

# Wi-Fi

Light up **MORE**  
for less

High **POWER**

**CONTROL**  
Your Network



# The Speaker

- 22 years in Networking
- First Half doing Integration
- Second Half on Products
- 6 years building Wi-Fi products

# The Audience

- Property owners
- Hospitality Technology professionals
- System Integrators
- Solution providers

# Goals for Presentation

- Provide a Mesh overview
- When to consider it
- How to implement

# Mesh Technology in Hospitality

When and how to use it

# When Mesh makes sense

- Outdoor resorts
- When you cannot run wire
- Changing environment
- You need extremely high availability, and can justify it



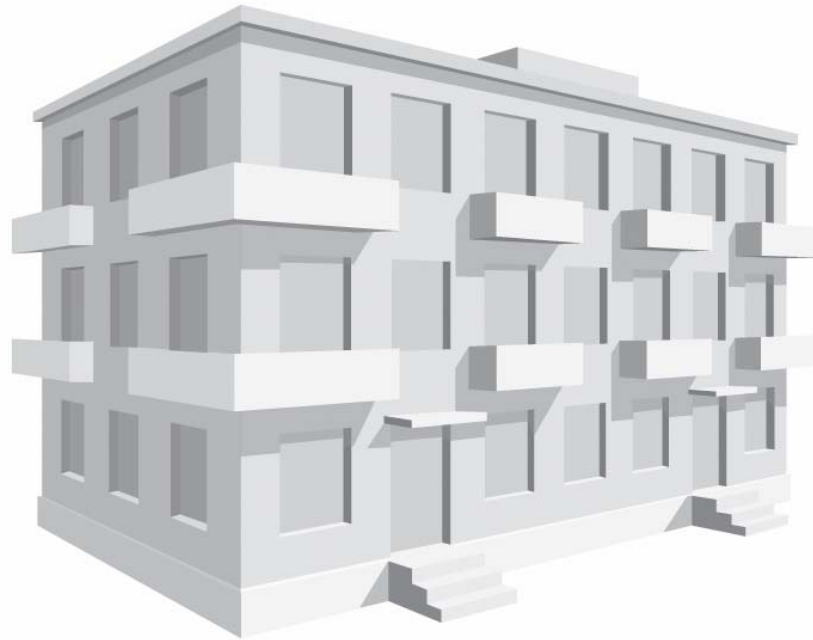
# Outdoor resort

- Mesh nodes are on top of each building



# Not practical to run wire

- Mesh penetrates floors and provides redundant backhaul



# Changing environments

- Seasonal variations in foliage
  - RV parks, outdoor resorts
- Moving obstructions
  - Marinas, airports, truck stops, concerts



# High availability

- Spend more so the network never goes down
- Mesh mitigates system outages



# Alternative backbone architectures

Hardwire >> WDS >> mesh



# Enterprise mesh vs. Hospitality mesh



# Enterprise

- Proprietary features for highest possible throughput “fattest pipe”
- Complex – designed for IT staff



# Hospitality

- Used for internet access
- Throughput limited by your ISP connection
  - 50 Mbps in the mesh is no good if the WAN is 1-4 Mbps
- Redundancy, reliability, and self configuration are the key features



