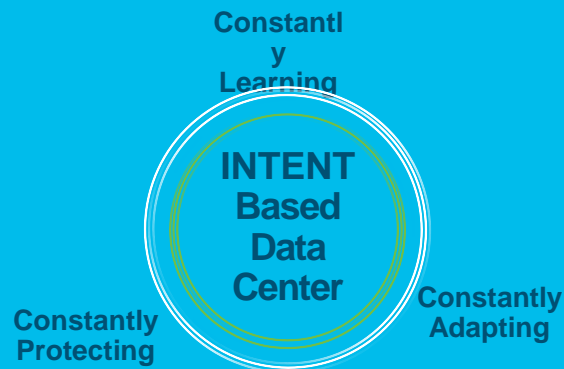




Building a Simple, Agile and Secure Fabric for an Intent Based MultiCloud Data Center

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ASEAN Data Center Switching Lead
Cisco Systems



Demands of Digital Transformation

People

7 billion

7 billion people will have access to internet by 2020



52% from mobile
48% traditional

Things

50 billion

50 billion devices connected to the internet by 2020.



40%
Network traffic from sensors by 2020

367 EB
Global mobile IP traffic by 2020

380 M
Connected cars
More than 100 sensors
Vehicle safety
Vehicle Maintenance
Intelligent infotainment

Applications

500 billion

New generation of applications and services
API Economy
Online sales to cross \$500 billion in 2020



“Big” Data

90%

90% of the data created in the last two years. 40 zettabytes by 2020
C-C,C-B,B-B



Data Centers Are Undergoing Rapid Transformation

Digitization, Cloud, Mobile Creating New Demands of IT

Scale

10Ks VMs, 100s of Apps, distributed apps, 1M+ policies

Complexity

Multi-DC, multi-tenant, hybrid, virtualized, heterogeneous

Rate of Change

VM mobility, app migration, dynamic scaling, self service portals

Applications Are Changing

Type ➤ Big data, distributed, mobile, cloud

Consumption ➤ Cloud – public, private, Multi-Cloud

Delivery ➤ Any where, any time, any device

78% Network is even more critical to delivering applications than a year ago*

* Cisco Global IT Impact Survey





Why does it take weeks to respond to business needs?

