Orchestrating the Cloud Infrastructure using Cisco Intelligent Automation for Cloud

BRKSPG-1663

TOMORROW
starts here.

Orchestrate the Cloud Infrastructure

Business Drivers for Cloud

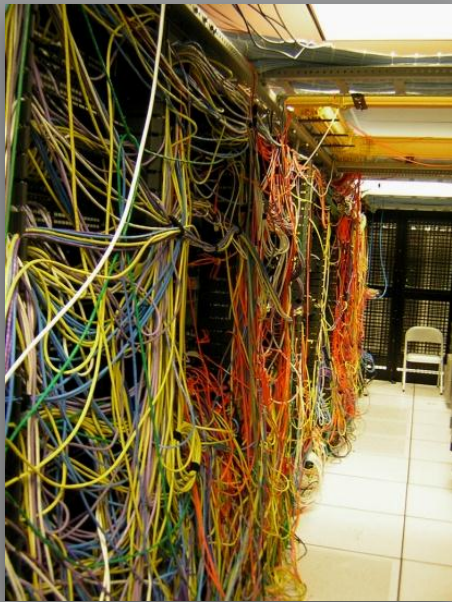|		
Long Provisioning Times for New Services	o Lack of agility o High cost of IT staff o Business-it dissonance	
High Capital Costs Due to Provisioning for Peak Loads	o Low capacity utilisation o High operating costs o Overcrowding of datacentre	**Lack of IT-Business Alignment**
Pressure to Move towards Proactive SLA Management	o Labor-intensive, manual processes o for service management	
Lack of Centralised Control and Governance	o High error rates due to o disconnected processes o Infrastructure sprawl	

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Orchestrate the Cloud Infrastructure
The NEXT Transition to Self-Service Orchestrated Cloud

Legacy Management:
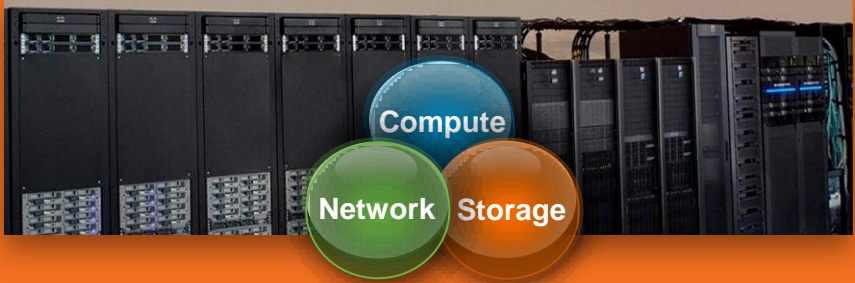**Slow, Complex, Brittle, Expensive**

Legacy IT
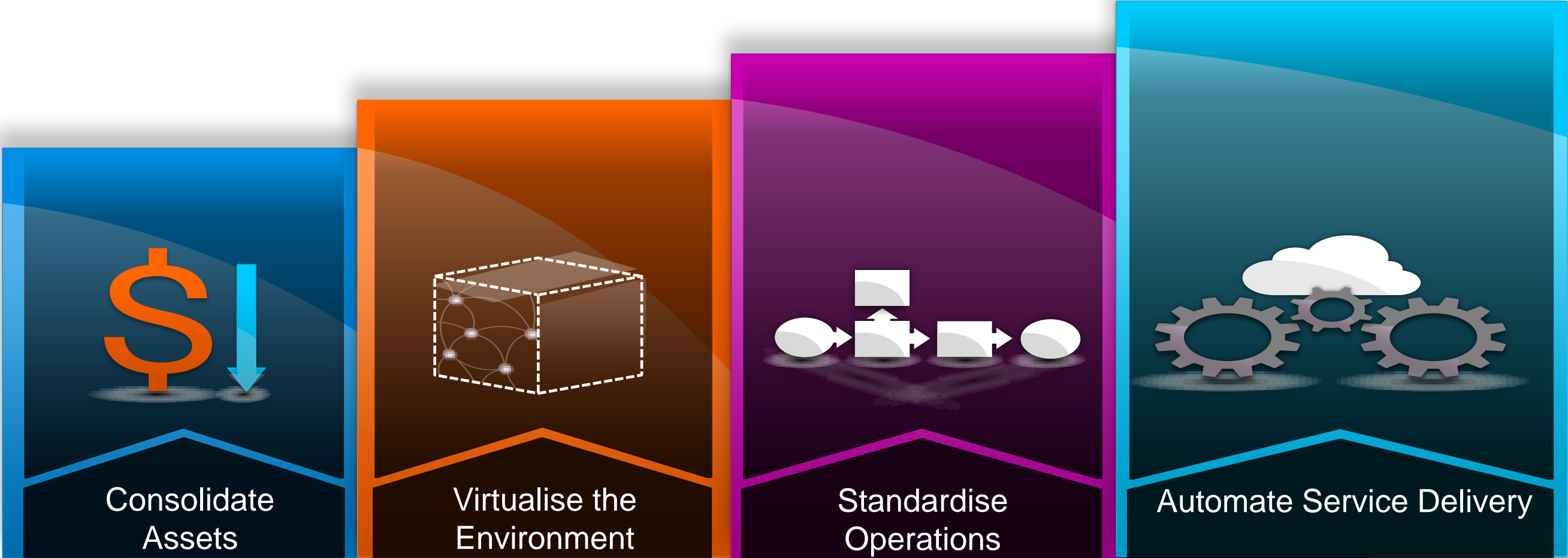
Cloud Management:
Fast, Simple, Flexible, Cost-Effective

IT-as-a-Service

Measured Service	Rapid Elasticity

On-Demand Self Service	Broad Network Access	Resource Pooling

Compute

Network   Storage

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Orchestrate the Cloud Infrastructure

