Smart Wi-Fi for WAREHOUSES

Ruckus®
Simply Better Wireless.

Smarter Wi-Fi Increases Operational Efficiency

IT'S THE STRONGEST LINK IN YOUR SUPPLY CHAIN.

As warehouses become increasingly reliant on wireless devices and applications to fine tune their logistics business — the need for fast, pervasive, and reliable Wi-Fi coverage is a top priority.

Ruckus delivers better coverage, signal, and throughput for latency sensitive handheld mobile devices that require a constant and dependable connection.

No Ethernet? No Problem

Running Ethernet cable can be a huge challenge for pre-existing structures, and warehouses are no exception. With WLANs quickly becoming the preferred network backbone for application and device connectivity, Ruckus self-organizing and self-healing SmartMesh is the logical choice for extending wireless connectivity across buildings, eliminating the need and additional expense of pulling CAT5 cabling to every Access Point (AP). Ruckus SmartMesh utilizes best path selection and interference avoidance techniques to ensure reliable and ubiquitous Wi-Fi coverage, which is essential for RF-challenged warehousing environments. Ruckus makes meshing as easy as selecting a check box within the Ruckus ZoneDirector interface.

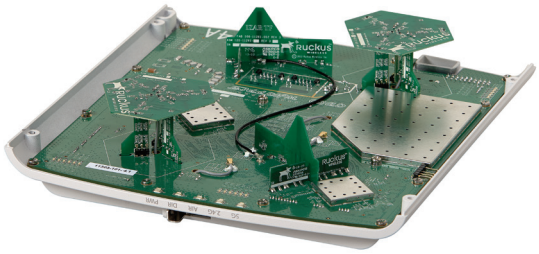
Adaptive antenna technology is ideal for making handheld devices — that are in constant motion — completely reliable.

Simply Better Connections For Mobile Devices

Wireless-enabled handheld devices pose serious connectivity challenges within warehouse environments. Unlike laptops, the orientation of mobile devices is constantly changing, making it harder for Wi-Fi systems to deliver a rock solid signal. Traditional omnidirectional antennas were never developed to deal with this type of mobile client, often resulting in dropped connections and unstable Wi-Fi performance. The Ruckus ZoneFlex adaptive antenna technology selects the best signal path for every packet, even as devices move about or as warehouse configurations change. This patented antenna array automatically detects the client devices and sends signals that are vertically or horizontally polarized — remembering each client and its location. The result is consistent and predictable performance you can count on, particularly in warehousing environments that are in a constant state of flux.

Double Capacity and Coverage With Fewer Access Points

Traditional dipole omnidirectional antennas are not able to alter the Wi-Fi signal path, thus more APs are required to cover a given area. Ruckus changes the playing field with its own patented, high-gain, directional adaptive antenna array integrated into every AP, creating an unmatched wire-like performance with 2 to 4x the coverage range, which on average requires 30 to 50% fewer access points. This translates into lower infrastructure OPEX and CAPEX and a faster return on investment. By employing Ruckus' dual-band indoor and outdoor access points, warehouses can now have an industrial strength Wi-Fi infrastructure that delivers consistent performance everywhere, ensuring zero down time or diminished productivity.



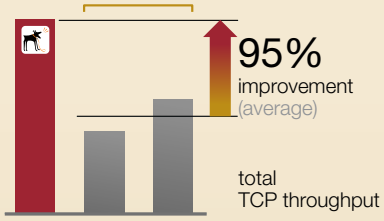
Patented smart antenna arrays in every access point provide longer range and more reliable Wi-Fi connections, requiring fewer APs than competitive alternatives.

Ruckus Smart Wi-Fi delivers
MORE CONSISTENT PERFORMANCE
at longer distances

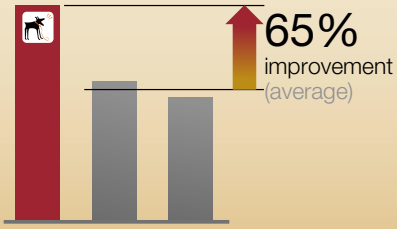
Source: SYRACUSE

High Density: 90 active clients per AP

adaptive antennas + conventional Wi-Fi learning-based SON implementations



Interference: 6 APs, 120 clients, 1 busy rogue AP



Simple, Simple, Simple Configuration

The Ruckus ZoneFlex system is the industry's simplest WLAN system to configure and deploy. It offers one of the most advanced feature sets without the cost and complexity typically associated with high-end Wi-Fi systems. Configured in minutes and deployed in hours, the ZoneFlex system uses an intuitive Web-based wizard. Once configured, APs are simply plugged into a power source or PoE and self-provisioned by automatically discovering the ZoneDirector controller or FlexMaster Wi-Fi management system. APs can be deployed in standalone mode or as part of a centrally managed, full-featured WLAN. ZoneDirector controllers are deployed out of the datapath — eliminating performance bottlenecks or the possibility of becoming a single point of failure.

