Data Center Innovation Day

SDN for Mutlicloud and DevOps

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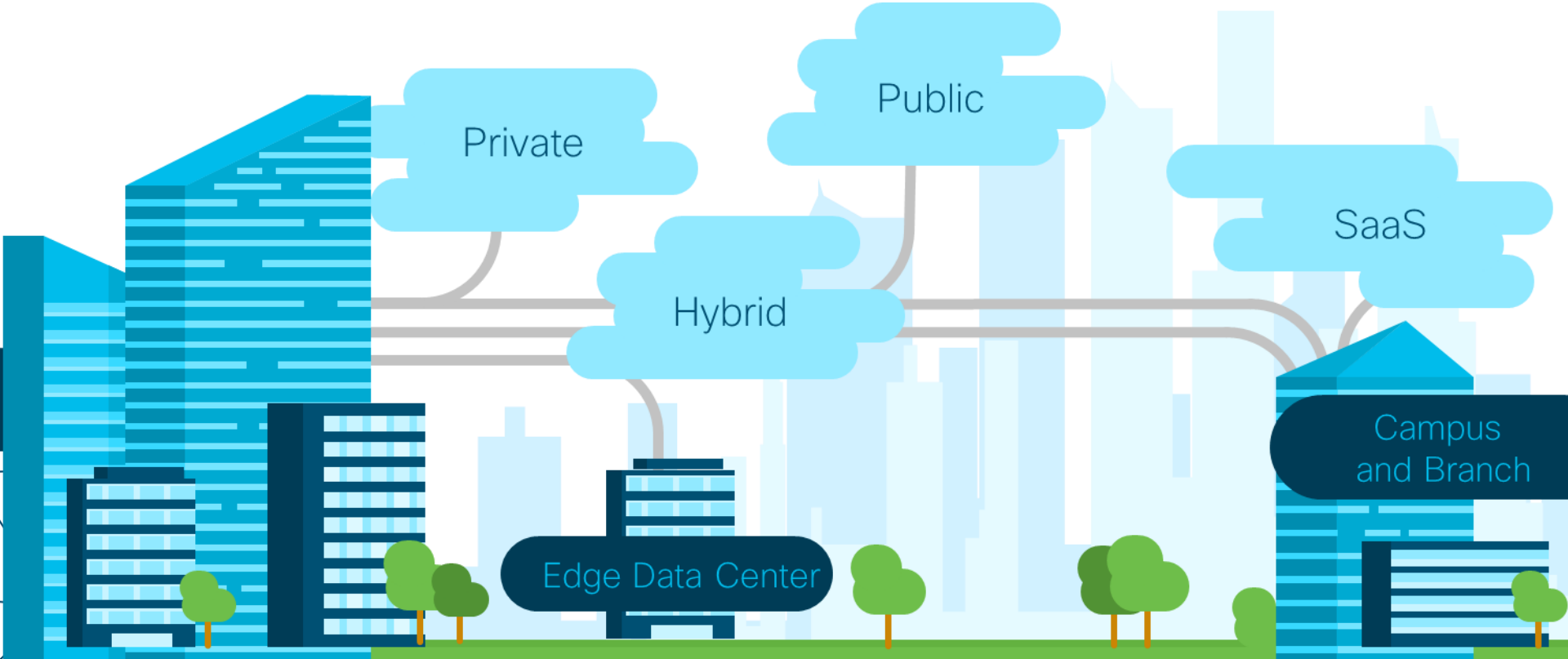
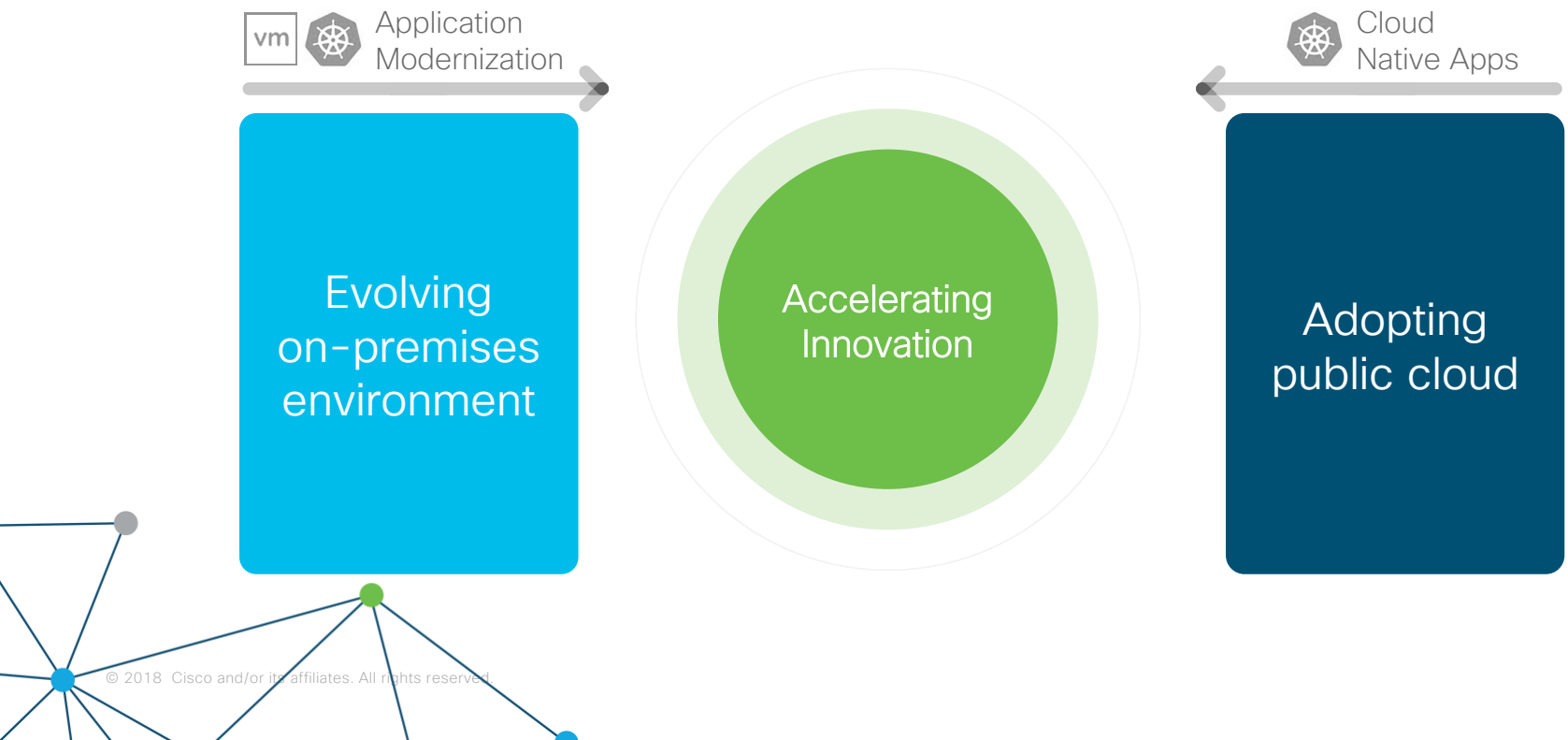
Agenda

