



## Manage Applications Better with Cisco Application Centric Infrastructure and CliQr CloudCenter

### BENEFITS

- Accelerate the deployment and management of new and existing applications within any cloud or data center environment with one-click provisioning.
- Mask the complexity of diverse infrastructure environments and their management challenges.
- Graphically model any new or existing application as a profile once, using a single platform.
- Automatically provision and install all the required infrastructure resources, network configurations and policies, and application stack elements.
- Strengthen network security by coupling application topologies, stack services, network configurations, and other settings.
- Gain insight and control with a single graphic dashboard that gives you end-to-end visibility from the application down to the network infrastructure - all in one logical environment.

What if every application you deployed was aligned for an excellent match with its network environment? With the combination of Cisco® Application Centric Infrastructure (Cisco ACI™) and CliQr CloudCenter, you can have the intelligence and automation you need for end-to-end application-defined management.

Network applications and the infrastructure that supports them are becoming more complex. Your IT teams are working with traditional on-premises networks, public and private cloud environments, and hybrid infrastructure. Managing and securing applications on these diverse environments is difficult, and your internal stakeholders need access to business tools fast. Software-defined data centers (SDDCs) and networking (SDN) can help, but they're focused on the infrastructure - not applications.

Now you can keep pace with your changing business needs with Cisco ACI and CliQr's CloudCenter Platform. This solution delivers on the promise of true end-to-end application-defined

management. Instead of manually forcing each application to conform to each unique environment, this solution uses an application profile to automate end-to-end provisioning of infrastructure resources. Each application profile is based on the specific characteristics and needs of the application. The solution handles Cisco ACI network configurations and policies, along with the deployment and management of the application and its components onto any physical, virtual, or cloud environment. CliQr's application-defined platform, together with the Cisco ACI networking solution, provides an innovative, infrastructure-agnostic way to streamline the modeling, migration, and optimal management of applications across agile pools of IT resources.

## Why Application-Defined Management Matters

Networks and the applications are becoming more complex and diverse. Business applications can run on traditional on-premises data centers, cloud-based environments, or a mixture of both. This makes it more difficult to roll out, manage, and optimize critical business tools. Traditionally, deploying or modifying an application required time-consuming, manual customization. Each application had to be aligned to work with its computing, storage, and network infrastructure environment, and meet specific security needs.

In a fast-paced business environment, delays aren't acceptable. You need to deliver applications quickly to support new business strategies and changing user needs. Applications need to be highly portable, run across diverse hybrid environments, and be secure and efficient. You need a new application-centric approach based on infrastructure-agnostic modeling of application workloads. Instead of customizing each application to fit the infrastructure, this new approach should let you dynamically provision the right infrastructure that meets the application's requirements.

## Cisco Application Centric Infrastructure: An Innovative Architecture

Cisco ACI, the industry's most comprehensive SDN architecture, dramatically reduces TCO, automates IT tasks, and accelerates data center application deployments. It supports a business-relevant application policy language, greater scalability through a distributed enforcement system, and greater network visibility through the integration of physical and virtual environments across networks, servers, storage, security, and services.

Cisco ACI lets your technology team respond faster to changing business and application needs, enhance agility, and add more value to your organization. Its key components include:

**The Cisco Application Policy Infrastructure Controller (APIC)** is the main architectural component of the Cisco ACI solution. It's the unified point of automation and management for the Cisco ACI fabric, policy enforcement, and health monitoring. The APIC is a centralized clustered controller that optimizes performance, supports any application anywhere, and unifies operation of physical and virtual environments. The controller manages and operates a scalable multitenant Cisco ACI fabric.

The APIC is responsible for tasks like fabric activation, maintenance of switch firmware, network policy configuration, and instantiation. It is completely removed from the data path. This means that the fabric can still forward traffic even when communication with the controller is lost.

The APIC was designed specifically for programmability and centralized management. It offers a northbound API through XML and JSON and provides both a command-line interface (CLI) and GUI that use this API to manage the fabric. The system also provides an open source southbound API that allows third-party network service vendors to implement policy control of supplied devices through the controller.

**An application network profile** within the fabric is a collection of the endpoint groups (a logical grouping of similar endpoints representing an application tier or set of services that require a similar policy), their connections, and the policies that define those connections. It's the logical representation of all components of the application and its interdependencies on the application fabric.

Application network profiles are modeled to match the way that applications are designed and deployed. The APIC handles configuration and enforcement of policies and connectivity. There's no need for manual administrative tasks.

**Cisco ACI fabric** is comprised of the Cisco Nexus® portfolio of switches. The Cisco Nexus 9000 Series Switches offer modular and fixed 1/10/40 Gigabit Ethernet switch configurations that operate in both traditional and Cisco ACI data center deployments. They work smoothly with your Cisco Nexus switches, or in Cisco ACI mode to take full advantage of Cisco ACI application policy-based services and infrastructure automation features. Either way, you get full investment protection with easy migration to Cisco ACI through a software upgrade.