Journey to IT Delivered as a Service

Consolidate Assets

Virtualise the Environment

Standardise Operations
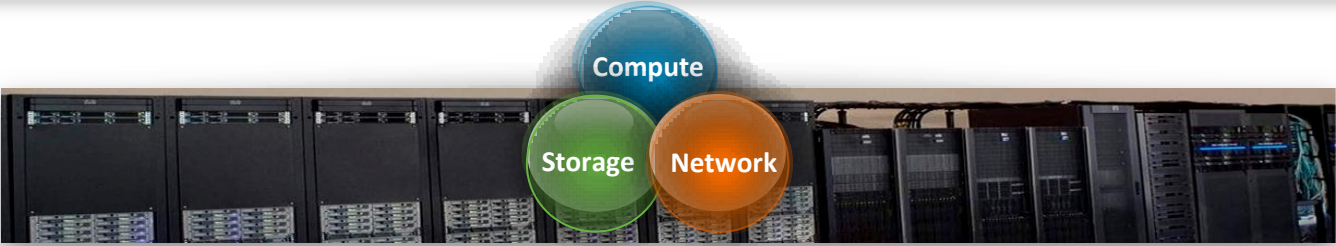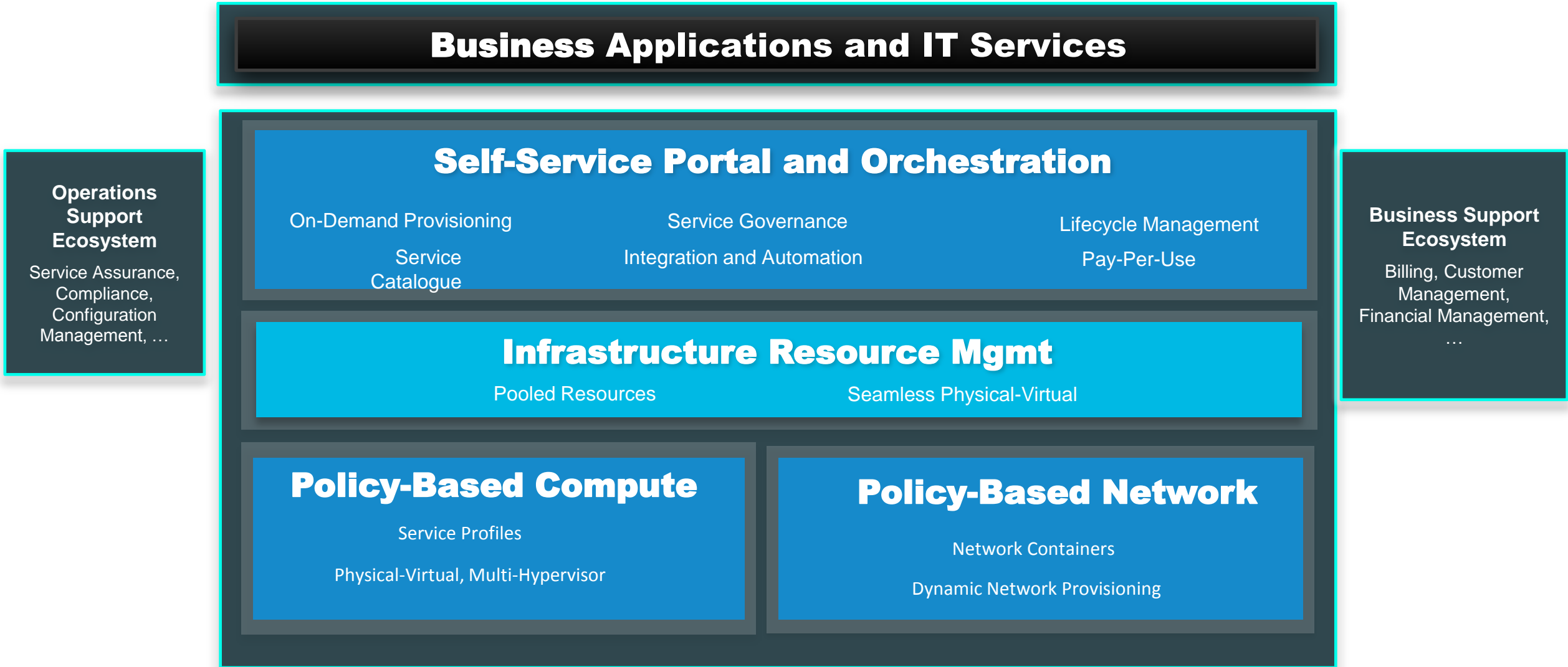
Automate Service Delivery

Increased IT Operational Excellence (Agility, Efficiency and Simplicity)

Increased Cloud Readiness (Physical - Virtual - Cloud)

