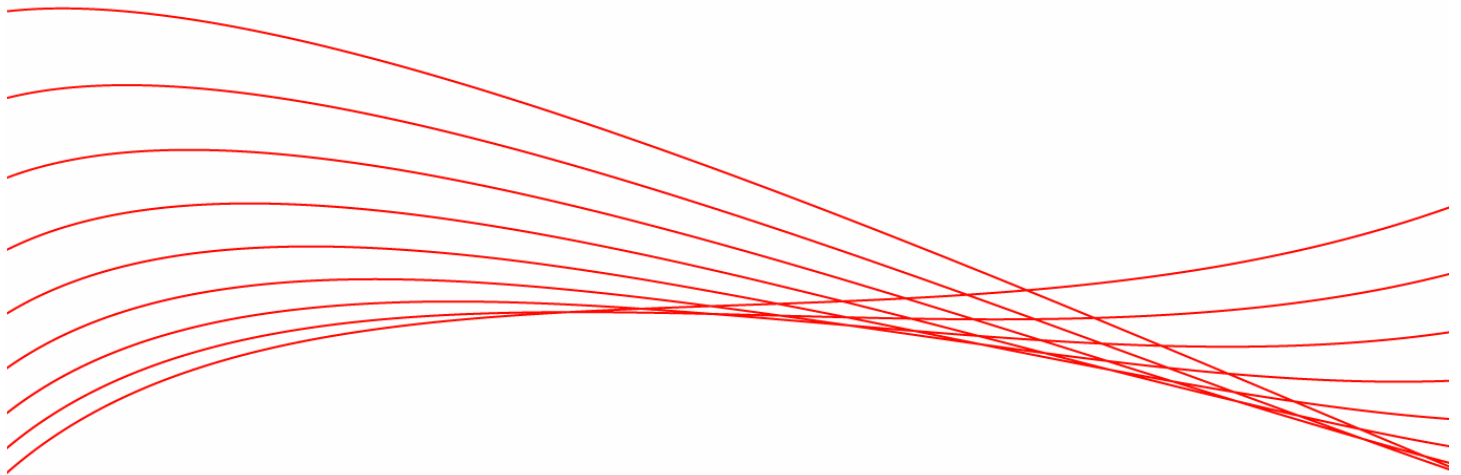


Effectively Manage Your ProCurve Wireless LAN



Challenges and Trends	2
The ProCurve Approach	2
An Integrated, Unified Approach to WLAN Management	3
The WLAN Management Life Cycle	4
Design	4
Deployment	4
Management and monitoring	5
Rogue device detection	6
AirWave Management Platform (AMP)	7
Design	7
Deployment	7
Management	7
Monitoring	7
Identity Driven Manager 2.0: Beyond device level management	8
My ProCurve Portal	9
Benefits of the ProCurve Approach	9
The Adaptive Edge Architecture	9
Doing More with Less	9
A Flexible Management Framework	9
Delivering Value to Customers	10

Challenges and Trends

Workplace mobility is flourishing. Enabling dynamic access to information in a business environment presents a substantial opportunity to improve the onsite experience and business continuity of employees and non-employees alike – wherever, whenever and however they connect.

For example, consider the benefits of mobility at a hospital site. For the medical staff, mobility provides quick access to mission-critical information, when and where it is needed, to help improve decision making, increase efficiency, and reduce errors. The same mobility solution can provide solace for visiting parents and guests, offering them a means to stay connected to their work life while dealing with the difficulties of a sick relative.

The benefits of workplace mobility extend beyond healthcare to a wide range of other enterprises. To serve an increasingly mobile workforce, enterprise networks must support a broad range of applications: virtual meetings, voice over IP (VoIP), video conferencing, instant messaging, and more.

To help meet these needs, enterprises have rapidly expanded the deployment of wireless local area networks (WLANs). Forrester Research reports that 60% of enterprises are upgrading or deploying WLANs in 2005. What is more, vendors report that the average number of access points per deployment is doubling, resulting in larger networks to manage.¹

As deployments become more widespread and larger in scale and scope, it becomes more and more critical to manage them effectively. At the same time, IT budgets continue to be constrained, and IT managers and staff are tasked with trying to do more with less.

