“Value Stream Thinking” – Learnings from engineering a SaaS Platform

Dominik Rose

About me

Dominik Rose

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LeanIX

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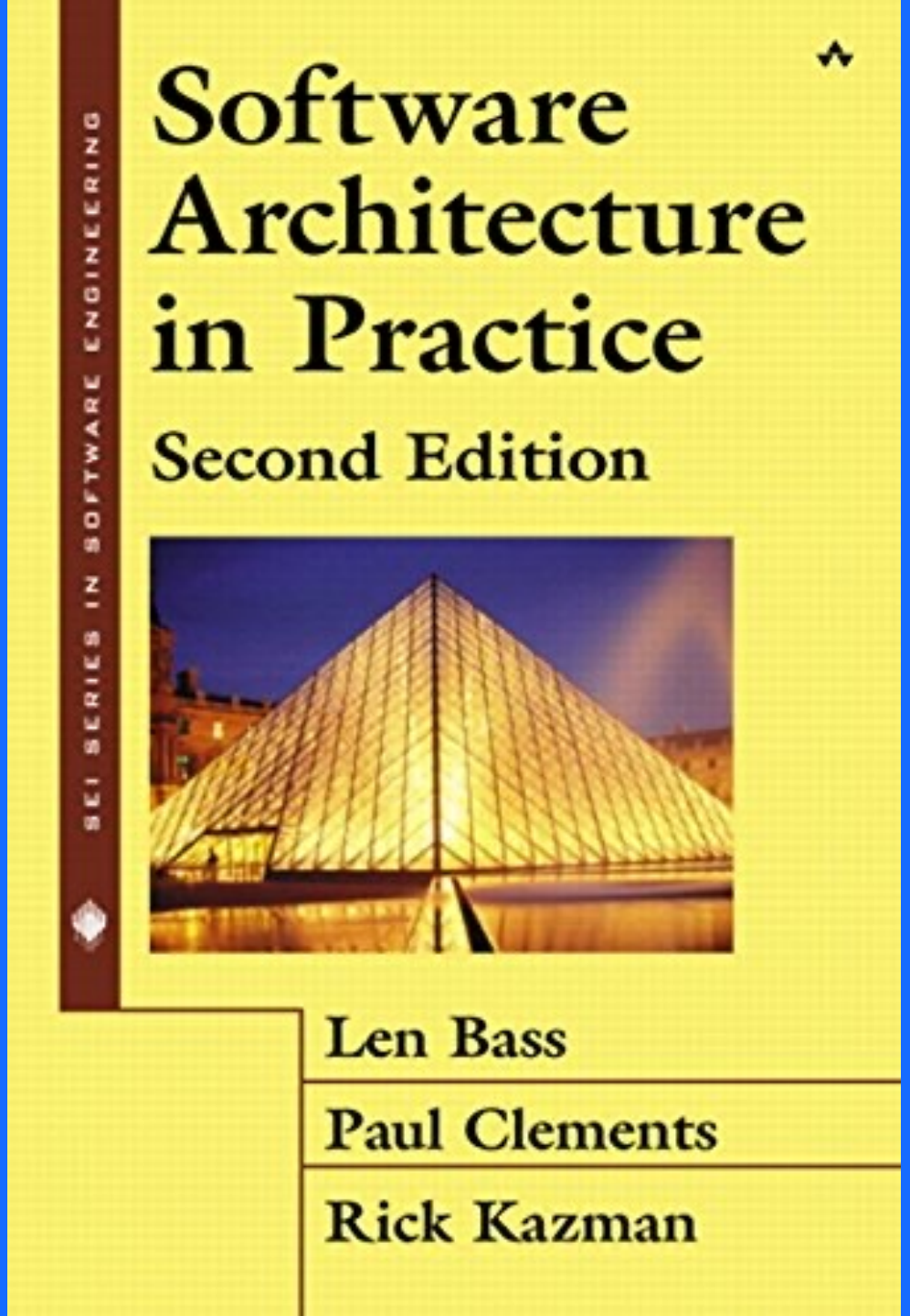

SEI SERIES IN SOFTWARE ENGINEERING
Software Architecture in Practice
Second Edition
Len Bass
Paul Clements
Rick Kazman

LeanIX in a nutshell

LeanIX

600+
Customers

60+
Net Promotor Score

Leader
rating by Analysts

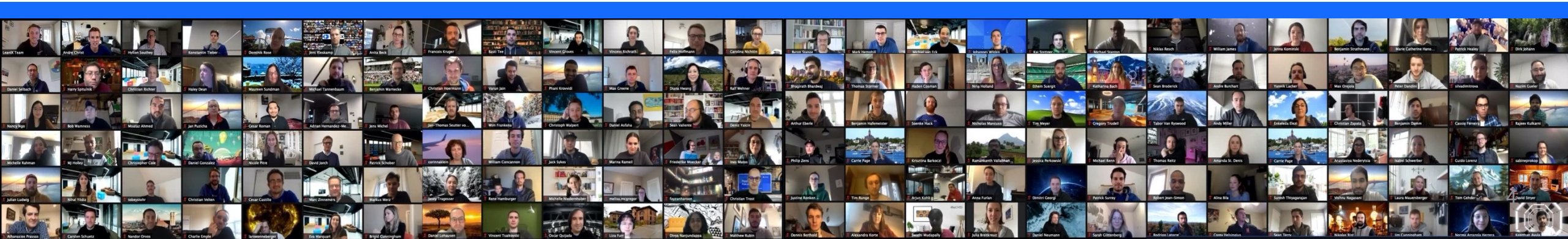
Cloud Native SaaS
Technology

SOC II Type 2 & ISO 27001
certified

400+
Employees

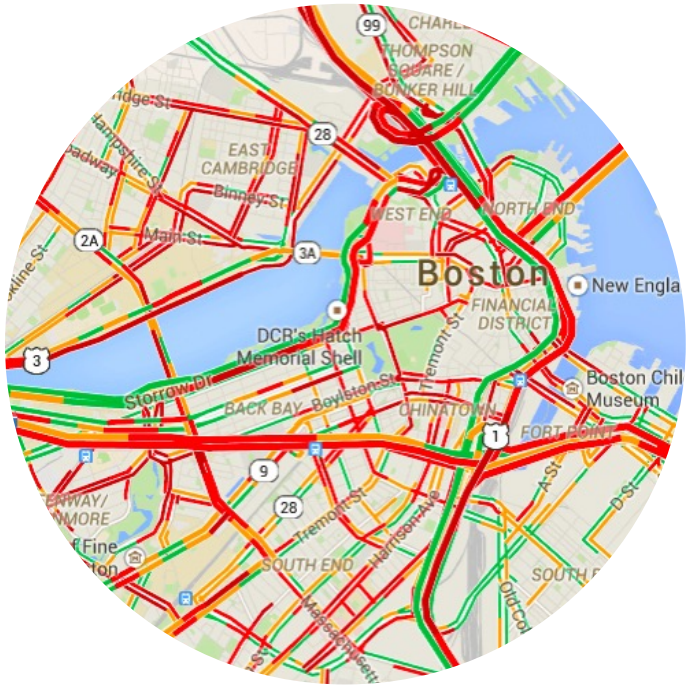
Best Place to Work
rated by Employees

$ 120m
Funding



LeanIX is like a “Google Maps for IT”

Google Maps



Map for Streets, Cities, Traffic, …

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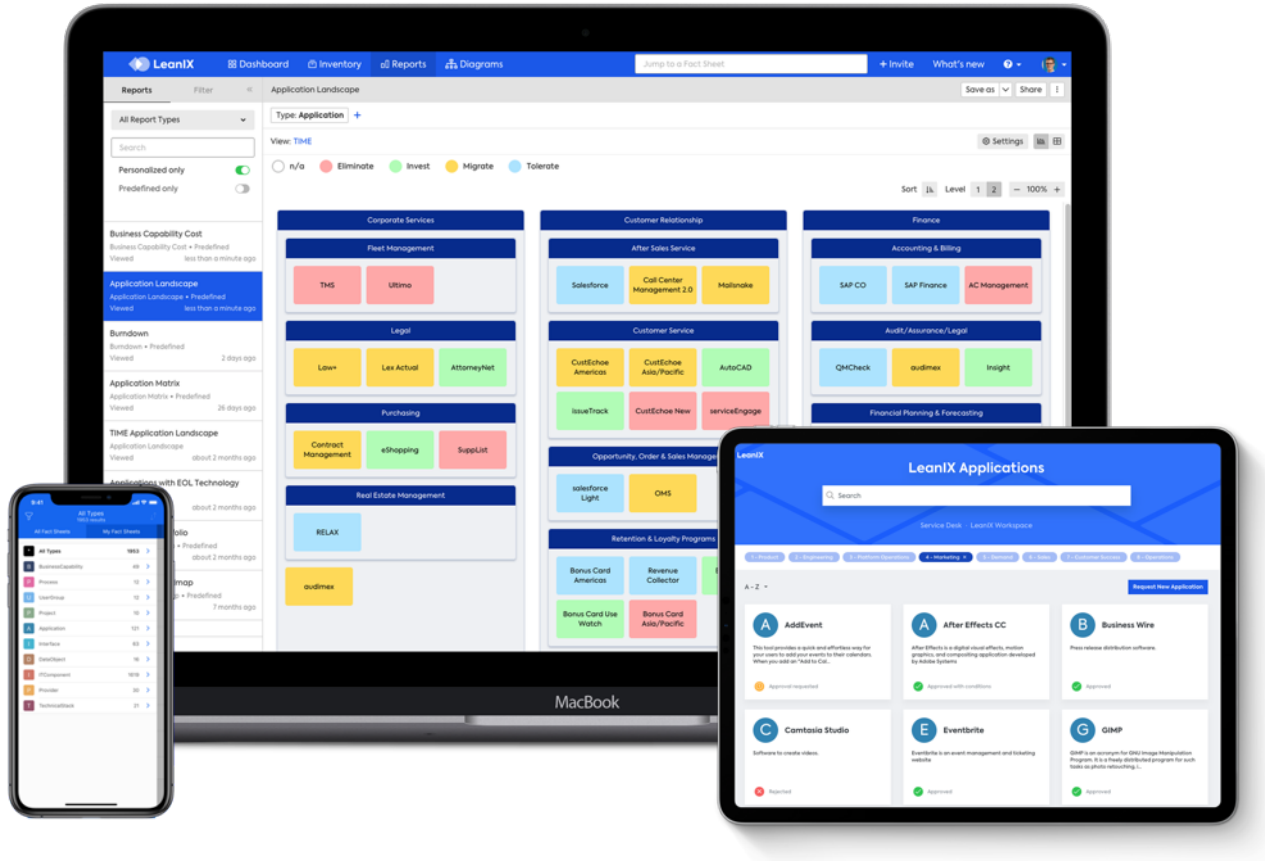

