Cisco Prime Infrastructure 2.0

Accelerate business and network transformation with unified lifecycle management and application visibility.

About Cisco Prime

Cisco Prime for IT is an innovative strategy and portfolio of management products that empower IT departments to more effectively manage their networks and the services they deliver.

The Cisco Prime for IT strategy is built on a network services management foundation and a set of common attributes. It delivers an intuitive workflow-oriented user experience across Cisco® architectures, technologies, and networks. And it supports integrated lifecycle management of the networks, services, and endpoints for Cisco architectural technologies - enterprise, collaboration, and cloud investment in Cisco technologies.

The Cisco Prime for IT portfolio of products simplifies network management, improves operations efficiency, reduces errors, and makes the delivery of network services more predictable.

Overview

Business and network transformation brings new challenges to traditional IT network management organizations. The proliferation of mobile devices, pervasive voice and video collaboration, and cloud and data center virtualization are driving the need for higher levels of service, application delivery assurance, and improved end-user experience and quality of service (QoS). Today's IT organizations must maintain business continuity and lower operational expenses while supporting these major shifts.

Cisco Prime™ Infrastructure addresses these challenges by providing a single integrated solution for comprehensive wired and wireless lifecycle management and application performance visibility.Tightly coupling client awareness with application visibility and network control, it helps ensure uncompromised end-user quality of experience. Deep integration with the Cisco Identity Services Engine (ISE) further extends this visibility across security and policy-related problems, presenting a complete view of client access issues with a clear path to solving them.

Cisco Prime Infrastructure also accelerates the rollout of new services and provides secure access and tracking of mobile devices, making "bring your own device" (BYOD) a reality for corporate IT.

Converged Simplified Lifecycle Management

Cisco Prime Infrastructure simplifies and automates many of the day-to-day tasks associated with maintaining and managing the end-to-end network infrastructure. The newly converged solution delivers extensive wireless management capabilities, including radio frequency (RF) management, user access visibility, reporting, and troubleshooting, along with network infrastructure lifecycle functions such as discovery, inventory, configuration and image management, compliance reporting, integrated best practices, and reporting.

A new operational workflow model based on lifecycle processes aligns with the way network operators do their jobs across all four phases:

- **Design** - Assess, plan, and create configurations required to roll out new network services and technologies. Create templates used for monitoring key network resources, devices, and attributes. Default templates and best practice designs provide quick out-of-the-box implementation, automating the work required to use Cisco validated designs and best practices.
- **Deploy** - Schedule the rollout and implementation of network changes. This may include new configuration or monitoring templates created in the design phase, software image updates, and support for user-initiated ad hoc changes and compliance updates. These highly scalable capabilities help accelerate service rollout and minimize chances for errors. In addition, Cisco Prime Infrastructure provides a simple set of guided and advance flows to bulk provision new devices (including the converged access switches on the network) or push an initial configuration to a device to bring it up within a few minutes, thereby drastically reducing IT operational expenses.
- **Operate** – Monitor the overall health of the network using predefined dashboards that provide up-to-date status. Simple one-click workflows and 360-degree views enhance troubleshooting and reduce the time to resolve network issues. Unified alarm display provides actionable information and links to automatically open service requests with the Cisco Technical Assistance Center (TAC).
- **Report** – Access a wide variety of predefined reports for up-to-date network information, including detailed inventory, compliance, audit, capacity, end-of-sale, security vulnerabilities, and many more.

Improve Application Delivery and End-User Experience

By converging lifecycle management and assurance, Cisco Prime Infrastructure delivers a 360-degree experience that promotes more effective management of the network as well as the services the network delivers. Operational monitoring workflows provide a holistic, multidimensional view of the user, client, application, and network. This helps network managers improve their responsiveness to business needs, identify and remediate problems quicker and lower incident and problem rates for an improved end user experience.