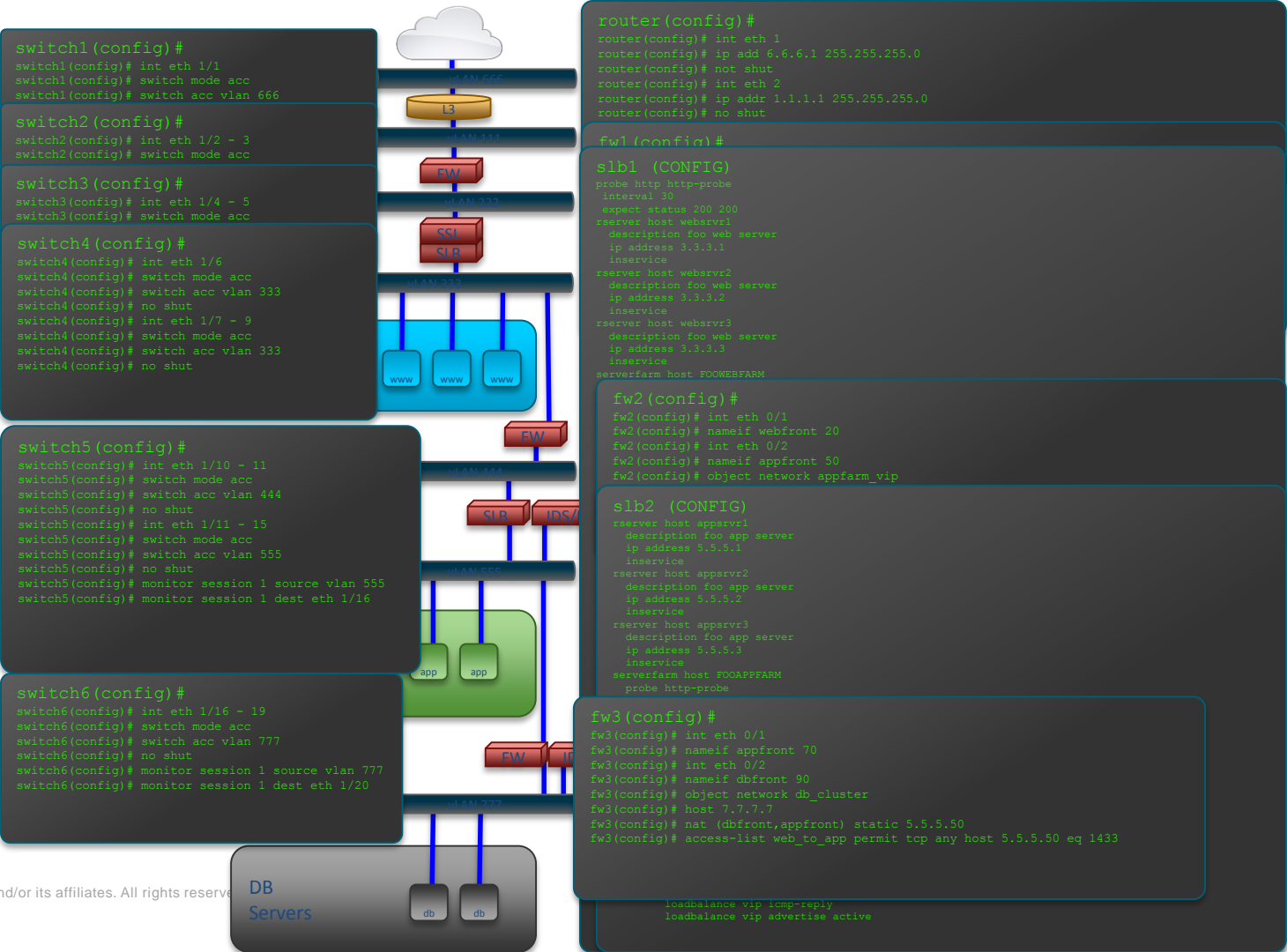
Common Scenario 1

Expansion and rolling out new applications

Common Scenario 2

Monitoring existing applications

Tradit DC N



```
switch1 (config)#
switch1(config)# int eth 1/1
switch1(config)# switch mode acc
switch1(config)# switch acc vlan 666

switch2 (config)#
switch2(config)# int eth 1/2 - 3
switch2(config)# switch mode acc

switch3 (config)#
switch3(config)# int eth 1/4 - 5
switch3(config)# switch mode acc

switch4 (config)#
switch4(config)# int eth 1/6
switch4(config)# switch mode acc
switch4(config)# switch acc vlan 333
switch4(config)# no shut
switch4(config)# int eth 1/7 - 9
switch4(config)# switch mode acc
switch4(config)# switch acc vlan 333
switch4(config)# no shut
```

```
switch5 (config)#
switch5(config)# int eth 1/10 - 11
switch5(config)# switch mode acc
switch5(config)# switch acc vlan 444
switch5(config)# no shut
switch5(config)# int eth 1/11 - 15
switch5(config)# switch mode acc
switch5(config)# switch acc vlan 555
switch5(config)# no shut
switch5(config)# monitor session 1 source vlan 555
switch5(config)# monitor session 1 dest eth 1/16
```

```
switch6 (config)#
switch6(config)# int eth 1/16 - 19
switch6(config)# switch mode acc
switch6(config)# switch acc vlan 777
switch6(config)# no shut
switch6(config)# monitor session 1 source vlan 777
switch6(config)# monitor session 1 dest eth 1/20
```

```
router (config)#
router(config)# int eth 1
router(config)# ip add 6.6.6.1 255.255.255.0
router(config)# no shut
router(config)# int eth 2
router(config)# ip addr 1.1.1.1 255.255.255.0
router(config)# no shut
```

```
fw1 (config)#
slb1 (CONFIG)
probe http http-probe
interval 30
expect status 200 200
rserver host webserver1
description foo web server
ip address 3.3.3.1
inservice
rserver host webserver2
description foo web server
ip address 3.3.3.2
inservice
rserver host webserver3
description foo web server
ip address 3.3.3.3
inservice
serverfarm host FOOWEBFARM
```

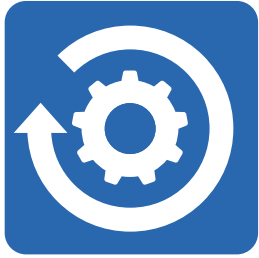
```
fw2 (config)#
fw2(config)# int eth 0/1
fw2(config)# nameif webfront 20
fw2(config)# int eth 0/2
fw2(config)# nameif appfront 50
fw2(config)# object network appfarm_vip
```

```
slb2 (CONFIG)
rserver host appserver1
description foo app server
ip address 5.5.5.1
inservice
rserver host appserver2
description foo app server
ip address 5.5.5.2
inservice
rserver host appserver3
description foo app server
ip address 5.5.5.3
inservice
serverfarm host FOOAPPFARM
probe http-probe
```

```
fw3 (config)#
fw3(config)# int eth 0/1
fw3(config)# nameif appfront 70
fw3(config)# int eth 0/2
fw3(config)# nameif dbfront 90
fw3(config)# object network db_cluster
fw3(config)# host 7.7.7.7
fw3(config)# nat (dbfront,appfront) static 5.5.5.50
fw3(config)# access-list web_to_app permit top any host 5.5.5.50 eq 1433
```

```
loadbalance vip icmp-reply
loadbalance vip advertise active
```

The ACI Solution



Simple & Agile

Respond to
business needs
in minutes.



Open

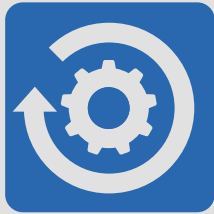
Across the entire
network with no
vendor lock-in.



Secure

Faster compliance
through
Automation.

