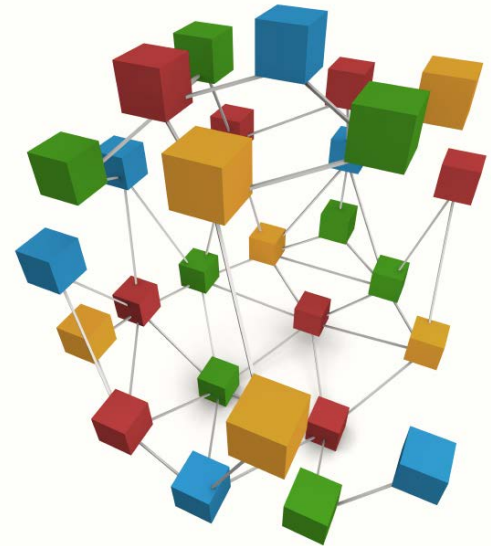


# Multi-Site Manager for OpenStack

Easily build and manage  
distributed OpenStack clouds  
for workload agility and mobility



## **AUTOMATED OPENSTACK SERVICE CONSOLIDATION AND COORDINATION**

OpenStack® is the go-to solution for private and hybrid clouds. But, it lacks the ability to create a distributed cloud that spans multiple sites. Trying to manually configure a single instance of a new OpenStack service across multiple locations, and ensuring all the pieces are in place and working together, is a nearly impossible task.

CPLANE's **Multi-Site Manager (MSM) for OpenStack** provides API-driven service management across different OSS/BSS systems that act as a front-end (e.g., customer portal) to the service delivery process. A consolidation point for new services, MSM coordinates the back-end API orchestration of service requests for a single or multiple OpenStack instances. MSM's powerful automation engine ensures all OpenStack services (e.g., new Virtual Machines) are created according to the policies defined by the front-end systems. MSM deploys new services in seconds that would otherwise take days or even weeks to manually deliver.

## **COMPLETE SERVICE SOLUTION**

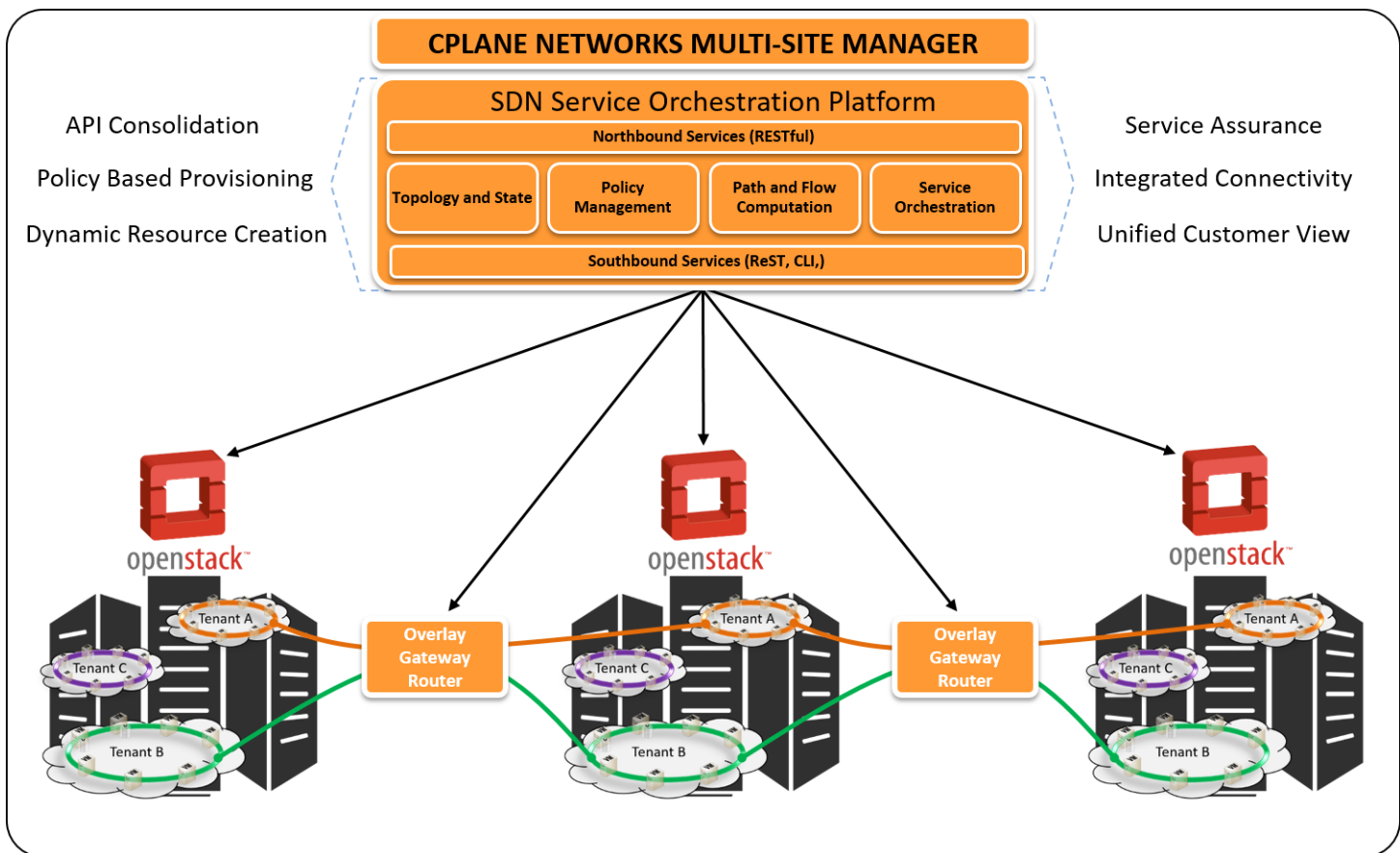
MSM utilizes CPLANE's SDN Service Orchestration Platform to deliver end-to-end automation and provisioning of OpenStack compute, storage and networking.

