Here‘s how to get the most out of your wireless network

Radio fields are busy places these days: Radio channels are overcrowded, access point density is constantly increasing, and neighboring Wi-Fis and other coexisting technologies are occupying channels and causing interference. But the increasing data volumes of many applications, the demands on their availability, or inefficient utilization of spectra due to unfavorable channel distribution on the access points all go to make Wi-Fi management even more complex. The following checklist can help you to improve the quality of your Wi-Fi.

1 When setting up a Wi-Fi, pay attention to the structural conditions

- ◯ When installing access points, consider the reflection, attenuation, and shielding properties of the environment such as the room layout, building materials, walls and wall thickness, pillars, room height, etc., and if necessary take advantage of the shielding properties of metal shelves or metal roofs

- ◯ Specially developed industrial or outdoor access points are used in extreme temperature conditions, very dust environments, tough weather conditions, humidity, etc. to ensure durability and protect the technology

- ◯ Select antenna characteristics such as the beam-spread angle to suit individual needs and take account for possible limitations in radio quality: For example the radio quality of many modern access points is limited in certain directions due to their metal base

- ◯ Consider other Wi-Fis and external radio sources from technical devices such as audio and video systems, baby monitors, microwaves, Bluetooth, IoT protocols, and DECT

2 When choosing Wi-Fi products, also consider user behavior and future viability

- ◯ Choose an access point capacity that meets the needs of users, wireless access, data volumes, and latency

- ◯ In high-density Wi-Fi environments, go for concurrent dual- or tri-band access points, as they simultaneously offer different frequency bands (2.4 GHz, 5 GHz and 6 GHz) and multiple (MU-) MIMO data streams, e.g. 4×4 for the simultaneous service of several clients in the downlink and uplink directions

- ◯ In high-density environments, use antennas with a narrower beam-spread angle to create smaller “radio cells” in order to avoid interference from radio field overlaps

- ◯ Make a list of the most popular services and adapt Wi-Fi products to their data requirements

- ◯ Choose devices that can be controlled via different platforms (cloud, software tools, hardware controllers, GUI) and where you can switch between different forms of management without additional costs (investment protection)

- ◯ When choosing an access point, ensure it supports modern Wi-Fi features such as MU-MIMO, OFDMA, BSS coloring, and Band Steering in order to minimize latency and significantly increase network performance through the efficient use of available bandwidths and the bundled transmission of data packets

3 Get the best possible transmission and reception from an existing Wi-Fi

- ◯ Verify that all available channels are being used efficiently
- ◯ With a high density of access points, reduce the channel width to 40 or even 20 MHz if necessary
- ◯ Carry out precise measurements on-site and adjust the transmission power of the access points accordingly [1]
- ◯ Ensure that as few SSIDs as possible are broadcast to reduce the base load in the Wi-Fi
- ◯ The latest Wi-Fi technologies Wi-Fi 6 and Wi-Fi 6E provide from lower latency, maximum future viability and, in the case of Wi-Fi 6E, interference-free 6 GHz
- ◯ Wi-Fi anomaly detection by the LANCOM Management Cloud compares current metrics such as channel load, noise, transmit quality, Wi-Fi users, and 5-GHz channel availability with preset target values and immediately alerts the administrator when a threshold has been exceeded

[1] To support this, LANCOM and LANCOM partners offer professional Wi-Fi coverage check at the start of the project.

Would you like professional support with these steps?

Don’t hesitate to contact us personally and describe your specific Wi-Fi situation. We look forward to helping you even better in person.

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