

Managed Services Delivered on Cisco ASR 1000 Series Aggregation Services Routers

Managed services are communications and information technologies delivered as finished solutions that are managed remotely from a network operations center (NOC). These services can be network-based or delivered through customer premises equipment (CPE).

A series of macromarket trends have combined to fundamentally change customer attitudes about managed services, and they are creating new opportunities for innovative managed service providers (MSPs) to offer their customers differentiated solutions:

- Globalization and e-commerce have opened new opportunities for business expansion along with new competitive pressures for companies of all sizes.
- Advances in mobile networking have permitted workers to do their jobs anywhere, creating new challenges in enabling employee collaboration and protecting valuable data.

To support this growth and the changing market dynamics, the Cisco® ASR 1000 Series Aggregation Services Router is the ideal platform to deliver leading managed services, either on the customer premises or at the intelligent edge of the service provider network.

The Cisco ASR 1000 Series Router allows service providers to aggregate all of these WAN-based services requirements in an intelligent, resilient, secure, and scalable fashion and deliver them in a managed services bundle:

- Instant-on service capabilities that enable rapid time to market and margin value with additional capacity, performance, and feature sets that allow incremental service delivery with a licensing key
- Managed service delivery with a software-as-a-service (SaaS) model that takes advantage of modular Cisco IOS® Software and a network-processor or modular-core approach that eliminates the need for hardware swap to align to customer growth
- High-availability design with hardware and software redundancy enhanced by In Service Software Upgrade (ISSU) and performance and scale factors that are attainable even under adverse conditions such as routing or forwarding hardware failure
- End-to-end service control with faster convergence time, helping enable performance control over bursty voice or video transmissions
- Delivery of enhanced service-level agreement (SLA)-reaching application awareness aligned with application requirements, resulting in lower total cost of ownership (TCO) for the business
- Scaling for IPv6 and encrypted IPv6 services (government or industry directive)

Managed Services Benefits at the Edge

The Cisco ASR 1000 Series Router offers a highly adaptive service platform that blends intelligence and high performance in a footprint that is significantly smaller than that of comparable solutions or standalone routers. Additionally, quality-of-service (QoS) and application granularity

results in customized service delivery aligned with optimal application behavior. These strengths of the Cisco ASR 1000 Series Router translate to tangible advantages for managed services.

Instant-On Service Delivery

The Cisco ASR 1000 Series Router is the first router with “instant-on” service capabilities. For end users, instant-on means that they can turn on services as needed with no downtime -- and ongoing operations are not affected. For the service provider, instant-on translates simply to improved profitability. The ability to rapidly and remotely turn on services means no more complete equipment upgrades -- reducing carbon footprint and minimizing the burden on internal resources.

Instant-on capabilities are possible because of the Cisco QuantumFlow Processor. This processor allows the Cisco ASR 1000 Series Router to instantly “light up” the managed services at full capacity without any hardware upgrades. The Cisco ASR 1000 Series Router offers a truly integrated managed services platform.

The Cisco ASR 1000 Series Router provides managed services that facilitate application awareness, VPNs, security, and unified communications and video services:

- Video, requiring reliable delivery, running on IP NGN combined with highest latency-sensitive traffic such as voice over IP (VoIP) is prioritized with QoS priority policies that are transparent on Cisco ASR 1000 Series Routers. Highly latency-sensitive VoIP traffic is not affected because the Cisco QuantumFlow Processor provides ample capacity.
- Video requires scaling, and multimedia is enabled with efficient multicast replication that is executed in silicon with the Cisco QuantumFlow Processor, which facilitates line-rate forwarding without in-fabric replication.

Integral security allows line-rate IP Security (IPsec) throughput combined with Stateful Firewall Inspection with customization capabilities.

Highly Available Aggregation Class

Managed service success is, in part, defined by the availability of the network and is grounded in a provider’s ability to manage that. Mission-critical service availability causes businesses to deploy high-availability solutions that ensure business continuity even under adverse conditions. Furthermore, businesses have concluded that IT is a prime business enabler. As a result, while designing business processes for successful operations, “business continuity” is becoming a higher priority. The Cisco ASR 1000 Series Router provides a highly suitable platform to realize strenuous high-availability requirements.

