

CASE STUDY



OVERVIEW

With nearly one million residents, the city of San Jose is the third largest city in the state of California. Home to some of the world's biggest technology companies, the city of San Jose houses one of the Internet's main peering points: MAE West. San Jose was among one of the first cities in the country to deploy a metro Wi-Fi network based on 802.11b/g technology.

REQUIREMENTS

- Ultra high-capacity, high-speed dual-band Wi-Fi connectivity
- The ability to deploy Wi-Fi APs without pulling Ethernet or trenching fiber
- Long range point to point support
- Light weight, unobtrusive AP design powered by photocell adapters
- Complete indoor/outdoor solution managed from a single control point

SOLUTION

- ZoneFlex 7982 indoor APs
- ZoneFlex 7762 outdoor mesh APs
- ZoneFlex 7731 P-T-M-P bridges
- FlexMaster Wi-Fi management
- Redundant ZoneDirector 5000s

BENEFITS

- Public Wi-Fi access speeds ranging from 4 to 6 Mbps up and down per client
- Reduced CAPEX from higher capacity and performing APs requiring fewer APs than competition
- Reduced OPEX from Smart Meshing
- Easy and cost-effective configuration and installation

The technology capital of Silicon Valley and home to more technology companies than anywhere in the world, the City of San Jose is the tenth largest city in the United States and the third largest in California. Spanning the southern portion of Silicon Valley, millions of residents and visitors have their roots embedded in technology with high expectations for city services—particularly wireless data connectivity.

Having rolled out one of the first municipal outdoor Wi-Fi deployments in the nation using legacy Wi-Fi technology, San Jose was challenged to keep up with a growing number of users armed with multiple and more powerful Wi-Fi enabled devices. Moreover, user expectations for access to stream video and multimedia rich applications predicated a smarter and more industrial strength wireless infrastructure. And beyond free and fast public access, the city viewed a reliable Wi-Fi infrastructure as essential to future economic development, attracting new businesses downtown and efficiently delivering and supporting a whole new generation of city services—from Wi-Fi-enabled parking meters to streaming video.

Vijay Sammeta, the CIO at the City of San Jose, realized the city needed to replace its existing municipal Wi-Fi network with the best and smartest Wi-Fi he could find that would support higher capacity public access, streaming video, and city service employees needing reliable wireless over a larger footprint of the city. According to Sammeta, the city was confronted with performance, scale and capacity issues with its existing Wi-Fi network "We were reluctant to upgrade the existing network unless we could provide an 'over the top' experience to users that reflects our heritage as the world's center of technology innovation," said Sammeta. "We simply didn't believe there was any 'secret sauce technology' that could transform Wi-Fi into a wickedly fast and reliable electronic utility, since it uses the unlicensed spectrum. After we tested Ruckus Smart Wi-Fi products, we quickly changed our mind."

THE PROJECT

The City of San Jose had big expectations for the new Wi-Fi infrastructure that would initially cover 1.5 square miles of outdoor space downtown. They wanted to extend signal coverage, increase concurrent client capacity, improve reliability, reduce the cost and complexity of trenching fiber, simplify management and centralize administration at the lowest CAPEX and OPEX possible. The city also needed to extend Wi-Fi services within high density indoor environments including San Jose's Mineta International airport and the McEnery Convention Center. The entire indoor, outdoor Wi-Fi infrastructure needed to be highly scalable and unified through a common management framework.



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VIJAY SAMMETA
CIO, City of San Jose



One of many city services, Ruckus Smart Wi-Fi infrastructure is supporting Wi-Fi equipped public parking meters.

THE DEPLOYMENT

Deploying the new Wi-Fi network was a snap for the City. After replacing the existing legacy infrastructure, it was thought that expanding the capacity would be more burdensome since more wired connections would be required to expand the network and cover the larger footprint of the city. Rich with fiber assets and bandwidth coming from MAE West, an Internet peering point located downtown at 55 Market Street, backhaul capacity wasn't a problem. However running this fiber to every Wi-Fi node where service was required was a problem. But the unique ability of Ruckus technology allowing APs to be daisy chained using smart wireless meshing solved this problem. Using ZoneFlex three-stream, dual-band 802.11n outdoor units has allowed the City to easily expand network capacity and provide expanded coverage throughout the city as needed without expensive fiber trenching to AP locations.

New Ruckus ZoneFlex dual-band 802.11 outdoor APs were installed on outdoor light poles and building facades. Redundant ZoneDirector 5000 controllers centralized at City Hall allowed for a single point of visibility and control over the entire network.

After the successful launch of its “Wickedly Fast Wi-Fi” outdoor network, San Jose soon began deploying indoor Wi-Fi. Hundreds of dual-band, three-stream, ZoneFlex 7982s 802.11n access points were installed in the McEnery Convention Center and a similar indoor network, replacing legacy Cisco W-Fi gear deployed at the Mineta International Airport to ensure a consistent and high-speed user experience. Looking forward, the City is planning to leverage new Hotspot 2.0 technology to give users seamless roaming between other Hotspot 2.0 networks as well as automatic and secure provisioning of end devices without tedious configuration to find the right Wi-Fi network.

A terabyte of throughput is now commonly pushed through the Ruckus network daily as data traffic continues to increase. And clients enjoy up to four times the uplink and downlink speeds compared to the legacy Wi-Fi network.

A PUBLIC PRIVATE PARTNERSHIP

Essential to the success of San Jose's Wickedly Fast Wi-Fi initiative was establishing a public/private partnership between the City, its systems integrator, SmartWave and Ruckus Wireless. “We believe the only viable model for building a 21st century infrastructure within a municipal environment is to partner closely with those who actually innovate and deploy leading-edge technology,” said Sammeta. “The cost and complexity today is far too high for cities to consider anything else. We now view Ruckus and SmartWave as an extension of our IT operations.”

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350 West Java Dr., Sunnyvale, CA 94089 USA

www.ruckusnetworks.com