



Data Center Innovation Day





SDN for Multicloud and DevOps

In-Sook Kim
Manager, Solutions Architect Team
Data Center, ASEAN Sales

Nuttee Jirattivongvibul
Technical Solutions Architect
Data Center, ASEAN Sales



Agenda

1

Industry Insight

2

Cisco SDN Beyond
Multicloud

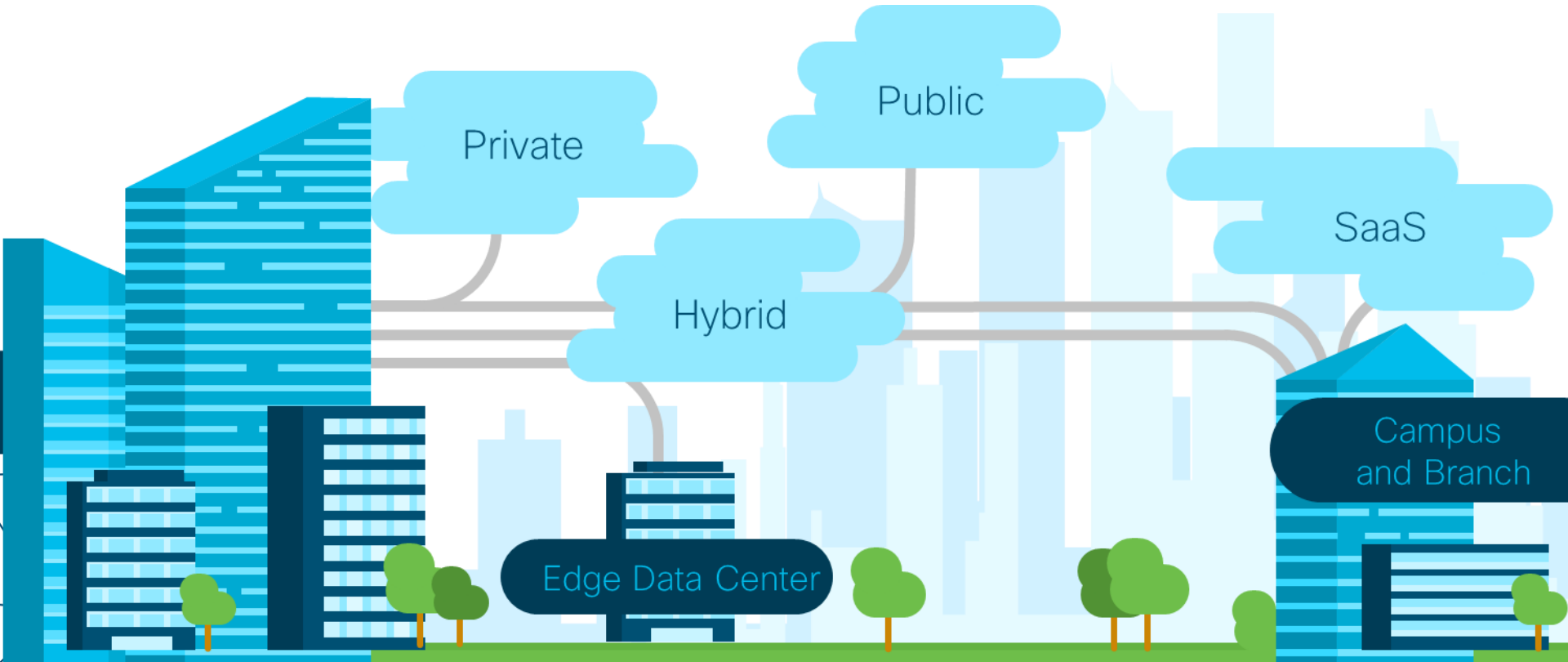
3

Cloud Native Apps

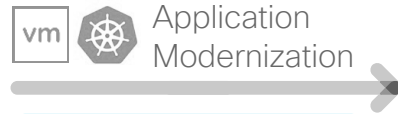
4

Demo

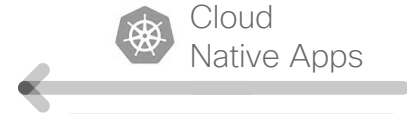
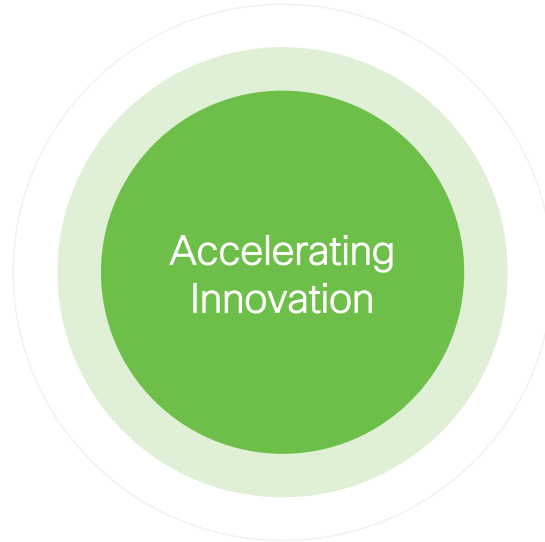
Multicloud. The Distributed Datacenter



