



## Needs Analysis / Pre-Planning

- Specify coverage areas (indoors, outdoors, pinpoint every area)
- Identify applications (today and tomorrow)
- QoS priorities (802.11e categorized traffic, WiFi phones, etc.)
- Calculate bandwidth requirements per user
  - hint: 54 M/bits AP translates to 15 to 20 M/bits shared
- Select 802.11 radios (2.4 GHz and / or 5.x GHz)
- Security (authentication, encryption, tracking, rouge detection)
- Identify resources (equipment and personnel)
- Budgetary info (components, test gear, personnel, contractors)
- Develop WLAN user policies (employees, guests, students, etc.)
- Gather floor plans, site plan, and other building related information
- Evaluate hardware (intelligent versus light-weight access points)



## Site Survey (WLAN and Network / Power Infrastructure)

- **RF tools**
  - Spectrum analyzer to visualize what's in the air
  - Portable AP with UPS and wheeled cart for field testing
  - Handheld device for measuring results
  - Various antennas (omni, directional, diversity, etc.) and pigtails
  - Floorplans and red pencils
- **What to look for**
  - Boundary (how far) does the AP support speed and throughput
  - Signal penetration of objects (walls, floors, mod furniture, etc.)
  - AP placement (overlapping cells, higher capacity, etc.)
  - Is there other "RF" in the same frequency band
  - Are there any existing APs
  - Are you close to a "neighbor" with a wireless network
- **Network closets**
  - Sufficient electrical power for new high draw PoE equipment
  - Open rack space for patch panels, WLAN components
  - Network infrastructure (fiber to MDF, VLAN, etc.)
- **Work areas**
  - Cabling (investigate how to get cable to new AP locations)
  - AP mounting aesthetics (above ceiling, below ceiling, enclosure)
  - Antennas (flush mount, stick, directional, etc.)
- **Prepare Bill of Materials**
  - Cabling items
  - WLAN components
  - Antennas (including pigtails and mounting hardware)
  - Tools and test equipment

## Implementation / Network Configuration

- Publish schedule for work
- Establish construction / storage staging area
- Notify user community of project
- **Infrastructure tasks**
  - Cable installation to Access Point locations
  - Cable installation to upgrade network backbone if necessary
  - Prepare network closets for space and electrical service
  - Install closet switches / PoE devices
- **Network / AP configuration tasks**
  - Develop baseline power and channel plans
  - Access Point naming convention (host names)
  - Assign IP range
  - SSID and VLAN architecture
  - Configure authentication and encryption servers
  - AP configuration and labeling (per AP or controller based)
  - Test AP with end devices before configuring entire system



## Installation Verification & Ongoing Support

- **Post installation testing**
  - RF functional testing (radios, antennas, and RF cabling)
  - Coverage testing for signal strength in all areas
  - Channel plan review for Co-channel interference
  - Performance testing and traffic loading
- **Support staff**
  - Handheld device for troubleshooting
  - Enterprise based management
  - Security audits on a regular basis
  - IT help desk trained
  - Be proactive, not reactive
- **User Training**
  - How to use devices
  - First-step troubleshooting
  - Usage policies