ACI takes SDN to a New Level



Application
Centric



Physical and
Virtual

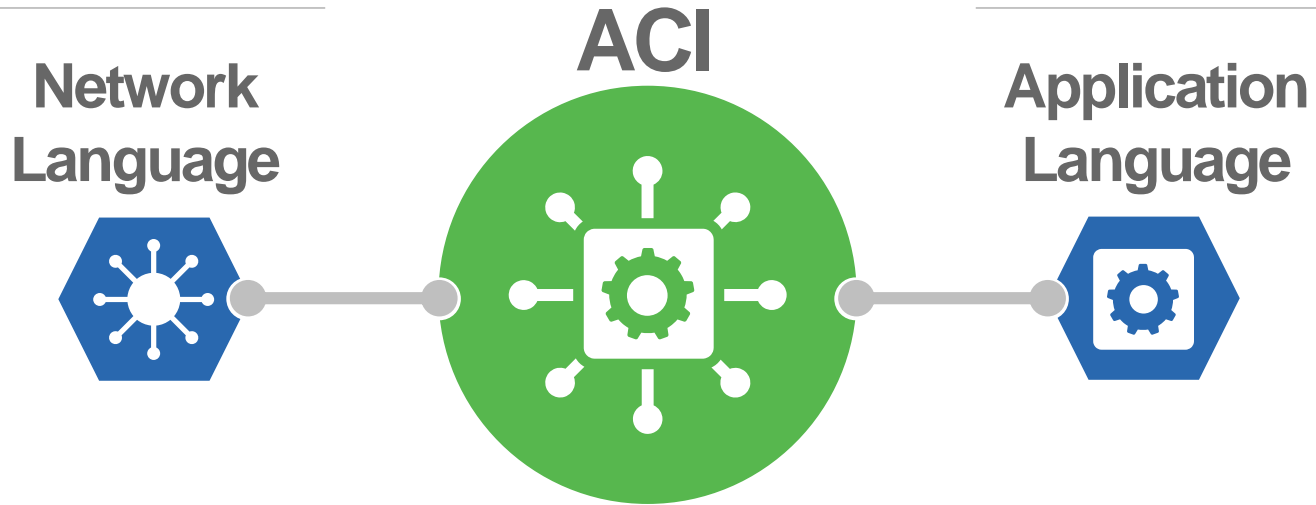


Extends to
Multi-Cloud

Integrated Software and Hardware

Simpler to manage
Faster to deploy

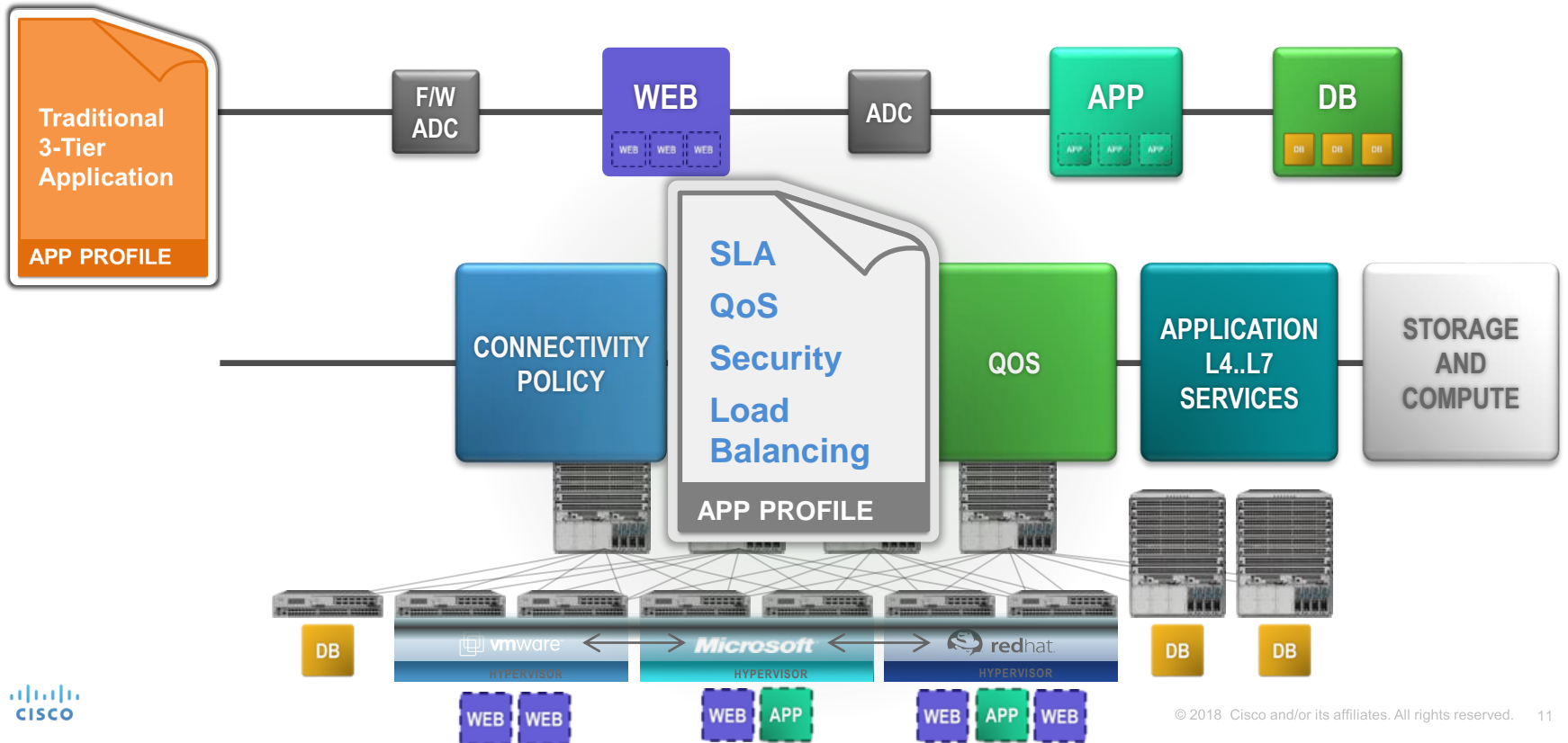




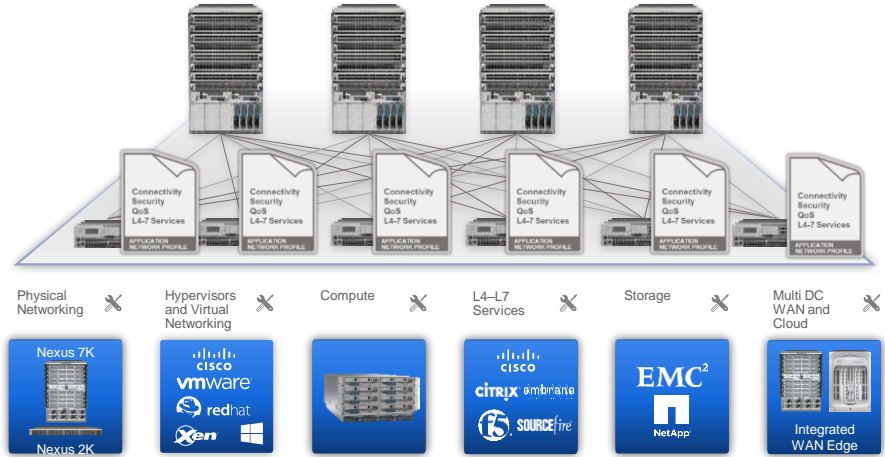
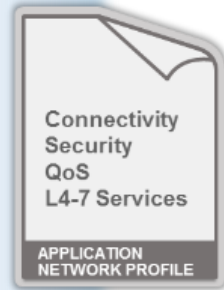
Push configurations automatically to the entire network

