

S1P 2019 Customer Highlights

KF No 노경훈
kno@pivotal.io

Agenda

- Intro
- TD Ameritrade
- Netflix
- General Motors
- JPMorgan Chase
- Dick's Sporting Goods

SpringOne Platform



Nearly 3500 Attendees

70+ Customer presentations

200 customer 1:1s

153 technical briefings

54 sponsoring partners

\$120,000 raised for charity



Pivotal and participating swagless
sponsors are thrilled to donate

\$120,050

BLACK
GIRLS
CODE

CUSTOM
COLLABORATIVE

THE LAST MILE
TAKING THE ROAD TO SUCCESS

The Nature
Conservancy 

Customers!

Over 70 customer presentations including 9 on Mainstage: **TD Ameritrade, CVS Health, General Motors, Goldman Sachs, The Home Depot, JP Morgan Chase, Dick's Sporting Goods, Cerner Corp, DBS, & Netflix.**



Spring One Platform 2019

The conference for cloud-native application
developers and the people who support them

Welcome

Pivotal Impacts

82% Increased software in production

37% Improvement in developer productivity

78% Increased operational efficiency



75,000,000 downloads
/ 1 month



+750,000 AI
on Pivotal Application Service

Putting developers first



COMCAST



DISCOVER



fiserv.



MERRILL
CORPORATION



Raytheon



YAHOO!
JAPAN

Getting developers to prod



Fostering Agility at TD Ameritrade

Vijay Sankaran – Chief Information Officer

10/8/2019

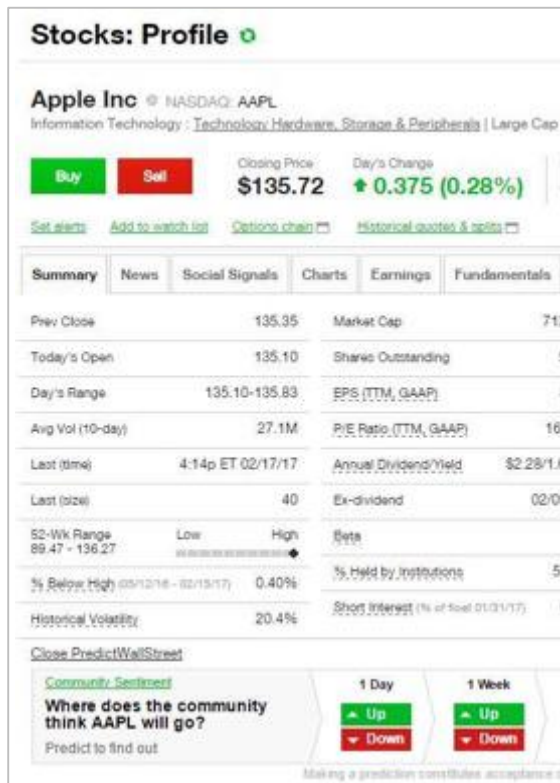


TD Ameritrade Snapshot



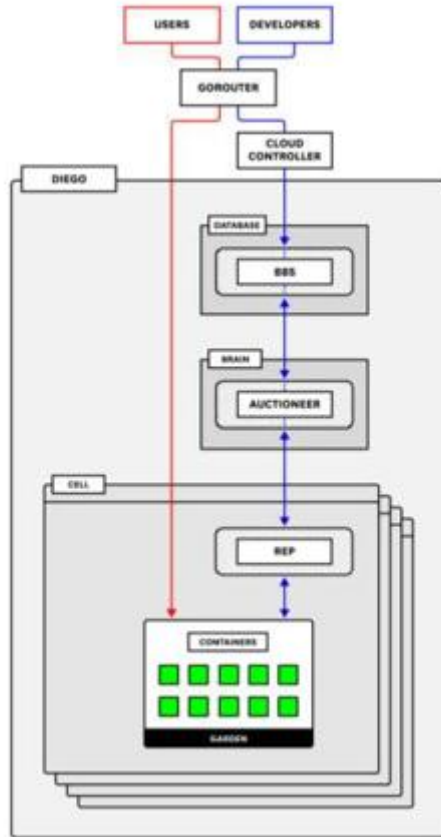
- **Founded in 1971 by Joe Ricketts**
- **HQ in Omaha, NE, with major centers in Jersey City, NJ, Southlake, TX, and Chicago, IL**
- **Over 9,000 employees spread across these offices**
- **Major acquisitions include:**
 - TD Waterhouse – 2006
 - Thinkorswim – 2009
 - Scottrade – 2017
- **Primary services include:**
 - Retail: Trading, Guidance, Fixed Income, Stock Plan Services, SDB
 - Institutional: Advisor Portal, Advisor Custody, Rebalancing, Trading
- **Financials**
 - FY18: \$5.5B in revenue, \$1.5B in profits

