3S TECHNOLOGY CITY

Les architectures du cloud Computing, enjeu stratégique pour l'entreprise

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Dir. Delivery (3S)

3S Standard Sharing Software

Who am I?

- IT Systems Engineer (3S)
- Datacenter & virtualization Specialist
- Linux & Open Source enthusiast
- Cloud computing evangelist

What?

Everyone is talking about cloud computing!

What is it

Let’s google it


https://www.google.com/search?hl=en&q="cloud+computing"&safe=active&cad=h
Google
"cloud computing"
Web
News
Books
Images
Videos
More
Search tools
About 113,000,000 results (0.43 seconds)
Cloud computing - Wikipedia, the free encyclopedia
en.wikipedia.org/wiki/Cloud_computing
Wikipedia
Cloud computing allows application software to be operated using internet-enabled devices. Clouds can be classified as public, private, and hybrid.
Capital expenditure - Category:Cloud platforms - Cloud computing providers
You visited this page on 5/20/15.
Oxymoron

NIST

…a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of CONFIGURABLE computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

Main characteristics

- Ubiquitous
- On demand
- Shared pool
- Configurable computing resources
- Rapidly provisioned and released

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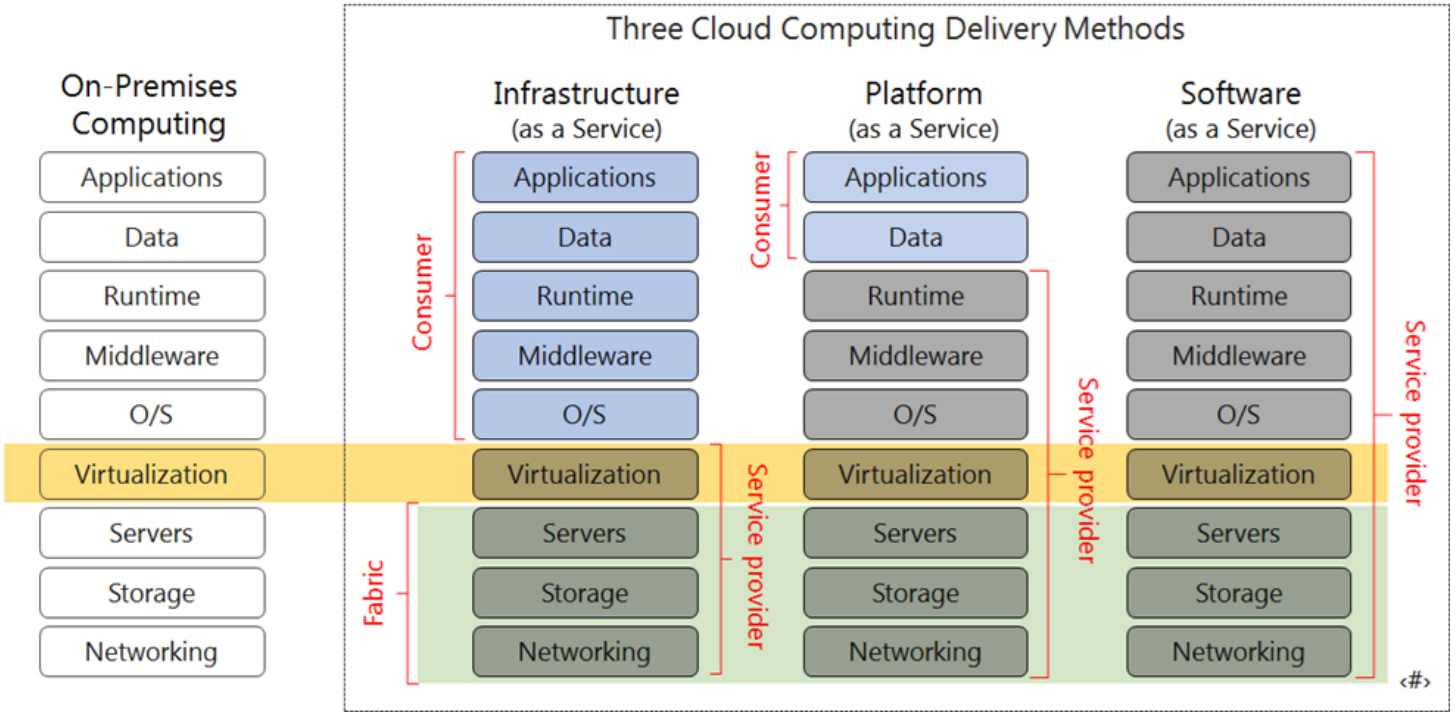
Cloud Computing Service Models



From Virtualization to Orchestration : the Path to the Cloud

- **Virtualization.**
  - The underpinning for the majority of clouds is a virtualized infrastructure.
  - Used to pool infrastructure resources
  - provides the basic building blocks for your cloud environment to enhance agility and flexibility.
- **Automation.**
  - to reduce manual processes via automation.
  - capabilities to provision, monitor, and report.
  - faster access to users and increases IT productivity for routine tasks.
- **Orchestration.**
  - enable policy-driven workload management and movements,
  - deliver capabilities for self-service and metering.
  - required for deploying software-defined networking, storage and infrastructure (SDN, SDS) and network function virtualization (NFV).
  - greater efficiency, agility, and security.

Why?

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Automation benefits





EFFICIENCY | SPEED | DIGITAL DISRUPTION

IT COST REDUCTION
77%

ABILITY TO MEET SLAS
72%

TIME TO PROVISION IT SERVICES
99%

STRATEGIC ALLOCATION OF IT BUDGET
200%

REVENUE GROWTH
10%

Source: IDC InfoBrief, sponsored by Cisco, Don't Get Left Behind: The Business Benefits of Achieving Greater Cloud Adoption, Aug 2015.

How?