Client BYOD/Guest Network Enrollment

Ruckus' Cloudpath bridges the gap between enterprise-grade and personal devices to create a secure and simplified Wi-Fi experience that allows BYOD to be adopted in a scalable, secure, and user-friendly manner.

Cloudpath utilizes standards-based security to work with existing infrastructure and provides full functionality with any Wi-Fi solution. Cloudpath solutions deliver secure, reliable connectivity around the globe.

The increasing demand for visibility in today's global supply chain means access to network services are indispensable elements for visitors, contractors, and associates.

TOP 10

RUCKUS DELIVERS TOP 10 WI-FI MUSTS FOR WAREHOUSING

1. **Wi-Fi coverage everywhere**
   2 to 4x coverage improvement through integrated long-range, high-gain antenna arrays integrated within every Ruckus AP
2. **Unparalleled client connectivity**
   Ruckus' adaptive antenna technology has multiple antenna arrays allowing for complete connectivity
3. **Consistent performance at range**
   Ruckus' adaptive multi-antenna technology with client feedback ensures consistent, reliable, and fast connections to the end client
4. **Remote management**
   Indoor and outdoor APs can be managed remotely as one through a single interface
5. **No new cabling**
   Ruckus SmartMesh technology allows for easy meshing to endure coverage without laying new cabling in difficult to deploy environments
6. **Flexible deployment options**
   Deploy APs as stand alone or with the controller; controllers can be onsite or offsite and managed remotely
7. **Location Based Services (LBS)**
   Ruckus offers Smart Positioning Technology (SPoT) providing key location data, such as footfall traffic visualization via heat-map by zone, floor, and venue
8. **Easy to configure and deploy**
   For warehouses with limited IT resources, Ruckus' graphical user interface is easy to use and understand
9. **Simple security**
   With dynamic PSK, you can be assured of deploying a secure network without the need for extensive IT resources or security expertise
10. **Client Network Enrollment**
    Ruckus Cloudpath provides secure BYOD/Guest network onboarding.

Advanced Wi-Fi Management That's Ultra Intuitive

Management and administration of a wireless LAN system has never been simpler—whether onsite or remote. No complex or difficult to understand menus full of confusing options. Instead, administrators simply point and click through an intuitive, graphical user interface, purposely designed for simplicity. A customizable, widget-based dashboard provides a complete at-a-glance view of the system that includes information about system usage, recent user activity, most active clients, most frequented access points, rogue devices, and real-time statistics — simplifying the troubleshooting process — perfect for warehouse environments with an already overextended IT staff.

Long-range, point-to-point/multipoint 802.11ac extends broadband connectivity.

Long-Range Wi-Fi Broadband saves Big Bucks

To save time and recurring monthly broadband charges, warehouses can use long-range smart Wi-Fi bridges over distances of 1 to 8 miles. 802.11ac 5GHz Wi-Fi bridges deliver from 50 to 500 Mbps of high-capacity broadband connections into warehouse facilities — saving potentially tens of thousands of dollars every year by eliminating costly fixed line connections to remote sites.

WELSPUN Corp Ltd

Pacific Seafood

TVS

PEIXOTO

WOW LOGISTICS

Schiavello

FRANK MILLER™ Quartersawn Hardwood

PREMIUM FRUITS FRUIT PATCH

GSPC

ADI Logistics

we're feeling the love

from a marquee list of

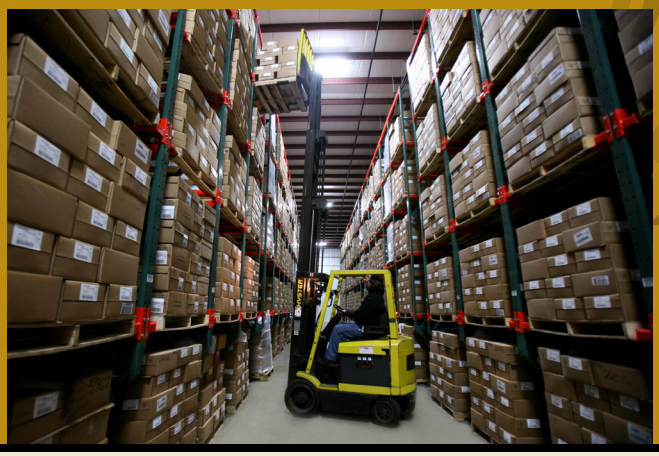
WORLD-RENOWNED CUSTOMERS

"We have a very diverse set of businesses, applications, users, and devices — all of which require robust wireless to maintain operational efficiency. The adaptive antenna technology eliminates flaky coverage and reliability issues that have plagued Wi-Fi in the past."

