

# Wi-Fi Direct: Wi-Fi P2P Connection

A series of horizontal lines in teal and light blue colors, with varying lengths and offsets, creating a modern, layered effect across the middle of the slide.

# INTRODUCTION

- Wi-Fi direct is new technology
  - enhancing direct device to device communication without requiring a wireless access point.
- Wi-Fi direct builds upon the successful IEEE 802.11 infrastructure mode
  - lets devices negotiate who will take over the AP-like functionalities.

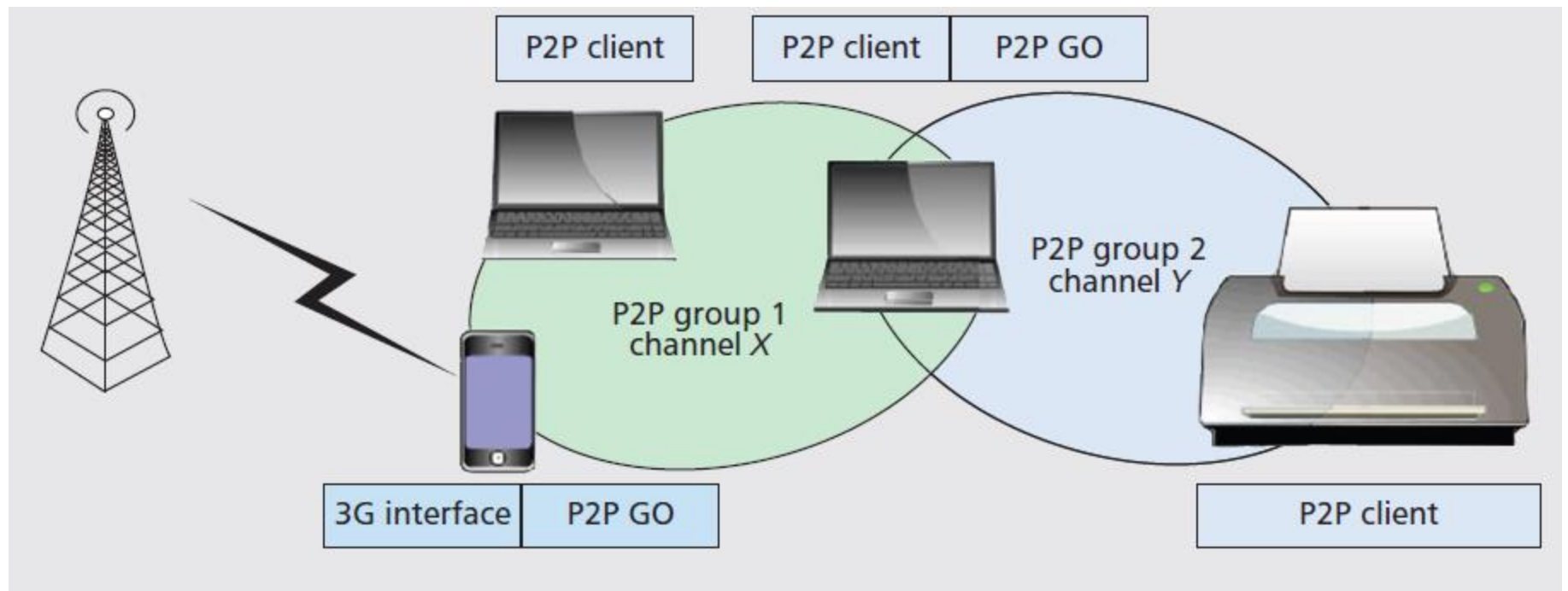
# TECHNICAL OVERVIEW

- In a typical Wi-Fi network, client scans and associate to wireless networks available, which are created and announced by Access Points (AP).
- Wi-Fi Direct is that these roles are specified as dynamic,
  - hence a Wi-Fi Direct device has to implement both the role of a client and the role of an AP.
- These roles are therefore logical roles that could even be executed simultaneously by the same device, this type of operation is called Concurrent mode.

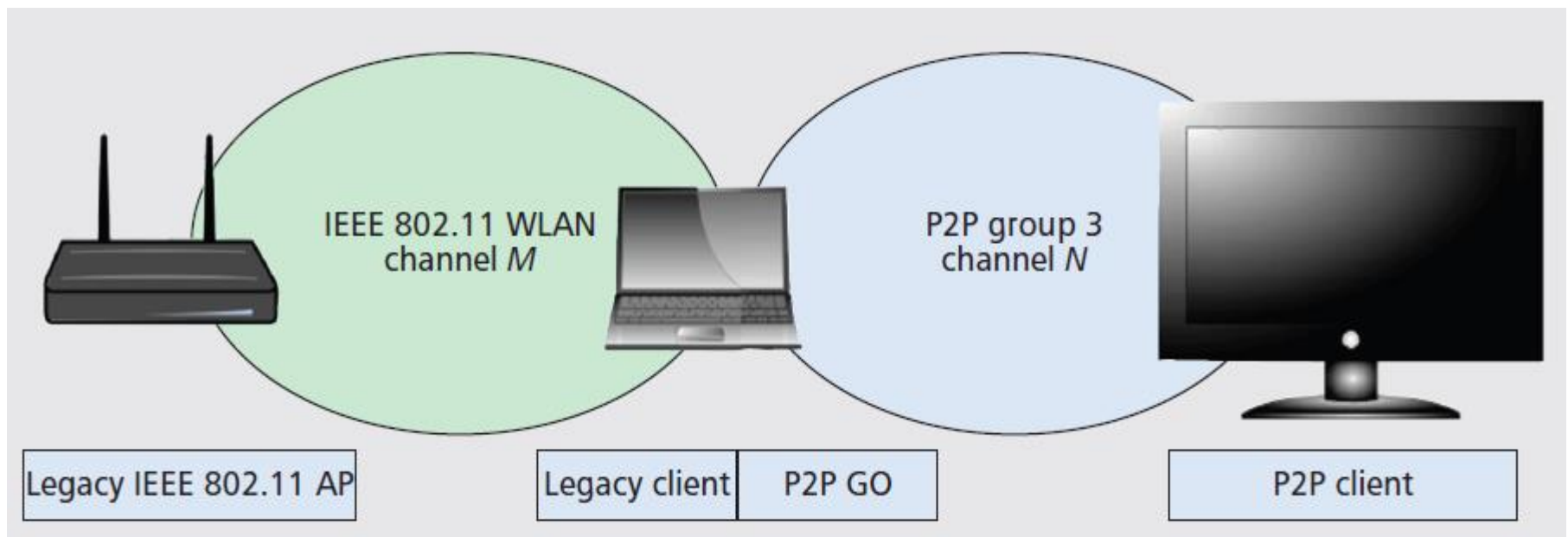
# ARCHITECTURE

- Wi-Fi direct device communicate by establishing P2P group.
- The device implementing AP-like functionality in P2P group is referred to as the **P2P Group Owner(P2P GO)**, and device acting as client are known as **P2P clients**.
- Once P2P group is established, other P2P clients can join the group as in a traditional Wi-Fi network.
- When the device act as both as P2P client and as P2P GO
  - the device will typically alternate between the two roles by time-sharing the Wi-Fi interface
- Like a traditional AP, a P2P GO announces itself through beacons, and has to support power saving for its associated clients.

# Wi-Fi Direct Setup: Scenario 1



# Wi-Fi Direct Setup: Scenario 2



- Only the **P2P GO** is allowed to cross-connect the devices in its P2P group to an external network.
- Wi-Fi direct does not allow transferring the role of P2P GO within the group.
- If P2P GO leaves the P2P group then the group is break down, and has to re-established.