THE NETWORK IS THE INFORMATION BROKER FOR ALL APPLICATIONS

Applications Are Changing
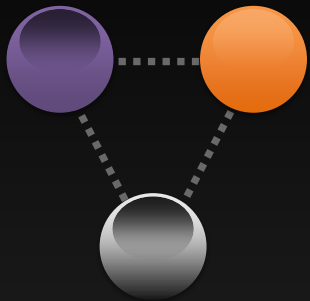
- Type
- Consumption
- Delivery

- Big Data, Distributed, Mobile
- Cloud – Public, Private, Hybrid
- Any where, Any Time, Any Device
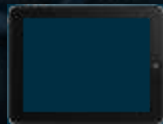
78% Network is even more critical to delivering applications than a year ago*

Cisco Global IT Impact Survey

A NEW OPEN OPERATING MODEL IS REQUIRED

TRADITIONAL NETWORK MODEL

Network of Boxes

Focus on Large, Stable, IP Networks

Network Centric

A NEW OPEN OPERATING MODEL IS REQUIRED

TODAY'S SDN DATACENTRE MODEL

Software-Based Network Virtualisation

Concepts: Centralised Controller and Overlay

Remains Network Centric Abstraction

NETWORK VS. APPLICATIONS

APPLICATIONS

NETWORKS

Exchange   hadoop   SAP   SharePoint

- Rapid Deployment
- Grow, Shrink, Move as Needed
- Compute, Storage, and Network

Any
Application
Any Time
Anywhere

- Scalability
- Stability
- Reliability
- Performance

Requires an Application Centric Infrastructure
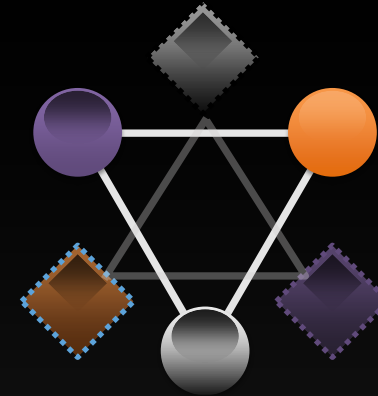
A NEW OPEN OPERATING MODEL IS REQUIRED

TODAY'S SDN DATACENTRE MODEL

Software-Based Network Virtualisation

Concepts: Centralised Controller and Overlay

Remains Network Centric Abstraction

FUTURE OPEN MODEL

Application Centric Infrastructure

FOCUS ON APPLICATIONS!

Application Centric Abstraction

Application Agility Across Entire Infrastructure
(Compute, Storage, Network)

CONTINUED HISTORY OF INNOVATION

**Nexus 9000 + ACI
(Insieme)**
50+ Customers
>800 Pipeline

**Unified Fabric + FEX +
UCS
(Nuova)**

**MDS-SAN
(Andiamo)**

**Cat 5K/6K
(Crescendo)**

APIC

Leading the industry in data centre innovation

APPLICATION CENTRIC INFRASTRUCTURE
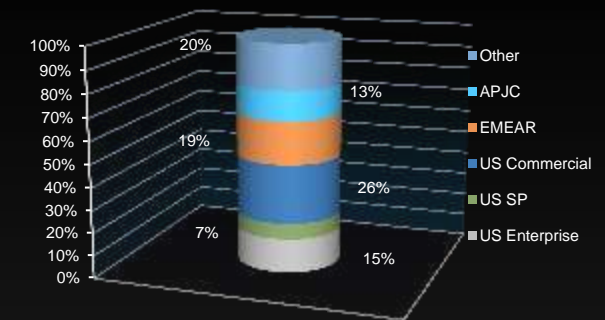## PROGRESS AND MOMENTUM