Cisco Prime Infrastructure both configures and uses as a source of rich performance data embedded Cisco instrumentation and industry-standard technologies to deliver network-wide, application-aware visibility. These technologies include Application Visibility and Control (AVC), NetFlow, Flexible NetFlow, Network Based Application Recognition (NBAR2), Medianet, Performance Agent, and Simple Network Management Protocol (SNMP). Operations monitoring and quality of experience workflows reduce instrumentation configuration and data collection complexity to provide real-time insight into network and application performance. Cisco Prime Infrastructure also integrates with Cisco Prime Network Analysis Module (NAM) to permit the collection and correlation of granular flow- and packet-based data from one NAM or many, helping to enable deeper analysis and troubleshooting to rapidly solve challenging application and network problems.

Help Ensure Regulatory and Risk Compliance

Cisco Prime Infrastructure provides continuous compliance and auditing capabilities to help IT organizations monitor and assess their network and device configuration for out-of-policy configuration, and security and risk vulnerabilities. This includes:

- Payment Card Industry Data Security Standards (PCI DSS) auditing of the wireless network
- Network inventory auditing and reporting against Cisco advisories such as end-of-life and end-of-support for devices, OS versions and modules
- Product Security Incident Response Team (PSIRT) notifications.

Reduce Operational Expenses

Cisco Prime Infrastructure lowers operational costs by significantly reducing the number of management solutions. It scales to manage up to 13,000 devices of various types, including routers, switches, wireless controllers, autonomous access points, and the new Cisco Catalyst 3850 Series converged access switch and the Cisco 5760 Wireless LAN Controller. Ongoing support of new Cisco devices and software releases ensures device support parity within each device family, thus eliminating gaps in management operations, especially when it comes to service availability and troubleshooting.

Cisco Prime Infrastructure offers both physical appliance and virtual appliance options for deployment flexibility without sacrificing scalability, ease of installation and setup, or serviceability and sustainability.

Features and Benefit Summary

Table 1 provides a summary of the features and benefits of Cisco Prime Infrastructure.

Table 1. Summary of Cisco Prime Infrastructure 2.0 Features and Benefits

Feature	Benefits
Global Platform	
Operational efficiency	• Flexible virtual machine or appliance-based deployment models promote easy setup for quick time to value in small to global enterprise-class networks • Manage up to 13000 routers, switches, ASAs and access points, including the new Cisco Catalyst® 3850 Series Converged Access switch and new Cisco 5760 Wireless LAN Controller • Streamlined workflows facilitate design, deployment, and operational lifecycle tasks that align with user roles • Contextual dashboards and 360-degree User and Device views display only the most relevant information for fast and efficient troubleshooting and remediation • For device support details, please refer to Cisco Prime Infrastructure 2.0 Quick Start Guide
Integrated Cisco best practices	• Integration with Cisco knowledge base helps to ensure optimal service and support, product updates, best practices, and reports to improve network availability, including: ◦ Simplifying TAC interactions, notification and downloading software updates ◦ Network inventory end-of-life milestone (EoX) auditing ◦ Assessing Cisco Product Security Incident Report Team (PSIRT) exposure • Ongoing support of new Cisco devices and software releases ensures device support parity within each device family, and is provided through Device Packs
Improved operations	• Built-in high availability maximizes uptime for services delivery and improves operational efficiency • The Cisco Prime Infrastructure Mobile application for Apple iOS devices provides fingertip access to view, troubleshoot, and resolve network issues anywhere and anytime
Administration	• Role-based access control provides flexibility to segment the network into one or more virtual domains controlled by a single Cisco Prime Infrastructure platform. Virtual domains help network operators deploy both large, multisite networks and managed services • Flexible authentication, authorization, and accounting (AAA) services allow for local, RADIUS, TACACS+, and single sign-on options
Lifecycle	
Converged management	• Single pane-of-glass solution provides complete end-to-end infrastructure management, reducing the need for multiple tools and lowering operating expenses and training costs
Complete lifecycle management	• Extensive discovery protocol support helps improve accuracy and completeness, including ping, Cisco Discovery Protocol, Link Layer Discovery Protocol (LLDP), Address Resolution Protocol (ARP), Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), and route table lookups • Flexible grouping and site profiles help to manage large networks by associating network elements to user definable groups or to a hierarchical campus, building, and floor model • Device Work Center simplifies access to the tools and features necessary to easily manage the network inventory, including discovery, configuration, manual and bulk import, and software image management • Customizable predefined Cisco best practices and validated design configuration templates help enable quick and easy device and service deployment • Composite templates allow greater flexibility and packaging of individual templates into larger, reusable, purpose-built configurations for more consistent and quicker network designs • A model-based simplified workflow allows operators to assess the network for Cisco TrustSec® 802.1x