Map for SaaS, Applications, Microservices, Cloud Services, …

We help businesses solving a massive problem

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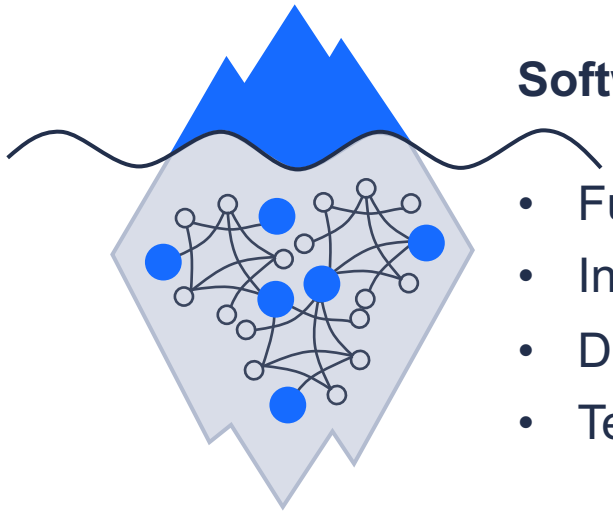
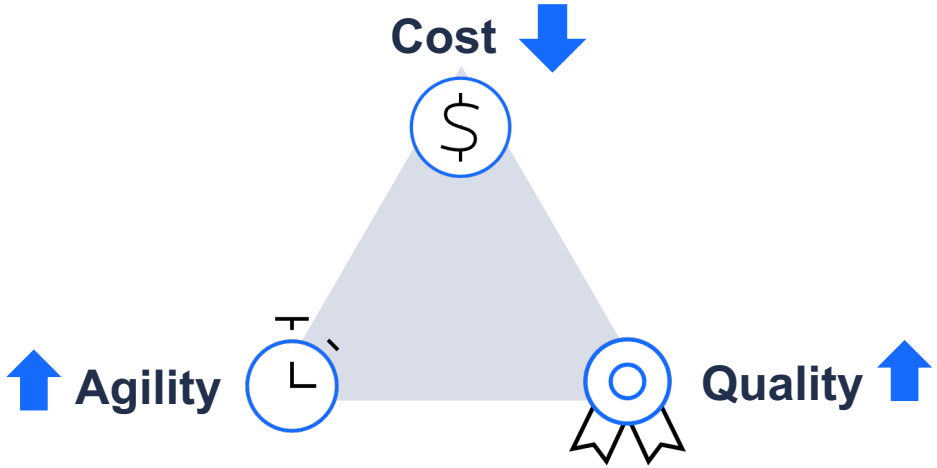
What is a key hidden factor



Software Complexity

- Functional
- Interface
- Data
- Technology

What businesses want to achieve



Software Complexity != Number of Software

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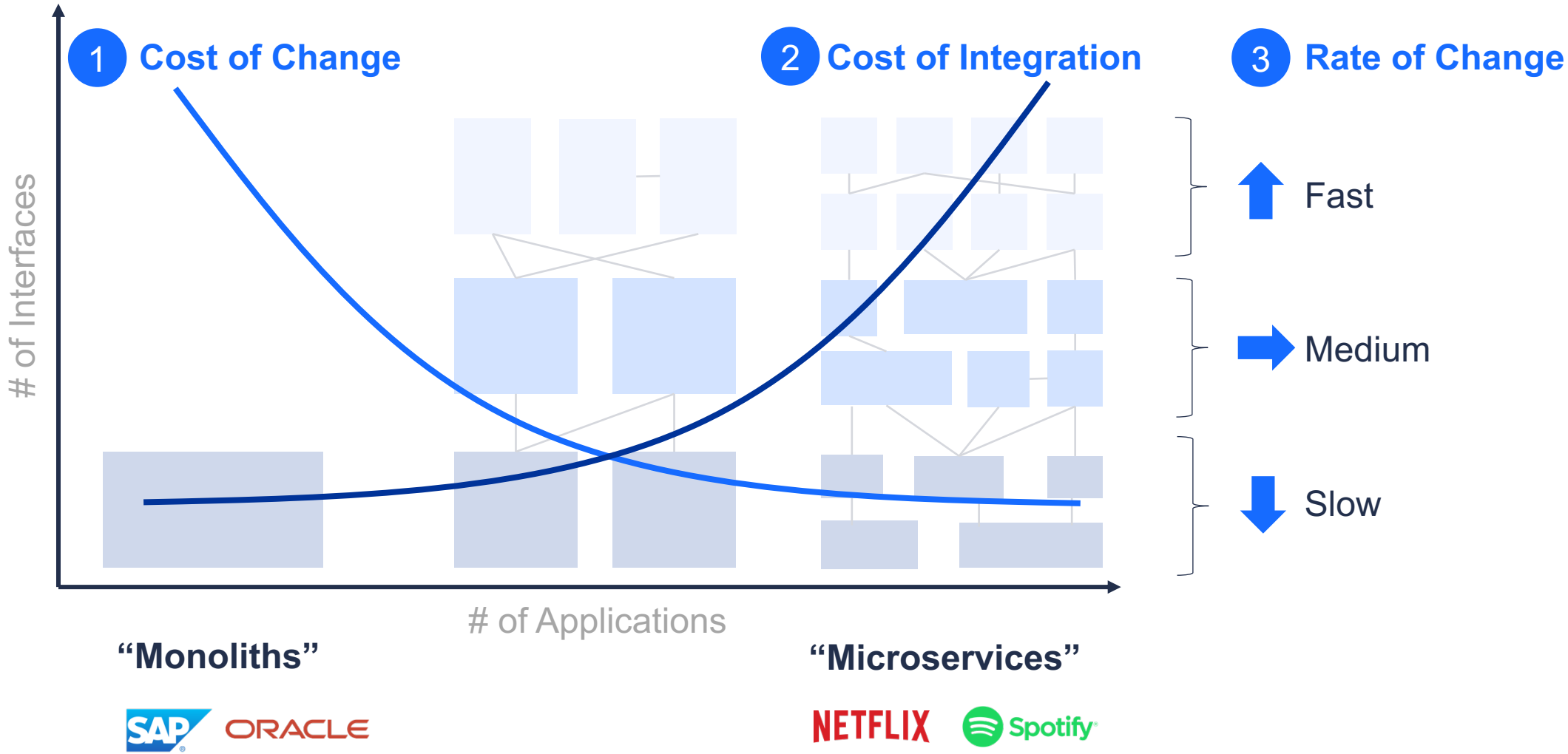

Major shifts further increasing granularity

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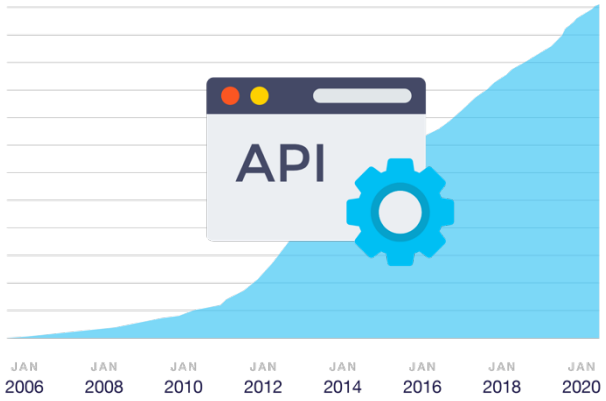
API Economy

>24.000 public web APIs, “API first” mentality



Software-as-a-Service

SaaS spend to grow by 87% to $ 250Bn by 2025

Citizen Developer

70% of Development using Low Code / No Code in 2024

Business Benefit	Compose applications faster and more flexibly based on reusable capabilities behind APIs	Increase productivity and employee experience with best of breed solutions	Build applications faster without relying on limited IT resources to reduce IT backlog
IT Priorities	Protect API endpoints, scale cloud infrastructure and ensure API reusability	Avoid security risks, optimize procurement, and ensure data integration	Provide reliable IT core-services and avoid inefficiency based on central governance

Building software efficiently is a key differentiator

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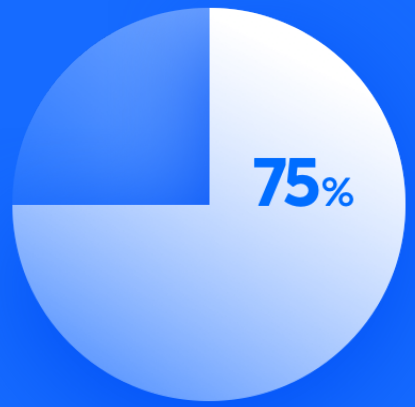
Every company is a **tech company**



Yet 75% of DevOps initiatives will fail to meet expectations value in 2022

Accelerating shift **from project to product**

Yet Agile, Project Management and DevOps metrics track activities, not business value

DevOps commoditization is **accelerating**

Yet Value Streams are spread across many tools and complex workflows

Gartner

The Future of DevOps Toolchains Will Involve Maximizing Flow in IT Value Streams

Refreshed 4 June 2021, Published 14 January 2020 - ID G00464224 - 18 min read

FOUNDATIONAL This research is reviewed periodically for accuracy.

By Analyst(s): Manjunath Bhat, Daniel Betts, Hassan Ennaciri, Chris Saunderson, Thomas Murphy

Initiatives: Infrastructure and Operations Leaders

> DevOps toolchains are changing, and the discrete automation silos of the past are evolving into platforms that orchestrate application delivery as a value stream. Infrastructure and operations leaders should revisit their toolchain strategies to meet digital business demands.

By 2023, 70% of organizations will use value stream management to improve flow in the DevOps pipeline, leading to faster delivery of customer value.

LeanIX Continuous Transformation Platform®

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Product IT

Corporate IT

	SaaS Management Platform (SMP)	EA Management (EAM)	Value Stream Management (VSM)
PRODUCTS			
MISSION	Optimize cost & productivity of SaaS subscriptions	Manage the transformation & risk of IT landscapes	Build reliable digital products faster
INTEGRATIONS	**>100 Integrations** with **key enterprise systems** (incl. SSO, ERP, expense management, CASB, contract management) and **SaaS vendors**	Democratized data and knowledge sharing via integrations to ServiceNow, Signavio, Apptio & Lucidchart to provide business and IT with a common language	Automated service discovery across CI/CD, K8s, git repositories, public cloud, and software performance KPI calculation

PLATFORM CAPABILITIES

- AI based SaaS Discovery
- Reference Catalogs (e.g., SaaS, Lifecycle)
- Open APIs & Integration API
- Configurable Data Model
- Time Machine Database
- Diagrams & Reports
- LeanIX Store
- Workflows & Survey
- Mobile App & Portals

CUSTOMER USE CASES

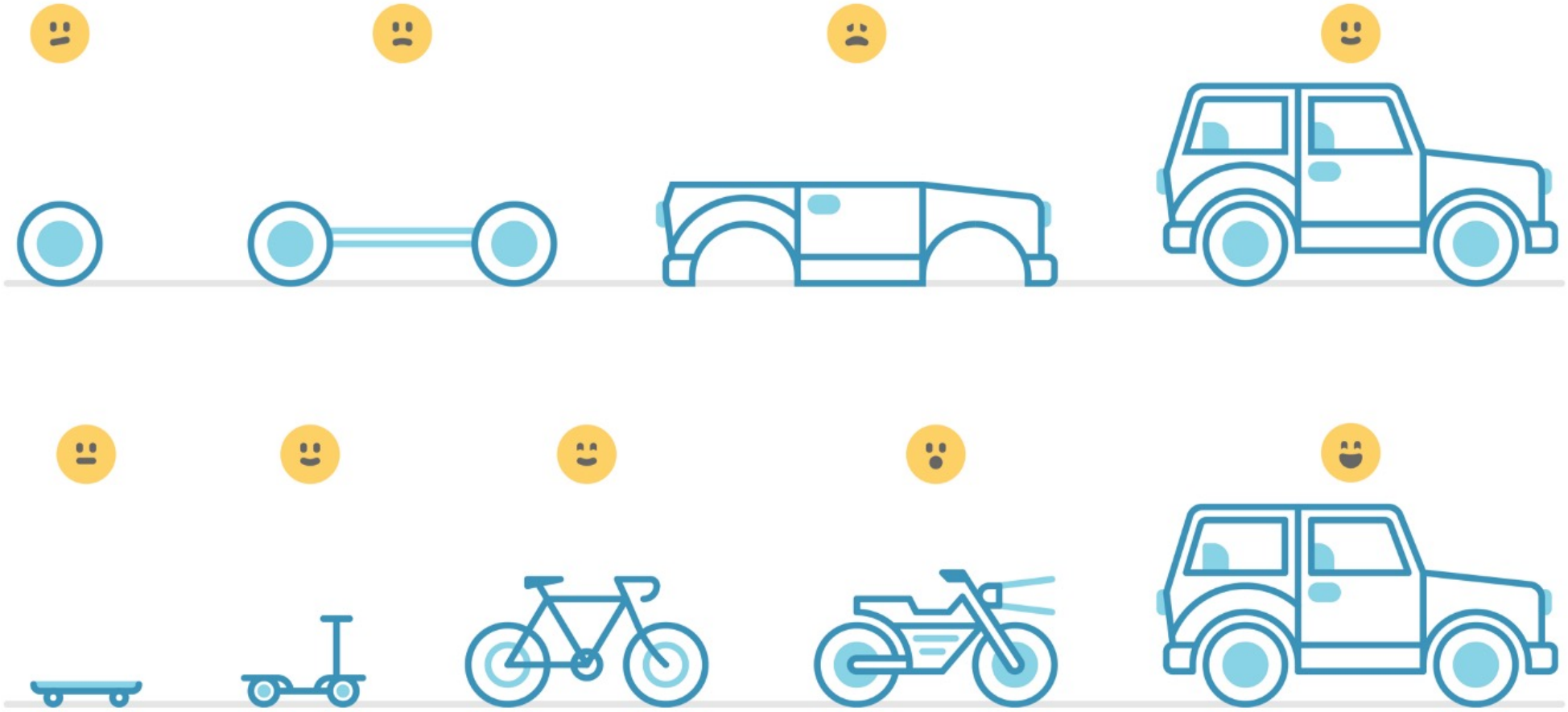
CoStar Group	degreed	Dropbox	ATLASSIAN	BOSCH	OneMain Financial	KEYTRADE BANK
Unlock valuable insight into 490 SaaS	Bring clarity to software budgeting & forecasting	Create transparency for company's 1st CIO	Refactor & rationalize capabilities & portfolio	Drive transformation w/ collaborative EA	Create visibility into 175+ APIs	Automate & centralize documentation

