

# WIRELESS IN-GAME TECHNOLOGY: IT'S ALL ABOUT THE FAN EXPERIENCE



The proliferation of smartphones following the first introduction of the iPhone has profoundly changed the way in which we interact with data networks and the Internet, the frequency of those interactions, and the places in which we expect network access to be available.

Today, a rich multimedia experience, ubiquitous network access, and on-demand Internet resources define our expectations wherever we live, work, or play.

How and where we connect to a network informs our experience. Cellular networks deliver a great Internet browsing experience in open areas, but fall short in sports stadiums when thousands of fans want simultaneous access to video replays.

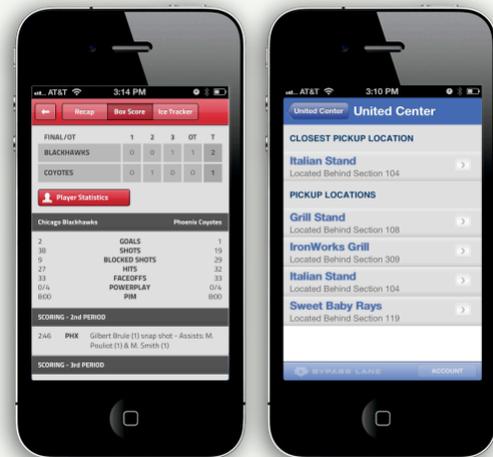
In these environments the sheer number and density of users overwhelms even the newest 4G cellular network. These capacity issues are driving cellular network providers to offload data and video traffic to Wi-Fi to preserve bandwidth for voice calls.

But not all Wi-Fi solutions are created equal. While it's true that the underlying protocols for quality-of-service (QoS) over Wi-Fi were standardized years ago, adhering to the standards alone is not sufficient to build superior multimedia-enabled Wi-Fi networks.

Such networks need to dynamically and automatically tune themselves in real-time to ensure that latency-sensitive multimedia traffic obtains end-to-end QoS, especially under overload conditions and in the face of RF congestion.

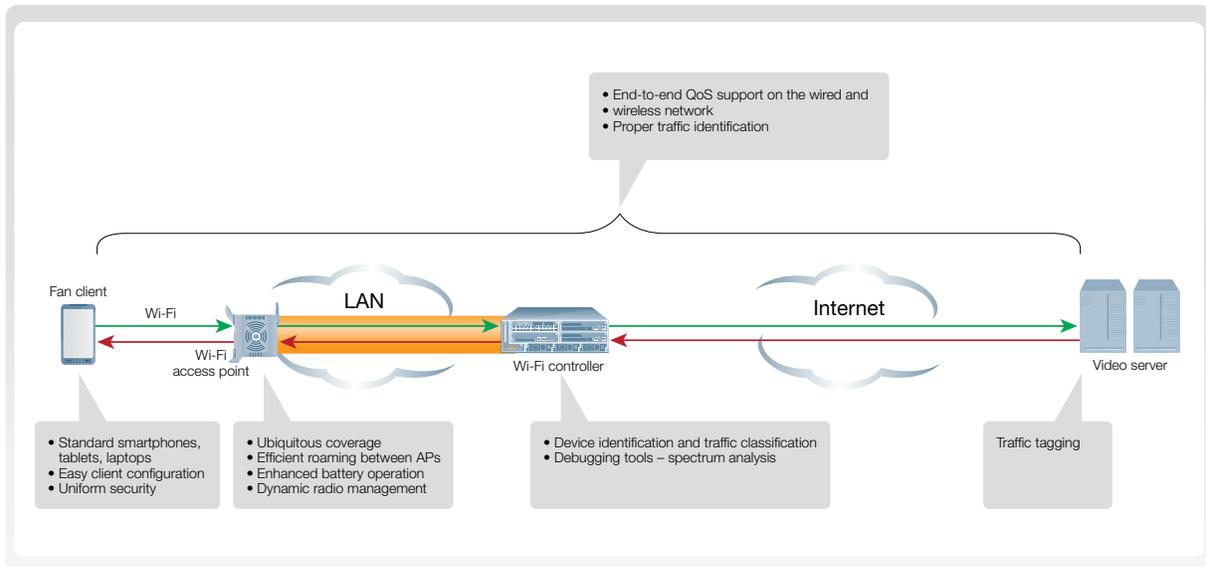
## UNITED CENTER

United Center in Chicago is one of the first venues to benefit from the joint solution. The Center covers 960,000 square feet (89,187 square meters), and is one of the top three largest and busiest multipurpose arenas in North America. Home to the Blackhawks hockey and Bulls basketball teams, the arena seats over 20,000 fans.