Feature	Benefits
	readiness and facilitates the deployment of network technologies and solutions, such as one-click AVC Configuration from Device Work Center, Cisco TrustSec® 802.1x and Zone-Based Firewall (ZBF) • Flexible plug and play functionality simplifies the rollout of new devices and sites, accelerating service availability • Centralized health and event monitoring of branch, campus, and WLAN access networks helps assure robust performance and an optimal access connectivity experience • Integration with Cisco ISE and Cisco Secure Access Control Server (ACS) View provides a simple way to collect and analyze data relevant to endpoints • Integration with Cisco Mobility Services Engine (MSE) provides location-based tracking services for discovered endpoints • Integrated workflows and tools allow IT administrators to quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take remedial action • Feature configuration templates support AVC, Zone-Based Firewall, Easy VPN (EzVPN), dynamic multipoint VPN (DMVPN), Group Encrypted Transport VPN (GETVPN), access control lists (ACLs), and ScanSafe deployment and management • Device-level support is provided for ACLs, Enhanced Interior Gateway Protocol (EIGRP), Routing Information Protocol (RIP), OSPF, static routes, Ethernet interfaces, and Network Address Translation (NAT) configuration
Assurance	
Simplified instrumentation configuration	• Streamlined templates ease the configuration of embedded performance instrumentation (for example, AVC, NetFlow, NBAR2) to reduce data collection complexity and accelerate time to value
Powerful network-wide monitoring	• A multi-dimensional approach to network and application monitoring across the network brings together traps, statistics, logs, NetFlow, and more and presents application performance in the full context of network infrastructure activity, health, and changes: ◦ Network availability and device performance monitoring allow operators to improve network operations ◦ NetFlow monitoring provides valuable insights into who is using the network, what applications are being used, and how much bandwidth the applications are using ◦ AVC monitoring helps to rapidly identify potential issues that can affect committed service levels and the user experience ◦ Medianet monitoring accelerates troubleshooting of video and voice applications in the network ◦ QoS monitoring using CBQoS MIB provides key information about defined QoS policies applied to interfaces and class-based traffic patterns
Automated baselining	• Trend information for key network and application performance indicators automatically builds a baseline to facilitate planning and operations tasks
Rapid service level restoration	• Close integration of device provisioning and configuration permits network changes to be made quickly to provide a superior end user experience
Wireless	
Complete lifecycle management	• Converged solution delivers wireless management capabilities, including RF management, user access visibility, reporting, and troubleshooting - along with network infrastructure lifecycle functions such as discovery, inventory, configuration and image management, compliance reporting, integrated best practices, and reporting
Support for Wireless LAN Controller (WLC) Release 7.4	• Prime Infrastructure supports the new hardware and software features introduced in WLC Release 7.4. This includes WLC 5760 controller, 3850 switch, virtual WLC platforms, AP 2600, AP 1550 with EPON interface, High Availability (HA) with sub-second failover, Proxy Mobile IPv6, and other features
Next-generation maps	• A maps engine supports high-resolution images with pan and zoom controls. Search within maps is also supported. Maps combined with search offers a fast and smooth navigation experience with quick access to information
Automatic hierarchy creation	• IT can automatically create maps and assign access points to maps using regular expressions. This automates the tedious work of creating campus, building, and floor hierarchies and assigning access points to the floor
Automatic switch port tracing	• Automatically identify the Cisco switch and port information for a rogue access point connected to the Cisco switch for quick mitigation of threats
Third-party support	• Discover and monitor third-party (non-Cisco) switches that support RFC 1213 and wireless controllers/access points from Aruba Networks

Product Specifications

Cisco Prime Infrastructure is designed to suit a wide range of operational needs and deployment scenarios, ranging from modest-sized, single-location network environments with centralized IT organizations to extremely large, multisite networks with geographically and functionally distributed IT operations. Table 2 provides product specifications for the various deployment options supported by Cisco Prime Infrastructure.

