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Protecting Software Supply Chains with Hyperledger Fabric

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The Agenda
TODAY

01 Today's Software Supply Chains

02 The Secret about API Secrets

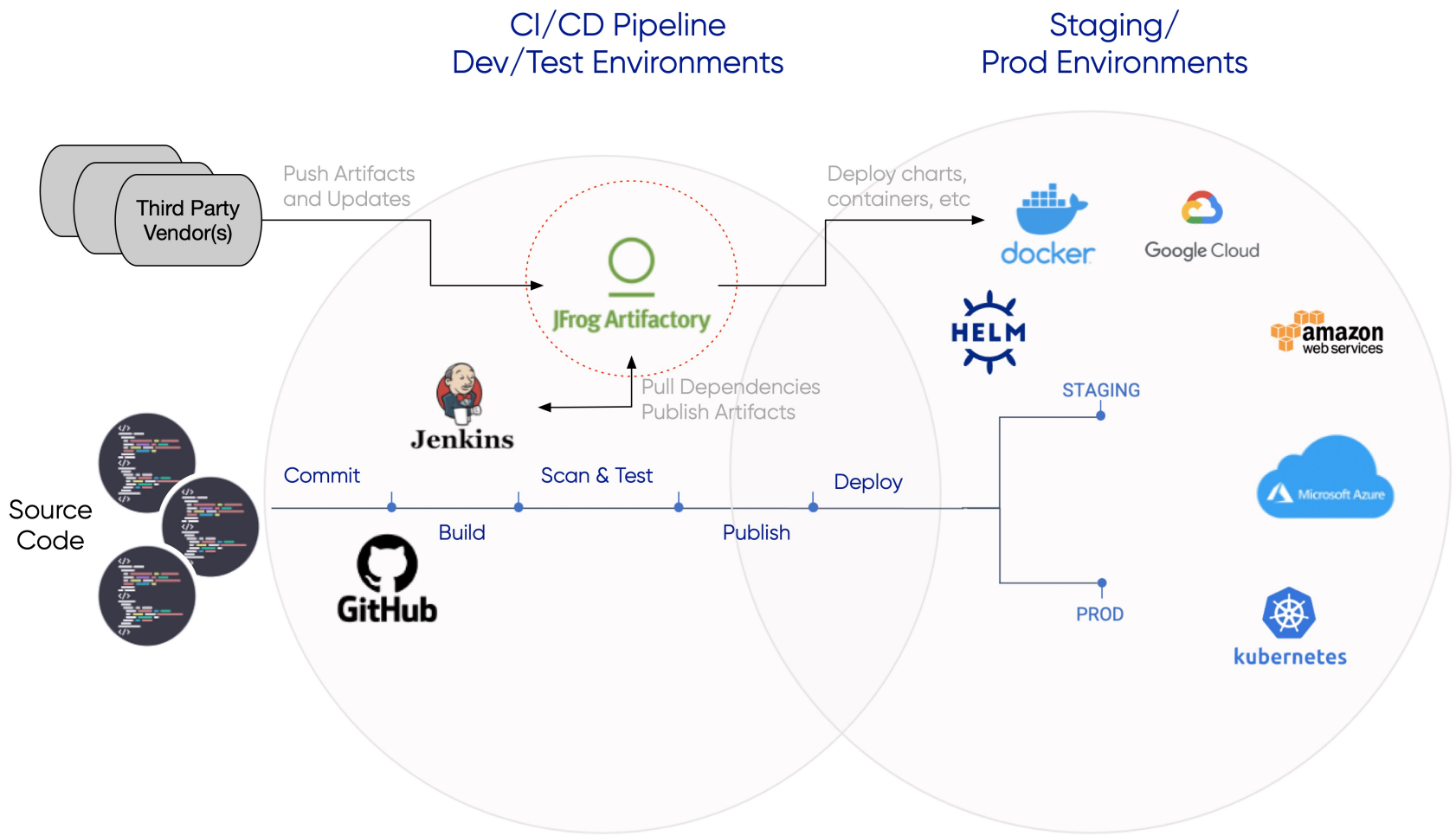
03 The Explosion of CICD Attacks

04 Corsha's MFA Platform for APIs

05 How we use Hyperledger

06 The Demo

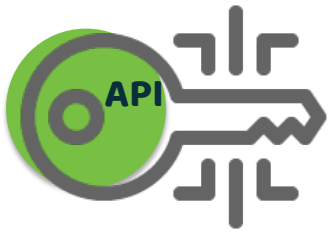
A CICD PIPELINE



API SECRETS ARE JUST SYSTEM PASSWORDS

- Secrets are often shared, rarely rotated, and often set to never expire
- They get leaked, sprawled, and sprayed across tons of environments
- Their static nature make them ripe targets for adversaries

...AND WEAK PROXIES FOR MACHINE IDENTITY



API KEYS

Easy to generate but static, long-lived. Dangerous!

TOKENS

Standard token formats, can be short-lived but rooted in static secrets

PKI CERTS

Facilitates Mutual TLS. Key Management is brutal at scale and with third parties

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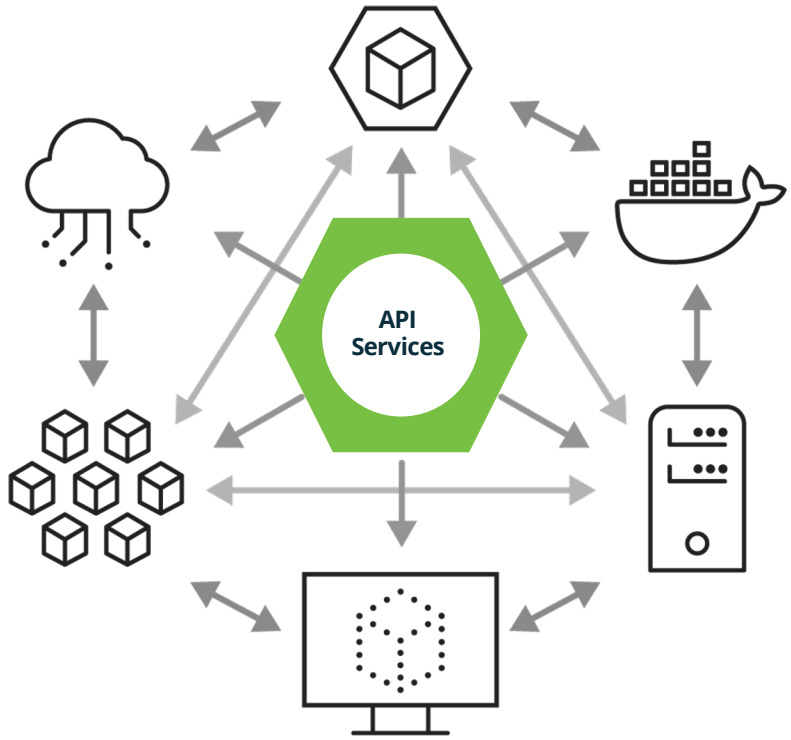
