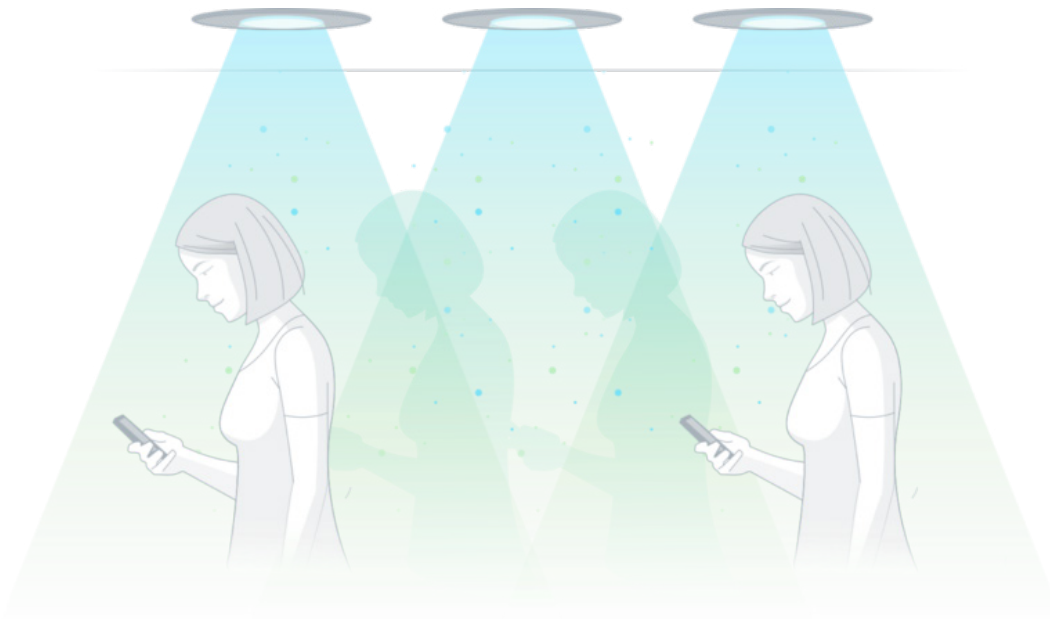


# What is the spectrum crunch?



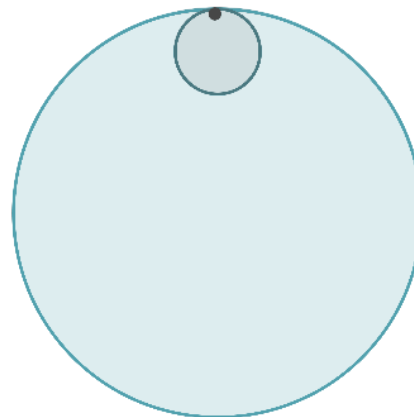
The spectrum crunch refers to the lack of sufficient wireless frequency spectrum needed to support a growing number of consumer devices, along with various government and private sector uses of radio frequencies within the current spectrum allocation.

Spectrum crunch is a risk in telecommunications and wireless networking with profound implications for the future.

## Connectivity is evolving

The spectrum now has to accommodate more mobile users. Connected devices are forecasted to increase to 20 Billion IoT devices by the year 2020.

It is time to future proof our networks to enable the connectivity demands of tomorrow. With LiFi we can utilise spectrum more than 1000 times greater than the entire spectrum utilised for radio frequencies. LiFi is now unlocking unprecedented data and bandwidth.



### ■ WiFi

500MHz of RF spectrum allocated to WiFi

### ■ RF Spectrum

300GHz = 0.3 THz of RF spectrum in entirety for WiGig, WiFi, cellular, TV, Radio & everything else

### ■ LiFi

6THz of RF spectrum theoretically required for a single WiGig channel if spectrum use continues to increase at 60% CAGR for the next 20 years

**12,000x Larger**

## The facts

- In 2016 mobile data traffic grew by 63% and indication is that it will continue to grow
- 80% of wireless data is consumed indoors, 70% of that consumption is video
- 60% of total mobile data traffic was offloaded onto the fixed network through Wi-Fi or femtocell in 2016
- Almost half a billion (429 million) mobile devices and connections were added in 2016 alone

## The future

**Mobile data traffic will reach the following milestones within the next 5 years**

- Monthly global mobile data traffic will be 49 exabytes by 2021, and annual traffic will exceed half a zettabyte
- The average global mobile connection speed will surplus 20 Mbps by 2021
- By 2021 there will be 1.5 mobile devices per capita. There will be 11.6 billion mobile-connected devices by 2021, exceeding the world's projected population at that time (7.8 billion)