



## Stream Audio to Smartphones from TVs in Sports Bars and Restaurants

Numerous venues are adopting solutions that stream TV audio over Wi-Fi to patrons' smart phones. By downloading a free app, customers can hear any muted, live TV directly on their smartphone.

Several companies now offer solutions to the number one dissatisfier in sports bars, the inability to hear the game. Numerous venues are adopting solutions that involve streaming the audio over Wi-Fi to the patron's smart phone. Our recent survey has shown that 37% of bars have had someone leave because they cannot hear the game.

### What was that ref call?

Over the years there have been several attempts to solve the muted-TV problem, including the creation of small rooms, directional speakers, and tabletop speakers.

The nature of directional speakers means that they generally work better in demo mode than in the real world, where hard reflective surfaces abound sending the sound careening long distances

Tabletop speakers have challenges with wiring, abuse, and theft. People are a lot less inhibited about pouring beer on a venue's tabletop speaker than they are about drowning their personal iPhone.

Today, mobile technology brings the power of personal audio devices to smartphone and tablet users.

### Who uses this solution?

The segment of the bar-going population to which the smart phone solution most appeals is the individual going to the bar for a brew and to listen to the game. They are a fan (a word derived from the root word "fanatic"), and most of these people are the "regulars"- the pillars of any business. According to our survey results, two-thirds of sports bars have someone ask for the sound on a particular game at least once per week

The other type of patron that tends to be a big user is the person from out of town. They are often traveling alone, have a spouse at home, and their home team game is on a TV but is not playing over the speakers.

Our recent survey revealed that 38% of sports bars have had customers leave because they cannot hear their game.

In our highly mobile society, people are often in one city trying to watch a game important to them yet they cannot hear it because their home team is not where their beer has been served.

In September, the NFL typically plays six to eight teams at the same time. And, college football presents a real opportunity. According to Vicki Frantz, V.P. Marketing for Buffalo Wild Wings in Chicago, the desire to be able to listen to an out-of-town team is particularly common for her customers.

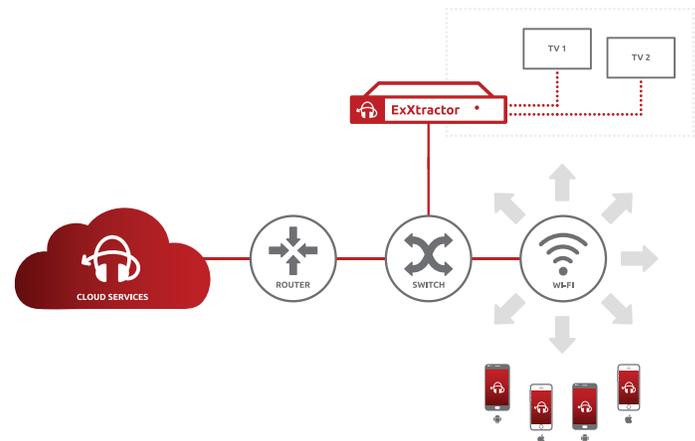
With Audio Everywhere, our customers can turn their smartphone into their personal listening device. We're able to attract more customers who stay longer because they can actually hear the sound of the TV they choose or, if they are into fantasy sports, switch back and forth.

Alfred Anderson, Owner  
Chaplin's Sports Bistro - Union City, CA

Joe Kirley, one of the pioneers of the industry, has a thesis that the bars' largest opportunity is actually not sports, but rather shows where the dialog is critical. Patrons certainly come to the sports bars to watch the Big Game, but big games are only on less than 1% of the time. However, most of the more popular TV shows are those where the dialog is essential, e.g., Sports Center, Sports Talk, NFL Live, NCIS, Breaking Bad, Big Bang Theory. Joe speculates that this is the place where one can really make the system pay the bills by bringing in people who today watch these shows at home for the simple reason that they cannot hear them in a bar.

## How does it work?

These systems tend to have three components. First, there's an app for that. Generally everyone in the space supports iOS and Android.



Second, there is an appliance in the venue that, at its most basic, takes line-level audio out of the TV receiver, converts it to a digital stream, compresses it, and streams it out over the local area network to the Wi-Fi access point and from there to the smart phone. By keeping the data transmission local, minimal stress is put on the data pipe to the Internet. There are also no copyright complications such as one would potentially have setting up an unlicensed Internet radio station to rebroadcast NFL copyrighted content.

Finally, some systems also have cloud management, which enables timely software updates as well as customization of the app by the venue owner.

## Marketing, branding and social media

Systems range from simple audio-only devices to those that offer robust opportunities for owners to upload their logo to easily create custom branded apps. The Audio Everywhere system enables owners to upload coupons and create pre-roll



videos and scrolling in-app banners that customers can click through to websites and promotional landing pages.

Many venue owners understand the power of branding and use the app customizing tools to promote specials, menus, events and discounts. We have seen that a majority of sports bar venues add this service on top of the basic audio capability.

## Other languages

An opportunity people often miss in thinking about these systems is transmitting the audio in more than one language. Wouldn't it be better to transmit the audio to the World Cup in Spanish and English simultaneously? All you need is two TV receivers, one tuned to the main language and the other to Secondary Audio Programming.

## How can owners ensure that patrons know about and use the system?

The science is clear—if people don't know about the system, they don't use it. We see a 10x difference in usage between bars that promote the service from those that don't.

Promotional methods include TV signs, posters, coasters, napkins, table tents, digital signage, and, of course, the servers. Our experience is that usage of the system doubles when the wait-staff is trained.

## Why quality Wi-Fi counts

The quality of the audio in sports bars is a key to customer satisfaction. In many instances, the acoustics in bars and restaurants are so poor that even when the game is played over the speakers, the game can be heard much more clearly over the smart phone.

