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HUAWEI CLOUD TechWave APAC 2024

DevOps Evolution

Architecting for scale and agility with self-serve platform

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HUAWEI CLOUD
EVERYTHING AS A SERVICE

Techwave24 | Platform Engineering

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Platform Engineering

Top Strategic Technology Trends for 2023

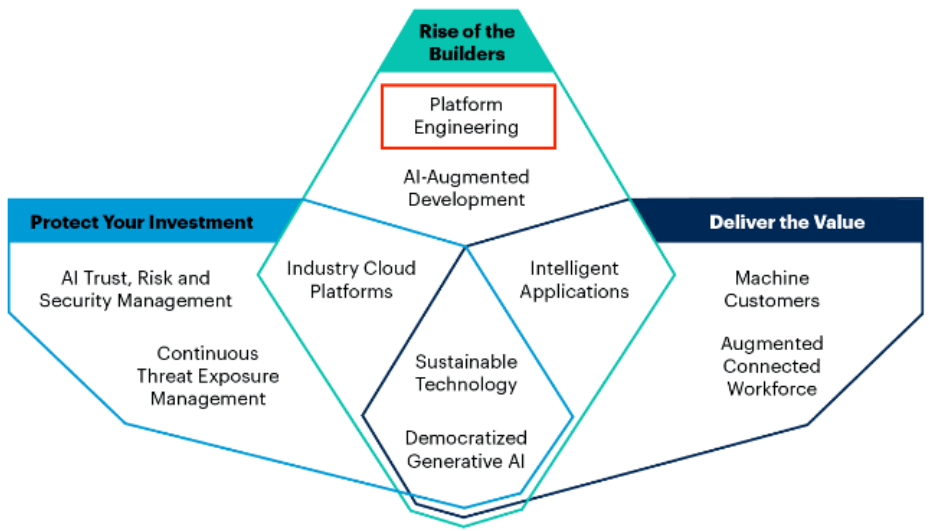
Optimize	Scale	Pioneer
• Digital Immune System	• Industry Cloud Platforms	• Superapps
• Applied Observability	• **Platform Engineering**	• Adaptive AI
• AI Trust, Risk and Security Management	• Wireless Value Realization	• Metaverse

Sustainable Technology

Source: Gartner
774324

Gartner

Top Strategic Technology Trends for 2024



Source: Gartner
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Gartner

DevOps practices are maturing, complexity is increasing

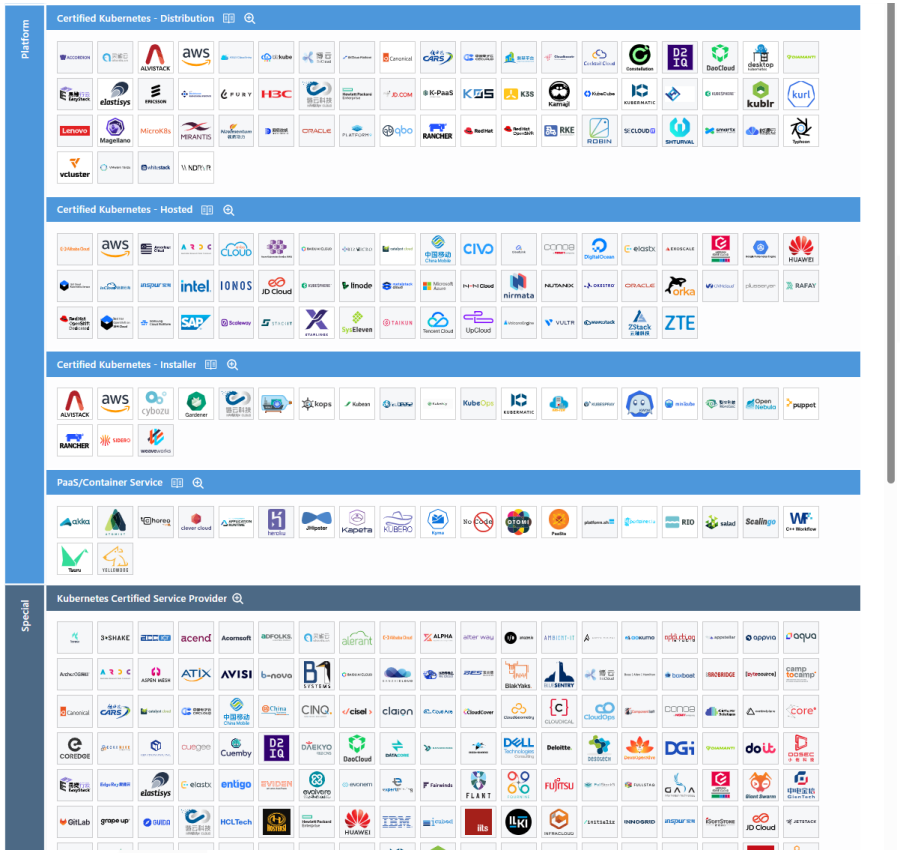
Challenges

Disengaged large enterprises: Multi team each managing their own infrastructure, each having own DevOps processes, each using different sets of tools.

Organization velocity bottleneck: One team do too many things. DevOps burnout, undefined responsibility, disengaged team

Complex application delivery overloading team: Tremendous load for one team to develop and manage CI/CD pipelines, infrastructure as code, observability while adhering to security.

Hard to scale: Each team need experts(infra, security, O&M) and may not be good in everything and might spend too much time in managing the domain instead of writing applications.



Resulting

- Worn out teams
- Duplication of work
- Increased cost
- Reduce time to realize business value

Platform Engineering

Gartner predicts

By 2026, 80% of software engineering organizations will establish platform teams as internal providers of reusable services, components and tools for application delivery.

Source: Gartner

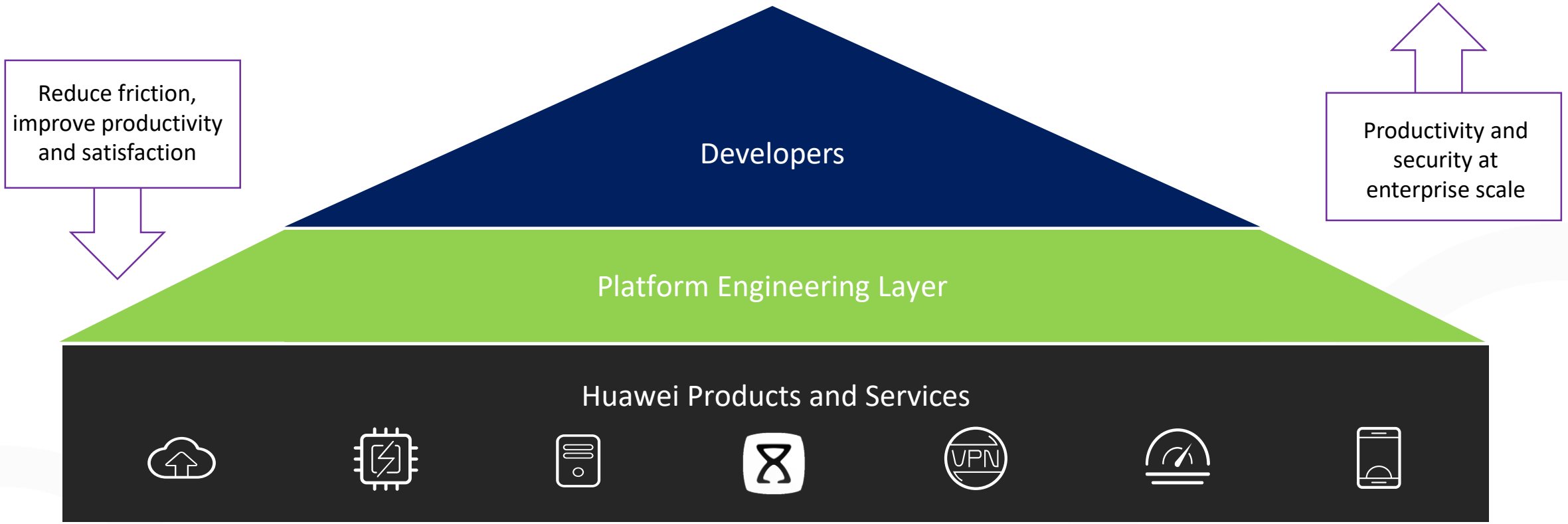
What is it about?

- Platform engineering is the discipline of **design and build self-service capabilities to minimize cognitive load for developers and to enable fast flow software delivery**.
- Platform teams deliver **shared infrastructure platforms to internal users responsible for delivering a value stream** – typically software developers and engineers.
- Curate and build internal platforms with **reusable, composable, configurable platform components**, knowledge and services.

