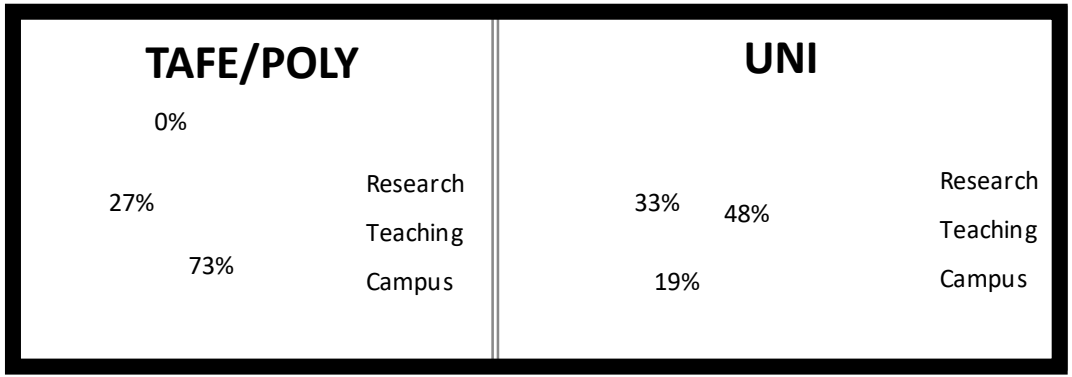
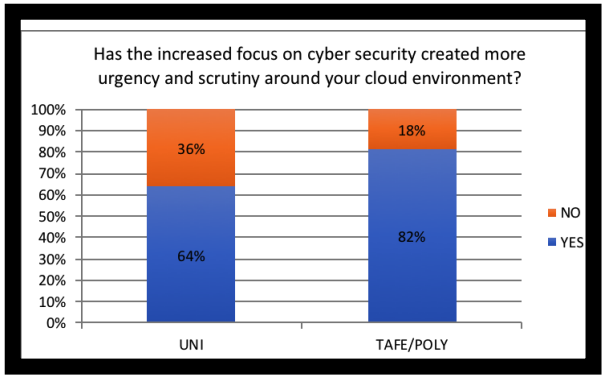
Developing a Multi-Cloud Strategy for Higher Education Institutes in Australia

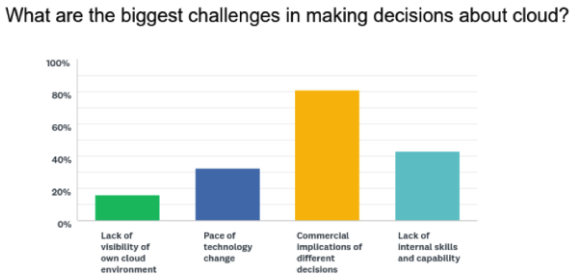
Mark Swalwell
Regional Lead – HyperFlex & UCS
September 2018

Research and cyber are driving interest but cloud's complex

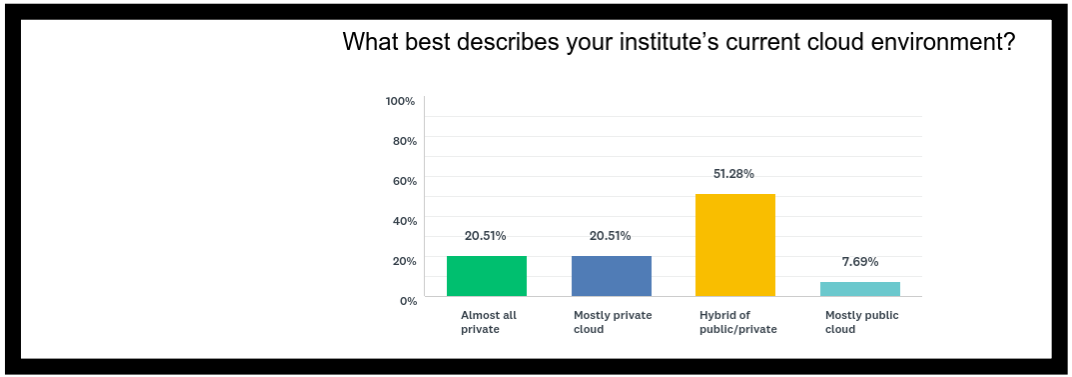




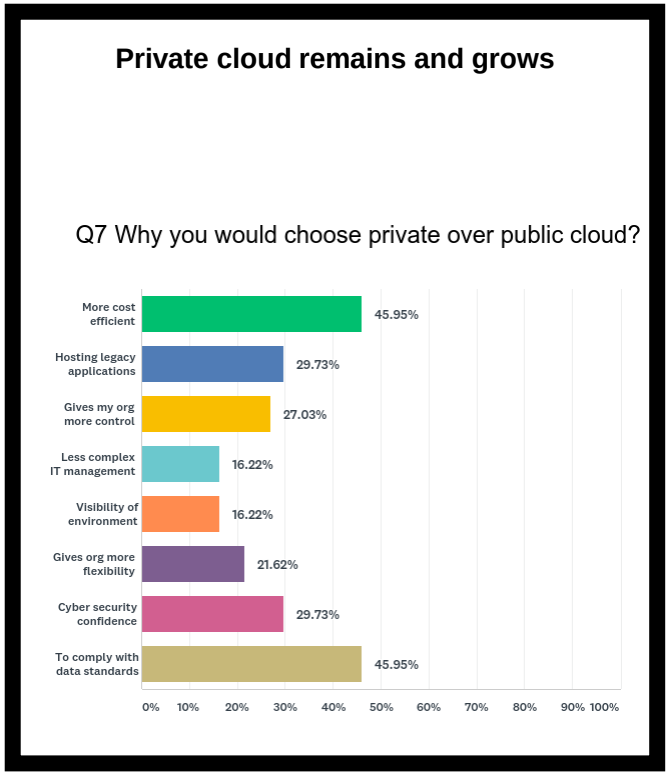
Our customers are also finding cloud challenging and don't know where to turn for advice