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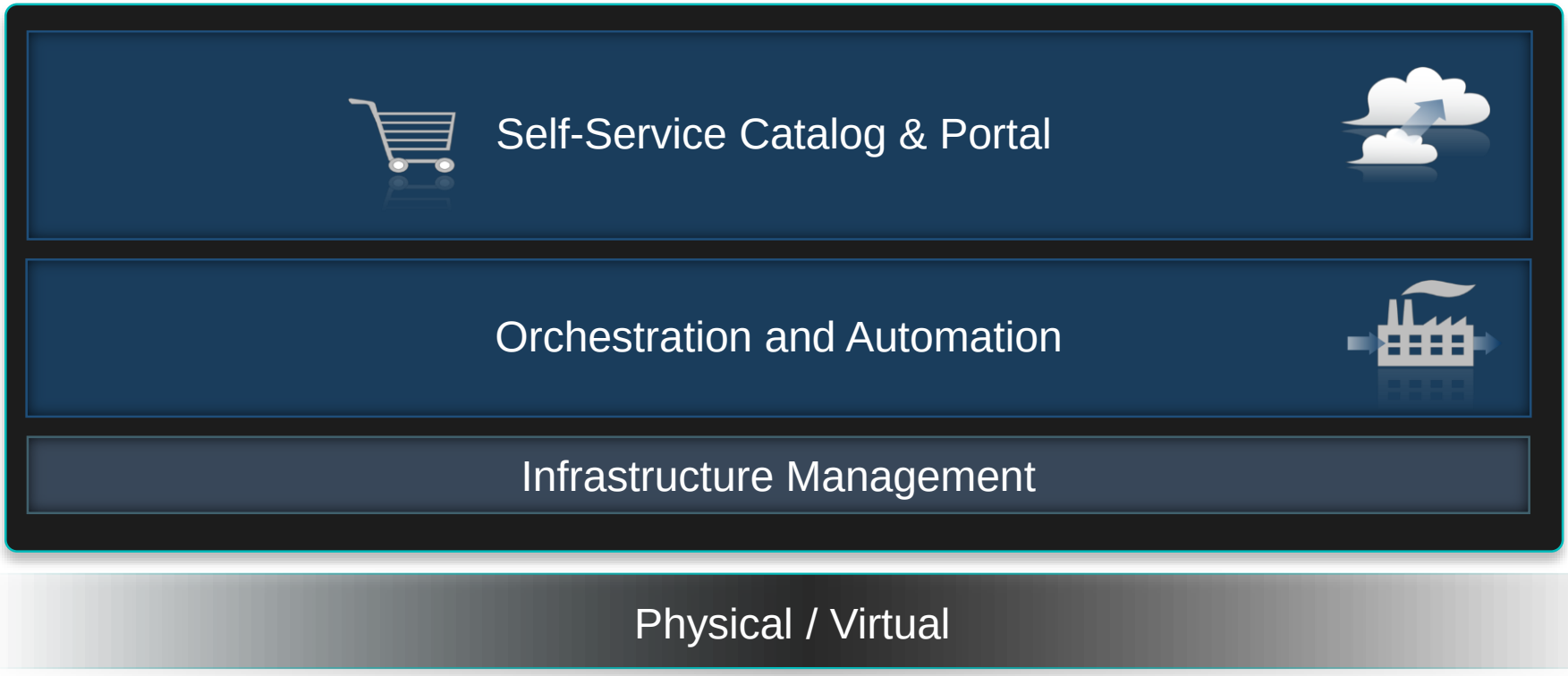
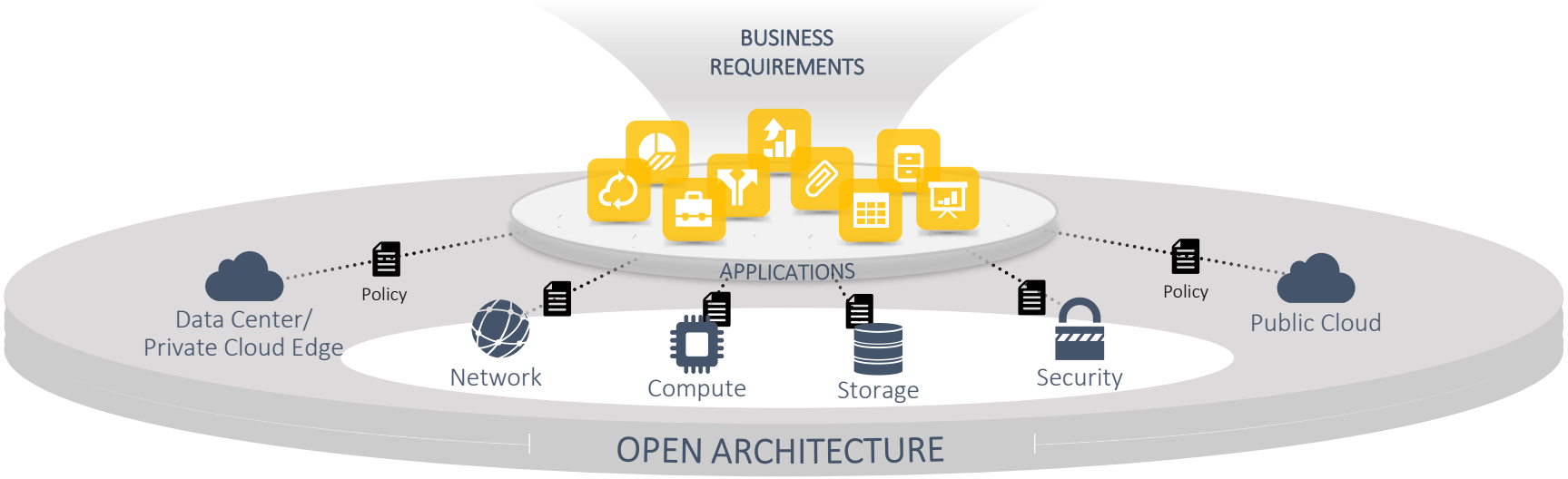
Building a Cloud



Cisco Policy Driven Integrated Infrastructure



Policy: Links Application Language to Infrastructure

Application Language

- Application tier policy and dependencies
- Security requirements
- Service level agreement
- Application performance
- Compliance
- Geo dependencies

Network Language

Compute/Storage Language

Security Language

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Cisco Data Center

Accelerate Digital Transformation

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Policy Driven Integrated Infrastructure In Action

1 Modernize Infrastructure: Open and Programmable

DATA CENTER
- Network / L4-7
- Compute
- Storage
- Security

2 Automate and Simplify

POLICY

3 Build Your Private Cloud

Private Cloud Stack
Integrated Infrastructure

5 Move Data and Workloads Securely

6 Self-Service Portal (IT as a Service)

7 Extend Policy Model

4 Choose Any Other Cloud

- Private
- Managed
- Public

8 Network | Compute | Storage

Deploy Edge with consistent policy and management as DC

9 Analytics

Integrate Analytics Across Data Center and Edge

SECURITY

10

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Data Center and Cloud Portfolio

SOFTWARE

Infrastructure Management
Eg. UCS Director—Policy Based Orchestration for Integrated Infrastructure

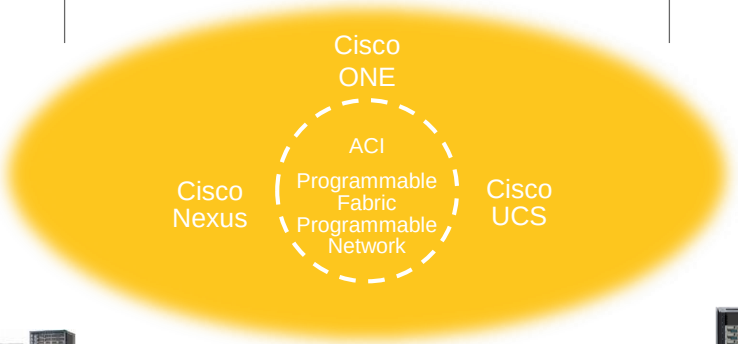
Private Cloud

openstack

Cisco ONE Enterprise Cloud Suite
Private Cloud Solutions

APIC

Cloud and Systems Management
Eg. Application Policy Infrastructure Controller (APIC) for ACI



INFRASTRUCTURE

Cisco Security Solutions
Physical /Virtual ASA with FirePOWER

Nexus Switching
Physical and Virtual Switches for LAN/SAN
Nexus 1000V—Nexus 9000 on NX-OS