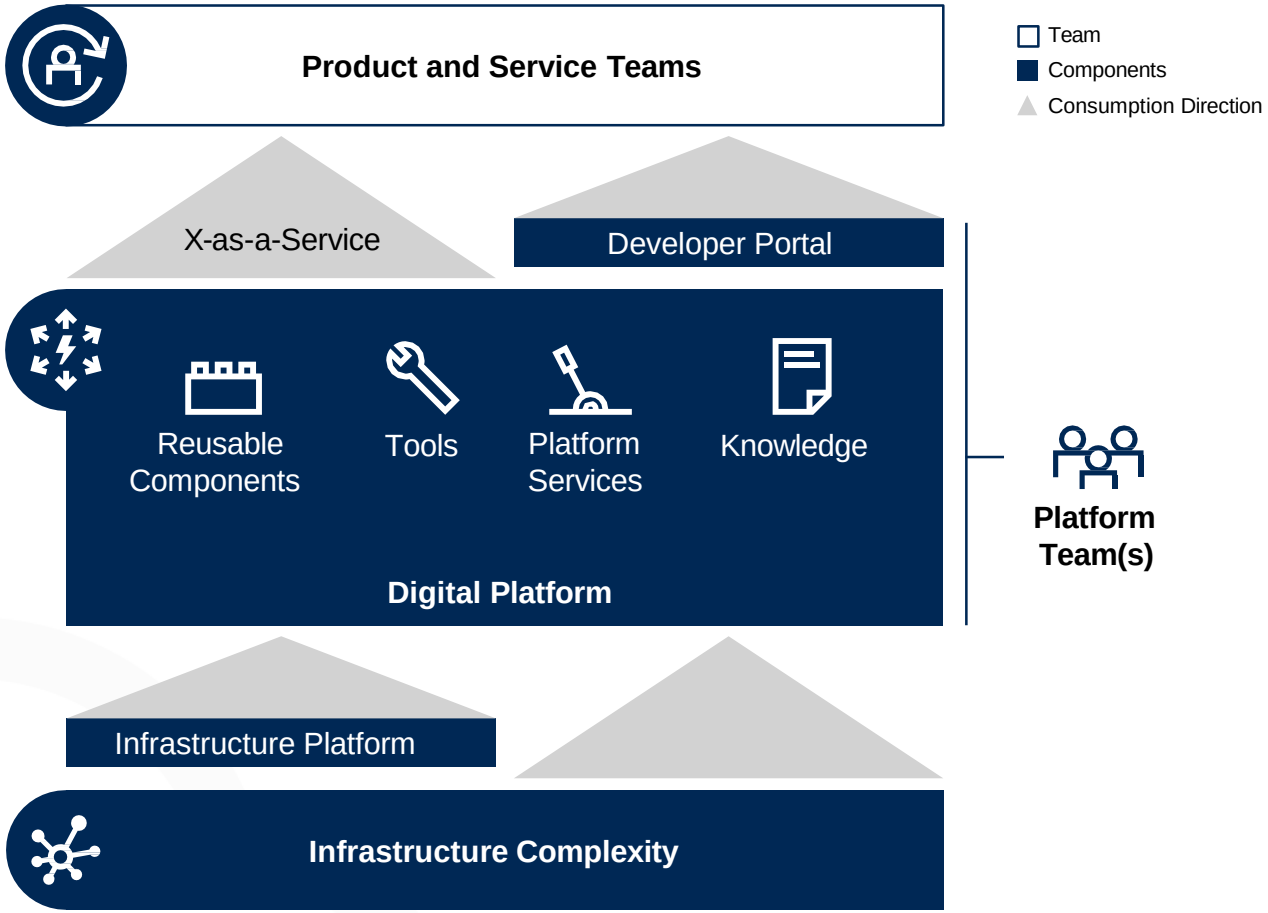
Why is it trending?

- This practice **optimizes and automate the developer experience** and accelerates delivery of business value.
- It **reduces cognitive load through improvement** of the developer experience and productivity.
- Developers' abilities to independently run, manage and develop their applications is improved, while ensuring reliability and security.
- Key **talent retention** is also improved.

Enabling organization, accelerate growth



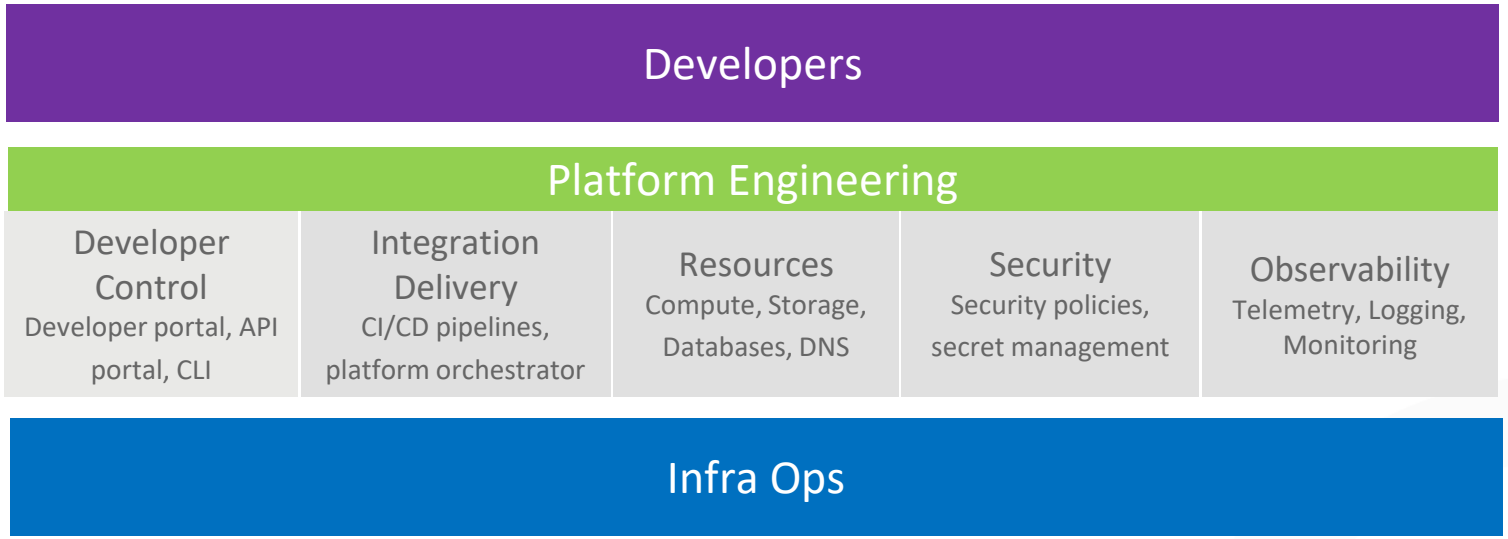
Building A Self Service Platform



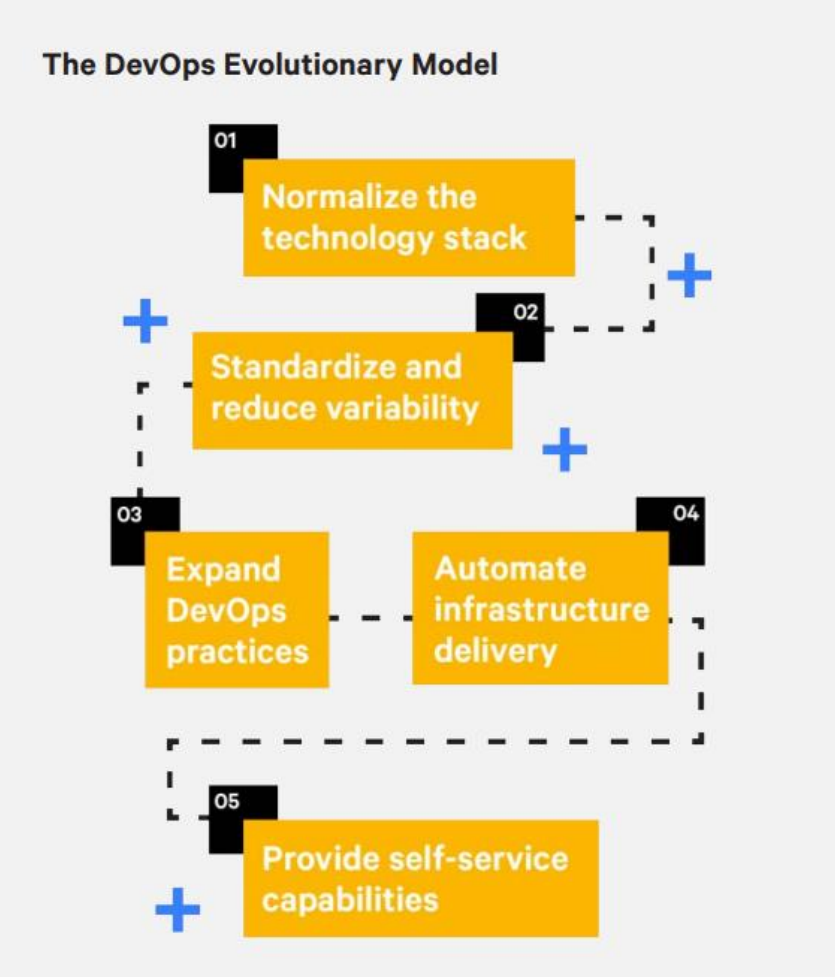
Bridge Technical and value

Platforms provide a curated set of tools, capabilities and processes selected by subject matter experts and packaged for easy consumption by end users. **The goal is a frictionless self-service experience that offers the right capabilities to enable users to create value for the organization** – be it developers, IT operations or application teams within your organization.

