Cisco OverDrive Network Hypervisor 4.0

Cisco® OverDrive Network Hypervisor is designed to help enable customers to organize their network resources into a flexible cloud infrastructure that integrates the network with their existing IT operational tools and processes. OverDrive Network Hypervisor's network abstraction layer allows customers to provision and deploy numerous individual network components as sophisticated network "containers" across single and multipod cloud deployments much more easily and quickly than previously possible with template- and script-based systems, dramatically reducing network operations costs and the potential for misconfiguration while optimizing capacity utilization and accelerating service delivery.

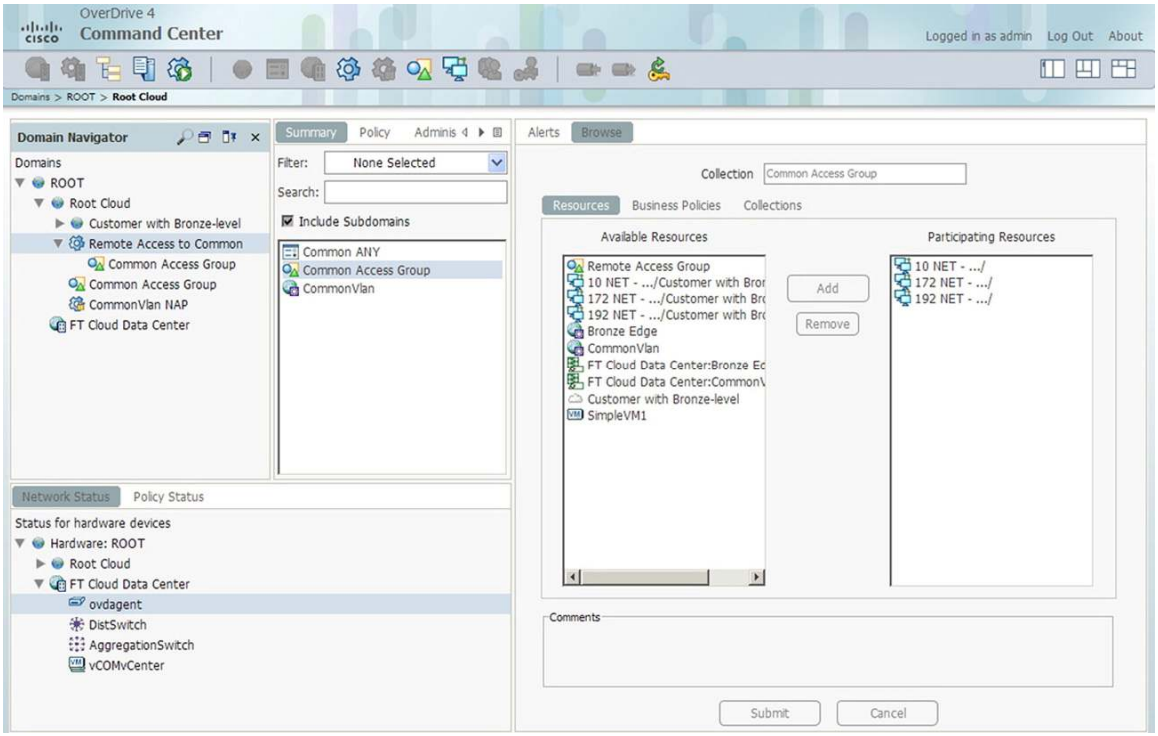
Network infrastructure can now be virtualized and fully automated in support of cloud service deployments, creating dynamic, automated clouds providing security, partitioning, and access control - the building blocks to provide IT as a service for any class of customer.