Through CPLANE's Overlay Gateway Router (OGR), MSM seamlessly configures all network connections for multiple OpenStack instances. OGR runs on standard x86 hardware, as either a physical or virtual instance, so no specialized networking gear is required!

## **UNIFIED CUSTOMER VIEW**

Cloud computing at scale can get messy. Hundreds or even thousands of customers. Thousands of nodes. Millions of VMs.

MSM provides a consistent, customer-centric view of all the service elements for a customer – whether in one OpenStack instance or several spread across multiple sites. Without this clear and accurate visibility, you can quickly lose all the operational and business benefits of your cloud.



*Multi-Site Manager Seamlessly Orchestrates Service Creation and Connectivity Across Distributed OpenStack Instances*

## DON'T LET OPENSTACK BECOME JUST ANOTHER SILO IN YOUR DATA CENTER

OpenStack delivers significant operational and business benefits. But, without the ability to dynamically create new services across multiple OpenStack instances or locations, the true workload agility and mobility that it offers is lost.

**Don't let that happen to your OpenStack deployment!**

**Contact us today to learn how Multi-Site Manager for OpenStack can unleash the power of your private or hybrid cloud!**

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## MSM Features

- New customer creation propagated to OpenStack
- Auto-discovery/syncing of OpenStack site object cache
- Customer credentials managed across separate OpenStack sites
- Creation of Virtual Machines and Virtual Machine objects, including storage
- Automatic creation of OpenStack Virtual Network objects to support new Virtual Machine requests (Network, Subnet and Router, Floating IP, etc.)
- Automatic creation ("spin-up") of dedicated customer OGR VM (on available hardware)
- Query operations for OpenStack components
  - Virtual Machine Flavor definitions per site
  - Virtual Machine Image definition per site
  - Site specific Storage Options
- Query operations for customer's OpenStack inventory
  - Virtual Machines
  - OGR / Route definitions
  - Network definitions
  - Storage definition and use
  - State and status of Virtual Machines

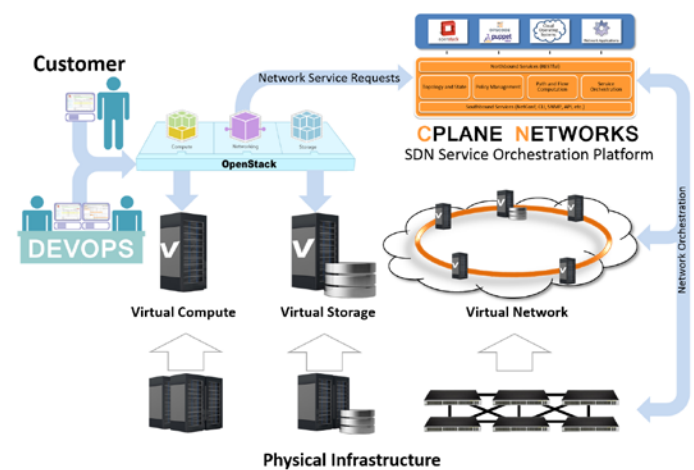
## Dynamic Virtual Networks – Data Center

### The New OpenStack® Networking

The next generation of OpenStack Networking has arrived. Enterprises and service providers are no longer constrained by the basic Neutron networking service that comes with OpenStack, which provides only very basic network services, requires manual configuration and has limited scalability. For customers who want production-ready virtual and physical network agility, flexibility and performance, help has arrived!

### Dynamic Virtual Networks – Data Center

CPLANE NETWORKS **Dynamic Virtual Networks – Data Center** (DVNd) delivers high performance Layer 2 and Layer 3 virtual networks that quickly and seamlessly connect thousands of physical compute nodes and millions of virtual servers. DVNd eliminates the hassles and limitations associated with legacy network architectures and protocols such as VLANs and Spanning Trees, while providing maximum flexibility and performance in securely isolating and configuring applications and tenants.