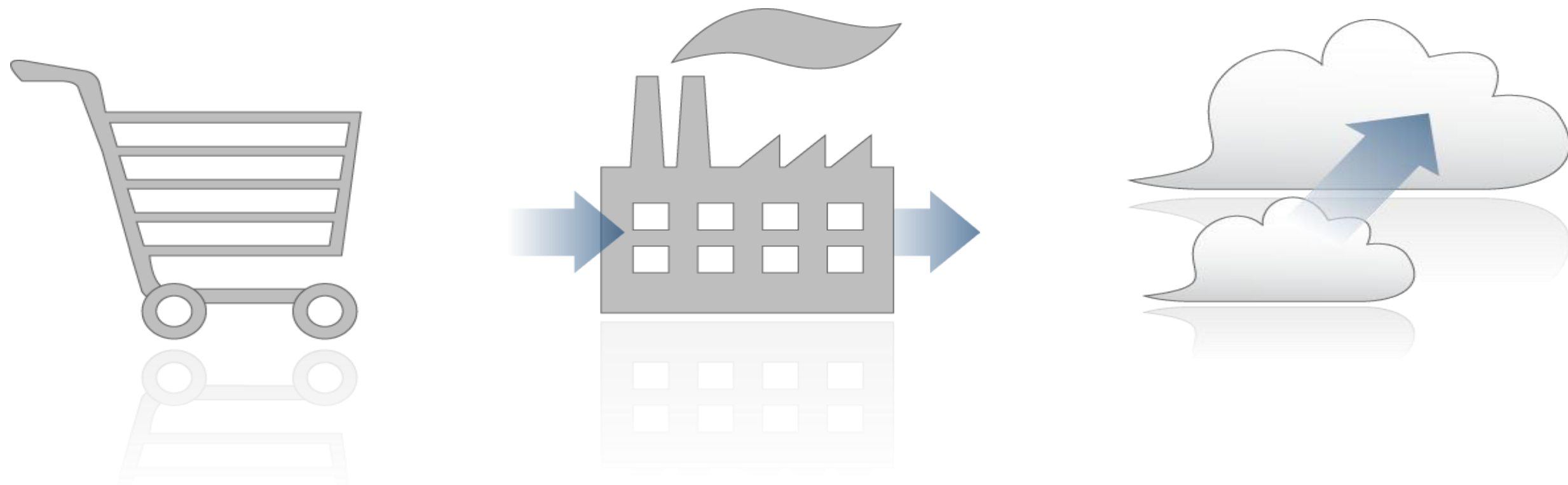# Orchestrate the Cloud Infrastructure

## IT-as-a-Service Requires a New Management Approach

Business Applications and IT Services

Operations Support Ecosystem

Service Assurance, Compliance, Configuration Management, …

Self-Service Portal and Orchestration

On-Demand Provisioning

Service Catalogue

Service Governance

Integration and Automation

Lifecycle Management

Pay-Per-Use

Business Support Ecosystem

Billing, Customer Management, Financial Management, …

Infrastructure Resource Mgmt

Pooled Resources

Seamless Physical-Virtual

Policy-Based Compute

Service Profiles

Physical-Virtual, Multi-Hypervisor

Policy-Based Network

Network Containers

Dynamic Network Provisioning

Compute

Storage

Network

Cisco Public

Orchestrate the Cloud Infrastructure
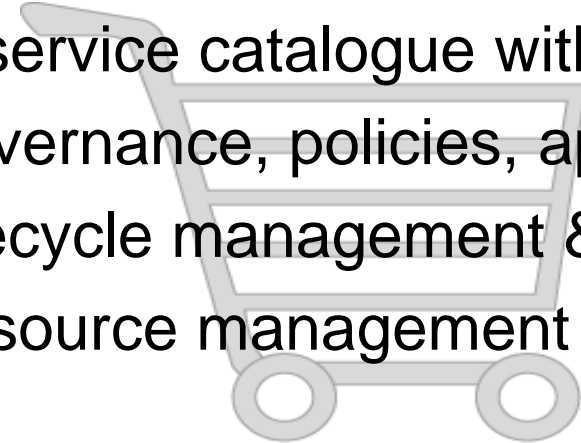## Cisco's approach to Cloud Computing

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Cisco Intelligent Automation for Cloud
Cloud Solution Components

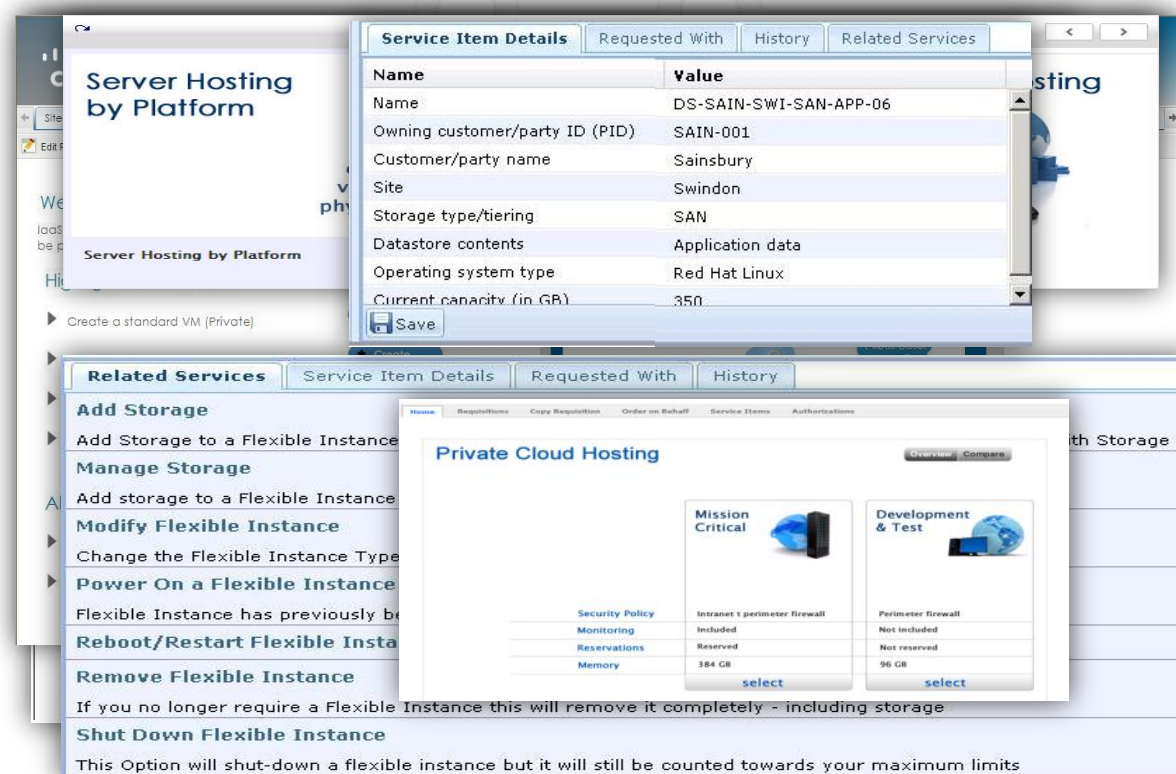Cisco Public
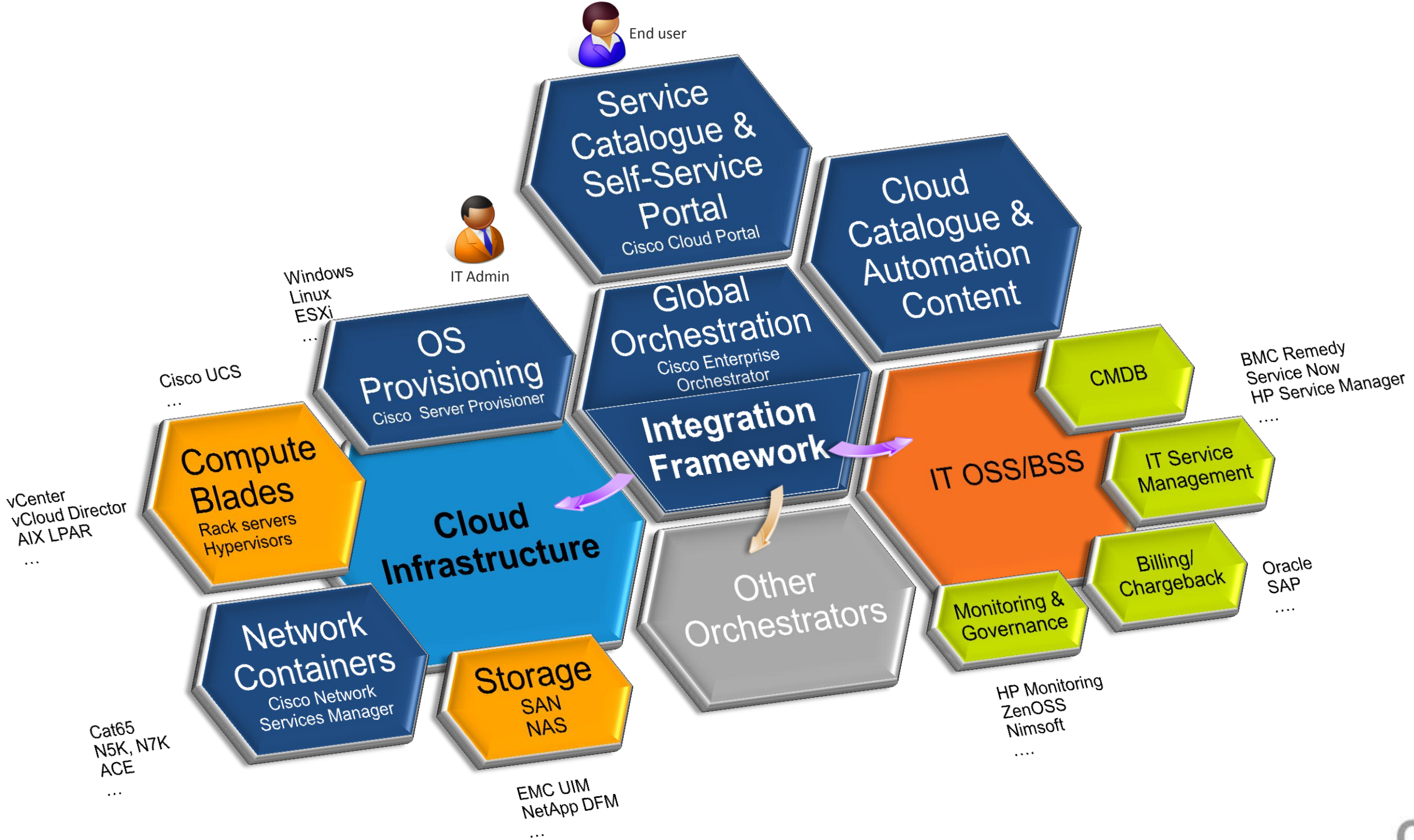
Cisco Intelligent Automation for Cloud
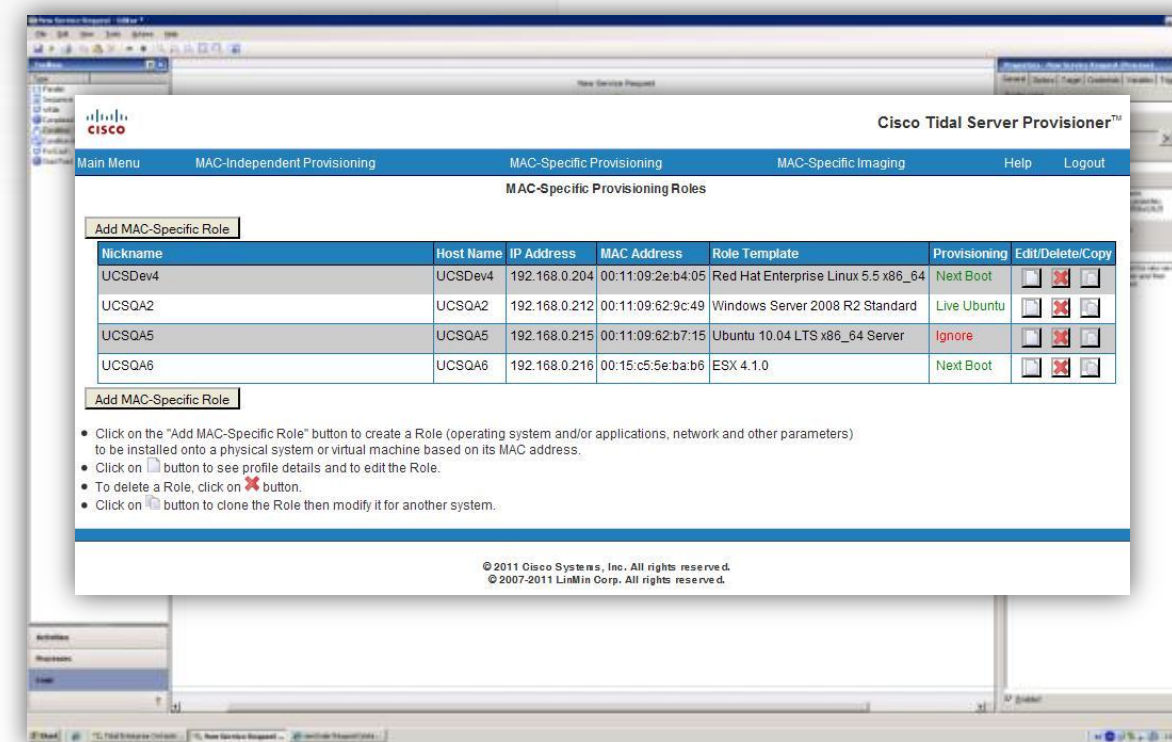## Solution Highlights