The Cisco ASR 1000 Series Router offers powerful availability. It provides hardware and software redundancy of the control plane, data plane, and input/output planes to help ensure full redundancy. The Cisco ASR 1002 and 1004 Routers actually offer a software-redundant Cisco IOS Software control plane with active and standby modes. The Cisco ASR 1006 Router provides both full hardware and software redundancy. Having redundant forwarding planes and routing planes, the Cisco ASR 1006 has fully synchronized Cisco IOS Software instances to help ensure that under-50-milliseconds cutover when the control plane fails results in no data loss because the data plane experiences no interruption.

Intelligent Service Pairing

For MSPs, it is important to provide differentiated services based on service features as well as providing SLAs. In order to generate customer loyalty, being a single-source solutions provider as well as offering customized managed services offers additional value that a client may not have

the internal resources to address. The Cisco IP Next-Generation Network (IP NGN), where intelligent services provide cost-effective value-adds that businesses cannot build, allows service providers to offer unique services to their business customers. For example:

- Programmable application-aware services for rapid and reliable video delivery
- Secure unified communications based on the Cisco Session Border Controller (SBC)

Programmable Application-Aware Services

The rate of change in business requirements and associated applications is fast-paced. To accommodate such changes, MSPs need a platform that allows tuning of managed services, in a fast and cost-efficient manner without compromising the performance or availability. The Cisco ASR 1000 Series Router delivers service-tuning capabilities to reflect business-requirements changes.

In the light of changing requirements for today's business and managed services, an MSP must work with the business to effectively define and then prioritize applications based on their business effect and criticality. In other words, mission-critical applications such as bills and tickers must receive priority over basic data transfers. Although MSPs currently do offer different QoS capabilities that prioritize traffic content based on a business's needs, more is needed. Increased bandwidth demands such as video and enterprise applications such as enterprise resource planning (ERP) of video-delivery services, for example, require improvement beyond standard QoS priorities. Increasingly, businesses will see that video delivered over IP Multicast -- content push services intelligently handled directly by the network -- can provide more reliability and responsiveness than content delivered by server farms. As the network takes a more intelligent role in delivering media-rich applications, the Cisco ASR 1000 Series Router feature set allows MSPs to "program" application awareness as needed for the required priority treatment to suit smooth accommodation of such applications.

With regard to rapid video delivery, the Web 2.0 experience is multifaceted, offering an endless array of IP-enabled interactive entertainment. Delivery of video content needs to be reliable and responsive to meet business video requirements -- adding another challenging requirement to the need to deliver "any-play services". Application awareness enabled by Cisco ASR 1000 Series Routers permits service prioritization of any content from or to any device applied on a per-service basis, allowing the network to elevate the priority of VoIP or video services that cannot sustain latency or jitter. This prioritization also creates additional revenue streams because applications can have elevated priority and enhanced performance per subscriber.

Cisco ASR 1000 Series Routers at the access points through to the edge allow businesses or their MSPs to take advantage of native transport multicast traffic, alleviating much bothersome latency. Multicasting capabilities combined with application-recognition features such as Network Based Application Recognition (NBAR), Cisco IOS Flexible Packet Matching (FPM), and QoS help service providers manage unified quadruple-play (video, voice, data, and mobility) service delivery to deliver today's and tomorrow's managed services while taking full advantage of some of the industry's most robust service intelligence capabilities enabled by Cisco IOS Software.

Secure Session Border Controllers

VoIP, video streaming, Instant Messaging, and Telepresence are just some of the real-time, IP-based applications enjoying rapid growth in today's competitive communications market. Service providers are now finding it efficient and economical to directly interconnect their IP networks to

both customer and other service provider IP networks. This trend has created a requirement for SBCs to help service providers control and manage real-time multimedia communications sessions at the borders between their IP networks. SBCs serve as the “VoIP command and control as well as media traffic” managers for the network. An SBC provides border control either between access and core networks or among interconnecting core networks.