Building A Self Service Platform



DevOps is not dead. Platform Engineering is not new.



Build towards Self-service

- Developer focused on delivering business value quickly
- Secure, governed development with flexibility
- Rapid project and developer onboarding/offboarding
- Service discovery, shared API, publishing across team
- Improve collaboration while having tool choice
- Cost optimized across tools, vendors, cloud services

Culture shift to product mentality

- Engineering platform to be a product.
- Consolidate to one platform.
- Security, enterprise architecture, operations teams are one.

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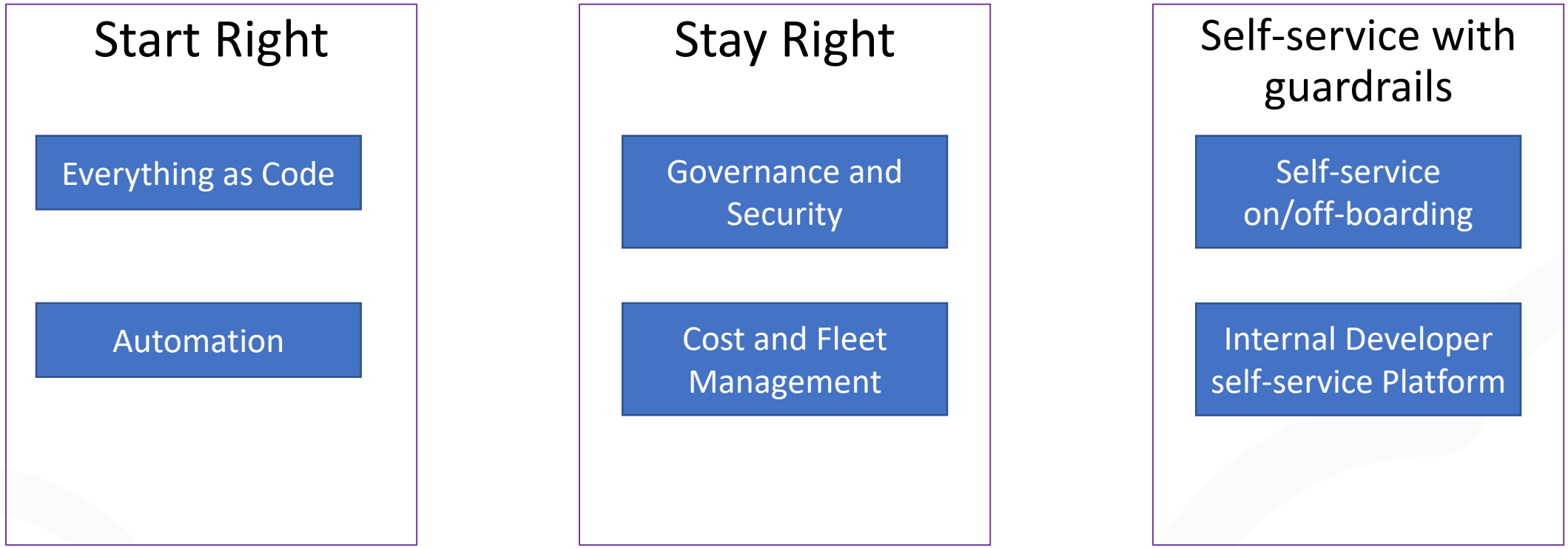
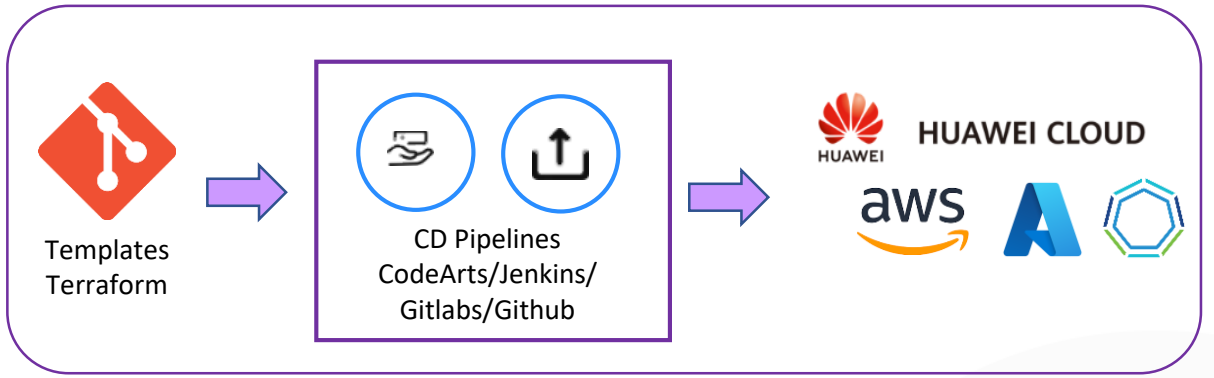
Accelerating time to business value



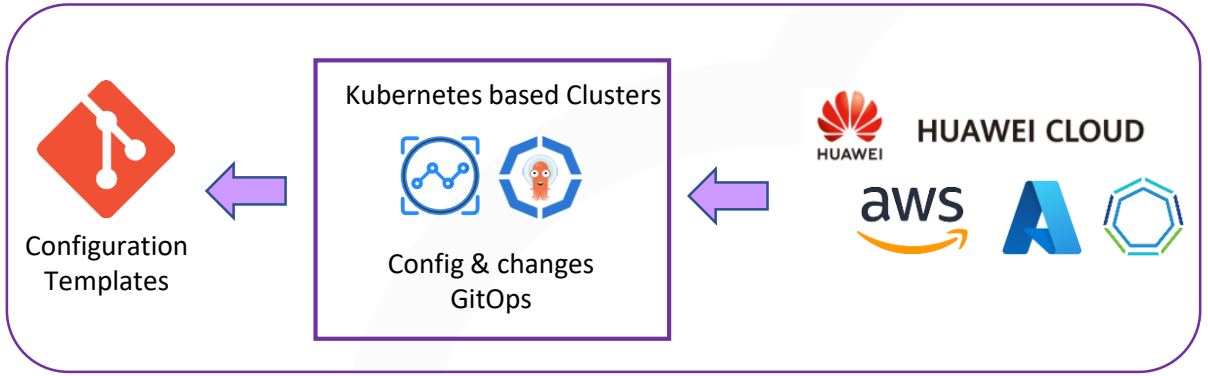
Manage Infra with IaC

- Immutable
- Controlled, consistent deployment
- Faster rollout
- Flexible to choose technology
- Options for Operations
  - Enhance existing
  - Modernize GitOps + IaC

Pushed-based deployment



Pull-based deployment



CodeArts by Huawei Cloud

Development tool chain

- Full-stack innovation
- **10x build acceleration**
- **PB-level dual-mode trustworthy** repos (September)
- **Accelerated** artifact repo for **integrity protection** (June)

Most comprehensive SSCS in China

- Defense against **8 attack points in the SSC** (September)
- **11,000+ code security scenarios, false positive rate < 15%**
- 100+ vulnerability sources, **4 million** open-source component versions, and **minute-level** vulnerability awareness
- Reproducible trustworthy build

One-stop DevSecOps

- Supports multiple R&D modes, such as Agile Scrum, Lean Kanban, and DevOps.
- Covers the entire software development lifecycle from change, release, to O&M.
- Builds in security, quality, and trustworthiness policies.

