Cisco Application Networking Manager 5.1

Product Overview

Cisco® Application Networking Manager (ANM) is part of the Cisco Application Control Engine (ACE) product family, and is a crucial component of any data center or cloud computing architecture that requires unified management of the entire application delivery network. For ACE environments of all sizes, ANM provides administrators with enhanced visibility and control over the application delivery network, while at their desk or on the road. Deploying ANM as a part of the ACE product family delivers single-pane management, providing administrators with a comprehensive set of tools to operate, administer, maintain, and provision application networking services. ANM can be deployed as a software package for Linux-based systems, or as a virtual appliance for supported virtualization platforms.

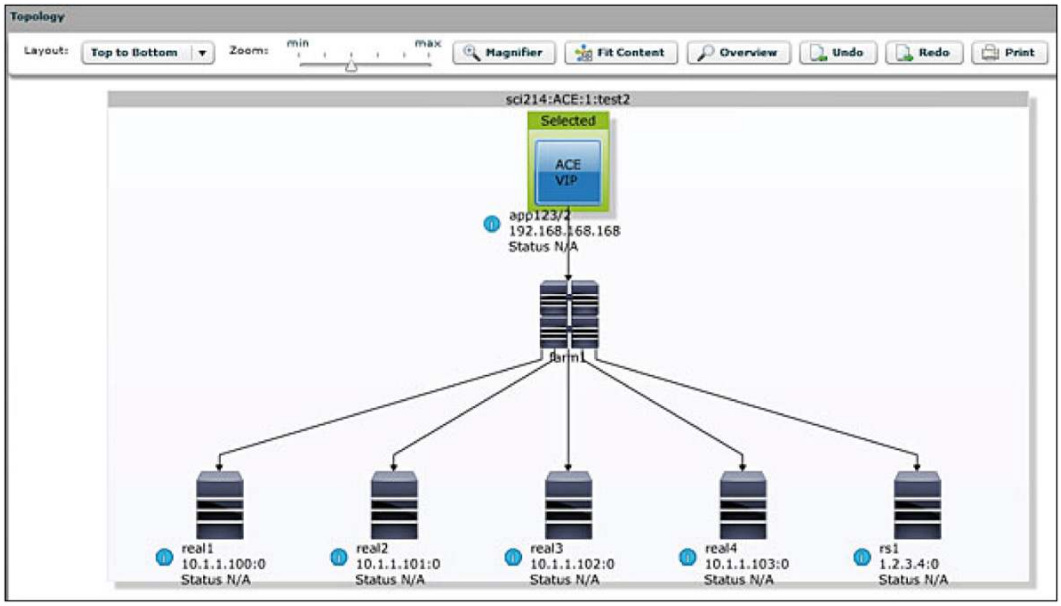
Features and Benefits

Operations

Cisco ANM operations features allow administrators to perform operational tasks quickly and easily across the entire application delivery network. ANM users have the flexibility to use their preferred interface to securely perform operational tasks, selecting from the ANM GUI, ANM Web Services API, ANM Mobile, and the ANM VMware vCenter Plug-in.

- **Device inventory:** ANM maintains a central inventory of all ACE devices and their configured virtual contexts, as well as Cisco Content Services Switch (CSS), Cisco Content Switching Module (CSM), CSM with SSL (CSM-S), and ACE Global Site Selector (GSS) devices. Add, remove, and maintain inventoried devices through simple onscreen controls and guided workflows. Make changes immediately, or schedule them for deployment at a later date or time. Single-pane multi-device management is a native function of ANM, so there are no pop-ups or redirections to individual device manager windows.
- **Application topology visualization:** This feature (Figure 1) allows administrators to view a topology map for each networked application, from the ACE GSS DNS Rule at the front end, to the ACE virtual server distributing the load, to the virtual machines hosting the application instances. Application topology visualization allows administrators to identify and locate problems at a single glance.

Figure 1. Application Topology Mapping



- **Monitoring dashboards:** Get a quick overview of data center application health by checking the ANM dashboards for real-time and historic information (Figure 2). Investigate further by checking the dashboard provided at the device and virtual context level for ACE devices. Dashboards aggregate essential information onto a single screen, indicating health, utilization, and performance-related data.

