

Flexible Customer Premises Equipment Enables Managed Services Providers to Reach Small Businesses



Demand for managed services is expected to grow dramatically over the next few years, with small businesses – those with fewer than 100 employees – expected to make up more than half of the market opportunity. Small businesses typically do not have the finances, technical staff, or expertise needed to manage, maintain, and adapt a network to meet changing requirements. They tend to prefer to outsource management of flexible services to a provider that offers better quality and reliability than they can achieve on their own.

Although service providers welcome the increased business, they are wary of the costs and complexities associated with providing managed services that are of high quality, secure, available, remotely manageable, and extensible. In particular, the small deal sizes inherent in working with small businesses make it difficult to serve this segment of the market profitably. Service providers must reduce their cost of sales and achieve economies in deployment and service delivery to succeed.

Flexible, cost-effective customer premises equipment (CPE), such as Cisco® Small Business Pro SRP 500 Series Services Ready Platforms, can help managed services providers reach small businesses through an array of profitable services, both on-premises and hosted, while driving down total cost of ownership (TCO). This white paper explores the challenges providers face and shows how platforms like these can help address them.

Challenges Faced by Providers of Managed Services

Some of the specific challenges faced by managed services providers are:

- **Multiple devices for multiple services:** As the number and variety of devices increase, so does the cost of procurement, training, management, and support.
- **Complex configuration:** As standalone services are added on top of one another, the task of provisioning features becomes increasingly complicated and deployment and operational expenses increase.
- **Higher costs for incremental services:** Many point products and purpose-built devices have limited or no flexibility to accommodate changes. Providing a single incremental service often means a full upgrade to previously installed equipment, resulting in expensive truck rolls, site visits, and large incremental capital costs.
- **Interoperability issues:** Performing integration testing and qualifying hardware and software for each incremental service is time-consuming and expensive.
- **Support:** Identifying and isolating a problem is difficult, resulting in longer time to resolution and greater use of skilled resources.

Service providers who want to maximize the growing opportunities in the managed services market are looking for efficient ways to provide services, whether one or many, without having to overlay networks or patch together newer devices in a disjointed manner.

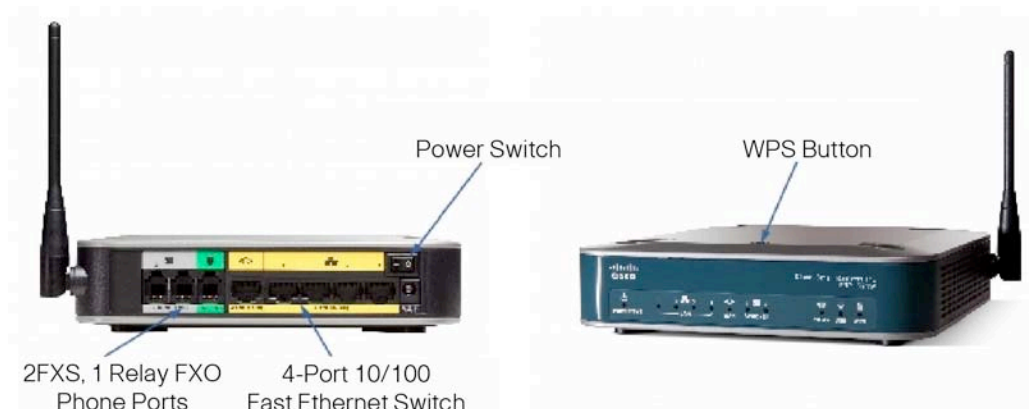
Need for a Platform Built for Services

The answer lies in having a single platform that has been designed to support a flexible range of services and applications that may evolve as customer needs change. The ability to use a common and consistent interface for service activation, provisioning, and management also helps enhance service provider profitability.

