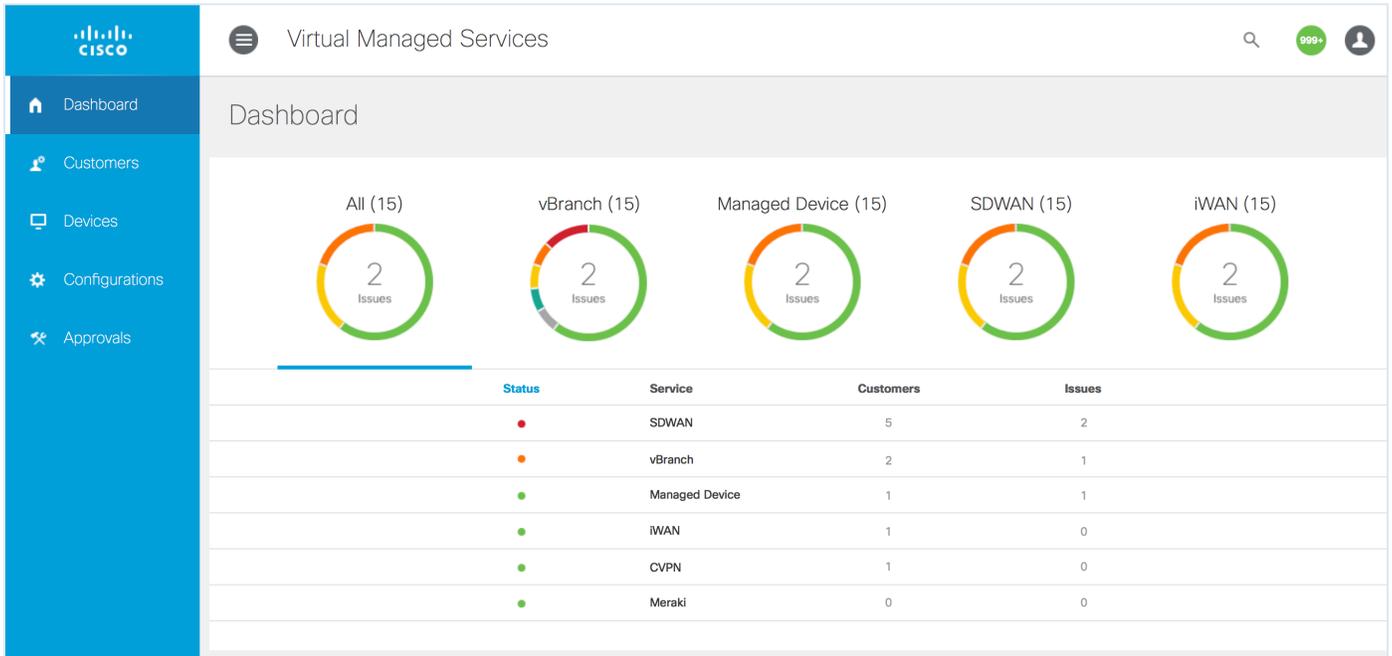ılıılı
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Cisco Virtual Managed Services

Cisco Virtual Managed Services (VMS) is a service creation and delivery platform that helps managed service providers to rapidly and profitably deliver service offerings to market.

Cisco VMS helps service providers rapidly deliver profitable managed network, security, and business services to market. Using VMS, service providers can create entirely new services from scratch or leverage pre-built service packs from Cisco. VMS can be up and running with minimal integration costs and time, offering an unlimited range of future services based on both virtual or physical network functions from both Cisco and third-parties.

In contrast to inflexible point solutions that support a limited number of fixed use cases, VMS is a true service creation platform that allows service providers to deliver differentiated services with greater end-customer value and profitability. Unlike do-it-yourself solutions that require large IT budgets and long lead times to build a system from the ground up, VMS can be deployed quickly and cost effectively. Using VMS, service providers can get to market immediately with pre-built service packs and yet still develop fully-customized services on top of VMS where absolutely required to deliver competitive advantage.