Deploying a business WLAN presents several key challenges:

- “How will this capability integrate with my existing network?”
- “Where will I find the resources to manage it?”
- “How will I keep costs in check?”
- “What new security threats will I become vulnerable to?”

As with other IT challenges, the answers to these questions depend on the customer’s specific needs and environment.

Until now, wired and wireless local area networks have been treated separately, with fragmented, separate tools to manage the wired and wireless elements – an expensive and inefficient approach to network management. This paper explores a more promising trend: integrated, unified solutions for managing a network of wired and wireless LANs.

The ProCurve Approach

ProCurve Networking provides a set of network management solutions, designed to meet the needs of your environment and budget. These solutions share an integrated, unified approach to network management for both wired and wireless LANs. The ProCurve Manager platform uses a single station, a single database, and a single interface to centrally configure, update, manage, troubleshoot, monitor, and update the entire network.

ProCurve Manager 2.0 is a free Windows-based network management solution that is included with all manageable ProCurve devices, wired and wireless. ProCurve Manager 2.0 provides the basic tools you need to get a network up and running, including device auto-discovery, mapping and polling capabilities, basic (one-to-one) wired and wireless LAN device management, and automatic e-mail or pager alerts for troubleshooting the network. ProCurve Manager 2.0 also ships with a 30-day evaluation license of ProCurve Manager Plus 2.0 and ProCurve Mobility Manager 1.0, which provide more advanced network management capabilities.

For mainstream ProCurve networks – a sizeable mix of wired switches and wireless access points – the combination of **ProCurve Manager Plus 2.0** and **ProCurve Mobility Manager**

¹ “Enterprise WLAN Grows Up: Management Tools Are On Their Way,” Ellen Daley et al., Forrester Research, Inc. February 2005.

1.0 (PCM+/PMM) delivers a unified management station for the network, either locally or over the WAN link. PCM+/PMM provides one-to-many (group-based) wired and wireless LAN configuration and firmware management, along with enhanced capabilities like rogue device detection, group-based auto channel lockdown, client association visibility, consolidated alerts, and quick view customizable screens.

For extensive multi-vendor WLAN environments, or for ProCurve environments that require specialized WLAN management capabilities, **ProCurve Manager Plus 2.0 and the AirWave Management Platform™** (AMP) from AirWave Wireless combine to provide a very rich management solution, including firmware and configuration management for WLAN network devices from multiple vendors, rich RF statistics reporting and monitoring, site planning assistance, a robust intrusion detection system, and dynamic RF visualization.

An Integrated, Unified Approach to WLAN Management

ProCurve Mobility Manager 1.0 (PMM), a plug-in module, extends ProCurve Manager Plus 2.0 (PCM+) to provide integrated management capabilities for both wired and wireless devices.

PCM+/PMM provides a seamless, affordable, unified management solution for both the wired and wireless portions of a network. All device information is stored in a single master database that provides immediate visibility of all network elements, both wired and wireless, from a single management console.

Just as it is essential for a network management solution to provide access to a great deal of information, it is equally important to present that information in a simple manner that is customizable by the user. PCM+/PMM allows you to configure, update, monitor, and troubleshoot ProCurve devices centrally with easy-to-use screens. Easily customizable table views provide visibility to exactly what you want to see to help manage and troubleshoot the network.

The network health dashboard (figure 1) lets you monitor key parameters for both wired and wireless portions of the network in a single screen, for complete visibility. And because PCM+ consolidates all alerts from both wired and wireless portions of the network in a single repository, it's easier to immediately view and troubleshoot potential problems. This inherent simplicity and ease of use helps to reduce the cost of managing a business network.