Introducing Cisco Services Ready Platforms

Cisco SRP 500 Series Services Ready Platforms are flexible, cost-effective, fixed-configuration CPE with embedded intelligence to enable service providers to create, provision, and deploy premium revenue-generating services – a variety of high-quality IP voice, data, security, wireless, and business continuity services – to small businesses on an as-needed basis. These platforms allow service providers to deliver differentiated, converged service offerings that increase bandwidth usage and average revenue per user while reducing customer churn (Figure 1).

Figure 1. Cisco SRP 500 Series Services Ready Platforms



- **One box, multiple services:** Cisco SRP 500 Series platforms are more than just routers that provide WAN termination. Rather, the firmware has embedded intelligence to support premium revenue-generating services such as voice, data, security, and wireless to offer choice, flexibility, and functionality, along with customized network deployment.
- **Concurrent services:** Cisco SRP 500 Series platforms allow service providers to enable just one service or multiple services, incrementally or all at once.
- **Business continuity services:** 3G data support, built into the Cisco SRP 500 Series Services Ready Platforms, offers service providers an opportunity to provide an “always on” Internet connection and business continuity solutions to small businesses.
- **Service addition/removal:** Service providers can easily create and provision a variety of service offerings, adding or removing them remotely as their customers’ needs change without expensive customer site visits and truck rolls.
- **Standards-based configuration:** Cisco SRP 500 Series platforms support standards-based provisioning such as TR-069. Coupled with XML provisioning, it reduces operating expenses by enabling near zero-touch deployments, remote monitoring, and mass provisioning, eliminating the need for highly skilled technicians and costly truck rolls to deploy new services.
- **Remote diagnostics:** Cisco SRP 500 Series platforms provide easy remote management, allowing troubleshooting and monitoring via Simple Network Management Protocol (SNMP), syslog, or the device’s browser-based management interface.
- **Hardware:** Cisco SRP 500 Series Services Ready Platforms have a compact design that is ideal for simple, space-saving small business deployments.

Ready for Services

High-performance, scalable integrated services and solutions are delivered on Cisco SRP 500 Series Services Ready Platforms via a framework of services building blocks, built on a flexible, easy-to-manage Linux operating system. Some of the managed services that a service provider can offer are dedicated Internet access, mobility with 3G data access, voice services, and on-premises security services. The following sections provide further details.

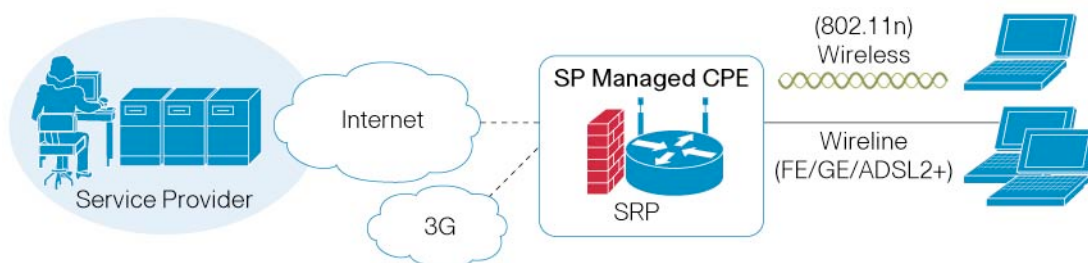
Managed Internet/Data Services

In this application Cisco SRP 500 Series platforms provide routing and dedicated Internet access through a choice of WAN connectivity options (Figure 2):

- Wired data access
 - Fast Ethernet and Gigabit Ethernet
 - Asymmetric DSL (ADSL2+) (Annex A and Annex B)
- Mobile data access
 - 3G Wireless WAN via a supported USB modem

The Cisco SRP 500 Series platforms also support failover and recovery between the Ethernet (default) and 3G connections.

Figure 2. Options for Dedicated Internet Access



Wired Data Access

Cisco SRP 500 platforms enable WAN connectivity via Fast Ethernet, Gigabit Ethernet, and ADSL2+. Different SRP models are provided that support ADSL2+ connectivity over basic telephone lines (Annex A) or ISDN lines (Annex B). Furthermore, switching is integrated within the Cisco SRP 500 Series platform, and up to five 802.1Q VLANs can be supported.