Table 1.   VMS Features

Strategic Features	Key Concepts
Service Creation Platform	**Multiple Services** VMS supports the simultaneous delivery of multiple services, whether those services are pre-built service packs purchased from Cisco or custom service packs developed by the service provider. **Open API and SDK** VMS implements an open API and SDK that enables service designers to build rich services. These APIs are the same ones used by Cisco's own service designers to create the pre-built service packs, so the full power of the platform is available to customers. **Rich Templating** VMS provides a rich templating environment for VNFs, allowing service designers to create new services as topologies of VNFs, deployed to Cisco's ENCS platform. **Service Extensions** Sometimes a pre-built service is just what you want – except for the small tweak you need. VMS's service extension capability allows customers to easily modify the behavior of another service without having to modify the internals.
Pre-Built Service Packs	**Quick Time to Market** Cisco offers pre-built service packs for VMS that are ready-to-sell on day 1, allowing service providers to enter the market quickly with multiple services. This eliminates the typical stall in momentum when service providers adopt a horizontal platform and then spend time developing services. **SD-WAN Services** Cisco VMS has pre-built service packs for both Cisco SD-WAN and Cisco IWAN, making it easy for service providers to rapidly roll out feature-rich SD-WAN services that leverage the installed-base of Cisco hardware. **Security Services** Cisco's Cloud VPN service pack enables service providers to sell cloud-hosted security services to mid- and-large-enterprise customers. **Flexible VNF Deployment on Cisco ENCS** Cisco's vBranch service pack allows service providers to deploy templated configurations of VNFs to Cisco's ENCS CPE hardware systems.
OSS / BSS Integration	**Billing API** VMS generates appropriate billing events that can be attached to external, common billing systems to ensure that end-customers receive an integrated bill that includes services delivered through VMS as well as other services. **Order Entry API** The VMS order entry API allows external systems to place orders within VMS (useful when VMS is being front-ended by another service provider user-portal or other systems) and allows VMS to generate service ordering notifications to external BSS systems for proper service delivery workflow. **User Identity API** VMS supports user identity integration and single-sign on through standard SAML and OAUTH protocols, ensuring a smooth user experience. **Service Assurance** VMS naturally collects statistical data about service performance. This data can be viewed in VMS or pulled via API or streamed to external systems for viewing or analysis.
Automated Orchestration	**Fully-Automated Service Delivery** VMS automates service delivery to ensure low operating costs and the smoothest end-customer experience. Once a user specifies a desired service, VMS make it a reality with just the click of a mouse. End-users can make sweeping changes to a service in the end-user portal and VMS will reconfigure thousands of devices if necessary. **Model-Driven Orchestration using Cisco Network Services Orchestrator (NSO)** VMS leverages the rock-solid reliability of Cisco NSO. Service providers who have already adopted NSO will find it easy to create new service packs for VMS to help deliver their existing NSO services.
Cloud Native Architecture	**Public Clouds** VMS runs great on public clouds like Amazon Web Services, helping service providers get to market quickly, with zero investment in infrastructure. **Cisco NFVI**

Supports Virtual, Physical, and Third-Party functions	For service providers who want to deliver cloud-based VNFs, private cloud infrastructure based on Cisco NFVI is often the most cost effective. A VMS installation can start small, with just a few servers, and scale up as required. **Third-Party NFVI** VMS also supports third-party NFVI configurations based on recent versions of Open Stack. **Virtual and Physical** While some systems only cater to virtual network functions or physical devices, VMS is completely agnostic and supports both. In fact, a single end-user service might include a combination of virtual networking functions and physical networking functions. **An Open Platform** Some SD-WAN and NFV systems are closed and restrictive, only allowing customers to use protocols, technologies, and VNFs from the same company. VMS is wide open. Service providers can easily add VNFs from third parties, integrate with external systems, and develop their own services based on underlying third-party technology.

