Differentiate These Roaming Technologies

802.11k vs 802.11v

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802.11k is Radio Resouce Measurement

- Neighbor Reports inform clients of BSSID RF conditions

-Clients ask for specific SSID info in requests

-Responses tell clients the AP channel and RF Conditions

How do I know if I'm using 802.11k ?

Check for "RM Enabled Capabilites" Tag in Beacons

```
Tag: RM Enabled Capabilities (5 octets)
  Tag Number: RM Enabled Capabilities (70)
  Tag length: 5
```

Filter for Neighbor Report Request/Response with **wlan.fixed.action_code in {0x04,0x05}**

```
IEEE 802.11 Wireless Management
  Fixed parameters
      Category code: Radio Measurement (5)
      Action code: Neighbor Report Request (4)
```

```
IEEE 802.11 Wireless Management
  Fixed parameters
      Category code: Radio Measurement (5)
      Action code: Neighbor Report Response (5)
```

802.11v is Wireless Network Management

- Includes a few amendments, but known for BSS Transition Managment

-BSS Transition Management Requests/Responses manage STAs between BSSIDs

-Incorporates 802.11k neighbor reports

How do I know if I'm using 802.11v ?

Check for "BSS Transition"
Value (Extended Capabilities tag, Octet 3) in Beacons

```
Tag: Extended Capabilities (10 octets)
    Tag Number: Extended Capabilities (127)
    Tag length: 10
  > Extended Capabilities: 0x04 (octet 1)
  > Extended Capabilities: 0x10 (octet 2)
  v Extended Capabilities: 0x0f (octet 3)
      .... ...1 = TFS: Supported
      .... ..1. = WNM Sleep Mode: Supported
      .... .1.. = TIM Broadcast: Supported
      .... 1... = BSS Transition: Supported
      ...0 .... = QoS Traffic Capability: Not supported
      ..0. .... = AC Station Count: Not supported
      .0.. .... = Multiple BSSID: Not supported
      0... .... = Timing Measurement: Not supported
```

Filter for BTM Requests/Responses with
wlan.fixed.action_code in {0x07,0x08}

```
IEEE 802.11 Wireless Management
  Fixed parameters
      Category code: WNM (10)
      Action code: BSS Transition Management Request (7)
```

Recap

802.11k informs clients for their roaming decisions whereas 802.11v manages roams based on AP determination, using info from 802.11k

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Sources/Credits

-Understand 802.11r/11k/11v Fast Roams on 9800 WLCs (Cisco Technotes Document ID:221671)

-IEEE 802.11-2020
https://ieeexplore.ieee.org/document/9363693

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