ANY APPLICATION, ANYWHERE - PHYSICAL AND VIRTUAL

COMMON APPLICATION NETWORK PROFILE



ACI – Common Policy Framework



1

Subject Matter Expert Define Policies

2

Policies Used To Create Application Network Profile Templates

3

Automated policy configuration across the infrastructure

4

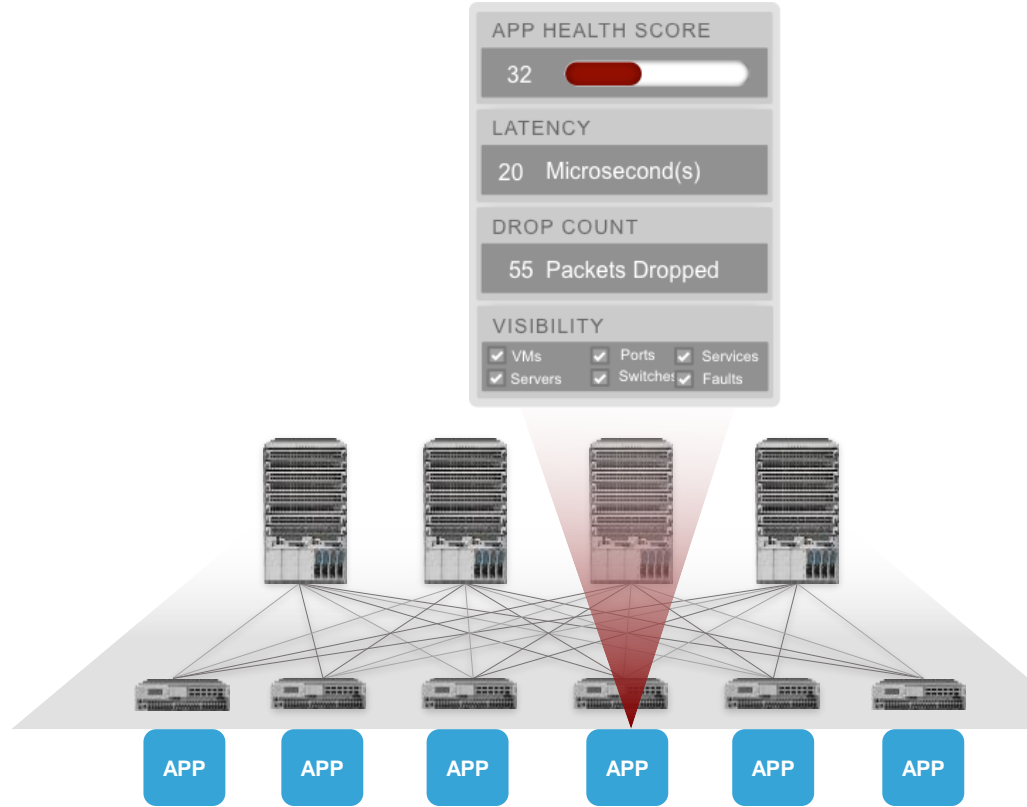
Life cycle management for day 1, day 2 operations

SYSTEMS APPROACH:

Rapid Deployment of Applications with Scale, Security and Full Visibility

ACI Monitoring

Quickly Detect and Mitigate Application Issues



Example of Customer DC Fabric Topology

CISCO SYSTEM TENANTS FABRIC VM NETWORKING L4-L7 SERVICES ADMIN welcome, admin ▾

INVENTORY | FABRIC POLICIES | ACCESS POLICIES

Inventory

- Quick Start
- Topology
- Pod 1
- Fabric Membership
- Unmanaged Fabric Nodes
- Unreachable Nodes
- Disabled Interfaces and Decommissioned Switches

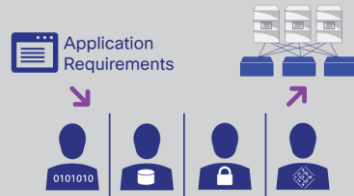
Topology

Current System Time: 2014-08-03T18:29 +00:00



Without ACI

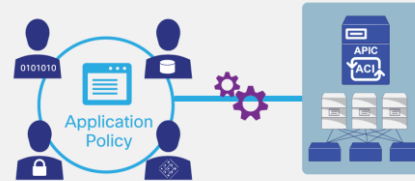
New Application



With ACI

New Application

Simpler



IT administrators
work in silos.



Weeks

Faster

IT admins work at
the application level.



Hours

There is no shared
architectural model.