New app innovations finding common ground

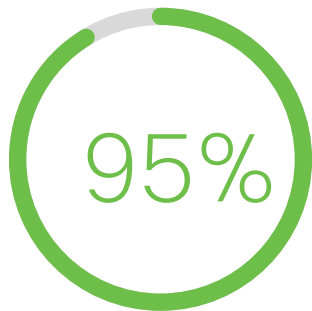


Evolving
on-premises
environment

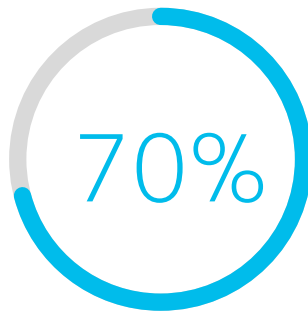


Adopting
public cloud

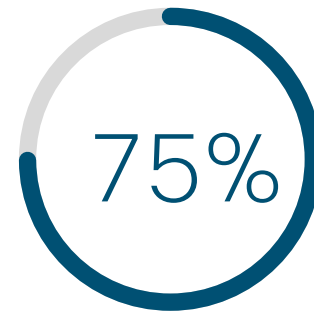
Current operating models aren't working



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

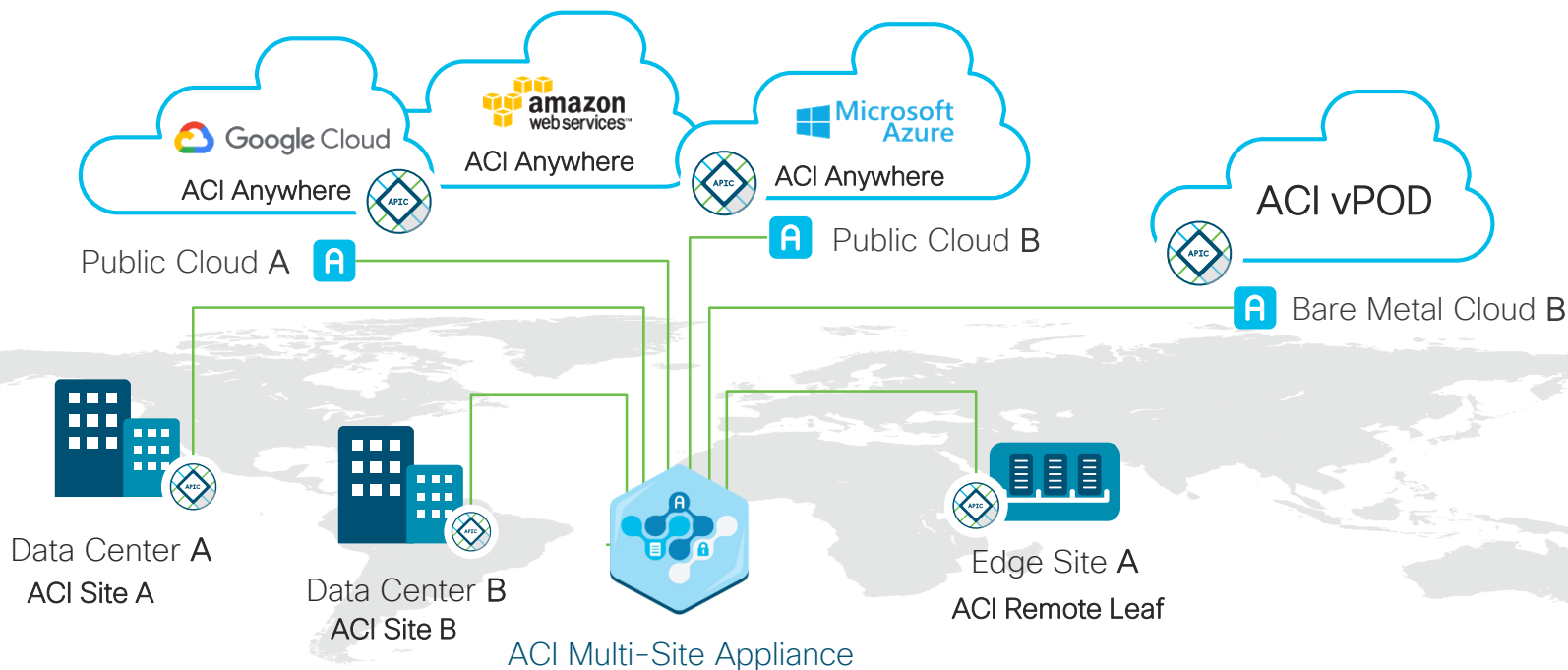
Continuous verification, insights and visibility, and corrective actions

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

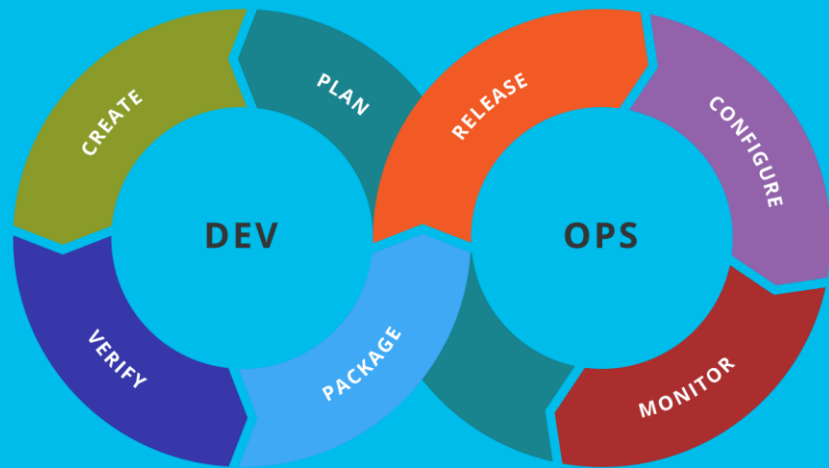


Secure Automated Connectivity

A white line-art graphic on a blue background, depicting a network topology with several nodes connected by lines.

“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

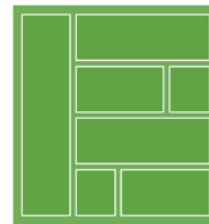
Not My Problem
Separate Tools,
Varied Incentives, Opaque Process



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

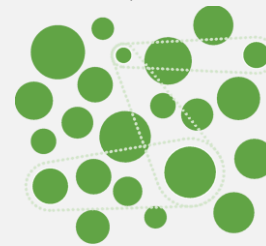
Release Early and Often
Higher Quality of Code



Cloud Native

Microservices

Loosely Coupled Components
Automated Deploy Without Waiting on Individual
Components