Mobile Data Access via 3G Service

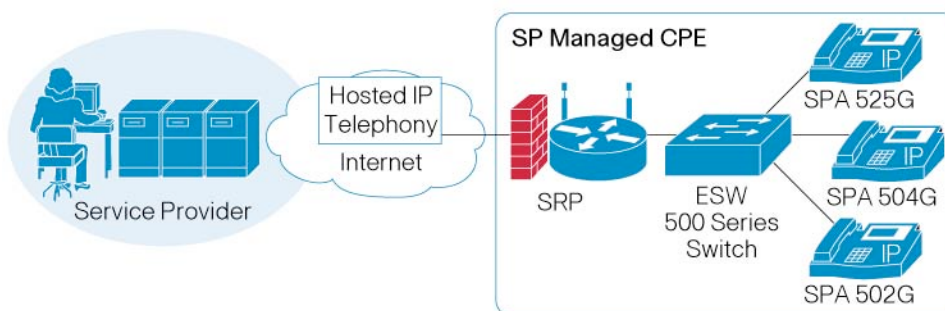
Cisco SRP 500 Series platforms enable business continuity through built-in 3G USB modem drivers. Several third-party USB modems are supported, along with different 3G technologies such as High-Speed Downlink Packet Access (HSDPA) and Evolution-Data Optimized (EVDO). When a USB modem is inserted into the SRP 500 Series platform, it will automatically attempt to connect to the mobile network. This service provides customers with true multipath WAN backup and rapidly deployable primary WAN connectivity. Using high-speed 3G wireless networks, routers can replace or complement existing landline infrastructure, such as dialup, frame relay, and ISDN.

Managed Voice Services

The Cisco SRP 500 Series platforms offer a robust set of voice features and capabilities. Through the integration of voice gateway capabilities, support for industry-leading voice Session Initiation Protocol (SIP) stack, various codecs, support for analog endpoints, and fax and modem features, these platforms can deliver a complete office IP communications solution. The Cisco SRP 500 Series platforms support both hosted and premises-based telephony deployments:

- **Support for hosted IP telephony deployments** (Figure 3): Cisco SRP 500 Series Services Ready Platforms are a perfect choice for small businesses that choose hosted IP telephony services. Coupled with an on-premises switch such as a Cisco ESW 500 Series Switch and Cisco SPA 500 Series IP Phones, the small business can have a complete, managed CPE solution composed of devices designed to work together. The turnkey solution from Cisco not only enables easier configuration but also simplifies troubleshooting.

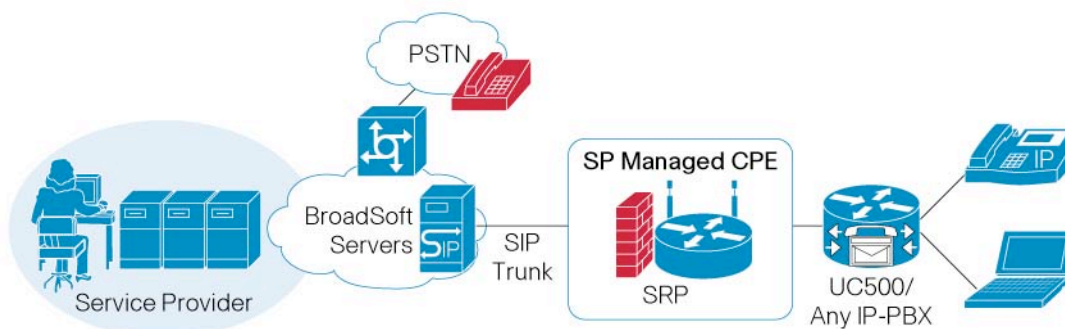
Figure 3. Hosted IP Telephony Service



- **Support for premises-based deployments with Session Initiation Protocol (SIP) trunking** (Figure 4): Cisco SRP 500 Series platforms can also support premises-based telephony deployments. To move from a hosted IP telephony service to a premises-based service, the small business needs to add only an IP private branch exchange (PBX) device such as the Cisco Unified Communications 500 Series for Small Business. The balance of the CPE remains unchanged, thus protecting the customer's investment.