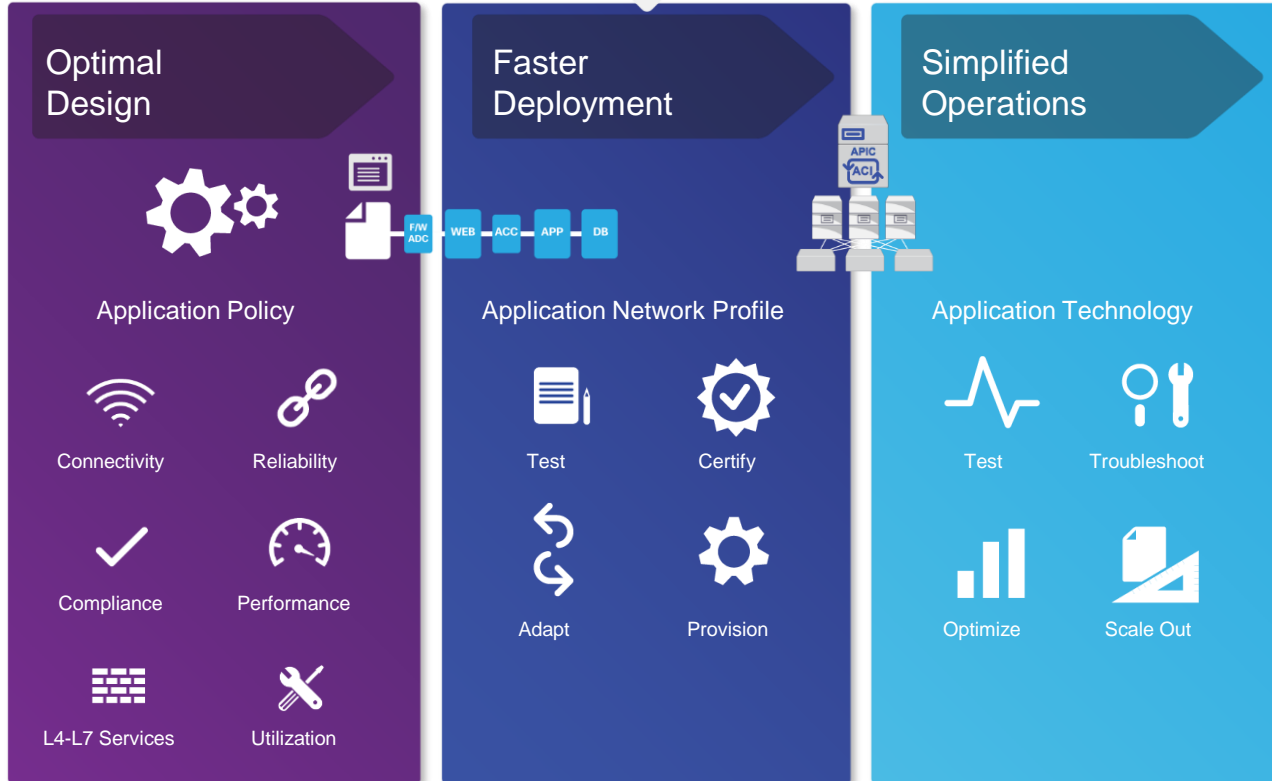


Efficient

Shared model for
policy automation.



ACI cuts deployment time and effort.





Simple & Agile

What does this mean to you?

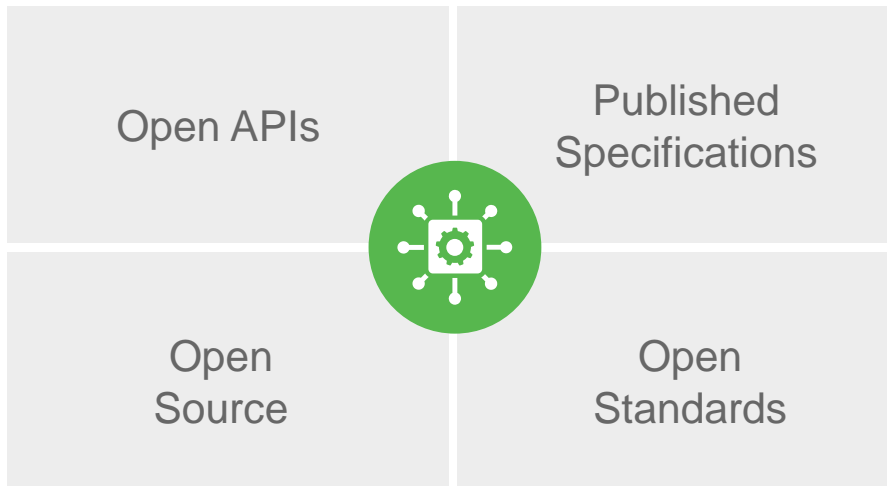
- ▶ More efficient automation
- ▶ Meets the needs of applications
- ▶ IT aligned with business needs

Compared to network virtualization vendors?

- ▶ Application-centric
- ▶ One network to manage: physical and virtual



Open Platform





Zenoss



CANONICAL



Open Ecosystem of Partners 65+ and Counting



cloudera



CFEngine

splunk>

NUTANIX



MAPR



EMC²



embrace



PANDUIT

cloudstack





Open Platform

What does this mean to you?

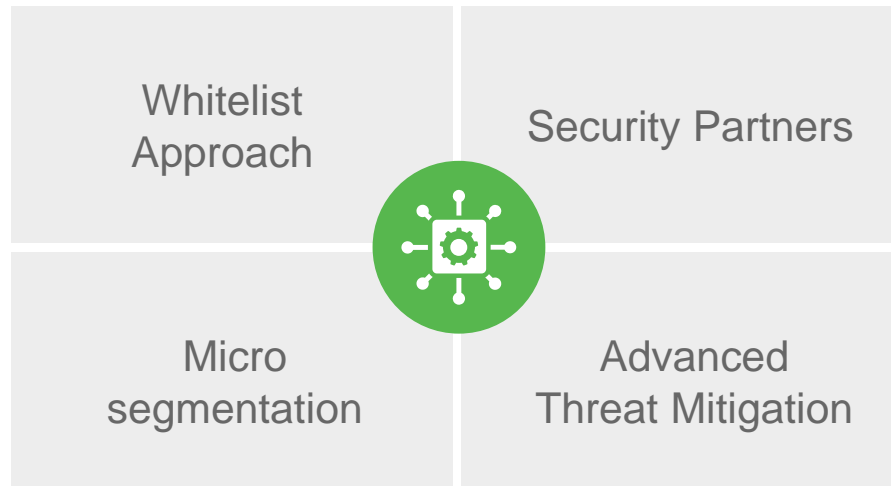
- ▶ Flexibility to choose — no vendor lock in
- ▶ Automation across your whole environment

Compared to network virtualization vendors?