Table 2. Product Specifications for Cisco Prime Infrastructure 2.0

Item	Specification						
VMware	VMWare ESXi Version 4.1 or later for Express VMWare ESXi 5 or ESXi 5.1 for Standard and Pro						
Virtual appliance resource requirements	**Virtual Appliance Size**	**Virtual CPU**	**Memory (DRAM)**	**HDD Size**	**Throughput (Disk I/O)**	**Concurrent Users (Max)**	**API Clients**
	Express	4	12 GB	300 GB	200 MBps	5	2
	Standard	16	16 GB	900 GB	200 MBps	25	5
	Pro	16	24 GB	1200 GB	200 MBps	25	5
	Custom* Express	8	16 GB	600 GB	200 MBps	10	2
Minimum client requirements	Client hardware: A Mac or Windows laptop or desktop compatible with one of the supported browsers and running 1 GB RAM, 2 GHz or better processor Browser: Internet Explorer 9.0 and above with Google Chrome plug-in (plugin not needed by Lobby Ambassador users), Mozilla Firefox ESR 10 and ESR 17 (ESR 17 is recommended), Mozilla Firefox 22 or later, Google Chrome 27.0 or later Resolution: Screen display resolution is recommended to be set to 1280 x 800 or higher						
Management and security	SNMPv1, v2c, v3, and Cisco TACACS+, PNG, JPEG, and AutoCAD (DXF and DWG) import file types supported						
Supported device types	• Cisco Integrated Services Routers (ISRs) • Cisco Aggregation Services Routers (ASRs) • Cisco Carrier Routing System (CRS) • Cisco Gigabit Switch Routers (GSRs) • Cisco Universal Broadband Routers (uBRs) • Cisco Catalyst Switches • Cisco Network Analysis Modules • Cisco Wide Area Application Services (WAAS) • Cisco Nexus® Switches • Cisco MDS 9000 Series Multilayer Switches • Cisco Adaptive Security Appliances (ASAs) • Cisco Mobility Service Engine (MSE) • Cisco Wireless LAN Controllers • Cisco Lightweight Access Points • Cisco Autonomous Access Points • Cisco Small Business 300 and 500 series Switches						

* Custom Express is not available as a separate OVA download. You will need to download the Express OVA and customize it for Custom Express. Please contact your Cisco Sales Representative for details/procedure on customization.

Table 3 presents the scalability limits for Cisco Prime Infrastructure based on the virtual appliance size: Express, Standard, or Pro. The Cisco Prime Appliance corresponds to a Standard virtual appliance. The scalability limits and applicability also depend on the feature sets enabled: Lifecycle only, Assurance only, or Lifecycle and Assurance. Use of the Assurance feature set requires either a Standard or Pro virtual appliance or a physical Cisco Prime Appliance.

Note: Existing customers using Small or Medium OVA that intend to manage the same number of devices with Cisco Prime Infrastructure 2.0 without turning on new features in their network, can migrate to the Express OVA. No increase in resource pool for the OVA is required in this case.