Nathan Wiegand
Network Manager

Pacific Seafood

RUCKUS BENDS Wi-Fi SIGNALS at WOW Logistics



Warehousing Companies Are Choosing Ruckus Smart Wi-Fi Solutions To Solve Challenges

PROBLEM	RUCKUS SMART WI-FI SOLUTION
Spotty Coverage	Ruckus' adaptive antenna technology extends Wi-Fi signals 2 to 4x times farther, requiring fewer APs per location
Complex Installation And Management	Long range high-gain access points require fewer nodes to cover a given area and allow Wi-Fi services to be offered in areas where Ethernet cabling doesn't exist or can't be pulled via advanced wireless meshing
Recurring Monthly Broadband Costs	Long-range 802.11ac Wi-Fi point-to-point/ multipoint bridges eliminate fixed broadband costs while delivering 50 to 500 Mbps of connectivity at a distance of up to 8 miles
Controllers In Each Warehouse	The ZoneDirector allows IT administrators to remotely manage warehouses throughout the network through one controller
Unified Network	Indoor and outdoor networks access points mesh together and managed centrally by the ZoneDirector
Extends Wi-Fi to Areas Without Ethernet	Provides meshing for indoor and outdoor APs that enables Wi-Fi signals to be extended without Ethernet drops and remotely managed by the ZoneDirector
Too Many APs To Manage	Requires one-third to one-half the number of APs over conventional omni-directional Wi-Fi products
Unstable Wi-Fi Connectivity	Patented adaptive antenna technology dynamically forms its beam on roaming clients ensuring stable connectivity and mitigating packet loss to ensure the highest performance

WOW Logistics, one of the nation's largest 3PL companies, manages millions of dollars of customer inventory throughout its warehouses. With 23 locations spanning nearly 7 million sq. ft., ceiling heights ranging from 35 to 40 feet tall, and drive through steel racks that go five pallets high and four pallets deep, WOW needed a Wi-Fi solution specifically designed to adapt and deal with their ever-changing, obstacle-ridden RF environment.

With requirements that ranged from providing wireless for inventory tracking, back office applications, to guest and employee access — WOW wanted an 802.11n solution designed to provide pervasive wireless connectivity — no matter what.

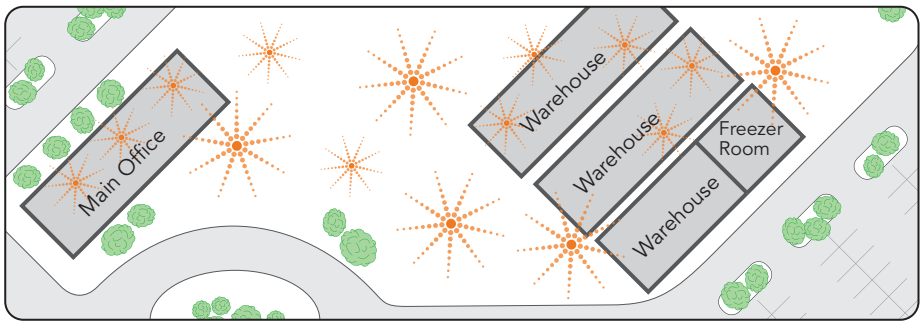
Meeting their financial, coverage, and throughput requirements, WOW replaced its legacy Motorola APs with Ruckus ZoneFlex dual-band 7363 APs at its corporate headquarters and Ruckus ZoneFlex 7962 APs at all of their managed warehouse locations.

