cisco Live!

TURN IT UP

#CiscoLive

The bridge to possible

Cloud-native 5G Core

Taking a new software centric approach

Tomasz Maslewski, Mobility Architecture

BRKSPG-2026

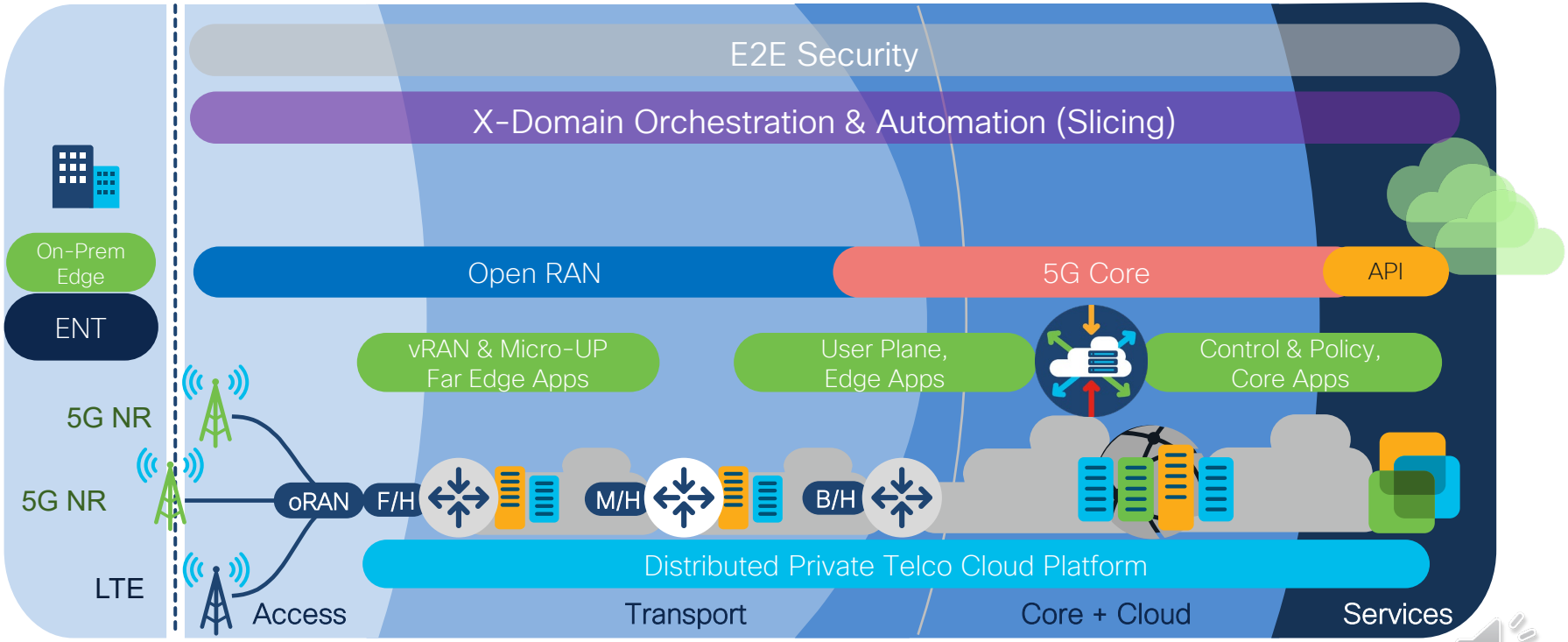
Agenda

- 5GC Evolution
- Cloud-native Innovation
- How Cisco can help?