- ▶ ACI supports all major hypervisors
- ▶ ACI supports all major cloud automation platforms
- ▶ ACI offers the most flexibility and integration



Secure Platform



ACI Security

Focus on Simplification, Multi-Tenancy and Scalability

Integrated in ACI



Policy –
Physical and
Multi-Cloud



Automated
Audit, Detect,
Mitigate



Stateless Firewall
and Micro
Segmentation*

* State-full with Cisco
AVS / AVE

Investment Protection



Validated for Deployment in PCI Compliant Networks



Secure Platform

What does this mean to you?

- ▶ Network adjusts to each application's security requirements
- ▶ Automated security device configuration
- ▶ Audits are less painful, improved compliance

Compared to network virtualization vendors?

- ▶ Physical and Virtual
- ▶ Larger security ecosystem
- ▶ More advanced threat protection

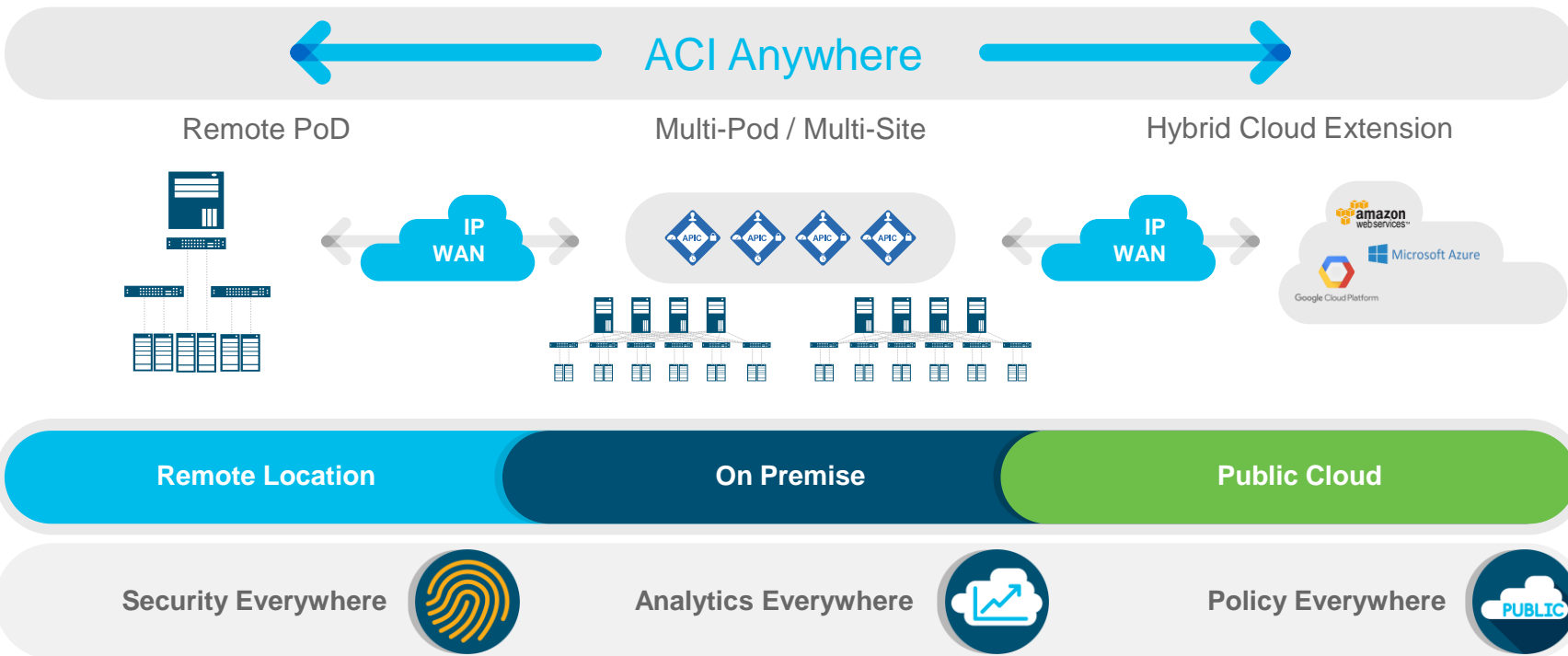
With Cisco ACI,
you can build a
better network...

Anywhere.



ACI Anywhere - Vision

Any Workload, Any Location, Any Cloud



ACI / N9k - Strong Momentum in the Marketplace

13,000+

Nexus 9K
Customers Globally

4,400+

ACI
Customers

65+

Ecosystem
Partners

\$3B

Business
Run Rate

ECOSYSTEM PARTNERS



Nexus 9000

Financial
Services
Customers

The platform is proven at scale in Global Financial Customers



ACI: Business Outcome and Benefits



Cisco ACI Enables You to Build an Intent based MultiCloud Data Center



Simple and Agile

IT is aligned with and responds to business needs. Fast.