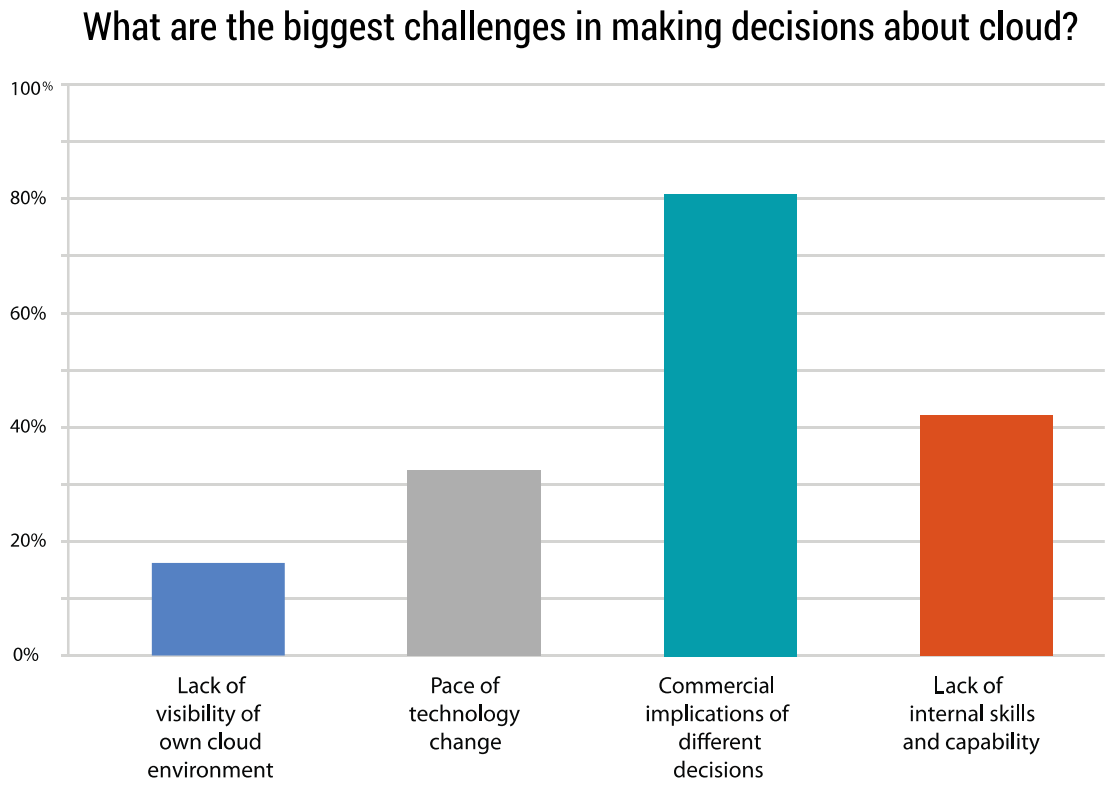
Evolution of Cloud in Education report



Few customers have fully optimized their cloud environment



The commercial aspect of cloud is challenging



Major takeaways

The future is multi-cloud, with a preference for private cloud

Despite cloud environments being mostly private (51%), hybrid (21%) or mostly public (7%) there is a strong bias towards private cloud. This is driven by advantages around cost, flexibility and capacity to support legacy applications. The major question for institutions is less about which cloud and more about how to maintain controls and visibililty across a range of clouds.

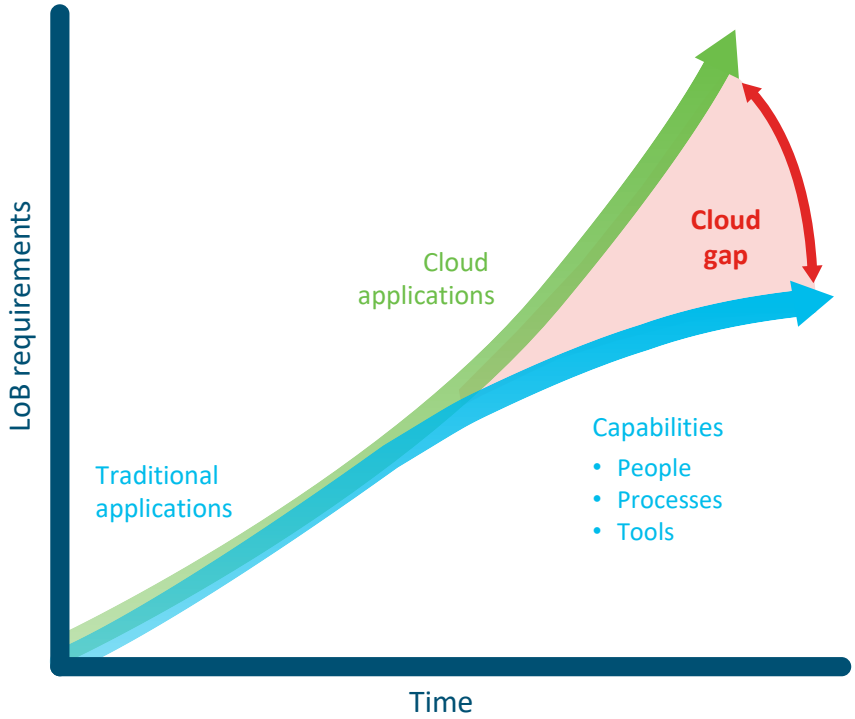
Security has to be embedded in the cloud

The relationship between security and cloud is becoming stronger. Scrutiny on cloud decisions is largely driven by the renewed focus on cybersecurity. Embedding security in infrastructure is increasingly common so threats can be detected early and responded to quickly.