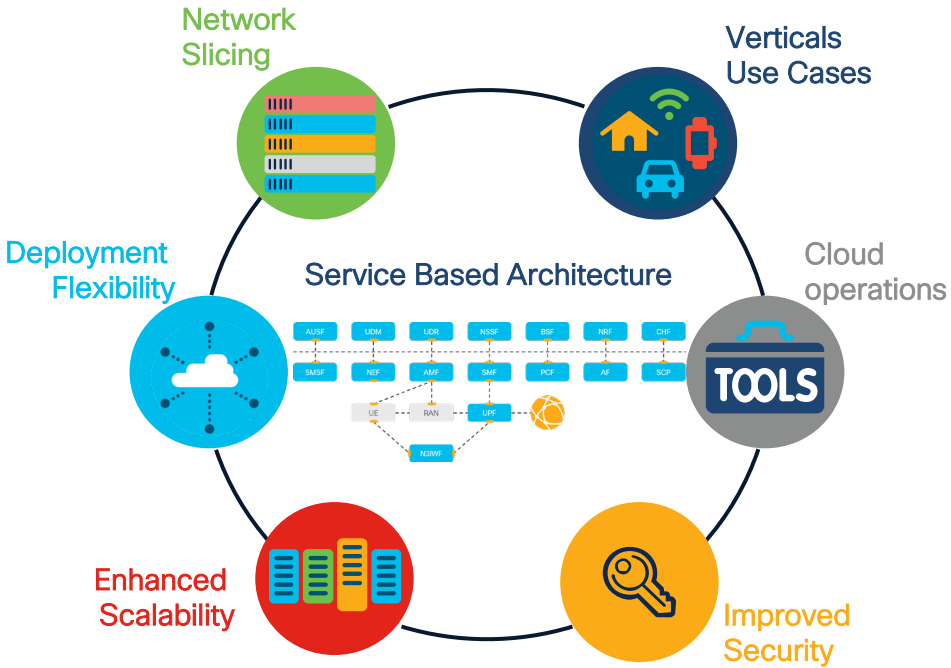
5GC Evolution

5G E2E Architecture Blueprint

Outcome focused | cross domain | cloud software operations



Cloud-native 5G Core

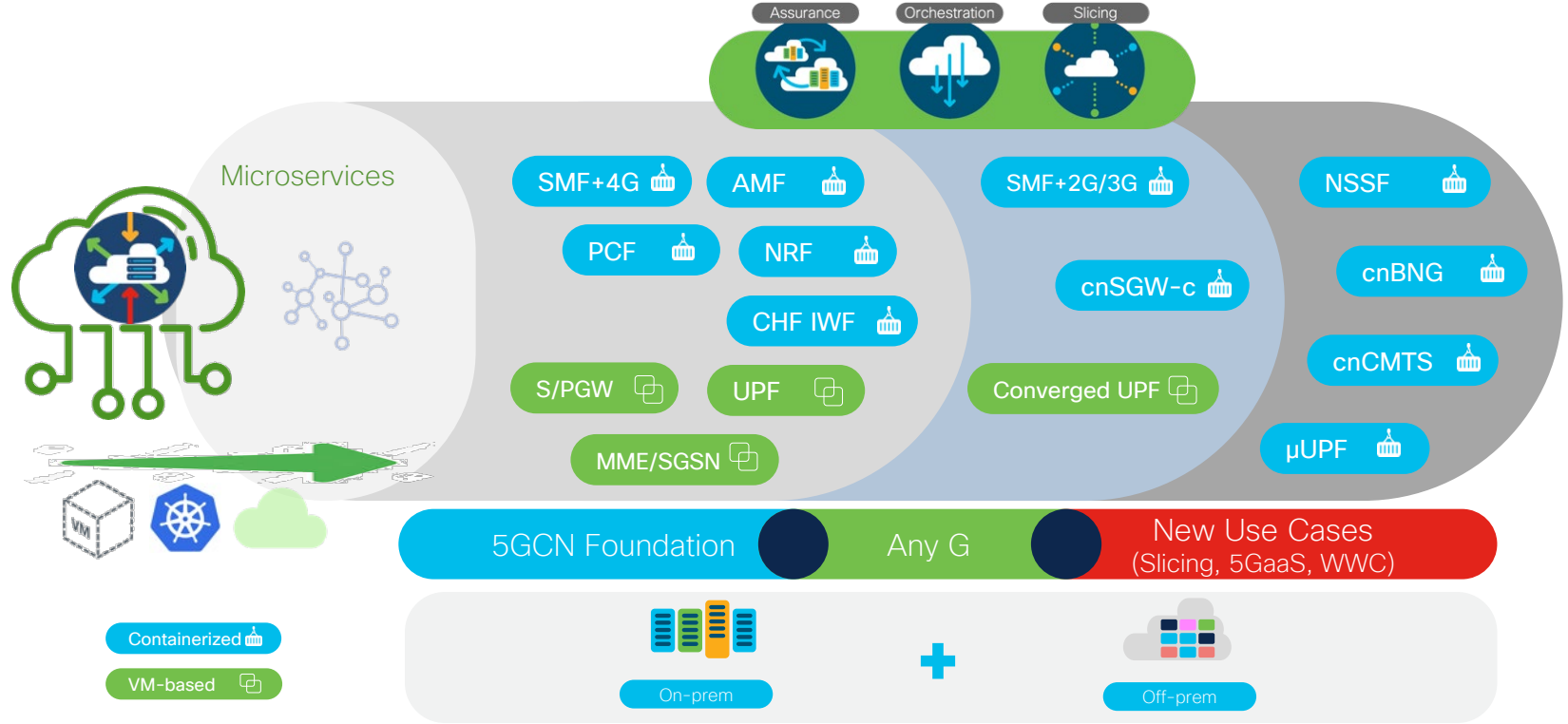


Customer Outcomes

- Enabling new business models and routes to market
- Operational simplicity, reduce costs and time to market
- Safe technology transition to next gen platforms 5G and cloud native