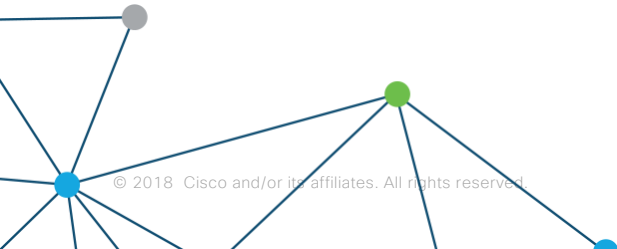
Operations World

- 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

January

S	M	T	W	T	F	S
28	29	30	31	1	2	3
4	5	6	7	8	X	
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	X	29	30	31
1	2	3	4	5	6	7

February

S	M	T	W	T	F	S
1	2	3	4	X	6	7
8	9	10	11	12	13	14
15	16	17	18	19	X	21
22	23	24	X	26	27	28
1	2	3	4	5	6	7
8	9	10	11	12	13	14

March

S	M	T	W	T	F	S
1	2	3	4	5	X	7
8	9	10	11	12	13	14
15	16	17	18	19	X	21
22	23	24	25	26	27	28
29	30	X	1	2	3	4
5	6	7	8	9	10	11

April

S	M	T	W	T	F	S
29	30	31	1	X	3	4
5	6	7	8	9	10	11
12	13	14	X	16	17	18
19	20	21	22	23	X	25
26	27	28	29	30	1	2
3	4	5	6	7	8	9

May

S	M	T	W	T	F	S
28	27	26	29	30	1	2
3	4	5	6	X	8	9
10	11	X	13	14	15	16
17	18	19	20	21	X	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

June

S	M	T	W	T	F	S
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	X	18	19	20
21	22	23	24	X	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

July

S	M	T	W	T	F	S
28	29	30	1	2	3	4
5	6	7	8	9	X	11
12	13	14	15	16	17	18
19	20	21	22	X	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

August

S	M	T	W	T	F	S
26	27	28	29	30	X	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	X	29
30	31	1	2	3	4	5

September

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	X	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	X	30	31	2	3
4	5	6	7	8	9	10

October

S	M	T	W	T	F	S
27	28	29	30	1	X	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	X	30	31
1	2	3	4	5	6	7

November

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	X	13	14
15	16	17	18	19	20	21
22	23	24	25	X	27	28
29	30	1	2	3	4	5
6	7	8	9	10	11	12

December

S	M	T	W	T	F	S

Change Windows

January

S	M	T	W	T	F	S
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

February

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
1	2	3	4	5	6	7
8	9	10	11	12	13	14

March

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

April

S	M	T	W	T	F	S
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2
3	4	5	6	7	8	9

May

S	M	T	W	T	F	S
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

June

S	M	T	W	T	F	S
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

July

S	M	T	W	T	F	S
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

August

S	M	T	W	T	F	S
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

September

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

October

S	M	T	W	T	F	S
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

November

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5
6	7	8	9	10	11	12

December

S	M</
---	-----

A diagram with a blue horizontal bar at the top. The left side of the bar is labeled "Change" and the right side is labeled "Stability" in white text. Two red arrows point from the bar down to the word "Business" in the center. On the left side, there is a network diagram with a central blue node and several other nodes connected by lines. A green node is also visible near the "Change" label.

Change Stability

Business

© 2018 Cisco and/or its affiliates. All rights reserved.

A diagram with a blue horizontal bar at the top. The left side of the bar is labeled "Change" and the right side is labeled "Stability" in white text. Two red arrows point from the bar down to the word "Business" in the center. On the left side, there is a network diagram with a central blue node and several other nodes connected by lines. A green node is also visible near the "Change" label.

Change Stability

Business

© 2018 Cisco and/or its affiliates. All rights reserved.