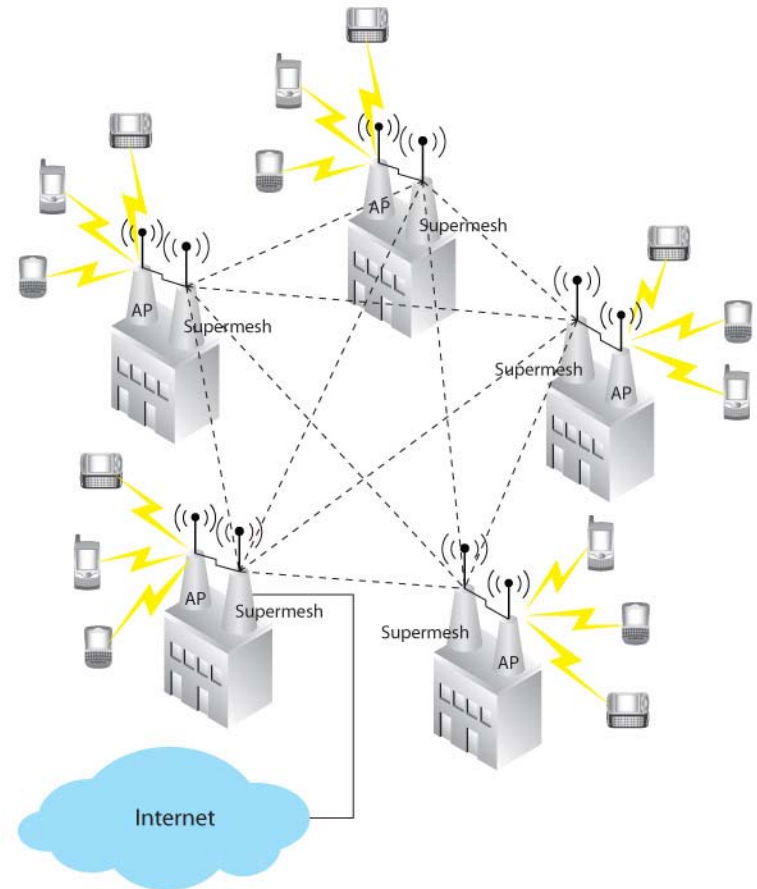
# Cost Differences

- Proprietary meshes are 2-3x more expensive than ones designed for hospitality
- What can you justify for internet access



# How to set up Mesh

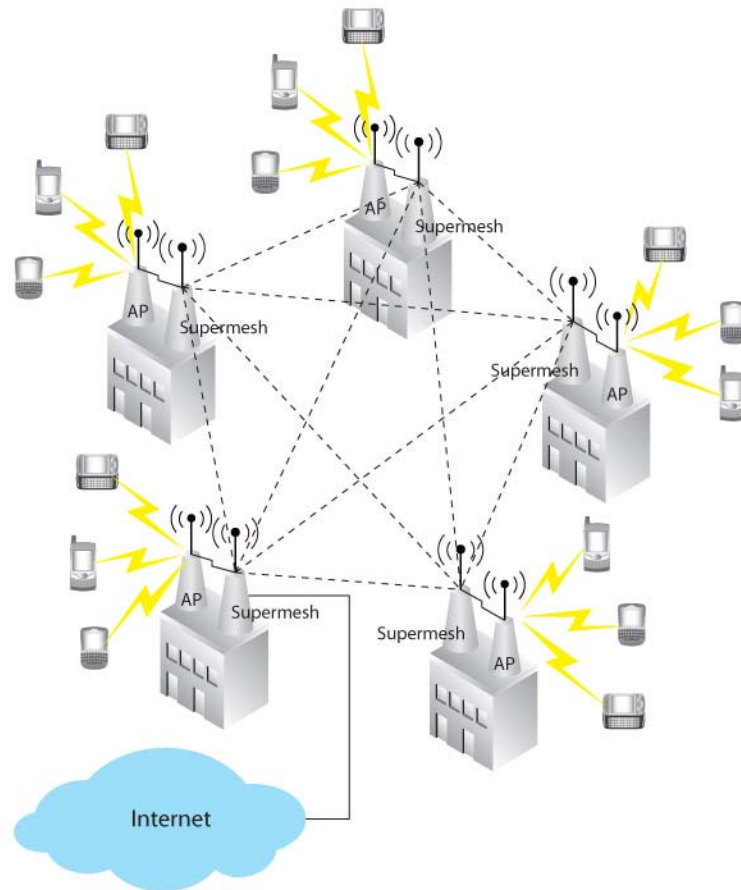
- If you have set up Wireless Distribution System (WDS), you can set up Mesh
- Design your network. What to cover, node placement





# Access into the Mesh

- “Just an AP”



# Different Spectrums

- 802.11a
  - Line of sight (LOS) only. High throughput and reduced chances of interference