1. Industry Insight
2. Cisco SDN Beyond Multicloud
3. Cloud Native Apps
4. Demo

Multicloud. The Distributed Datacenter



New app innovations finding common ground



Current operating models aren't working

Network Changes Performed Manually

Policy Violations Due to Human Error

OpEx Spent on Network Changes and Troubleshooting

$60B Spent on Network Operations Labor and Tools

Source: McKinsey study conducted for Cisco in 2016

Intent-Based Networking is the future

Cisco Data Center Intent-Based Networking

Translation

Capture intent, translate to policy, and check integrity

Activation

Orchestrate policies and configure systems

Assurance

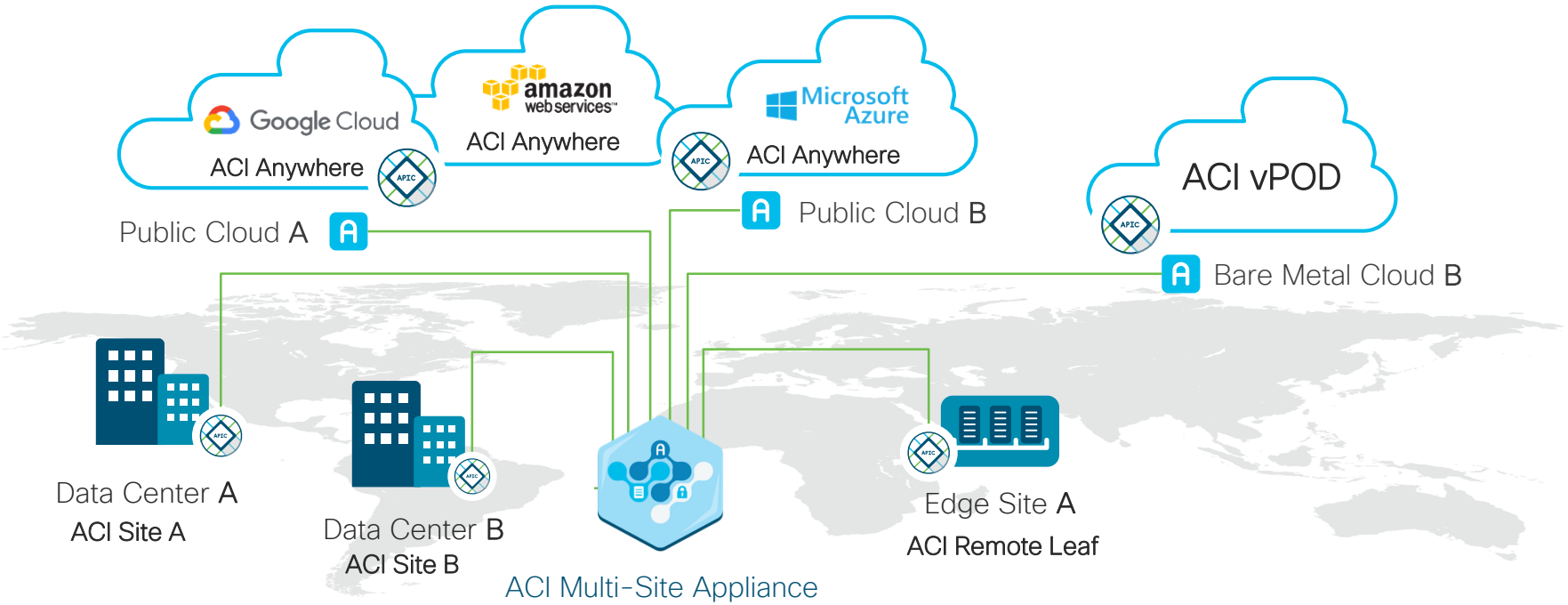
Continuous verification, insights and visibility, and corrective actions

Application-Centric Infrastructure

Network Assurance Engine

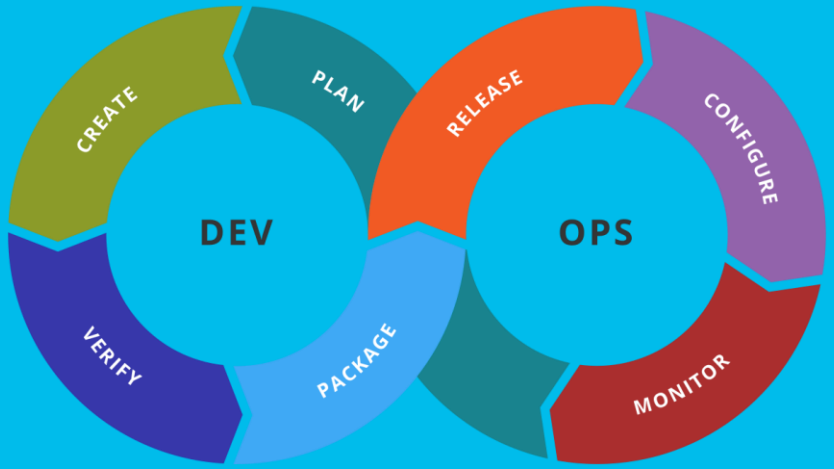
Cisco Tetration

Network policy that goes where you go



- Consistent Network and Policy across clouds
- Seamless Workload Migration
- Single Point of Orchestration
- Secure Automated Connectivity

“Cloud native” On-Premises



Today, Applications define the business. Understanding cloud native application design and development is critical for Infrastructure Engineers if we are to successfully become relevant to Application Developers and Business.