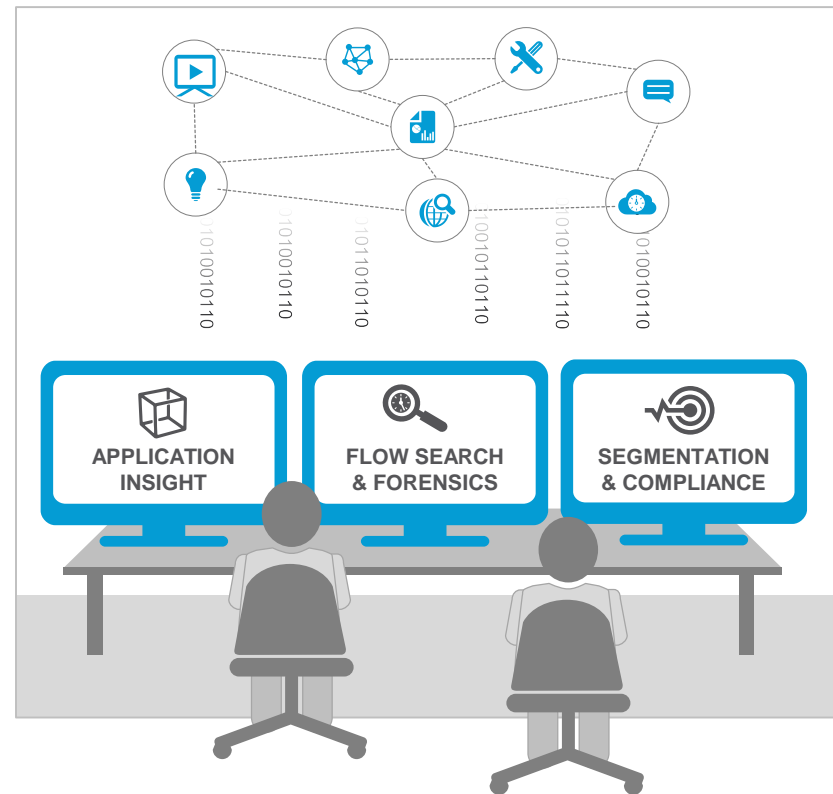
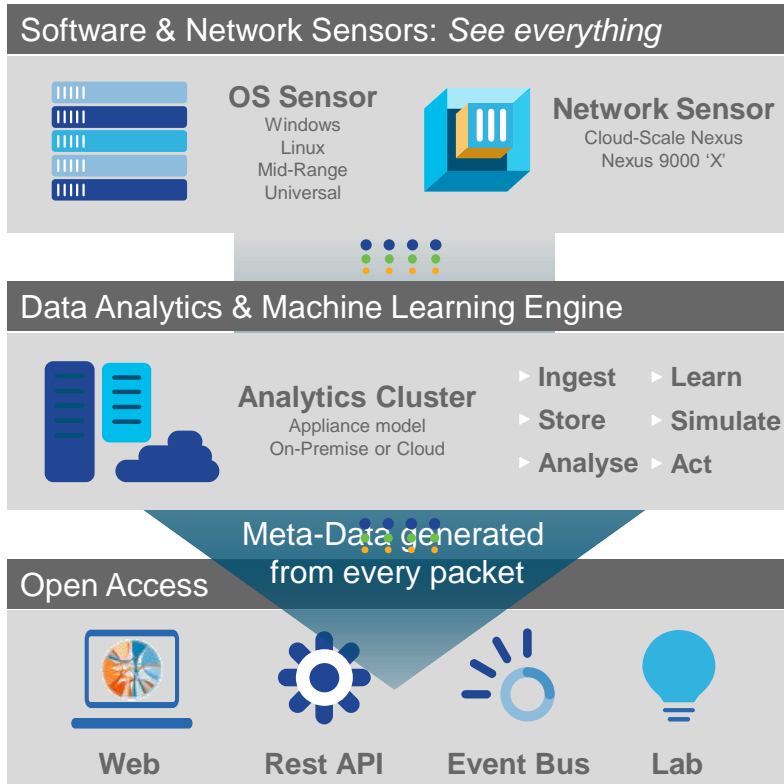
Open