Software Engineering at TD Ameritrade



- Over 1,000 engineers, QA, and DevOps globally
- Core stack primarily JavaScript and Java
- Engineering Development Platform
 - Eclipse/IntelliJ IDE
 - Atlassian Ecosystem
 - SwaggerHub for API Management
 - Integrated pipeline based on XebiaLabs
 - Pivotal Platform
- Agile Transformation
 - Started in 2016 with a set of pilot applications
 - Now over 85% agile, across all lines of business
 - Business “go-lives” increase by 3x vs. 2016 baseline

The Pivotal Journey at TD Ameritrade



- **2017: TDAX – Retail Digital Platform** – Developed in conjunction with Pivotal Labs to initially replace and an obsolescent web mobile app and now fully replace our primary digital platform
- **2017: NCE – New Client Experience** – Developed in conjunction with Pivotal Labs to replace our legacy retail account opening application
- **2017: Advisor Client** – Developed in conjunction with Pivotal Labs to replace an obsolete web portal for institutional clients
- **2018: TraderX** – Developed with Pivotal Labs to expose services from Thinkorswim to develop a web-based advanced trading platform
- **2018–2019** – Over 300 apps on the platform in first year adoption and 4,000 AIs. Heavy emphasis on microservices decomposition and automation

Lessons Learned Thus Far

- **Microservices** – For successful adoption of Pivotal Platform, there must be a commitment to a microservices-based culture. Adoption spreads like wildfire when teams see the value of app decomposition.
- **Automation** – Building the automation pipelines to deliver a fast lane to production for Pivotal Platform apps is critical.
- **DevOps Alignment** – DevOps culture must evolve in lockstep with engineering during Pivotal Platform adoption. DevOps must learn how to manage resiliency, recovery, and deployment processes.
- **Pivotal Labs** – Pivotal Labs provides a catalyst for initial apps on the platform, but culture must shift to embrace Pivotal engineering mindsets when teams come back in house.
- **PaaS vs. CaaS** – The team needed more clarity on when to use PaaS vs. CaaS. A decision matrix would be very helpful in providing clarity to an organization.
- **HW-SW Stack** – Keeping up to date on the latest versioning is essential to embracing the feature set. Partnering with a firm that has a prebuilt HW-SW stack that operates like an appliance can focus internal engineering activities on higher value business capabilities.

Spring @ Netflix



SpringOne 2010



Netflix Java Platform

- Small number of engineers
- Own the Dev Experience for Java
- Accelerate delivery of applications
- Ready applications for production
- Our mission is Leverage!

Our Product

- Application Generators
- Documentation & Support
- Libraries
 - Discovery via Eureka
 - Configuration
 - Service to Service communication
 - Metrics, Tracing, Security, Logging
- Originally in-house frameworks
- As of 2019, implemented via Spring

Why Spring?



SPRING @
NETFLIX

N

NETFLIX ORIGINAL STRANGER THINGS

95% Match 2017 2 Seasons 4K Ultra HD 5.1

When a young boy vanishes, a small town uncovers a mystery involving secret experiments, terrifying supernatural forces and one strange little girl.