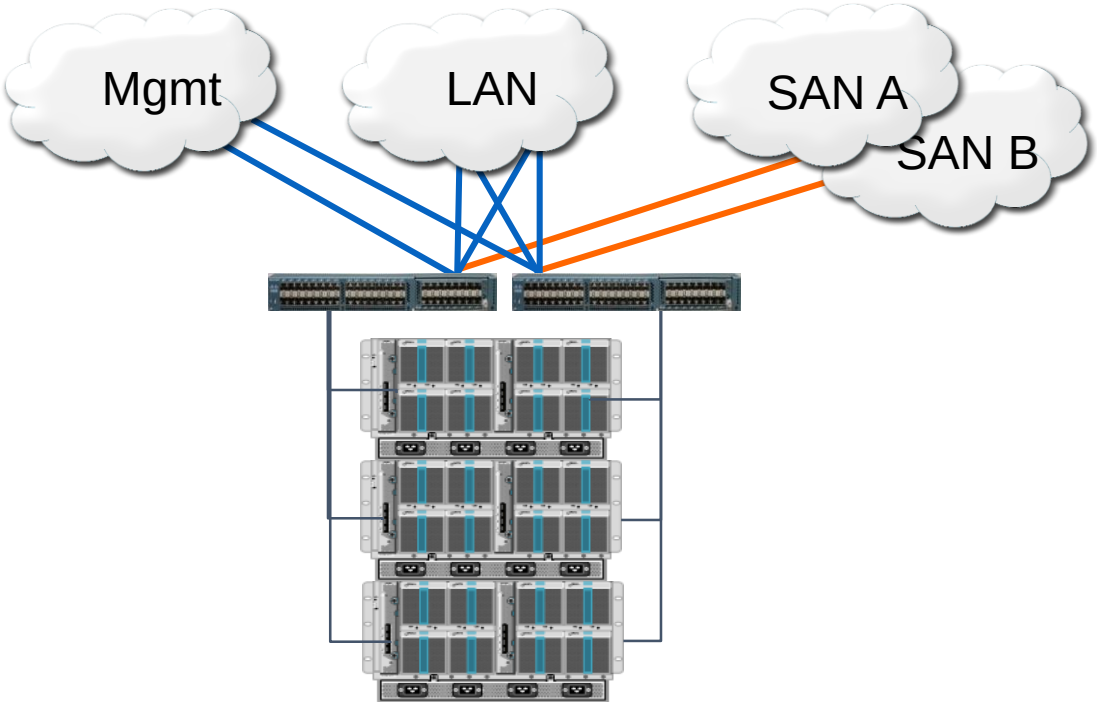
UCS Integrated Infrastructure
Private Cloud Building Blocks
UCS, Nexus

UCS and UCS Manager
Compute, Network and Storage Access
B-Series, M-Series, UCS Mini

MDS Solutions
Storage Networking on NX-OS
MDS 9200—MDS 9700

Unified Computing System

- Embed management
- Remove unnecessary
  - Switches
  - Adapters
  - Management Modules
- Unify fabrics
- Power & Cooling
  - Less than 1/3rd the support infrastructure
  - 63% open design
  - Low power components
- Optimize virtualization
  - VIC 256 PCIe devices



Elements of UCS

UCS Manager
Embedded– manages entire system

UCS Fabric Interconnect
48 Port 10Gb FCoE
96 FY 2012

UCS Fabric Extender
Remote line card
4 or 8 port 10 Gb FCoE

UCS Blade Server Chassis
Flexible bay configurations

UCS Blade Server
Industry-standard architecture

UCS Adapters
Choice of multiple adapters

Stateless Computing: UCS Service Profiles

- RAID settings
- Disk scrub actions

- Number of vHBAs
- HBA WWN assignments
- FC Boot Parameters
- HBA firmware

- FC Fabric assignments for HBAs

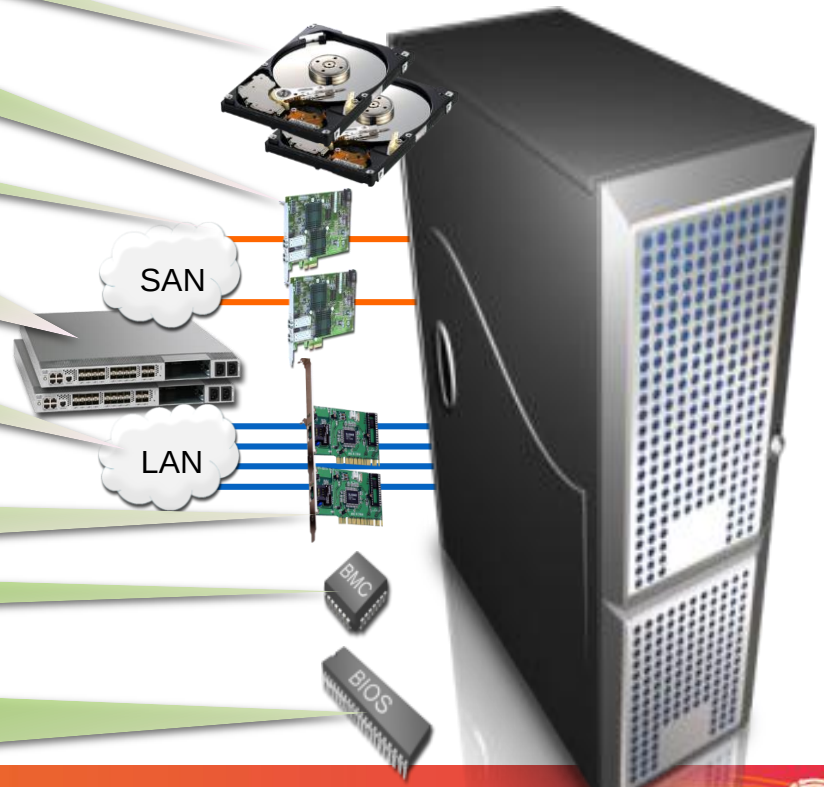
- QoS settings
- Border port assignment per vNIC
- NIC Transmit/Receive Rate Limiting

- VLAN assignments for NICs
- VLAN tagging config for NICs

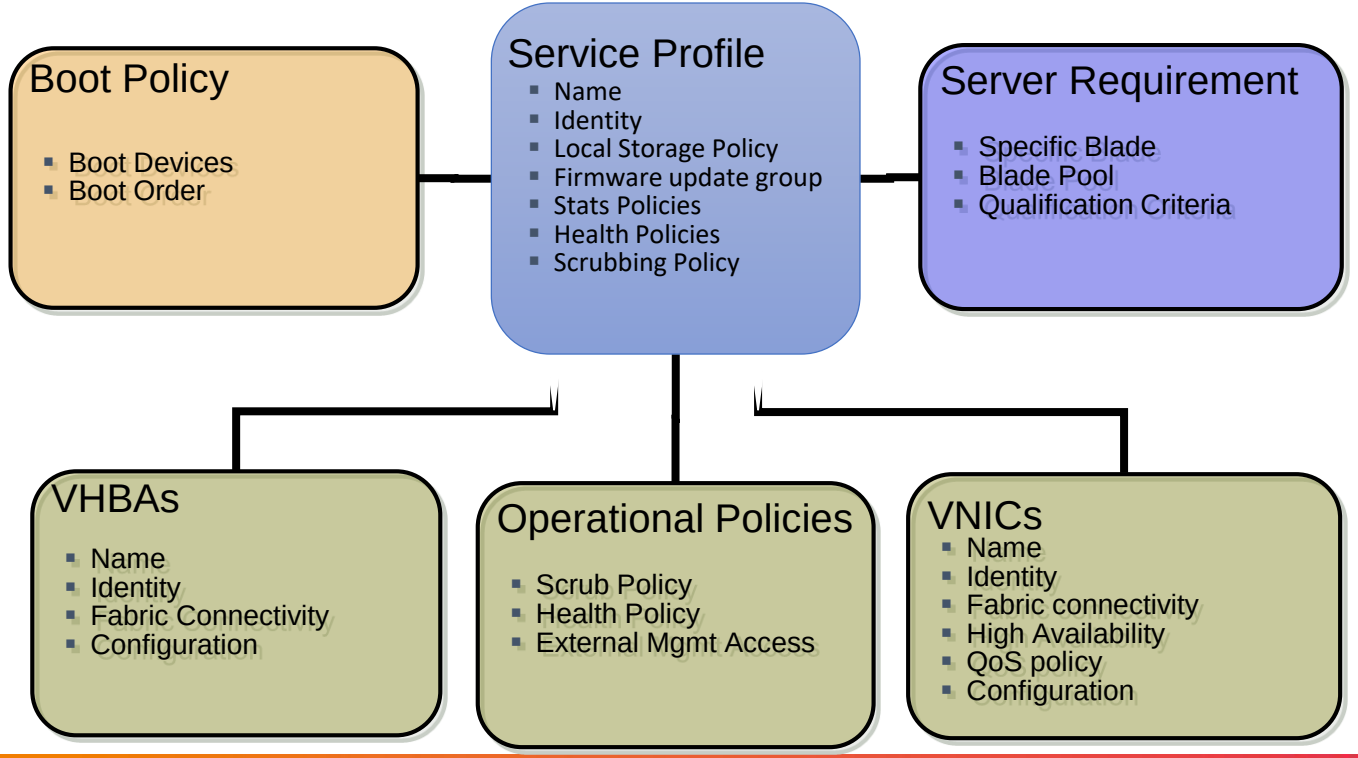
- Number of vNICs
- PXE settings\
- NIC firmware
- Advanced feature settings