Easily Create Service Tiers Across Single and Multipod Cloud Deployments

Cisco OverDrive Network Hypervisor offers a flexible, policy-driven approach to how cloud services are managed and controlled. This is achieved by abstracting the components needed to build an isolated virtual network infrastructure for each cloud tenant. Through a cloud configuration user interface (Figure 1), Cisco OverDrive Network Hypervisor helps enable administrators to dynamically define and control an array of behaviors in their cloud environment including:

- Creation of different levels of service capability or "service tiers" to be made available in the cloud (for example, gold, silver, bronze)
- Definition of the capabilities and resources available in each tier
- Structuring of a system of "containment" that defines virtual private clouds and virtual data centers and how they can be deployed
- Specifying how VLANs, service capabilities, and virtual machines can be defined and deployed within a virtual data center

Figure 1. OverDrive Network Hypervisor Command Center



OverDrive Network Hypervisor's policy-driven approach allows clouds to be created within single or multiple pods, each with potentially different and unique offerings and operational behaviors. One cloud may offer a simple self-service development environment, while another may offer tiered quality of service for customer- and partner-facing web content, and yet another may support sophisticated multitiered containers with internal business application, firewall, and load-balancing capabilities,

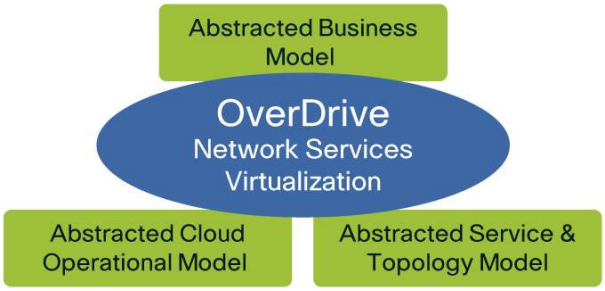
Service providers can use OverDrive Network Hypervisor to provision a multitenant environment with isolation of traffic and network services, which allows third-party providers, resellers, and wholesalers to operate their own "white-labeled" cloud environments for downstream customers using a cloud-within-cloud approach. This capability allows large service providers to build and deploy scalable cloud architectures, while small providers can more easily offer cloud services to their customers.

Define and Control the Behavior and Characteristics of a Cloud

Cisco OverDrive Network Hypervisor abstracts common objects, services, and resources that are critical to cloud operations into three distinct models, helping enable administrators to define and control the behavior and characteristics of a cloud.

These abstracted business, cloud operational, and service and topology models interact with the OverDrive Network Hypervisor Network Services Virtualization Engine as requests for cloud services are provisioned and cloud resources are consumed or released (Figure 2).

Figure 2. Cisco OverDrive Network Hypervisor Business, Cloud Operational, and Service and Topology Models



- Business Model: Defines which resources can have access to various cloud resources
- Cloud Operational Model: Captures and helps enable the creation of policies that define and control the behavior of the cloud environment
- Service and Topology Model: Physical and logical network and service information provides capacity and resource information about the underlying cloud infrastructure

Table 1. Features and Benefits

Feature	Benefits
Business-policy driven	As business needs evolve, new policies can be constructed and existing policies adjusted. For example, a policy for access to a customer relationship management (CRM) system can be established to automatically adjust the network services when new sales personnel are hired or when the CRM application moves physically or virtually.
Automates device-level configuration	Enables just-in-time service delivery models to automatically translate defined policies into device-level configuration syntax that is pushed out to routers, switches, firewalls, and other devices on the network.
Automates network service delivery	Helps enable administrators to define and control the underlying network infrastructure services that provide end-user access to physical and virtual resources.
Open interfaces	Helps enable administrators to seamlessly integrate OverDrive Network Hypervisor with their existing network management and operational support systems to support cloud deployments.

OverDrive Network Hypervisor Architecture

The OverDrive Network Hypervisor architecture consists of the OverDrive Network Hypervisor Command Center as the primary administrative interface to the system, allowing administrators to define cloud characteristics, services, and behaviors as well as construct business polices that define who (users and groups) or what (other computer resources) can access cloud resources.