# Different Spectrums

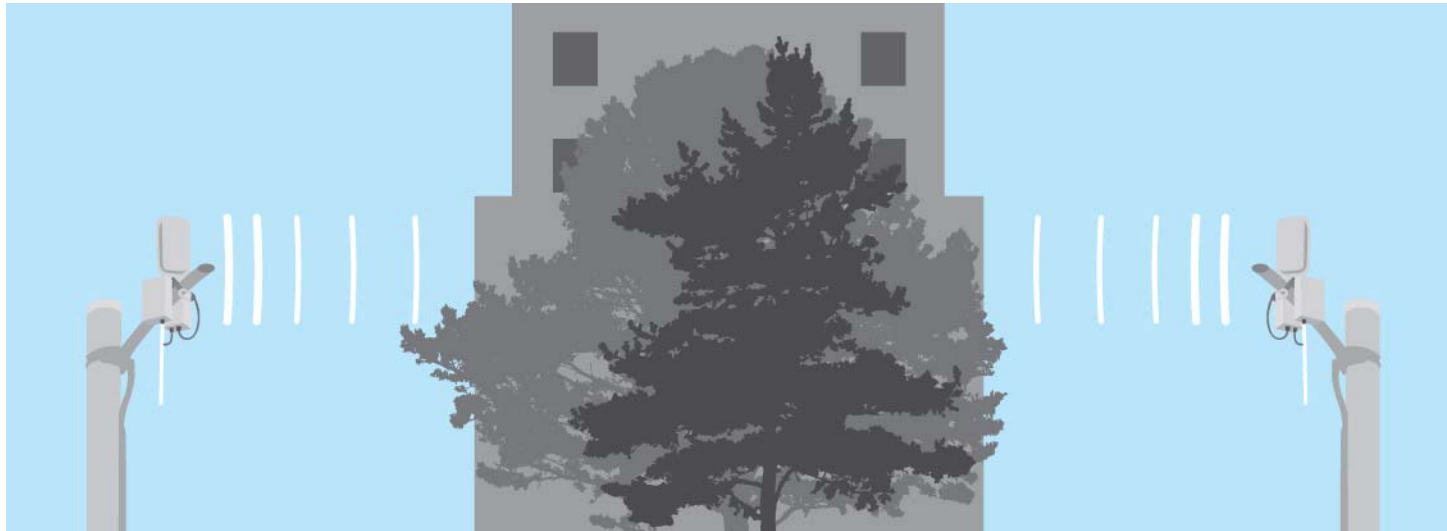
- 802.11b/g
- Good penetration
- More interference due to conflict with client access



# Different Spectrums

- 900 MHz

- Great penetration for Non Line of Sight (NLOS)
- More vulnerable to interference from other devices (cordless phones, remote controls)
- Do a site survey of 900MHz devices in and around property