- One-stop shop self-service portal
- IT service catalogue with tiers and pricing
- Governance, policies, approvals, & controls
- Lifecycle management & tracking
- Resource management & reservations

- Orchestrated infrastructure provisioning
- OS & app provisioning
- Virtual Data Centre Provisioning (VDC)
- Integration with ITIL tools & processes
- Automation of ongoing operations:
  - Monitoring, incident, fault mgmt

Cisco Intelligent Automation for Cloud
How it Works..

Self-Service Portal and Service Catalogue

Track and Manage

Chargeback or Showback

Management

Self-Service Request

Developers

Define and Publish Standard Options

Architecture & IT

Approvals & Controls

Policies & Governance

Orchestrate Delivery

Report Consumption

Bi-directional Orchestration Adapters

Lifecycle Management

Process Orchestration and Automated Provisioning

Security Operations DR

Existing IT Management Systems

Cisco Intelligent Automation for Cloud Network Services Manager

Cisco Intelligent Automation for Cloud
Network Services Manager (NSM)

> **Infrastructure architectures designed, tested and validated specifically for Cloud operations (VMDC).**

> **Seamless physical and virtual service components integrated with demand-driven Compute (UCS).**

- Designed for automation to quickly deploy physical/virtual services, infrastructure support services and bare-metal workloads.

- Dynamically configure resources to accommodate diverse tenant needs and workloads.

- Elastic scaling: rapidly scale-out tenancy and services for high demand; remove tenant infrastructure, supporting services and reduce power during low demand.

Virtualised Multi-tenant Data Centre

IAC Network Services Manager
Cloud Enabled Network Infrastructure

- **Fully isolated tenant environment (integrated security)**

- **Abstraction of complexities (enables speed)**

- **Automated processes and controls (ensures scale)**

- **Streamlined, holistic coordination of resources and services (maximises capacity)**

- **Customisable service definitions and implementation (shortens time to market)**

- **Proven, tested solutions – infrastructure and automation/orchestration (reduces risk)**