Large-scale test automation factory

- 3-layer management for **hundreds of millions** of test cases
- **10 millions TPS** in performance testing
- On-demand orchestration of the test lab environments (Q4)

Built-in end to end DevSecOps (In Roadmap)

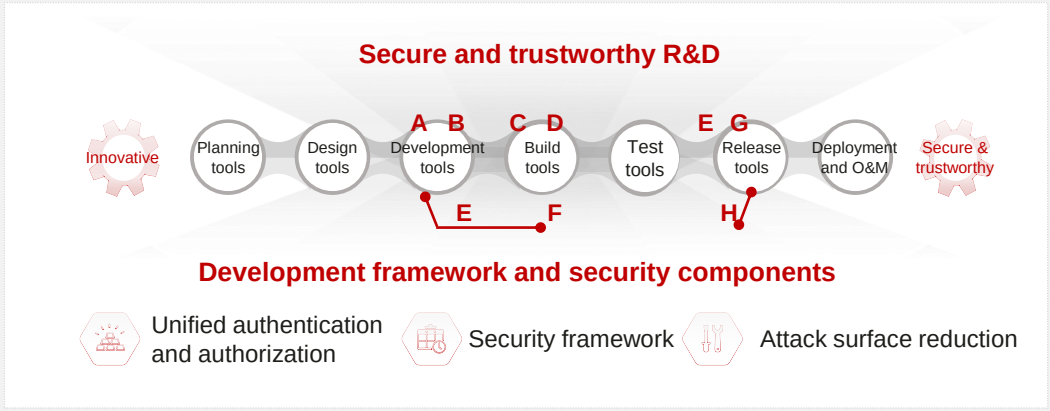
150%
Increase of ransomware attacks

USD4.24 million
Global average cost of a data breach

650%
Increase of software supply chain attacks since 2021

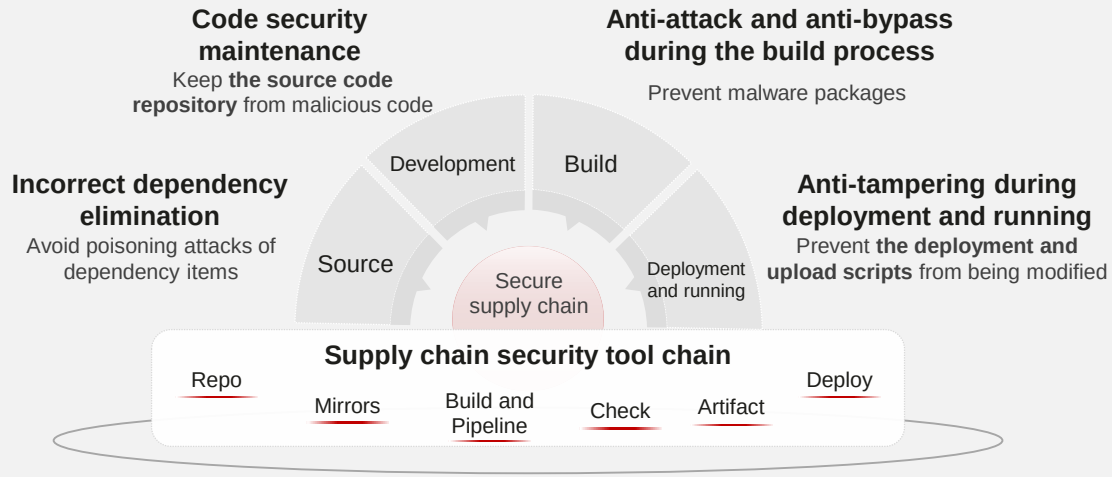
E2E + Early detection + Targeted reduction

Defend against 8 attack points



A. Submit error code
B. Attack the source code management system
C. Modify the build
D. Attack CI/CD
E. Depend on error code
F. Bypass CI/CD
G. Attack the package management system
H. Use error packets

Build a comprehensive supply chain security system which is traceable, auditable, and governable



Open source versions: 4 million | **Vulnerability check rules: 10,000+** | **Software vulnerability check:** Days → Minutes | **Unknown data source** → **Trusted data source** | **Open build environment** → **Reproducible trustworthy build**

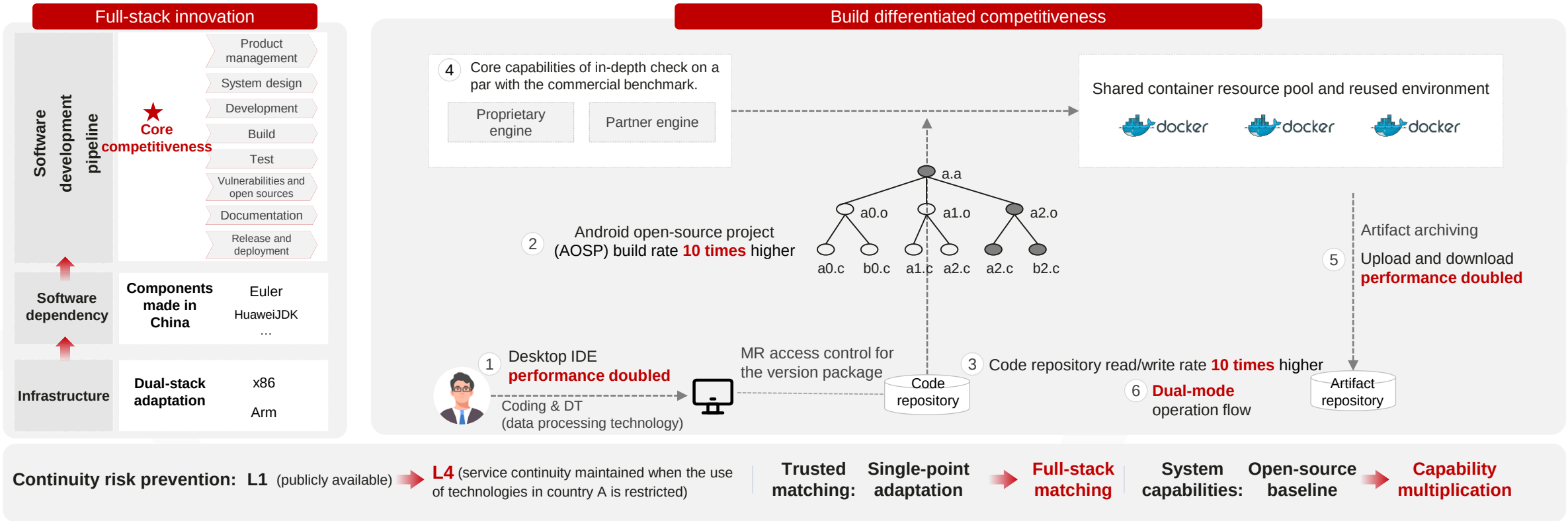
Hassle free integrated full stack software development pipeline

The risk of software availability is increasing due to external environment changes.

The open-source system cannot achieve high concurrency and reliability.

The open-source system is hard to be modified, and it takes a long time to meet requirements.

Full-stack trusted solution: doubled system capacity and concurrency



Continuity risk prevention: **L1** (publicly available) → **L4** (service continuity maintained when the use of technologies in country A is restricted)

Trusted matching: **Single-point adaptation** → **Full-stack matching**

System capabilities: **Open-source baseline** → **Capability multiplication**

Native integration with Huawei Cloud empowers application owner To focus on software review and release

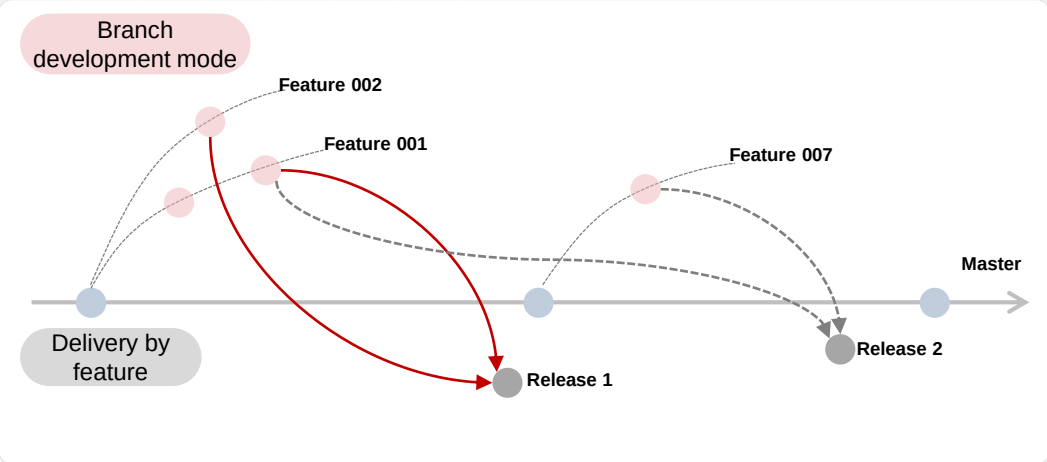
High costs of learning multiple tools, and too many steps required

Siloed tools, isolated data, and low automation rate

Lack of automated access control in the operation process, making it difficult to ensure the quality