Winona Ryder, David Harbour, Matthew Modine
TV Shows, TV Sci-Fi & Fantasy, Teen TV Shows

Popular on Netflix



Recently Watched



Netflix Hollywood HQ

SPRING @
NETFLIX



Developers need to

- Prototype faster
- Deploy applications to the open Internet
- Deliver to desktops, phones, embedded devices
- Authorize access to sensitive data

Developers choose

- REST, gRPC, GraphQL
- MySQL, Redis, ElasticSearch, CockroachDB, Firebase
- JPA, Jooq, JDBI, Envers
- Kafka, Kinesis, AMQ, Sentry



Benefits to our Developers

- Huge ecosystem
- Great documentation
- Most features "just work"
- Google and StackOverflow

Benefits to the Platform Team

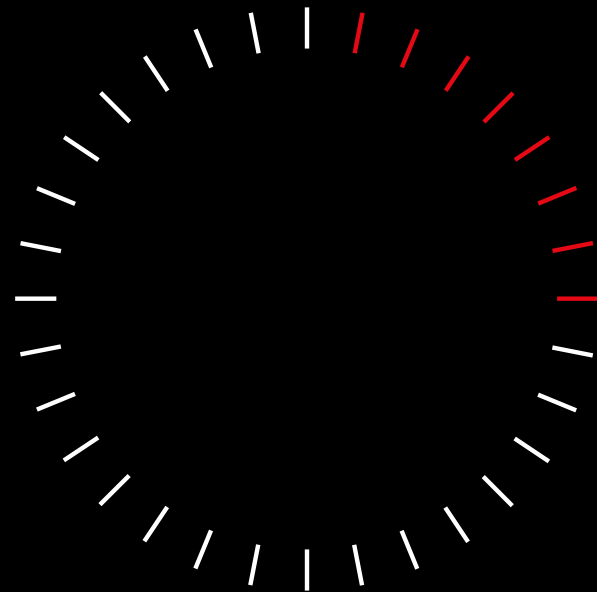
- Spring Boot Starters are easily composable
- Production ready features Spring Security
 - Spring Cloud
 - Micrometer
- Unifying abstractions Spring's Environment Spring Security Spring Data
 - Spring Cloud Sleuth
- Ready for Java 11 and beyond



