

The Xirrus Wireless LAN Array represents the next generation in enterprise Wi-Fi™ deployment architecture — combining a wireless switch and 16 802.11a/b/g Integrated Access Points in a single device to deliver Gigabit-class Wi-Fi capacity.

The XS-3900 WLAN Array delivers **864Mbps of RF bandwidth** and **4x the coverage** of today’s Wi-Fi solutions — all from a **single device**. The patent-pending WLAN Array can use up to 16 non-overlapping channels simultaneously across the 5GHz and 2.4GHz bands to maximize RF capacity¹. The **embedded Array Controller** performs the functionality found in today’s WLAN switch managing the **16 Integrated Access Points**. The Integrated Access Points are co-located in a circular configuration using a high gain, **Multi-sector Antenna System** delivering increased directional transmit and receive gain in all directions.

The Xirrus approach provides unprecedented capacity, coverage, security, manageability and upgradeability and is completely **Wi-Fi compliant**. The XS-3900 WLAN Array supports 802.11a, 802.11b and 802.11g clients and is **modular in design** to allow upgradeability of its radio technology to support future 802.11 standards — allowing IT administrators to avoid future “rip and replacement” of the WLAN as more clients and applications become mission critical business enablers.



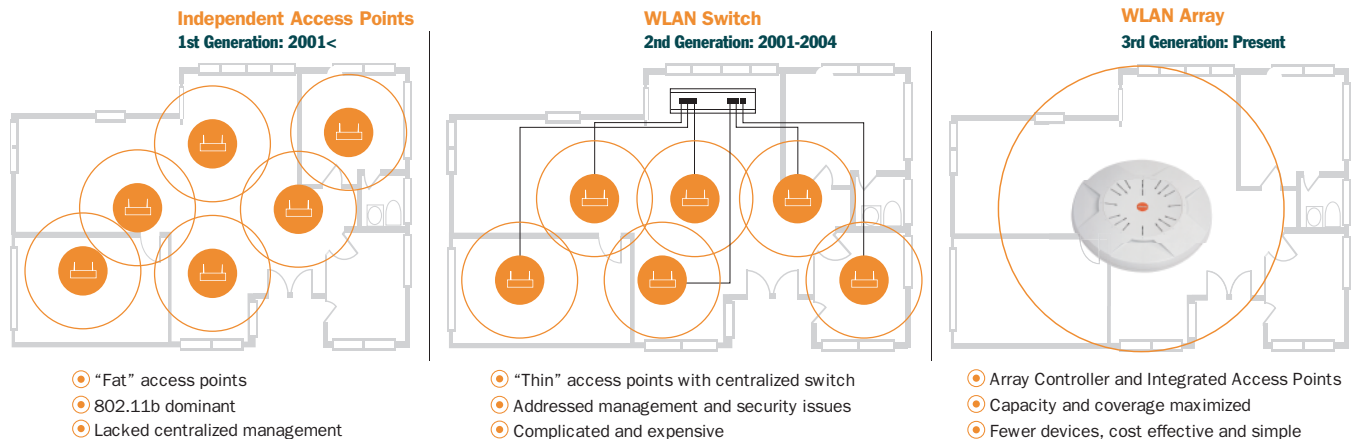
- **Embedded 2Gbps 16-Port Array Controller (WLAN switch)**
- **12 802.11a Integrated Access Points**
- **4 802.11a/b/g Integrated Access Points**
- **High gain, Multi-sector Antenna System**

WLAN Deployment Architectures

Channel reuse, interference and the “collision avoidance” scheme that governs data transmissions for Wi-Fi networks limits current solutions from providing the needed capacity to support large, data intensive networks.

Active clients in these networks must wait for the channel to be clear before transmitting packets, causing wait times to mount as network usage increases — ultimately degrading network performance as each device “listens” before transmitting.

The only means to truly increase capacity in a Wi-Fi network is to simultaneously use multiple non-overlapping channels — the Xirrus WLAN Array is the first to easily accomplish this in a single device.