Figure 2. Monitoring Dashboards

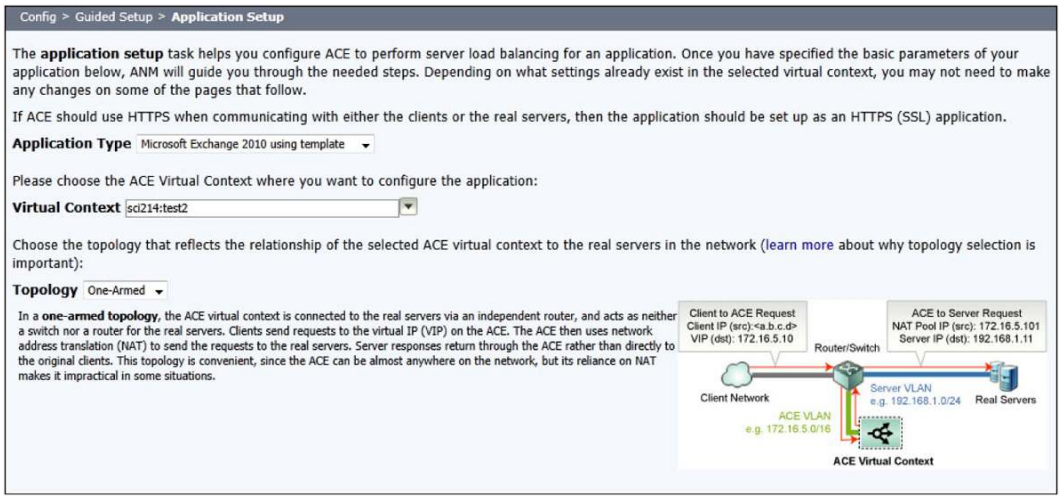
- **Event logging and threshold-crossing alerts:** Syslog and Simple Network Management Protocol (SNMP) trap events are stored for all managed ACE devices. Critical alert information is presented in ANM dashboards, and can be used with notification rules to email or page personnel when problems are identified on any managed devices.

Provisioning

Provisioning new applications can be a complex and error-prone task, involving extensive configuration elements and application-specific tuning. ANM makes provisioning new applications easy, eliminating long configuration guides, potential typing errors, and application-tuning difficulties.

- **Service configuration:** Easily perform service provisioning on any managed ACE devices with ANM guided workflows, application templates, and manual service policy creation. Provision all ACE configuration elements, including virtual contexts, virtual servers, real servers, sticky groups, inspections, matching rules, ACLs, VLAN configuration, SSL encryption, HTTP compression, IPv6, and more. Guided workflows save time and confusion by conducting users through common provisioning tasks, providing diagrams and help along the way.
- **Application templates:** Rapidly provision new applications by using one of the many application templates included in ANM 5.1 (Figure 3). Select a template, and supply a few required pieces of information (such as VIP address) to provision a new application. Complex deployments are now as simple as a few mouse clicks. Users may build their own application templates for custom applications, or for applications that do not yet have a Cisco-supplied template available. For more information, and to collaborate and share templates with other ANM users, visit the ANM section of Cisco Developer Network at http://developer.cisco.com/web/anm/.

Figure 3. Provisioning Using Application Templates



Administration

ANM is a powerful administration tool for the entire application delivery network. In addition to its single-pane management capabilities, ANM can be fine-tuned to work with users of all roles and skill levels. You can give each user the specific access they need, and monitor every action they take.

- **Securely delegated operations and role-based access control (RBAC):** ANM gives managers the power to delegate specific usage privileges to each ANM user, with fine granularity. Each ANM user may also be restricted to viewing or performing actions only on specific elements, such as a set of ACE real servers or virtual servers. Delegating and restricting user privileges in this way allows ANM to be safely used by any level of user, from event-motivated NOC staff to highly skilled application delivery engineers.

- **Automatic discovery:** ANM can automatically discover new devices and add them to its inventory using network scans or Cisco Discovery Protocol (CDP).
- **Data export for planning:** A statistical data export facility allows administrators to identify baselines and trends, as well as perform capacity planning based on application utilization and performance over time. ANM manages the dataset automatically, purging old data and sending notifications when attention is required.
- **Action logging:** All actions taken in Cisco ANM by users can be logged for audit purposes. Find out who did what, when, and from where.
- **Secure access:** All user access to Cisco ANM is secured using 128-bit SSL encryption. Users can be authenticated using local accounts or by TACACS+, RADIUS, Lightweight Directory Access Protocol (LDAP) or Microsoft Active Directory authentication.
- **Failover and high availability:** Deploy a second ANM server and pair them for automatic failover. ANM is much more than just a device manager, so maintaining access to its monitoring and alerting features is of critical importance.

Maintenance

Maintaining a large application delivery network can be a challenge, involving numerous devices, a multitude of SSL files, and extensive configurations. ANM makes maintaining and securing these items simple and trouble free.

- **SSL certificate monitoring:** ANM makes managing numerous SSL certificates and keys for applications simple. ANM dashboards display an overview of data center SSL status, and warnings for expiring or expired SSL certificates. Administrators can be notified when SSL certificates are nearing their renewal date. Users may be securely delegated to have only the ability to monitor and manage SSL files, without access to other ANM features.
- **Cisco ACE checkpoint management:** Checkpoints allow administrators to easily return any ACE configuration to a previously saved checkpoint. Create a checkpoint prior to any changes, and roll back if necessary.
- **Centralized backup:** ANM maintains automatic backups of the configurations for ACE devices, including the running configuration, licenses, scripts, checkpoints, certificates, and keys (if they are exportable). Backups can be performed manually or on daily, weekly, or monthly schedules.