SECURING MACHINE-TO-MACHINE COMMUNICATION

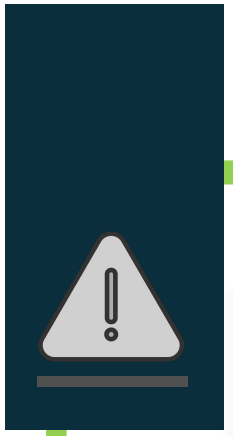
Automation, cloud, and scale are foundational to connected Critical Infrastructure

REQUIRES

- ❏ Security that can keep pace with Automation
- ❏ Strong, cryptographic Identity
- ❏ Pinned communication between trusted entities
- ❏ Self-service credential rotation and hygiene
- ❏ Full observability and fine-grained control



THE NEW TARGET: CICD AND AUTOMATION



BLEEPINGCOMPUTER

April 15, 2022

GitHub: Attacker breached dozens of orgs using stolen OAuth tokens

GitHub revealed today that an attacker is using stolen OAuth user tokens (issued to Heroku and Travis-CI) to download data from private repositories.

computing

December 21, 2022

Okta source code stolen in GitHub hack

…attackers apparently stealing the company's source code.

circleci

January 7, 2023

CircleCI security alert: Rotate any secrets stored in CircleCI

•**Immediately rotate any and all secrets stored in CircleCI.** These may be stored in project environment variables or in contexts.

