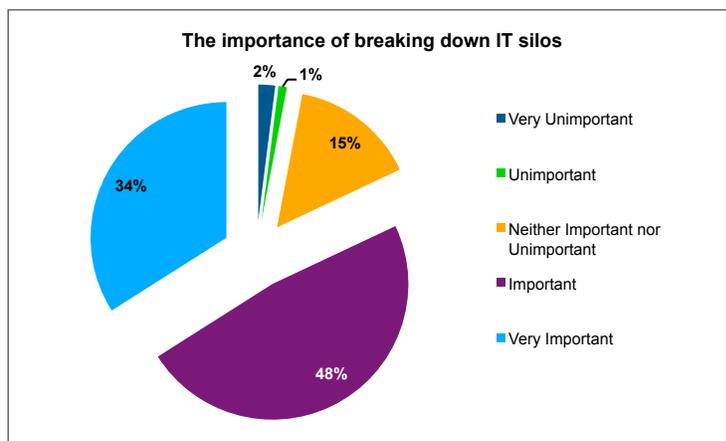# Cisco Intelligent Automation for Cloud 4.0: Cloud Management for IaaS and Beyond

Introduction

In January of 2014 Cisco Systems launched Cisco Intelligent Automation for Cloud 4.0 (IAC 4.0). In combination with the latest release of Cisco UCS Director, responsible for management of physical and virtual servers, storage and network infrastructure, IAC 4.0 enables the rapid and policy driven provisioning of cloud-based IT services. These services can now be deployed on physical or virtual resources in massive and heterogeneous private cloud environments, and managed alongside resources from one or more public cloud platforms.

Key Customer Value

IAC 4.0 is part of Cisco's Unified Management strategy, aimed at breaking down the walls between traditional data center silos – storage, network, servers, security, applications, middleware, database – enabling cloud administrators, developers and end users to easily assemble and manage IT services. Recent EMA research has shown the incredible importance of eliminating data center silos, in order to deliver application environments more rapidly and at a better quality.

The importance of breaking down IT silos

- Very Unimportant — 2%
- Unimportant — 1%
- Neither Important nor Unimportant — 15%
- Important — 48%
- Very Important — 34%

Most Notable New Capabilities of Cisco IAC 4.0

Hybrid Cloud: Cisco IAC 4.0 provides out-of-the-box management of multiple cloud environments – including VMware vCloud, OpenStack and Amazon Web Services. A new initiative called Cisco InterCloud enables moving workloads between private and public clouds, via layer 2 network connectivity, without the need for application redesign. IAC 4.0 will integrate with InterCloud in order to consistently and securely manage IT services across local data centers and public cloud infrastructure. Cisco is currently working on additional InterCloud connectivity with cloud service providers such as Microsoft Azure, CSC, CenturyLink, British Telecom, and others.

Governance: EMA research has found that after the cloud honeymoon is over, organizations require an advanced and granular governance framework to consistently enforce cost control, quotas, security, reliability and performance across physical, virtual and cloud environments. IAC 4.0 offers these capabilities within a multi-tenancy architecture, targeting enterprise and service provider scenarios.

Integration with UCS Director: Cisco UCS Director provides infrastructure management capabilities for physical and virtual server, storage and network resources. UCS Director can be seen as the "factory," making things happen in the background for infrastructure provisioning, while IAC provides the IT "storefront," extending self-service ordering of applications, infrastructure and entire services to a wide range of users. In the 4.0 release, this integration between IAC for cloud management and UCS Director for physical and virtual infrastructure management is a strong combination.

Out of the box workflows: With the embedded capabilities of Cisco Process Orchestrator, IAC 4.0 offers over 800 standard workflows and 500 so-called extension points. These extension points are

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editable processes that enable customers to modify their workflows in IAC 4.0, without altering the underlying code or impacting their upgrade process. For example, IAC's out-of-the-box integration with tools like Infoblox IPAM (IP Address Management Software) can be modified to meet an organization's unique configuration, without the worry of challenges during future IAC upgrades.

Comprehensive service catalog: IAC 4.0 also embeds the Cisco Prime Service Catalog, which enables end users to order a wide range of traditional enterprise IT services as well as cloud computing services from one single portal interface. The service catalog now also provides advanced multi-tenant and pricing functionality that allows cloud administrators to apply flexible pricing scenarios to different tenants. This enables organizations to configure different pricing and ordering scenarios based on diverse types of local data center infrastructure or public cloud resources, such as Amazon Web Services.

Network services automation: Another embedded component of IAC is the Cisco Prime Network Services Controller, which enables automated deployment of virtual network services (including load balancers, firewalls and VPNs) in a multi-tenant cloud environment. This is one of the more complex areas of cloud management, and Cisco leverages its strength in networking to simplify and automate the configuration of these network services.

Application Stack Accelerator: A new Application Stack Accelerator is now available as an optional add-on to Cisco IAC. This TOSCA-based solution makes it easier to design, order, and provision an entire application environment, including the OS, middleware and database. This enables the rapid standup of simple application stacks, such as a LAMP stack, or even more complex applications, such as SAP HANA or Microsoft SharePoint. The Application Stack Accelerator also provides integration with Puppet and Chef for configuration management.

EMA Perspective

This new release aims at a balance between out-of-the box features and an open cloud approach. The latter is achieved through native integration with public cloud services and simple extensibility to accommodate customers' unique requirements and their need to integrate with third party systems. Cisco's ultimate goal is to enable its customers to offer IT as a Service, extending beyond virtual machines and infrastructure-as-a-service to the automated deployment of any type of application or IT service through on-demand, self-service provisioning. This approach makes IAC 4.0 an excellent foundation for a business-driven cloud management strategy.

EMA applauds Cisco's TOSCA[1]-driven templatization of application environments, as this is one of the keys to achieving a more dynamic data center that is able to respond to business needs in a rapid and reliable manner. Integration with Puppet and Chef is key to ensuring that customers can hit the ground running.

Cisco provides a complete stack of cloud software that starts at the provisioning and management of virtual machines, bare metal servers, storage, and networking and reaches all the way up to the application stack layer and out into the public cloud. IAC 4.0 is a simple and powerful tool for cloud administrators to offer IT services in a policy-driven and secure manner.

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[1] TOSCA (Topology and Orchestration Specification for Alcoud Application) is a standard to enhance workload portability between clouds. Learn more at https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=tosca