Mobile Packet Core Evolution Path

Microservices at the core | Distributed system | Designed for automated operations



World 1st Nationwide 5G SA

T··Mobile·

Partnering For Rapid Innovation

Challenge: A multi-year plan to protect against unexpected growth in 4G while leading the market in 5G deployment

Solution: Cisco Ultra Cloud Core with integrated architectural flexibility (vEPC/CUPS/NSA/SA/CN) and Any-G support (3G/4G/5G)

Taking a new software-centric approach

- Creating a radically new business model
- Unprecedented solution time to market

> "This was a significant undertaking for us, shifting from a centralized to a distributed core architecture across our footprint, and we couldn't have achieved that without virtualization. This means we can further our 5G plans with more flexibility and agility to deliver new services to our customers."

Neville Ray, CTO
T-Mobile

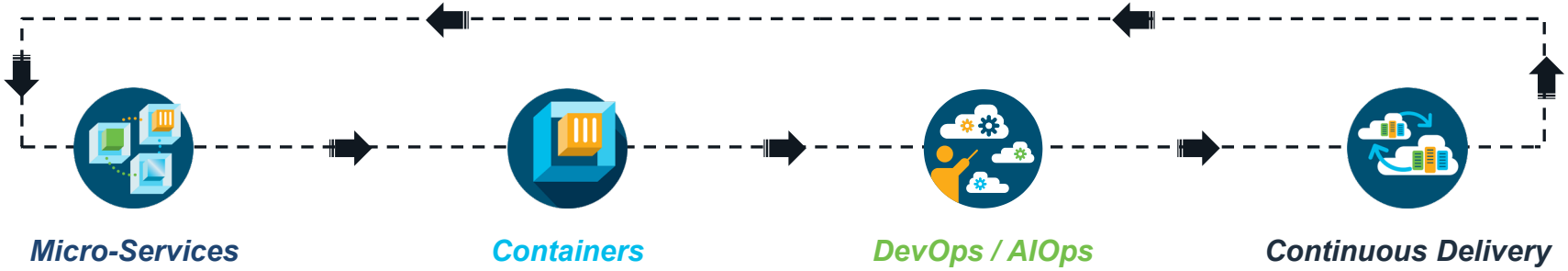
Cloud-native Innovation

cisco Live!

“If you don't have time to do it right, when will you have time to do it over?”

John Wooden

Applying Cloud-native Software Innovation

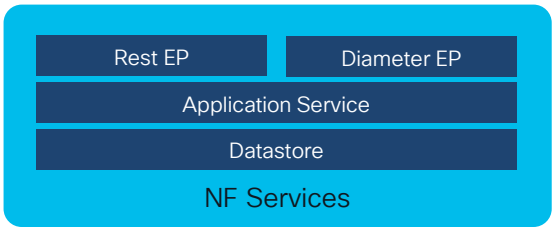


Enhanced Scale and Resiliency

Increased Operational Visibility

Feature Agility and Upgradeability

Cloud-native Software Design
Microservice decomposition



- Common Infrastructure, Operation and Management
- Common Execution Environment: monitoring, telemetry, tracing
- App-specific containers with distinct service configs
- Common or distinct shared data layer
- Deployed dynamically based on provided configuration

Individually deployed and lifecycle managed
(launch, upgrade, scale, configure, monitor)