Virtualised Multi-tenant Data Centre

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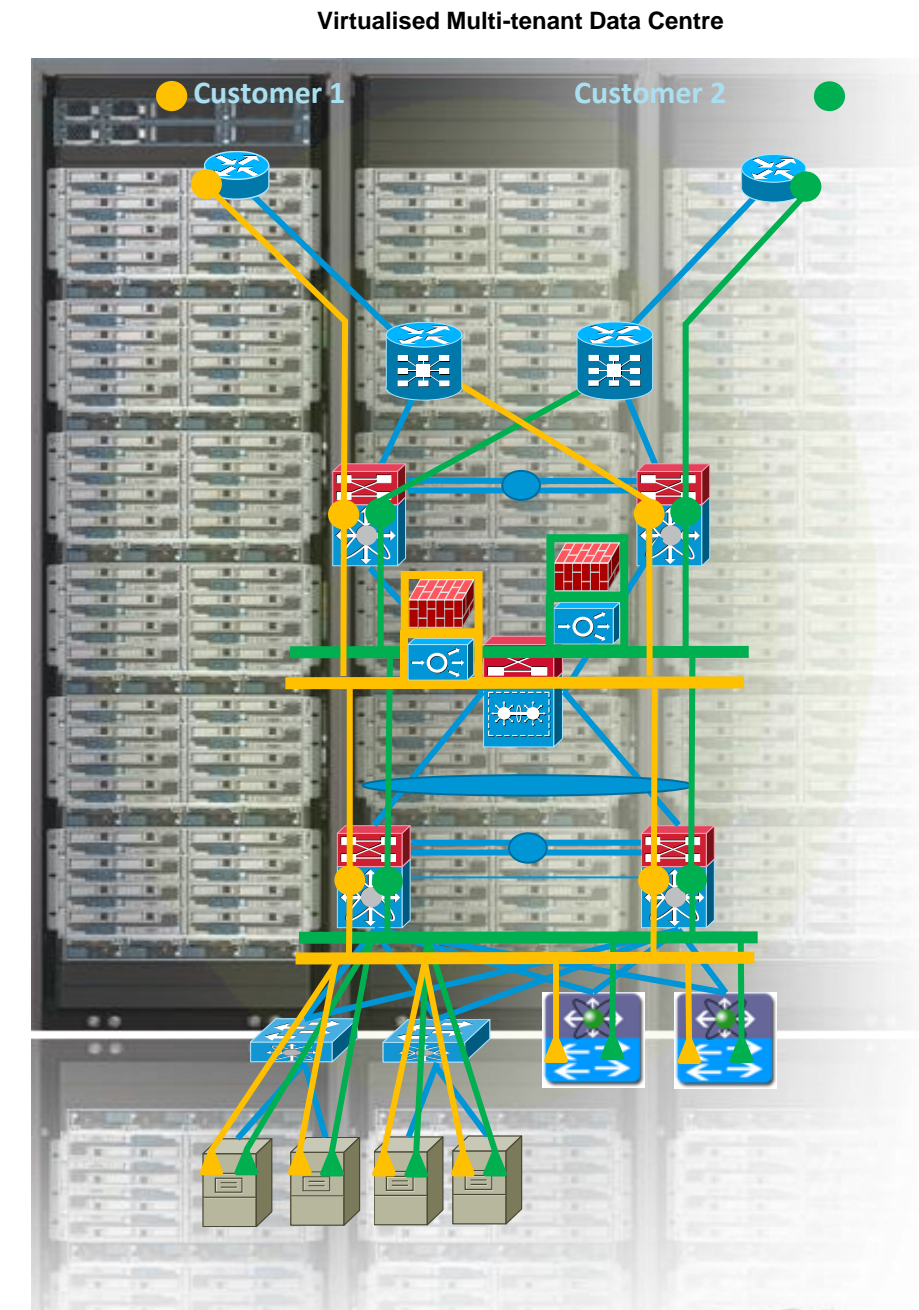
IAC Network Services Manager
Network Services as Containers

Bronze

	Load Balancing 1 VLAN

Virtual Firewall and Private VLANs

APP OS | APP OS | APP OS

Shared VMFS and No Data Protection

Silver

	Multiple VLANs
	SLB and SSL Offload
	System Configuration

Virtual Firewall and Private VLANs

APP OS | APP OS | APP OS

Dedicated VMFS and DP Through Snapshots

Platinum

	Multiple VLANs
	VPN Offload Firewall
	SLB and SSL Offload
	System Configuration

Virtual Firewall and Private VLANs

APP OS | APP OS | APP OS

Dedicated VMFS , 100% DP, and Cloning

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IAC Network Services Manager
Flexible Network Services
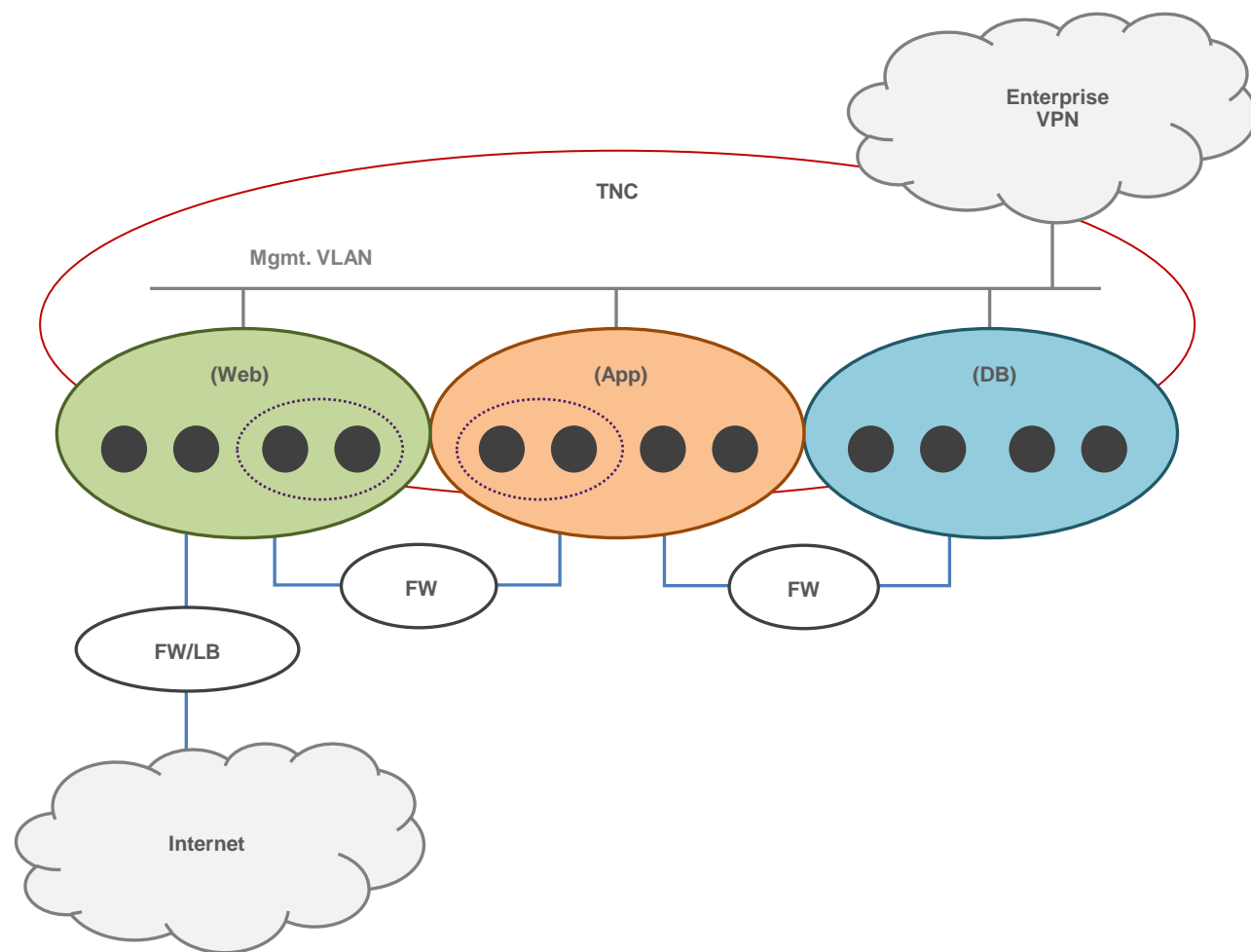
Tenant Creation