Xirrus Benefits

Extended Coverage and Capacity

Generates 864Mbps of Wi-Fi bandwidth over an extended coverage area

Allows over 1,000 users to be wirelessly connected to the network

Use fewer devices — simplifies the wireless network

Deploy Once and Forget It

No need to incrementally add capacity or re-engineer and redeploy the wireless network

Secure Wireless Access

Multiple layers of authentication and encryption ensure enterprise-grade secure data transmission

Interfaces with external RADIUS servers for proper authentication of users — includes an embedded RADIUS server to support smaller deployments

Wireless Monitoring

One 802.11a/b/g Integrated Access Point can be dedicated as a RF “sniffer” to monitor for rogue access points and other security threats

Redundancy and Failover

Two Gigabit uplink ports can be configured to provide redundancy

Radio interfaces offer automatic failover capability

Complete WLAN Array Failover capability provided through “hot standby” mechanism

Quality of Service

Wireless capacity that ensures bandwidth for today and tomorrow’s demanding applications such as voice and video

Multiple queuing and prioritization schemes ideally suited for real time applications such as voice

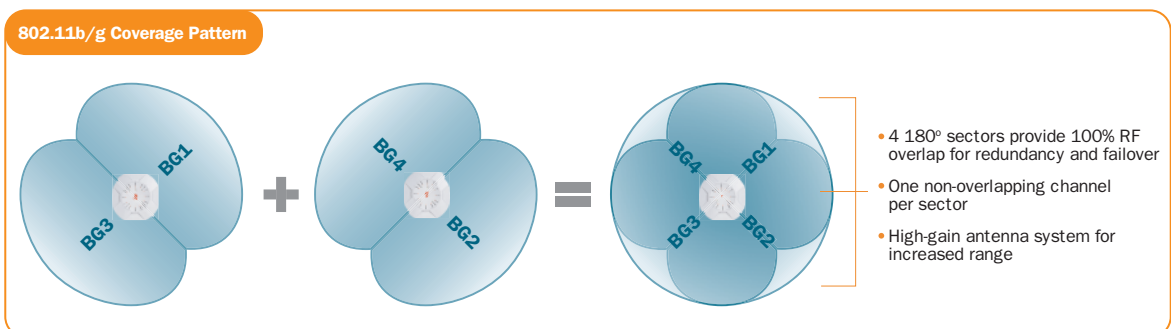
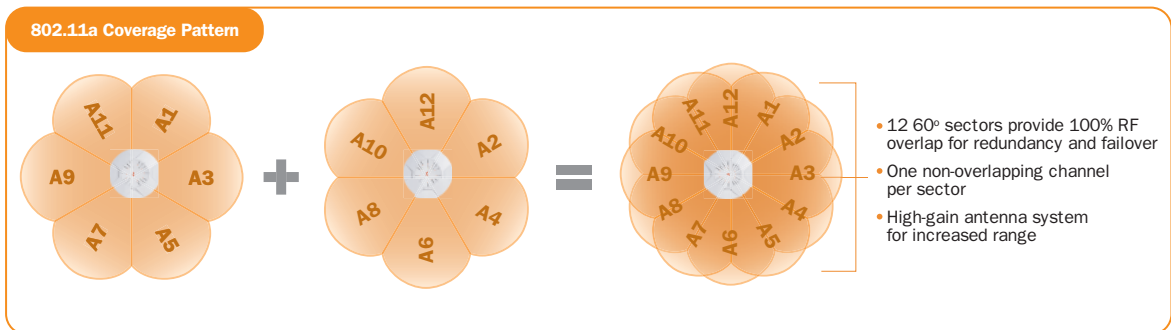
How it Works

At the heart of the XS-3900 WLAN Array lies an embedded Array Controller that uses a **Multi-channel MAC** to control and optimize the multiple RF interfaces of the WLAN Array. The Array Controller is supported by a **2Gbps switching fabric** and controls the packet flows of the 16 Integrated Access Points while providing complete spectrum management through a Multi-sector Antenna System.

The XS-3900 WLAN Array can use up to 16 non-overlapping channels simultaneously to maximize capacity across the 2.4GHz and 5GHz bands. A typical XS-3900 WLAN Array configuration would use 12 non-overlapping 802.11a channels and 3 non-overlapping 802.11b/g channels leaving one Integrated Access Point as a RF monitor.

The Multi-sector Antenna System provides increased directional transmit gain (clients in one direction can hear the XS-3900 more clearly) and provides increased receive gain (allows the XS-3900 to hear clients more clearly from one direction). The result is a sectorized coverage pattern that increases rate and range in all directions.

The transmit power settings of each RF Sector is **programmable**, creating a perfect-fit pattern of desired coverage. **Dynamic Channel Selection** provides automatic tuning of the RF interfaces to optimize network coverage and performance based on changing RF conditions. Channel optimization happens on a per WLAN Array basis or when multiple WLAN Arrays are used.