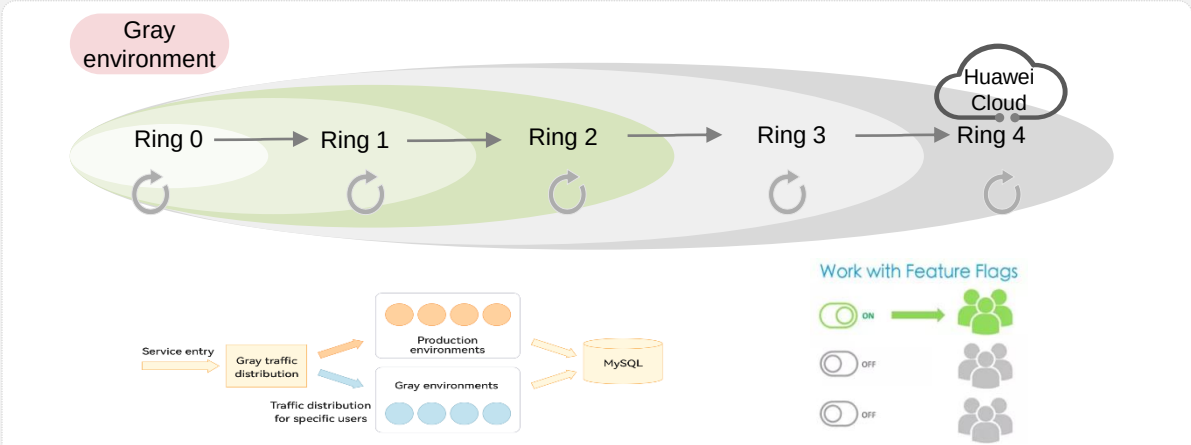
One-stop microservice change platform

- Focus on value, continuously release features, enhance user experience, and improve user satisfaction.
- Urgent needs first, task-based continuous deployment, quality risk reduction, and quick response to changes.



Cloud-native gray release

- Multi-dimensional dark launch modes, such as rolling upgrade as well as ring, blue-green, and canary release, reducing release risks.
- Built-in quality, security, and trustworthy quality gates cover one pipeline from code commits to production and release.



Number of annual changes: 300,000+

Fault rate reduced: 80%+

Average rollback duration: < 15 minutes

Change productivity: 3x higher

Change duration: 3 months → 15 days

Accelerating time to business value

Start Right

- Everything as Code
- Automation

Stay Right

- Fleet Management
- Governance and Security

Self-service with guardrails

- Self-service environments
- Internal Developer self-service Platform

Maintaining your fleet of clusters

With more clusters you need to consider

- Orchestrating upgrades safely
- Manage workload distribution across clusters, across cloud

Fleet Automation

- Stage, observe updates across cluster
- Automatic distribute workload
- Enforce policies across clusters