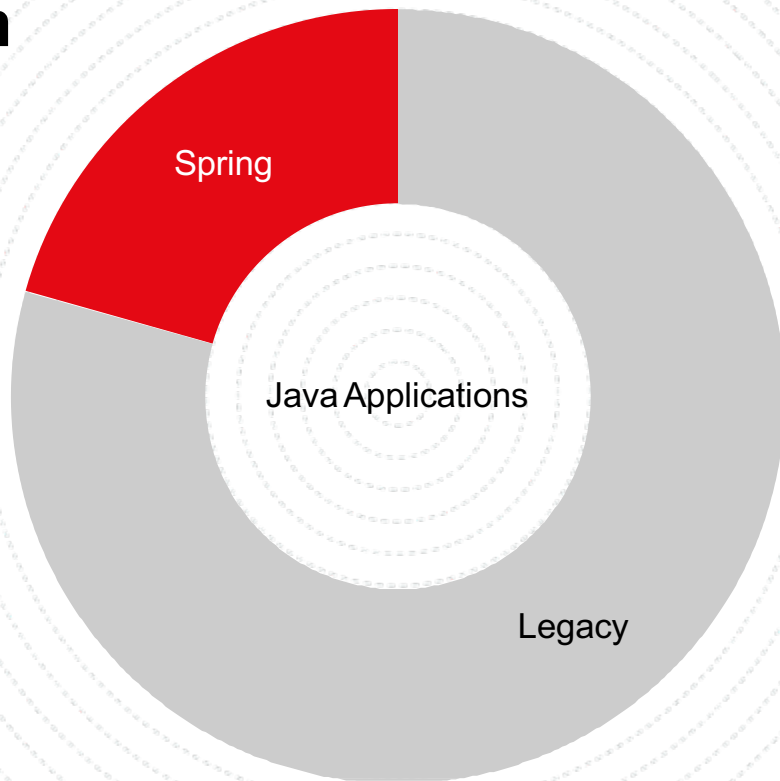
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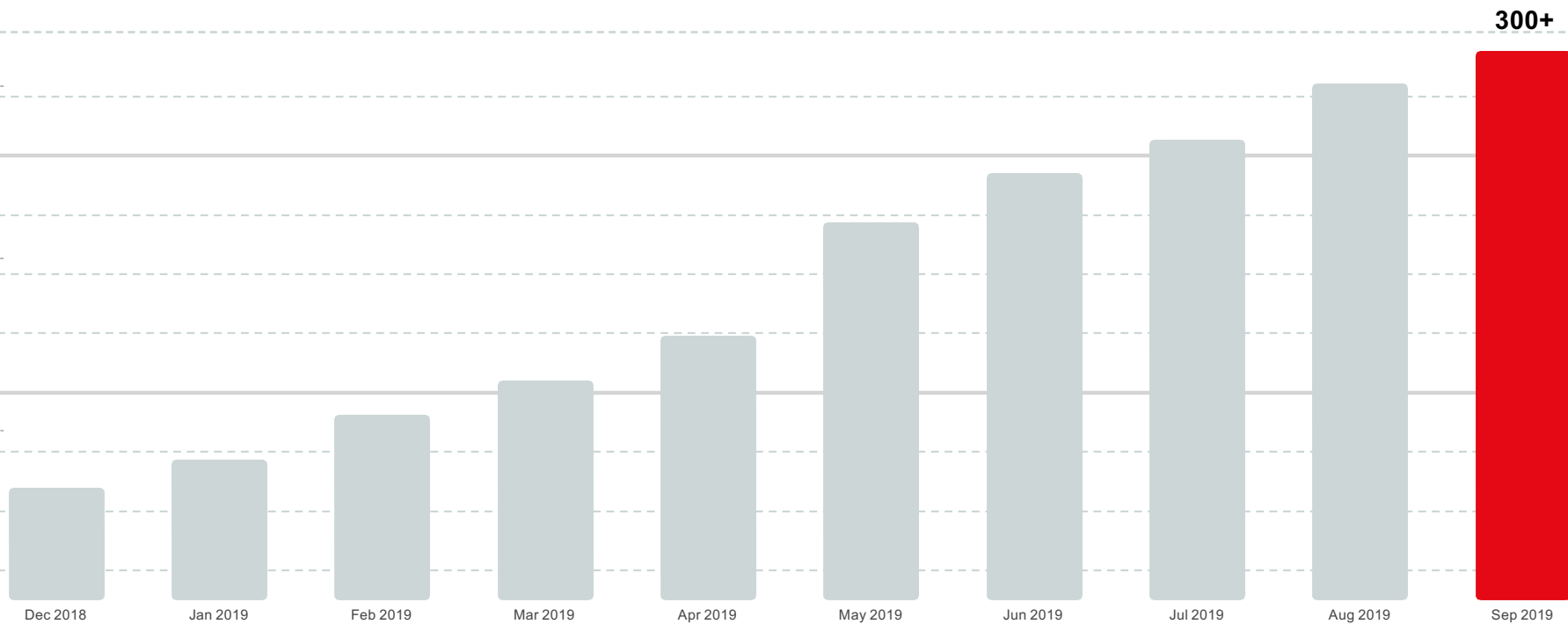
Migration



Spring Applications vs Legacy Platform




Spring Boot Applications in Production



So what did we learn?

- Stick with Spring Abstractions
- Empower users to find their own solutions
- Platform features must have toggles
- Partnership is key!



A profile view of Mary Barra, CEO and Chairman of General Motors, speaking. She has blonde hair and is wearing a dark jacket and a necklace. Her hands are visible in the foreground, gesturing as she speaks.

“I believe the auto industry will change more in the next 5 to 10 years than it has in the last 50.”