XS-3900 WLAN Array Capability

Gigabit-class Wi-Fi Capacity

- Delivers 864Mbps of RF bandwidth using an integrated approach to create up to 16x the capacity of devices used in current Wi-Fi deployments
- Embedded 16-Port Array Controller features a 2Gbps switching fabric and provides unprecedented coordination of the RF spectrum, security and Quality of Service (QoS) functions across the Integrated Access Points

Extended Coverage Area

- Uses a multi-sector, directionalized antenna system to create a 360° coverage pattern providing 2x the range in all directions and 4x the coverage area
- Each RF Sector size is configurable, creating an adaptive pattern of desired coverage or to limit RF “bleed” outside of a building

Enterprise Grade Security

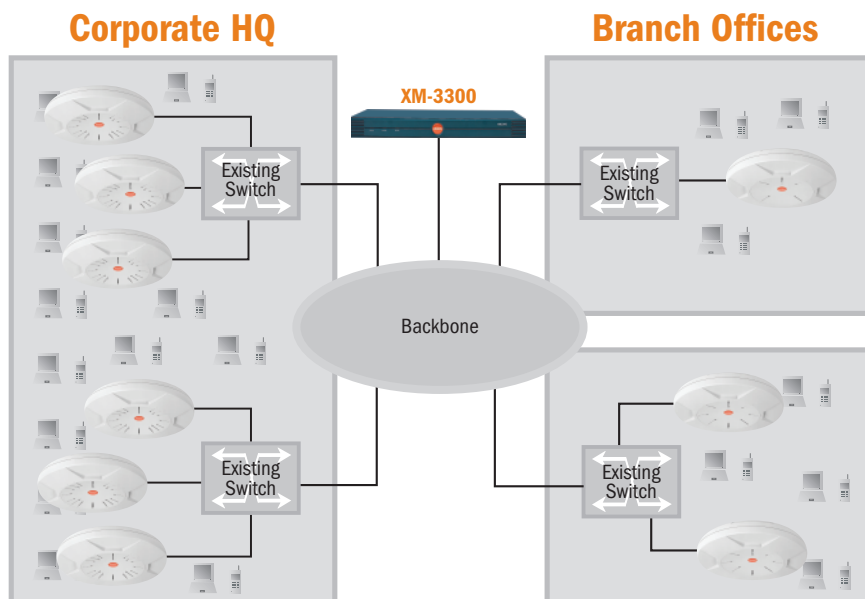
- Supports the latest wireless encryption and authentication standards including IEEE 802.1x, WPA (Wi-Fi Protected Access) and IEEE 802.11i AES (Advanced Encryption Standard) for the protection of data
- Monitor the RF environment for rogue access points and other security threats by dedicating one Integrated Access Points as a full-time RF “sniffer”

Deployment Efficiency — Superior TCO

- Simplifies Wi-Fi deployments by reducing the number of devices to install, manage and service
- Optional Xirrus XM-3300 Management Platform provides centralized management when multiple WLAN Arrays are used

Reliability

- Features multiple points of redundancy within its architecture including failover modes for the dual Gigabit uplink ports
- Adjacent RF Sectors or the internal omni-directional antenna provide proper RF overlap to continue service in the unlikely event of an Integrated Access Point failure
- Complete XS-3900 failover is made possible through a “hot standby” mechanism allowing a secondary Array to take over if the primary unit has failed



Family of Products

WLAN Array

Xirrus offers multiple versions of the WLAN Array to support a variety of deployment types and client migration strategies. Each WLAN Array includes an embedded Array Controller and comes in **16 (XS-3900)**, **8 (XS-3700)** and **4 (XS-3500)** Integrated Access Point configurations.

Management Platform

The optional Xirrus **Centralized Management Platform (XM-3300)** can discover, authenticate and configure up to **500** Wireless LAN Arrays from anywhere in the network.

Remote DC Power System

The optional Xirrus **Remote Power System (XP-3100)** provides a 48 volt DC power source for remotely powering up to 12 WLAN Arrays in the event AC power is unavailable or is cost prohibitive to deploy.

Total Solution

Xirrus developed a family of products delivering Gigabit-class Wi-Fi access with maximum deployment flexibility. Xirrus enables Wi-Fi deployments across a wide range of locations from a single site corporate headquarters to large multi-site branch office deployments.