Fans at the United Center use their smartphones to obtain YinzCam on-demand video replay, sports statistics and order food and beverages over the facility's high capacity Aruba wireless network.

The system provides fast, jitter-free, uniformly distributed video replay. Quality of Service is uniform across all seats and boxes, benefits that apply to even the largest venues.



*By integrating YinzCam video services with Aruba's application-awareness technology, end-to-end QoS is obtained all the way from the video server to the fan's smartphone.*

Aruba's unique application and device fingerprinting technology identifies multimedia streams in session and the devices from which they originate. The network then dynamically conditions itself to deliver QoS – on an application-by-application, device-by-device basis – as needed to ensure highly reliable multimedia application delivery.

Aruba Wi-Fi networks also adapt automatically to the changing RF environment typical of today's businesses. Adaptive Radio Management™ (ARM) technology shifts devices away from the noisy 2.4-GHz band to the quieter 5-GHz band, adjusts radio power levels to blanket coverage areas, load balances by shifting devices between access points, and even allocates airtime based on the capabilities of each device. The result is a superb fan experience without user or IT involvement.

Since every facility, team, and event has special networking requirements, it's essential to offer fine-grained control over network access and services. Aruba's ClearPass engine provides visitor management support with differentiated services based on identity, loyalty status, location, event, and date.

It also enables enhanced network services and application delivery to sponsors and in boxes. Every constituent group benefits from a tailored, differentiated experience.

## IN-GAME FAN EXPERIENCE APPLICATION

The in-game experience hinges on the fan and team management application to originate and manages multimedia video content. Just as Aruba pioneered application-awareness in Wi-Fi, so too did YinzCam define the experiential in-game fan high-definition video system space.

Based in Pittsburgh, Pa., and leveraging technology developed at Carnegie Mellon University, YinzCam accesses live television feeds and sports statistics and makes them available on-demand via fans' own smartphones and tablets.

Since proprietary fan hardware is not required, and video processing is managed in the cloud, YinzCam's in-game application is less expensive and easier to deploy than competing solutions.

Teams that deploy YinzCam expect users to have video and data access on time, every time. In-game technology is as much a team branding experience as it is a fan entertainment application.

Selective service delivery to loyalty club members, and differentiated content in sponsor game zones, can be monetized and has tangible value. The same is true of concession ordering and wayfinding. There's no latitude for video jitter, signal delays, or dropped connections.

By integrating YinzCam video services with Aruba's application-awareness technology, end-to-end QoS is obtained all the way from the video server to the fan's smartphone. Aruba QoS mechanisms ensure the integrity of the YinzCam video replays, while ARM delivers uniform Wi-Fi coverage throughout the stadium, boxes, and concession areas.

Only thru this integration can the combined solution deliver unprecedented HD video in even the largest stadiums.

Differentiated service and application delivery allows the teams to tailor the fan experience based on the event type and loyalty club status. And like all Aruba deployments, extensive network security features protect fans, team reputations, and the venue's infrastructure.

For additional information about how Aruba Wi-Fi enables mobility in large public venues, please go <http://www.arubanetworks.com/lpv>.

### KEY FEATURES OF ARUBA'S WI-FI INFRASTRUCTURE:

- Auto-adapting wireless
- Centralized visibility and management
- Visitor management
- Best-in-class network security
- Massively scalable, field proven
- Local and remote diagnostics
- End-to-end multimedia quality-of-service

### YINZCAM'S RICH SET OF TEAM MANAGEMENT APPLICATIONS:

- Real-time analytics
- Dynamic advertising management
- Push notifications
- Concessions and amenities
- QR-code management
- Contest management
- Exclusive content
- Fan-loyalty programs



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