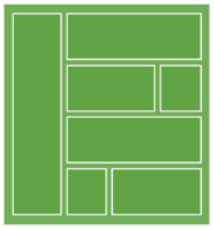
IT Operating Models Change

FROM

Not My Problem
Separate Tools,
Varied Incentives, Opaque Process

Release Once Every 6 Months
More Bugs in Production

Tightly Coupled Components
Slow Deployment Cycles Waiting
on Integrated Tests Teams



TO

DevOps
Shared Responsibility
Common Incentives,
Tools, Process and Culture

Continuous Delivery
Release Early and Often
Higher Quality of Code

Microservices
Loosely Coupled Components
Automated Deploy Without Waiting on Individual Components

Cloud Native

Operations World

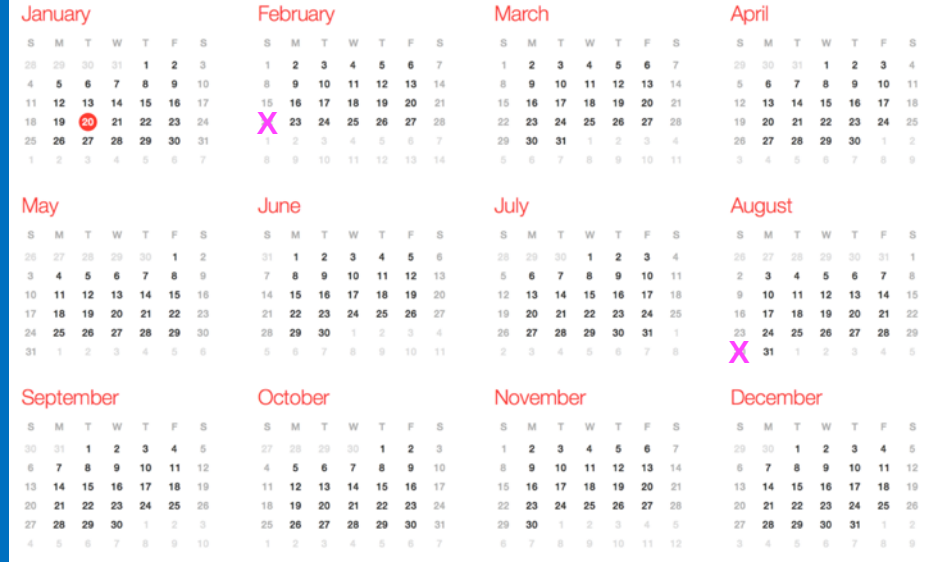
- Care About
  - Everything is stable
  - Standards
  - Templates
  - Not getting bothered at 2:00 am
- Success
  - Software is stable
  - Backup and restore works
  - Systems are operating within defined thresholds

Developers World

- Care About
  - Writing Software
  - Working Code
  - APIs
  - Libraries
  - Sprints
- Success
  - Software works – Laptop and Test
  - Finished Sprint

Completed Functions

Change Windows



Change

Stability

Business

Traditional IT service delivery: Slow, manual, and error prone

Requirements
- Define strategy & required features

Architecture
- Ensure service updates are aligned with enterprise architecture

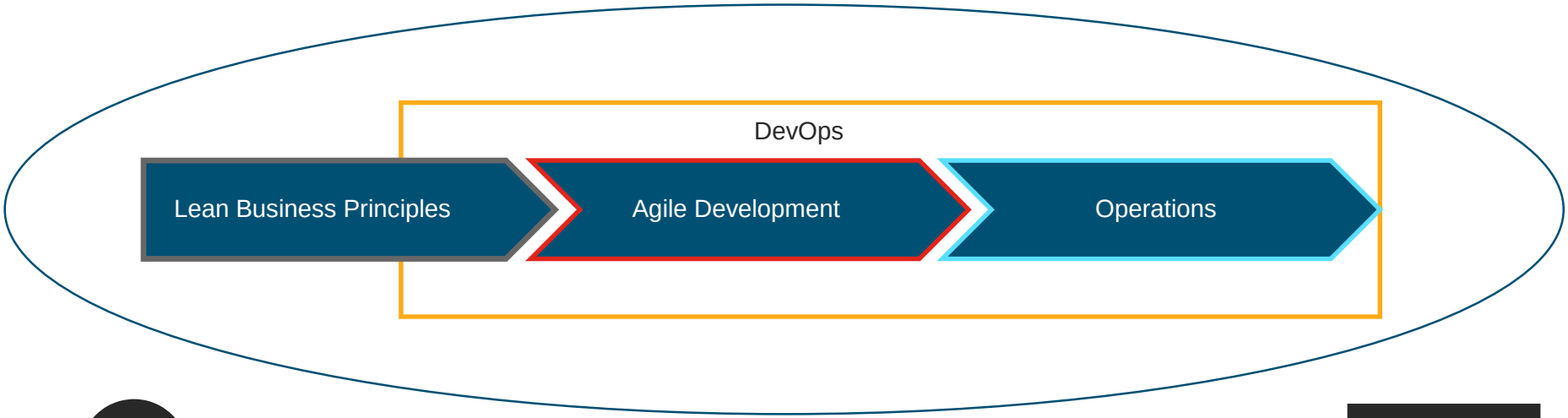
Development
- Write software / integrate underlying services