XS-3900 Specifications

Embedded Array Controller

- 2Gbps switching fabric
- 16-Port Multi-channel MAC
- 768MB RAM expandable
- 128MB system FLASH expandable
- Xirrus PCI-X Expansion Slot for future options
- Line speed performance of Encryption Engines
- Provides easy upgrade path to future 802.11 standards

Radio Interfaces

- 12 802.11a
- 4 802.11a/b/g, one of which can be dedicated as a RF Monitor

RF Bandwidth

- 864Mbps aggregate

Wireless Standards

- 802.11a, 802.11b/g and 802.11g-only modes
- 802.11d, 802.11e, 802.11h, 802.11i

Users Supported

- Supports up to 64 associated users per Integrated Access Point, 1024 users per WLAN Array
- Recommended number of typical users per Integrated Access Point is 20

Wireless Security

- WPA TKIP and AES encryption
- WEP 40bit/128bit encryption
- Rogue AP detection, alerting, and classification
- Denial of Service attack detection
- MAC Address spoofing prevention

User and System Authentication

- WPA Pre-shared Key authentication
- Built-in RADIUS Server
- 802.1x EAP-TLS
- 802.1x EAP-TTLS
- 802.1x PEAP
- MAC Access Control Lists
- Authentication of WLAN Arrays to the Xirrus Management Platform

Multiple SSID Support

- Allows up to 16 separate SSIDs to be defined
- Map Security, VLAN, QoS and Guest Access settings to each SSID

Antenna

- 12 Internal 7dBi 60° 802.11a sectorized antennas
- 4 Internal 3dBi 180° 802.11b/g sectorized antennas
- 1 Internal 2dBi 360° Omni-directional antenna
- 3 RP-TNC connectors for external antennas

Channel Selection

- Manual, Automatic

Frequency Bands 11a/b/g

- 11a: 5.15-5.25 GHz (UNII I)
- 11a: 5.15-5.25 GHz (TELEC)
- 11a: 5.25-5.35 GHz (UNII II)
- 11a: 5.470-5.725 (ETSI)
- 11a: 5.725-5.825 GHz (UNII III)
- 11b/g: 2.412-2.462 GHz (FCC)
- 11b/g: 2.412-2.472 GHz (ETSI)
- 11b/g: 2.412-2.484 GHz (TELEC)

Client Load Balancing

- Automatic between Integrated Access Points through the embedded Array Controller

Quality of Service

- 802.1p wired traffic prioritization
- 802.11e (draft) wireless prioritization
- MAP COS to TCID
- Fair Queuing of downstream traffic

Ethernet Interfaces

- Two Gigabit interfaces (10/100/1000) with failover
- One Fast Ethernet 10/100 interface

Serial Interface

- One RS232 – RJ45 connector

Status LEDs

- System Status LED
- Ethernet (3) and Radio (16) Status LEDs

Networking Services

- DHCP Client, DHCP Server, NTP

VLAN Support

- 802.1q compliant
- Supports up to 16 VLANs

Management

- Web based HTTPS, SNMPv3, CLI via SSHv2, FTP, TFTP and Xirrus Proprietary
- Syslog Reporting for alerts/alarms
- Centralized L3 management of multiple WLAN Arrays via the optional Xirrus Management Platform

Radio Approvals

- FCC (United States)
- ETSI (Europe, In Process)

Dimensions

- Diameter 18.65in (47.37cm)
- Height 3.87in (9.83cm)
- Weight 9lbs (4.08kg)

Environmental

- -10C to 50C
- 0-90% humidity (non-condensing)

Input Power Requirements

- 100 to 240VAC

Safety and EMI Compliance

- UL/cUL EN60950
- FCC Class A

Warranty

- One Year Hardware
- 90 days Software

Wireless LAN Array

Model Number

XS-3900-16

Model Description

- 2Gbps embedded Array Controller
- 12 802.11a Integrated Access Points
- 4 802.11a/b/g Integrated Access Points
- Includes ceiling mounting kit

Ordering Part Numbers

North America

XS-3900-16, AC, NA
XS-3900-16, DC, NA (used with XP-3100)

International

XS-3900-16, AC, EU
XS-3900-16, DC, EU (used with XP-3100)

Other Xirrus Products

XS-3700 WLAN Array

- 1Gbps embedded Array Controller
- 4a + 4a/b/g Integrated Access Points

XS-3500 WLAN Array

- 500Mbps embedded Array Controller
- 4a/b/g Integrated Access Points

XM-3300 Management Platform

- Centrally manage up to 500 WLAN Arrays

XP-3100 Remote Power System

- 48 volt DC power for up to 12 WLAN Arrays



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¹Depending upon regulatory domain, varies by geographic region