



**Ruckus**<sup>®</sup>  
Simply Better Wireless.

# ***Winning the Wireless World***

## ***Ruckus Case Study***

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More than **50%**  
of the world's  
population live in  
cities  
– Unicef

**87%**  
of our time is  
spent indoors  
– United States Environmental  
Protection Agency (EPA)

# What's the opportunity you're missing?

Mobile phones and other computing devices are creating millions of datapoints and touchpoints

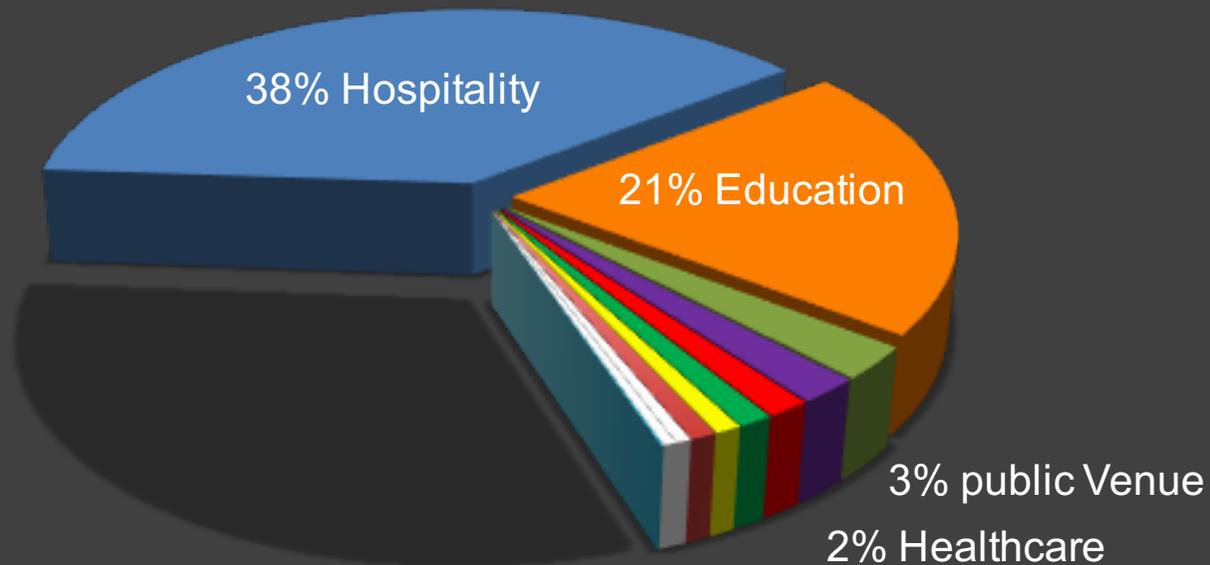
Yet we have very little reliable data on how people spend their time in these environments

And businesses have no way to engage the right people at the right time, in the right place



# We have more opportunities

## Ruckus Global Enterprise Business by Verticals



# To provide...

**The Right Content for the Right Person at  
the Right Place at the Right Time**

The new case study in Taiwan for all Top Sales

- Hotel
- High Density
- Education



# CASE STUDY #1



台北.文華東方酒店  
Mandarin Oriental Taipei

# Hotel overview



Mandarin Oriental Hotel Group operates luxury hotels representing over 11,000 rooms in 25 countries across four continents.

## Mandarin Oriental Taipei

- 256 elegantly appointed rooms with state-of-the-art facilities
- 47 stylish suites including the luxurious Mandarin and Presidential Suites
- 12 treatment suites including 4 Couple's Suites and 2 VIP Double Suites
- The Grand Ballroom seating up to 1200 guests with exclusive driveway.
- The Mandarin Ballroom for up to 600 guests

# Requirements



- Increase signal strength and coverage throughout property
- Mitigate 802.11 and non-802.11 sources of interference
- Provide in room IP connectivity to a variety of devices
- Clean, in-wall mounted form factor that reduces exposed wiring, keeps APs secure
- Increase Wi-Fi performance per user
- Simplify wireless management
- Support of high-density areas such as conference/meeting space
- Centralize administration