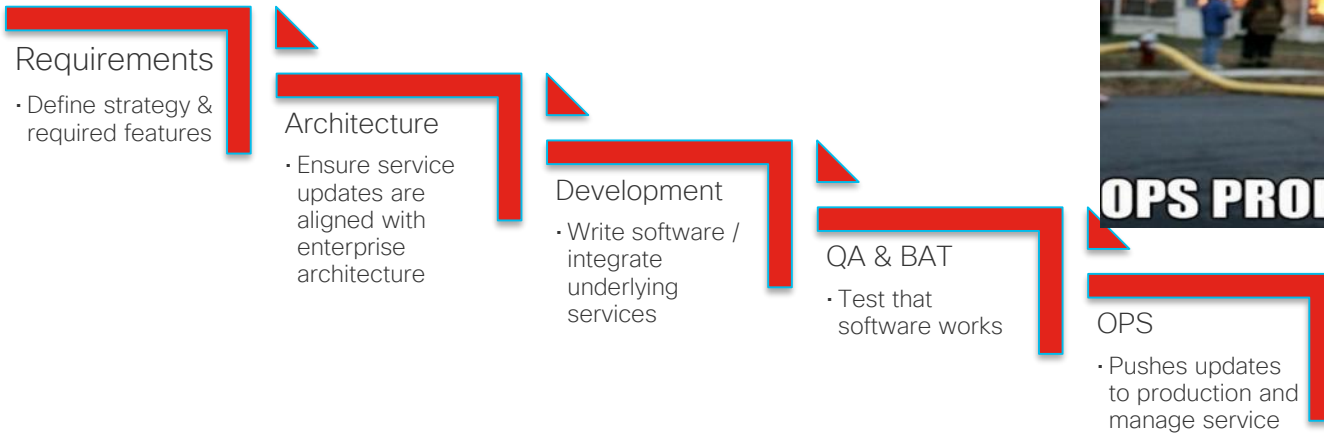
A diagram with a blue horizontal bar at the top. The left side of the bar is labeled "Change" and the right side is labeled "Stability" in white text. Two red arrows point from the bar down to the word "Business" in the center. On the left side, there is a network diagram with a central blue node and several other nodes connected by lines. A green node is also visible near the "Change" label.

Change Stability

Business

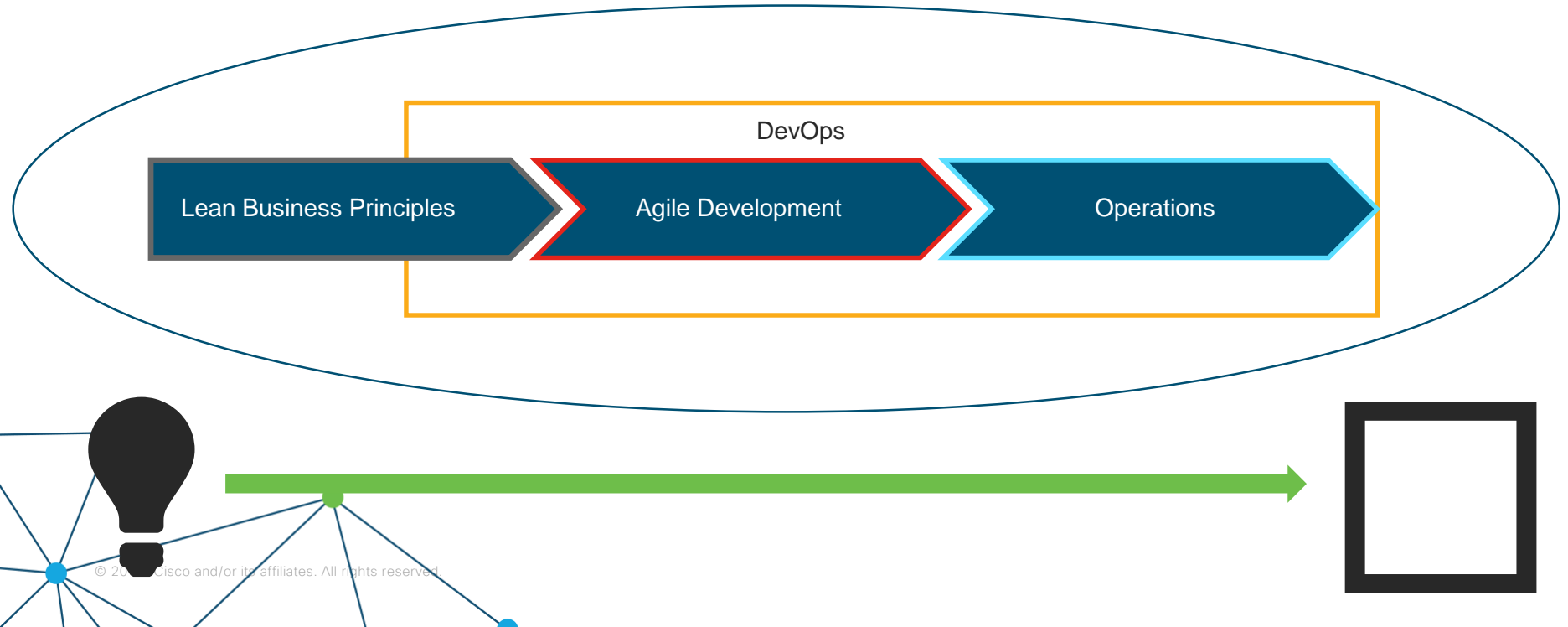
© 2018 Cisco and/or its affiliates. All rights reserved.