Cisco SRP 500 Series platforms can provide voice over IP (VoIP) and other real-time services based on SIP trunks and integrated SIP capabilities. The SIP trunk from the service provider connects to the IP PBX, with the Cisco SRP 500 Series platform acting as a Network Address Translation (NAT) Application Layer Gateway (ALG) device, providing security and quality of service (QoS) and helping guarantee service-level agreements (SLA). The SIP trunk connects to the traditional public switched telephone network (PSTN) to enable communication outside the PBX.

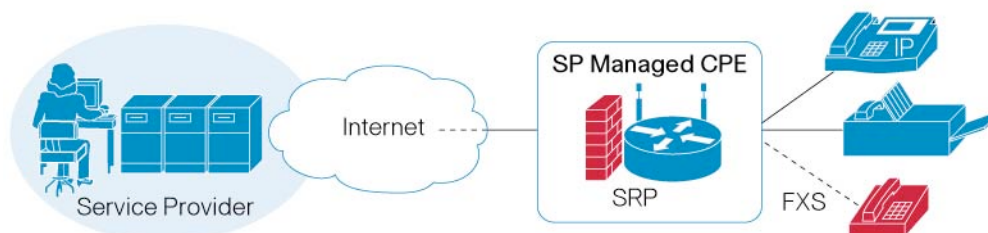
Figure 4. Premises-Based IP Telephony Service with SIP Trunking



For all of the applications just discussed, the following common features apply:

- **High-quality voice:** With the industry leading SIP stack integrated into the firmware, Cisco SRP 500 Series platforms deliver clear, high-quality IP voice services.
- **Support for analog phones:** Cisco SRP 500 Series platforms can connect analog phones through integrated FXS port interfaces. Supplementary features such as call forwarding, call transfer, call waiting, and call hold/resume are supported on the FXS ports (Figure 5).
- **Support for fax and modem:** Through the T.38 fax protocol, Cisco SRP 500 Series platforms support fax relay and fax pass-through. They also support modem pass-through on the voice ports.

Figure 5. Support for Analog Ports

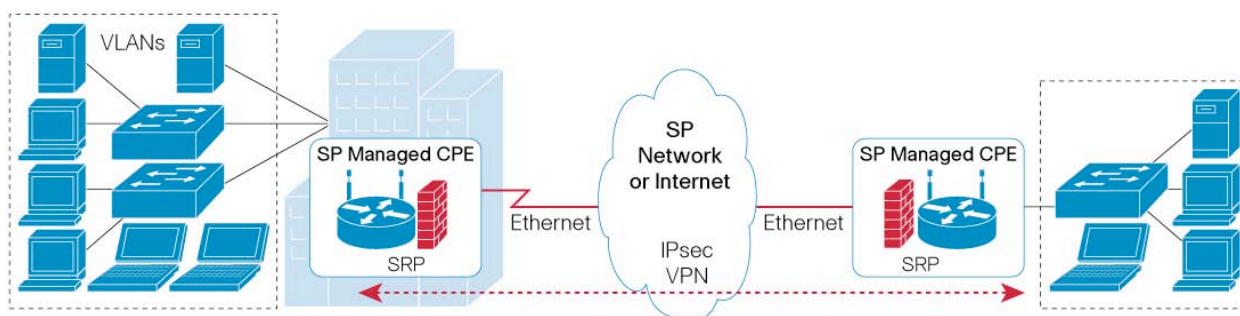


- **QoS:** Cisco SRP 500 Series Services Ready Platforms provide QoS features for bandwidth and application optimization. The platforms can be configured for separate queues for different types of traffic so that time-sensitive traffic such as voice and video can be prioritized over other traffic.