Basic Network Container

Enhanced Network Container

Large Network Container

Security and Load Balancing Services

Multi-Tiered

 Cisco Public

IAC Network Services Manager

Service Use Cases Using Network Containers

Sample Customer Use Case

- Computing and storage resources attached to a routable VLAN
- Capability to partition and zone virtual machines and access within their containers
- Accessible from a VPN connections (hybrid cloud)

NC Topology: VPN with Network Container

Logical with private access

Internet

VPN

VLAN

Layer 3 Isolation

VM   VM

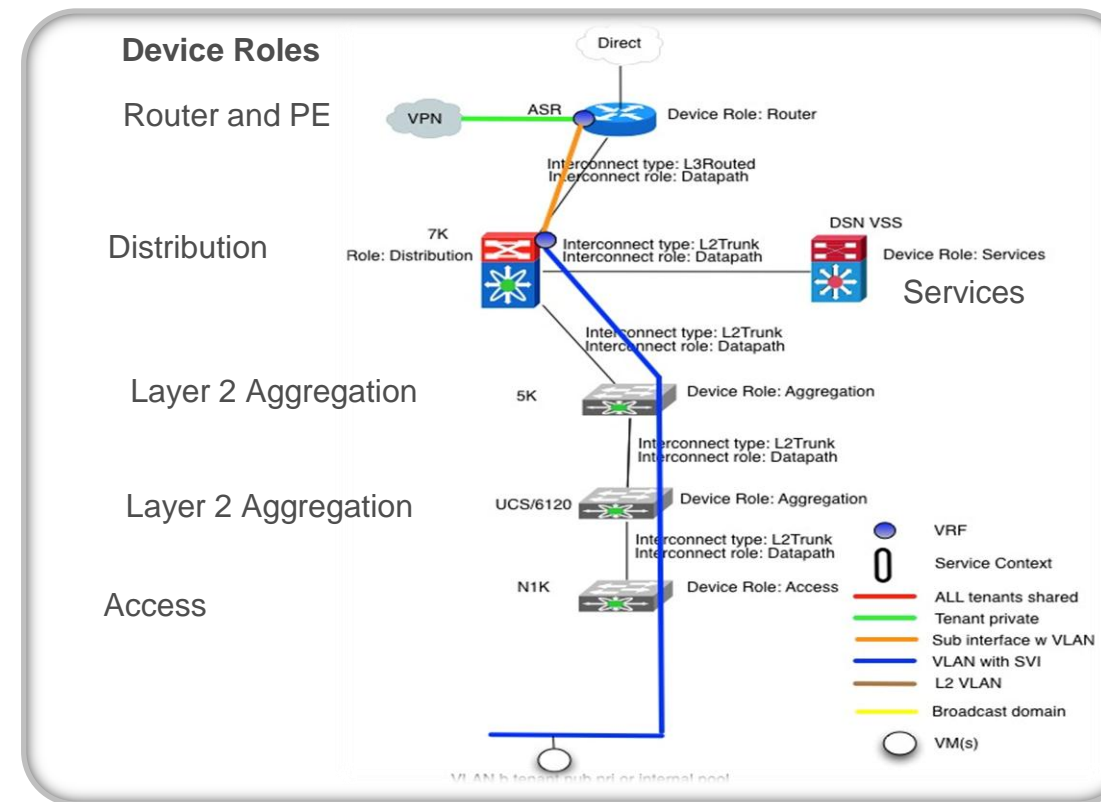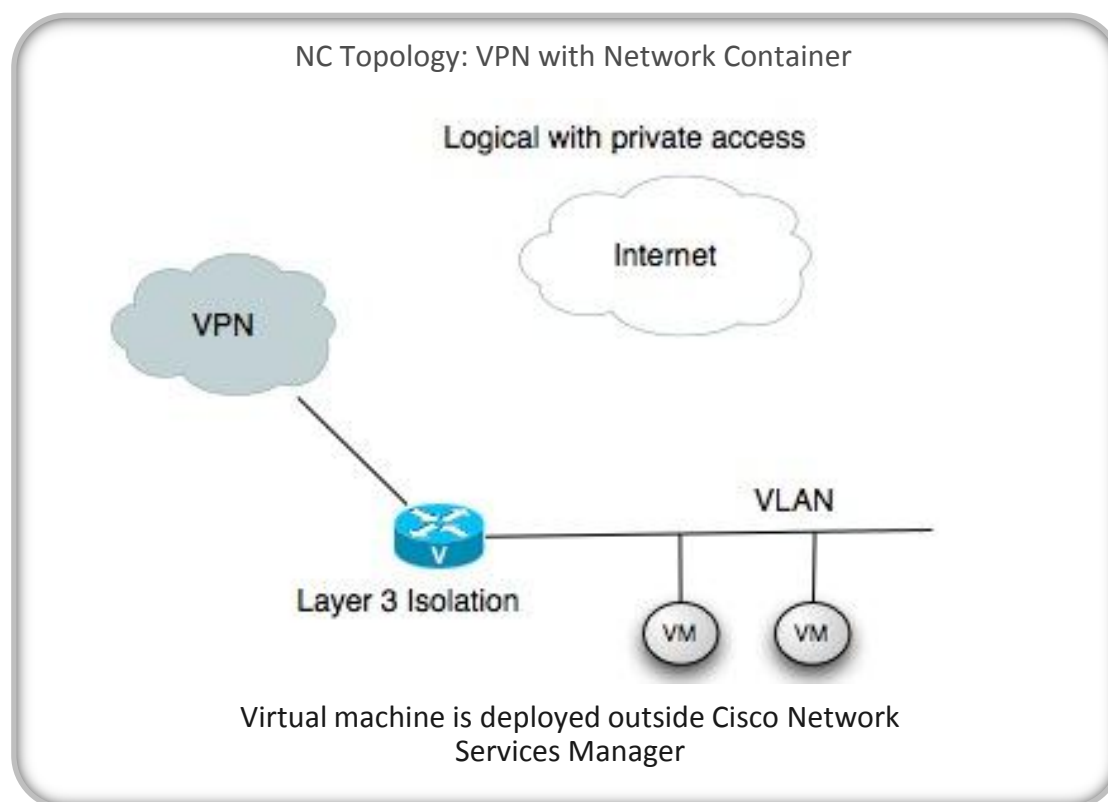Virtual machine is deployed outside Cisco Network Services Manager