New Nexus 9000 Platforms

ACI Ecosystem Update

NEW PARTNERS

Nexus 9000 Momentum

PIPELINE >800 CUSTOMERS

- Other
- APJC
- EMEAR
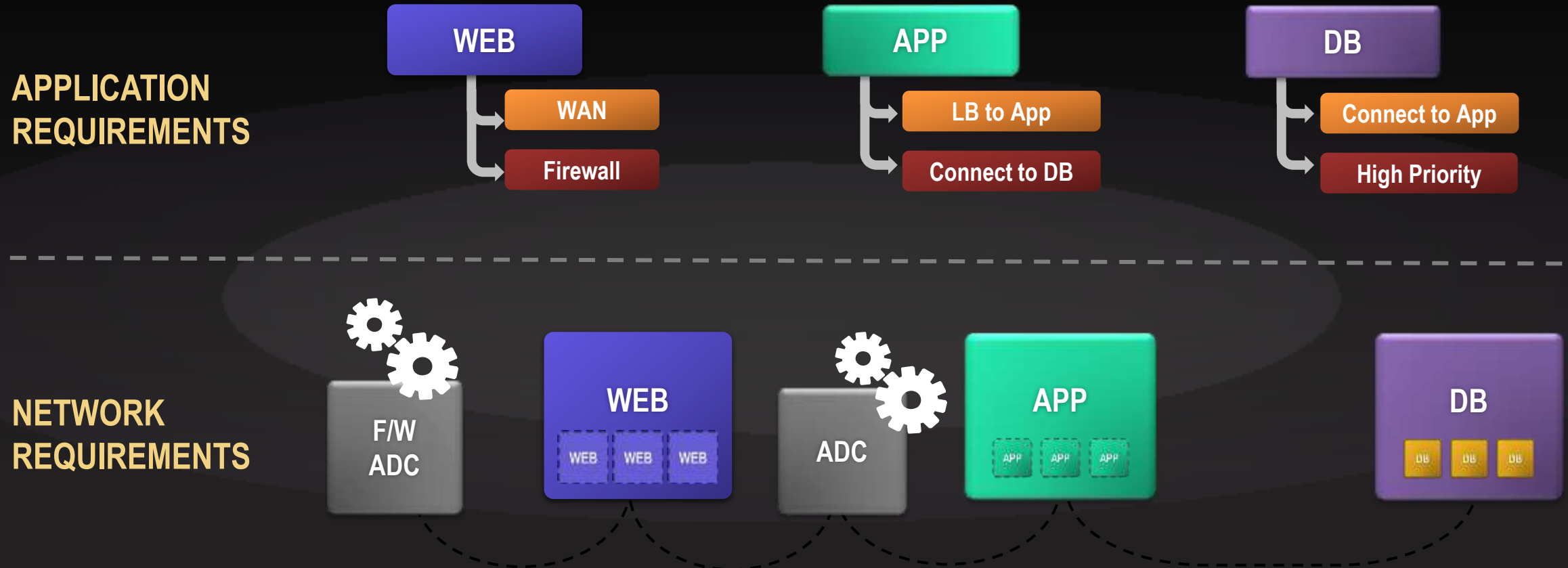- US Commercial
- US SP
- US Enterprise

CUSTOMERS ACROSS DIFFERENT SEGMENTS

RAPID CHANNEL PARTNER SCALE

Early Design Wins in all Major Geographies and Segments:
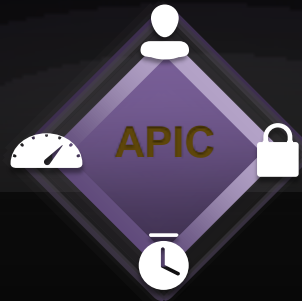**Enterprise, Cloud, Service Providers, Public Sectors, Commercial**

ACI BUILDING BLOCKS

FUTURE PROOF—SOFTWARE UPGRADABLE TO ACI

OPEN RESTFUL APIS
CENTRALIZED POLICY MODEL
OPEN SOURCE

APIC

NEXUS 9508 & 9300

SHIPPING NOW

Traditional 3-Tier Application

APPLICATION NETWORK PROFILE

F/W ADC   WEB   ACC   APP   DB

CONTROLLER

POLICY MODEL
NEXUS 9508 and 9300

INNOVATIONS IN SOFTWARE HARDWARE AND SYSTEM DESIGN

| PRICE | PERFORMANCE | PORT DENSITY | PROGRAMMABILITY | POWER EFFICIENCY |

OPTIMIZED NX-OS

RESILIENCY:
IN SERVICE PATCHING,
UPGRADE, FAST RESTART

50% SIMPLER
CODE BASE

ACI

FUTURE PROOF
UPGRADABLE
TO ACI

NETWORK
VIRTUALISATION
SUPPORT

PROGRAMMABILITY
AND AUTOMATION

INDUSTRY'S FASTEST 10/40G ROUTER

ASIC APPROACH
Innovation in Cisco ASICs

POWER EFFICIENCY

15% GREATER power and cooling efficiency

40G LINE RATE

288 x 40G ports 100% throughput

COMPONENTS

30% OF TRADITIONAL MERCHANT DESIGN

INCREASED RELIABILITY

2.8X BETTER Mean Time Between Failures

SAME HARDWARE – UPDATED SOFTWARE FOR ACI CAPABILITY
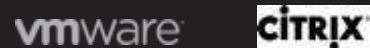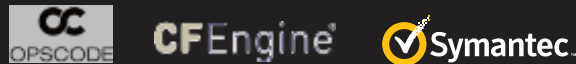
WITH THE BROADEST ECOSYSTEM OF PARTNERS