— **>650** Customers | **>50** Global 500 Customers | **>65** NPS | 2021 Gartner® Magic Quadrant™ **EA Leader** —

1. **Start**
2. Scale
3. Learn


Linux
APACHE
MySQL
php

Misunderstood, so often



Solve problem first, then generalize solution

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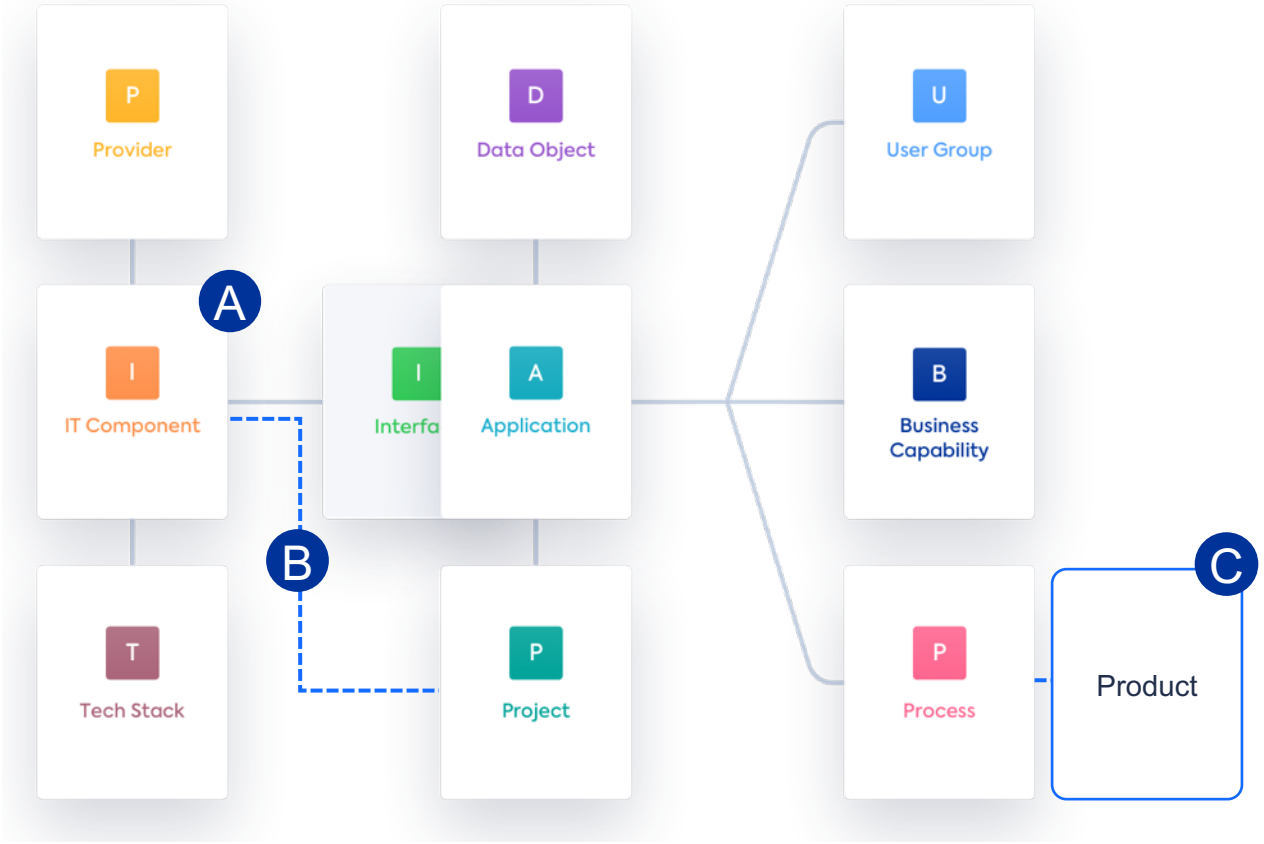
Hard-Coded Data Model (until 2017, 100 customers)



Added Levels of Configuration

- A Attributes*
- B New Relations
- C New Fact Sheets

Authorization & Reporting

After product market fit, we shifted to scaling

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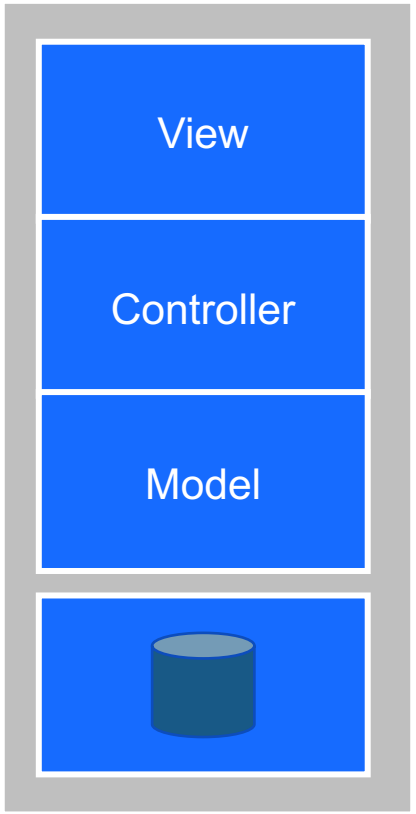
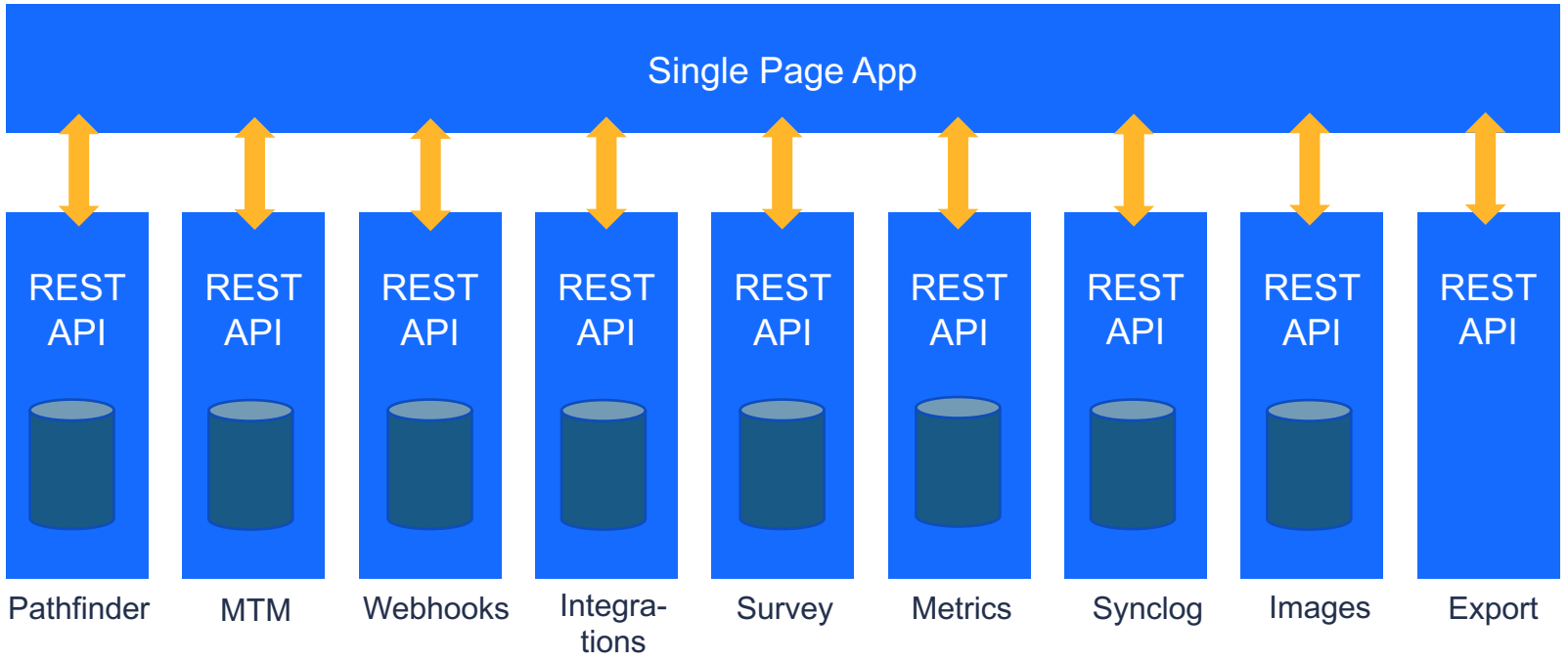
Monolith
2012 - 2014



Microservices
2015 - Today



PostgreSQL elasticsearch kafka ArangoDB

We are not Netflix – careful of granularity

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Developers > # Microservices

Adrian Cockcroft
ex-CTO Netflix

- API first
- Swagger API Docs
- No shared Database
- One Concern
- Containerized
- Configurable