Mary Barra
CEO & Chairman of General Motors



JOURNEY TO ZERO-TOUCH EXPERIENCE FOR DEVELOPERS

IT'S ABOUT **SPEED TO MARKET**
INNOVATION IS OUR NORTH STAR



GENERAL MOTORS

OUR LANDSCAPE IN 2012

OUTSOURCED & COMPLEX



WINNING TODAY & TOMORROW

TO DRIVE **PRODUCTIVITY**, **AGILITY** & **TIME-TO-VALUE**

- On-Demand Infrastructure & Tools
- Shift-Left in the SDLC
- Product Mindset
- Balanced Teams
- CI/CD Pipeline



GM FIRST MILE TRACTION

FOCUSED ON STRATEGIC BUSINESS & TECHNOLOGY OPPORTUNITIES



REFLECTING ON OUR JOURNEY

TO AN OUTSTANDING **ZERO-TOUCH EXPERIENCE FOR DEVELOPERS**

- Technology is Important, but Only as a Means to an End
- A Cultural & Mindset Shift
- Frictionless End-to-End Automation
- It's a Journey, Not a Destination



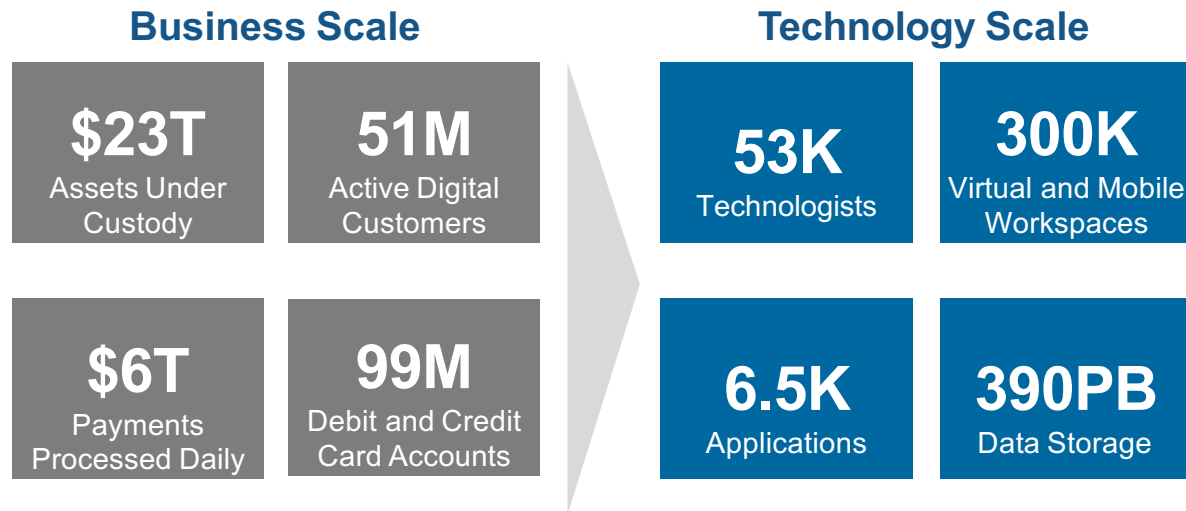
Enabling Self-Service for Developers



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- 2 Opinions expressed here are solely our own and do not express the views or opinions of JPMorgan Chase.*