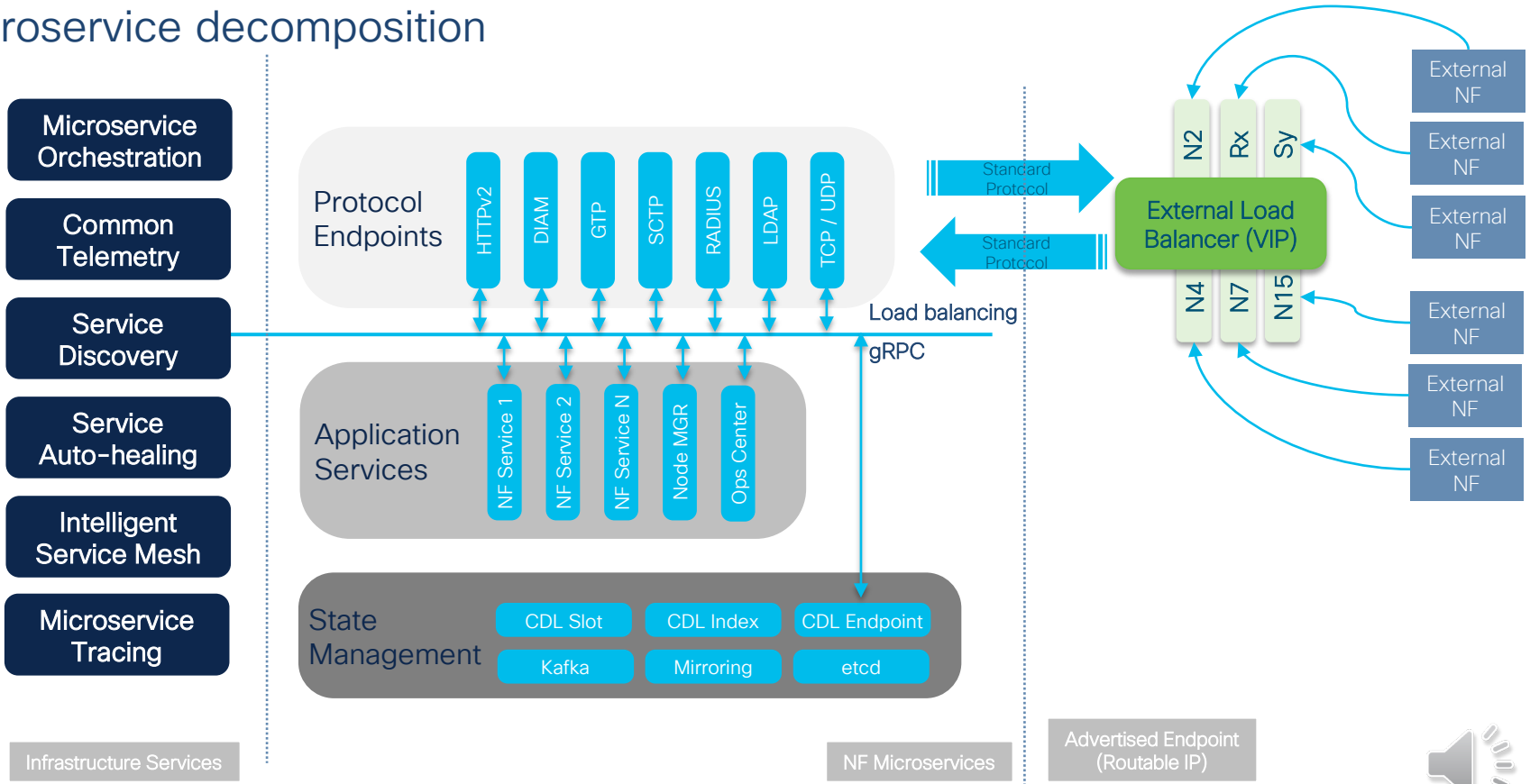
Micro-Services

Modular, loosely coupled software services. Each fulfil a specific functionality and is self-contained.

- Stateless Processing
- Common Service Capabilities
- Native scale out and upgrade
- Easy to deploy; easy to scale
- Smaller impact domains