# Soultion



- 400+ ZoneFlex dual-band Wi-Fi in-wall switch
  - For all guest room
- 200+ ZoneFlex dual-band indoor smart Wi-Fi AP
  - For public area
- ZoneFlex dual-band outdoor smart Wi-Fi AP
  - For swimming pool
- Redundant ZoneDirector WLAN controllers

# Why Ruckus



- No new Ethernet cabling in guest rooms
- Single, low cost solution to address both wired and wireless connectivity
- In wall APs secure from theft
- Doubling of Wi-Fi capacity and usage
- Greater client density within conference and meeting space
- Complete wireless coverage and higher performance throughout entire hotel
- 75% reduction in guest complaints

# CASE STUDY #2





台北南港展覽館  
TAIPEI NANGANG EXHIBITION CENTER

# Taipei Nangang Exhibition Center

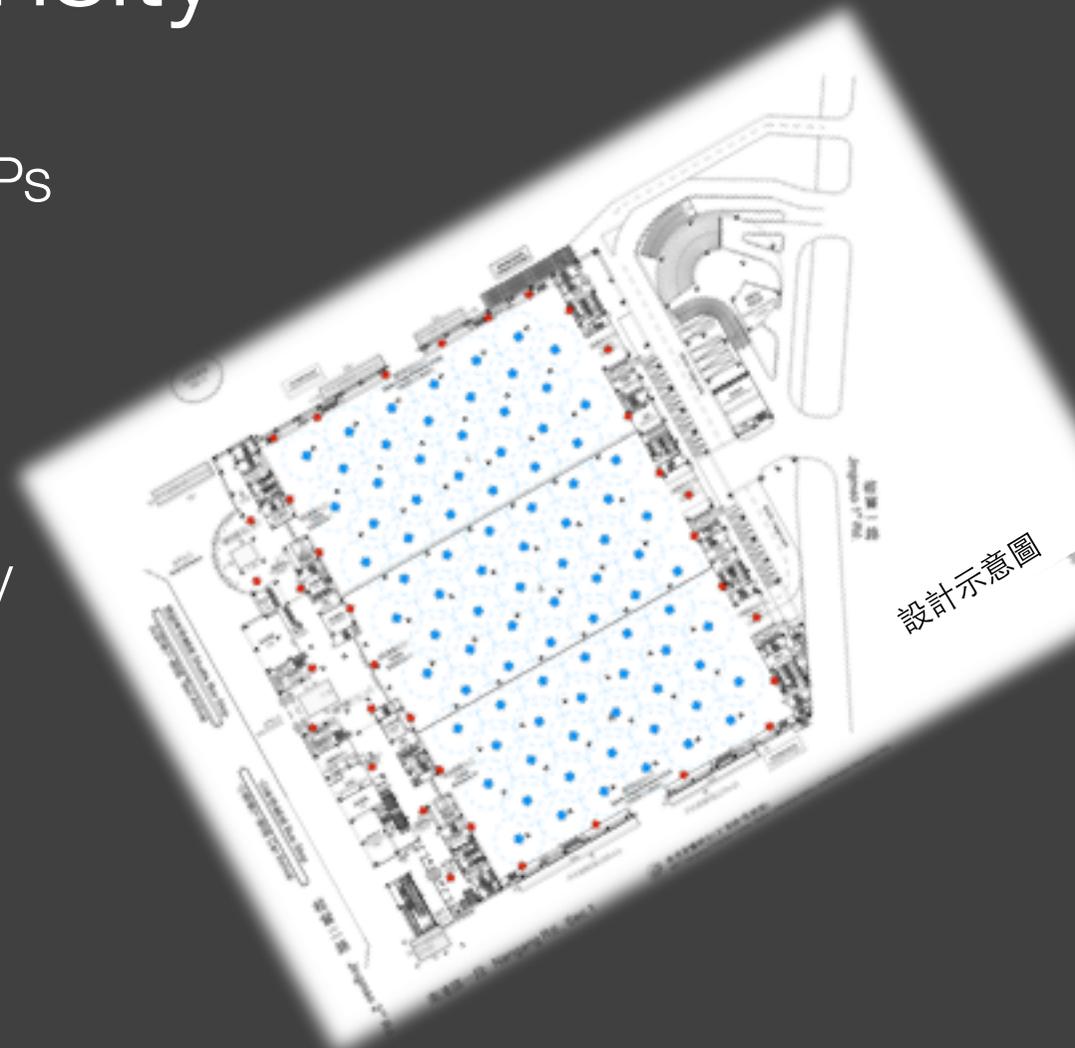
# Requirement



- Exhibition are very challenging RF environments:
  - Extreme user density
  - Since there are more than 10,000 people entering the large exhibition
  - Vendors set up their own AP
  - More and more device need to connect Wi-Fi

