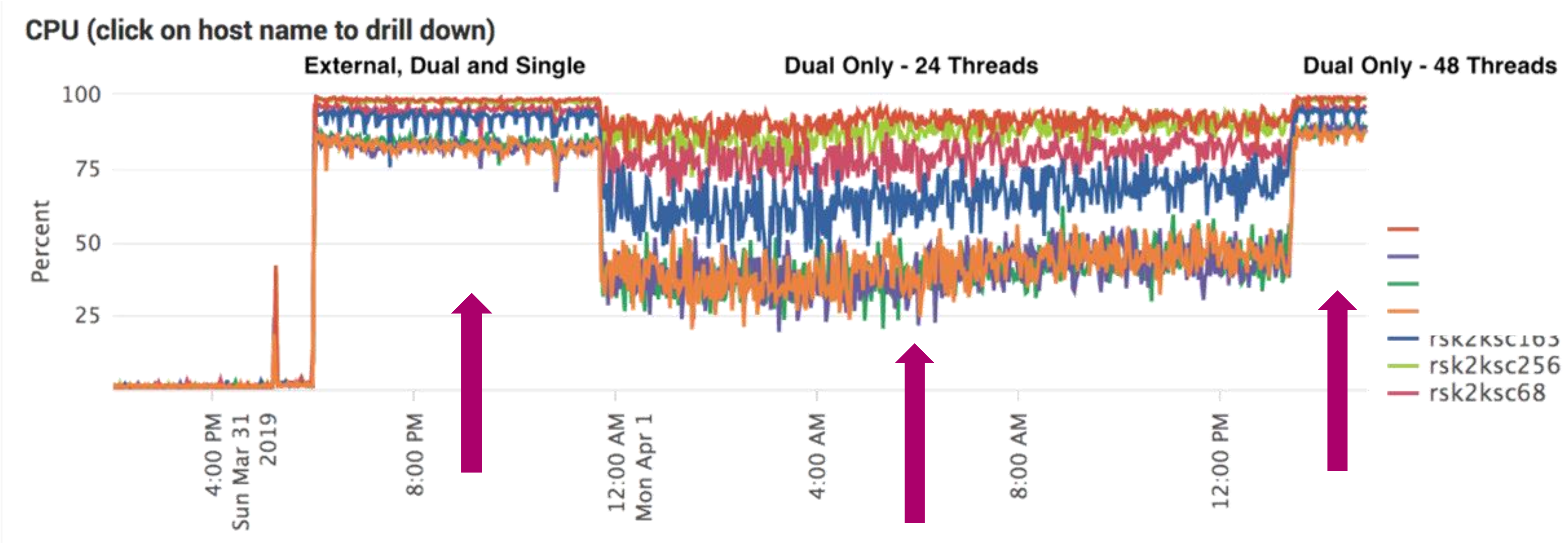


Use Case

Draining Optimizations

Use Case

Draining Optimization



CPU (click on host name to drill down)

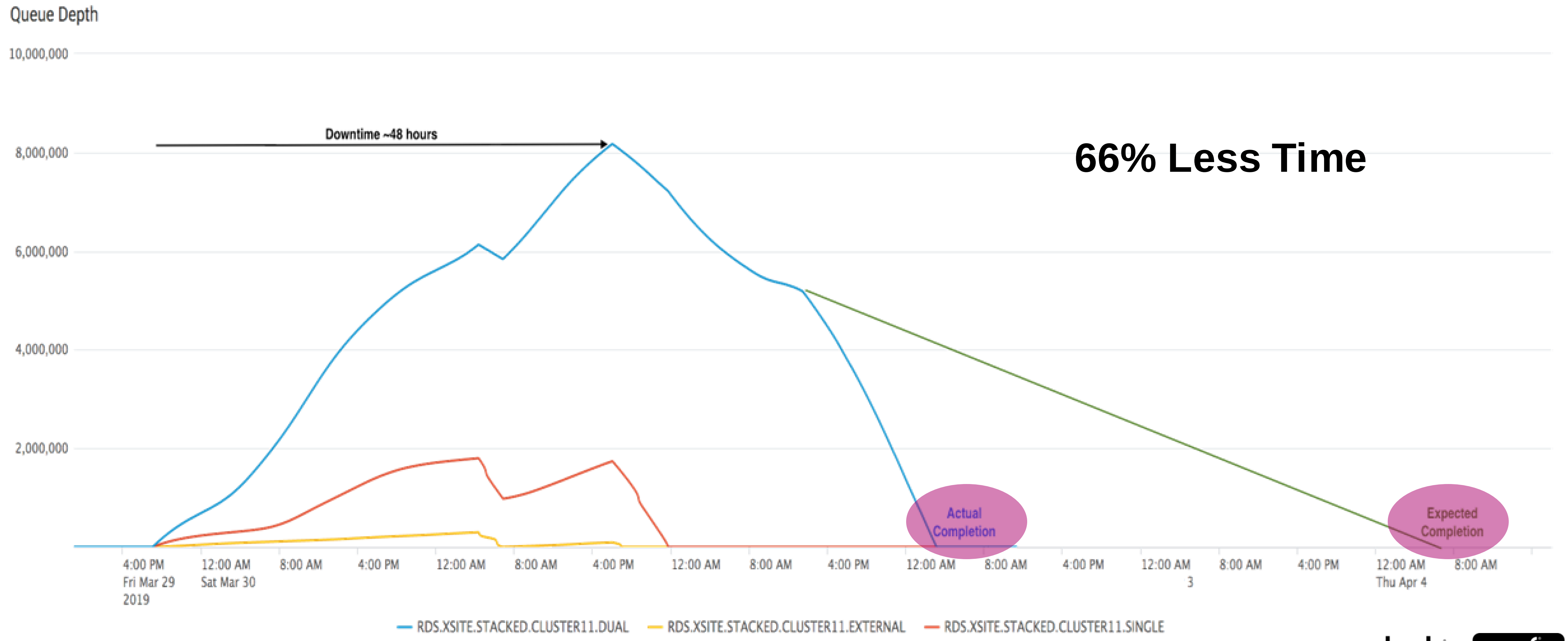
External, Dual and Single

Dual Only - 24 Threads

Dual Only - 48 Threads

Use Case

Draining Optimization



66% Less Time

Sensor Sensei

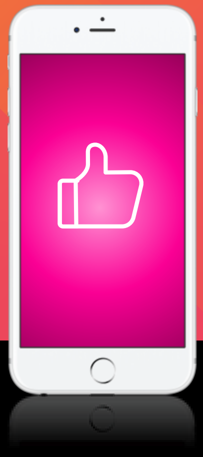
Q&A

Ted Boehm – Chief Platform Architect

.conf19

splunk>

Thank You!



Go to the .conf19 mobile app to

RATE THIS SESSION