The commercial implications of cloud decisions are not well understood

Despite advice from multiple sources (including independent advisors) institutes and systems still view the commercial side of cloud as a black box. Institutes reported not knowing what the true costs (or potential savings) would be until after services had been deployed – i.e. when it's too late. In some scenarios workloads were transferred from public back to private cloud because it was too expensive but also because it didn't deliver the desired outcomes.

A widening cloud gap



Between what cloud applications require…

…and what organizations can reliably and confidently support today.

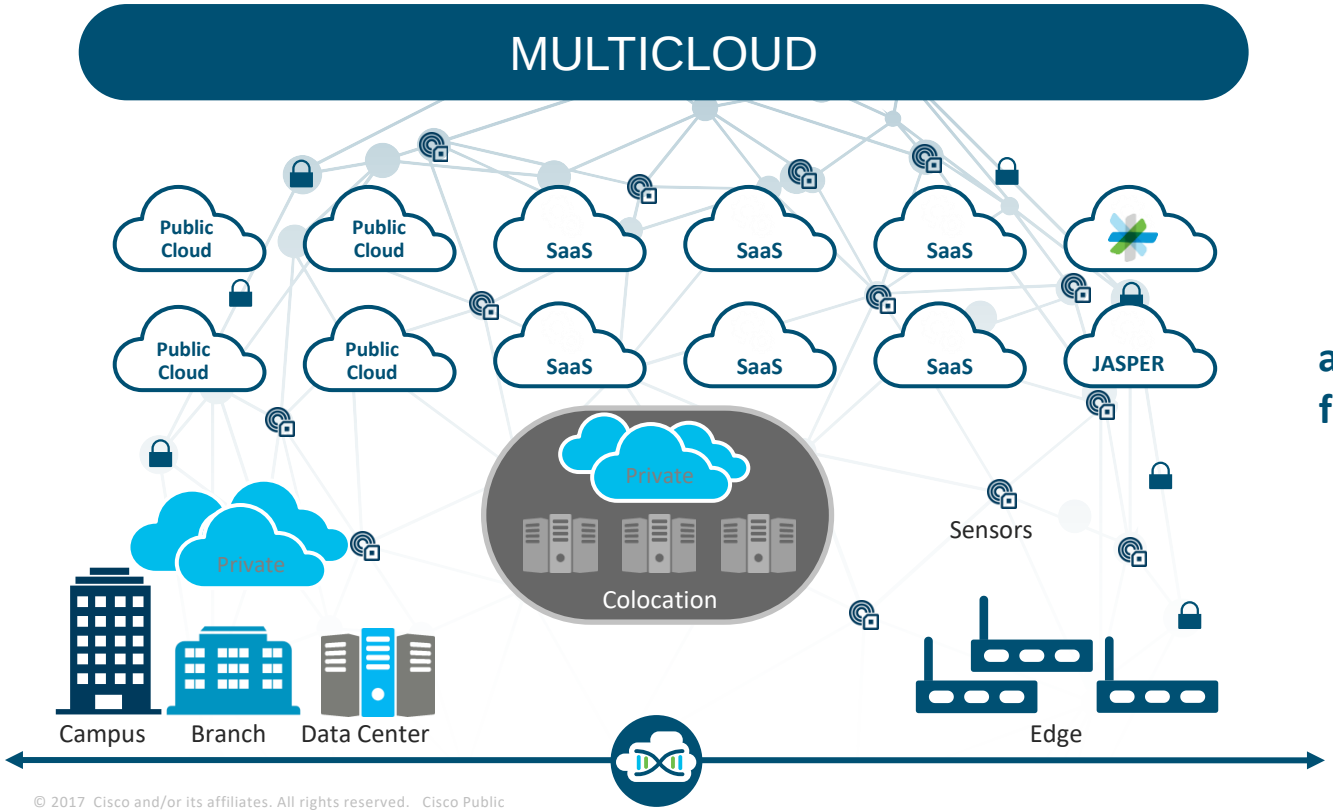
Transforming management of multicloud complexity