# Designing for density

- High capacity requires lots of APs
- A large number of APs in close proximity can generate co-channel interference, if not deployed correctly
- Interference will reduce capacity
- Exhibition are all about interference management



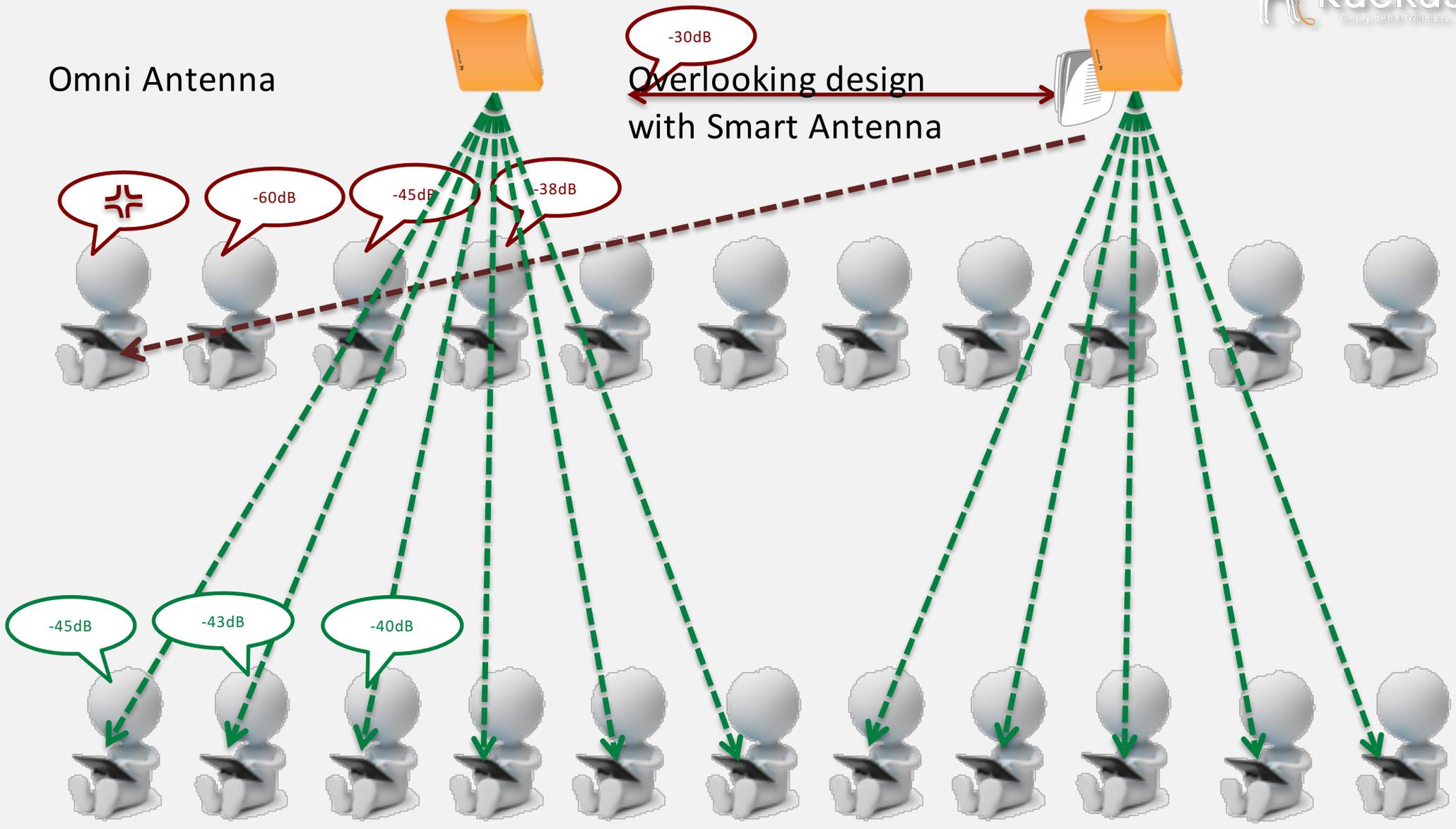


## Design Guide line

- Use dual-band AP's as the 5 GHz band has a great deal of capacity
- Place AP's as close to the users as possible to shrink the cell size
  - Narrow beam antennas (30°) can really help here
- Automatic channel selection helps reduce co-channel interference
- Use band steering to push dual-band devices onto the 5 GHz band
- Use the physical structure to shield AP's from each other (concrete soaks up RF energy)
- Use client load balancing to spread traffic across AP's

Omni Antenna

Overlooking design  
with Smart Antenna

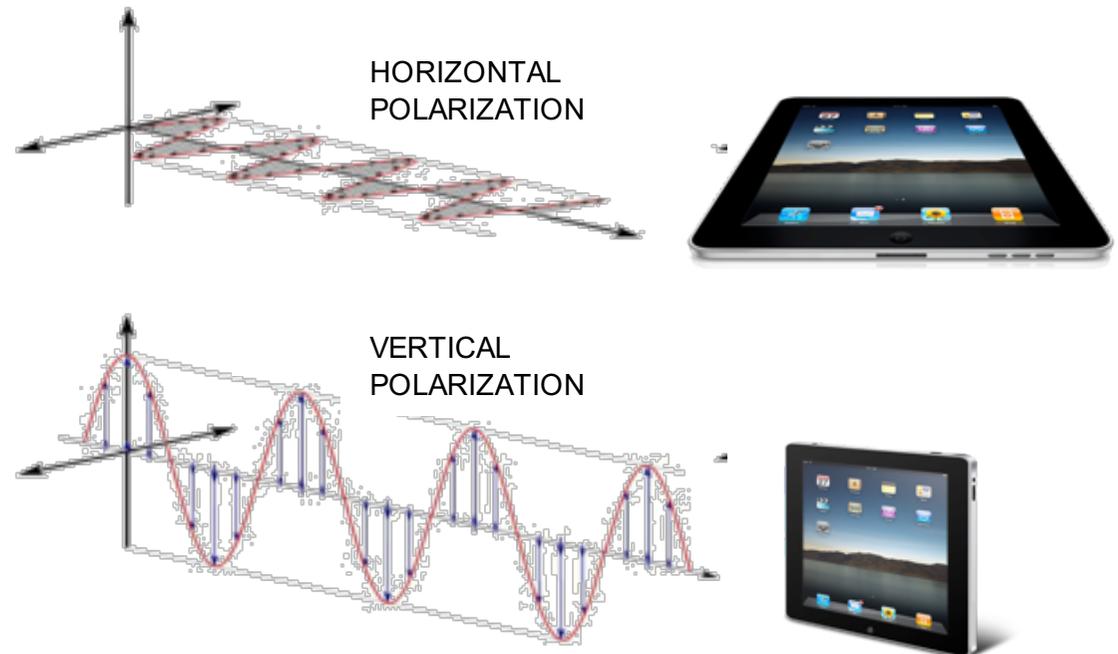


5x

Device orientation accounts for up to 5x performance differential among products



- **Better reception** (PD-MRC) for weak and hard to “hear” devices
- **Better transmission** to devices constantly changing their orientation



- 200 Ruckus 802.11ac AP with narrow beam antenna
- 100 Ruckus 802.11ac indoor high density AP
- Redundant vSCG WLAN controllers



# Why Ruckus

- Festival-wide wireless connectivity
  - All clients able to connect at the highest data rates with strong signals
  - Support of high-density user environment using Beamforming, bandsteering and airtime fairness
  - Data traffic offload from 3G network
  - Stable connectivity due to interference mitigation
  - Centralized (out of datapath) management for entire WLAN High performance and capacity for density environment
- Capacity : Support 30,000 devices
  - Peak Usage :
    - 7,000 devices connect on 4 Floor only
    - 200 Mbps download throughput
  - Average Usage :
    - 3,000 devices connect
    - 80 Mbps download throughput

Case Study

# Education

That's Welcome the National Chi Nan University (NCNU)

張瑛杰老師

Thanks