## CliQr CloudCenter Platform

CliQr CloudCenter is a single multi-user, multitenant application-defined management platform. It lets you model, migrate, and manage new and existing applications and data between data center and public or private cloud environments.

With CloudCenter, graphical application profiles capture an application's topology, requirements, and dependencies (Figure 1). This helps drive infrastructure environments to dynamically provision best-practice resources and services, and automate the deployment and management of the application within any data center or cloud environment. CloudCenter consists of two main components:

**CloudCenter Manager** is a dashboard that lets end users model, manage, and migrate applications to and between any data center and cloud environment. Its lifecycle management tools include:

- Administrative policy controls, including access control, placement policies, user and cloud accounts, auto-scaling, and VM aging
- Governance rules and tagging, including security, geography, regulatory, CI/CD, and SLA (coming soon)

**CloudCenter Orchestrator** is a single multitenant virtual appliance that transparently resides on each supported private cloud, public cloud, or data center environment.

The orchestrator coordinates the metadata description and workflow for each application profile with the best-practice resources for the application's environment. It automates the dynamic provisioning of the application, together with the resources needed for the best possible performance.

## Use Cases

Table 1 presents common use cases.

**Table 1.** Use Cases

Use Case	Description
<b>Cross-Environment Release Management/DevOps, High-Availability, Disaster Recovery and Capacity Augmentation/Bursting</b>	Simplify and accelerate the deployment and management of new and existing applications onto any cloud or data center environment. Users have a single platform that allows them to graphically model any new or existing application as a profile once, enabling the automatic provisioning of all required infrastructure resources, network configurations, and policies, and the installation of the entire application stack and dependent artifacts.
<b>Security</b>	The coupling of application topologies, app stack services, network configurations, and settings provides end-to-end network k isolation per both application deployment and individual application tier.
<b>Performance</b>	Generated by CliQr's application profile, detailed information about the application's topology and its full stack of services, combined with tag-based governance rules, work with Cisco ACI to optimize network traffic to improve application performance.
<b>Visibility and Control</b>	The combined solution offers continuous monitoring and a user interface dashboard that provides visibility and control. It covers the application down to the network and infrastructure deployment environment from the perspective of the application and its requirements. By aggregating infrastructure, network, and application-specific performance and costs metrics, the combined solution gives users visibility into application health status plus specific management capabilities, including alerts and financial control.

## Services

### Centralized, Coordinated Support for Cisco ACI Environments

Cisco Solution Support for Application Centric Infrastructure (SSPT for ACI) offers interoperability troubleshooting, issue isolation, and end-to-end case management across the Cisco ACI ecosystem. It helps speed resolution with fast, expert technical support from Cisco and Cisco ACI third-party vendors. SSPT for ACI includes product support with Cisco SMARTnet™ equivalent service deliverables.

SSPT for ACI is available for:

- Cisco ACI fabric devices (Cisco Nexus 9000 Series leaf and spine switches)
- Cisco ACI software licenses
- Cisco ACI controller (APIC)

SSPT for ACI requires product support for all third-party products in your Cisco ACI ecosystem.

Three SSPT for ACI offers are available to meet your specific situation to keep your Cisco ACI ecosystem secure and operating at peak performance (Table 2).

**Table 2.** Cisco Solution Support for ACI Services

Offers	Customer Needs	Interoperability Troubleshooting, Issue Isolation, and Case Management	Product Support
<b>Cisco Solution Support Plus for ACI (SSPT Plus for ACI)</b>	For customers who: <ul style="list-style-type: none"><li>• Are virtualizing their entire infrastructure</li><li>• Want to use the full functionality of the APIC across their entire Cisco ACI ecosystem</li><li>• Use APIC capabilities to manage devices and interface with all third-party Cisco ACI vendor products using northbound and southbound APIs and Cisco OpFlex</li></ul>	Yes	Yes
<b>Cisco Solution Support for ACI (SSPT for ACI)</b>	For customers who: <ul style="list-style-type: none"><li>• Are virtualizing their network and manage the Layer 4-7 services through the APIC</li></ul>	Yes	Yes
<b>Cisco Solution Support Express for ACI (SSPT Express for ACI)</b>	For customers who: <ul style="list-style-type: none"><li>• Manage Cisco Nexus 9000 Series leaves and spines as Layer 2-3 fabric switches with limited functionality from the APIC</li><li>• Will continue using traditional, existing networking devices, such as load balancers, firewalls, and security, that will not be recognized by the APIC</li></ul>	No	Yes

Cisco Solution Support for ACI delivers:

- **Focused support:** A primary contact within Cisco to initiate issue resolution, eliminating self-diagnosis to determine which technology vendor to contact first
- **Issue coordination:** Cisco ACI ecosystem vendor coordination, eliminating your need to broker support conversations
- **Solution expertise:** Deep experience across Cisco ACI ecosystem technologies, often resulting in immediate issue resolution
- **Holistic approach:** Interoperability expertise and guidance for Cisco ACI ecosystem vendors, offering a holistic approach that fixes your problem without creating new ones

- **Resolution continuity:** End-to-end case management, making sure of continuity of service from first call to resolution
- **Migration continuity:** Ongoing support after migration to Cisco ACI from existing infrastructure
- **Product support:** Award-winning Cisco SMARTnet equivalent deliverables packaged with the interoperability troubleshooting, issue isolation and case management for Cisco ACI fabric
- **Visibility:** Ability to submit and track your service requests with an online service request management tool to view your Cisco Technical Assistance Center (TAC) case history and resolution online
- **Updates and upgrades:** Inclusion of ongoing operating system updates and upgrades in your licensed feature set as part of ongoing OS support for both minor and major OS releases
- **Smart, proactive diagnostics:** Cisco Smart Call Home, an optional embedded feature that allows you to gain critical insight and immediate alerts on core network devices to help you quickly identify and resolve issues

## Protect Your Business Assets with Robust Security

The combined Cisco and CliQr solution delivers new levels of network security to help protect your critical business communication and assets. Coupling application topologies, application stack services, network configurations, and settings provides end-to-end network isolation based on both application deployment and individual application tier.

For an application deployment, VMs of each application tier are placed on a unique VLAN on a selected backbone network. VMs within the same VLAN can freely connect to each other, making the process of setting up clusters extremely efficient. Connectivity between each application tier VLAN is dynamically established based on the application topology. This makes it easy to model and manage the topology-based network isolation, and incorporate security into the overall application profile.

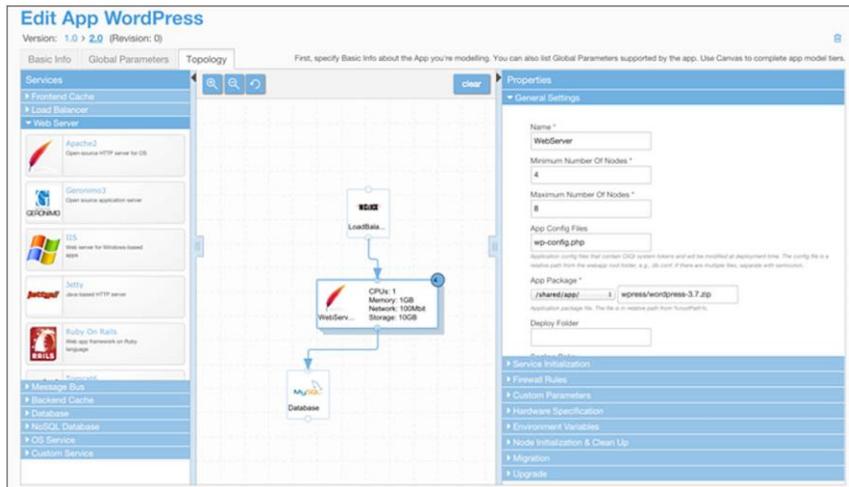
You can further secure communication between application tiers with dynamic firewall rules based on service requirement and governance requirements. Or you can set additional dynamic routing policies for each application tier to support connectivity between application deployments, external services, or external access.

The combined solution also supports:

**Application service-level microsegmentation**, using CliQr application profile information to automatically apply service level firewall rules to individual application tiers. This lets you apply additional access restrictions between application tiers.

**Tag-based governance rules** that let you automatically apply additional firewall rules and run-time policies and automatically select the right infrastructure location and backbone network for an application tier, based on tags. You can tag applications based on deployment stage, security compliance requirements, business unit, cost center, or other parameters.

**Figure 1.** The Combined Cisco and CliQr Solution Provides a Single Platform and Intuitive Graphical Modeling Environment for Creating Application Profiles



## Why Cisco?

Cisco ACI supports a business-relevant application policy language, greater scalability through a distributed enforcement system, and greater network visibility through the integration of physical and virtual environments under one policy model for networks, servers, storage, services, and security. Through Cisco ACI, customers are reducing application deployment times from weeks to minutes and dramatically improving IT alignment with business objectives and policy requirements.

## Cisco Capital

### Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. [Learn more.](#)

## Next Steps

For more information about how the integrated Cisco ACI and CliQr CloudCenter solution can benefit your organization,

- Visit <http://www.cisco.com/go/aci>
- Visit <http://www.cliqr.com>



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