Technology Investments Support Significant Business Scale



Uniquely Positioned for Success



Trust



Speed

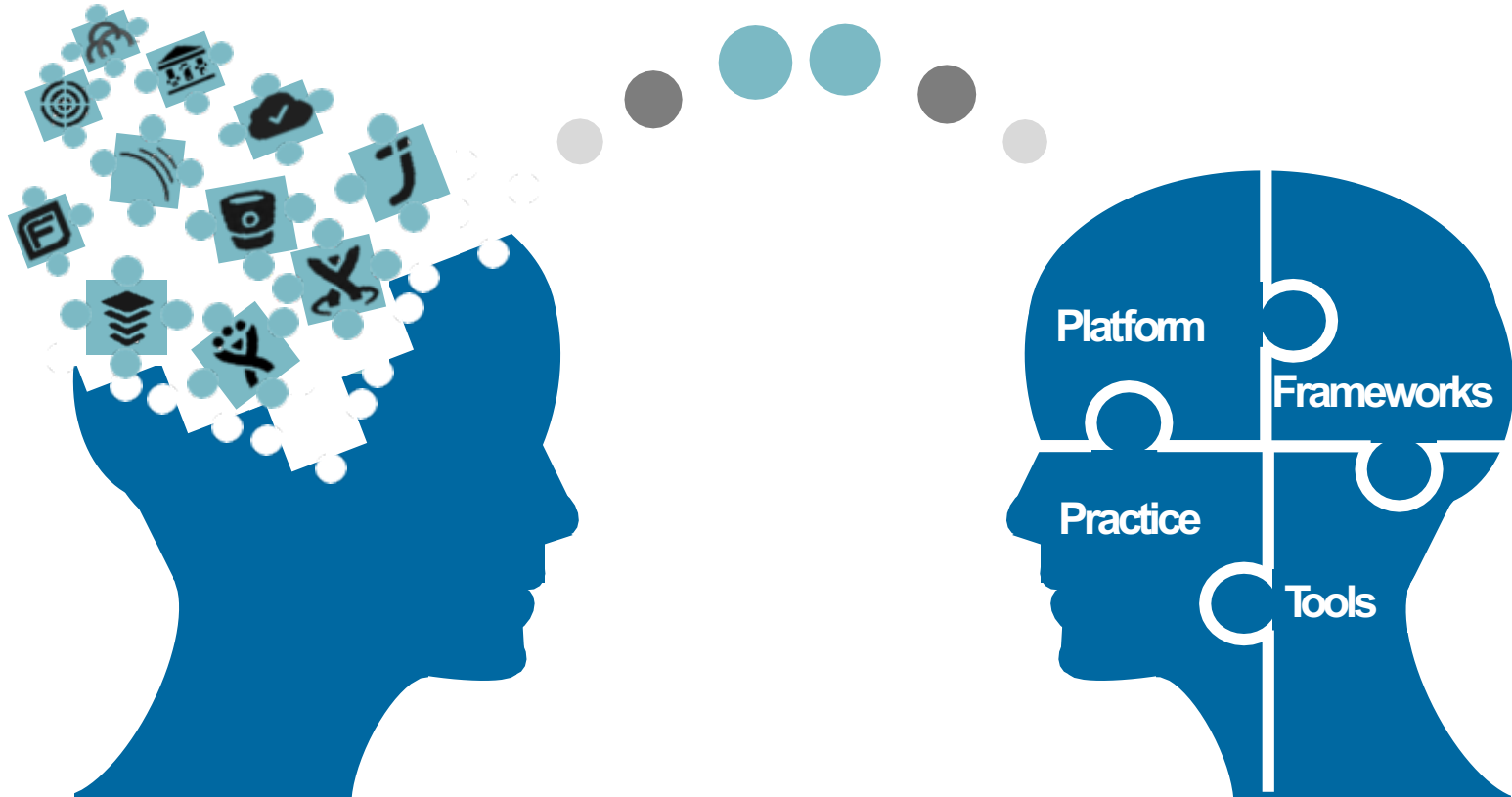


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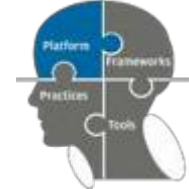


