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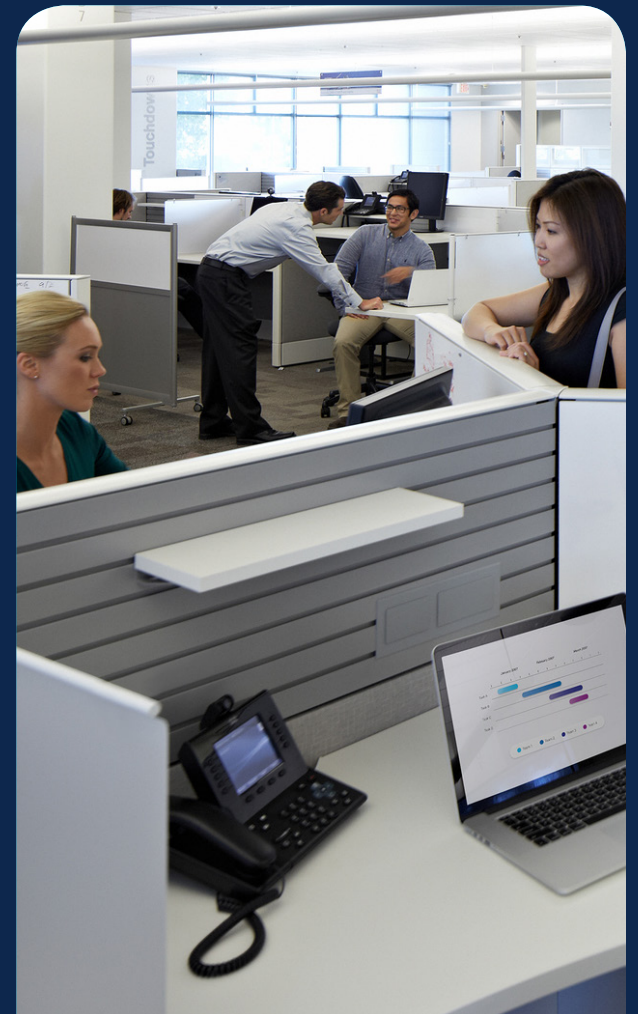# Putting the 'Flexible' in Flexible Radio Assignment

It's a normal workday at the office. The coffee machine is continuously brewing new pots, Bob from accounting is telling the same jokes, and most importantly, the Cisco wireless network is running like a dream. Suddenly a hush comes over the cubicles: the boss demands a company-wide meeting in the large conference room in five minutes. The normal, quiet day has disintegrated rapidly and everyone has questions.

The big question for you, as the network administrator, isn't what the boss has to say, but whether your access points can handle a confined, sudden crush of people using the bandwidth all at once.

When you have Cisco Aironet® and Catalyst® Access Points deployed and running, you can relax.

The Cisco® Catalyst 9120 Access Points and Catalyst 9130 Access Points support Wi-Fi 6 (802.11ax) and the Cisco® Aironet 4800 Access Points, Cisco Aironet 3800 Series Access Points and Cisco Aironet 2800 Series Access Points supports 802.11ac Wave 2, which increases bandwidth for more devices. Cisco goes beyond the industry standards to provide advanced innovation that self-optimizes your network in unpredicted times of high density, with a feature called Cisco Flexible Radio Assignment.

In addition to the device deluge, there are times when a lot of people moving in and out of your network can complicate a high-density network environment. A manual approach to recalibrating your wireless network every time there is an unexpected usage change isn't practical. Flexible Radio Assignment automatically adapts to these temporary high-density environment changes.

Flexible Radio Assignment is a Cisco innovation designed to provide a better mobile user experience for high-density networks by automatically detecting when a large number of devices are connected to a network. Once the detection is made, Flexible Radio Assignment changes its dual radios in the access point from 2.4 GHz/5 GHz to 5 GHz/5 GHz to serve more clients. The access point performs this function while still monitoring the network for security threats and RF interference that may affect performance.

Flexible Radio Assignment has three different modes of operation:

- Default operating mode, which serves clients on both 2.4 GHz and 5 GHz

- Dual 5-GHz mode, which serves clients on both 5-GHz radios

- Wireless security monitoring, which scans both 2.4 GHz and 5 GHz for security threats while also serving 5-GHz clients

How do these features work in an everyday setting?

The best way to describe this feature is by returning to the original scenario of a large number of office workers expecting to hear a speech from the boss.

As the first group of workers trickles into the conference room, the Cisco Catalyst 9120 Access Points automatically determine that there is ample 2.4-GHz and 5-GHz wireless coverage. During the minutes before the meeting, these access points use the wireless security-monitoring mode in the 2.4-GHz radio to continually scan both bands for RF interference or security threats. Cisco CleanAir® Technology eliminates any detected interference while rogue detection and containment and wireless Intrusion Prevention Systems (wIPS) rectify security threats.

As the meeting looms closer and the high-density scenario is realized, Flexible Radio Assignment adapts in real time, and the Cisco access point radios provide the precise amount of 2.4-GHz and 5-GHz coverage. Some access points will convert both radios to the 5-GHz band to serve the additional clients and provide better coverage and performance during the high-density event.

This availability of the larger band is extremely helpful, as a majority of the audience is following the video feed of the conference over their wireless devices too.

Following the meeting, the access points return to default operating mode, offering 2.4-GHz/5-GHz coverage while other access points transition to wireless security monitoring mode.

The most amazing thing about this scenario is that, as the network administrator, you didn't have to do anything to facilitate the extra bandwidth. The Cisco Aironet access point is intelligent enough to do the entire thing itself. This allows you to concentrate on more pressing issues.

Flexible Radio Assignment benefits

Flexible Radio Assignment isn't strictly for workplace environments. It can be used in nearly any instance where a large group of people gather. Whether it's in an educational setting, a hotel lobby, or a hospital, Flexible Radio Assignment is a boon to any wireless network.

From Bring Your Own Device (BYOD) to Internet-of-Things (IoT) devices, the proliferation of wireless items brings a new host of challenges as bandwidth-intense applications grow. Flexible Radio Assignment rises to these challenges and augments your wireless network to do more without making your job difficult.

Now if only the Flexible Radio Assignment could give Bob from accounting some new jokes.

To learn more about Cisco Wireless, go to:
https://www.cisco.com/c/en/us/products/wireless/index.html