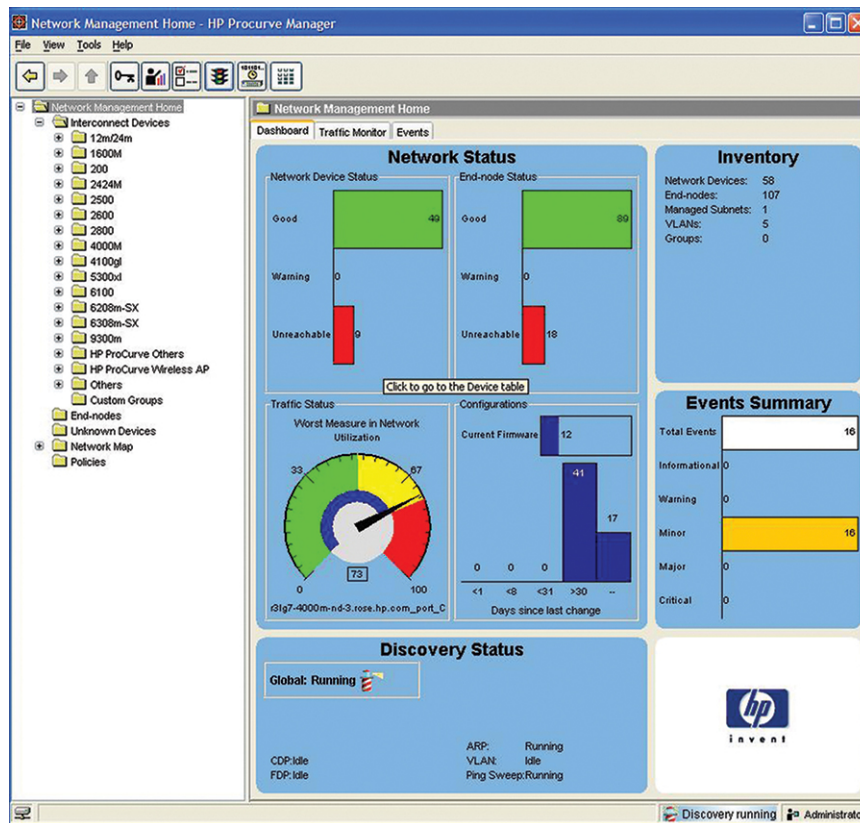


Figure 1: Overall network health screen

The ProCurve Manager modular architecture allows the seamless addition of plug-in modules, such as Identity Driven Manager (IDM), protecting your investment in network management tools and providing a single integrated platform that can easily adapt and grow with your changing network needs.

In addition, PCM+ and all ProCurve Manager family modules integrate directly with OpenView Network Node Manager, providing a rich, integrated tool chest for environments with heterogeneous network infrastructure.

PCM+ also allows for integration with third party applications. The PCM+ Configurable Integration Platform (CIP) makes it possible to tightly integrate key ProCurve technology partners such as AirWave Wireless into the PCM+ user interface, further simplifying network management tasks for even the most demanding environments.

The WLAN Management Life Cycle

To better understand how ProCurve management tools can help in deploying, managing, monitoring, and troubleshooting a WLAN, let's consider the following scenario.

Design

To begin, you can either commission a wireless site survey from an ProCurve channel partner (recommended) or perform your own survey, using third-party tools. Alternatively, you can contact your ProCurve network design center for help with placement of access points.

The result of the site survey dictates how many access points to deploy, where to deploy them, and suggested power transmission settings, among other parameters.

Deployment

1. With your site survey results in hand, you can use PCM+/PMM to construct a common configuration template for the new group of access points, setting desired configuration

parameters, including such security settings as WEP and WPA keys, which DHCP server to look up an IP address, and SSIDs.

2. When the access points are connected to the LAN, PCM+/PMM automatically discovers the access points. Based on your direction, PCM+/PMM assigns the access points to a group, applies the configuration template, and, if desired, enables the radios. You can do this all at once, or schedule it as an event within PCM+/PMM to occur at a more convenient time.

For a given geographical area (for example, a floor in an office building), performance of the wireless LAN can be greatly affected by the channel settings of access points in the area. It is important to minimize interference between the access points by utilizing non-overlapping channels as much as possible when deploying the WLAN. One method to assist with channel selection is to utilize the access points' auto-channel selection (ACS) feature. PCM+/PMM can enable ACS for a group of access points so they can listen to neighboring beacons and determine an appropriate channel setting.