Managed Premises-Based Security

Cisco SRP 500 Series Services Ready Platforms enable highly secure connectivity through the following features (Figure 6):

- **Stateful firewall:** The firewall protects customer networks against network and application layer attacks, viruses, and worms as well as providing effective control over application traffic flowing through the network. Firewalls can be configured and monitored easily via the GUI-based device management application. The firewall, coupled with the other security features, provides:
 - **Stateful packet inspection:** To keep track of the state of network connections and distinguish legitimate packets for different types of connections traveling across it
 - **Access control:** To allow control of IP traffic via configuring rules based on user roles
 - **Content filtering:** To monitor and regulate all web activities by blocking specific websites or restricting access to certain websites
- **Virtual private networks (VPNs):** Site-to-site VPN tunnels based on IP Security (IPsec), along with support for Triple Data Encryption Standard (3DES), allow for highly secure exchange of traffic to keep small business data safe.
- **NAT:** NAT helps to hide private IP addresses. NAT Transparency is also supported, allowing for IPsec pass-through and ALG for HTTP/HTTPS, FTP/Trivial FTP (TFTP), SIP, and Real Time Streaming Protocol (RTSP).
- **Network buffer zone (DMZ):** Cisco SRP 500 Series platforms allow a service provider to designate a specific IP address to be in the buffer zone between the Internet and the small business private LAN.

Figure 6. Security Features

Management

Importantly, Cisco SRP 500 Series Services Ready Platforms are easy to manage. Multiple options are provided to configure, manage, and maintain the device, as shown in Table 1.

Table 1. Management Options

Task	How Performed	Target User
Installation	Installation wizard on device	Onsite technician/customer
Configuration	Administration GUI on device	Remote network operations center (NOC) operator
Remote configuration/mass provisioning/zero-touch deployment	Standards-based TR-069, XML	Service provider network management system
Monitoring	SNMP v2, syslog	Service provider network management system

Benefits

Service providers today recognize that the network is more than routing and switching – it is a platform to which incremental services and applications can be added. For service providers who are looking for platforms that can serve as a foundation for integrated managed services and reduced TCO, Cisco SRP 500 Series Services Ready Platforms are an ideal choice, offering:

- Reduced capital expenditures:** Multiple, premium revenue-generating services, such as security, voice, data, and wireless, can be turned on through just one device. A single firmware version translates to substantial savings of time, money, and effort otherwise spent in qualifying the device and learning how to operate it. Also, no special licenses are required to turn on services.
- Reduced operating expenses:** Support for industry-standard TR-069 and XML-based provisioning enables near zero-touch deployments, while remote provisioning and simplified management reduce daily operational expenses and are huge factors in ease of use. Because incremental services can be enabled remotely, service providers can also save money and time by avoiding the need for equipment deliveries and customer site visits.
- A tested solution:** Interoperability with industry-leading soft switches and voice gateways enables service providers to deploy scalable, efficient, end-to-end multiservice network deployments without worrying about individual product integration. Easy integration with other Cisco Small Business Pro Series products also helps enable adaptability as customer needs change.
- Peace of mind:** Cisco SRP 500 Series platforms have a 1-year hardware warranty. The available Cisco Small Business Pro Service offers 3-year “peace of mind” support with next-business-day hardware replacement, should that be required.

- **Quick delivery:** Cisco SRP 500 Series platforms are stocked and sold through distribution so that service providers can quickly and efficiently deliver services to customers.
- **Cost-effective deployment:** Cisco SRP 500 Series Services Ready Platforms are very competitively priced for the small business market.

More Information

Cisco Small Business Pro SRP 500 Series Services Ready Platforms Page: <http://www.cisco.com/go/srp500>



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