- Remote KVM IP settings
- Call Home behavior
- Remote KVM firmware

- Server UUID
- Serial over LAN settings
- Boot order
- IPMI settings
- BIOS scrub actions
- BIOS firmware
- BIOS Settings



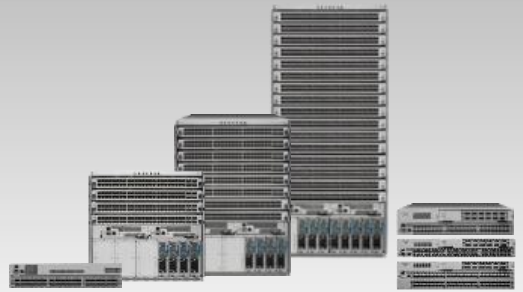
Service Profile Components



Cisco ACI : programmable network

APPLICATION-CENTRIC INFRASTRUCTURE

NEXUS 9000 SERIES

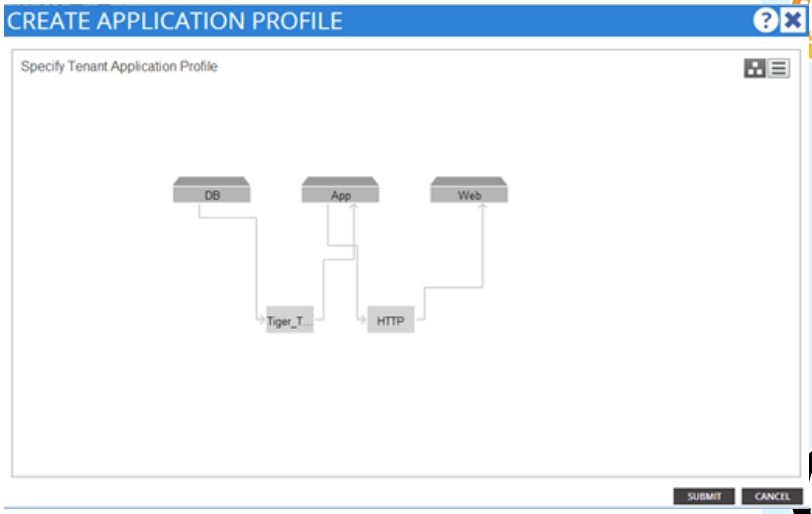


APPLICATION POLICY INFRASTRUCTURE CONTROLLER

INDUSTRY LEADING ECOSYSTEM

OPEN STANDARDS OPEN SOURCE

Multi-Hypervisor-Ready Fabric



Network Admin

APIC

Application Admin

vmware
Microsoft
redhat
Xen

Hypervisor Management

ACI Fabric

VLAN VXLAN

VLAN NVGRE

VLAN VXLAN

VLAN

ESX vmware

Hyper-V Microsoft

KVM redhat

PHYSICAL SERVER

VM VM VM

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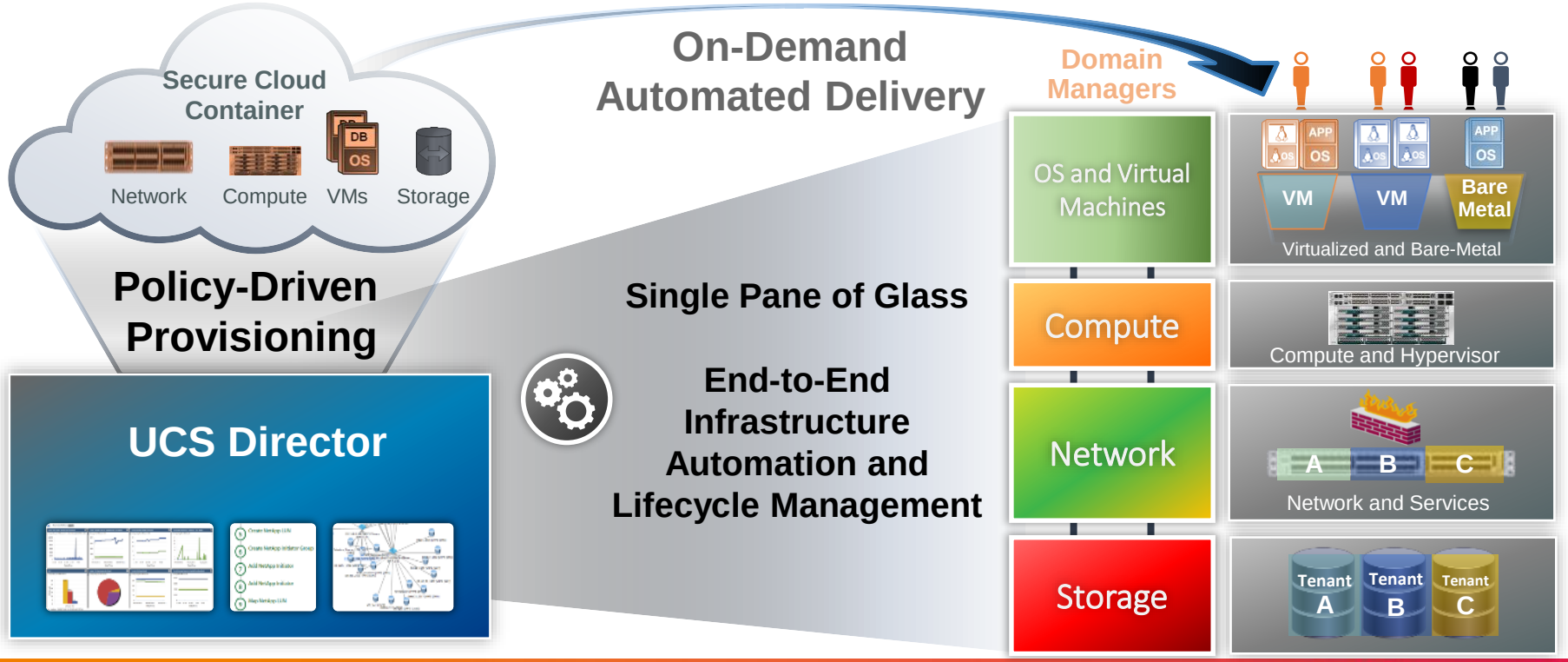
Cisco UCS Director



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Broad Multi-Vendor Infrastructure Support