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



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

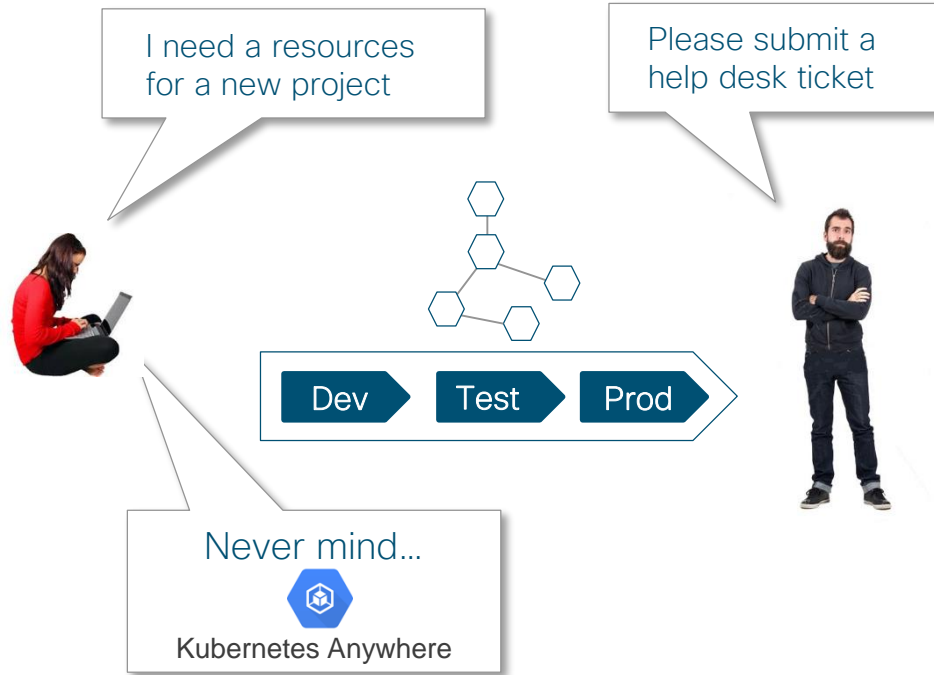
Lean, Agile, and DevOps Combined



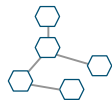
2013



2018



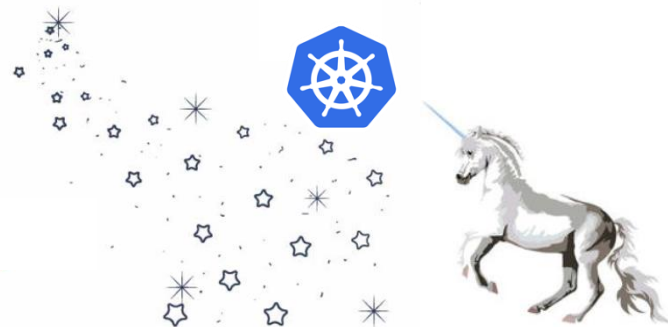
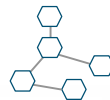
On Premises