3. Once auto-channel selection "settles out" and the access points have found channels that minimize interference with neighboring access points, PCM+/PMM can globally lock down the channel setting for the group and write the new channel to the individual access points, all in a single step. Group-based auto channel selection and lockdown improves performance by helping to reduce RF interference.

Management and monitoring

As soon as the access points are up and running and are being managed by PCM+/PMM, you can monitor, manage, and troubleshoot the newly deployed WLAN. You can perform monitoring at various "levels": aggregate network health view, including wired and wireless devices together; group level for access points; or drill down to specific access points and even specific access point radios (figure 2).

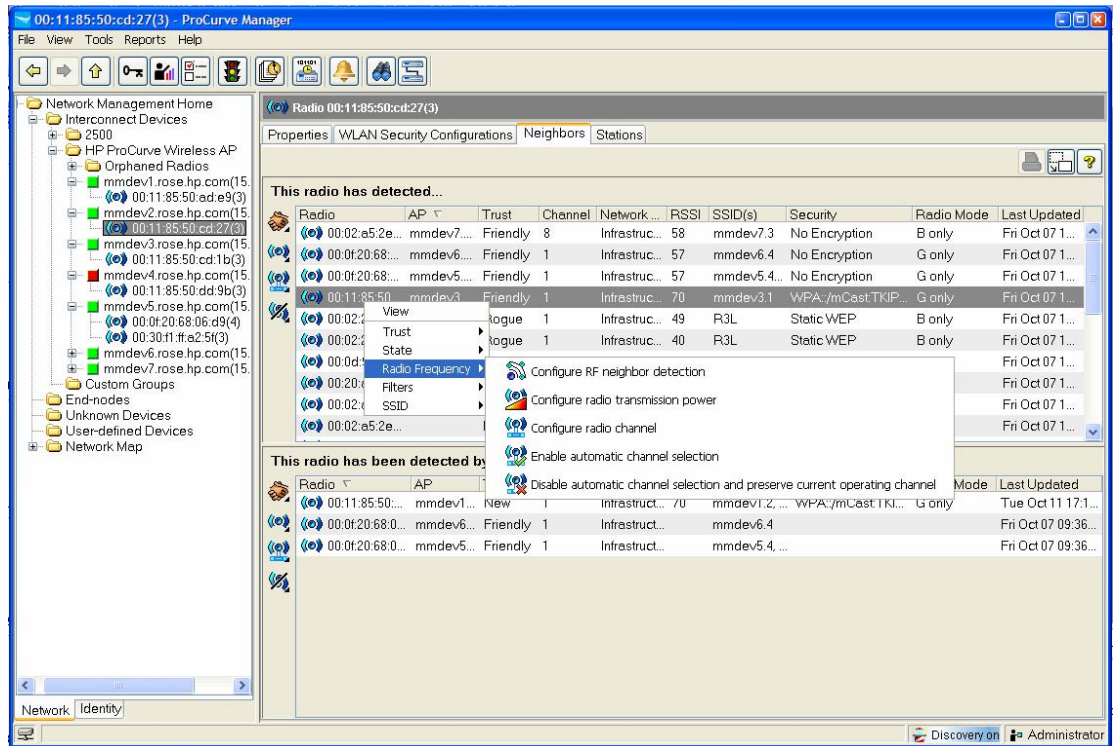


Figure 2: Detail of management interface for a specific radio of a selected access point

The customizable user interface allows you to select the specific parameters that you want to monitor, so that you can effectively and efficiently monitor and troubleshoot many devices simultaneously, with immediate drill down capabilities at your fingertips.

You can display alerts categorized by severity, thus making it easier for you to track bottlenecks and issues in the network. Alerts present detailed information on the problem, even down to the specific port.

PCM+/PMM displays client associations to access points. This is particularly useful when troubleshooting network performance based on a trouble ticket called in by a client.

The data collected from access points can also help detect mismatches in power transmission settings. For example, if three neighboring access points all report that they have discovered the same access point with a strong signal, you will have a good indication that the power level for that access point might need adjustment. Similarly, channel contention among neighboring access points is visible.

In a dynamic workplace, change occurs constantly. For example, an organization might undergo a merger or acquisition six months after the initial WLAN deployment, in which ten new employees are added to the existing team and assigned offices near the team, but in an area not previously "painted" with RF coverage.