UCS Director

Converged

SmartStack
nimble storage
cisco

VersaStack™ Solution
by Cisco and IBM

FLASHSTACK CI

VM

vmware

Microsoft Hyper-V

L4-L7

CISCO
vASA, CSR1000v

f5

citrix
Citrix NetScaler

Compute

hp

DELL

Network

CISCO
Nexus MDS

APIC

BROCADE

Storage

EMC²

NetApp

IBM

nimble storage

HITACHI DATA SYSTEMS NEW

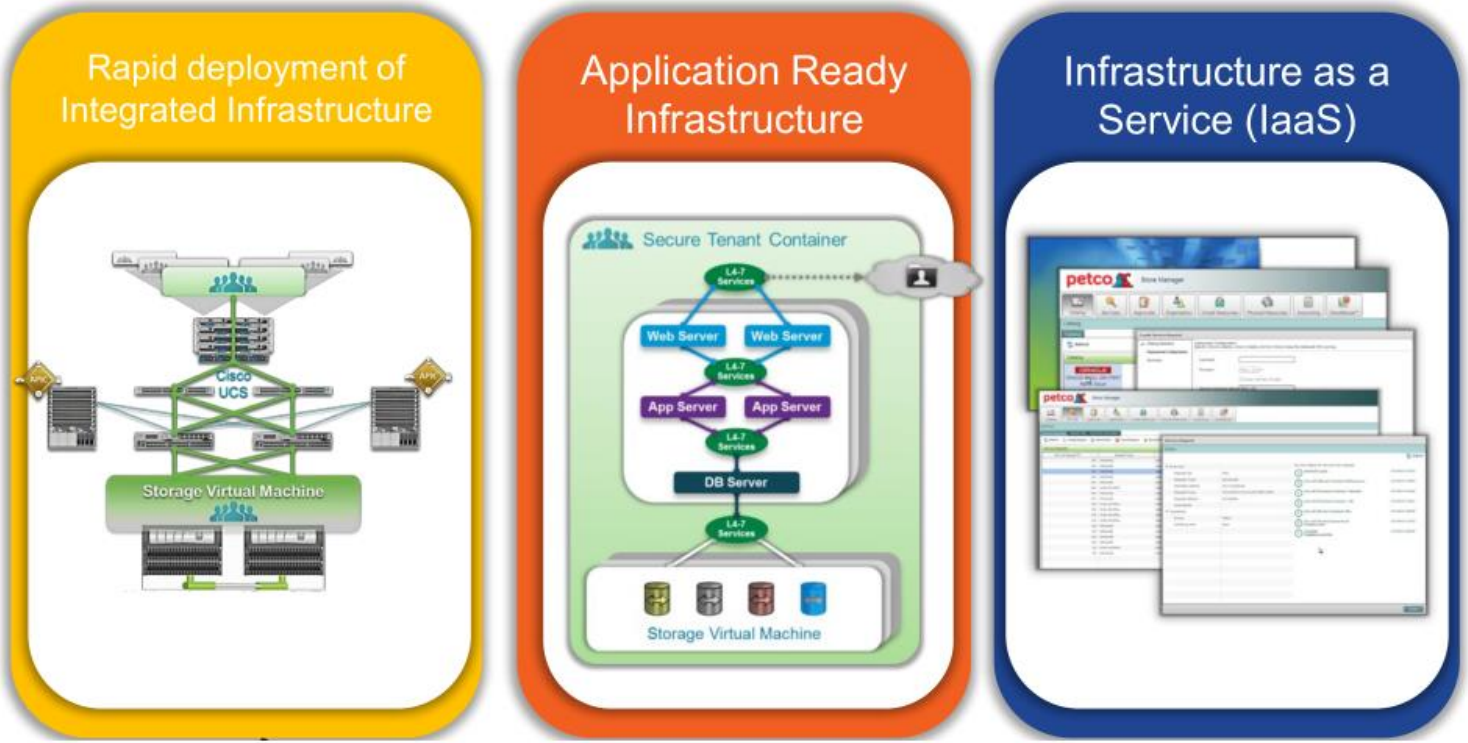
PURESTORAGE NEW

StorMagic NEW

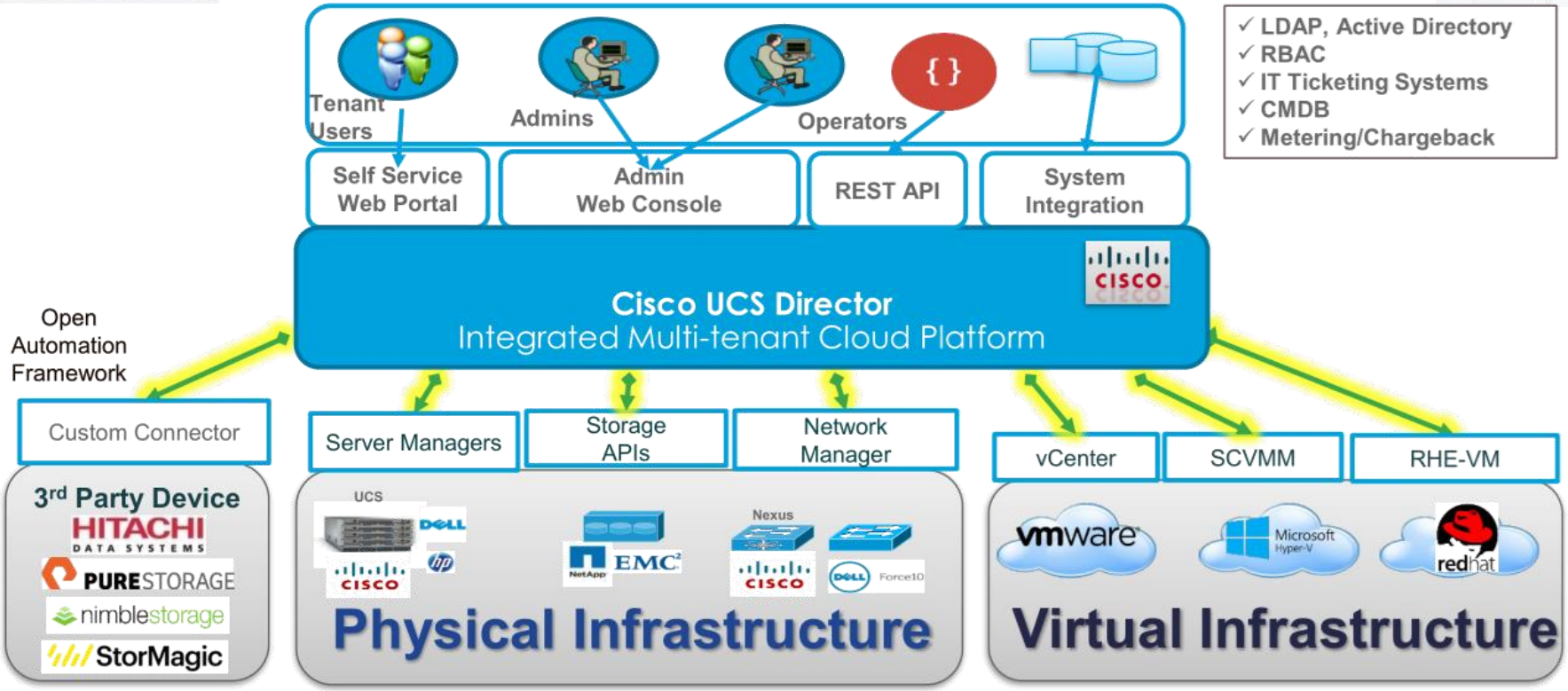
UNDER CONSTRUCTION
A10 Networks *