Create mockups and save time with long stories

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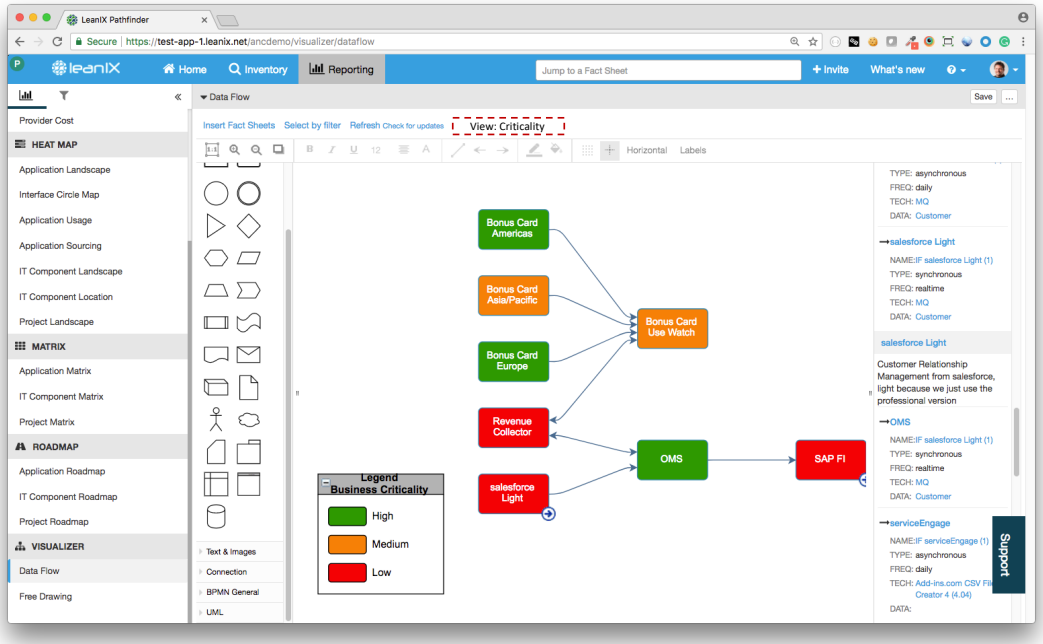
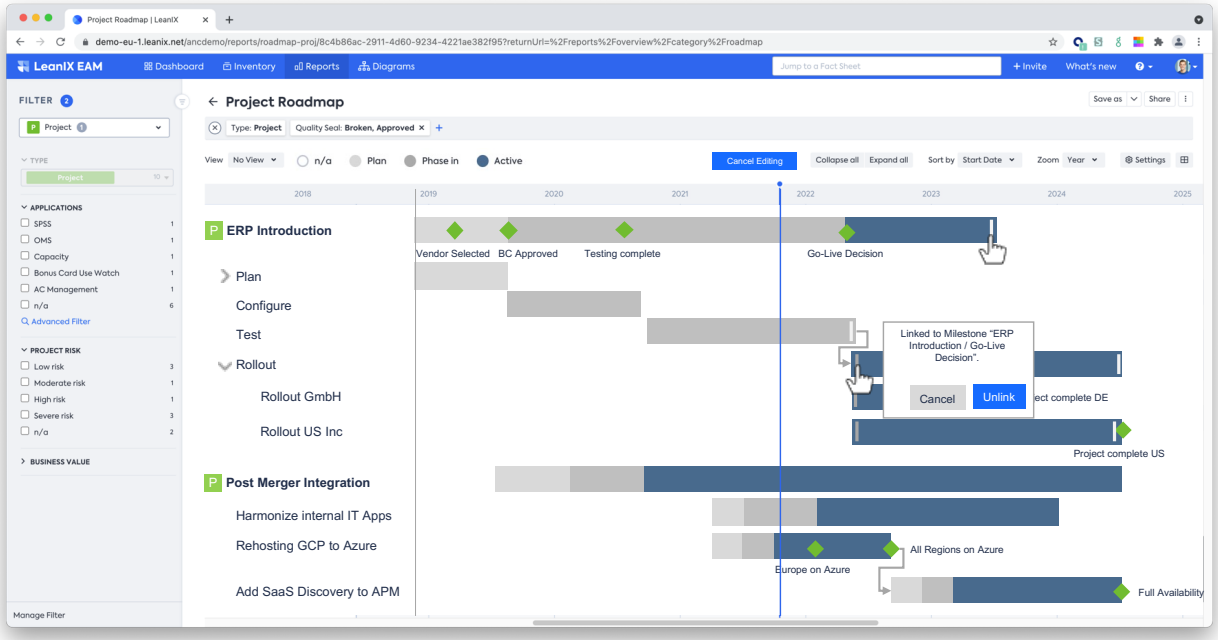
Valid in 2017 – Improvements in Diagrams



Still valid in 2021 – Refined BTM Concept



Stay light in your stories until you can afford it

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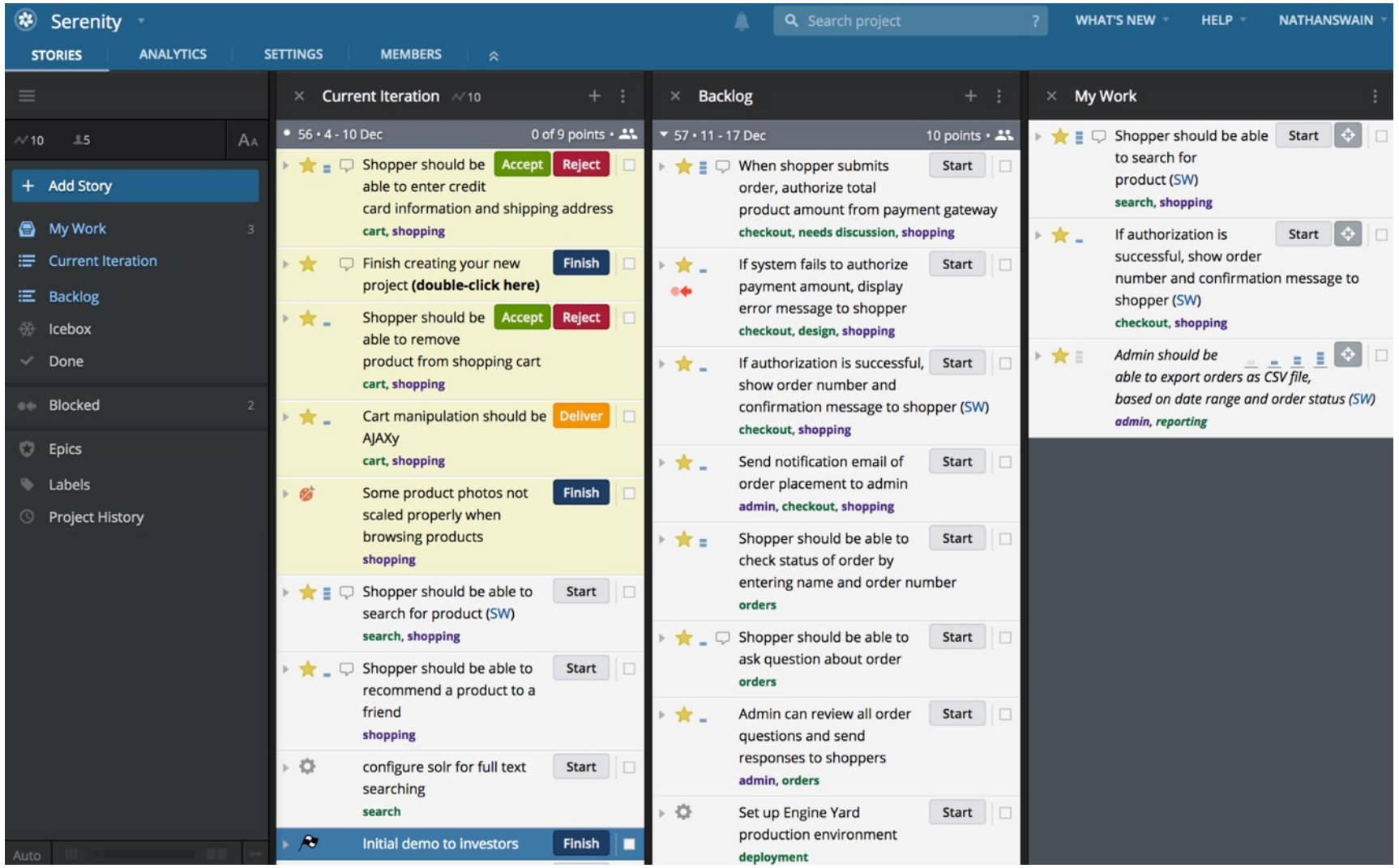
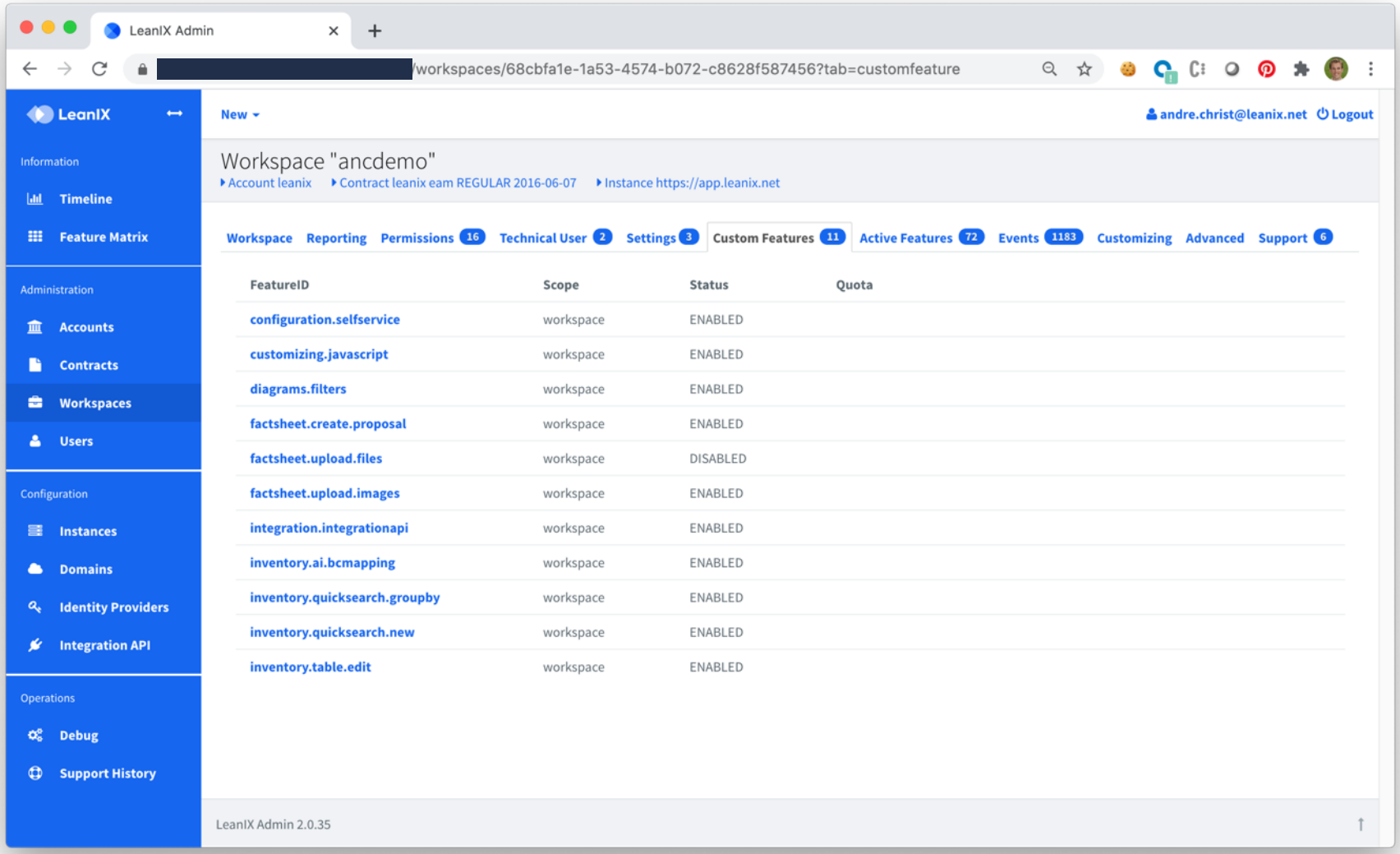


- Pivotal Tracker: Single line stories, simple grouping to epics
- Forced first engineers to think in product
- Move to Jira creates more structure, workflows, … and overhead
- Makes only sense if Product Management is established and Admin exists

Feature toggles for continuous deployment



- Own solution for product feature flags:
  - Beta Features
  - Special Features
- Can be configured per workspace (customer)
- Can be grouped into an edition