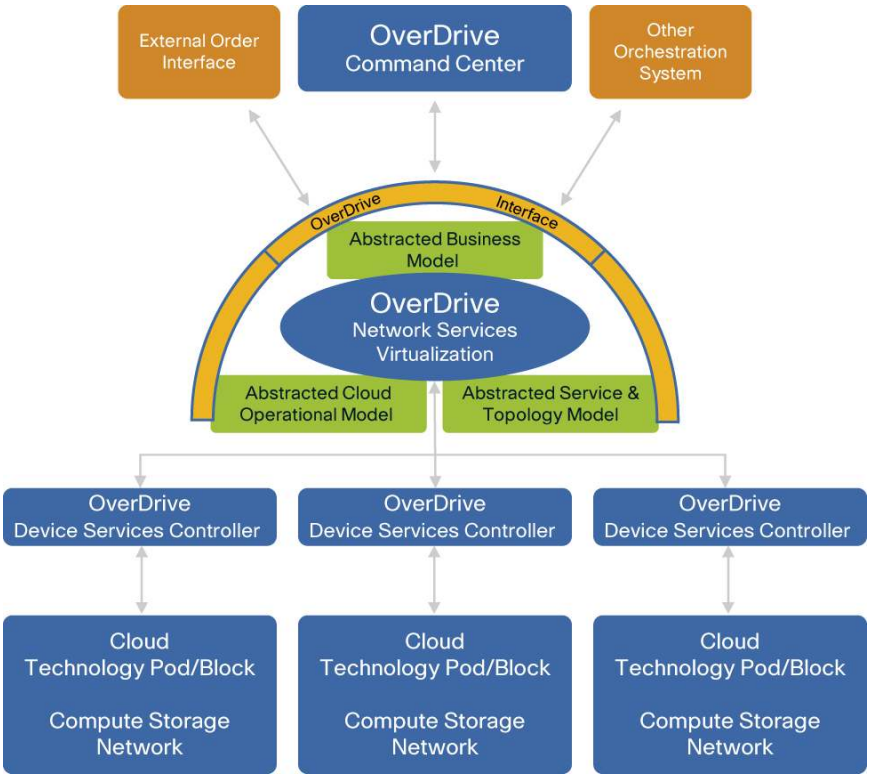
The heart of the system is the OverDrive Network Hypervisor Network Services Virtualization Engine, which automates the provisioning of cloud services and dynamically generates the configuration instructions that control the devices and services in the cloud.

The OverDrive Network Hypervisor Network Services Virtualization Engine dynamically builds and deploys these configuration instructions that are pushed down to the OverDrive Network Hypervisor device service controllers that translate the instructions into the exact configuration semantics for each device type/model in the pod.

The OverDrive Network Hypervisor device service controllers interact with the devices and services in the pod in real time to determine the exact service characteristics of the devices and status of the deployed cloud services.

OverDrive Network Hypervisor can be integrated with external systems such as order entry portals or service catalogs where user requests for cloud services can be captured and pushed to the OverDrive Network Hypervisor Network Services Virtualization Engine for provisioning. Other ecosystem technologies such as higher-level orchestration frameworks or specific configuration management systems can also use this interface to move critical information into and out of the OverDrive Network Hypervisor Network Services Virtualization Engine. See Figure 3.

Figure 3. OverDrive Network Hypervisor Architecture



System Requirements

Table 2 lists system requirements for network services virtualization software, Table 3 gives the system requirements for device service controller software, and Table 4 lists the system requirements for command center client software to be used with OverDrive Network Hypervisor.

Table 2. Network Services Virtualization Software

Hardware	Xeon 3 GHz or equivalent
Disk space	40 GB
Memory	4 GB
Software	Centos 5.x base OS, Java 1.6, Java Security extensions, Postgres 8.4, JBoss 4.0.5 (modified), VMware ESX-based implementations are supported

Table 3. Device Service Controller Software

Hardware	Xeon 3 GHz or equivalent
Disk space	10 GB
Memory	2 GB
Software	Centos 5.x base OS, Java 1.6, VMware ESX-based implementations are supported

Table 4. Command Center Client Software

Hardware	Microsoft Windows or Apple Mac desktop
Disk space	500 MB
Memory	1 GB
Software	Firefox (Chrome is not supported)

Ordering Information

Cisco OverDrive Network Hypervisor is currently available in a controlled release for service provider customers deploying specific technologies of the Virtualized Multitenant Data Center Solution. For ordering information please contact your local Cisco account representative.

Service and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

For More Information

For more information on Cisco OverDrive Network Hypervisor, visit http://www.cisco.com/go/overdrive, contact your local Cisco account representative, or send an email to ask-overdrive-network-hypervisor @cisco.com.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **www.cisco.com/go/offices.**

Printed in USA C78-649605-01 05/11