CNF Design: Microservice Decomposition

Microservice decomposition



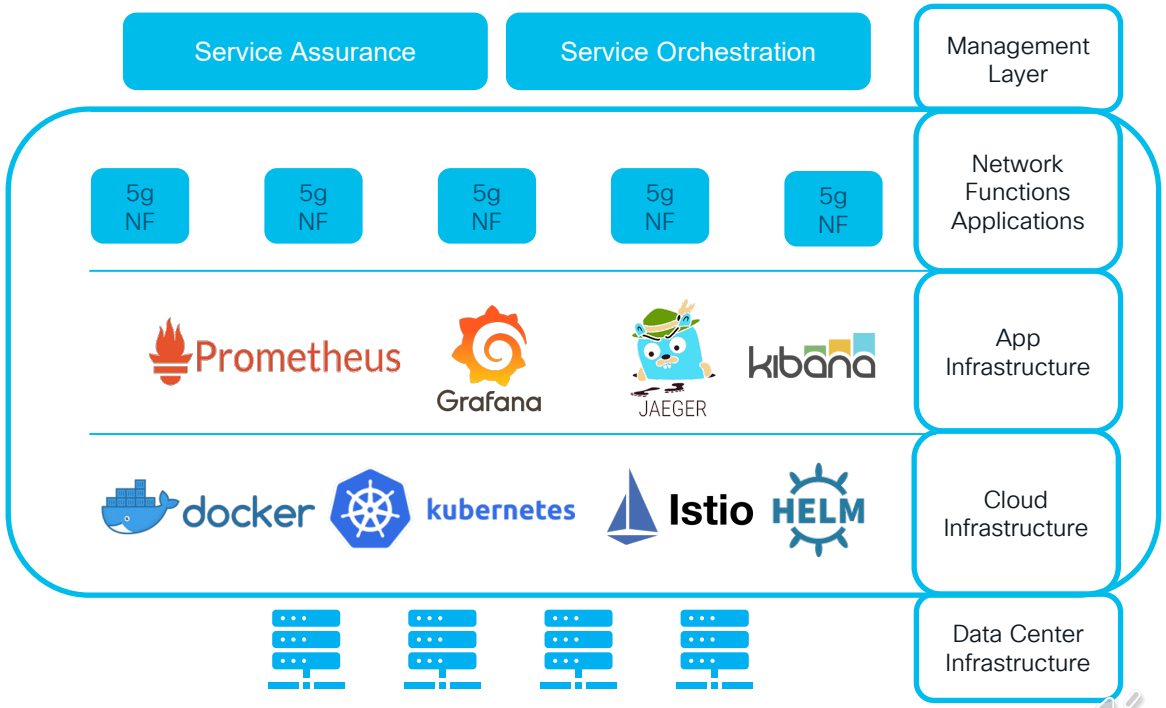
Cloud-native Software Stack

Kubernetes and Containers

Containers

Virtualization and lifecycle management of Micro services
Optimal Resource Utilization

- Lightweight and Fast
- Portable
- Faster bring-up
- Lower infrastructure restriction
- Observability and Monitoring



Cloud-native Platform: Key Capabilities

K8s Cluster Manager

K8s CaaS Manager

SMI CM provides K8s CaaS LCM:

- Provision K8s cluster,
- Deploy K8s Addons
- Customize OS
- Offline Registry & Image Repository
- Launch Apps
- K8s Upgrade

Operations Center

Automation API

OPS Center provides Common MGMT API:

- NETCONF/REST API
- CLI Interface
- YANG Model
- Config DB
- Operational Callback
- Security: NACM/AAA

Common Execution Environment

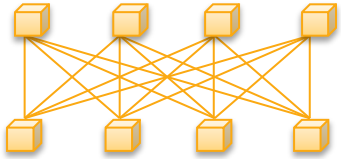
Streaming OAM

CEE provides shared platform capabilities:

- Telemetry
- Alarming
- Logging
- Tracing
- Health-checks

Intelligent Service Mesh

Service Mesh

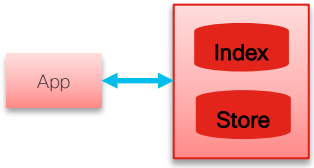


Intelligent Service Mesh connect microservices:

- Traffic Steering
- Load balancing
- Service-to-service authentication
- Policy
- Monitoring

Common Data Layer

Session Store

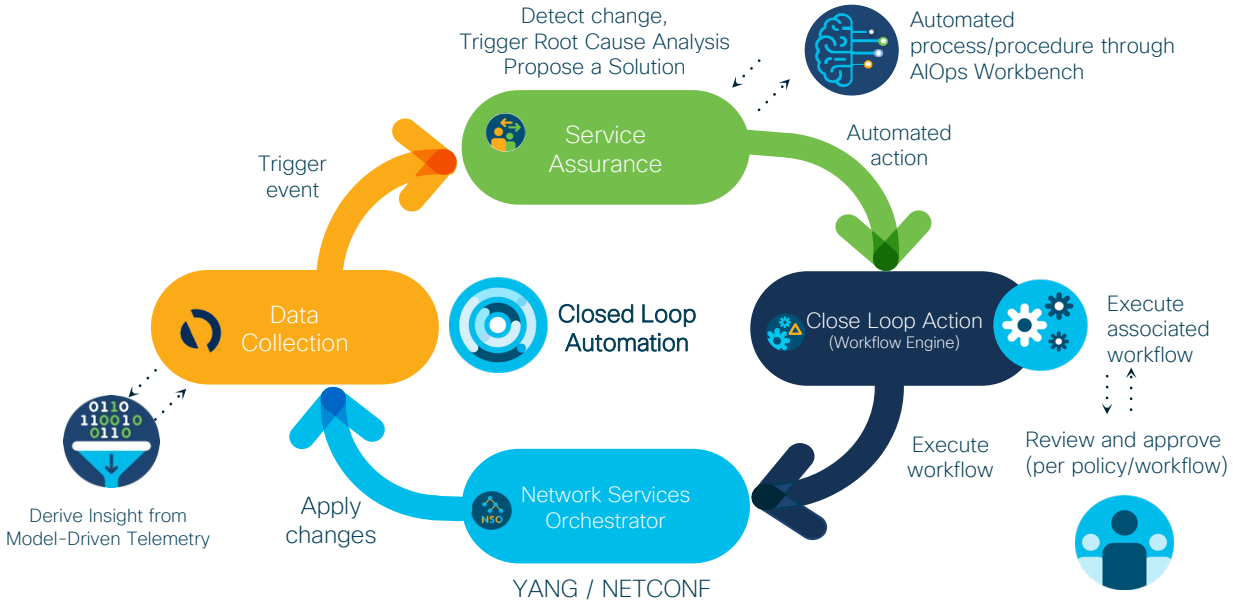


Common Data Layer for stateless microservices:

- In-memory session store
- Geo-redundancy
- High Performance
- Low latency

Cloud-native Software Operations

AIOps: From Data to Insights to Action

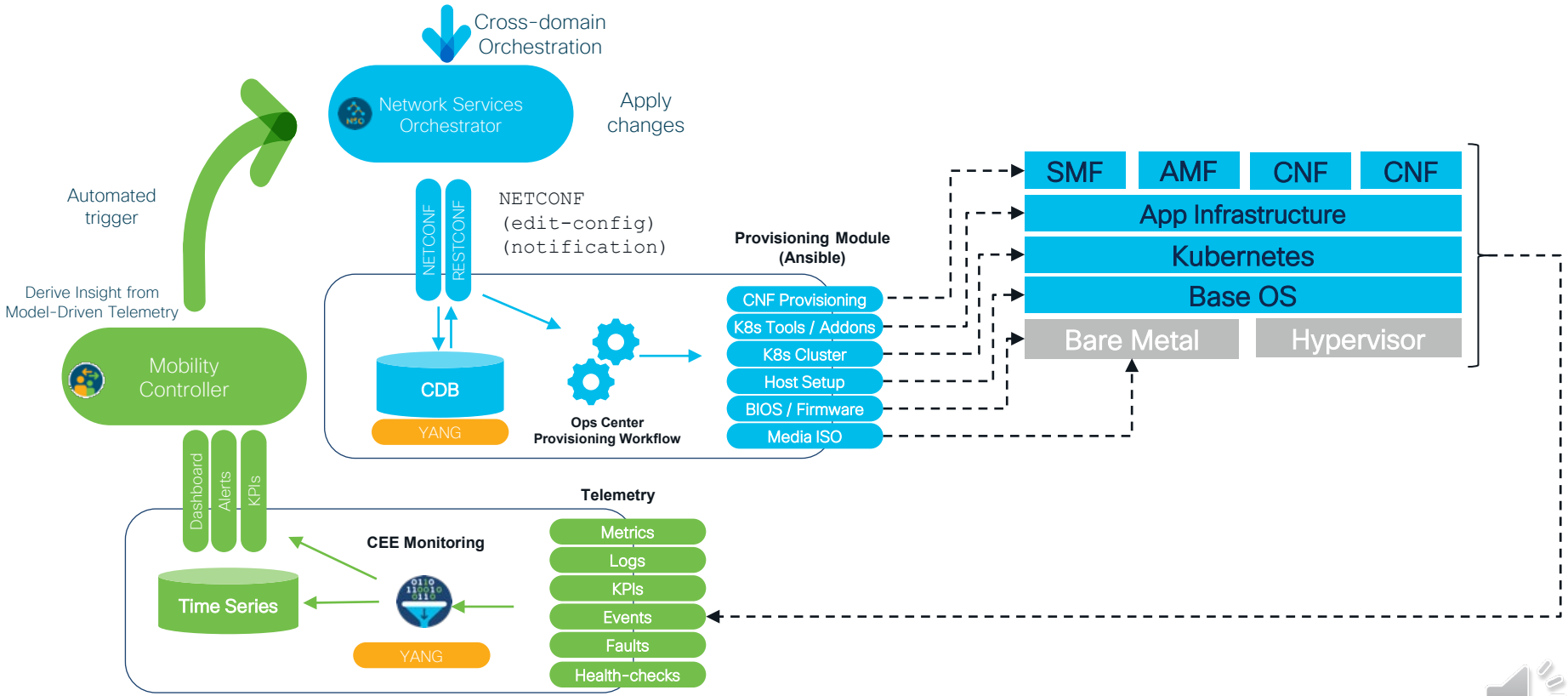


AIOps

Respond to network conditions in near real-time based on collected data and metrics.