FRAGMENTED

COMPLEX

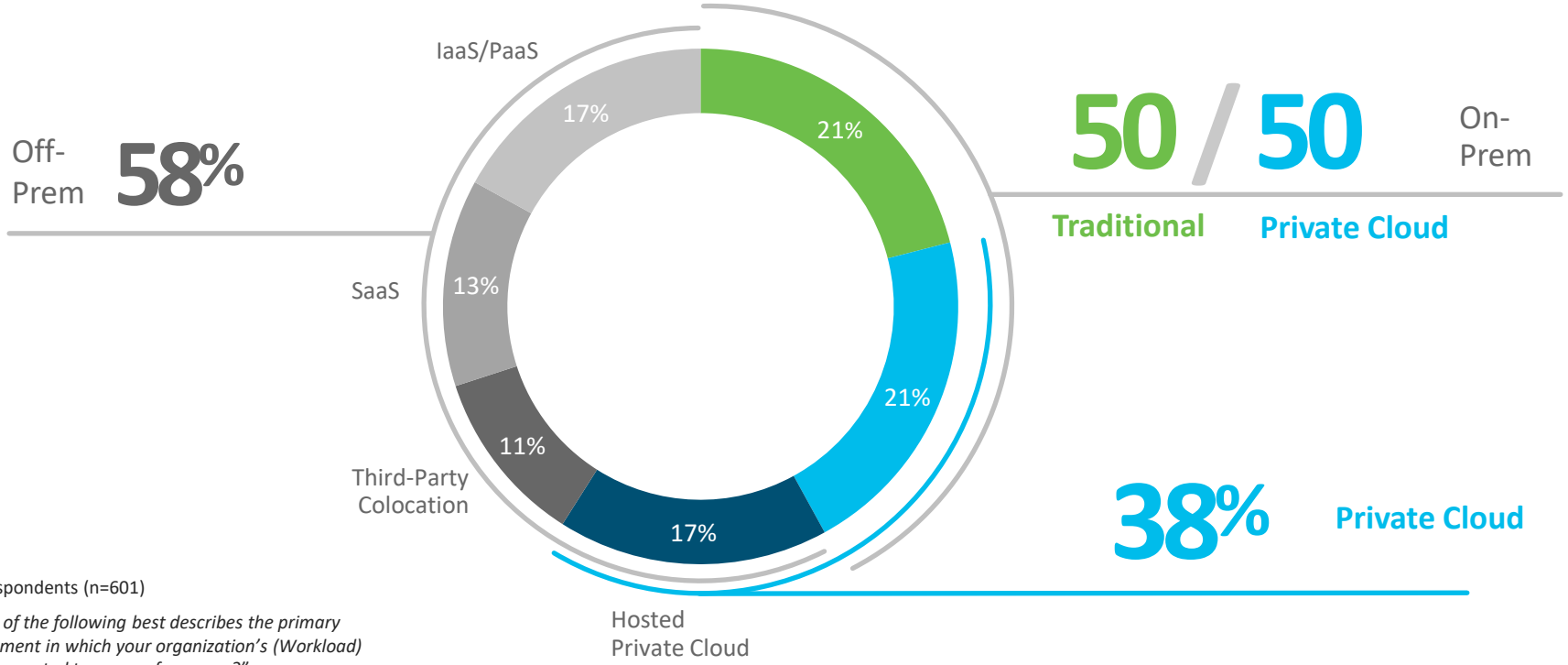
NO DATA CONTROL

Enabling the multicloud world



A multicloud approach enables customers to consume applications and services from two or more clouds where at least one cloud is public

Cloud first is the new reality

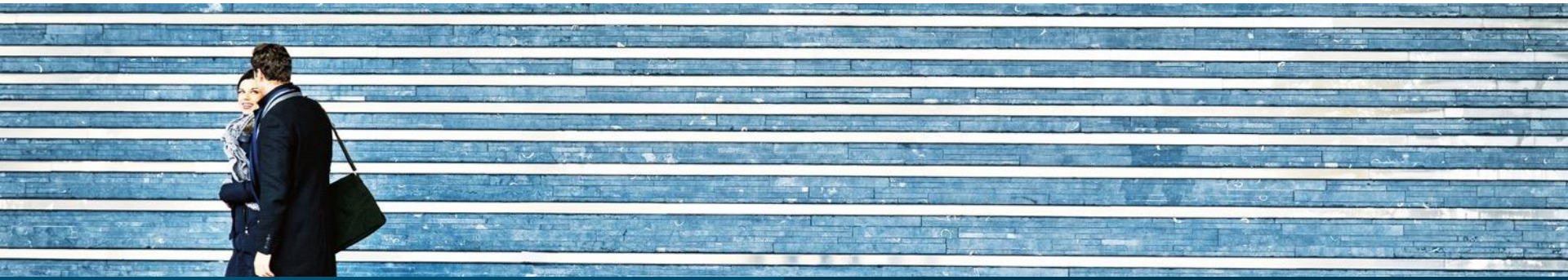


% of respondents (n=601)

"Which of the following best describes the primary environment in which your organization's (Workload) will be operated two years from now?"

·Source: 451 Research (2018) *Cloud, Hosting & Managed Services Workloads and Key Projects*

Computing follows the data



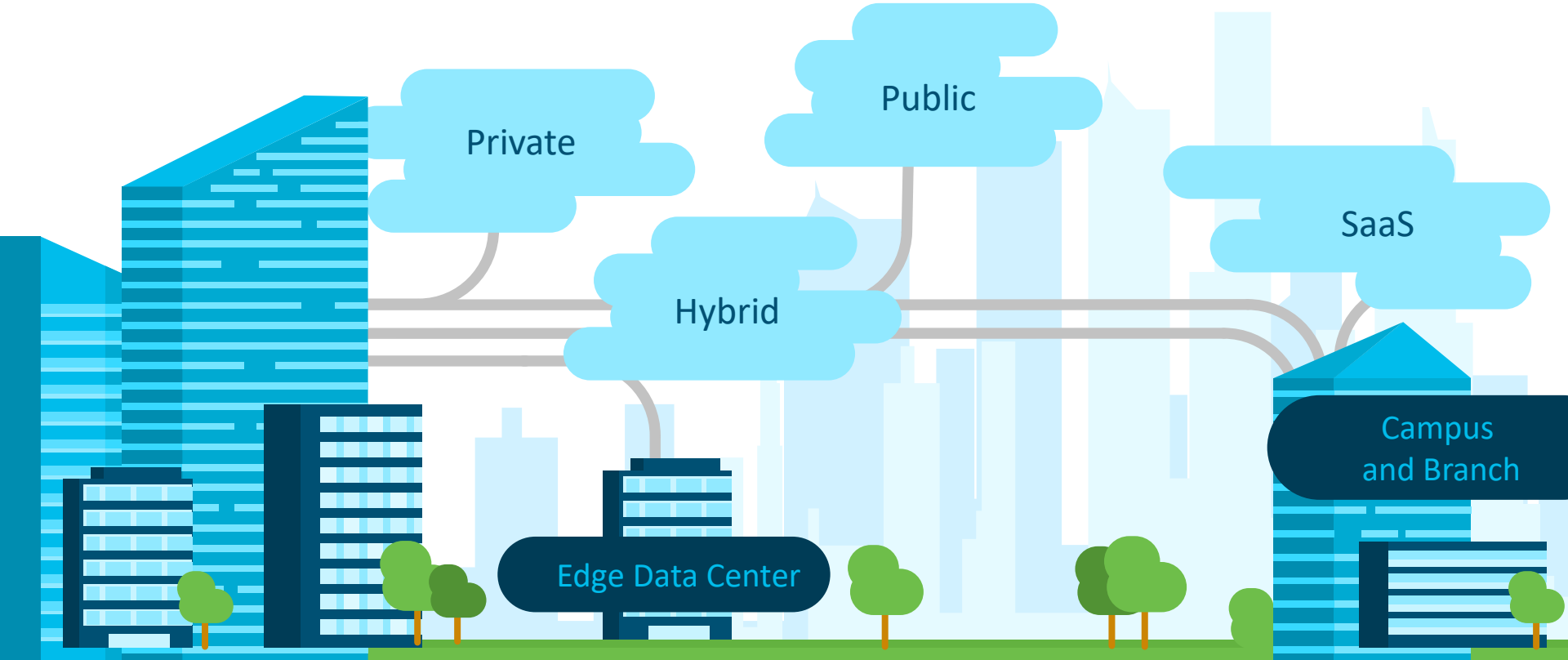
By 2022, as a result of digital business projects, **75% of enterprise-generated data will be created and processed outside the traditional, centralized data center or cloud.**