An open architecture extends automation to a large partner ecosystem

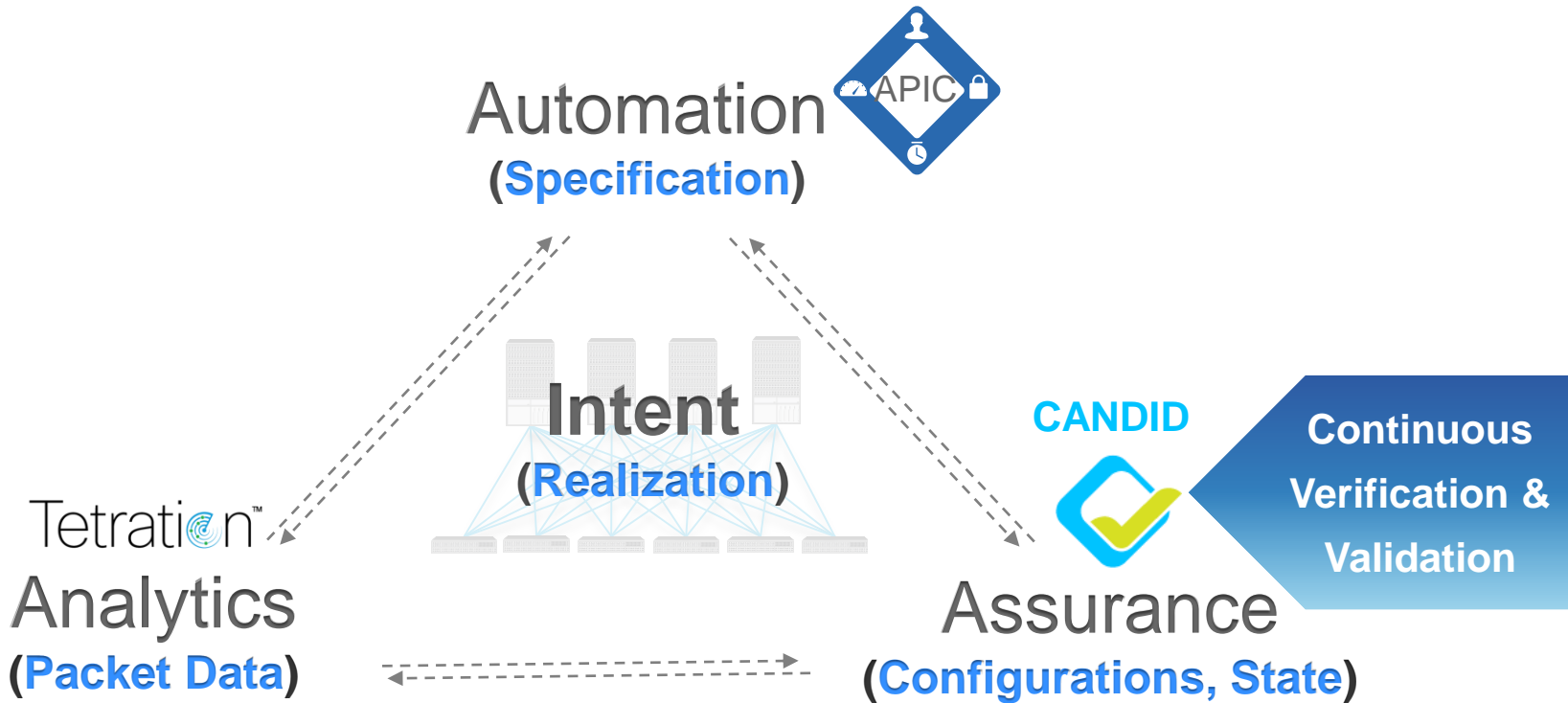
Secure

Simplified security policy management and industry leading threat protection

ACI with Tetration Analytics

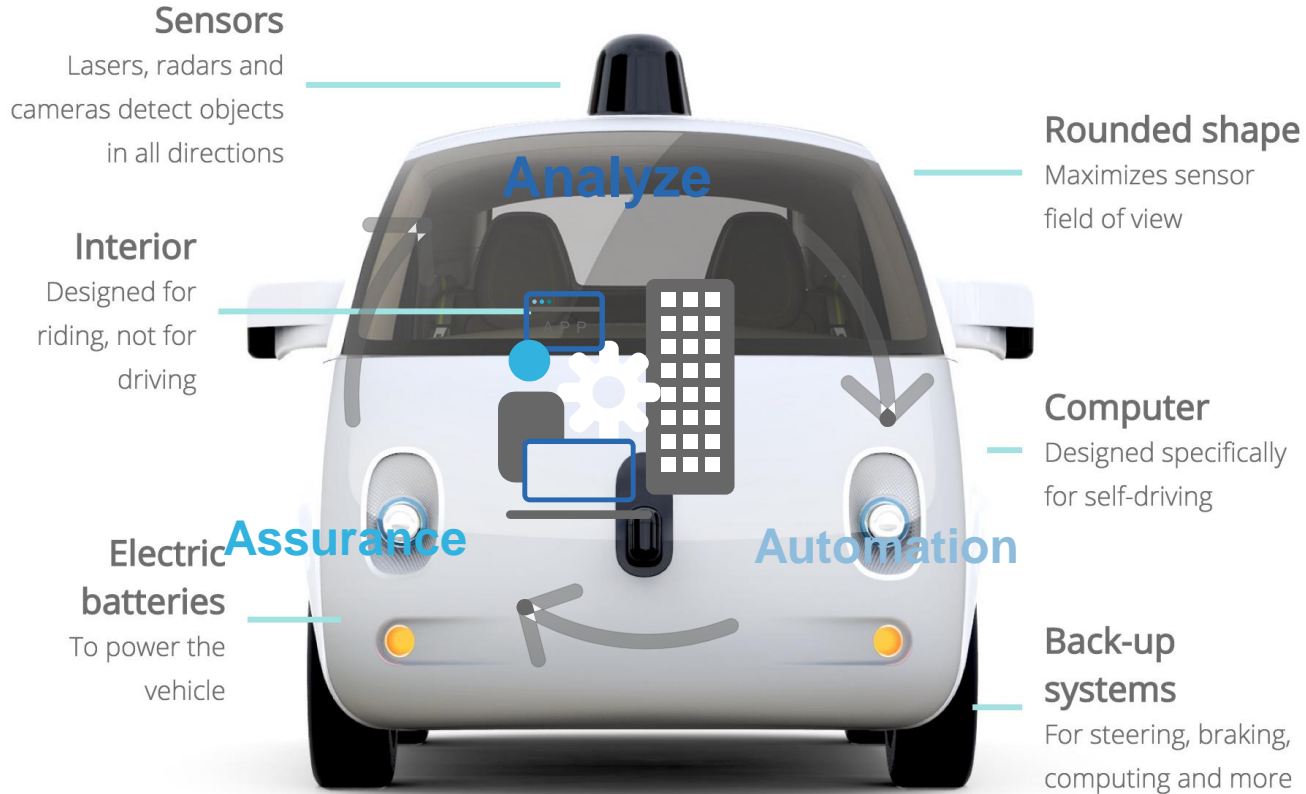


Complete Network Visibility & Intent Assurance



Provides Assurance on
Network Intent

The Autonomous Network



Constantly
Learning

INTENT
Based
Data
Center

Constantly
Adapting

Constantly
Protecting