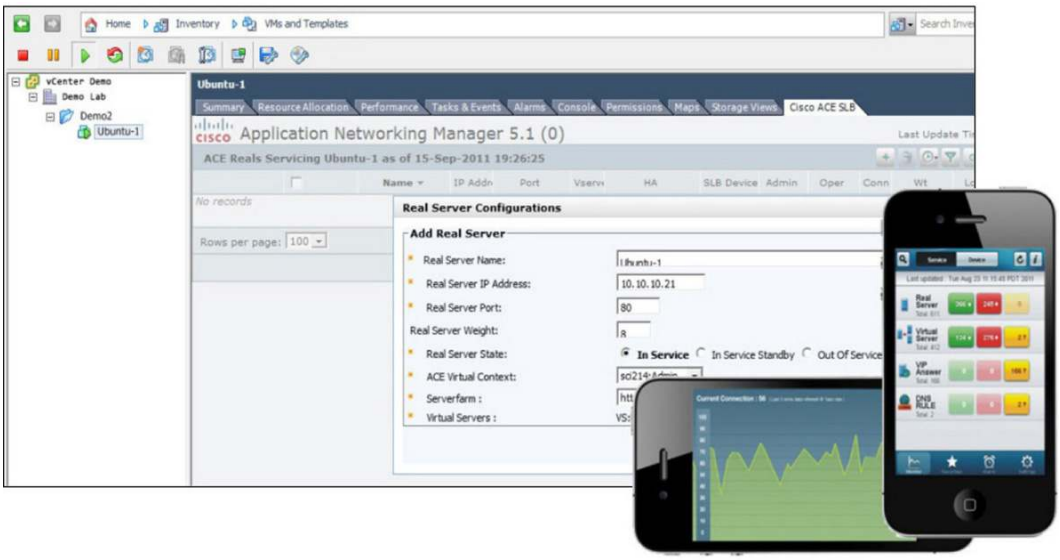
Integration

ANM is the management gateway to your entire application delivery network, and it has been equipped with many integration features to allow you access to its features from any location or platform.

- **VMware vSphere plug-in:** Install the ANM plug-in for VMware vCenter (Figure 4) with a few clicks, and give server administrators and network administrators a simplified way to perform provisioning and maintenance tasks. The plug-in empowers server administrators to add, remove, rebalance, and monitor load-balancing services for their virtual machines from within vCenter, without ever needing to log into ANM or call the network administration team. From within ANM, network administrators gain visibility into the mappings between ACE real servers and virtual machines, as well as detailed operational information about these virtual machines.

- **ANM Mobile App:** Observe your applications and ACE devices from anywhere in the world. ANM Mobile (Figure 4) is available as an app for Apple iPhones and Google Android smartphones, as well as a web application for most mobile devices with a web browser. Get push notifications for ANM alerts sent to your mobile device, check on the health of your applications, and perform operational tasks right from your mobile device, in the office or on the beach.

Figure 4. Operations Screens in vCenter Plug-in and ANM Mobile



- **Web Services API:** The ANM Web Services API provides a programmable interface for system developers to integrate ANM with external applications. Use the API to provision and monitor application delivery services on all managed devices. For more information and to collaborate with other ANM users, visit the ANM section of Cisco Developer Network at http://developer.cisco.com/web/anm/.

Product Specifications

Table 1 lists the product specifications for Cisco ANM 5.1.

Table 1. Product Specifications

Product Parameter	Specification
Product compatibility	Cisco ACE Module (ACE10-6500-K9, ACE20-MOD-K9, and ACE30-MOD-K9) installed in Cisco Catalyst® 6500 Series Switches and Cisco 7600 Series Routers, Cisco ACE 4710 appliance, Cisco CSS, Cisco CSM, Cisco CSM-S, and Cisco ACE GSS as specified in the Supported Devices table for Cisco ANM, available at http://www.cisco.com/en/US/products/ps6904/products_device_support_tables_list.html.
Protocols	**For web client:** • Use HTTP or HTTPS. • For additional information, refer to the “Supported Web Browser” section of the Supported Devices table for Cisco ANM, available at http://www.cisco.com/en/US/products/ps6904/products_device_support_tables_list.html. **For communication with managed devices:** See the specifications in the “Cisco ANM Ports Reference” section of the Installation Guide for Cisco Application Networking Manager 5.1, available at http://www.cisco.com/en/US/products/ps6904/prod_installation_guides_list.html.