Policy Center

Security and governance at scale

Enforcement and compliance

Real-time policy enforcement

Continuous compliance evaluation

Lifecycle of policies

Policy as code

Gradual rollout of policies and remediations

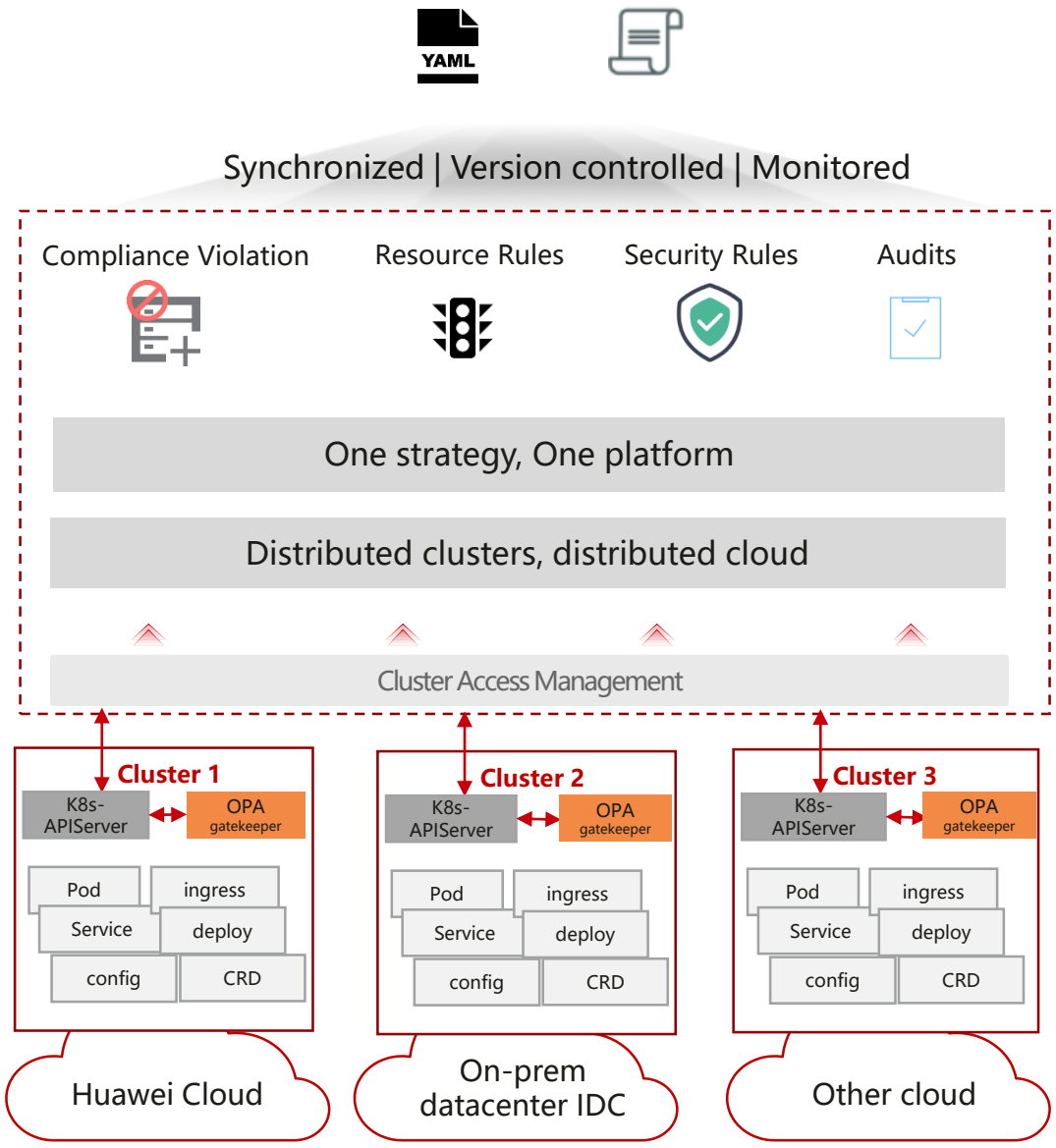
Exclusion, selection and exemptions

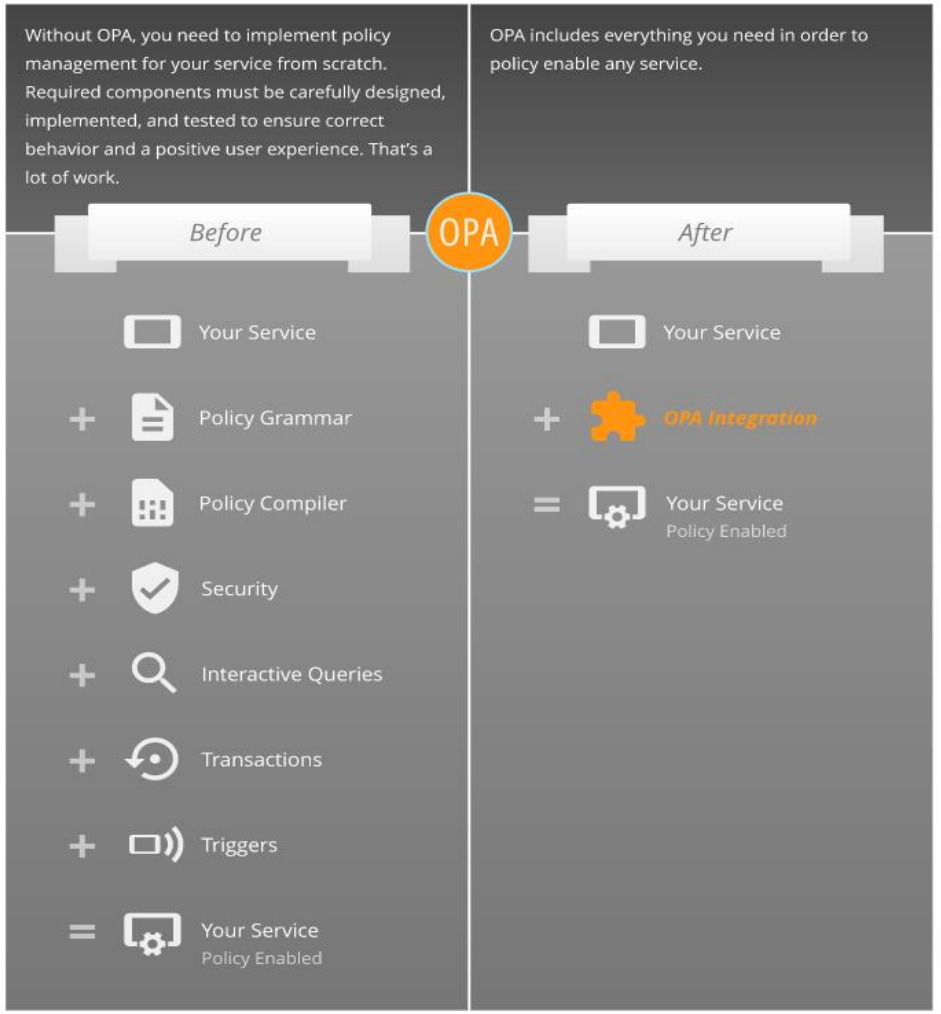
Integration

Resource graph to analyze compliance data and policy objects

Event-based notification upon compliance state changes

Policy Center：Governing multi-clusters to be more secure and compliant

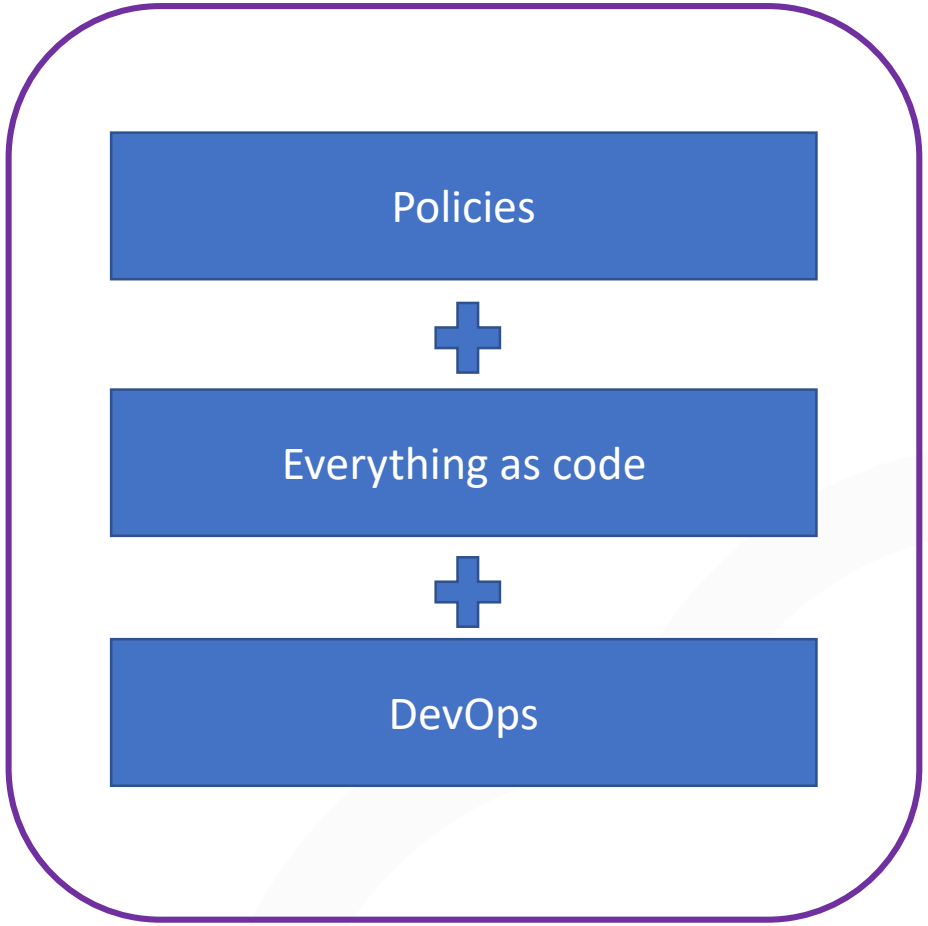




Open Policy Agent: before and after

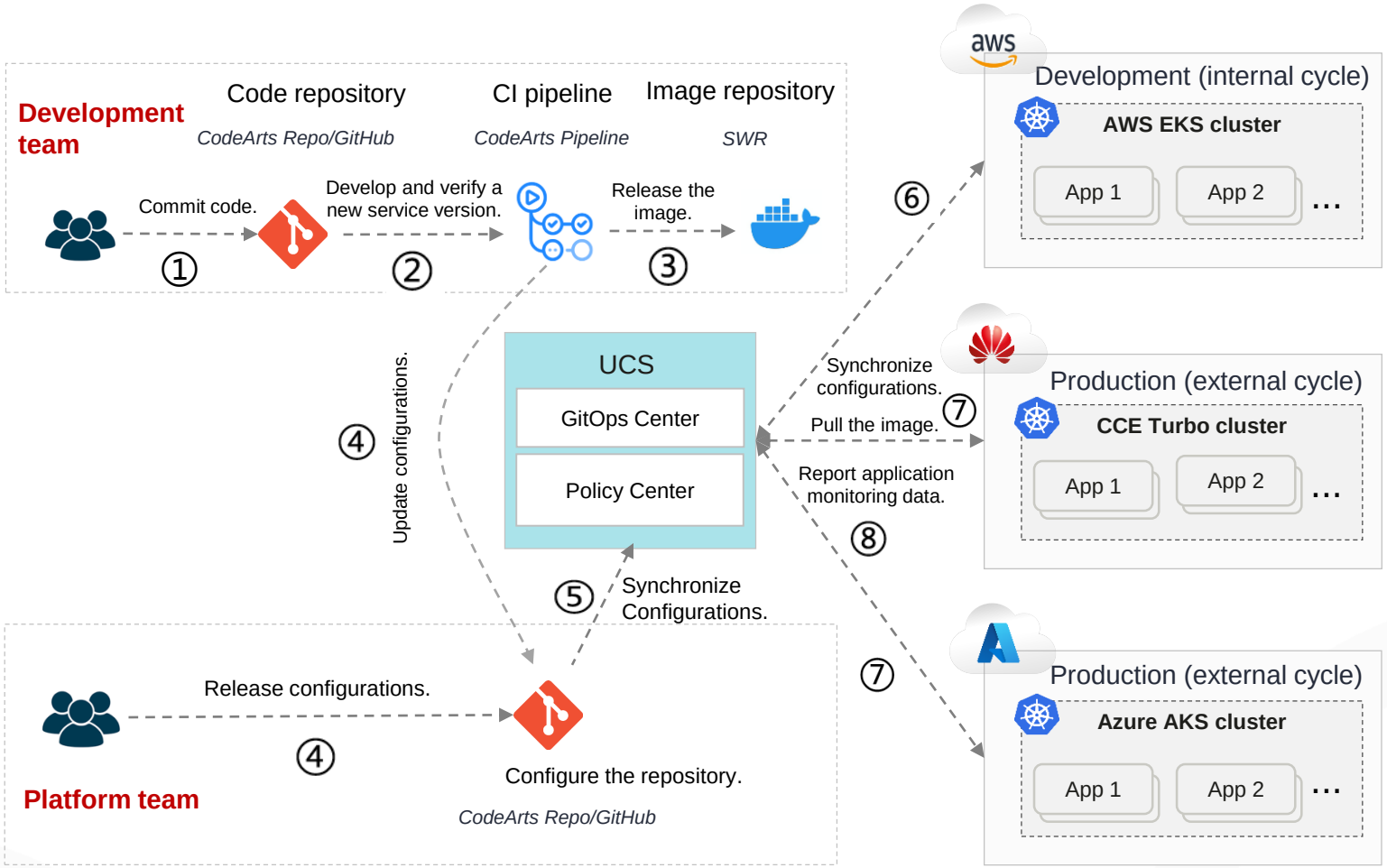
Policy as Code

- Centrally managed standards
- Version control
- Multi cluster cloud
- Reduce time to rollout
- Continuous deployment