MFA for APIs

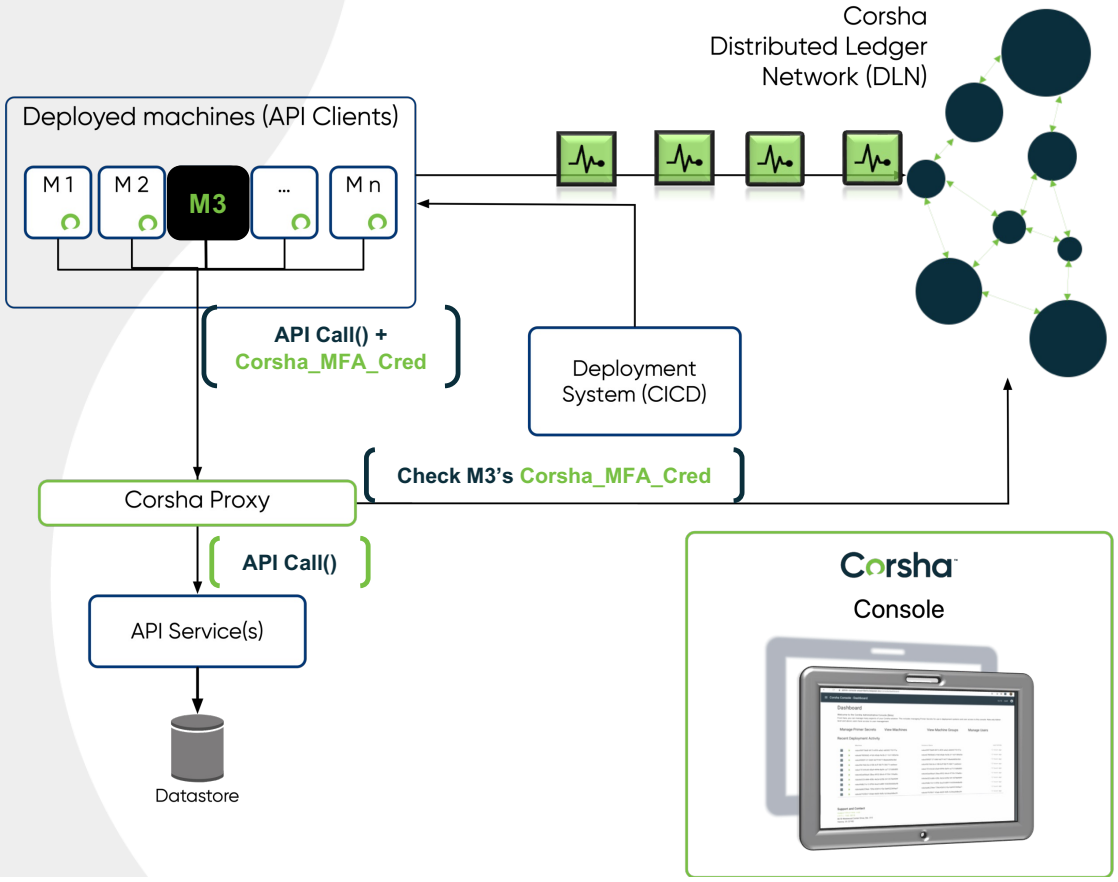
API Security Platform

Dynamic Machine Identity + MFA for Machines

- Protect API calls with one-time-use, MFA creds
- Pin access to only trusted machines
- Monitor and control all API traffic
- Use for cloud-native and legacy apps alike
- No Code Change Anywhere

Corsha Flow

1. Each API client periodically extends its dynamic identity in the DLN
2. API clients make API requests with Corsha MFA, one-time-use creds
3. The Corsha Proxy checks the MFA Credit against the DLN per API request.