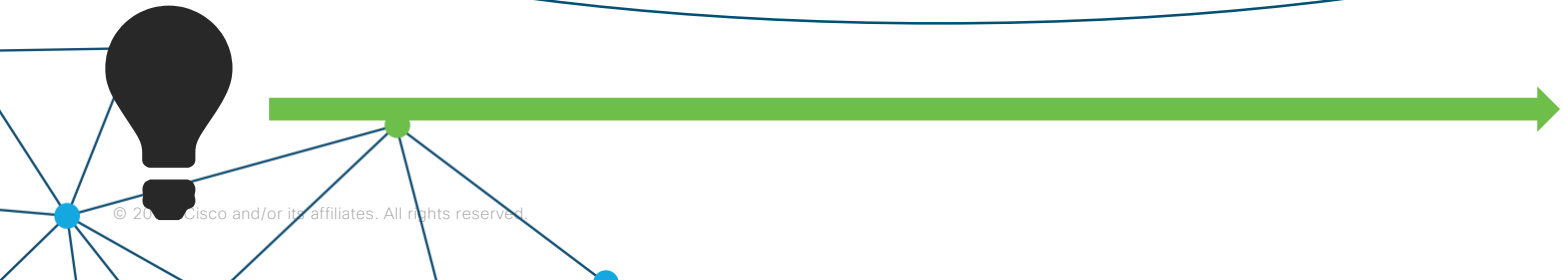
QA & BAT
- Test that software works

OPS
- Pushes updates to production and manage service

The more complex a project becomes, the longer the schedule, and the higher the probability of scope and schedule surprises.