Efficiency

Making sense of a Complex Landscape



Resilient & Scalable Infrastructure



Hybrid Multi-Cloud



Key Principles



Best-of-breed 4 cloud strategy



Application portability and open standards

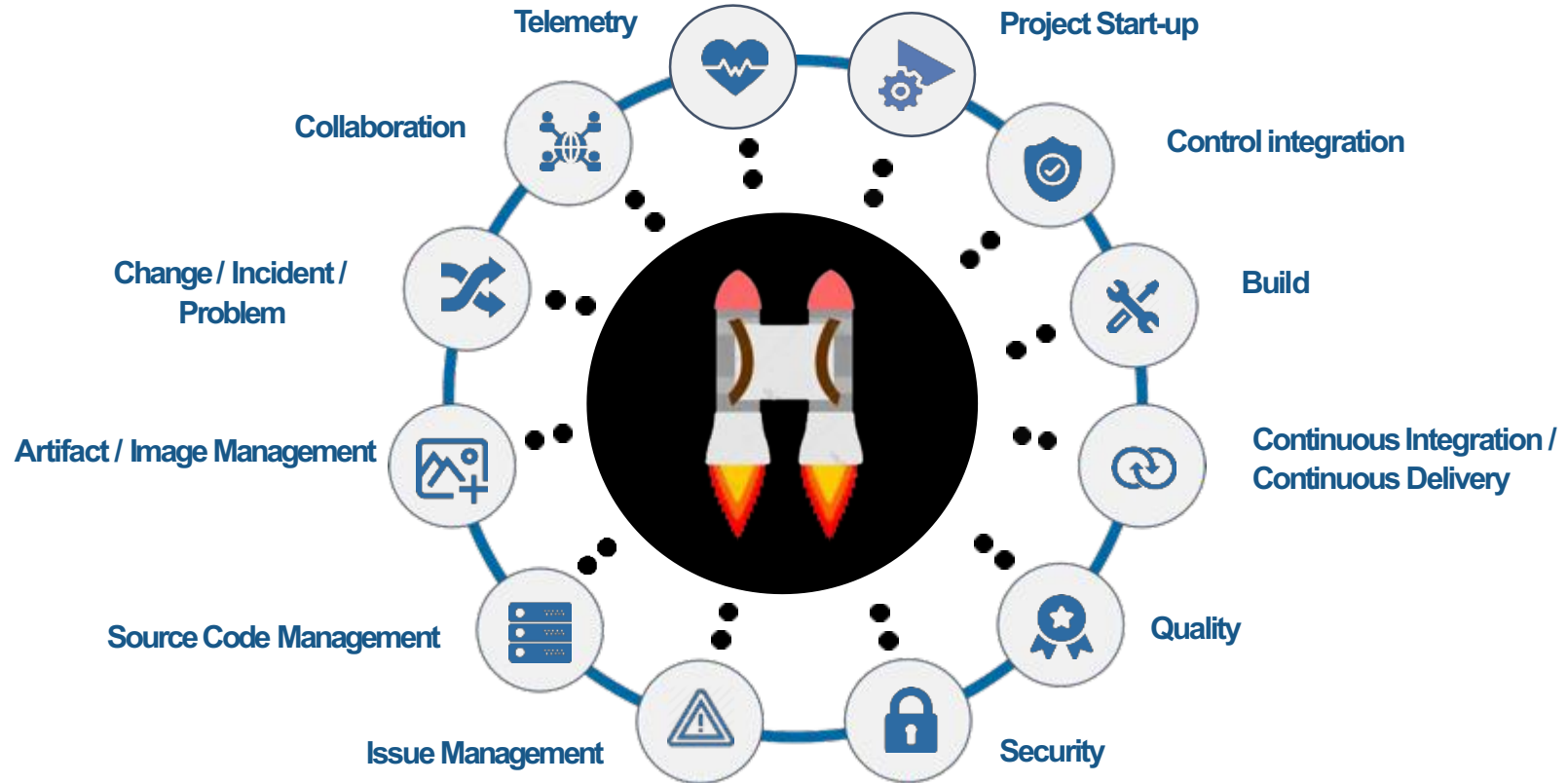


**Platform choice
CaaS, PaaS**

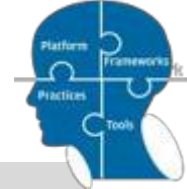


**Service to Service
Communications**

Enterprise Toolchain (JET)



Enablement as a Key Lever for Results



Platforms

No. of cloud deployments increased from

6K per month to 6K per day

1.2M+ releases in 2019

Production success sustained 99.97%

Frameworks

Moneta

250+ components per day



55K

CI/CD builds per day

- 20%

Time to Market

200+

apps using Instant Change Authorization

Cloud Parties

+950% Workloads deployed to public cloud in 2019

Practices



12K

Unique community members



Multi-Cloud and Data Transformation at DICK'S



How we used to work



Infrastructure

1000's Servers in 3 Data centers.