- Leverage open-source tools
- Model-driven Telemetry
- API-based Programmability
- Reduce incident response time
- Build operations know-how

Model-driven Telemetry and Programmability



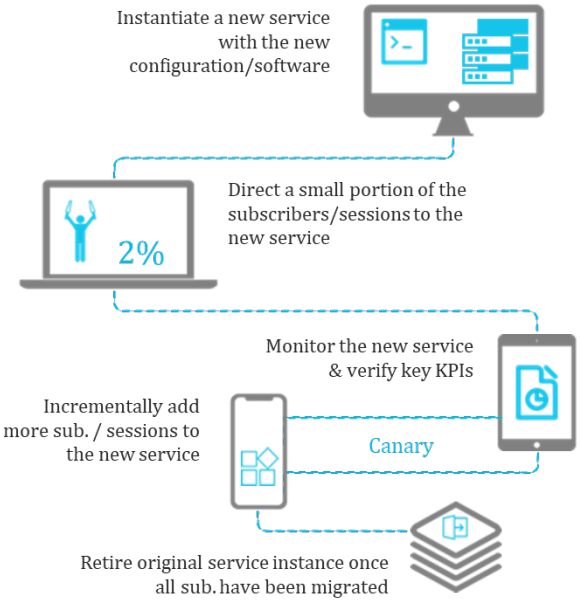
Cloud-native Software Lifecycle

Continuous end-to-end software automation pipeline

Continuous Delivery

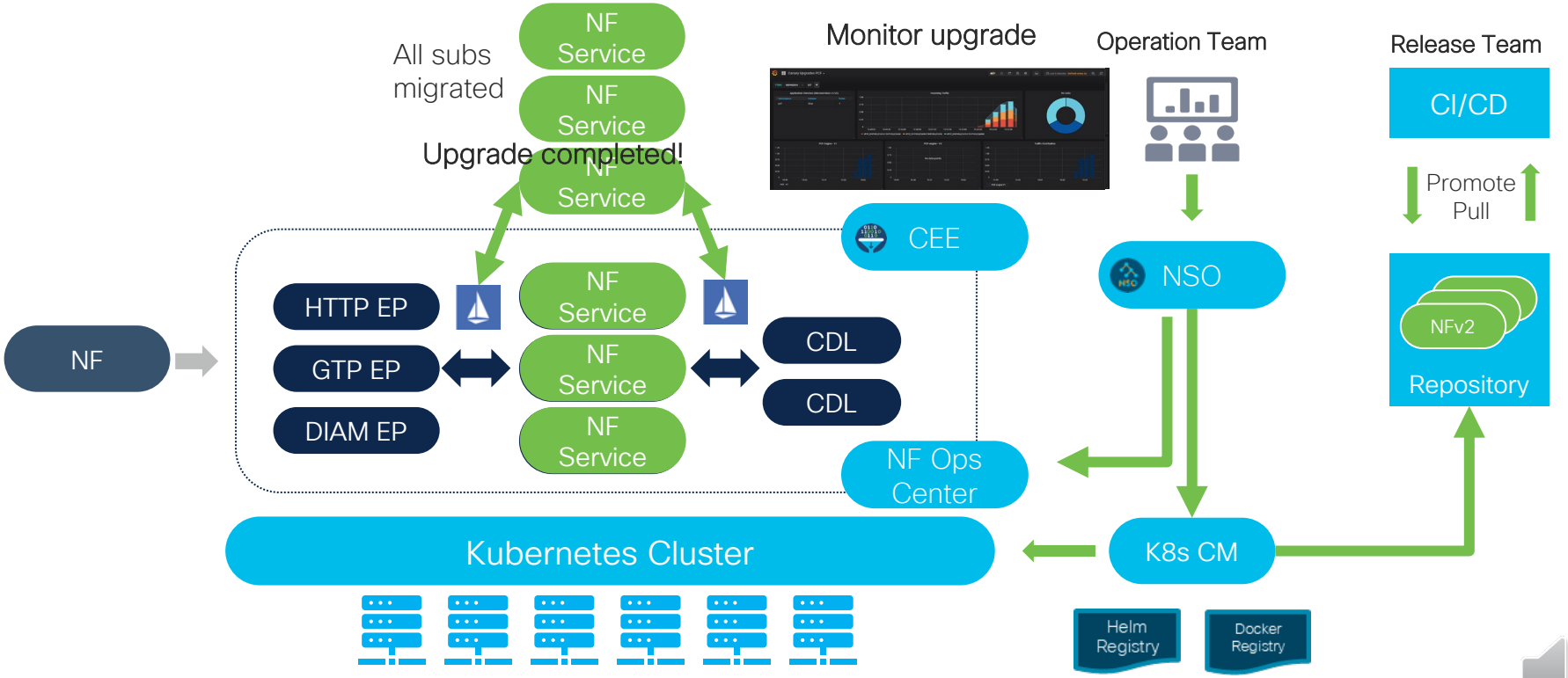
Automated continuous integration and validation. Isolate production changes and deploy once validated

- Rapid feature validation
- Frequent feature rollout
- Always on latest code-base
- Reduces error rates and outages
- Security / Compliance / Quality



Automated, Canary Service Roll-Out

Canary Upgrade Example



How can Cisco help?

cisco Live!