Provide users easy way to see (fast) progress

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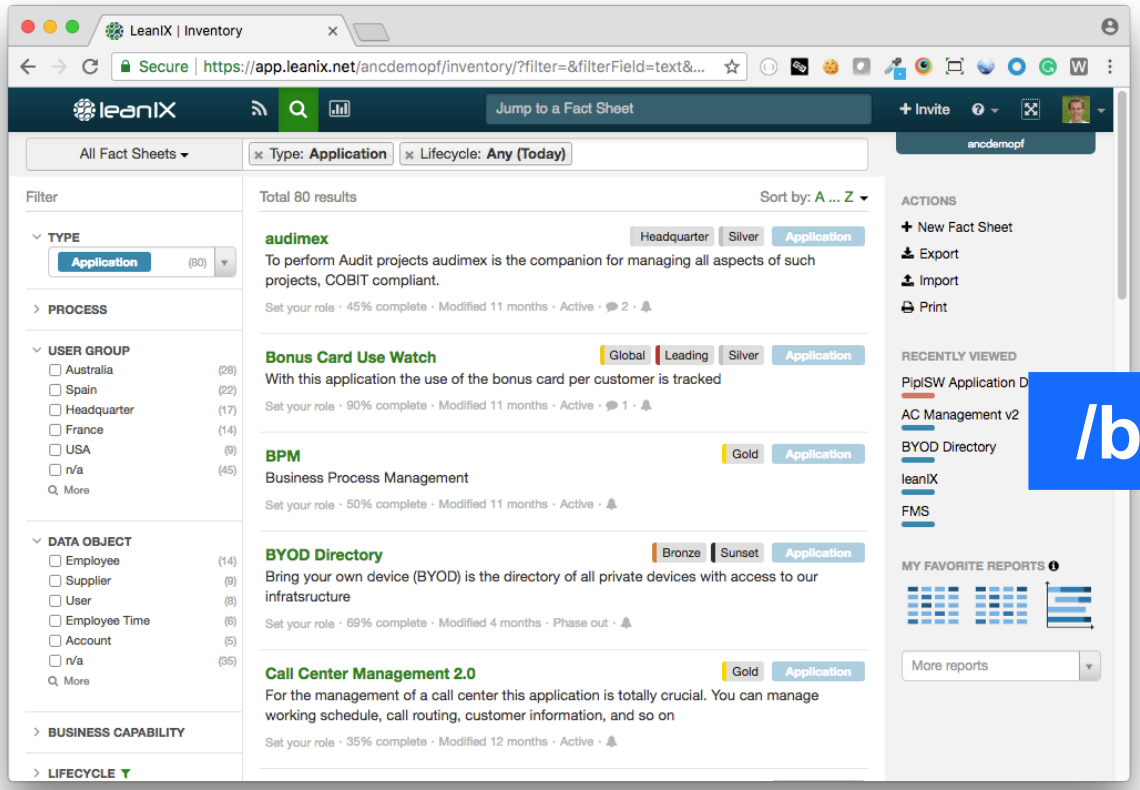
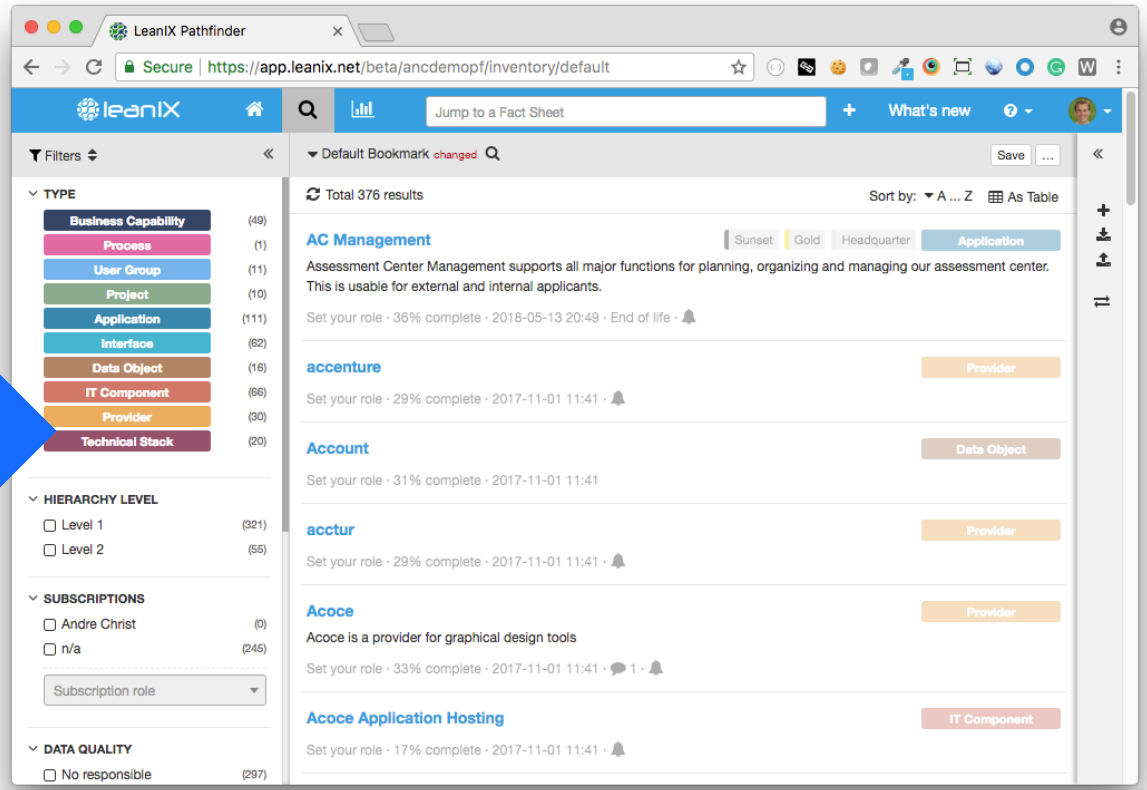


/beta



Version 3

Version 4 - “Pathfinder”

Usability & flexibility > reuse & abstraction

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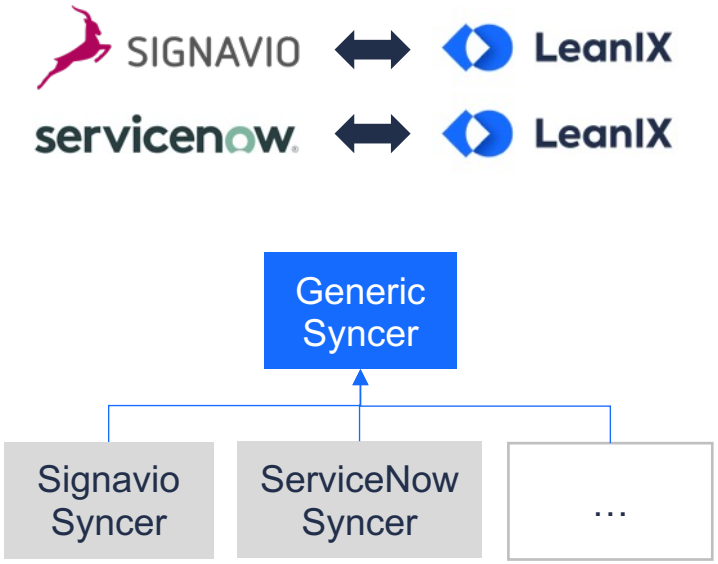
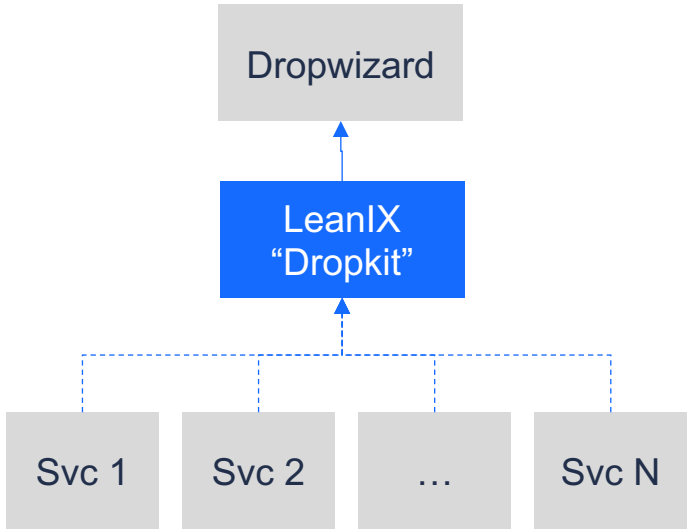
A) Re-usable sync framework



- High abstraction level created big complexity
- Every change risks issues

→ **Extract into Integration API**

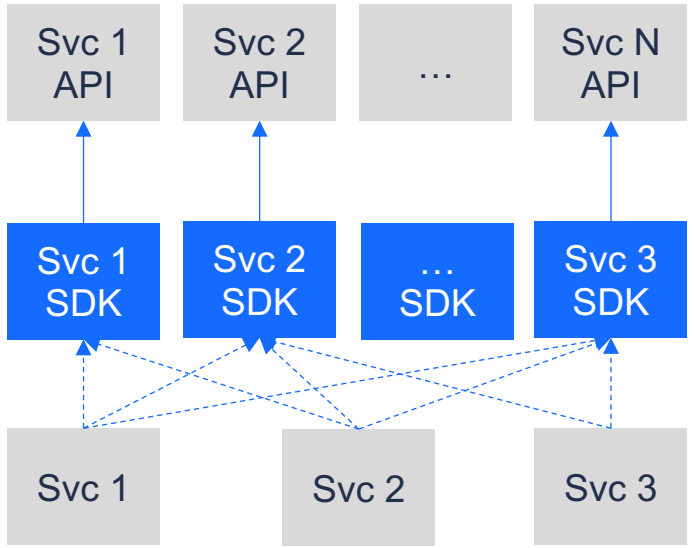
B) Centralize bootstrapping code



- Maintaining own library for simple code creates overhead
- Version updates time consuming

→ **Include Dropwizard directly**

C) Generated SDKs via Swagger

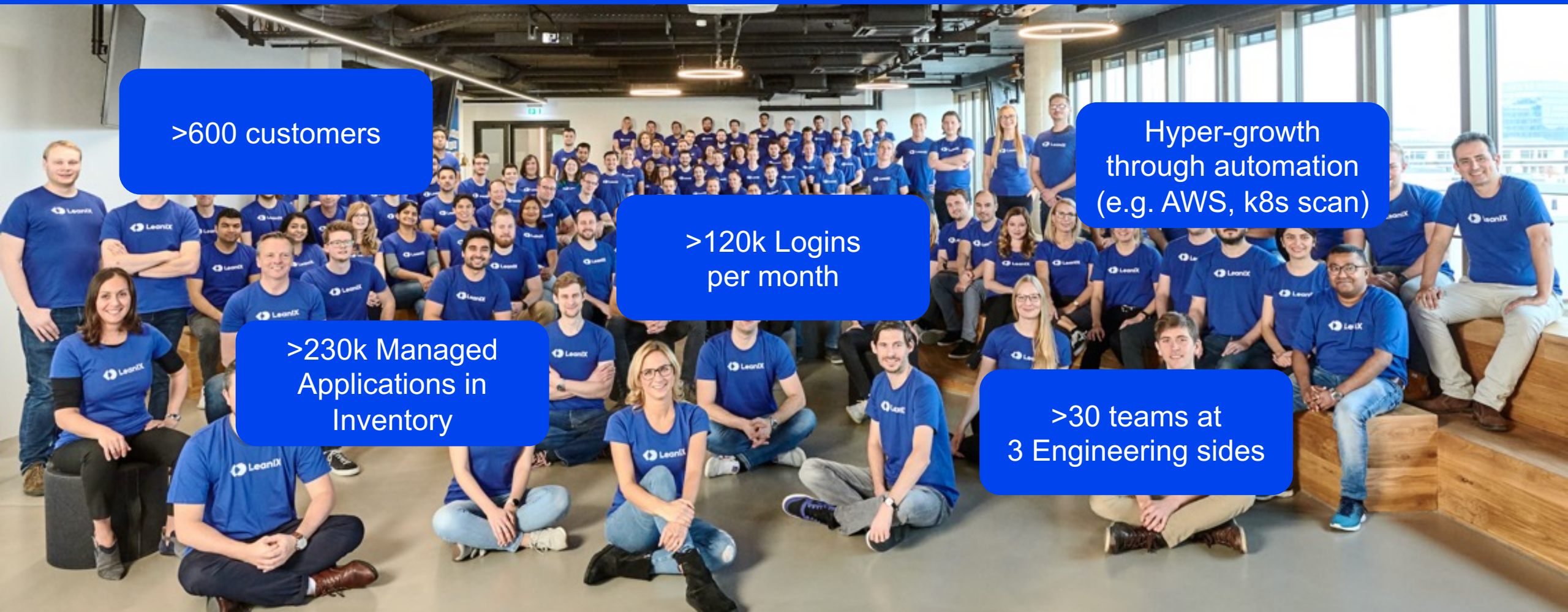


- High overhead for re-generating SDKs for API changes
- Long roundtrip for simple changes