Device Roles

Direct

Router and PE — VPN — ASR — Device Role: Router

Interconnect type: L3Routed
Interconnect role: Datapath

Distribution — 7K Role: Distribution — Interconnect type: L2Trunk Interconnect role: Datapath — DSN VSS — Device Role: Services — Services

Interconnect type: L2Trunk
Interconnect role: Datapath

Layer 2 Aggregation — 5K — Device Role: Aggregation

Interconnect type: L2Trunk
Interconnect role: Datapath

Layer 2 Aggregation — UCS/6120 — Device Role: Aggregation

Interconnect type: L2Trunk
Interconnect role: Datapath

Access — N1K — Device Role: Access

VRF
Service Context
ALL tenants shared
Tenant private
Sub interface w VLAN
VLAN with SVI
L2 VLAN
Broadcast domain
VM(s)

This use case supports creation of a protected private zone. The customer requires that the only way to reach this zone is through a private VPN (MPLS, SSL, and IPsec). To build this solution, Cisco® Network Services Manager will build both the private zone and the network container within it.

Cisco Intelligent Automation for Cloud (DEMO)

IAC and Cloupia Unified Infrastructure Controller (CUIC)

Cisco Intelligent Automation for Cloud
Cloupia Unified Infrastructure Controller (CUIC)

Secure Application Containers

Storage | vFiler | Network | Compute | VM's

Policy-Driven Provisioning

CISCO cloupia

Create NetApp LUN
Create NetApp Initiator Group
Add NetApp Initiator
Add NetApp Initiator
Map NetApp LUN

Single Pane of Glass

End-to-End Automation and Lifecycle Management

Virtualisation Manager — Virtualisation (A, B, C)

Compute Manager — Compute

Network Manager — Network (A, B, C)

Storage Manager — Storage (Tenant A, Tenant B, Tenant C)

Cisco Intelligent Automation for Cloud
CUIC Converged Infrastructure Management and Automation

Mobile Devices

CloudGenie™

Self Service Console	Admin Console	Dashboard
ID & Access Manager	Policy Manager	Resource Pools
OS Provisioning	Database	Event Manager

CISCO

cloupia

Compute **Network** **Storage** **Customer Choice**

EMC² NetApp VBLOCK DELL hp IBM

CISCO

Physical Infrastructure

CITRIX Microsoft redhat vmware

Virtual Infrastructure

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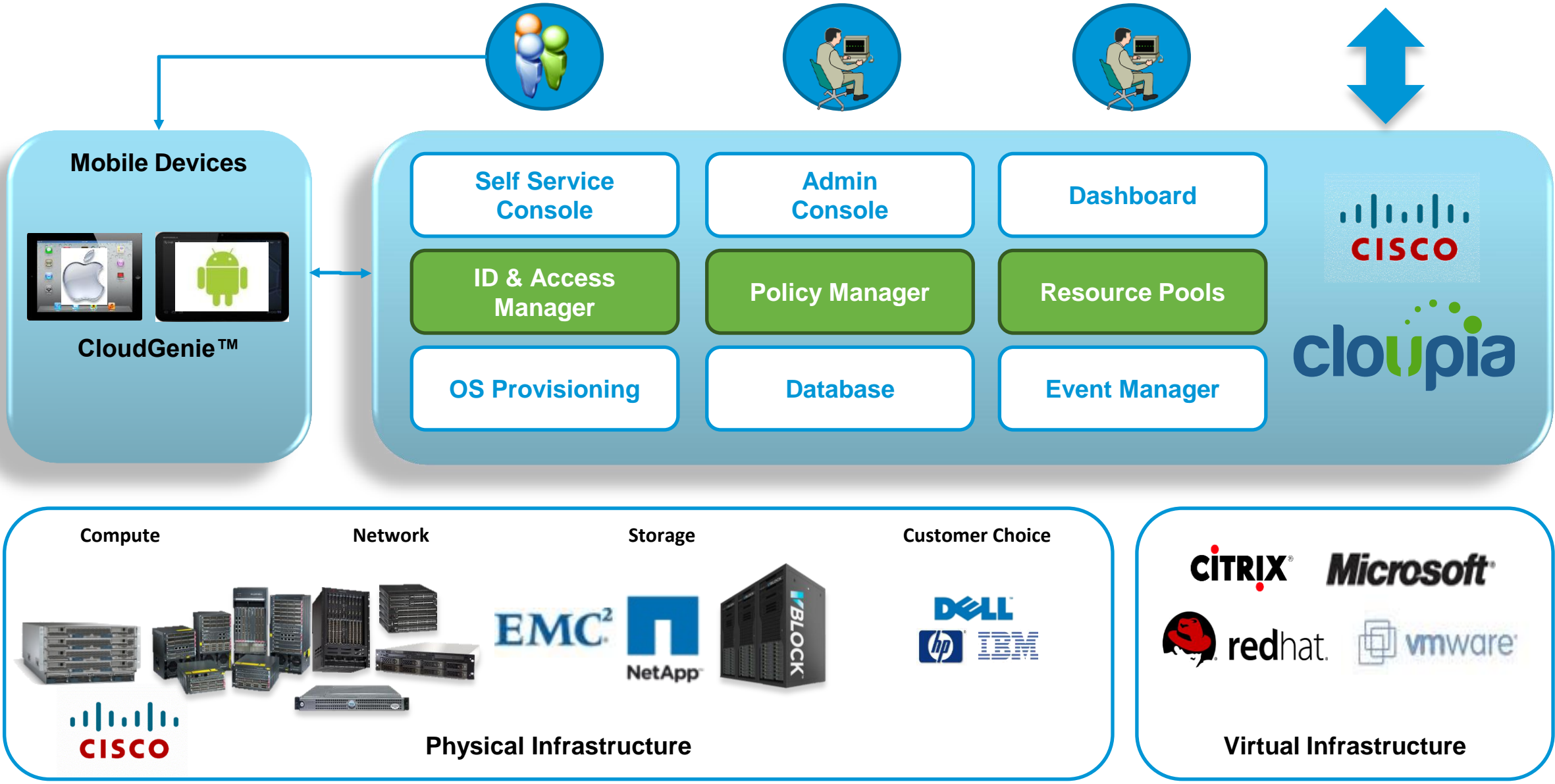
Cisco Intelligent Automation for Cloud
CUIC Seamless Data Centre Management Strategy

