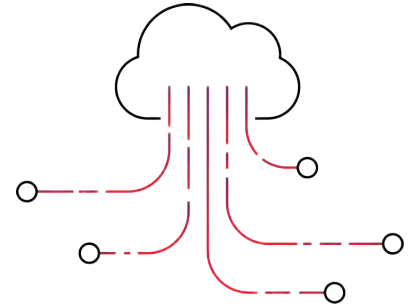


# DUAL CHANNEL WI-FI

## Better Wi-Fi for Video Viewers, Gamers, Streamers and Everyone in Between

Dual Channel Wi-Fi addresses Wi-Fi congestion issues by providing one or more channels for downstream-only data in addition to the primary bi-directional channel. By intelligently redirecting Wi-Fi traffic, better airtime utilization is achieved for all traffic, resulting in fewer interruptions and a much better user experience for everyone.



### THE DUAL CHANNEL WI-FI EXPERIENCE

#### BETTER USE OF WI-FI AIRTIME

Sharing Wi-Fi can be frustrating for video viewers and gamers who rely on uninterrupted, real-time data for a smooth experience. For these managed services, Dual Channel Wi-Fi directs some downstream traffic to a dedicated downstream-only channel, allowing members of the family to stream videos and browse the Internet without getting in each other's way.

#### MULTIPLE DOWNSTREAM-ONLY CHANNELS

Despite its name, Dual Channel Wi-Fi is not limited to just two channels. Depending on the number of available radios on the access point (AP) and devices, multiple data channels could be used to create more pathways for downstream data or to distribute downstream data across several devices.

#### FASTER DATA DELIVERY ON ALL DEVICES

By moving the downstream data onto the data channel for at least one Dual Channel device, the traffic load is reduced on the primary channel. The result is better performance on all the devices connected to the Wi-Fi network, not just the dual-channel devices. Testing with three Dual Channel devices and one latency device showed the elimination of video issues and an increase downstream throughput of 8x.

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### MARKETPLACE LANDSCAPE

Most of these calls are issues with data delivery. Research shows that contention and lack of airtime is the cause. As more devices are added to a Wi-Fi network, they jam the primary bi-directional traffic channel. This results in more transmission errors, longer hold-off periods and unused airtime. By shifting some of the data to downstream-only channels, the devices' competition for channel airtime is reduced and the AP could deliver data to devices in a timely manner.

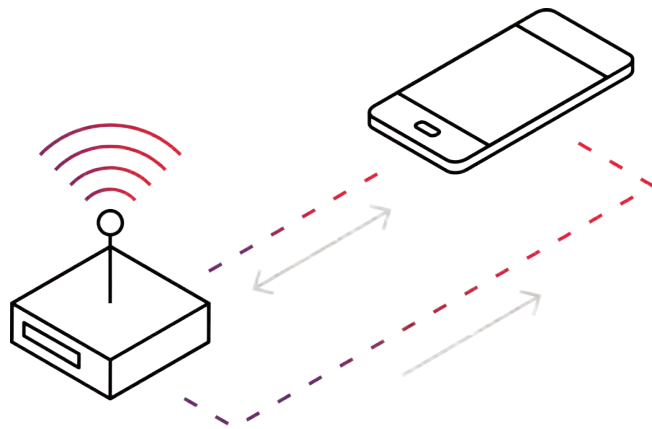
# 15%

of all service calls are Wi-Fi related, costing \$600 million a year in North America alone.

### HOW IT WORKS

Dual Channel Wi-Fi allows the AP to make use of one or more Wi-Fi channels to deliver data to devices. The AP determines which channel should be used by data Source IP, Source Port, Destination Port, Packet Type and Packet Size. If the data matches the appropriate criteria, the AP sends the data over the data channel to a dual-channel device, alleviating the downstream traffic on the primary channel and improving Wi-Fi performance. Traffic filters could be customized for individual devices or device types, or the default filter could be used. This allows for control over what data is sent on the data channel.

Listen-before-talk functionality remains intact in order to ensure fairness with other networks. The AP can also steer devices appropriately. This is the foundation for future features such as load balancing functions.



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