Gartner: Digital Business Will Push Infrastructures to the Edge

By 2021, installed and in use container instances will amount to more than **3.5 billion, with over 20% of them running in distributed locations serving edge and IoT workloads.**

IDC FutureScape: WW Enterprise Infrastructure 2018 Predictions

Multicloud. The Distributed Datacenter



Our Multicloud Approach

Helping customers to connect, protect, and consume their clouds

Secure Connectivity

Public cloud
Programmability
Unified networking

Risk Management

App/user/data security
Protection everywhere
Compliance

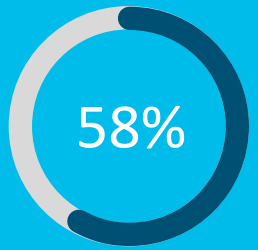
Visibility and Insights

App performance
User transactions
Business performance

Multicloud Operations

App management
DevOps
Skillsets

It’s multicloud that delivers

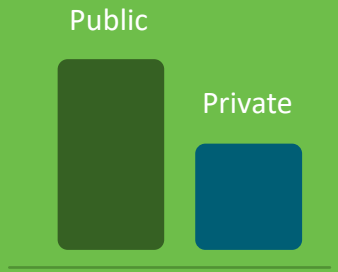


Reduced time

58% faster network provisioning

Cisco ACI

IDC: Cisco IT



3-year cost savings

51% lower cost than public cloud

Cisco HyperFlex Multicloud

IDC: Expert ROI spotlight

40 minutes

App deployments from 4-6 months to 40 min.