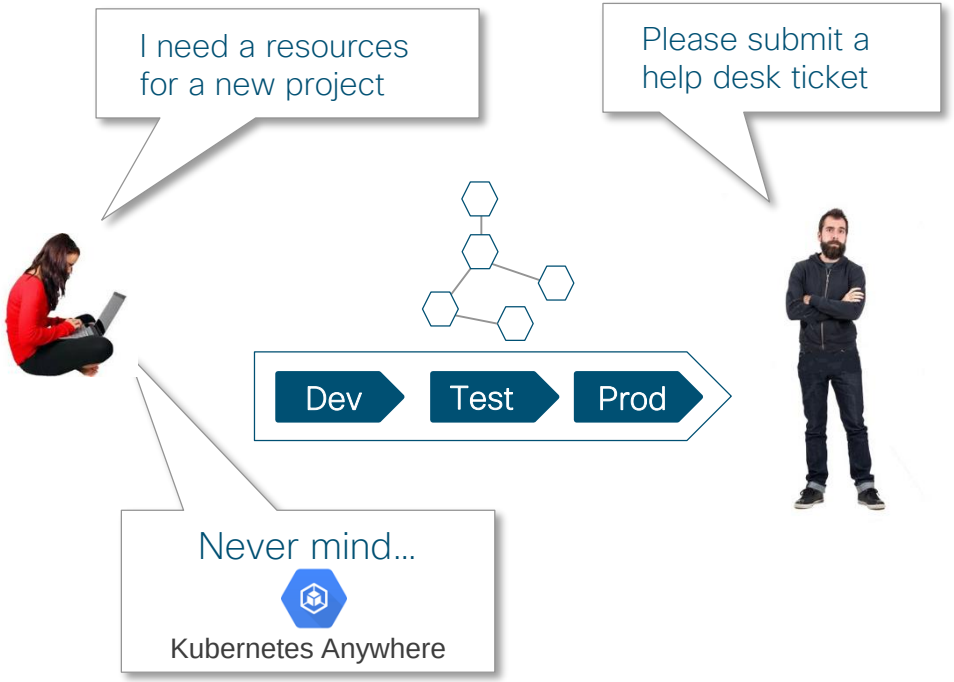
Lean, Agile, and DevOps Combined

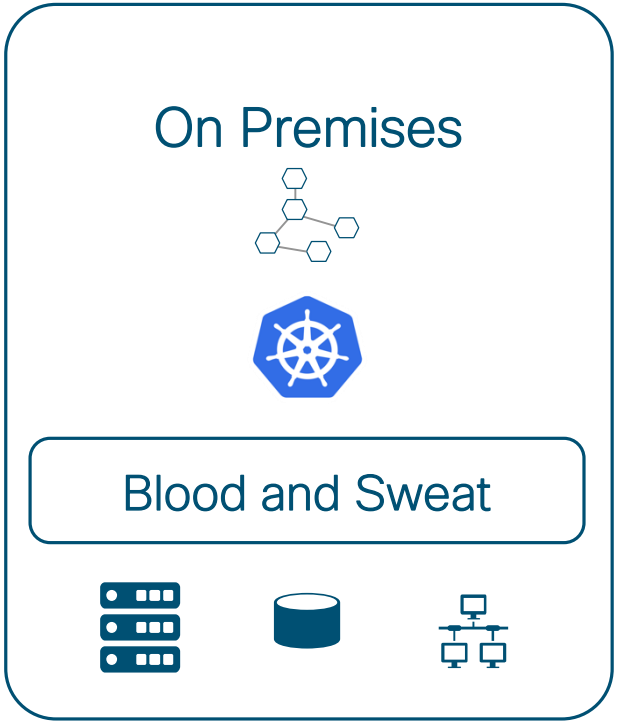


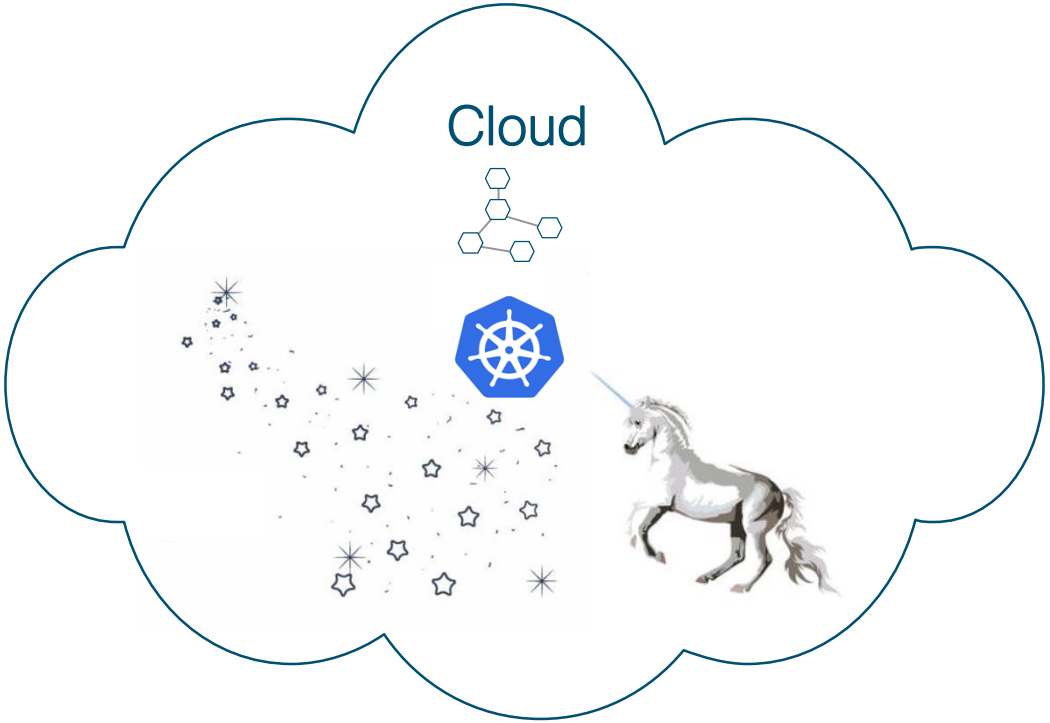


2013

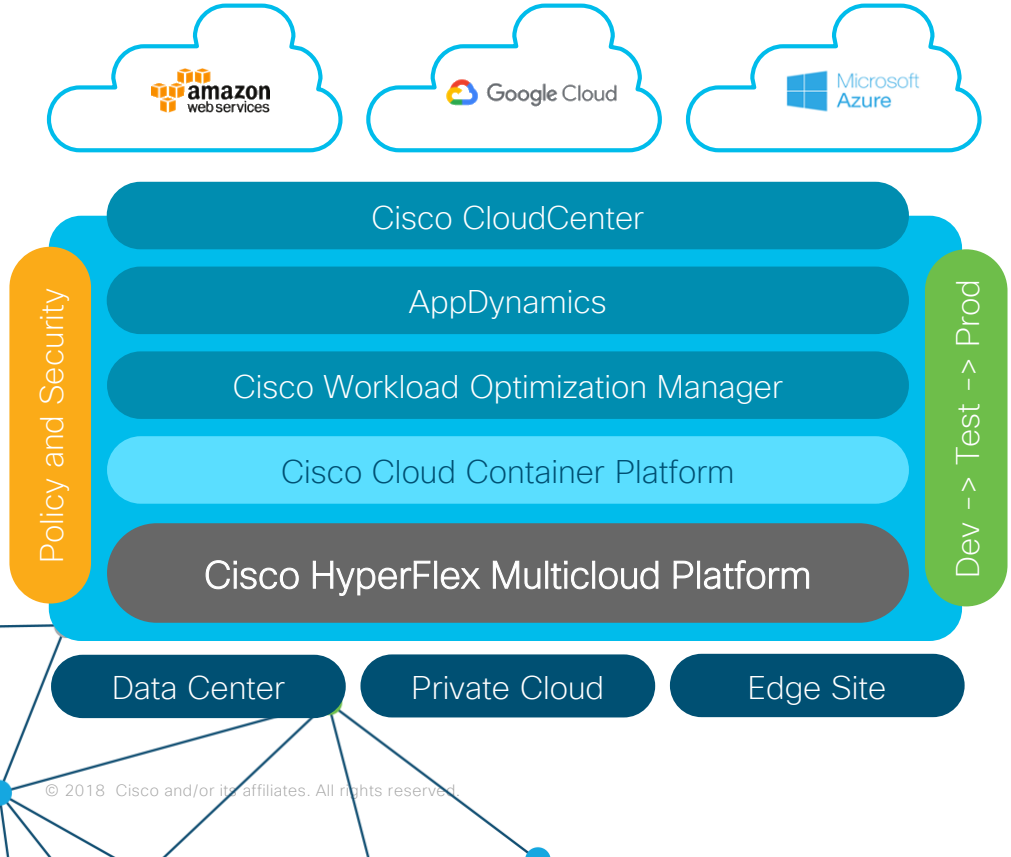
2018







Bringing the cloud experience on-premises



cisco **HYPERFLEX**

Multicloud Platform

Any app. Any cloud. Any scale

- Pathway to microservices
- Full stack monitoring and security
- Agile resource provisioning
- Packaged workload management
- Easy consumption model

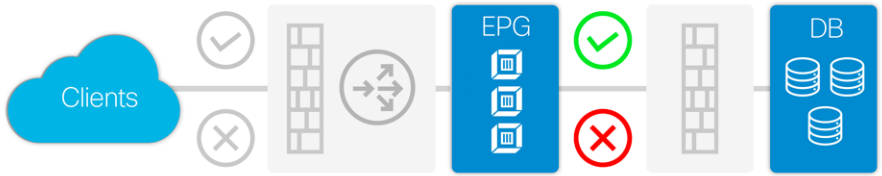
intel XEON PLATINUM inside

Cisco Hyperflex™ Systems with Intel® Xeon® Platinum processor

Intent-based Networking with ACI Anywhere
Dual level Policy Enforcement for Containers

"Kubernetes Network Policy" and "ACI Policy" are enforced in the Linux kernel of every server node that containers run on.

```
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: default-deny
spec: podSelector: {}
policyTypes:
- Ingress
- Egress
```



Containers are mapped and enforced by the network fabric.

Both policy mechanisms can be used in conjunction.