Monolithic Apps

Very little flexibility and customization options.



Security

Never ending patch cycles!



Athlete Impact

Features and bug fixes affected by operational and long deployment cycles.

How we work now!



Multi-Cloud

Working with VSphere,
Azure and GCP.



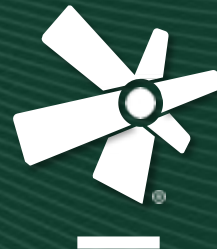
Automated Deployment

Deploying in minutes
not months.



Security

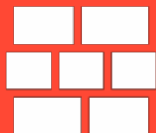
Patching is done on
demand and without athlete
or teammate impact.



Product Focused

Breaking silos and
empowering our teams
through labs.

Why Is Search Important?



Fundamental

Product search is fundamental to ecommerce.



Engaging

More than 50% of people that visit DICKS.com engage with search.



Influential

Search influences athletes shopping behavior.

Motivations

01. Page Performance

02. Real-time Updates

03. Deployment Velocity

04. Resiliency

05. Sustaining Innovation

The DSG Search Solution Journey

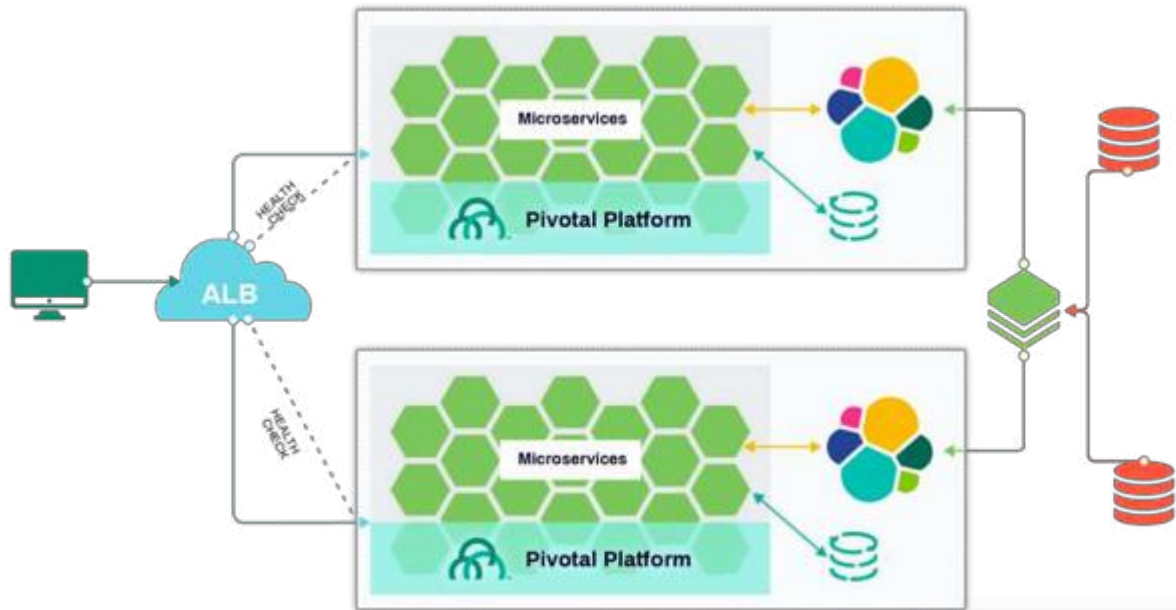
May 2018

Oct 2018

May 2019

Multi-cloud failover in place

- From: 2-3 hours to failover manually
- To: Automated failover with zero human intervention



Our Current Successes



Better Page Performance

Reduction of 4+ seconds in page load time!



Real Time Updates

Business has the ability to change based on market trends



CI/CD

Complete automation of deployments.



Resiliency

Multi-Cloud Strategy



Innovation

Creative solutions that makes business impact



Thank You