→ **Use light HTTP-Client (retrofit)**

1. Start
2. **Scale**
3. Learn

Reality in 2022



Different stage, different problems

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Search LeanIX Power User Community

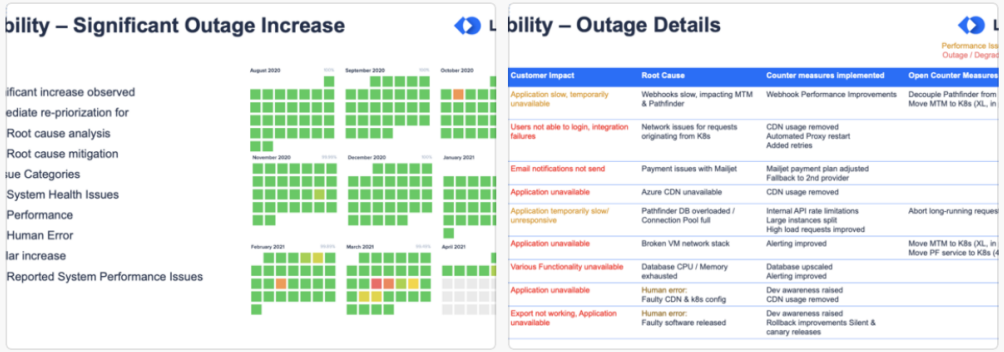
general — General announcements and news relevant for every LeanIX Power User / Champion — 754

April 13th, 2021

André Christ 4:32 PM

@channel **Update on Outage / Performance Issues** All, I'd like to provide another update on Outages / Performance issues esp. in the first quarter this year. As you see in the first picture attached, in Q1 / 2021 we have seen a strong increase in Outages compared to many month before. During Q1 we have improved our tracking under https://status.leanix.net. With the change of our CDN architecture (post above) we have removed one root cause - but I'd like to provide more visibility here into the full picture of issues, root causes and already completed mitigations. We continue to track a couple of important open mitigations which will further increase reliability - but will also need the investment. We have decided for a strong investment into performance and reliability in Q2 to continue our work here. We will provide another update during / end of Q2 to inform you about the progress. Please let me know if you have any questions / feedback. Thank you for your trust and support - my team and I sincerely appreciate it, André

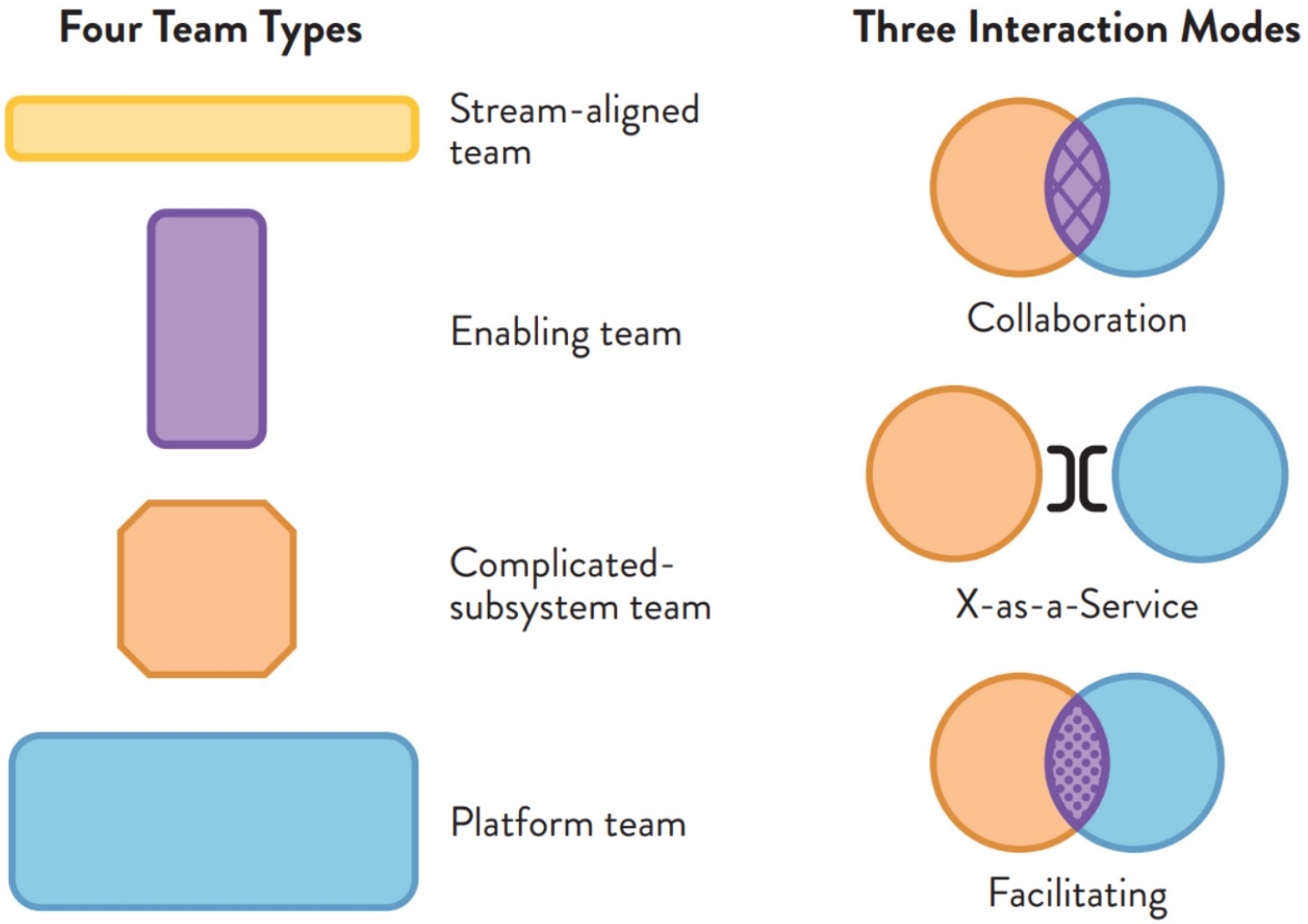
2 files



2

Message #general

Theory



Empowered to solve hard problems in ways their customer love

Inspired to discover valuable, usable, feasible & viable solutions

Establish trust with their teammates & the rest of the company

Need ongoing coaching on business context from leadership


TWO WAY
TRAFFIC

Mean Time to Recovery

Deployment Frequency

Lead Time

Failure Rate

Event-based DORA calculation

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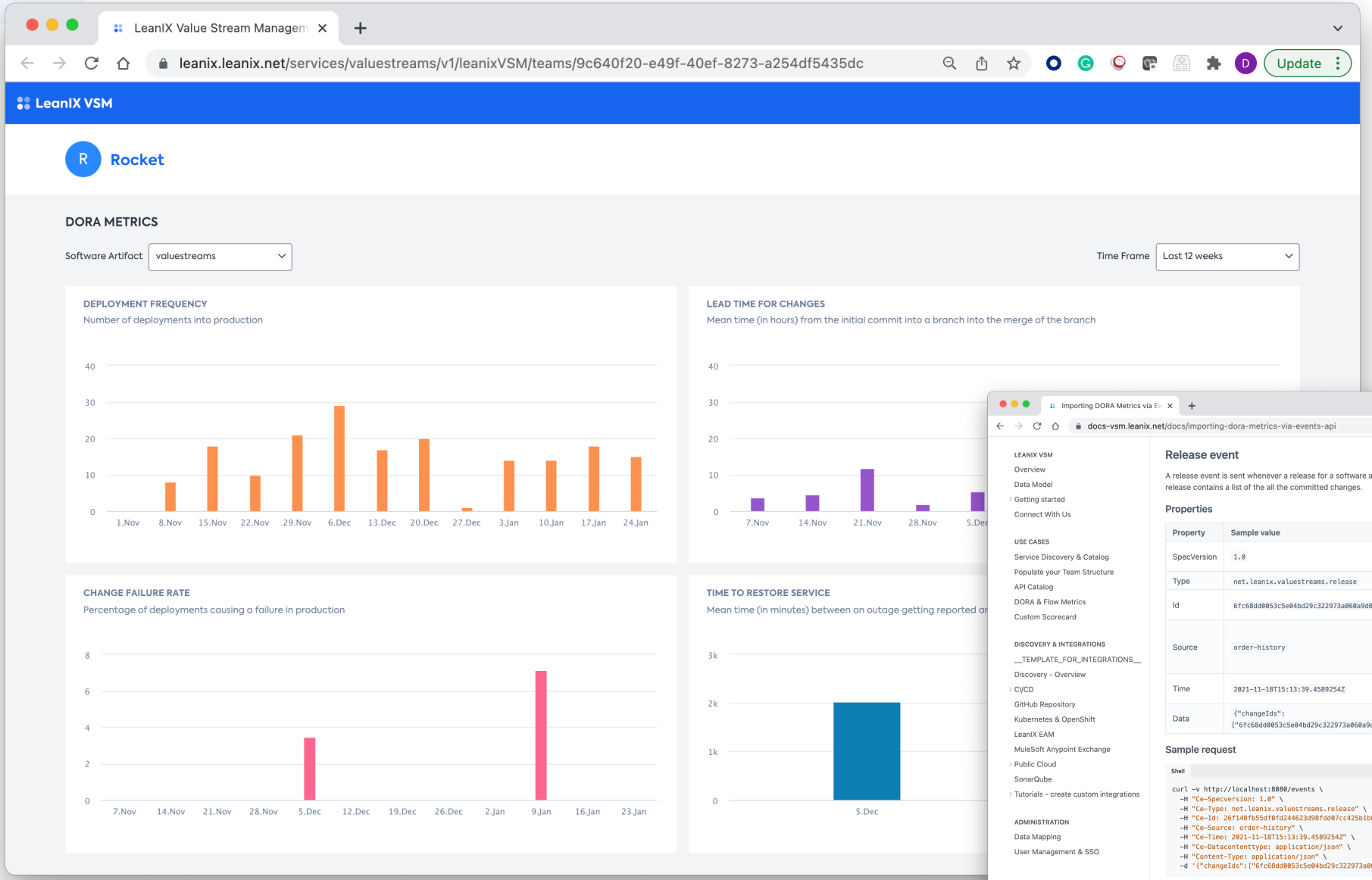