Cisco CloudCenter

IDC: Expert ROI spotlight

Better app performance

25% faster business transactions

AppDynamics

IDC: Expert ROI spotlight

15% Lower 3yr Total Cost of Ownership

Than Next Best Alternative

~10%

Lower software costs

~15%

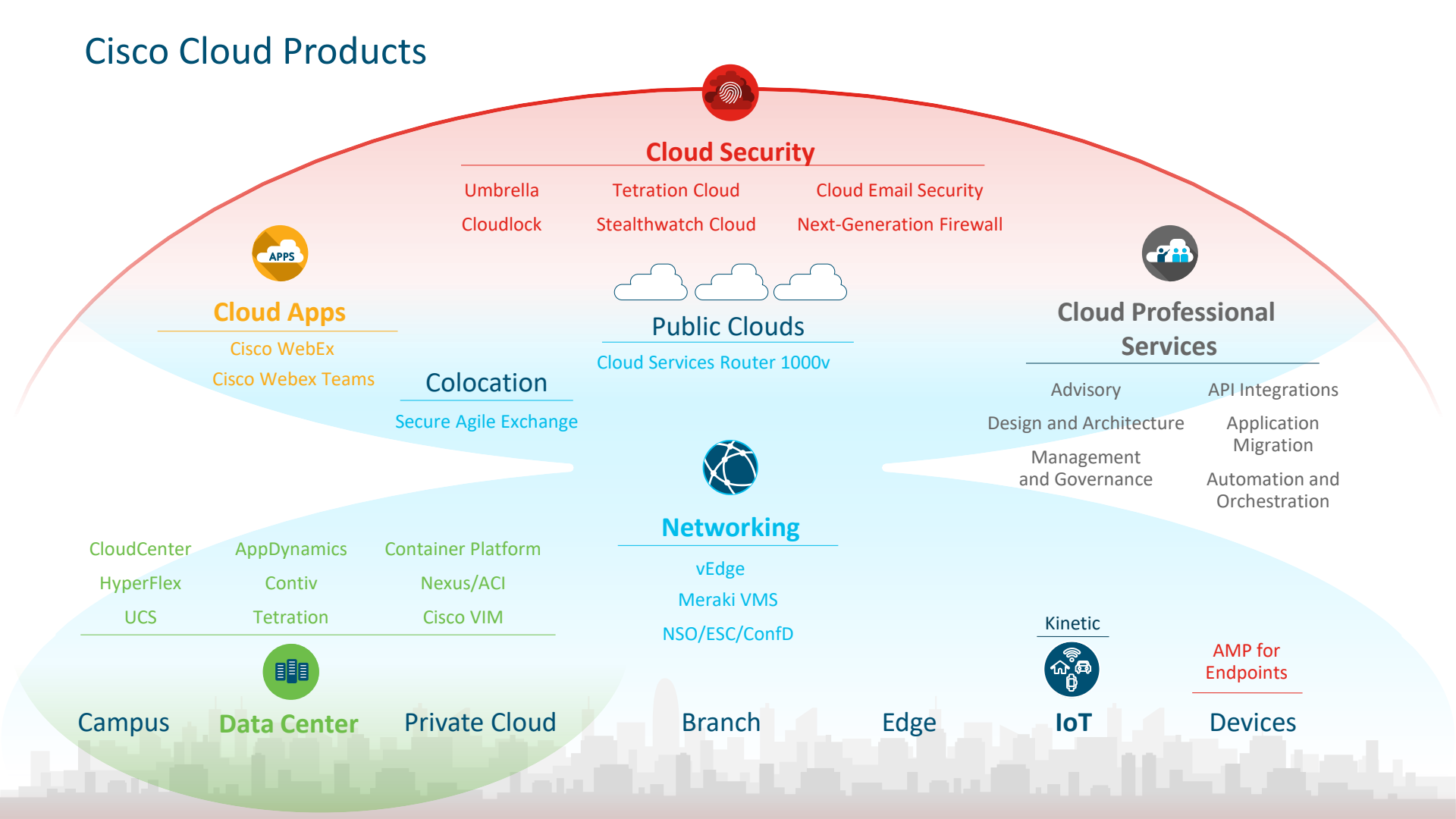
Lower upfront labor costs

~20%

Lower ongoing labor costs

McKinsey, 2017 - Calculated for a typical 2000 person, 500 app org

Cisco Cloud Products



Integrated Solutions with Cloud Providers

Cloud Security

Stealthwatch Cloud

Google Cloud

Google Kubernetes Engine

Public Clouds

Cloud Services Router 1000v

Google

apigee

Istio: Hybrid Cloud

Service Management

Networking

Existing Services | Apps | Data

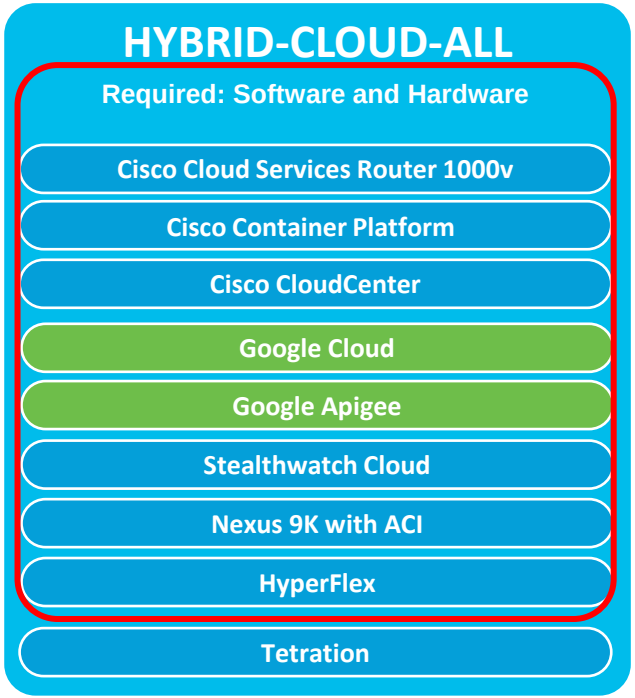
CloudCenter | AppDynamics | Container Platform

HyperFlex | Contiv | Nexus/ACI

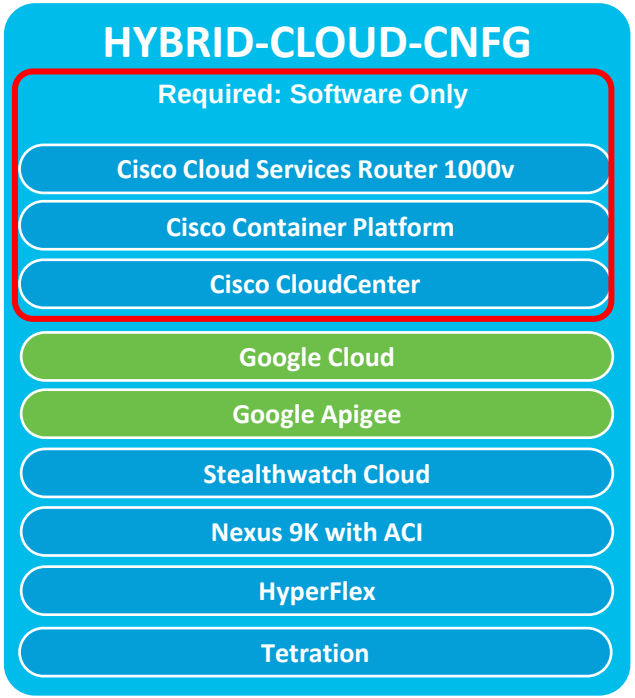
Campus | **Data Center** | Private Cloud

