

JDL Technologies is a Meru Platinum Partner, and has most recently deployed Meru wireless networks throughout the Miami-Dade County Public School District.



## Testing 802.11ac on Campus

---

Products have begun appearing in the market to take advantage of pending Wi-Fi standard 802.11ac, which is the presumed replacement for 802.11n. Already both Samsung (with its Mega and Galaxy smartphones) and Apple (with its MacBook Air laptops) have released mobile devices primed to exploit the faster data transmission speeds, better reliability, and more robust wireless promised with 802.11ac.

While IT leaders may choose to wait a year or two before they start diverting resources to this new high-capacity Wi-Fi standard, there's also a strong case to be made for testing it out in a limited manner now in order to understand its eventual optimal use on campus. For instance, long-term planning for new construction arguably will encompass networking infrastructure that's laid out quite differently from the infrastructure in place today.

That's the thinking behind a pilot project taking place at the University of Houston in Texas. David Johnson, who directs technology services and support at the 41,000-student institution, says, "We need to know this technology now because the next new building going up in two years is going to have it. We better know now how to deal with it."

### Methodical Testing



Johnson is being methodical in how he approaches his testing of 802.11ac. That starts with setting a long-term question that frames how the pilot should proceed: What role should this potentially gigabit Wi-Fi play in responding to increased demand for Internet access everywhere on campus?

To his thinking, the ultimate goal is eliminating the pricey cabling inherent in wired networking, particularly to user desktops. Although the physical network still needs to exist, by moving users to Wi-Fi on 802.11ac, it may be possible to "totally change your environment," he explains. "If we can support all these applications now on Wi-Fi—voice over IP, Adobe Connect, desktop app sharing, unified communications—do we need to build out this huge copper infrastructure?"

As an example, in the past, when a user needed to change offices, a technician would be sent out to activate a data port and a phone jack in the new space. Then it was up to the user to adhere to the room design to make sure those ports were accessible. Their positioning influenced every other aspect of design in that office.

Wi-Fi, however, is portable. There's a huge amount of flexibility with how the office space is used -- or if it's used. "I [can even] walk outside and sit at a picnic table and have a phone call with you," Johnson notes.

### Selective Partnering and 802.11ac Placement

Johnson and his team chose to work with the same wireless networking company that is helping it deliver the 802.11n network: Meru Networks. "We paid for Meru's premium support.

We had a Meru engineer on site with us who was working with our team to help engineer this rapid expansion. The knowledge transfer was great."

IT has been highly selective about the environments in which to run the pilot. Recently, the IT organization deployed 27 of Meru's AP832 access points throughout its University Center Satellite. According to Johnson, this building is one of the "densest and most diverse places on campus," packed with people eating in its food court, playing in its game room, or meeting in one of the student activity offices. "The maximum number of devices we've had logged on was 504, all within a single open space."



The way Johnson sees it, the UC Satellite serves as a harbinger of Wi-Fi adoption practices across the campus. "If 11ac is going to come onto campus, we're going to see it come in at the Satellite," Johnson explains.

The university has also acquired a number of USB 802.11ac adapters that the IT team will hand out to users to plug into their devices in order to gauge how well performance will stand up in the face of ever more demanding network traffic. "We're not sure we're going to have sufficient 11ac penetration to really test it," Johnson notes, "so we're going to go in and really put a load on this."

### **Measuring Results under Extreme Classroom Loads**

Shortly, Johnson also expects to set up a second test project in a "model classroom," where students and faculty could be issued laptops outfitted with 11ac Wi-Fi cards. "No one will be plugged into wires," he points out. "And we'll be using desktop collaboration in the classroom between the faculty and the students through those Wi-Fi devices." In other words, the network will be pushed to extremes in the same way it always is when a bunch of people are doing digital learning in an enclosed space.

"Of all the things we can do, that is probably the most controlled environment," he says. "It will allow us to test some very specific academic technologies to see how much bandwidth they use, how 11ac will support them, and really know if this is the technology that is going to support the academic environment in the future so that we don't need wires anymore."

Johnson is making sure to measure the results. Every day his team will do a virtual count of devices using 802.11ac on the network to monitor its growth on campus.

Also, a pair of graduate students goes out and tests the Wi-Fi around campus every day. "They walk the 'circuit,'" he says. "We have a testing regimen. We have a speed test site on the edge of the campus, and so they're doing a test of the speed. We can monitor the performance for the user in almost real time so we can actually see if there are issues with the Wi-Fi in a particular location."

IT at the University of Houston is determined not to find itself behind users as their wireless networking needs grow. Wi-Fi, says Johnson, "is really an empowering technology for the faculty. It's an empowering technology for the students. This is where universities need to go."