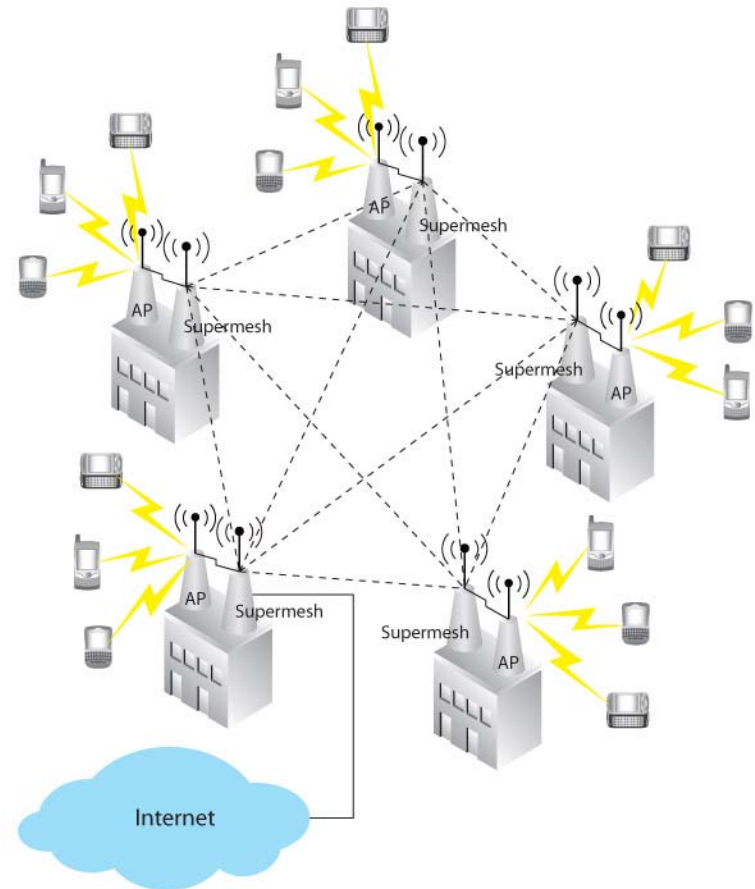
# Benefit of High RF Output

- Fewer nodes (means less money)
- Bigger safety margin against interference
- More flexibility in placement
- But power should be adjustable



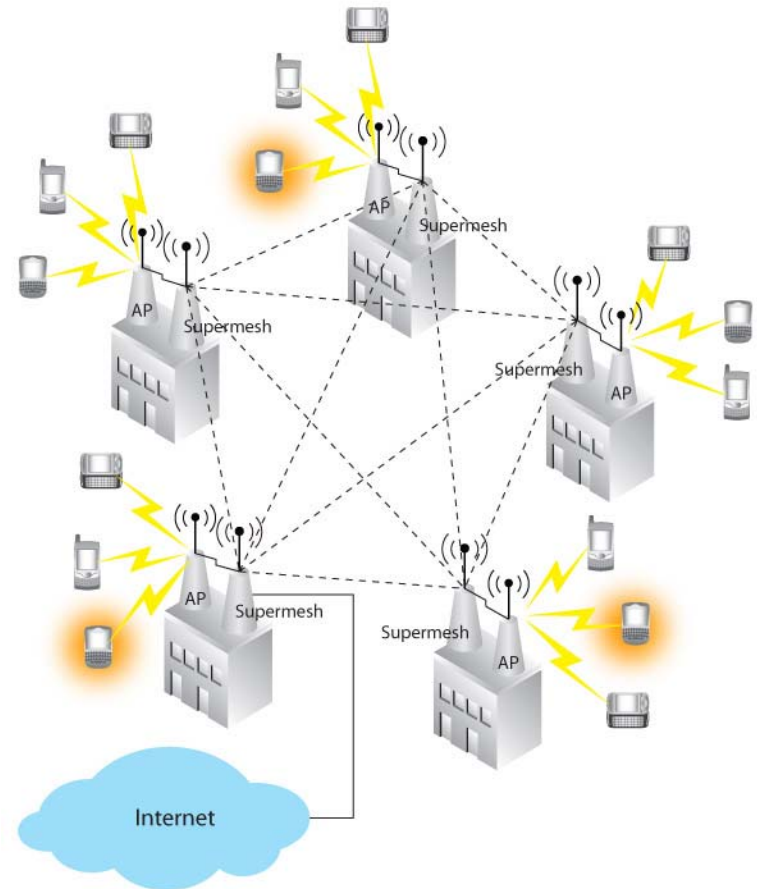
# What connects to the mesh?

- APs for Data and VoIP
- Cameras
- Intrusion detection
- Any Ethernet device



# VoIP

- Need low latency in the mesh
- Max of 1 ms per hop
- More than 5 ms is a problem
- Limit the number of hops  
(High power helps)



# “Resort International”

- 20 buildings
- One mesh node per building
- Some LOS, many NLOS
- Four Internet connections



# Mesh mitigates network support headaches

- Outages are mitigated due to alternate paths
- Congested links can be routed around
- Equals: reduced support costs and improved customer satisfaction



# Conclusion

- Hospitality mesh has its place along hard wire and WDS
- Quantifiable value measured against increased budget
- Enterprise class mesh is mostly cost prohibitive
- Need cost-effective mesh for Internet, VoIP and security