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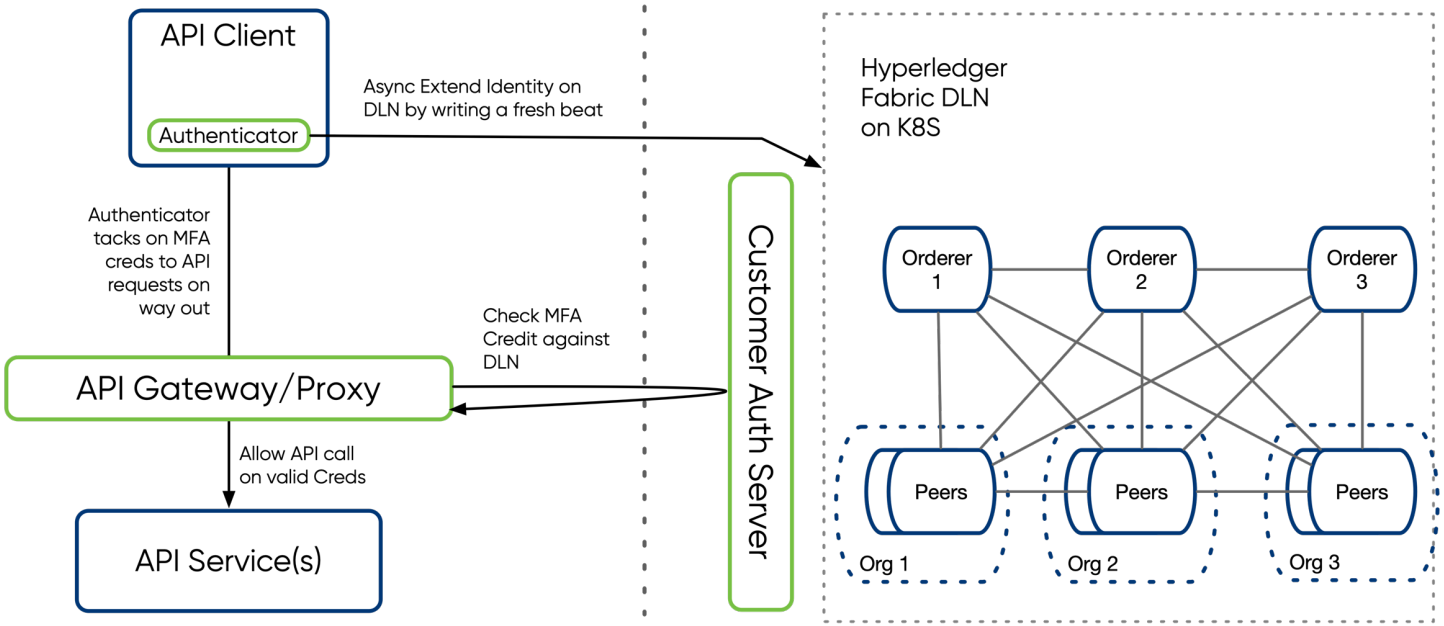
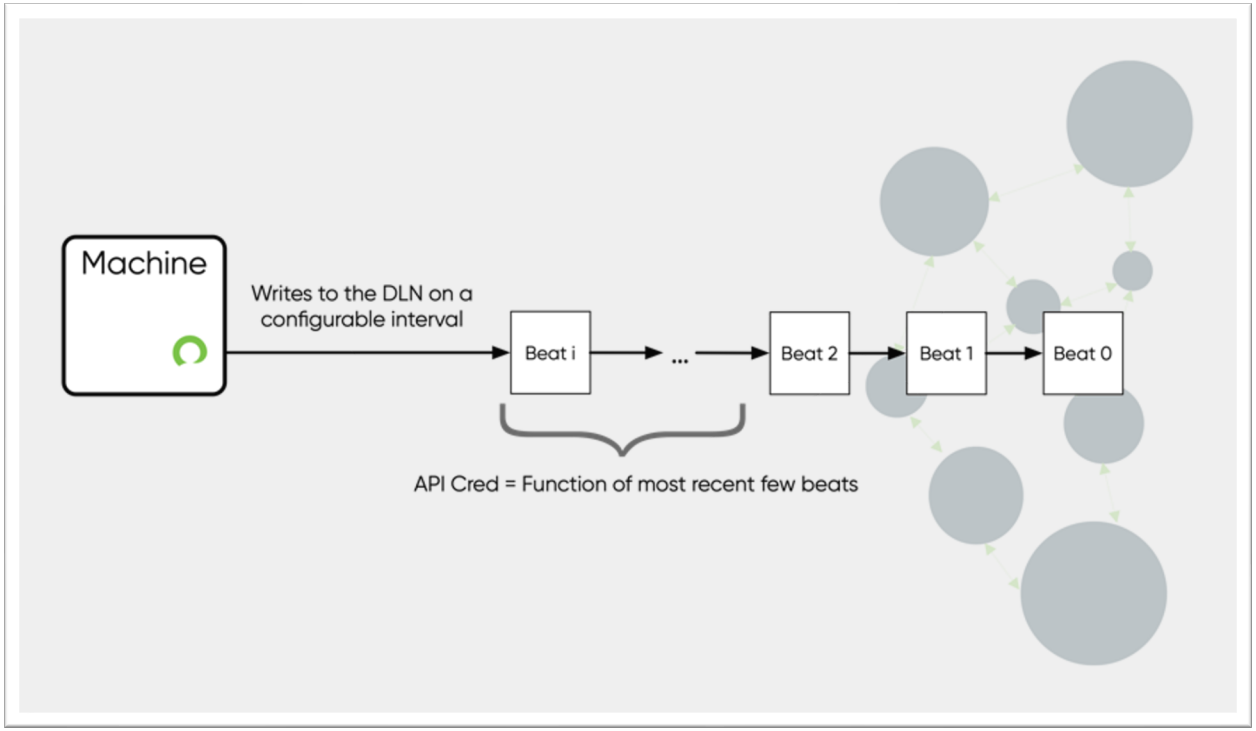
CORSHA + HYPERLEDGER