ProCurve Mobility Manager can help you to deal with this kind of change to the network environment. You can install one or more additional access points to provide more coverage, and use PCM+/PMM to:

- Associate the new access points as part of a group.
- Apply consistent configuration and firmware to the new access points.
- Tune radio transmission power appropriately.
- Globally enable and lock down auto-channel selection again so that all access points for the floor are set to optimized channel assignments.

Rogue device detection

Rogue, or unknown, wireless LAN devices pose a major threat to network security. PCM+/PMM makes use of the radio frequency (RF) scanning feature of ProCurve 420 and 520wl Wireless Access Points to detect and help mitigate potential rogue device security threats. To see how this works, let's consider another example: a university student residence building with several installed access points providing wireless coverage (figure 3).

1. A creative student decides to install her own access point in her room, to get even better performance and create a mini private WLAN for her and her roommate. This is against university policy; unsanctioned, rogue devices can potentially be a security threat to the network.
2. The "trusted" ProCurve 420 access points installed on the campus are set to scan occasionally for beacons from neighboring access points. The 420 in the residence building nearest the rogue device detects a strong signal from the rogue, including its radio MAC address and SSID, and any other information included in the access point broadcast beacon.
3. Another 420 in a neighboring building also detects the rogue beacon, but at a weaker signal strength.
4. A third 420, also located in the student residence building, but farther away from the rogue, detects an even weaker beacon from the rogue.
5. ProCurve Mobility Manager collects all of this information detected via RF scan, and compares the newly-discovered device to the list of consolidated "trusted" devices stored in ProCurve Manager Plus. The network administrator can compare RF-related values (channel, RSSI, etc.); mark neighboring radio trust levels; and launch actions to configure any displayed radio, current or neighbor.

When events occur, you can choose how to be alerted to the event – by simply logging the event, sending an e-mail, or sending a page.

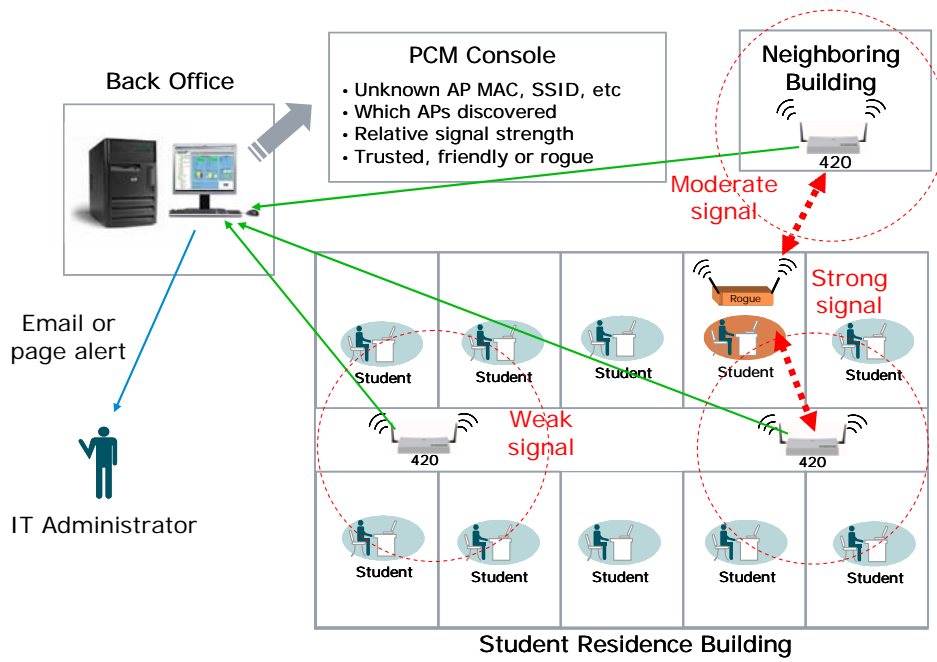


Figure 3: Rogue device detection example

As this scenario demonstrates, PCM+/PMM provides simplified, integrated management for mainstream ProCurve networks.