Self-Service Infrastructure Provisioning

CISCO cloupia

Management Across Global Operations

Enforce Best Practices with Consistent Infrastructure Policies

Manage Hardware with the Flexibility of Software

UCS Central

Data Centre 1
- Performance Intensive Apps
- Scale-up Apps

CISCO NetApp EMC² BLOCK

Data Centre 2
- Virtualised Application
- Virtual Desktops

CISCO NetApp EMC² BLOCK

Data Centre 3
- Business Continuity
- Disaster Recovery

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Data Centre 4
- Enterprise-Grade Cloud
- Big Data Grid

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Cisco Intelligent Automation for Cloud
Cloud (IAC) and Infrastructure Management (CUIC)

Hybrid Cloud Services

End-User IT Services

Self-Service Infrastructure

Converged Infrastructure Automation

Cisco Intelligent Automation for Cloud

Cloud Portal

Process Orchestrator

Policy-Driven Infrastructure Services

CISCO cloupia

Compute, Network, Storage, Hypervisor

Ecosystem Integrations

BSS/OSS
LDAP / AD / Email
CMDB / Service Desk
Monitoring / Assurance
Image / Config Mgt
Billing / Chargeback
Heterogeneous Environments

Cloud Service Providers Multi-Cloud

Cisco Public

Cisco Unified Management
Solutions for Cloud and Infrastructure Management

APIs

Cisco Intelligent Automation for Cloud

Cloupia

Cisco
Network Services Manager

UCS Central

APIs

UCS • Nexus

NetApp
FlexPod / ExpressPod

CISCO

EMC² VBLOCK
VSPEX

Unified Management Partner Ecosystem
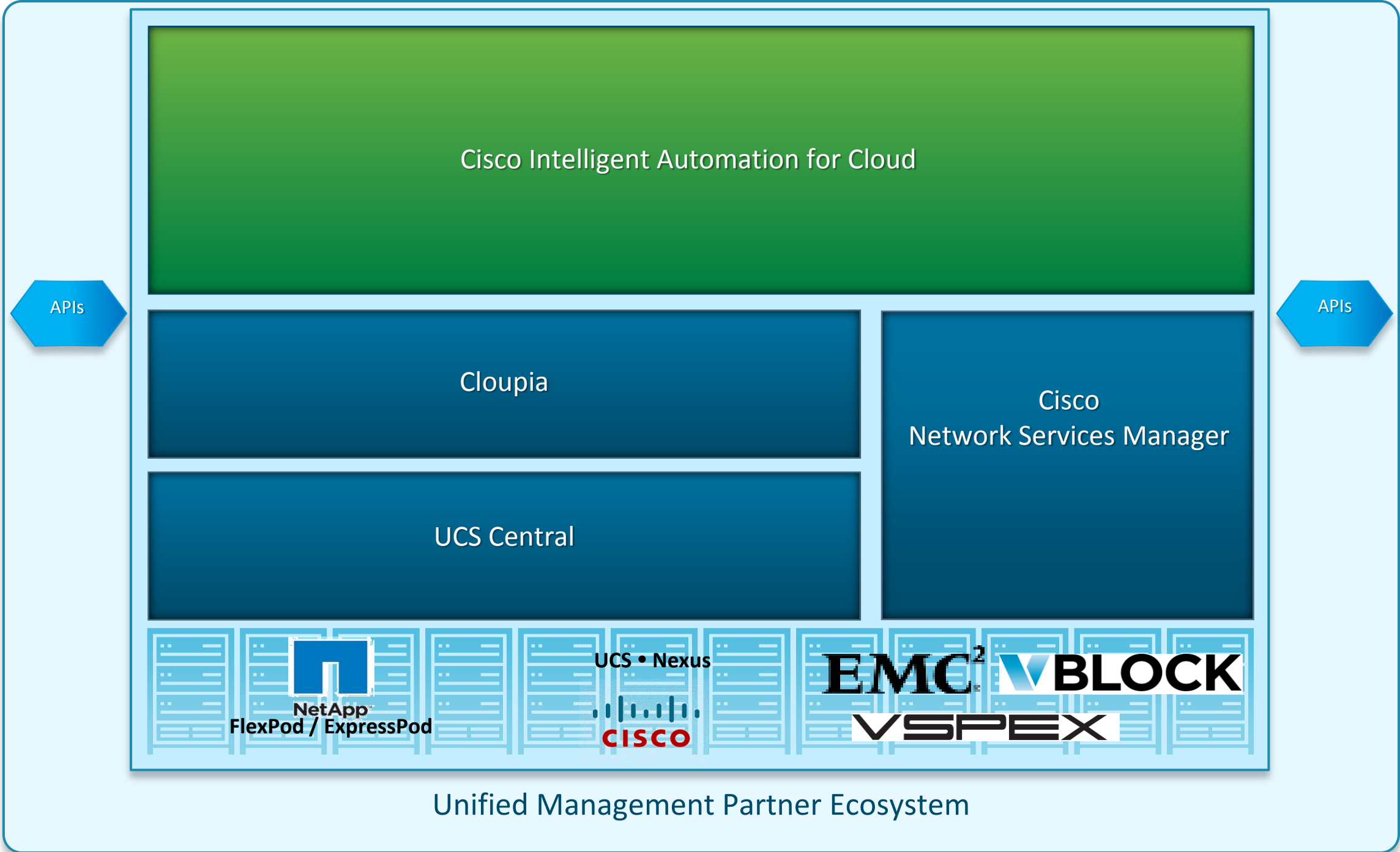
Cisco Intelligent Automation for Cloud

Why Cisco Customers Choose IAC?

'Right Size' solution	• Core service automation (catalogue, orchestrator)
Leverage existing investments	• Open to heterogeneous hardware, virtualisation, IT software • Allows customer flexibility and customer choice
Flexibility	• Agile cloud use case build-out • Extensible from IaaS to PaaS and other services • Content packs for rapid service creation & deployment
World class user experience	• Your friendly face to the business • Visual, no-code design of catalogue & automation
Best in class platform	• Optimised to Cisco UCS and other Cisco solutions • Support for common vendor infrastructure & OSS/BSS • RBAC, policy controls, order governance & lifecycle mgmt
This is our focus	• We specialise in IT automation & self-service
Single support model	• For management, infrastructure and solution content

Cisco Intelligent Automation for Cloud

To Learn More ……..

- **For details about the following capabilities…**

  Vblock orchestration

  FlexPod orchestration

  vCloud director integration

  Hybrid clouds / cloudbursting

  Multi-tenancy

  VDI/VXI solutions

  OpenStack integration

  Other use cases

  Integration framework, adapters and packs

  Closer look at automation workflows

  Closer look at catalogue & portal

  Product screenshots

  Demo videos

  Advanced services offerings

  Product road map and NSM integration

- **We can organise a deep dive for you.**

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