- DLN is fully Kubernetes-native, Cloud Agnostic
- We have deployments across Azure, AWS, GCP, even air-gapped infrastructure
- Simple Helm Driven deployment in minutes



STREAMING MACHINE IDENTITY



- Authenticator keeps the last few Crytographic beats in local, persistent fixed storage
- Identity Stream Chained over time
- No code change required on the Authenticator or Proxy side
- Easy to rotate underlying identity

CORSHA INTEGRATIONS

ISTIO/ENVOY

Envoy Filters to add MFA Credentials and Check Credentials

VIRTUAL MACHINES

Deploy Authenticator as binaries or containers within a VM

API GATEWAYS

Integrate Corsha's Proxy directly into API Gateways, such as Nginx, Kong and Apigee

NATIVE KUBERNETES

Helm-driven deployments to add Corsha's Authenticator as a sidecar

DOCKER CONTAINERS

Deploy Authenticators as Sidecars, uniquely priming them at the time of deployment

CODE-LEVEL SDKS

Integrate Corsha's Authenticator or Proxy directly into your code

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APIS ARE EVERYWHERE

SOFTWARE SUPPLY CHAIN

Artifact publishing, CICD pipelines driven by automation and chained services

ZERO TRUST FRAMEWORKS

Non-person entities = machines. Zero trust starts with strong Identity and Access