AirWave Management Platform (AMP)

For extensive multi-vendor WLAN environments, or for networks that require a richer set of specialized WLAN capabilities, the combination of ProCurve Manager Plus 2.0 and the AirWave Management Platform (PCM+/AMP) allows you to analyze, configure, and monitor a complex, multi-vendor wireless network infrastructure in real time. PCM+ and AMP interoperate with one another and with the existing network infrastructure, simplifying management and greatly reducing the costs of operating the network. The AMP application suite includes a set of tools to support network administrators during each phase of the WLAN life cycle.

Design

At the onset, you can use AirWave Wireless Site Plan (AWSP) to help design your WLAN. This site planning tool provides CAD drawing import tools and other aids to help you build a graphical RF site plan.

Deployment

You can use AMP to create group-based configurations, install firmware, and perform other necessary WLAN setup. You can have AMP automatically configure the network infrastructure based on your site plan.

Management

You can use AMP to make configuration changes from a central location, change channels, modify power, and perform other necessary WLAN management tasks for your full-featured ProCurve access points, as well as other Wi-Fi products. AMP helps to secure your wireless LAN by routinely auditing your Wi-Fi infrastructure to ensure that no devices are out of compliance with your defined policies. The AMP software continuously collects performance and usage data from the access points to automatically diagnose problems and alert administrators when problems might affect users.

Monitoring

AMP provides near real-time monitoring views that allow you to quickly drill down to see where all users are located, what signal strength they are receiving, and how the network is

performing. AirWave's VisualRF (see Figure 4) and RAPIDS (Rogue AP Detection) modules provide a robust intrusion detection system. You can use AMP along with VisualRF and RAPIDS to detect rogue access points through wire, RF, and SNMP; monitor and track client associations; perform very rich reporting and statistics gathering; and visually track the RF environment in real time.

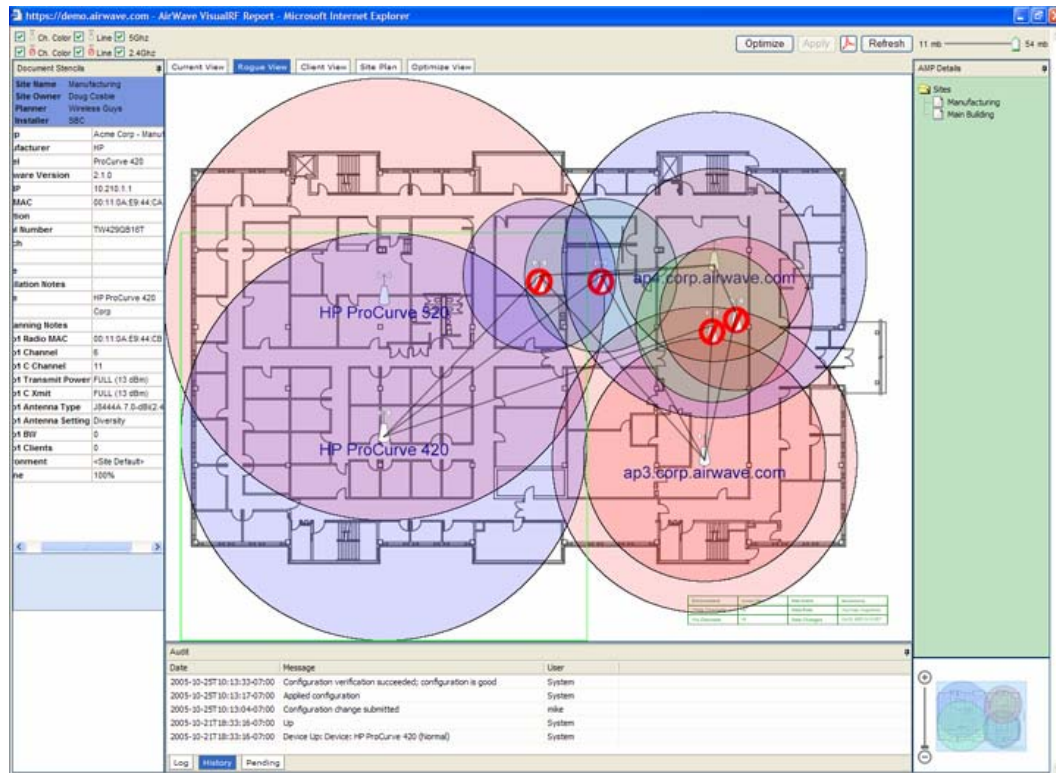


Figure 4: Airwave VisualRF interface, providing real-time monitoring of the RF environment

