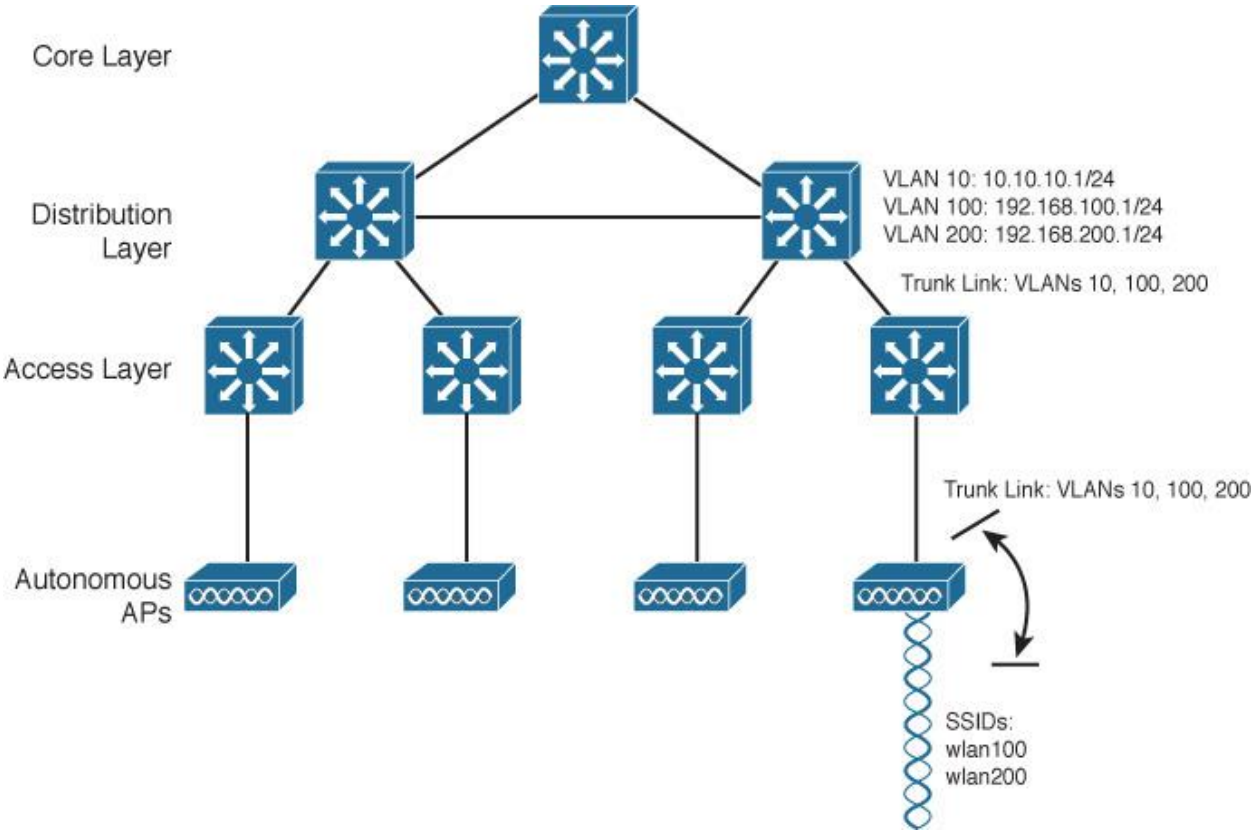
Wireless Architectures:

Take a look at different Cisco wireless architectures we can use for enterprise networks.