THIRD PARTY API ACCESS

Do better and more easily than static keys, tokens, and mutual TLS

CRITICAL INFRASTRUCTURE

Communicating to/from and controlling critical infrastructure

HYBRID CLOUD

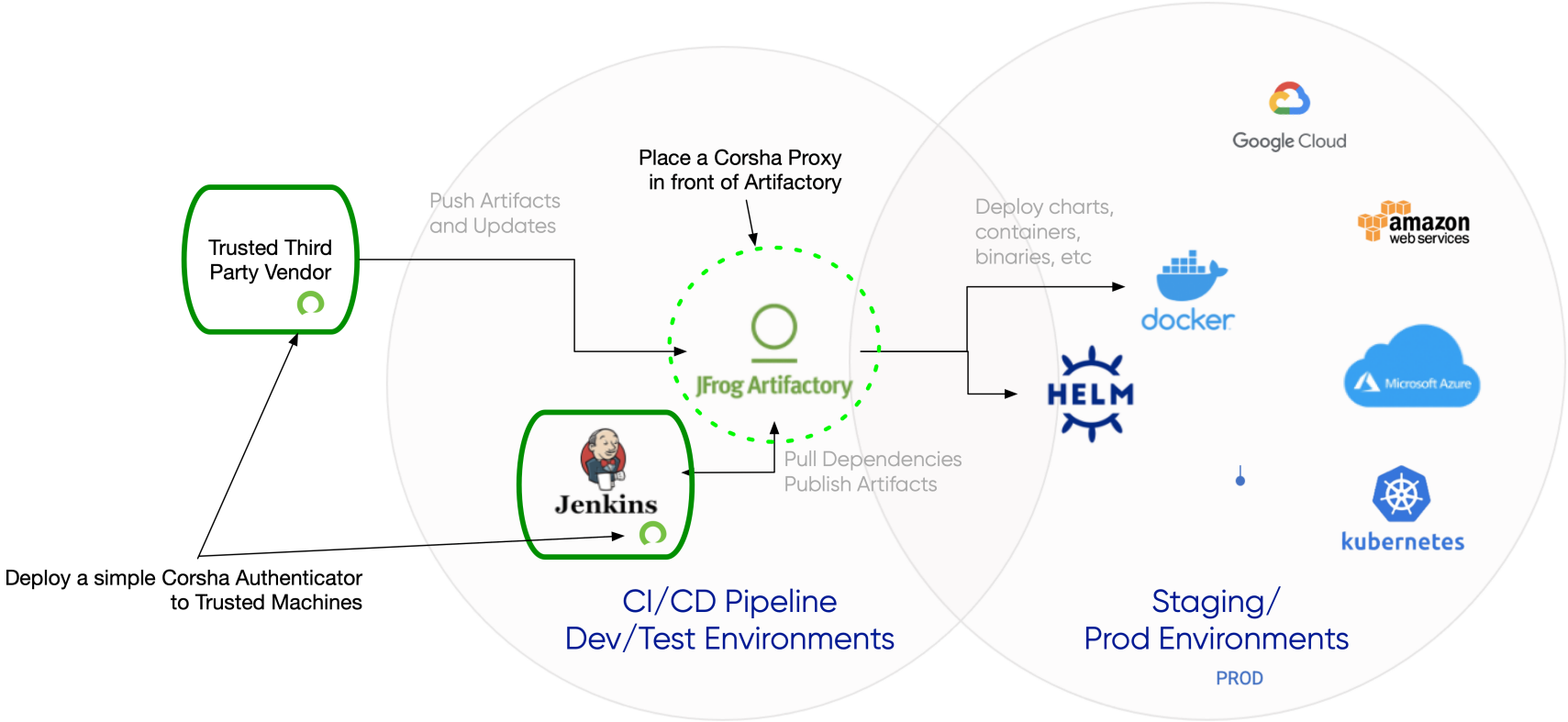
Even internal API ecosystems talk across hybrid cloud and on-prem environments

DATA FABRICS AND LAKES

Movement of data into/out of a fabric or data lake

SECURING CICD SYSTEMS

Let's look at securing Artifact Publishing



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TAKEAWAYS

IT, OT, and the Supply Chain Seeding Them

Elevate Machine Identity to maturity of Human ICAM

Zero Trust is a layered defense methodology

Software Supply Chain Security is foundational

Corsha's Cybersecurity Capabilities:

- Zero Trust for NPEs at Scale
- Automated, Dynamic Machine Identity
- MFA for Machines
- Hyper-converged security for OT and IT
- Composable and Self-Servicing

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Thank you!

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[API Security Scorecard]

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