Hybrid Cloud Platform Offering Bundles

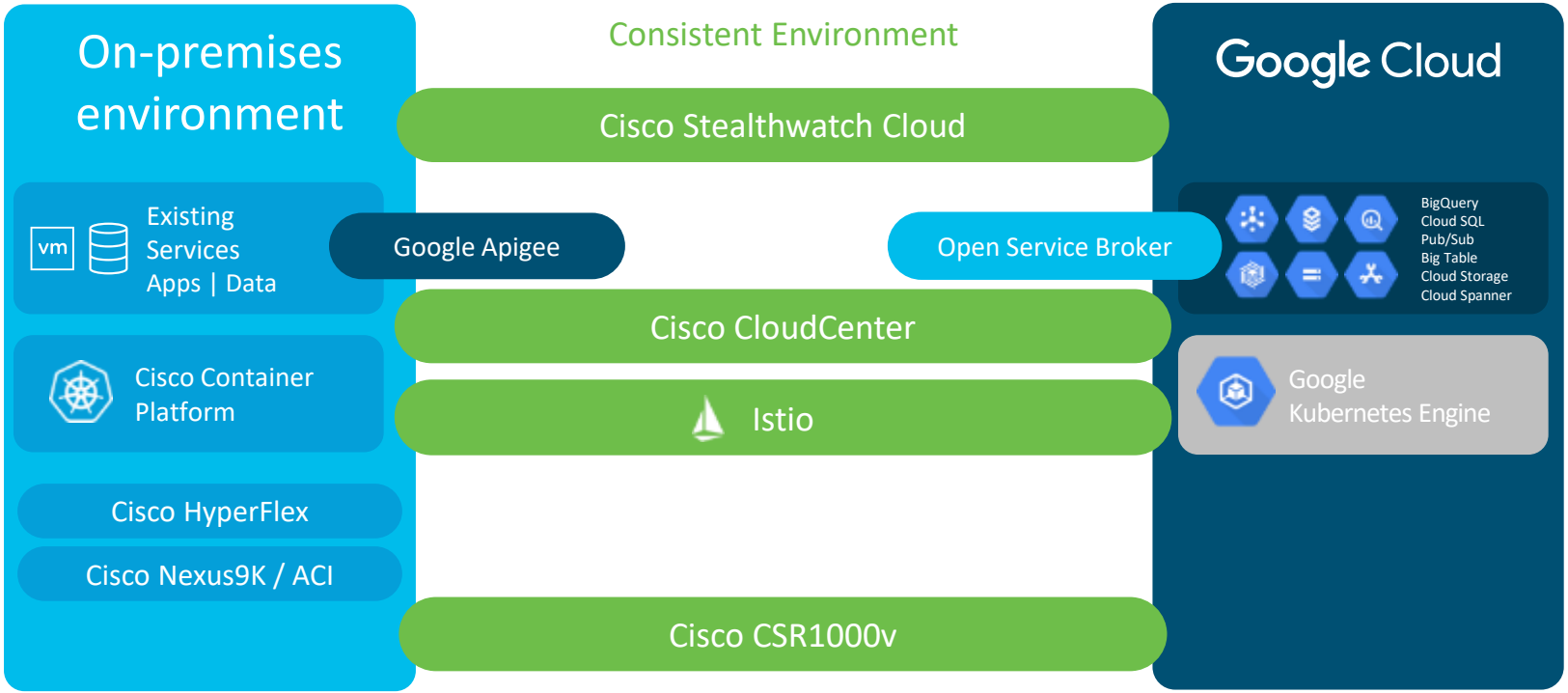
Full Stack Including HW & SW



Software Only Stack



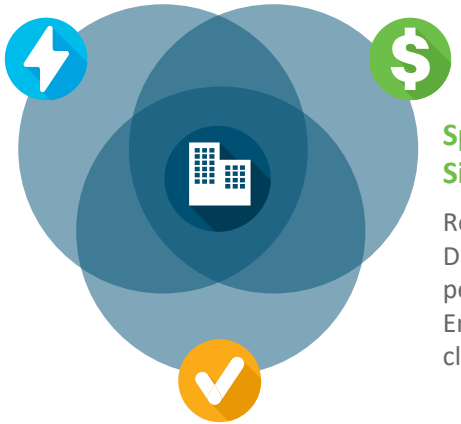
Cisco Hybrid Cloud Platform for Google Cloud



HYPERFLEX
Multicloud Platform

Kubernetes and Kubeflow

Common platform across data center and multicloud applications and Machine learning (ML) stack



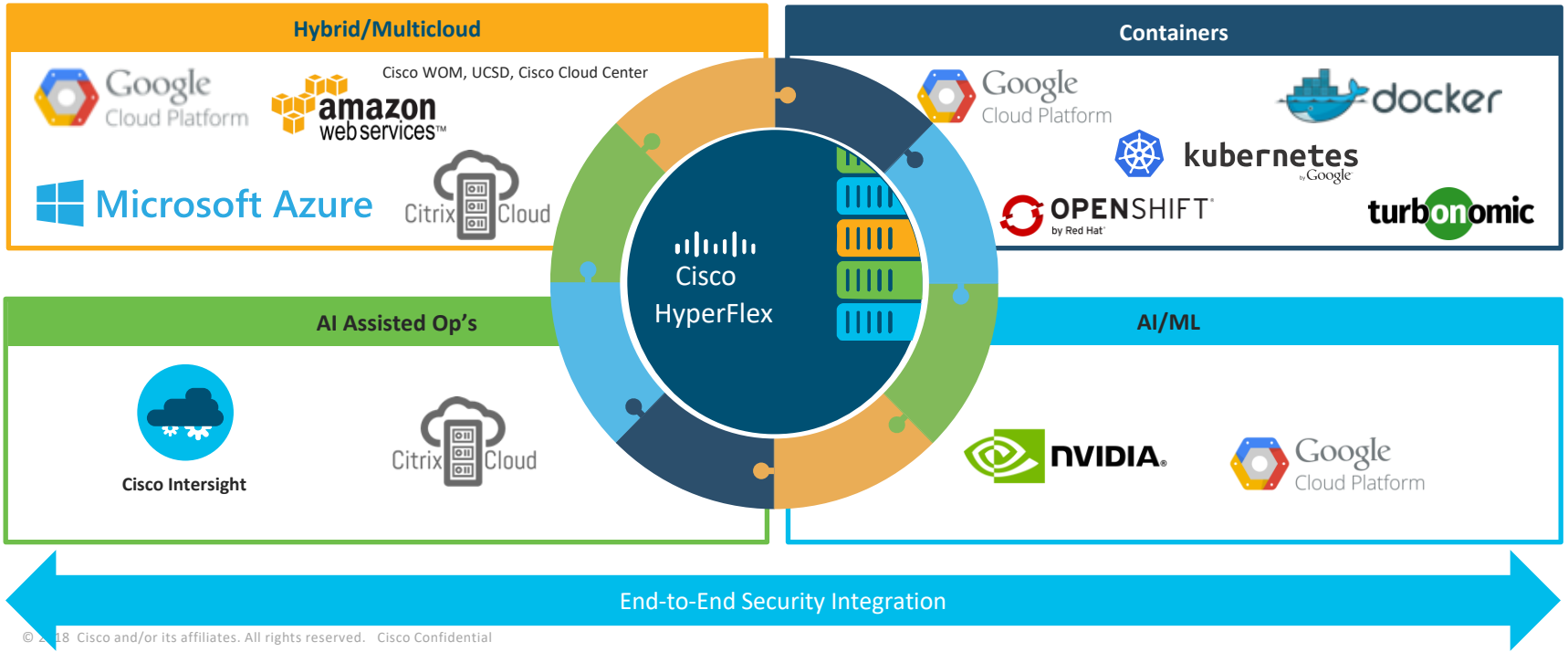
Speed and Simplicity

Resource Scaling On-Demand, High performance for Enterprise-class and cloud native apps,