UNDER CONSTRUCTION
simplivity *
tegile *
X-IO technologies *

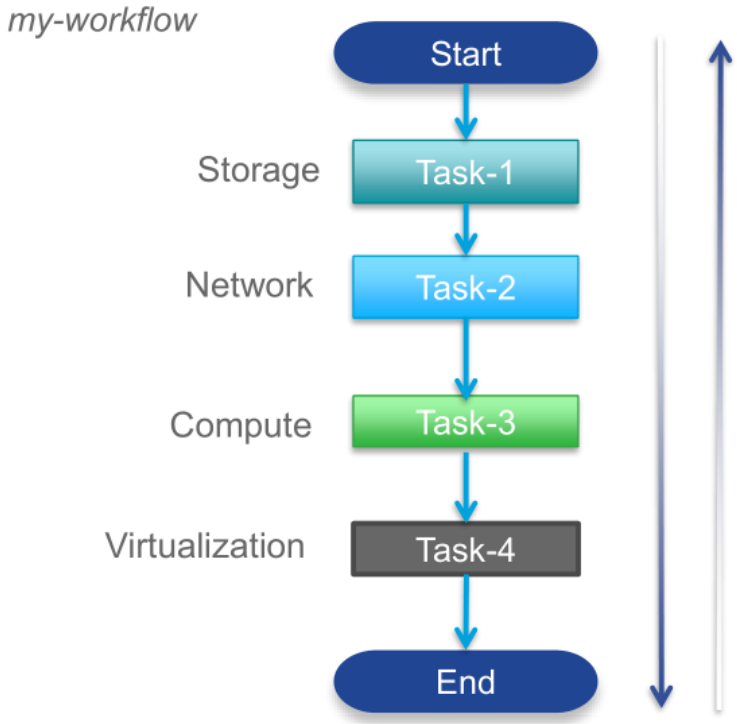
UCSD : Key use cases



UCSD : Solution overview

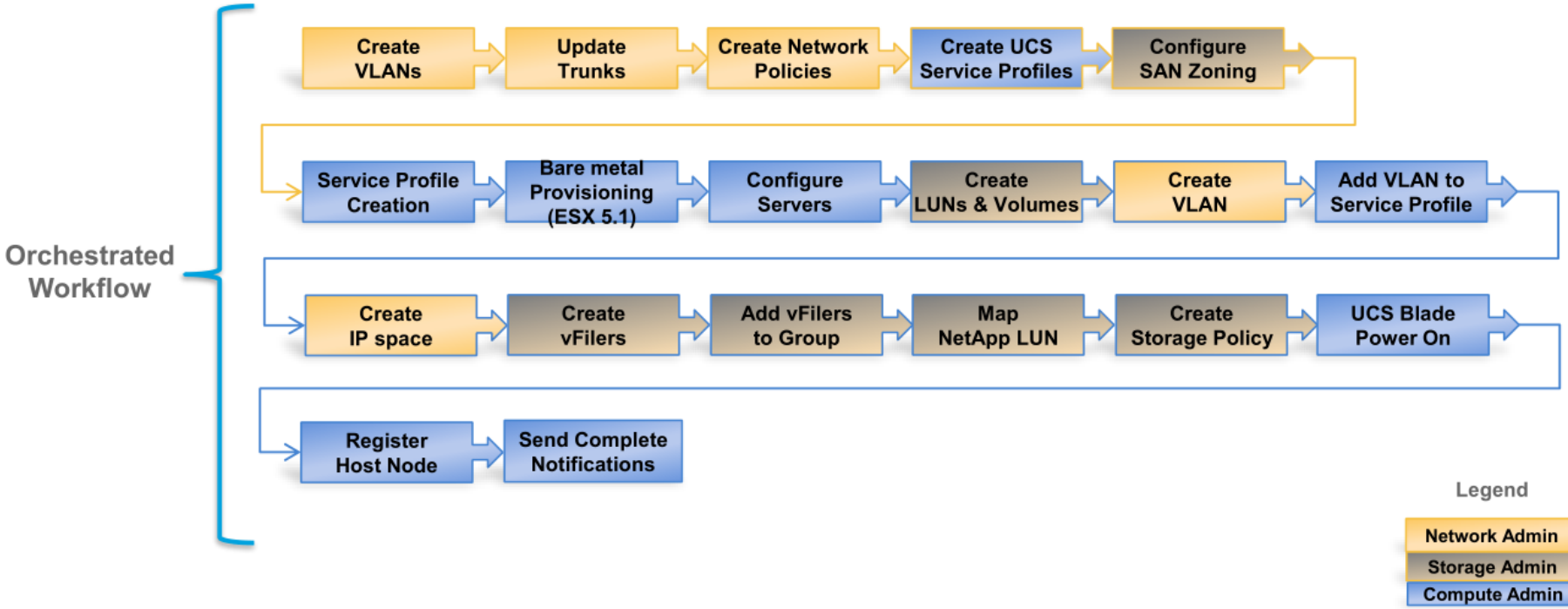


UCSD : Introducing Orchestration and Workflows

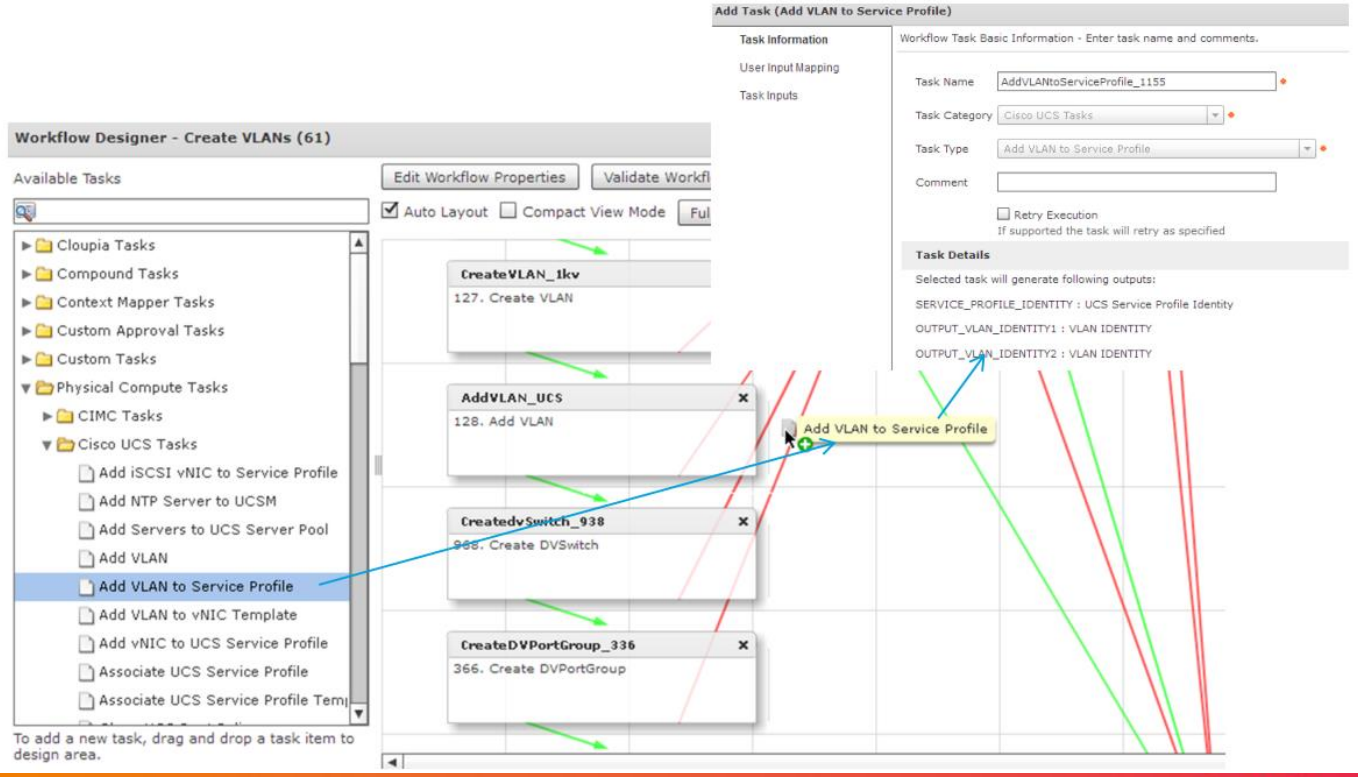


- ✓ Suspend/Resume Workflow
- ✓ **Rollback Workflow**
- ✓ Approvals
- ✓ Complex logic (loops, if-else)
- ✓ Import/Export, Versioning
- ✓ Schedules
- ✓ Custom Workflow Input Types
- ✓ **Publish to Catalog**

