

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 and product portfolio accelerates the adoption of major market transitions, including mobility, collaboration, and cloud. The proliferation of mobile devices, convergence of voice and video, and virtualization of network, computation, and storage add new challenges to delivering business-critical applications, services, and end-user experiences. Cisco Prime for IT delivers an integrated converged suite of management functionality in support of Cisco architectural technologies - enterprise, collaboration, and cloud. Built on a common platform, Cisco Prime products automate lifecycle processes, provide unparalleled end-to-end visibility, and help maximize your investment in Cisco technologies.

Overview

Business and network transformation brings new challenges to traditional IT network management organizations. The proliferation of mobile devices and pervasive voice and video collaboration, along with cloud and data center virtualization, is 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 transformations.

Cisco Prime™ Infrastructure addresses these challenges by providing a single integrated solution for comprehensive lifecycle management and application visibility that helps enable network managers to maintain, operate, and deliver applications and services that meet the demands for a better end-user experience.

Cisco Prime Infrastructure 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. Tightly coupling client awareness with application performance visibility and network control, Cisco Prime Infrastructure 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.

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 new converged solution delivers all of the existing wireless capabilities for 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 the product functionality with the way network operators do their jobs:

- **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 are provided for 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 rolling out new configuration or monitoring templates created in the design phase, software image updates, and support for user-initiated ad hoc changes and compliance updates. This accelerates service rollout, minimizes chances for errors, and is highly scalable. 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 and to push initial configuration to get the device functional and operational within a few minutes thereby drastically reducing the IT operational expenses.
- **Operate** - Predefined dashboards provide up-to-date status monitoring on the overall health of the network. 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 the ability to automatically open service requests with the Cisco Technical Assistance Center (TAC).
- **Report** - Provides a wide variety of predefined reports for up-to-date information on the network 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 empowers network managers to more effectively manage their network as well as the services their network delivers. Bringing device management capabilities into operational monitoring workflows provide a holistic, multidimensional view of the user, client, application, and network. This 360-degree experience helps network managers improve their responsiveness to business needs, identify and remediate problems quicker, and lower incident and problem rates.

Cisco Prime Infrastructure both configures and uses as a source of rich performance data embedded Cisco instrumentation and industry-standard technologies, such as Application Visibility and Control (AVC), NetFlow, Flexible NetFlow, Network Based Application Recognition (NBAR2), Medianet, Performance Agent, and Simple Network Management Protocol (SNMP), to deliver network-wide, application-aware visibility. It provides operations monitoring and quality of experience workflows that reduce instrumentation configuration and data collection complexity to quickly and easily gain insight into network and application performance. It 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, and network inventory auditing and reporting against Cisco advisories such as end-of-life and end-of-support for devices, OS versions and modules as well as Product Security Incident Response Team (PSIRT) notifications.

Reduce Operational Expenses

Cisco Prime Infrastructure's scalable single-pane-of-glass solution significantly reduces operational costs by reducing the number of required management solutions. Cisco Prime Infrastructure 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 switches 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 your 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	<ul style="list-style-type: none"> Flexible virtual machine or appliance-based deployment models, easy to set up 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 Controllers 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 details of device support, please refer to Cisco Prime Infrastructure 2.0 quick start guide
Integrated Cisco best practices	<ul style="list-style-type: none"> 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, and 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 the Incremental Device Updates (IDUs)
Improved operations	<ul style="list-style-type: none"> Built-in high availability maximizes uptime for services delivery and improves operational efficiency Cisco Prime Infrastructure Mobile application for Apple iOS devices helps enable fingertip access to view, troubleshoot, and resolve network issues anywhere and anytime
Administration	<ul style="list-style-type: none"> 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 deploy both large, multisite networks and managed services Flexible authentication, authorization, and accounting (AAA) allow for local, RADIUS, TACACS+, or single sign-on options
Lifecycle	
Converged management	<ul style="list-style-type: none"> Single pane-of-glass solution for complete end-to-end infrastructure management, reducing the need for multiple tools and lowering operating expenses and training costs
Complete lifecycle management	<ul style="list-style-type: none"> 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 Model-based simplified workflow to assess the network for Cisco TrustSec® 802.1x readiness and facilitate the deployment of network technologies and solutions, such as one-click AVC Configuration from device work center,

Feature	Benefits
	<p>Cisco TrustSec[®] 802.1x and Zone-Based Firewall (ZBF), all based on Cisco best practices</p> <ul style="list-style-type: none"> • Flexible plug and play functionality to simplify the rollout of new devices and sites, accelerating service availability • Centralized health and event monitoring of branch, campus, and WLAN access networks helps maintain 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 additional data relevant to endpoints • Integration with Cisco Mobility Services Engine (MSE) for location-based tracking services for discovered end points • Integrated workflows and tools help IT administrators quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take action to remedy non optimal situations • Feature configuration templates provided to facilitate Application Visibility and Control (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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • A multi-dimensional approach to network and application monitoring across the network - by bringing together traps, statistics, logs, NetFlow, and more - presents application performance in the full context of network infrastructure activity, health, and changes: <ul style="list-style-type: none"> ◦ Network availability and device performance monitoring help improve operational excellence ◦ NetFlow monitoring provides valuable insights on 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	<ul style="list-style-type: none"> • Trends on key network and application performance indicators automatically build a baseline to facilitate planning and operations tasks
Rapid service level restoration	<ul style="list-style-type: none"> • Closely integrated device provisioning and configuration functions permit network changes to be quickly made to maintain a superior user experience
Wireless	
Complete lifecycle management	<ul style="list-style-type: none"> • Converged solution delivers all of the existing wireless capabilities for 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
Support for Wireless LAN Controller (WLC) Release 7.4	<ul style="list-style-type: none"> • Support for 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	<ul style="list-style-type: none"> • New maps engine supports high-resolution images with much improved pan and zoom controls. Search within maps is also supported. The new maps combined with search offer a faster and smoother navigation experience with quicker access to information
Automatic hierarchy creation	<ul style="list-style-type: none"> • Automatically create maps and assign access points to maps using regular expressions. This feature automates the tedious work of creating campus, building, and floor hierarchies and assigning access points to the floor
Automatic switch port tracing	<ul style="list-style-type: none"> • Ability to automatically identify the Cisco switch and port information for a rogue access point connected to the Cisco switch, which allows quickly identifying and mitigating the threat posed by a rogue access point and attached end clients
Third-party support	<ul style="list-style-type: none"> • Ability to 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 a centralized IT organization 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	<ul style="list-style-type: none"> • 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.

Note: Existing customers using Small or Medium OVA that intend to manage the same number of devices with PI 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 set. For best practices recommendation of 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 license 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 for all Cisco devices including; routers, switches, access points, and more.
- **Assurance management** - Delivers application-level visibility through the normalization, aggregation, and correlation of rich performance instrumentation data to help ensure 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 version 1.3.x. Upgrades options are also available for Cisco Network Control System, Cisco Wireless Control System (WCS), and LMS customers. For details refer to the Cisco Prime Infrastructure 2.0 Ordering and Licensing Guide. Information is also provided in the guide 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 for 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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