You can configure PCM+/AMP utilizing the PCM+ Configurable Integration Platform to receive specific information as an event and enforce a policy based on the event. For example, you can define a policy whereby ProCurve Manager Plus throttles, quarantines, or shuts down a port if the RAPIDS application detects a rogue device and knows which switch port the device is attached to. When AMP subsequently discovers a rogue device and sends the device information (including the switch port to which the device is attached) to ProCurve Manager Plus, your policy is enforced automatically.

Identity Driven Manager 2.0: Beyond device level management

Network management is more than just device management. ProCurve Identity Driven Management solutions provide unified user-based management and access control for 802.1x-based environments.

ProCurve Identity Driven Manager 2.0 is an add-on application for ProCurve Manager Plus that dynamically applies security, access, and performance settings to network infrastructure devices based on the user identity, location, and time of day. Access and rights are granted automatically to approved users – wherever and whenever they connect to the network.

Standards-based and easy to use, ProCurve IDM allows you to define and manage policies at a central location so you don't need to configure each network element separately. By automatically managing intelligent network access in this way, ProCurve IDM gives you more control over your networks, more productivity from your IT staff, and more adaptability in an increasingly competitive business environment.

You can use ProCurve IDM to create an intelligent, business-driven network that behaves uniquely and appropriately for every user. For more information on ProCurve Identity Driven Management, please visit www.hp.com/go/hpprocurve.

My ProCurve Portal

The My ProCurve portal secure website provides a single, central location for reviewing information on all of your ProCurve devices. You can sign up to be automatically notified via e-mail when updates become available for devices that you own or are interested in.

Once you've provided your My ProCurve username and password, ProCurve Manager Plus automatically registers all new ProCurve devices on the portal as it discovers them. All of the devices listed on the portal are populated directly by ProCurve Manager Plus – with absolutely no customer intervention required.

You can access the My ProCurve portal from the main ProCurve website:
<http://www.procurve.com>

Benefits of the ProCurve Approach

The Adaptive Edge Architecture

The ProCurve Networking Adaptive EDGE Architecture™ is a unique design strategy that creates a secure, mobile, multi-service network by placing intelligence at the network edge—where users connect and policies are enforced. This innovative approach creates a dynamic network infrastructure designed to keep up with advancing technology and user needs while protecting your business investments.

ProCurve network management solutions provide *command from the center*, where device parameters, security policies and other user-specific parameters can be defined centrally. PCM+/PMM and ProCurve IDM help to overcome the limitations of centralized, host-based security by adding critical access enforcement to the network edge, where traffic enters and users connect with applications. This fundamental shift from core-based security architecture can improve security throughout your network.

Doing More with Less

When deploying a WLAN solution, you need to consider both business and technical needs of your organization. PCM+/PMM allows you to reduce both capital expenses and operating expenses, at the same time improving the productivity of your resources tasked with managing the network.

PCM+/PMM provides a very affordable unified solution for wired and wireless network management. Because ProCurve Mobility Manager is a plug-in module for ProCurve Manager Plus – not a separate management tool – you can reduce management overhead, deriving substantial benefits of using a single management station with the same interface, same console, and same database for both wired and wireless.

Unlike competitor's tools, which rely on separate, fragmented user interfaces and databases to manage wired and wireless network elements, PCM+/PMM uses a single database and user interface for all aspects of the network management life cycle. And it's much simpler to update firmware to network devices or add new management tools such as Identity Driven Manager (IDM) into the ProCurve Plus network: you don't need to spend valuable time synchronizing and updating multiple databases individually.

PCM+/PMM also provides many enhancements to help mitigate potential security threats, including rogue device detection, centralized application of security policies, and automatic configuration checking. These features help to reduce the operating costs of the WLAN.

