Simplifying the Cloud Journey

Timothy Chua
Cloud and Data Center Automation Specialist
Cisco Systems
Cloudy Terms & Conditions

Data Center
Virtual and Non-Virtual
Co-Lo or Self-Operate

Private Cloud
Virtual, Service Catalog
Infra Automation

Public Cloud

Public Cloud

Public Cloud

Hybrid Cloud

Multi-Cloud
The Challenge
Growth in Applications and Infrastructure

Complexity UP = Cost UP
Key Decision: Where to put the Data?

- Data only grow bigger
- Always available
- **Best to reside in Data Center**
  - Lowest Operation cost
  - Mature security, performance and management
Simplified **Architecture** for Multi-Cloud

**App Need**
- Always On
- Less-elastic

Datacenter + Private Cloud

**App Need**
- Temp/Elastic
- Use Cloud features

High Speed Interconnect

Public Clouds

© 2018 Cisco and/or its affiliates. All rights reserved.
Multi-Cloud Apps Deployment & Management

Service Catalog

Application Topology Modeling And Composition

Application Environments

Secure Segmentation

Orchestration Platform

POLICY DRIVEN END-TO-END AUTOMATION

Compute

Storage

Network

Virtualization

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers

© 2018 Cisco and/or its affiliates. All rights reserved.
Multi-Cloud Apps Deployment & Management

Existing solutions

- Data Center Centric
- Work with a single cloud
- No broad DC & Cloud support

Inadequate for Multi-Cloud

What is needed?

- Application Centric Platform that spans across Clouds/DC, VM/Physical, Legacy/Web Apps
- Policy driven
- Portable automation
- Embedded Security
Multi-Cloud Apps Deployment & Management

Service Catalog

Application Topology Modeling And Composition

Application Environments

Secure Segmentation

Orchestration Platform

POLICY DRIVEN END-TO-END AUTOMATION

Compute
Storage
Network
Virtualization

Public Clouds

Ecosystem of Service Providers

Datacenter + Private Clouds

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

© 2018 Cisco and/or its affiliates. All rights reserved.
Architecture for Multi-Cloud - with Cisco

Cisco Enterprise Cloud Suite

Application-centric Multi-Cloud Management with Service Catalog + Infra Automation

Applications | Policies | DevOps

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers

© 2018 Cisco and/or its affiliates. All rights reserved.
Manual Deployment

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Consume Apps

Install and Configure Apps

Create VMs, LUNs, VLAN, Firewall rules

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers

© 2018 Cisco and/or its affiliates. All rights reserved.
Manual Deployment – After many rounds

- End User/Developer or Consumer
- IT App Designer
- Infrastructure Admin

Public Clouds
Datacenter + Private Clouds
Ecosystem of Service Providers
Lets Automate – with Scripts

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

App Script

Consume App

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers
Let's Automate – with Scripts across Multi-Cloud

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Consume App

App Scripts

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers

Always On

Less-elastic

© 2018 Cisco and/or its affiliates. All rights reserved.
I need to make some changes...

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Consume App

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers

v1 Scripts

v2 Scripts
Need to tighten up the ports …

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Consume App

Public Clouds

Datacenter + Private Clouds

Ecosystem of Service Providers

Hardwired

Hard to Scale

Costly to Update

v1 Scripts

v2 Scripts

v3 Scripts
Automate with App Profile – the Cisco way

- **End User/Developer or Consumer**
- **IT App Designer**
- **Infrastructure Admin**

**Single App Profile**

- For all target cloud

**Deploy + Manage**

- **Public Clouds**
- **Datacenter + Private Clouds**
- **Ecosystem of Service Providers**

© 2018 Cisco and/or its affiliates. All rights reserved.
Cisco Unique Approach
Application Profile-Based

- Single App Profile across Multi-Cloud
- Graphical App topology modeler
- Cloud-Agnostic
- Low TCO

- Use native Cloud Construct
- AWS – Security Group, RDS, Instance Type
- Cisco – ACI EPG and Contracts

© 2018 Cisco and/or its affiliates. All rights reserved.
Application Profile Example
Deploying a CentOS Image across Multi-Cloud

Cloud Agnostic

- App Profile
- Logical OS Image

Cloud API-Specific

- Orchestrator
- Mapped OS Instance
- AWS
- Mapped OS Instance
- vSphere
- Mapped VM Template
Enterprise-Class Governance and Security
Automation needs guardrails

- Manage budget allocation
- Enforce Compliance & audit
After we have deployed the apps, now what?