Cisco 5G Ultra Cloud Core

Next Generation Packet Core

Largest installed base

Operations 1st

Common core

4G 5G 2G 3G

True cloud native

Sliced

Automated

Service-based, cloud architecture with common application infrastructure

World-first deployment Multi-vendor 5G SA deployment

What is Continuous Automation & Integration Testing (CAIT) Service?

Test automation service on customer premises

Re-usability as a key foundation

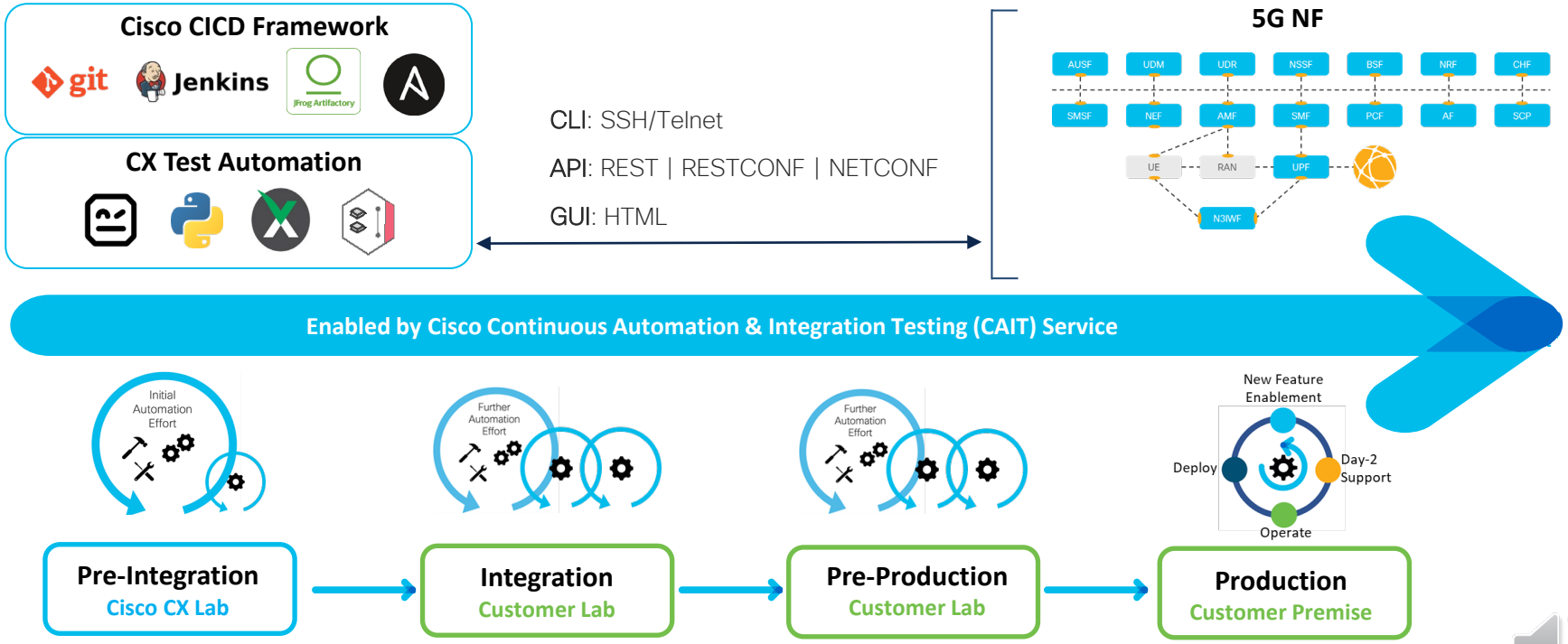
The service is:

Based on a portable software platform (CXTM)	An extensive library of test cases	Augmented with consultative support	Tiered to customer needs	Deployable platform in the customer lab environment

CXTM: CX Test Automation Manager

Continuous testing in multiple environments

Quality Improvement with CAIT



Wrap up

Agenda

- 5GC Evolution
- Cloud-native Innovation
- How Cisco can help?

“Innovation, as I understand it, is both about doing different things as well as doing things differently.”

Kiran Mazumdar-Shaw, Biotech Entrepreneur

Jan 04, 2014 during interview(January 04, 2014)

cisco Live!

TURN IT UP

#CiscoLive

The bridge to possible

Thank you

cisco Live!

TURN IT UP

#CiscoLive