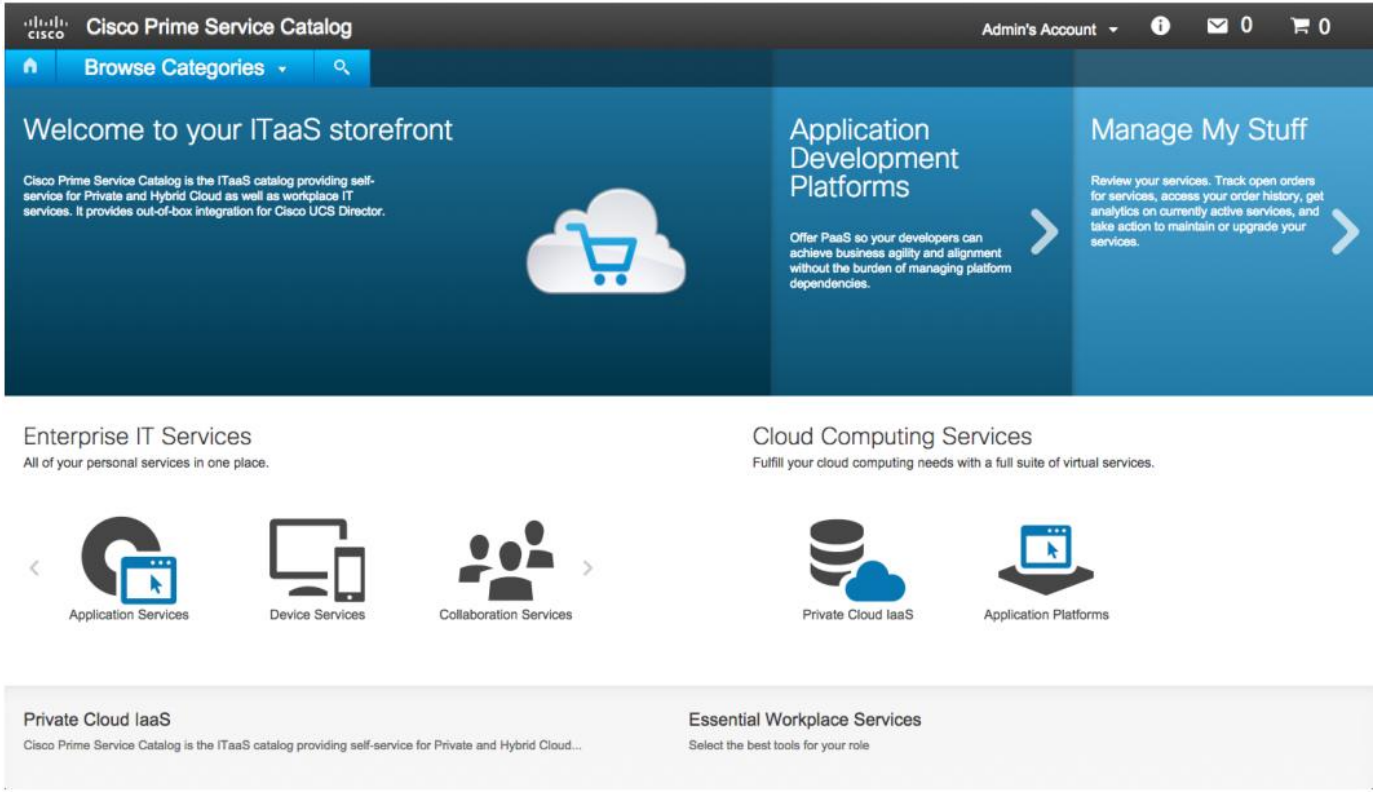
UCSD : Sample workflow



UCSD : Workflow designer



Cisco Prime Service Catalog



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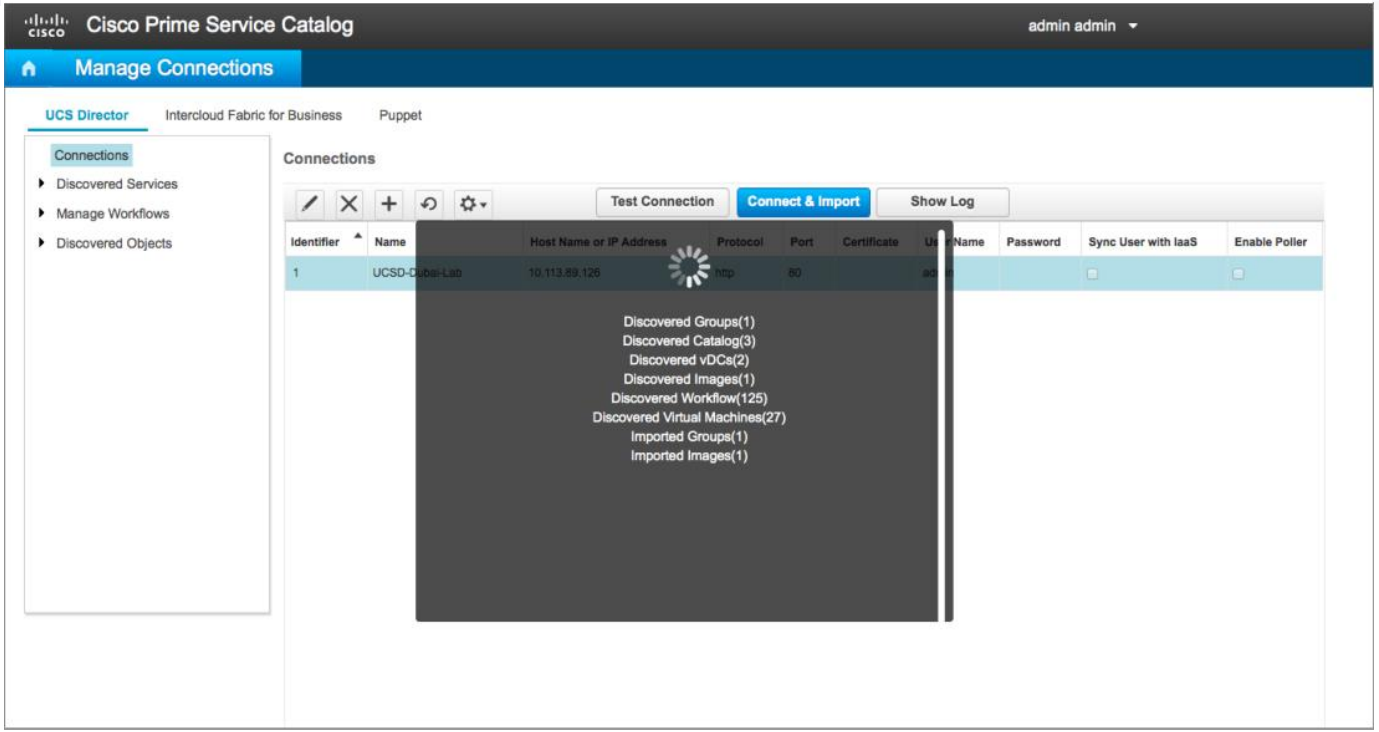
PSC-UCSD Integration