Workload Optimization
Business Challenge

Under subscription

Expensive resources sit idle
Increased Cost

Over subscription

Customer satisfaction affected
Loss of revenue

You can’t bump applications
The Complexity of Workload Optimization

Consider the following:

\[
\begin{align*}
\text{# of metrics you monitor for HOSTS} & \times \text{# of HOSTS} = \#,\### \\
\text{# of metrics you monitor for DATASTORES} & \times \text{# of DATASTORES} = \#,\### \\
\text{# of metrics you monitor for VMs} & \times \text{# of VMs} = \#,\###
\end{align*}
\]

The total number of data points you monitor: 

\[\#,\### + \#,\### + \#,\### = \###,\###\]
Cisco Workload Optimization Manager
(powered by Turbonomic)

Patented Real-time decision engine that scales infrastructure resources and workload placement in response to fluctuations in workload demand.

Assures workload performance and efficiency

By delivering the right amount of infrastructure to workloads to ensure performance

Model the Multi-Cloud as a market place with principle of supply/demand
What is it NOT?

More Reports
More Alert
Fundamental Capabilities: Scaling

Automatale Upsizing
- Continuously monitors all VM resource utilization
- Adds CPU or Memory to a running VM – **no reboot or downtime required**

Targeted Rightsizing
- Track long-term historical VM resource utilization
- Reduce CPU or Memory allocated to a VM – **during existing maintenance downtime**
Data Center

- Moves workloads to assure performance, while increasing density.
- Placements abides by business or license constraints.

Cloud

- Placement in public cloud based on best cost, while assuring performance.
- Placements abide by business, license, or data sovereignty constraints.
Playing Tetris in your Multi-Cloud
Business Outcomes with Cisco Workload Optimization Automation

+ 37% Better Application Response Time*
+ 23% More Orders Per Minute*
+ 25% Workload Consolidation
55% Of customers decrease user generated tickets
91% Of customers see full ROI in 100 days

*Documented on UCS by a 3rd Party
Let us recap...
Key Decision: Where to put the Data?

- Data only grow bigger
- Always available
- **Best to reside in Data Center**
  - Lowest Operation cost
  - Mature security, performance and management
Simplified Architecture for Multi-Cloud

App Need
- Always On
- Less-elastic

Datacenter + Private Cloud

Co-location from: 1-hop to Public Cloud

App Need
- Temp/Elastic
- Use Cloud features

High Speed Interconnect

Public Clouds

© 2018 Cisco and/or its affiliates. All rights reserved.
Multi-Cloud Apps Deployment & Management

Service Catalog

Application Topology Modeling And Composition

Application Environments

Secure Segmentation

Orchestration Platform

POLICY DRIVEN END-TO-END AUTOMATION

Compute
Storage
Network
Virtualization

End User/Developer or Consumer
IT App Designer
Infrastructure Admin

Public Clouds
Datacenter + Private Clouds
Ecosystem of Service Providers

© 2018 Cisco and/or its affiliates. All rights reserved.
Architecture for Multi-Cloud - with Cisco

Cisco Enterprise Cloud Suite

Application-centric Multi-Cloud Management with Service Catalog + Infra Automation
Applications | Policies | DevOps

End User/Developer or Consumer

IT App Designer

Infrastructure Admin

Public Clouds

Datacenter + Private Cloud

Ecosystem of Service Providers
Next step

Engage your AM

Invite us for demo