Table 3. Cisco Prime Infrastructure 2.0 Scalability

Supported Scale for Express/Standard/Pro Configurations					
Parameter		**Express**	**Custom Express**	**Standard**	**Pro**
Devices	Max Unified AP	300	2500	5000	20,000
	Max Autonomous AP	300	500	3000	3,000
	Max Wired	300	1000	6000	13,000
	NAMs	5	5	500	1,000
Clients	Wired Clients	6,000	50,000	50,000	50,000
	Wireless Clients	4,000	30,000	75,000	200,000
	Changing Clients	1000	5,000	25,000	40,000
Monitoring	Events Sustained Rate (events/sec)	100	100	300	1000
	Netflow Rate (flows/sec)	3000	3000	16,000	80,000
	Max Interfaces	12,000	50,000	250,000	350,000
	Max NAM Data Polling Enabled	5	5	20	40
System	Max Number Sites/Campus	200	500	2,500	2,500
	Max Groups: (User Defined + Out of the Box + Device Groups + Port Groups)	50	100	150	150
	Max Virtual Domains	100	500	1,000	1,000
	Concurrent GUI Clients	5	10	25	25
	Concurrent API Clients	2	2	5	5

* A device constitutes a supported device type. NAM management requires that the Assurance feature be enabled. For best practices recommendations concerning when to use the different appliance sizes, please refer to the Cisco Prime Infrastructure Best Practices whitepaper.

** Events are either syslogs or SNMP traps received from managed network devices.

An Integrated Solution

Cisco Prime Infrastructure is a single installable software package with tiered licensing options to expand and grow functionality and coverage as needed. Simply install the base software and one or more of the following feature set options:

- **Lifecycle management** - Simplifies the day-to-day operational tasks associated with managing the network infrastructure across all lifecycle phases (design, deploy, operation and report) for Cisco devices including routers, switches, access points, and more.
- **Assurance management** - Provides application performance visibility using device instrumentation as a source of rich performance data to help assure consistent application delivery and an optimal end-user experience.
- **Plug-and-Play Gateway** - This optional feature complements the plug-and-play functionality available through lifecycle management. It enables the remote plug-and-play functionality for large-scale environments and DMZ implementations.

Ordering and Licensing Information

Cisco Prime Infrastructure 2.0 is available for new customers, and upgrade options are available for existing Cisco Prime Infrastructure versions up through 1.3.x. Upgrades options are also available for Cisco Network Control System, Cisco Wireless Control System (WCS), and Cisco Prime LAN Management System (LMS) customers. For details refer to the Cisco Prime Infrastructure 2.0 Ordering and Licensing Guide. The guide also provides information regarding obtaining an evaluation copy of Cisco Prime Infrastructure 2.0.

Note: Cisco Prime Infrastructure version 1.4 and later cannot be upgraded to version 2.0; upgrade will be available for a future 2.x release.

Technical Service Options

Cisco Prime Infrastructure 2.0 is available with the new Cisco Prime Product Assured Software Subscription, which allows prepayment of major release upgrades for 1, 2, 3, or 5-year subscription contracts. Cisco Prime Product Assured Software Subscription works in conjunction with the Cisco Essential Operate Service (ESW) maintenance plan, whereby ESW provides Cisco TAC support and access to minor updates and patches from the cisco.com software download site. For more information, please refer to the Cisco Prime Infrastructure 2.0 Ordering and Licensing Guide.

The Cisco Prime Appliance option comes with a Cisco 90-day hardware warranty. Adding a contract for a technical service offering, such as Cisco SMARTnet® Service, to your device coverage provides access to the Cisco Technical Assistance Center and can provide a variety of hardware replacement options to meet critical business needs, updates for licensed operating system software, and registered access to the extensive Cisco.com knowledge base and support tools.

For more information about Cisco warranties, visit http://www.cisco.com/go/warranty.

For information about Cisco Technical Services, visit http://www.cisco.com/go/ts.

For More Information

For more information about Cisco Prime Infrastructure, visit http://www.cisco.com/go/primeinfrastructure, or send an email to ask-prime-infrastructure@cisco.com.

For more information about the Cisco Unified Access solution, visit http://www.cisco.com/go/unifiedaccess.

For more information about Cisco Identity Services Engine (ISE), visit http://www.cisco.com/go/ise.

For more information about the Cisco Network Analysis Module (NAM), visit http://www.cisco.com/go/nam.

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