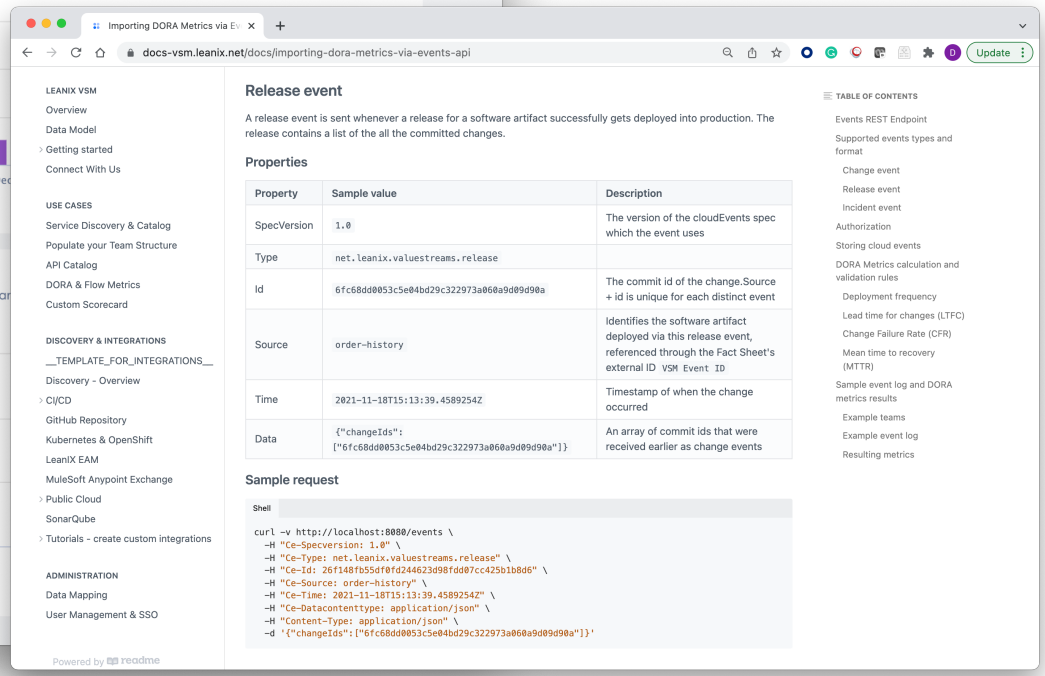

Simplify compliance by adding context

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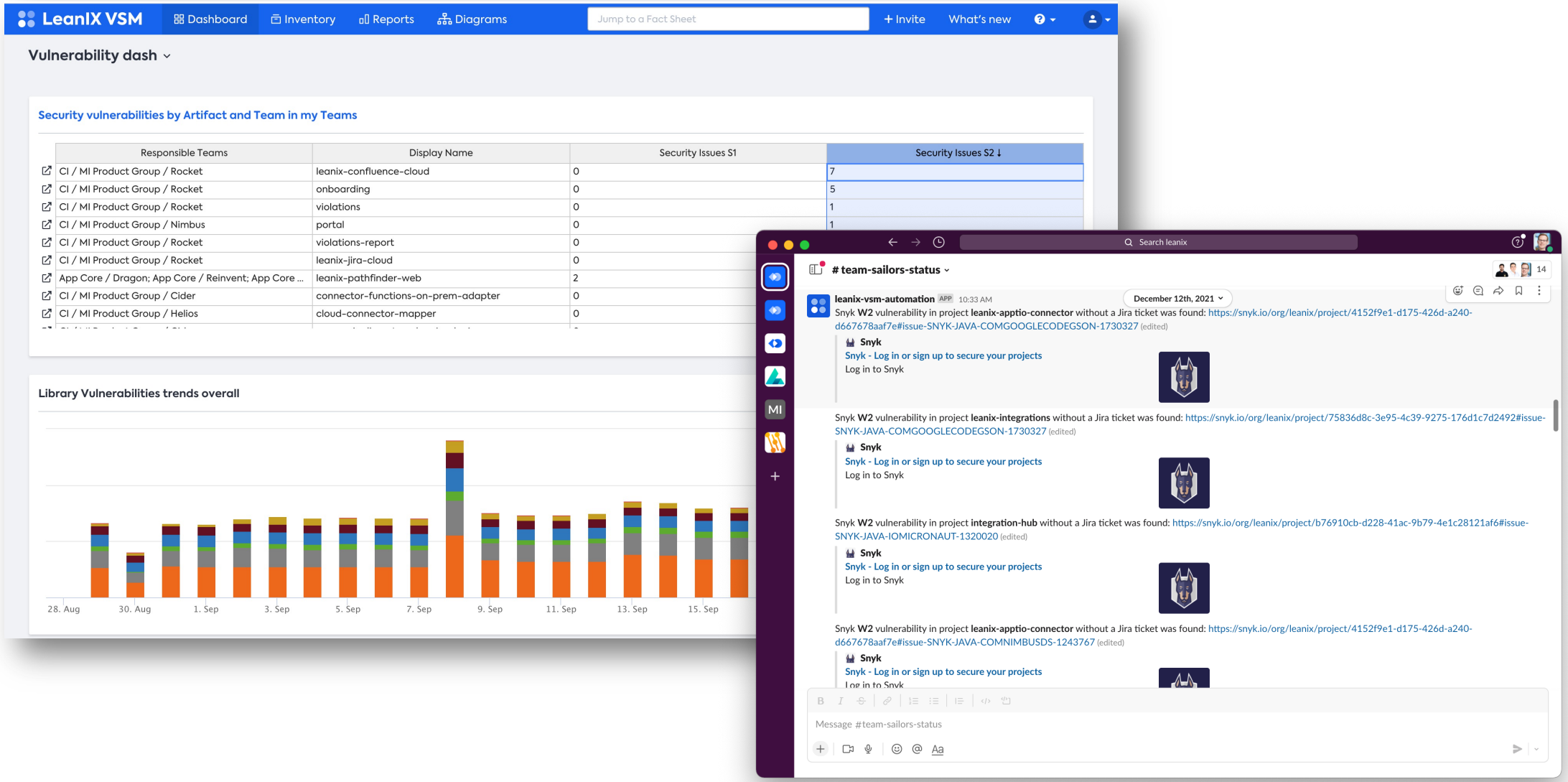

And then there was…

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How we mitigated the log4j vul

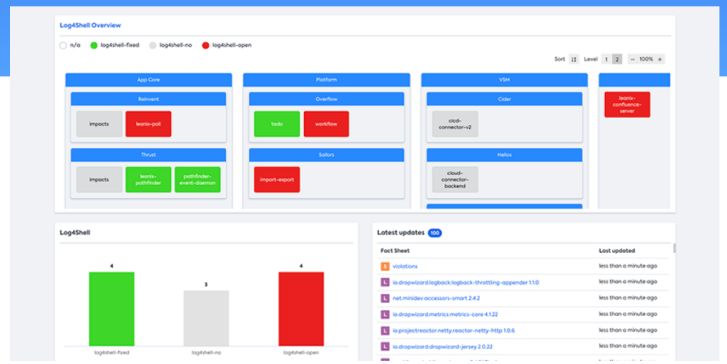
leanix.net/en/blog/log4j-vulnerability-log4shell

LeanIX Products Solutions Customers Partners Resources Company Get started

How we mitigated the log4j vulnerability "Log4Shell" within 48 hours

Posted by André Christ on December 11, 2021

ALL BLOGPOSTS > VALUE STREAM MANAGEMENT



Executive Summary / TL;DR

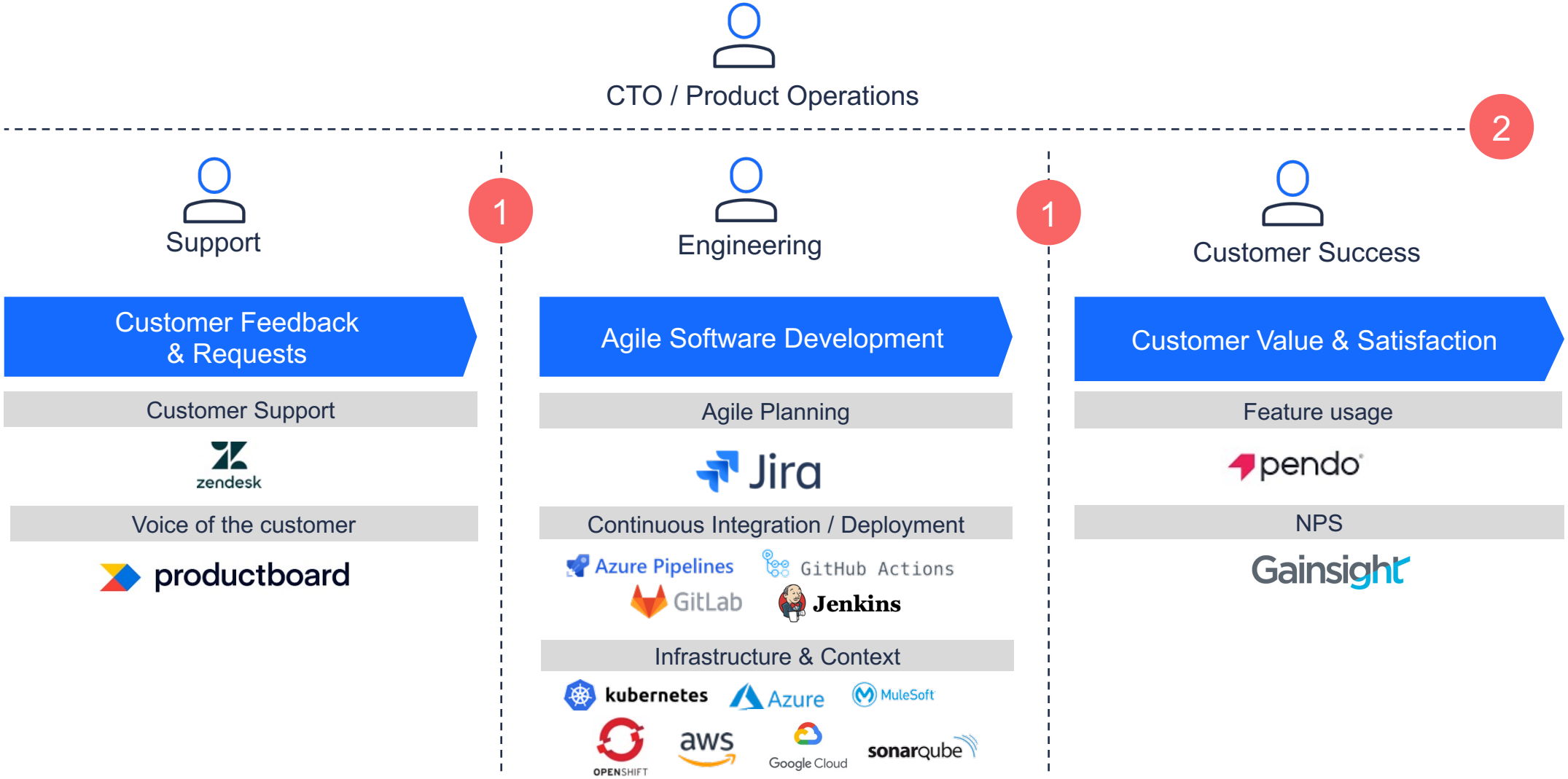
On Dec. 9, 2021, a remote code execution (RCE) vulnerability in Apache log4j 2 was identified as being exploited in the wild. Investigation revealed that this exploitation was incredibly easy to perform. Due to the broad usage of the