Demo

Hybrid Cloud Platform

Turn-key Hybrid Cloud solution stack for On-premises

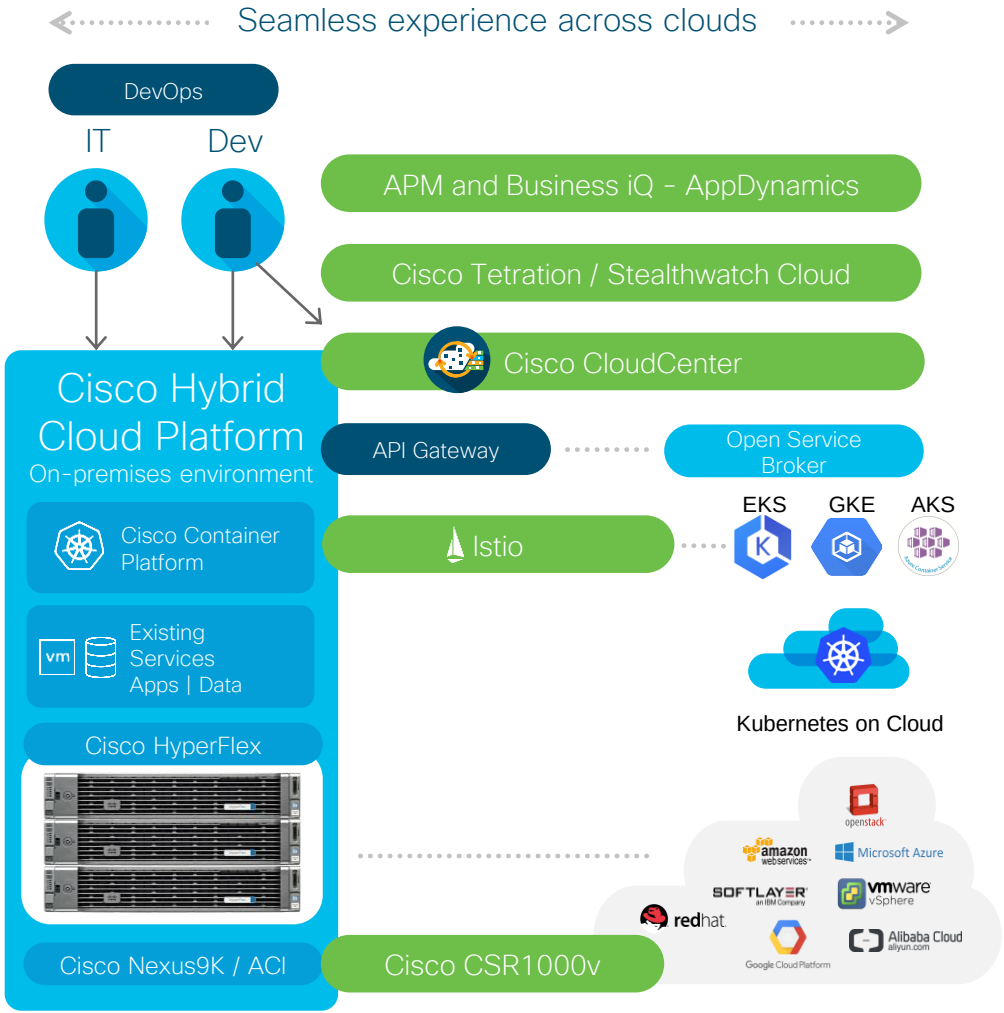
Demos:

Application Operator–
Deploy and optimize containerized applications without writing pod manifest file (.yaml)

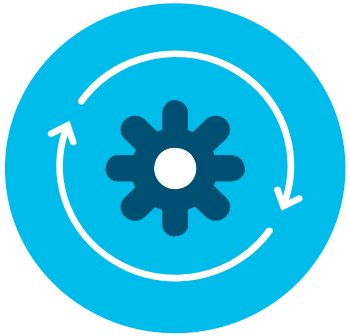
Cluster Operator–
Deploy and lifecycle management Kubernetes clusters on premises

Network Integration–
Single pane of glass of Virtual Machines, Containers and Baremetal with ACI

Authentication–
AD connector and RBAC access management to Kubernetes Clusters



Cisco Intent Based Network Delivers



Single Point
of Orchestration

Seamless
Workload Migration

Secure Automated
Connectivity

Consistent
Network and Policy
across clouds


CISCO