

The Las Vegas Convention Center Launches One of Nation's Largest Antenna Systems for Enhanced Mobile Experience

LAS VEGAS – December, 16, 2016 - Imagine packing the power of fourteen cell towers inside a single convention facility. That's exactly what the Las Vegas Convention and Visitors Authority (LVCVA) has accomplished at the Las Vegas Convention Center (LVCC). Continuing its commitment to ensuring the facility is the most technologically-advanced convention center in the United States, the LVCVA has successfully launched one of the nation's largest Neutral-Host Distributed Antenna Systems (DAS) throughout the property.

Through a partnership with Cox Business/Hospitality Network and InSite Wireless Group, LLC, clients and guests visiting the LVCC will benefit from state-of-the-art wireless voice and data cellular services that are now being transported over the new DAS. This development will provide wireless subscribers a better convention experience as they navigate the LVCC's 3.2 million square feet, or roughly 26 football fields, of space.

"Today's world is a wireless world, and to provide a first rate customer experience, we have to have the infrastructure to ensure visitors have seamless coverage and service," said Hugh Sinnock, LVCVA's vice president of customer experience. "Investments like this will continue to provide our clients with the best possible tools for conducting business."

"With the support of our partners at InSite, we've constructed a neutral host DAS infrastructure that will provide reliable, high-speed cellular connectivity within the Las Vegas Convention Center," said Derrick R. Hill, vice president of Cox Business and Hospitality Network in Las Vegas. "As a result, cell providers will be able to give their customers improved coverage and this will enhance the overall convention center experience for attendees and guests."

In addition to the center's existing high-density Wi-Fi network, the capacity of the new cellular DAS is immense. With an ability to deliver service to more than 100,000 guests simultaneously, visitors to the LVCC can expect faster download speeds on their smartphones than typically provided on most corporate networks

Four major U.S. wireless carriers have signed agreements to launch this service. The system can simultaneously accommodate traffic from all of the participating wireless carriers; serving the exploding wireless voice and data demands that are common at today's high attendance, technology-rich trade shows and events.

The approximately \$18 million DAS project took three years to plan and ten months to build. The job was so

large that four separate installation contractors split up the work, tackling different areas of the campus simultaneously. In addition, various specialized construction trades from HVAC to electrical to fire suppression to custom fabricated steelwork were used to support the massive equipment and antenna infrastructure.

The LVCC DAS incorporates a future-proof design; allowing for enhancements as new wireless technologies are developed. The infrastructure can be equipped for upcoming (5G) cellular technology once these services are offered to the public and subscriber equipment becomes available. The LVCVA will work with Cox, InSite and participating carriers to extend the DAS infrastructure into upcoming LVCC facilities currently being developed.

The DAS concept is built on the engineering principle that a linked network of low-powered, spatially separated antennas and repeaters providing overlapping coverage within the confines of an enclosed area improves cellular capacity and reception, eliminates dropped calls and heightens the user experience. The system is comprised of common fiber optic, radio, and antenna infrastructure maintained by a dedicated InSite technical staff.

Overall DAS specifications:

- DAS core equipment provider: Corning
- 44 zones – 38 indoor and 6 outdoor
- 5 indoor, monitored DC power plants
- 52 remote locations in existing IDF closets and catwalk locations
- DAS system technologies: UMTS, CDMA, , LTE, , TD-LTE
- 116 four-band HX Remotes 700, 850, 1900 and 2100 MHz bands
- 116 five-band HX Remotes 700, 800, 850, 1900, and 2100 MHz bands
- (52) 2500 MHz Remotes
- (24) 2300 MHz WCS Remotes
- 48,000 feet of ½” coaxial cable (9.1 miles)
- 20,000 feet of 144 strand single mode fiber optic cable (3.8 miles)
- 25,000 feet of 24 strand single mode fiber optic cable (4.7 miles)
- 1,700 feet of dual 864 strand fiber trunks
- 295 MIMO antenna locations

- 41 equipment racks in the DAS head end
- 5,500 square foot dedicated head end room
- 1,412 coax jumpers at remotes and antennas
- Full backup power and cooling capabilities for the head end including a new 1,250 KW generator

The DAS installation comes on the heels of three years' of upgrades throughout the LVCC, including increasing the number of 802.11ac Wi-Fi access points from 166 to 2,100, installing an all new fiber optic and Ethernet switching backbone infrastructure, and improving capacity to the Internet with redundant 10 gigabit fiber connections.

Innovation and upgrades to the LVCC, including technological advancements like the addition of the DAS system, help continue Las Vegas' reputation as the No. 1 trade show destination in North America for 22 consecutive years, as determined by Trade Show News Network. In 2015, the destination hosted 54 of the largest 250 trade shows in the U.S. Last year, the LVCC hosted 49 events—including CES, the largest trade show in North America—servicing a total of more than 1.3 million convention attendees. Recently, the LVCC was approved for funding to expand its facilities by 600,000 square feet, as well as vast renovations throughout, as part of the future Las Vegas Convention Center District (LVCCD). Improvements like the DAS and the LVCCD project will help guarantee Las Vegas' standing as North America's premier business destination.

About Cox Communications

[Cox Communications](#) is a broadband communications and entertainment company, providing advanced digital video, Internet, telephone and home security and automation services over its own nationwide IP network. The third-largest U.S. cable company, Cox serves approximately 6 million residences and businesses. Cox Business is a facilities-based provider of voice, video and data solutions for commercial customers, and Cox Media is a full-service provider of national and local cable spot and digital media advertising. Cox is known for its pioneering efforts in broadband, voice and commercial services, industry-leading customer care and its outstanding workplaces. For nine years, Cox has been recognized as the top operator for women by Women in Cable Telecommunications; Cox has ranked among DiversityInc's Top 50 Companies for Diversity 11 times. More information about Cox Communications, a wholly owned subsidiary of Cox Enterprises, is available at www.cox.com and www.coxmedia.com.

Hospitality Network (HN), an affiliate of Cox Business in Las Vegas, is the premier provider of choice for video, Managed Wi-Fi and In-Room Entertainment (IRE) to hotels and convention centers across the nation. Delivering a first-class guest experience for over 30 years, HN has proven solutions that benefit our customers and their guests in over 110,000 hotel rooms, in 15 states from coast to coast. Visit www.coxhn.com.

About InSite Wireless Group

InSite Wireless Group, LLC develops, owns, operates and manages communications wireless infrastructure

facilities primarily for the wireless and broadcast industries. InSite's distributed antenna system (DAS) and small cell division has developed and currently operates more than 23 projects across the United States in convention centers, casinos, airports, sports stadiums such as Target Field, and transit systems including the Boston MBTA Subway, Los Angeles County Metro and the Atlanta MARTA Subway. InSite's tower division develops, manages, owns, and operates more than 1,500 telecommunications towers and sites for wireless carriers across the U.S., Puerto Rico, the U.S. Virgin Islands, Australia and Canada. For more information on InSite, go to www.insitewireless.com.

About the LVCVA

The Las Vegas Convention and Visitors Authority (LVCVA) is charged with marketing Southern Nevada as a tourism and convention destination worldwide, and also with operating the Las Vegas Convention Center and Cashman Center. With nearly 150,000 hotel rooms in Las Vegas alone and more than 11 million square feet of meeting and exhibit space citywide, the LVCVA's mission centers on attracting ever increasing numbers of leisure and business visitors to the area. Download the virtual reality app, Vegas VR, to experience Las Vegas from your iPhone or Android by visiting <http://www.vrtv.vegas/>. For more information, go to www.lvcva.com or www.lasvegas.com.

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