APL

Floating or Sinking

1. Start
2. Scale
3. **Learn**

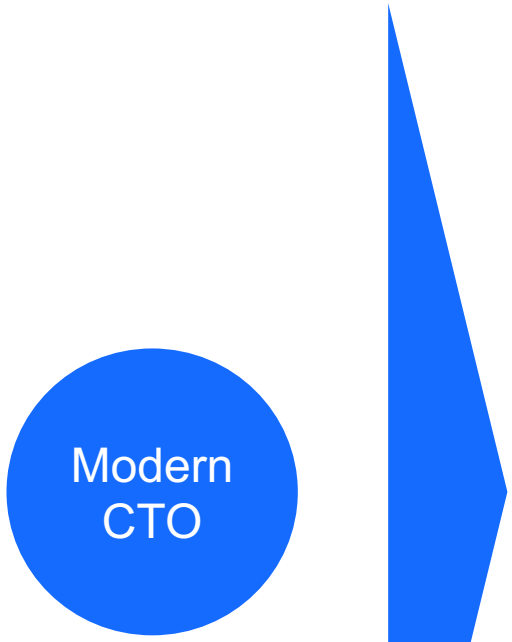
Your value stream is always in motion



1 Decisions are made based on local, insufficient or misleading data

2 Leadership either missed end-to-end view, or relies on tedious, intransparent data gathering

Software is eating the world – every company is a technology company



- Ship software fast to ensure feedback
- Ensure great user experience to win against competition

- Provide reliable solutions to cater customer's needs
- Ensure secure solutions to prevent business impacts
- Keep costs adequate to created business value

- Attract & retain scarce talent
- Leverage empowered technology teams as competitive advantage

The tool-of-choice for product teams

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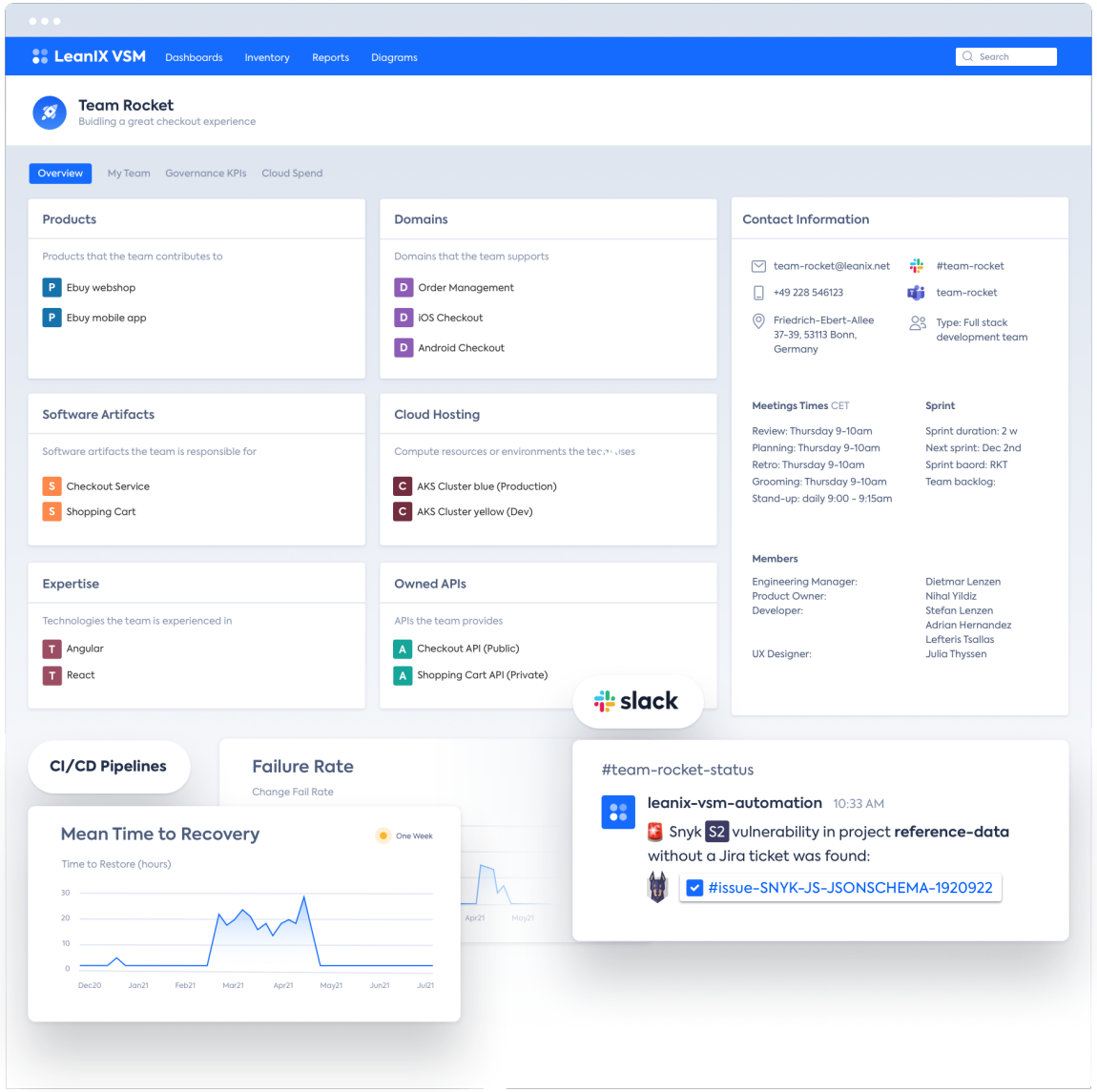
Increase efficiency by automating documentation

Ensure focus by sharing knowledge & promoting ownership

Objectify engineering effectiveness based on established best-practices & KPIs



Improve developer experience by making business impact transparent

Simplify compliance & governance by contextualizing findings

Drive decisions with leadership based on common language

Target: Optimize DevOps Value Stream Metrics

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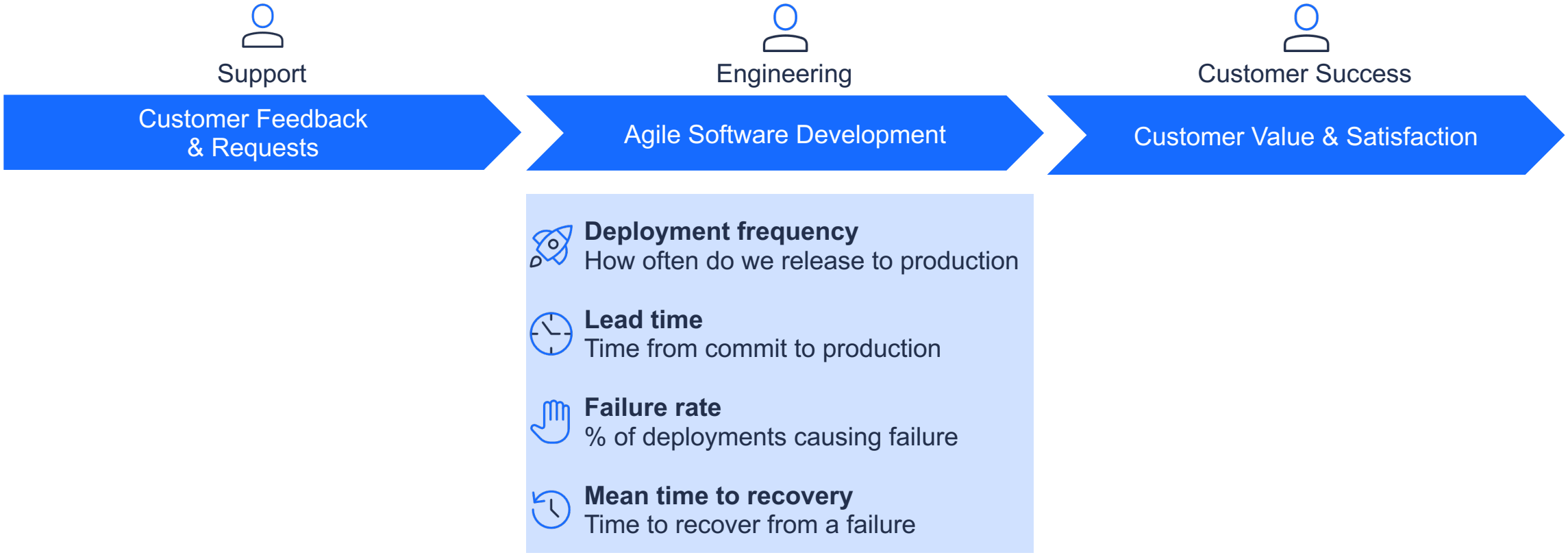

Flow Velocity
Completed work over a period of time

Flow Time
Time from customer request to delivery

Flow Distribution
Current mix of items

Flow Efficiency
Distribution of items in work vs. waiting

Flow Load
Number of items actively worked on

Metrics derived from Lean Management. Work items in Software Engineering can be **Feature Requests, Bugs, Technical Debt or Security Issues**

Modern Enterprise Architects embrace VSM

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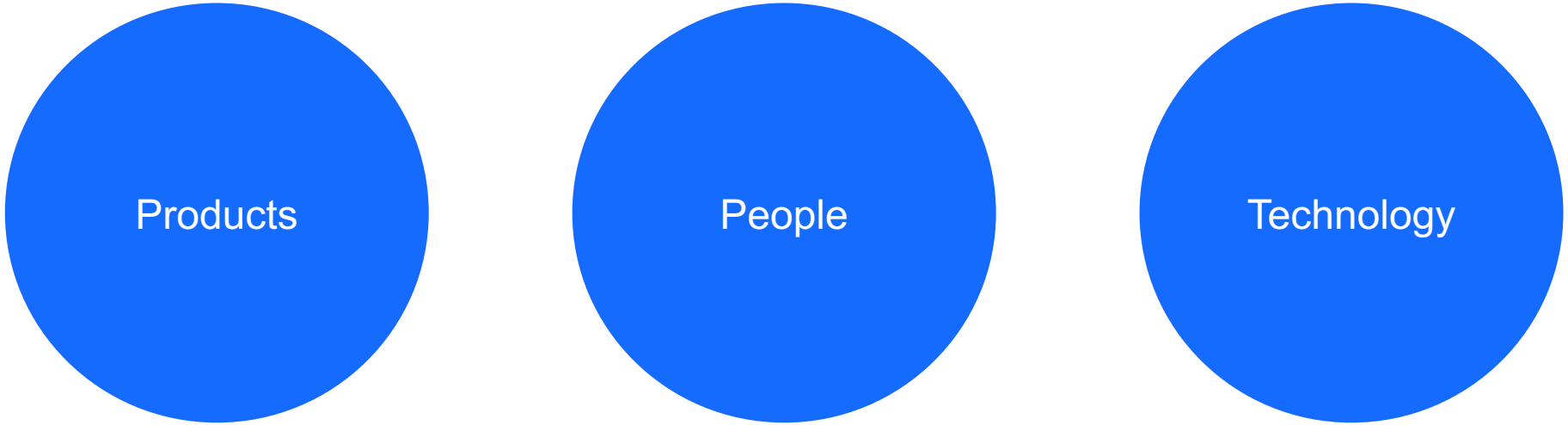
What	How	Why
Faster time-to-value based on discovery from software development, runtime & API Management	**Out-of-the-box** integrations to Github, CI/CD, Public Cloud, Kubernetes, MuleSoft, OpenAPI & more	**Save time & avoid errors** compared to manual data maintainance
Faster detection & mitigation of technical risk (e.g. GDPR violation, OSS licenses)	**Discover** OSS licenses directly from CI/CD, locations directly from public cloud, **promote** technical ownership and alignment	Switch from **reactive to proactive risk management,** create accountability across the entire software development cycle
Higher architectural alignment between product & cooperate IT	Share business context to product IT **via EAM-VSM integration,** derive joint flow KPIs **via dedicated integrations & APIs**	**Ensure technical synergies** & promote joint architecture, evolve digital products **data-driven**

What is Value Stream Thinking?



Thank you!

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