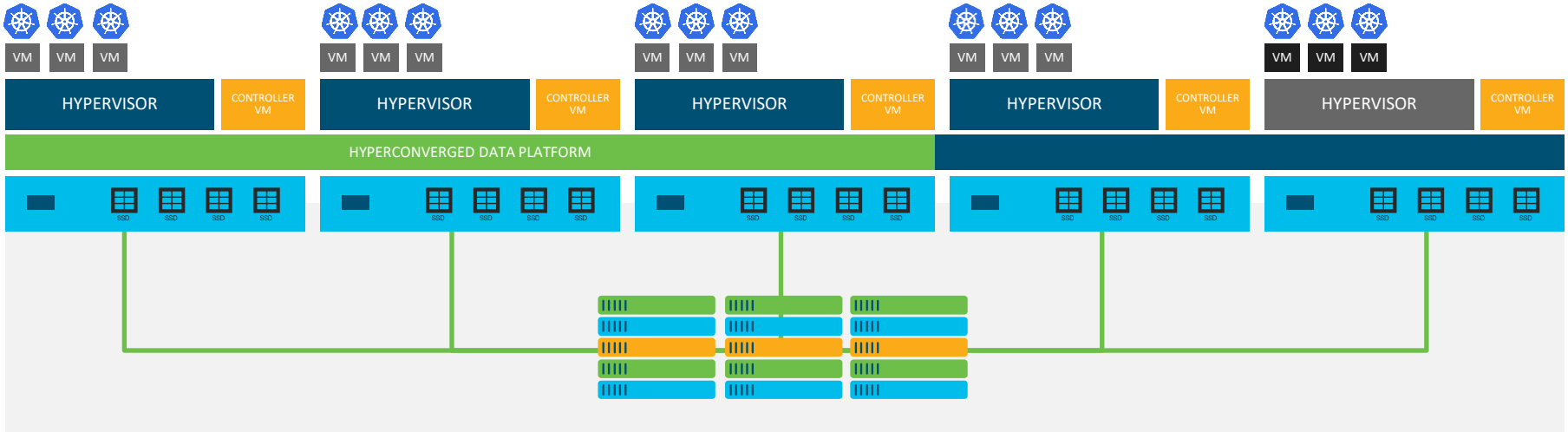
Streamlined Operations

Cloud like simplified management and orchestration via Intersight

HyperFlex Innovations Drive Your Future



Hyperconverged Scale Out and Distributed File System



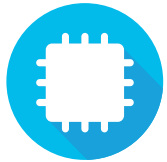
Start with as few as three nodes	Hyperconverged data platform installs in minutes	Network fabric policy configures qos settings	Add servers, one or more at a time	Distribute and rebalance data across servers automatically	Retire older servers

HyperFlex Market Leadership

#1 Performance

1st Integrated Fabric Networking

1st CI and HCI Integration



1st Compute Only Nodes

1st Cloud Based Management

1st Multicloud Platform

1st Integrated Kubernetes

1st 40gbe Networking

1st Machine Learning Platform

1st All NVMe

HyperFlex Performance Drives Business Outcomes

96%

Higher VM Level Performance Consistency

3X

Lower Latency for workloads tested

2X

IOPS Delivery for workloads tested

0%

Performance impact running dedupe/compression

Increased End User Experience/ Productivity

Increased Application Performance

- E-Commerce SLA's

30% Less

- Hardware Nodes
- HCI Software subscriptions
- Hypervisor Licenses
- Power Cooling
- App core licenses
- Op's and Management

"Cisco delivers an HCI solution that provides the essential simplicity and cost-efficiency features of HCI, but also the consistent high performance that has been missing—and that customers need for mission-critical workloads."

Tony Palmer and Kerry Dolan, Senior IT Validation Analysts at Enterprise Strategy Group

Cisco UCS C480 ML Rack Server

No-compromise balance of performance and capacity to power AI workloads at scale

NEW

Fully Integrated Platform Designed to Accelerate Model Training

- Eight NVIDIA Tesla V100s
- NVIDIA NVLink Interconnect
- Up to 24 Disks; RAID Controller
- Up to 6 NVMe Drives
- Network: Up to 100GB
- High Availability Design

Validated with Popular Machine Learning Software to Accelerate and Simplify AI/ML Projects on Premise

Prevent Technology Silos by Easily Integrates Into Existing Environments Using Cisco UCS Intersight Cloud-Based Management

UCS: One System for All Workloads

CISCO INTERSIGHT

6300 Series Fabric Interconnects

Scale Out and Compute Intensive Applications C4200 and C125

HPC & Composable Multi Node Servers

Mainstream Workloads B200 M5 C220 M5 and C240 M5 HyperFlex

Blade and Rack-Optimized Servers

NEW

AI/ML and Scale up Workloads C480 ML M5

AI/ML Servers

Data Intensive Workloads S3260 M5

Storage-Optimized Servers

Analytics and Cloud Powered

Cisco Intersight

Centralized Management

Global Policies

Intuitive Experience

Enhanced Support

Proactive Guidance

Secure and Extensible

SaaS Delivered

Comprehensive Automation

Single Pane of Glass

Integrated Solutions with Cloud Providers

- Increase software velocity without compromising security or sacrificing control
- Develop in the cloud and deploy anywhere
- Bridge existing investments with new digital initiatives

- Extend your existing management frameworks and tools across on premises and cloud
- Choose your cloud provider based on the needs of your workload
- Enforce network and security policy and regulatory compliance without losing agility


CISCO