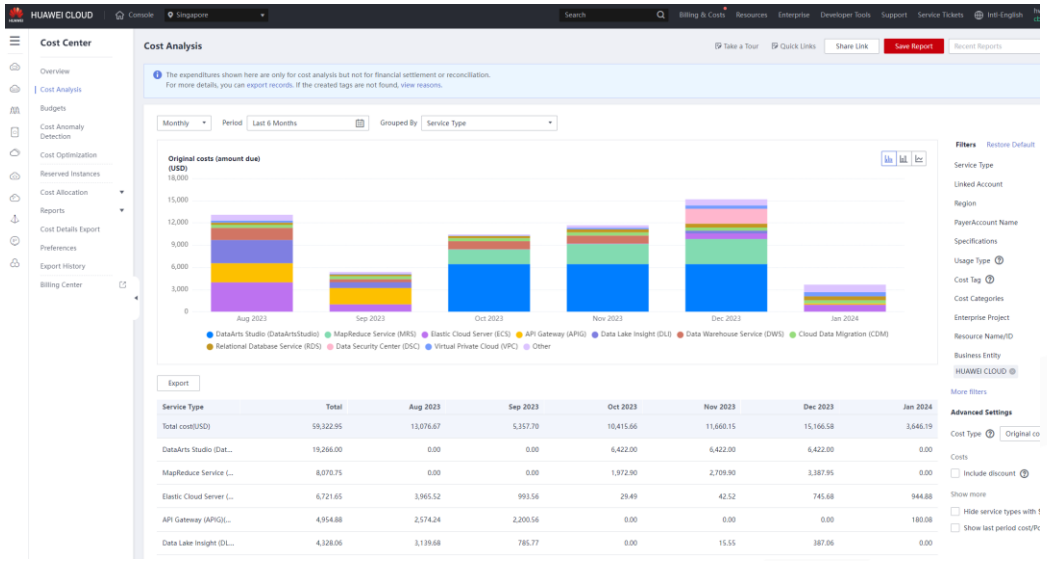
In the roadmap

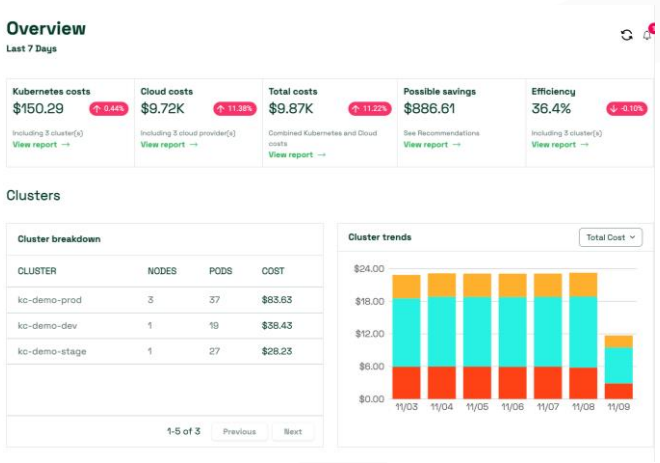
Platform Engineering: Synergy between Dev team and Ops team
IaC + GitOps



Cost Management

- FinOps with Cost Center
- Budget and alerting
- Detailed breakdowns
- Saving analysis

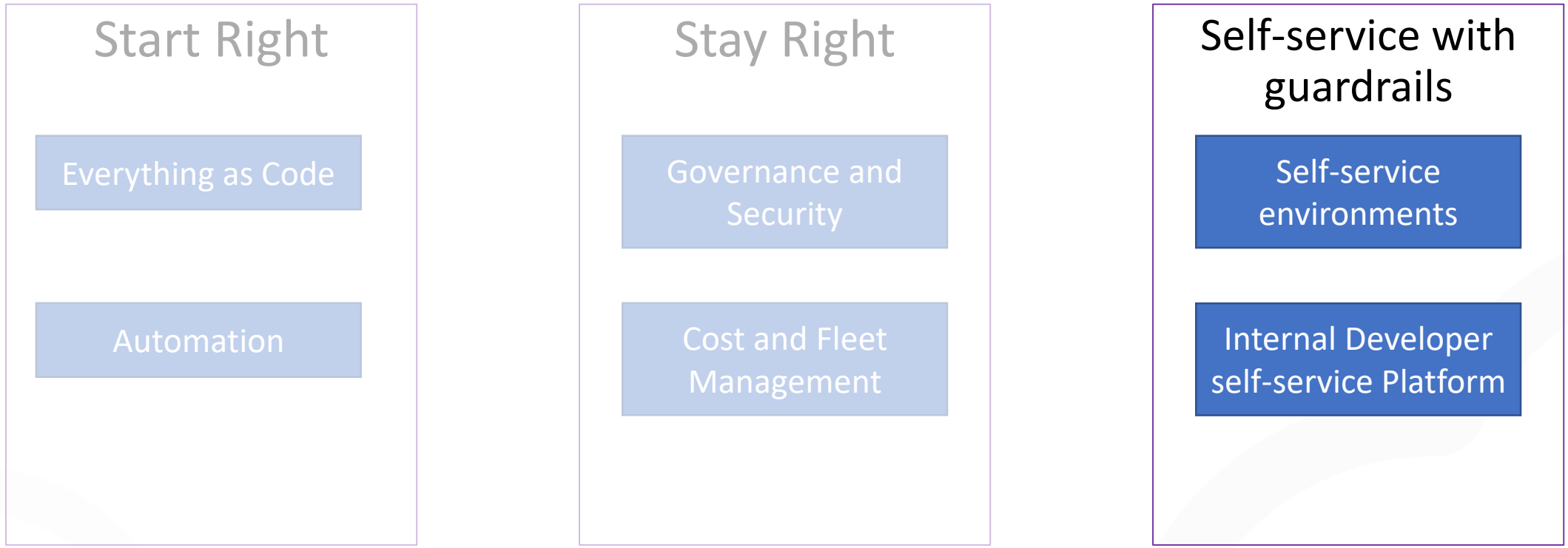




Quick recap

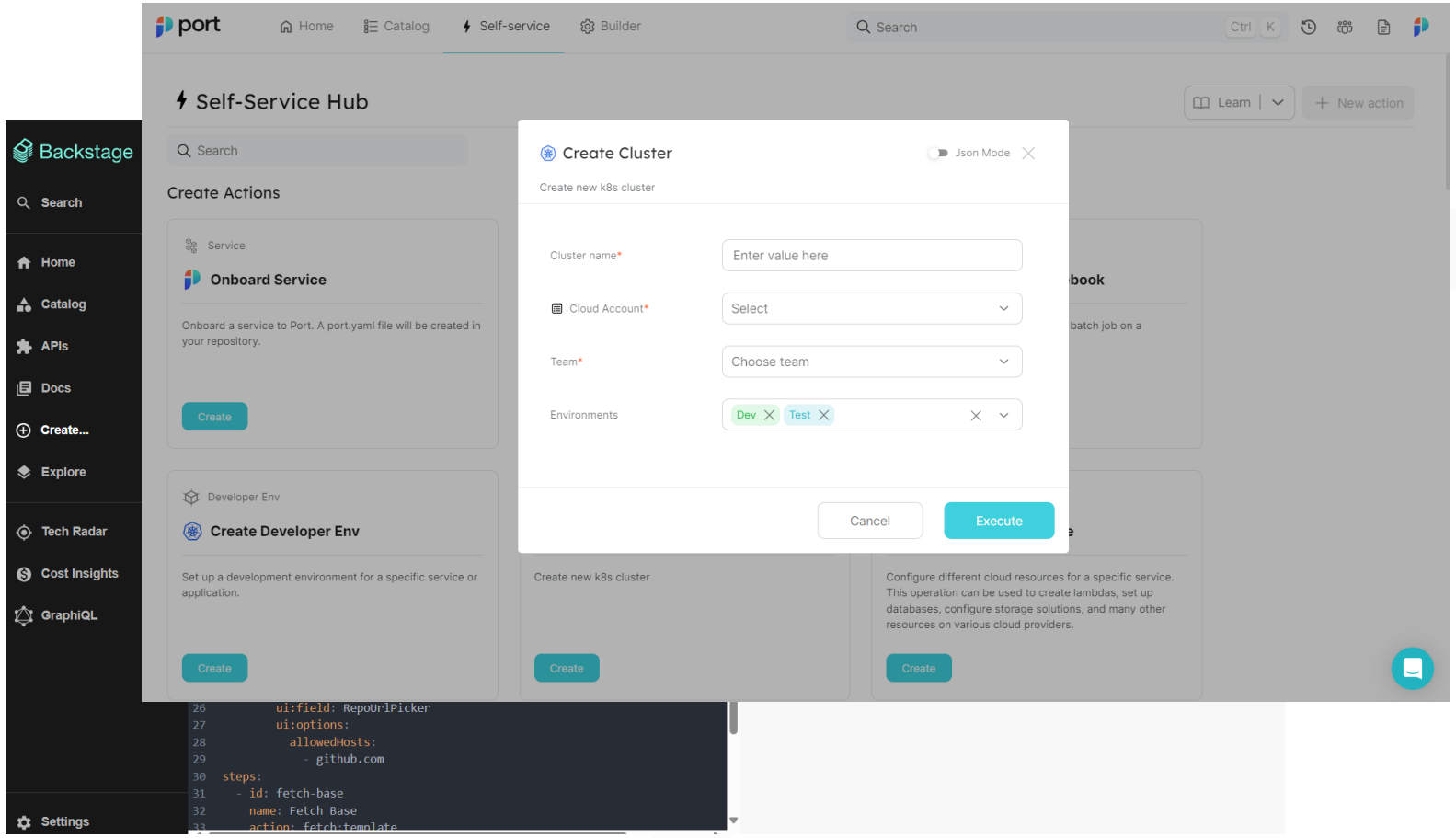
- Infra management with code
- Automation that spans across tenants
- Self-service platform
  - Automation, reusable templates, standardization
  - Policy Center
- FinOps across clusters