Specifications

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Table 2.   VMS Specifications

Specification	
Supported Service Packs	Cisco SD-WAN (Viptela) vBranch Cloud VPN Managed Device Cisco IWAN (note that Cisco IWAN is not recommended for new deployments; use Cisco SD-WAN instead)
Virtual Infrastructure Manager (VIM) Requirements	Public Clouds: AWS; requires 18 virtual machines for platform and two virtual machines per service pack Private Clouds: OpenStack clouds with Keystone v2 and v3 (identity), Nova v2 (compute), and Cinder v1 and v2 (volume storage). These requirements can be met with various commercial OpenStack distributions such as Red Hat OpenStack (RHOS). Cisco VIM 2.0: Cisco NFVI or Cisco NFVI Micropod
VMS Installer Prerequisites for OpenStack	Quota Requirements: Instances: 50 Floating IP: 5 Security Groups: 30 Security Group Rules: 300 vCPU: Minimum of 170 Volume Storage: 1000 GB RAM: 500 GB CentOS cloud image version: CentOS-7-x86_64-GenericCloud-1611 Docker version 1.10.3
Identity Management, Single Sign On, Authentication, and User Access Control	Single Sign On: SAML Authentication: OAUTH2 Role-based access control (RBAC): Every user is assigned to one or more groups that control access to individual functionality within the VMS user interface. New groups can be created to reflect individual organizational structures or operational process requirements.
APIs	All user-accessible functionality within VMS is also accessible via a robust set of REST APIs (in fact, the user interface is also a consumer of this same set of APIs). VMS events are propagated via REST or SMTP. All APIs are governed by the same authentication and access control system that also governs the user interface. VMS can interface with other systems easily and be driven fully via API calls, allowing for "headless" operation without the GUI if so desired.
SDK	VMS includes a comprehensive, Java-based software development kit (SDK) to support enhancements of existing services or the development of new services. A Javascript UI library includes a variety of standard components that allow custom service packs to visually integrate with Cisco pre-built service packs.

Service Extensions	VMS provides a standard way for service providers to "tweak" and extend Cisco pre-built service packs without having to develop custom code: Service Extensions. Using Service Extensions, a service provider can push additional configuration to devices that is not already included as part of the service definition provided by the service pack.
Hardware Support	VMS generally supports any and all hardware, including Cisco and 3rd-Party devices. Specific service packs may have specific requirements for hardware or firmware, depending on the functionality being delivered in the service pack. Support for specific hardware may require additional development on the part of the service provider (possibly as part of a services engagement) and may not be available "out of the box." Service providers wanting to understand how specific hardware would be supported are encouraged to ask their Cisco sales team for additional information.
Virtual Networking Function Support	VMS generally supports any and all virtual networking functions (VNFs). Specific service packs may have specific requirements for VNFs, depending on the functionality being delivered in the service pack. Support for specific VNFs may require additional development on the part of the service provider (possibly as part of a services engagement) and may not be available "out of the box." Service providers wanting to understand how specific VNFs would be supported are encouraged to ask their Cisco sales team for additional information.
User Interface	Brandable: VMS is "brandable" and supports integration of service provider logos and color schemes to provide direct end-customer access to VMS functionality.
	Service Catalog
	Security: See "Identity Management, Single Sign On, Authentication, and User Access Control" section
	Customer Self-Service: SP end-customers (tenants) can order, provision, configure, and monitor services via the VMS UI. VMS generates appropriate billing and operational events and passes those along to OSS and BSS systems via the VMS event API.
	Operator-Specific Views: Operators get a unified view across all end-customer tenants, including service status, service health, deployed services, etc. Operators can also manage all physical devices across all end-customer tenants, performing regular device maintenance such as firmware and software updates. Finally, operators can perform numerous administrative tasks such as managing end-customer tenants, user, and deployed services on behalf of end-customer tenants.
Orchestration	VMS provides full orchestration capabilities for underlying service hardware, complete with Zero-Touch-Provisioning for automated, "plug-and-play" deployments.
Service Monitoring and Telemetry	Collectors: Agentless, using SNMP, SSH, ICMP, HTTP. Custom collectors can also be built using the SDK and API.
	Log collection using Syslog and Netflow
	Searchable and queryable data, allowing for baseline analytics capabilities