NEW PARTNERS: A10 Networks · cloudera · catbird · MAPR TECHNOLOGIES

HP · IBM · redhat · Microsoft · NetApp

f5 · SAP · puppet labs · splunk> · python · VCE

OPSCODE · CFEngine · Symantec · cloudstack · NIKSUN · NetQoS

FANOUT · EMULEX · ca technologies · EMC² · NETSCOUT

vmware · CITRIX · openstack · bmc · embrane

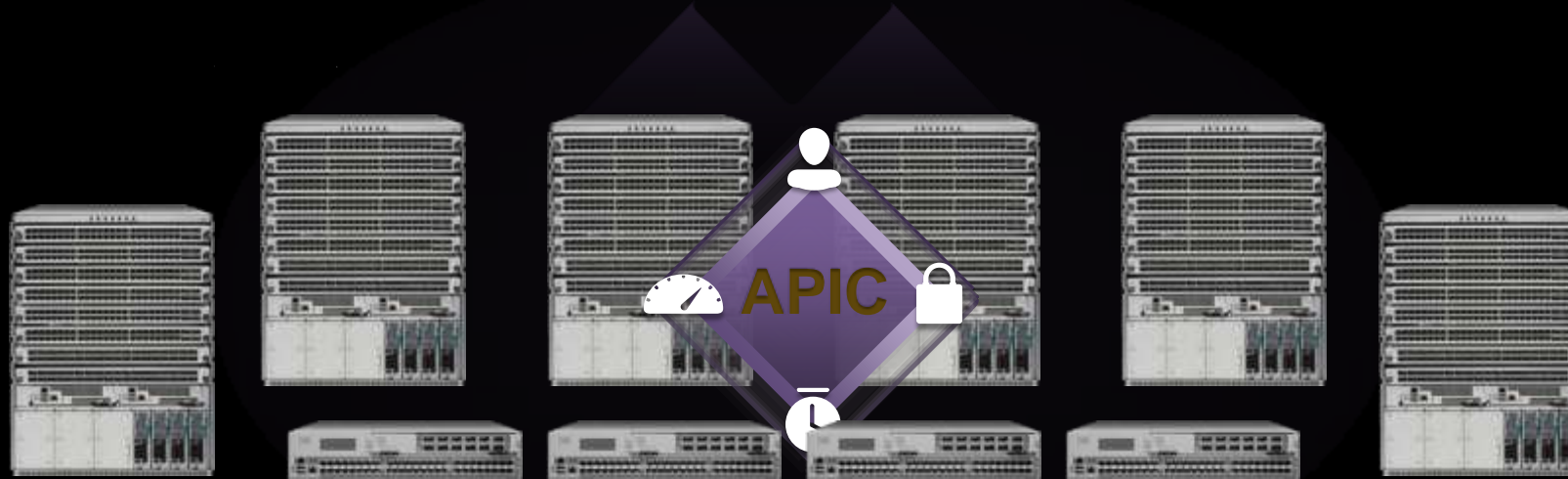Open and Standard APIs | Published Data Model

APIC

Open Source | Open Standards

L4..7 Services, System Management, Virtualisation, Orchestration and Application Vendors

APPLICATION CENTRIC INFRASTRUCTURE

APIC

Physical Networking
Nexus 7K
Nexus 2K

Hypervisors and Virtual Networking
CISCO
Microsoft
vmware
Xen

Compute

L4–L7 Services
CISCO
CITRIX
f5
SOURCEfire

Storage
EMC²
NetApp

Multi DC WAN and Cloud
Integrated WAN Edge

Deakin University Data Centre Transformation

- A changing Higher Education Landscape has driven a multi year Data Centre Transformation

  — Increase in e-learning – MOOCS

  — Requirement to support remote campus

  — Researchers requiring new types of services

- One of the first Universities to provide a centralized "shared services" model

  — Increased demand on Data Centre services – need for 24x7 on-demand services to service students, staff & researchers

  — Legacy infrastructure did not satisfy these requirements

- Early adopter of Cisco Unified Computing System & Nexus (2010)

Prior to Cisco UCS and Nexus

- A highly virtualised environment, looking for additional gains from reducing operational cost and increasing agility

- Took 8 weeks to deploy new physical servers

- High operational costs to manage physical servers

- Unpredictable costs to deliver new services

After Cisco UCS & Nexus

- Transitioned to policy-based compute infrastructure

- Policy-based compute infrastructure moved and prioritised resources onto IT projects with strong teaching and learning outcomes
  - **IT has been able to support a move from 700 VMs → 1200 VMs, which translates to increased IT demand, all while student growth has been increasing 5% year-over-year**

- While it used to take 8 weeks, it **now takes less than 20 minutes to deploy new systems and applications.**

- Reduction in cabling, rack space & power and cooling

- Reduction in servers from 350 to 88

- Near-linear costs to add additional capacity

What's Next…

- Research is increasing in importance to University

- Changing macro economic landscape in rural areas putting pressure on the University to innovate

- Transition Data Centre network to policy based framework

- Looking to gain benefits of increased security, lower operational costs and rapid application deployment

- Replicate success with server infrastructure to the network team within the Data Centre today and extend the campus in the future

Q&A

C-Scape Program
at Cisco live!

CISCO

Thank you.