- Secure SBC at peering edge: The SBC forms the border between network operators. Here it secures the network border, enforces QoS policies, helps ensure traversal of intermediate Network Address Translation (NAT) and firewalls, and provides regulatory compliance.
- Secure SBC at access edge: The SBC helps the service provider access the residential and corporate user across NAT and firewall devices while also providing QoS, core network security, and regulatory compliance.

Regulatory compliance and protection of the confidentiality of content transported over unified communications requires securing the contents adequately. With a Cisco ASR 1000 Series Router at both the peering and access edges, an MSP can build an intelligent service pairing to provide secure unified communications based on SBC.

At the peering edge, the SBC needs to be able to handle traffic volume as VoIP traffic traverses multiple trusted peering relationships between MSP networks, whereas at the access edge, it needs to address hundreds of thousands or even millions of untrusted subscribers along with a diversity of endpoints, applications, and interoperability variables.

Furthermore, because MSPs provide consumer services that require scaling, the access edge has different requirements when delivering business services. Base-level “business-grade” VoIP needs to be secure, reliable, available, and offer strict QoS. Today, however, it is also about a lot more than reliable VoIP -- it is about ever-increasing unified communications features such as Instant Messaging, Presence, Find Me/Follow Me, and Click to Talk that require responsiveness, reliability, and accuracy beyond VoIP network needs. The Cisco ASR 1000 Series Router powerfully addresses these ever-escalating unified communications requirements. It can massively and securely scale at the edge without affecting incremental performance.

Environmentally Friendly

Given the price-to-performance and feature richness, Cisco customers maximize the installed life of Cisco ASR 1000 Series Router. Given the longer lifecycle of our products, they generally generate less waste over time compared with personal computers and electronics. Importantly, material and component selection of this router helps reduce the overall carbon footprint. Likewise, Cisco extends innovation to the packaging materials of our products, choosing those that help reduce costs and minimize effect on the environment.

The data centers are always looking to better the consumption footprint when it comes to space; power; and heating, ventilation, and air conditioning (HVAC). The Cisco ASR 1000 Series Router significantly affects the green level of data centers, given that performance required is now delivered from a compact footprint.

Summary

As businesses today compete by accessing required assets and information from anywhere at anytime, IT function is increasingly seen as an important enabler. Given that technology advancement is so fast-paced, businesses adapting technology, often lack expertise to benefit from advanced technology deployment, need to look to service providers in the shape of for managed services to enable advanced technology usage. Only with managed services adaption,

business can embrace new technology and run applications that allow information to reach to their workforce to be more competitive and productive. As service providers build IP NGNs, businesses are demanding more and more sophistication in the managed services they want. Ability to “light-up” services instantly, turn on full performance without compromise, and achieve high availability for the managed services are just some of the requirements of most businesses today. The Cisco ASR 1000 Series Router platform as a CPE and on the edge offers a value proposition in price and performance that mandates enablement of such service delivery on this next-generation platform.

Learn More About the Cisco IP NGN Security Architecture and Systems

Integrated, collaborative, and adaptive security in the evolving Cisco IP NGN architecture is built into the fabric of the service provider’s network infrastructure and integrated with other network elements. Cisco provides a comprehensive security product portfolio and assists service providers in developing revenue-generating managed security services from concept to implementation and marketing. Security is not an afterthought at Cisco; it is a fundamental part of the service provider’s business that affects all services.

For More Information

- Cisco ASR 1000 Series Router platform: <http://www.cisco.com/go/asr1000>.
- Cisco Managed Services: <http://www.cisco.com/go/managedservices>.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

CCDE, CCVP, Cisco Eos, Cisco StadiumVision, the Cisco logo, DCE, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn is a service mark; and Access Registrar, Aironet, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Event Center, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, iQuick Study, IronPort, the IronPort logo, LightStream, Linksys, MediaTone, MeetingPlace, MGX, Networkers, Networking Academy, Network Registrar, PCNow, PIX, PowerPanels, ProConnect, ScriptShare, SenderBase, SMARTnet, Spectrum Expert, StackWise, The Fastest Way to Increase Your Internet Quotient, TransPath, WebEx, and the WebEx logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0801R)