The quality of the Wi-Fi is the single biggest determinate of the quality of the audio for the better systems. We recommend that people use a dual-band enterprise-grade Wi-Fi such as Ruckus, Cisco, HP, Meraki, or Ubiquiti running 802.11n or, better yet, 802.11ac. This is because properly implemented Wi-Fi audio systems use VoIP-like protocols that depend on the quality of service (QoS) network priority having been set correctly and systems 802.11g or older generally do not have those QoS capabilities. Ideally, the system should be integrated with the public hotspot so that people can check their Facebook or fantasy sports while listening to the program.

It is tempting to try to use broadcast mode with Wi-Fi but this can be problematic. One of the idiosyncrasies of Wi-Fi broadcast algorithm is that it will slow down to the slowest client so that ancient Android in booth seven can slow everyone else down. Some enterprise-grade Wi-Fi's can compensate for this by converting broadcast into multicast, but then one is depending on the specific installation. In our experience, the vast majority of the field issues have to do with the network environment. Audio-side issues are rare.

## What about lip-sync?

The lip sync between the talking heads on the screen and the dialog heard on the smart phone is a key technical issue. For most systems, the audio latency is between about 70 ms to 250 ms. (That's milliseconds!)

Modern TVs buffer several frames so this works out OK. When the Wi-Fi is adequate, listeners are almost always OK with the lip sync, which is generally within a syllable.

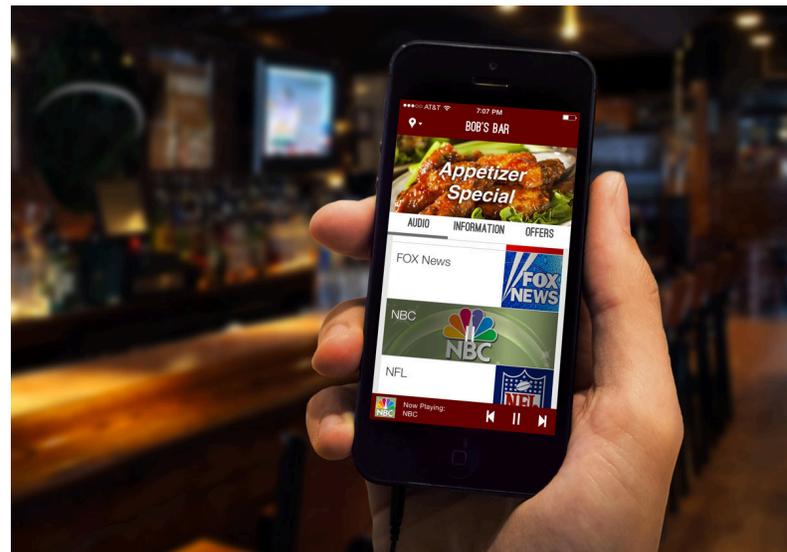
End users who are sipping beer are delighted to be able to hear without getting a kink in their neck staring at subtitles that are off by 10,000 ms. If the lip sync is within 200 ms, people can comfortably watch dramas, comedies, and talk shows with extensive dialog. Today, people interested in such content have no opportunity to watch such shows outside the home.

## Is it important for customers to switch quickly between TVs?

Yes. Recall our previous discussion about who uses the system. Those people are the sports fanatics who came to watch the game. These folks are also the ones who are also likely to be playing Fantasy sports, in which case their "team" is spread among many real teams and they will want to be able to switch quickly from one screen to another. If a customer has to get out of his seat to walk up to a TV to scan the screen image with their phone in order to listen, then changing TVs represents a barrier to that customer's in-app experience,

and effectively makes the system unusable by the fantasy sports fanatic.

Systems and apps that enable easy and quick selection from all your venue's audio sources are here, so there's no need to take a step backwards when adopting the solution for your venue.



## What should I tell my IT team?

The first point to mention is that it is best to combine the Wi-Fi audio streaming system with the public or hot-spot Wi-Fi, if possible. This is because most people want to be able to do something else on their second screen, e.g., update their Facebook, while listening.

70% of fans use a second screen while watching football on TV.

Brian Rolapp, NFL V.P. of Media

We have an extensive [checklist](#) for IT managers and installers for Wi-Fi audio.



Highlights:

- Use simultaneous dual-band access points.
- 802.11 ac or better.
- Set the access point bandwidth to 20 MHz.
- Never use TKIP encryption.
- Do not use mesh or multi-hop networks for low-latency audio.
- DHCP range should be at least 200 users.
- IP lease times should be around 4 hours = 14,400 seconds.
- BSS minrate set to about 12,000.
- Band steering on.
- Airtime fairness on.

What should I tell my Audio person?

The line-level audio is the lowest common denominator. Generally, this signal should be grabbed directly from the receiver, e.g. DirecTV, if possible. Microphone inputs, if any, will need a pre-amp or mixer. Lines up to about 25 feet can be run single-ended but for longer runs up to 200 feet, use a balun to transform the signal to differential in order to reduce noise. One will then need to adjust the gain knob in the system to get the right audio output level.

Conclusion

Solutions that offer streaming live TV audio over Wi-Fi to patrons’ mobile devices are being adopted at an increasing rate. They offer patrons an engaging and enriched live TV viewing and listening experience. Some systems also provide robust marketing and branding capabilities for the venue owner. Helping patrons to hear what they’ve been missing is proving to be a WIN for all concerned.



About Lance Glasser

Lance is the founder and President of Audio Everywhere, the leading provider of high-quality streaming audio solutions for fitness centers, bars, restaurants, casinos, and a range of other environments.