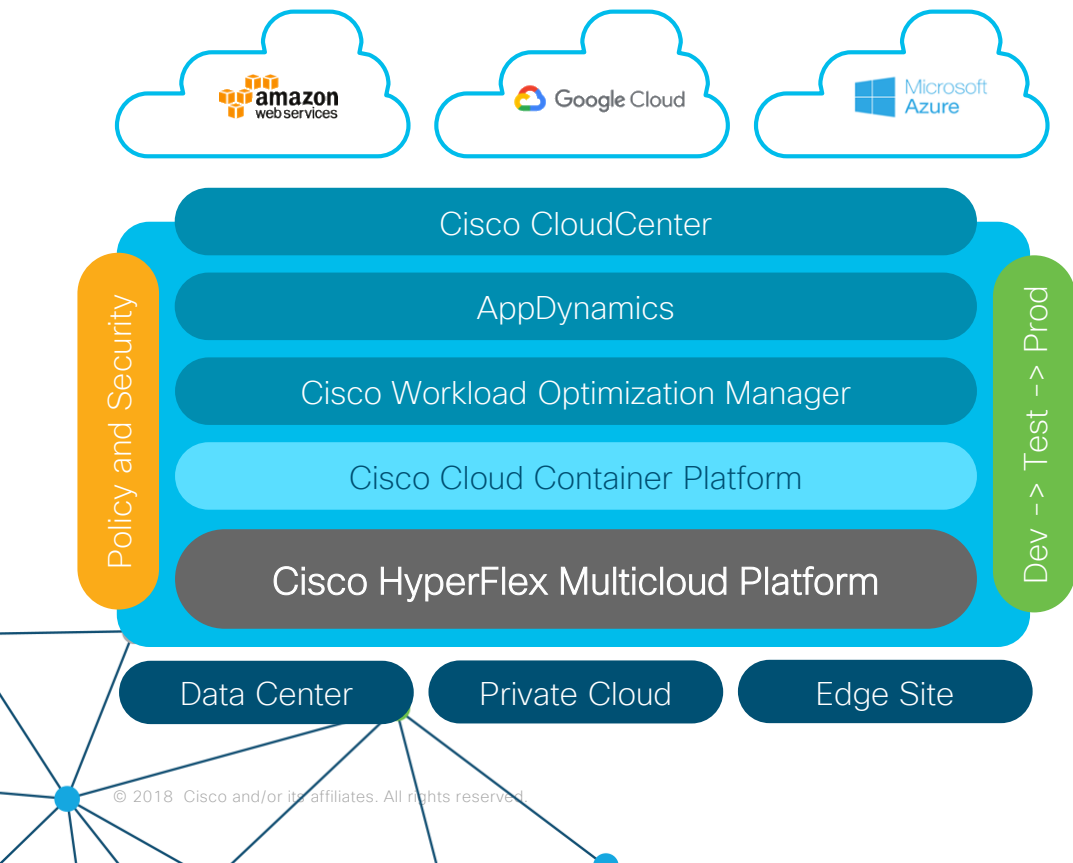
Blood and Sweat



Cloud



Bringing the cloud experience on-premises



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

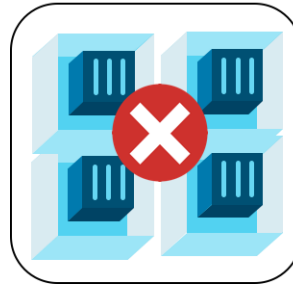


Cisco Hyperflex™
Systems with
Intel® Xeon®
Platinum processor

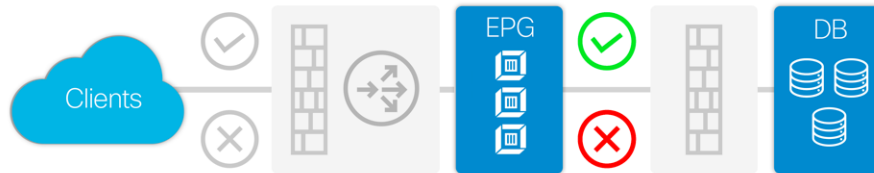
Intent-based Networking with ACI Anywhere