The OpenStack Service Delivery Framework

### Seamless OpenStack Integration

DVNd easily integrates with the OpenStack framework to transparently provide virtual network services. There are no dependencies on any of the embedded OpenStack databases or schemas, so there are no special hooks or configuration files to worry about. DVNd seamlessly handles the standard networking requests from the Nova scheduler and quickly provisions high performance, highly available virtual networks.

### Full Lifecycle Support

#### Investment Protection

DVNd utilizes existing network infrastructure so there's no large up-front investment or "rip and replace" requirements. Any IP-routable network can be turned into a dynamic, scalable resource.

#### Installation and Management

DVNd delivers zero-touch installation and operation. Compute nodes auto-register with the SDN Service Orchestration Platform and receive necessary configuration parameters. No further configuration is required and all flow rules are automatically pre-calculated and proactively pushed to the nodes.

#### Operational Visibility

CPLANE NETWORKS provides concise and accurate topology and state management that delivers a clear picture of all virtual overlay networks. DVNd is fully integrated with the OpenStack Horizon dashboard for a seamless user experience.

#### Reliability

Failed nodes automatically reconnect to the SDN Service Orchestration Platform and receive state and flow information. All Platform services are fully HA and independently scalable.

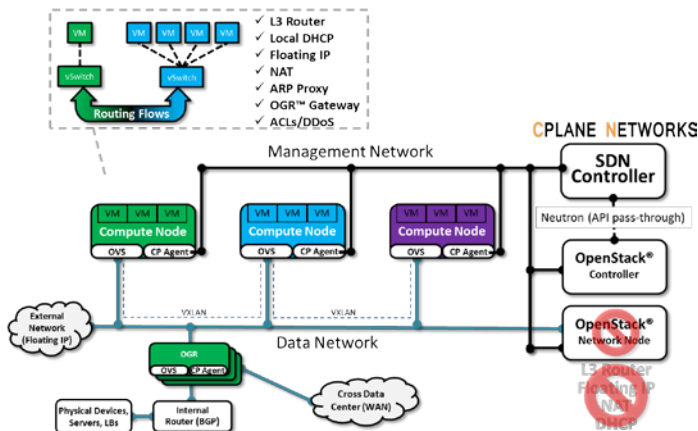
## Performance and Scale

DVNd eliminates a performance bottleneck and single point of failure, the OpenStack Network Node. All critical network services are performed locally at each compute node, significantly reducing network traffic and improving performance. Network Node backhauling has been eliminated and communication between VMs is now only a single virtual hop.

## Migration

Clean APIs and open interfaces ensure smooth migration to new OpenStack releases. No more lock-in to specific releases or vendor solutions.

## Built for OpenStack™



CPLANE NETWORKS/OpenStack Integration

Dynamic Virtual Networks is *Built for OpenStack™* to deliver reliable and cost effective network services that meet and exceed the demanding performance and scalability of enterprises and service providers.

## Multi-site OpenStack Clouds

Utilizing CPLANE's Overlay Gateway Router (OGR), DVNd provides Multi-site OpenStack Networking and OpenStack Cloud Bursting to public clouds to provide true workload agility and mobility. Now you can unleash the power of your OpenStack cloud!

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- **Network Features**
  - Tenant and Network Isolation (L2/L3 VXLAN)
  - Unlimited Tenants, Network and Subnets
  - Cross domain (Subnet/Tenant) Routing
  - DHCP, Floating IP, NAT, DDoS Protection, QoS
  - Overlay Gateway Router/Native Access Services
    - BGP advertisement for Virtual Router next hop
    - Seamlessly extend overlay into MPLS
- **Flow optimization**
  - Local L3 routing (distributed Router)
  - Broadcast elimination (local ARP Proxy)
  - No unnecessary multi-hop backhauling
- **Compute Node Agent**
  - Multiple hypervisor support
  - CPLANE'S Open vSwitch (OVS) compatible
  - Lightweight, efficient communications with the SDN Service Orchestration Platform (SDN Controller)
  - Provides Zero-Touch management
  - Auto restart and reconfiguration of compute nodes
  - Port-based QoS rate limiting
  - Separate NICs for SNAT, Data and Floating IP
  - NIC bonding
  - SSL for all cross-server communication
- **Name Service and Bootstrap**
  - Handles registration of OVS with SDN Service Orchestration Platform
  - Resiliency, Failover and Load Balancing to SDN Service Orchestration Platform
- **Integrated Management Console**
  - Complete data coherency with OpenStack Horizon
  - Hierarchical and graphical views
  - ARP table visualization
  - Flow rule (VM-VM) mapping, validation and consistency checking
- **Ultra-lightweight OpenStack Controller Node plugin**
  - Lightweight Neutron pass-through
  - Eliminates dependency on OpenStack schemas and databases
- **Automated Installation and Deployment**
  - OpenStack Icehouse/Juno/Kilo compatible
  - TripleO & Red Hat Director automated provisioning
- **Release Support**
  - Icehouse/Juno/Kilo support for CentOS 6.6 and RHEL 5/6/7
  - Icehouse/Juno support for Ubuntu 14.04 TLS
  - ML2 support for Icehouse/Juno/Kilo