Accelerating time to business value



Internal Developer Portal

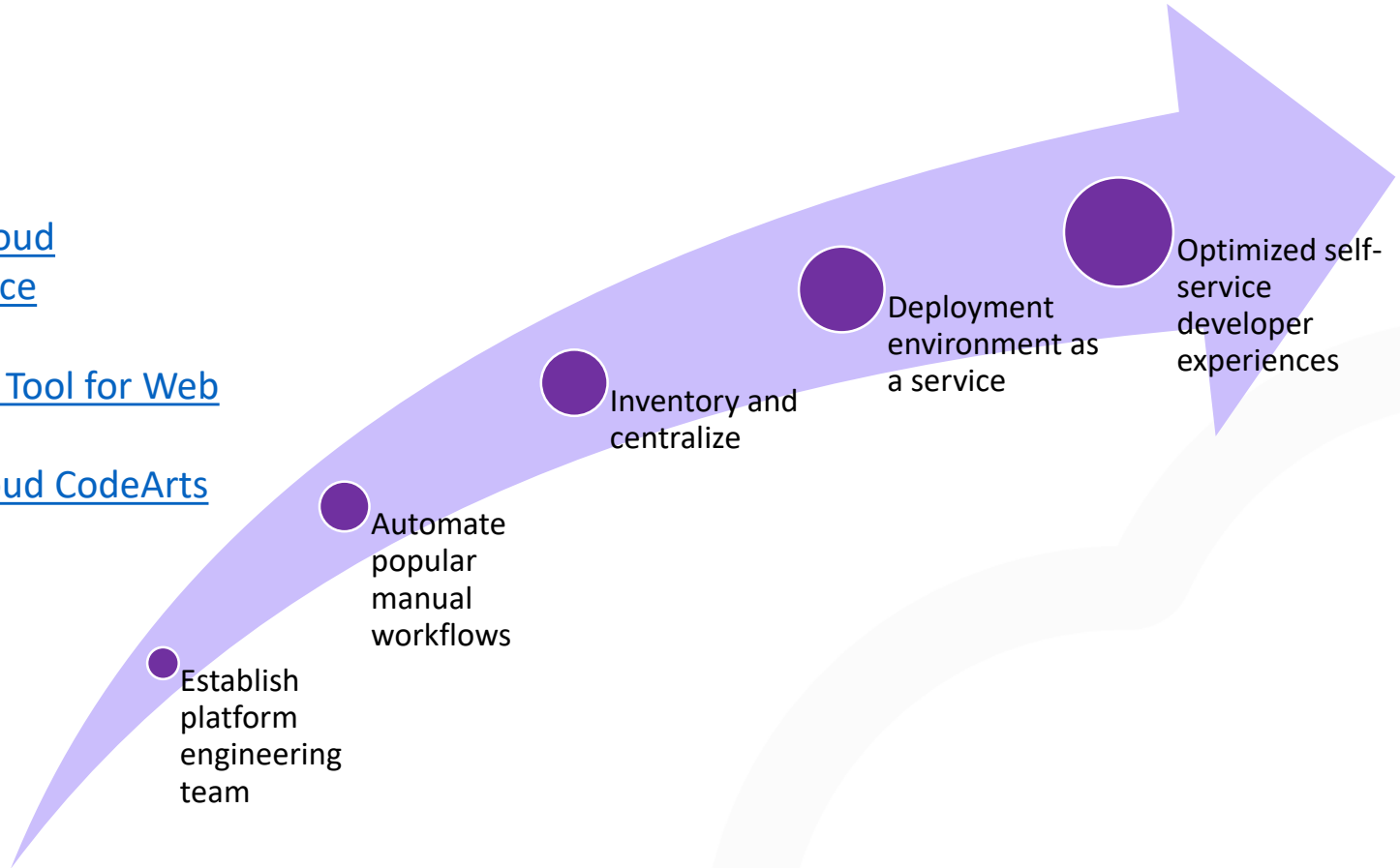
- Engineering managers
  Maintain standards and best practices across the organization.
- Developers
  Fast and simple to build software components in a standardized way.
- Platform engineers
  Enables extensibility and scalability by easily integrating new tools and services.



Get started on your platform engineering journey

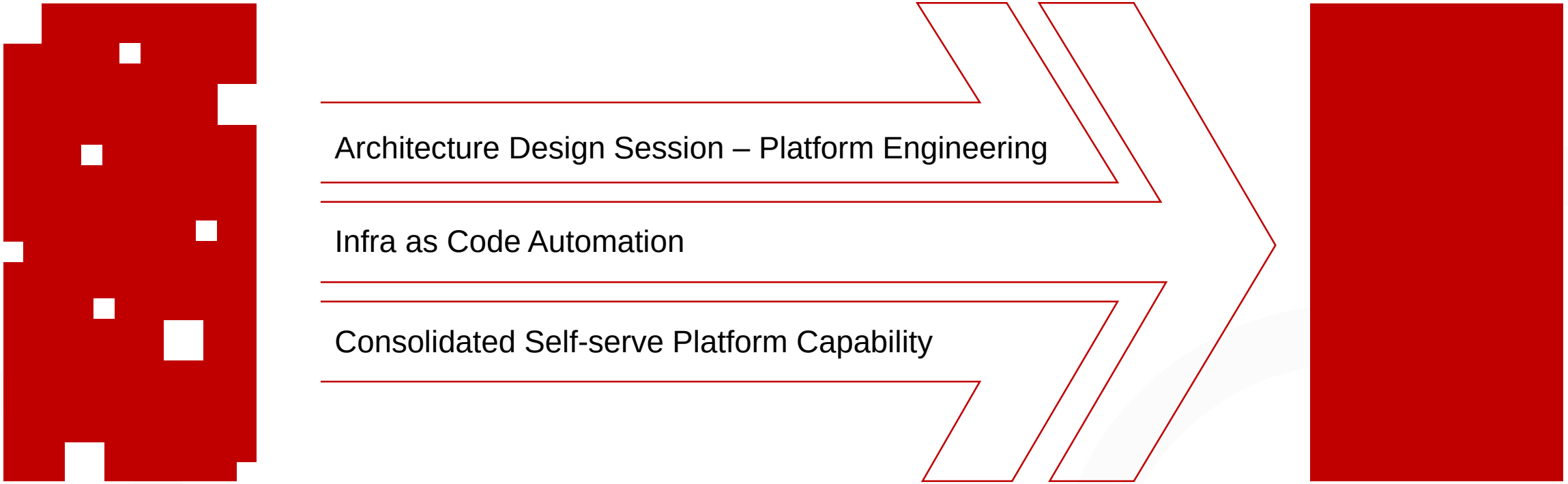
Resources:

1. Getting Started_Terraform_Huawei Cloud
2. Ubiquitous Cloud Native Service_Service
3. Alauda Container Platform
4. CodeArts Inspector: Security Scanning Tool for Web Servers
5. Code Quality Analysis with Huawei Cloud CodeArts



Products and offerings

Let us guide you and your organization along the journey to simplify and consolidate your organization platform management



Professional Consulting Services

Using Huawei's Extensive Experience

Cloud support services

Cloud transformation initial research		Application cloudification design		Cloud usage guides	Auxiliary cloud management
Process design	Resource planning	Feasibility analysis	Batch design	Cloud service best practices	Operations report
Standard design	Service catalog mgmt.	Path recommendation	Architecture support	Cloud service usage guide	Cloud use suggestions and optimization
Application investigation		Implementation support		Tenant security design	Resource efficiency improvement

Fast deployment

- Onsite cloud experts provide **professional solutions**
- **Short deployment period and optimal path**

Ease-of-use

- Well-designed architecture based on best practices
- **High availability, controllable security risks, and good scalability**

Excellent management

- **Clear organization responsibilities and processes**
- Visualized operations, with **higher resource utilization**

Cost-effectiveness

- Refined management and tenant self-service
- **Reduced O&M costs**

Everything as a Service: The Preferred Cloud of over 3 Million Customers Around the World

800+ e-government clouds

500+ financial customers

30+ automakers

85% top 50 internet companies in China

300+ SAP on Cloud customers

120+ carriers

Technology as a Service
for easy innovation and faster application modernization

Expertise as a Service
for shared excellence and cloud-enabled industries

Infrastructure as a Service
for global accessibility on one network

240+ cloud services

42,000+ partners

5+ million developers

Thank you.

把数字世界带入每个人、每个家庭、
每个组织，构建万物互联的智能世界。

Bring digital to every person, home and organization for a fully connected, intelligent world.

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