Product Parameter	Specification
Reliability and availability	Cisco ANM High Availability (HA) is a configuration option for implementing Cisco ANM servers in a highly available active and standby mode. In this configuration, the active Cisco ANM server maintains a stateful synchronization with the standby Cisco ANM server so that if the active server fails, or if an administrative action failover occurs, the standby server can transparently take over operations. HA is only available on ANM for Red Hat Enterprise Linux. It is not available in the Virtual Appliance version of ANM.

System Capacity

Cisco ANM 5.1 is designed to support up to 50 Cisco ACE devices for full management, up to 40 Cisco CSS, CSM, and CSM-S devices for delegated activation and suspension of real and virtual servers with monitoring, and up to 3 clusters of Cisco ACE GSS. The exact number of devices supported depends upon the scale of operations on each device.

System Requirements

Cisco ANM can be run either as a Cisco ANM Virtual Appliance for VMware or as an application installed on a Red Hat Enterprise Linux based server.

The Cisco ANM virtual appliance is interchangeable with ANM for Red Hat Enterprise Linux. This makes the virtual appliance easy to deploy and scale, provides more efficient use of hardware resources, and eliminates the need to acquire, install, and maintain the operating system separately.

The installation files for Cisco ANM Virtual Appliance for VMware are provided in the same package as those for Cisco ANM Server for Red Hat Enterprise Linux 32-bit and 64-bit solutions.

Table 2 lists the system requirements for Cisco ANM Virtual Appliance for VMware, and Table 3 lists the system requirements for Cisco ANM for Red Hat Enterprise Linux.

Table 2. System Requirements for Cisco ANM Virtual Appliance for VMware

Description	Specification
Virtual machine requirements	• VMware vSphere 4.0 or 4.1 • 2 GB RAM minimum; 4 GB RAM recommended • 128 GB minimum disk space
Client hardware requirements	As specified in the ANM 5.1 Virtual Appliance Installation Guide at http://www.cisco.com/en/US/docs/app_ntwk_services/data_center_app_services/application_networking_manager/5.1/virtual/appliance/guide/VirtualApplianceGuide.html.
Client software requirements	As specified in the ANM 5.1 Virtual Appliance Installation Guide at http://www.cisco.com/en/US/docs/app_ntwk_services/data_center_app_services/application_networking_manager/5.1/virtual/appliance/guide/VirtualApplianceGuide.html.

Table 3. System Requirements for Cisco ANM for Red Hat Enterprise Linux

Description	Specification
Server hardware requirements	• A dedicated Linux server for ANM • 3-GHz Pentium III CPU or equivalent (dual-processor and dual-core CPUs are supported) • 2 GB RAM minimum, 4GB RAM recommended for optimum performance • 120-GB hard drive • CD-ROM drive • One 100-Mbps Ethernet interface for single Cisco ANM configuration; two interfaces for Cisco ANM high-availability configuration
Server software requirements	• RHEL 5 (base server) Update 3 (5.3) 32-bit or 64-bit Server Edition (Linux 2.6 kernel) • RHEL 5 (base server) Update 4 (5.4) 32-bit or 64-bit Server Edition (Linux 2.6 kernel) • RHEL 5.5 (base server) Update 5 (5.5) 32-bit or 64-bit Server Edition (Linux 2.6 kernel) • The instructions provided in the Installation Guide for Cisco Application Networking Manager 5.1, available at http://www.cisco.com/en/US/products/ps6904/prod_installation_guides_list.html

Description	Specification
Client hardware requirements	As specified in the ANM 5.1 Installation Guide at http://www.cisco.com/en/US/docs/app_ntwk_services/data_center_app_services/application_networking_manager/5.1/installation/guide/InstallationGuide.html.
Client software requirements	As specified in the ANM 5.1 Installation Guide at http://www.cisco.com/en/US/docs/app_ntwk_services/data_center_app_services/application_networking_manager/5.1/installation/guide/InstallationGuide.html.

Ordering Information

Cisco ANM Versions 4.1 and later are offered for order at no charge, but they do require licensing. You must order the Cisco ANM server software license to receive the license necessary to install the product for production use, and Cisco Software Application Support (SAS) requires a separate purchase.

Table 4 provides ordering information. To place an order, visit the Cisco Ordering homepage.

Most users should order the electronically delivered ANM 5.1 (L-ANM-SERVER-50-K9). In certain circumstances the postal-delivered ANM 5.1 (ANM-SERVER-50-K9) may be desired for import compliance.

Table 4. Ordering Information

Part Number	Description
L-ANM-SERVER-50-K9	Electronically delivered ANM Server Software license
ANM-SERVER-50-K9	Postal-delivered ANM Server Software license

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco Services programs help you protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see Cisco Technical Support Services and Cisco Advanced Services.

For More Information

For more information about Cisco ANM, visit http://www.cisco.com/go/anm or contact your local account representative.

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