Because ProCurve solutions are easy to manage, they require less time from your IT staff. Because they're built on open standards, they protect your existing networking investments. And because they are easy to upgrade, you can focus on more important business opportunities.

A Flexible Management Framework

The Configurable Integration Platform (CIP) is a flexible management framework that allows you to customize your ProCurve Manager Plus interface and launch third-party management applications from within the interface.

CIP helps create a “hub-and-spoke” model (figure 5) for network management, where you can tightly integrate the capabilities of the AirWave Management Platform and other third-party applications into the PCM+ user interface. With CIP, customers benefit from the extensive collaboration between ProCurve and best-in-breed providers such as AirWave that deliver rich, specialized management capabilities.

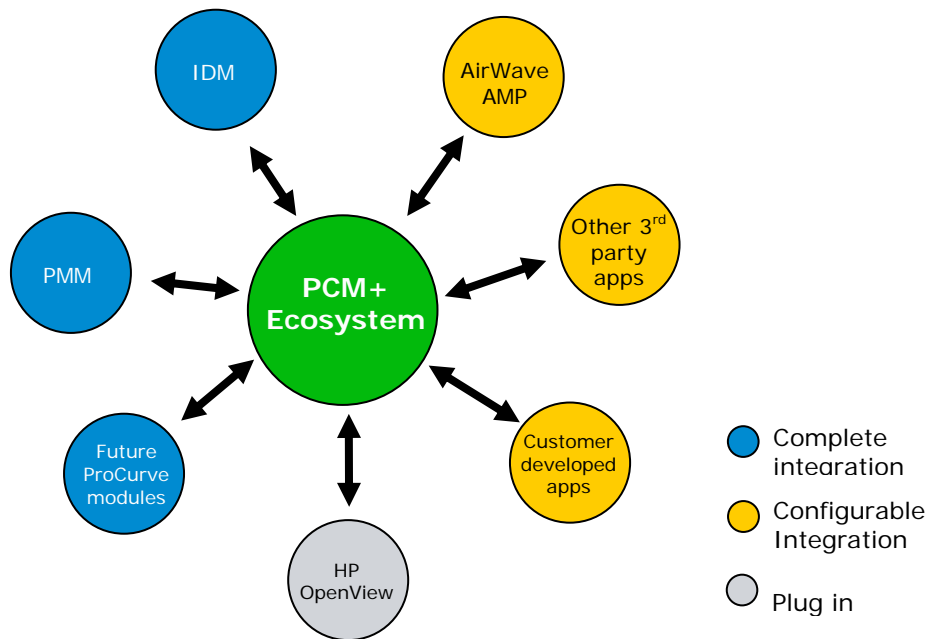


Figure 5: The PCM+ Management Ecosystem

CIP allows you to create user-defined actions and triggers to launch third-party management tools – or any executable application – from directly within the ProCurve Manager interface. You can customize the global toolbar and the menus to add links to additional management tools or to launch policies with a single click.

CIP also lets you define additional devices that are not normally discovered (not natively supported) by ProCurve Manager – for example, a mission-critical RADIUS server or a third-party device. You specify the characteristics that ProCurve Manager will use to uniquely identify the device: the Sys Object ID, the IP Address, the MAC address, the SNMP community names, and any others. Once you have created and properly configured these user-defined devices, PCM Plus can then receive SNMP traps directly within the PCM Event Browser.

Delivering Value to Customers

ProCurve WLAN management solutions continue the tradition of delivering ProCurve value to customers: management solutions that are affordable, easy to use, secure, reliable, and flexible. ProCurve management products enhance security by helping to mitigate common threats for business WLAN environments. By providing affordable, unified wired and wireless network management, ProCurve offers a superior return on IT investment. And ProCurve network management tools are comprehensive yet simple, adaptive and cost-effective, with an easy-to-use integrated interface.

For more information

To learn more about ProCurve Networking solutions, contact your local HP sales representative or visit at: www.procurve.com. To learn more about ProCurve wireless site assessment and installation services, go to: www.hp.com/go/procurveservices. To learn more about Airwave Wireless, go to www.airwave.com.



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