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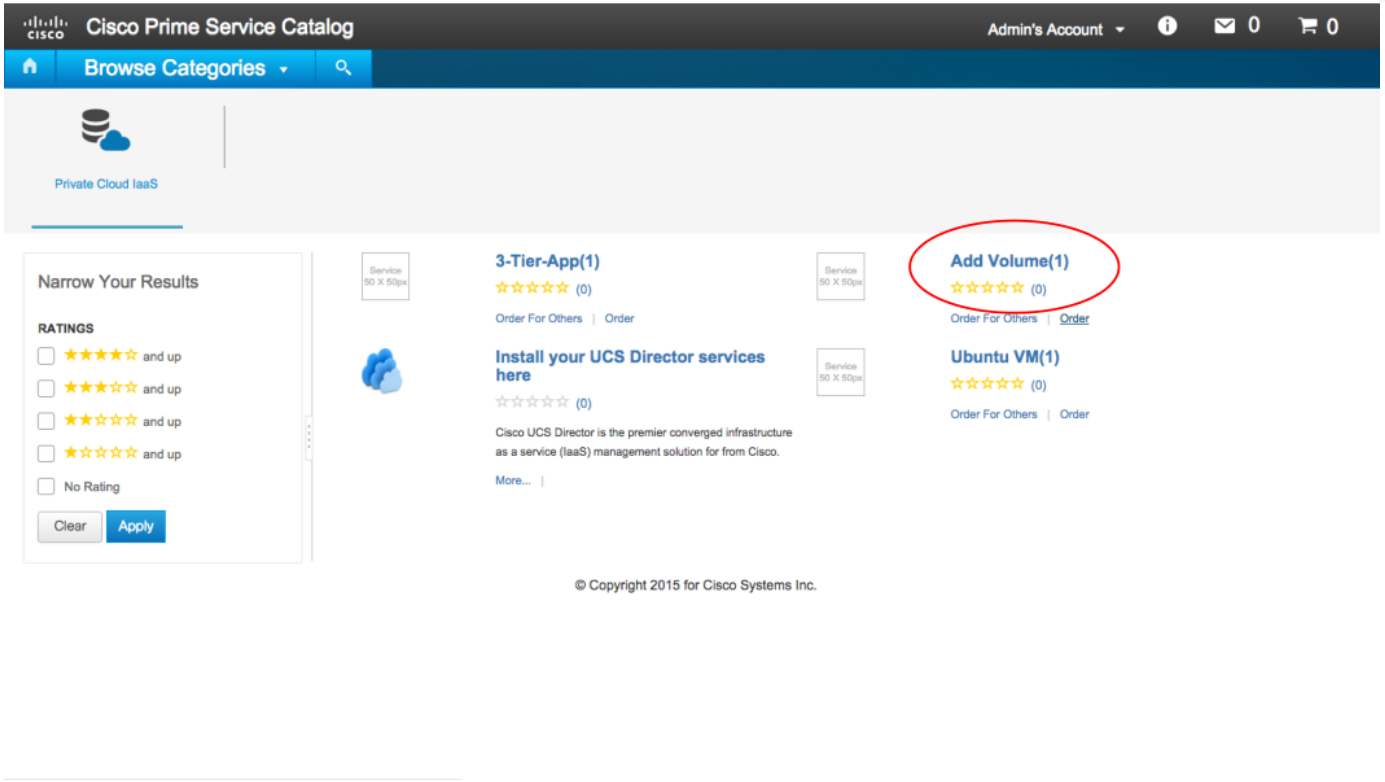
PSC : End User UI



Cisco Hybrid Cloud Architecture
'Any' Hypervisor, 'Any' Cloud with Security and Data Sovereignty

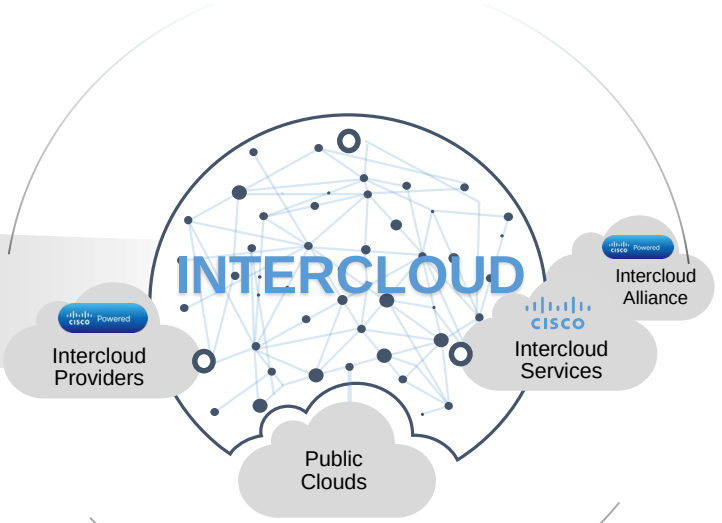
You

Consistent Operation Model

Enterprise Security

Flexible Bi-directional Workload Placement

Infrastructure Extension



350 Data Centers
65 Partners
50 Countries

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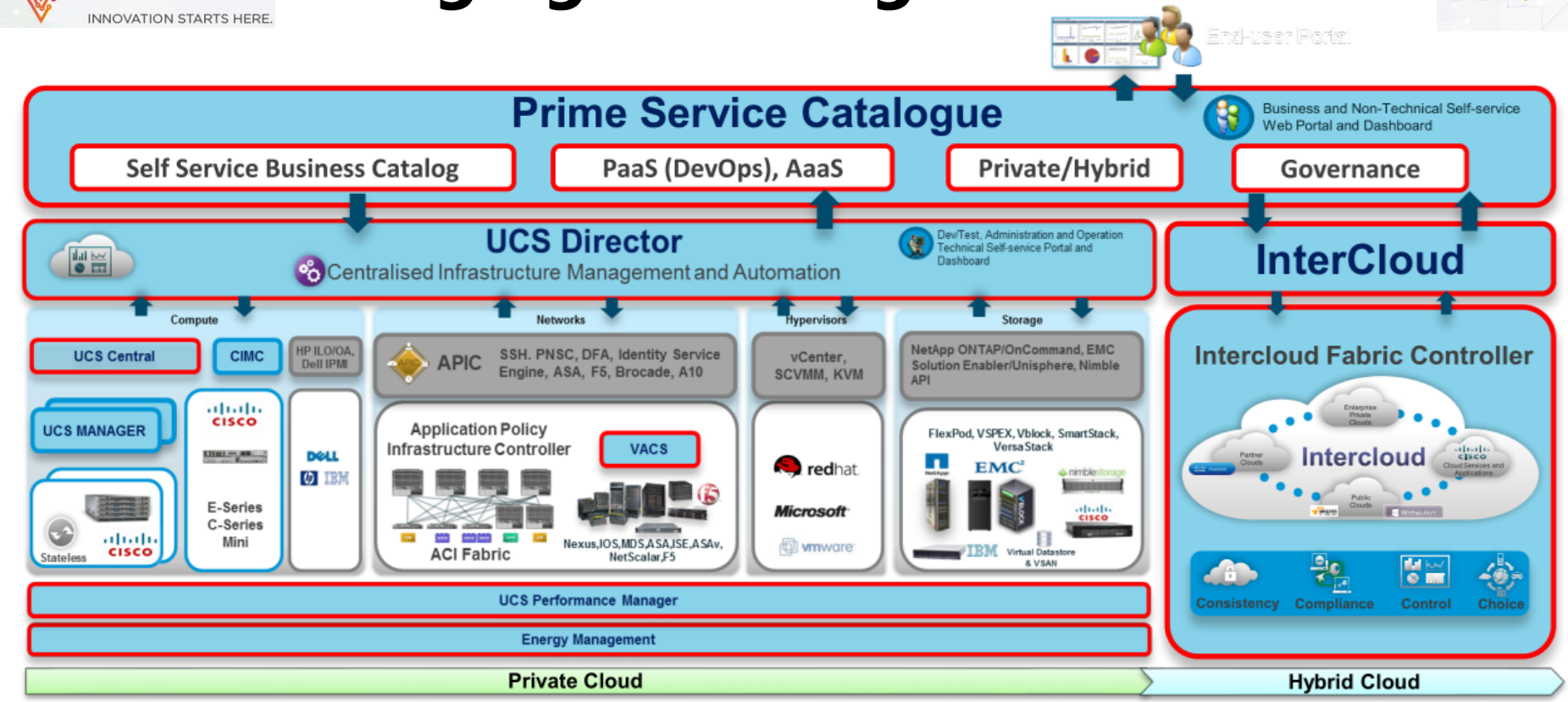
Bringing It All Together

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Standard Sharing Software

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