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—

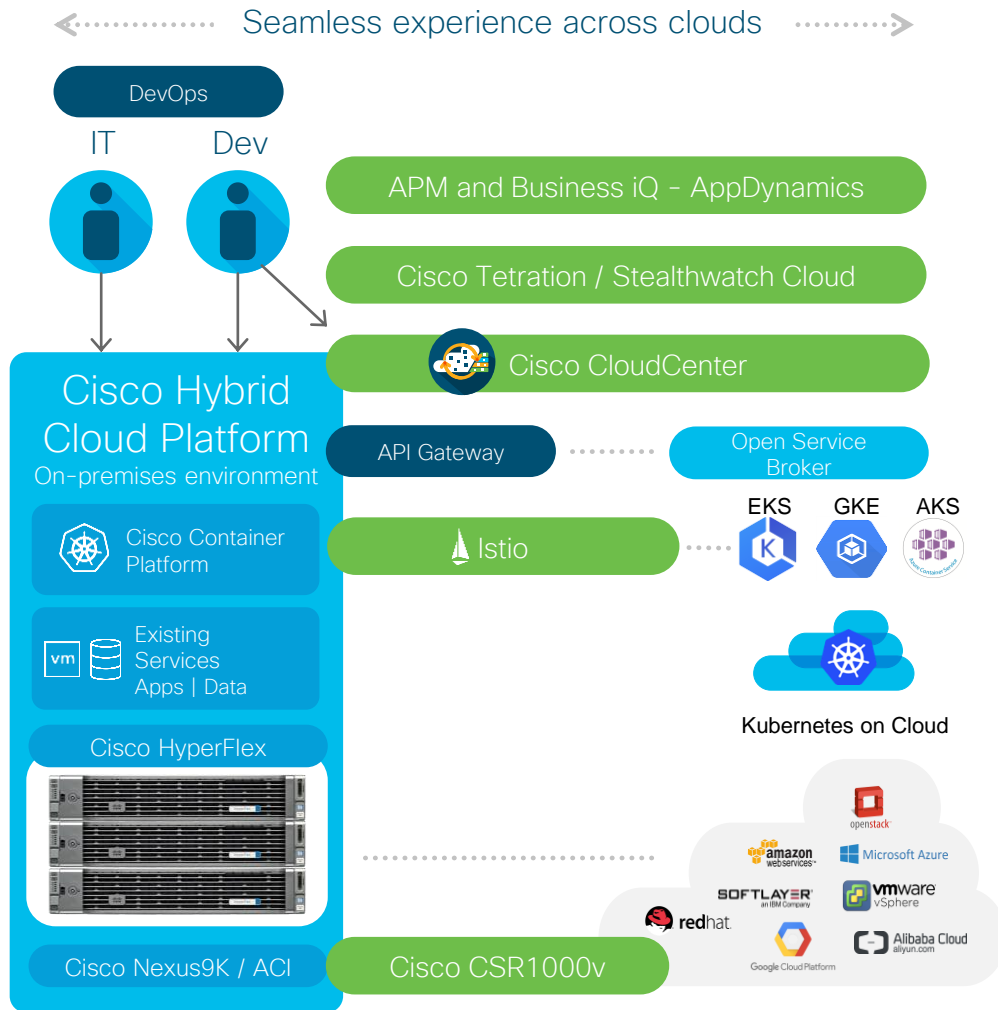
Deploy and lifecycle management Kubernetes clusters on premises

Network Integration—

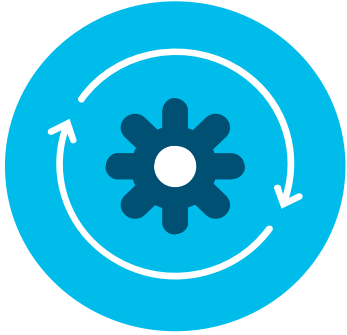
Single pane of glass of Virtual Machines, Containers and Baremetal with ACI

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