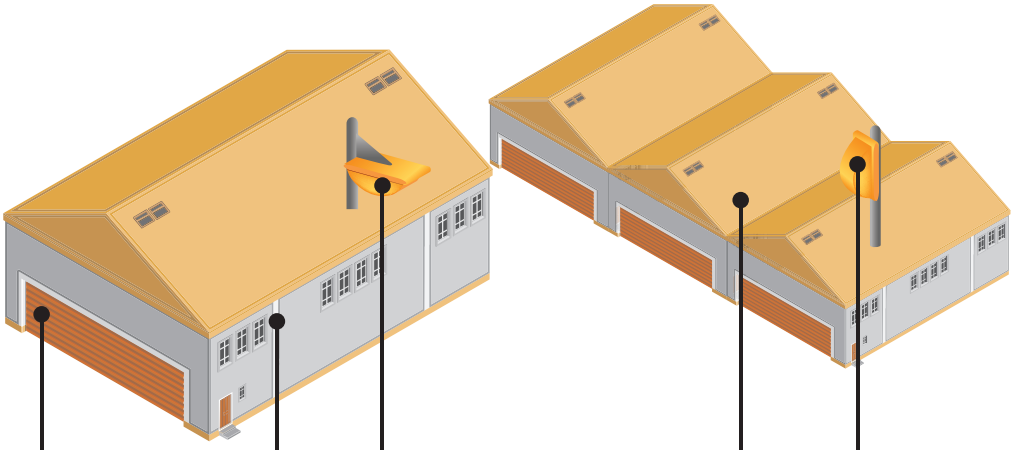
"Large warehouses pose unique RF propagation problems for any Wi-Fi system because the environment is in constant motion, said Dave Christianson, Network Administrator, WOW Logistics. "Without a solid Wi-Fi system our business literally stops; instead of worrying about our wireless network, now we can leverage the Ruckus system to create more business efficiencies that will enable us to better serve our customers."

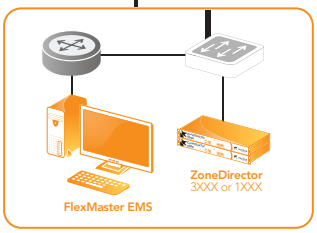
Looking ahead, WOW is interested in rounding out their operations by adding wireless location-based tracking and video surveillance.

Ruckus Smart Wi-Fi Delivers Warehousing's Most Flexible Deployment Options

INTERNET ACCESS, VOIP, GUEST NETWORKING, LOCATION BASED SERVICES, BOM IMAGING, BACK OFFICE ADMINISTRATION, STAFF ADMINISTRATION, SUPPLY CHAIN OPTIMIZATION

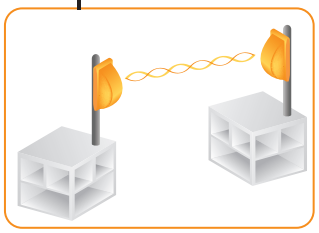






End-to-End management with controllers or software

Dual-band outdoor APs adaptively mesh with other indoor/outdoor APs



Long-range point-to-point/ multipoint 802.11ac Wi-Fi bridging

Advanced and intuitive Wi-Fi troubleshooting tools

Dependable connectivity for mobile users/devices

Complete Portfolio for WAREHOUSING

ZoneFlex R710

Indoor dual band 4x4:4 802.11ac AP with integrated smart antenna array and PoE (802.3af/at) support

ZoneFlex R500

Indoor dual-band, 2x2:2 802.11ac AP with integrated smart antenna array and PoE (802.3af/at) support

ZoneFlex R310

Entry level dual band, 2x2:2 802.11ac AP with integrated smart antenna array and PoE (802.3af) support

ZoneFlex T300

Outdoor dual-band, 3x3:3 802.11ac AP with integrated smart antenna array and PoE (802.3at/af) support

Cloudpath

Cloudpath creates a Set-It-And-Forget-It Wi-Fi experience that allows BYOD to be adopted in a scalable, secure, and user-friendly manner

SPoT

Cloud-based Smart Wi-Fi location-based services (LBS) user positioning technology suite and API

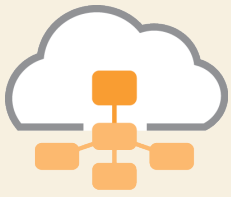
ZoneDirector Controllers

Central wireless LAN controllers supporting from 6 to 1,000 Ruckus APs

SmartZone Controllers

Industry's most scalable and versatile WLAN platform

Virtual SmartZone



Linux-based remote Wi-Fi system management software

Ruckus
Simply Better Wireless.

Smart Wi-Fi

Designed and Built for **Pervasive Performance**...
Available from **Ruckus Wireless**

Ruckus Wireless, Inc.
350 West Java Drive
Sunnyvale, CA 94089 USA
(650) 265-4200 Ph \ (408) 738-2065 Fx

www.ruckuswireless.com