**8. What is the purpose of 802.11k and v, and how does it aid in roaming?**

* **802.11k** and **802.11v** are **Wi-Fi standards** designed to improve **roaming** performance between access points (APs).
* 802.11k focuses on radio resource management:
  + Allows devices to scan for nearby access points more efficiently.
  + Helps devices choose the best AP based on factors like signal strength, congestion, and load.
  + Reduces the time taken to roam by providing better information to clients.
* 802.11v focuses on network management:
  + Enhances AP-to-AP communication to inform devices of network changes or conditions.
  + Allows the network to direct devices to a specific AP for optimal performance.
  + Supports load balancing, directing devices away from overloaded APs.
* Together, 802.11k and 802.11v help devices:
  + Roam smoothly by providing better information about the available APs and the network environment.
  + Reduce roaming time, leading to fewer dropped connections.
  + Improve overall network performance by enabling more efficient handoffs between APs.