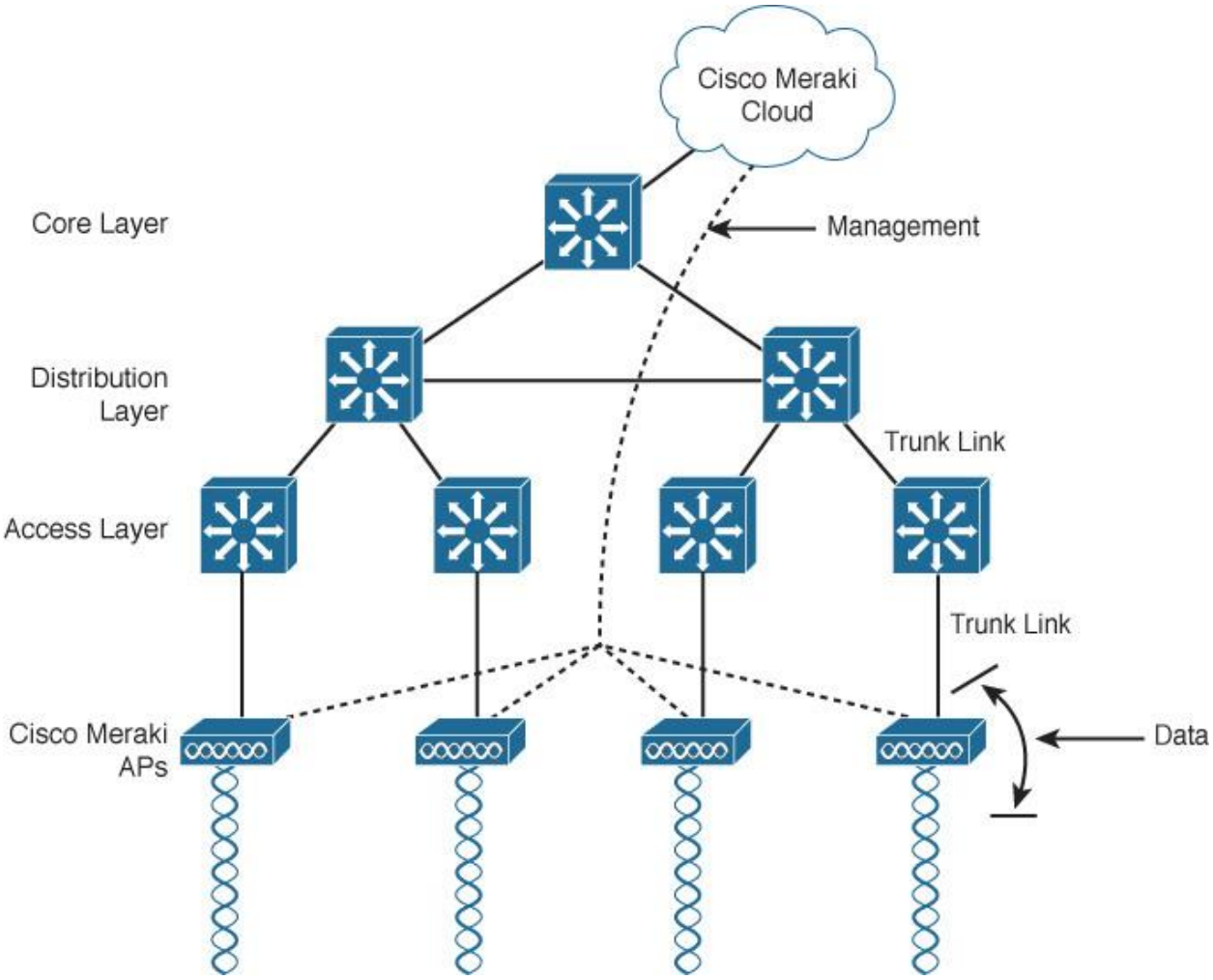
Autonomous AP Architecture:

- Autonomous Architecture, access points (APs) are stand-alone sometimes called fat APs.
- Autonomous AP has all required intelligence to serve wireless clients & to connect wired.
- Autonomous APs are self-contained, each offering one or more fully functional BSSs etc.
- An autonomous AP is self-contained; it is equipped with both wired & wireless hardware.
- So that wireless client associations can be terminated onto wired connection locally at AP.
- The VLANs must be trunked from the distribution layer switch to the access layer switch.
- Where they are extended further over a trunk link to the Wireless Access Points (AP).
- Autonomous AP offers a short & simple path for data to travel between wireless & wired.
- Autonomous AP must also be configured with management IP address to remotely manage.
- The Autonomous APs are stand-alone access points (AP) with fully integrated intelligence.
- Budget friendly form of access is intended for smaller organizations have small deployment.



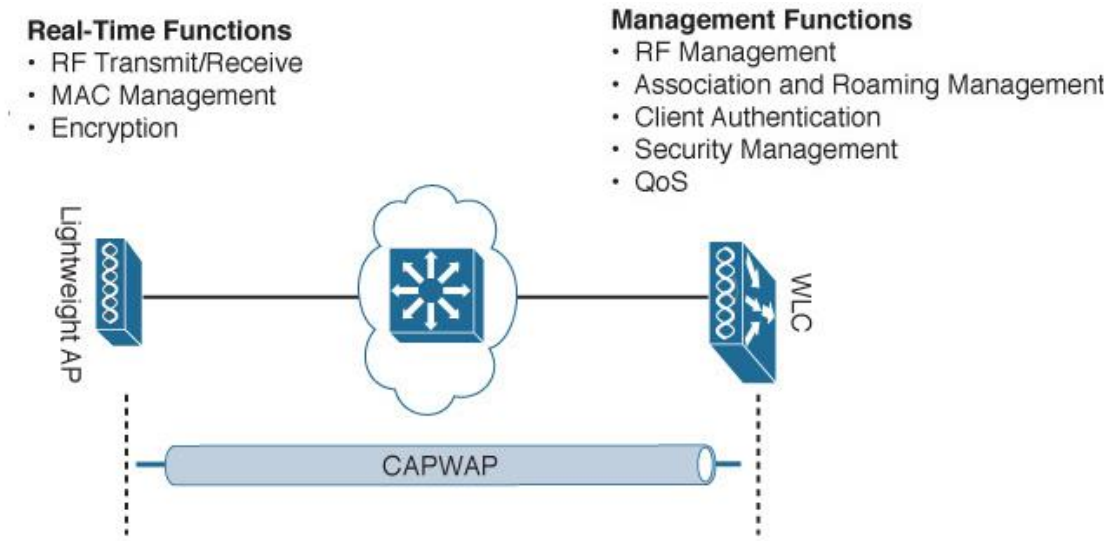
Cloud-Based Architecture:

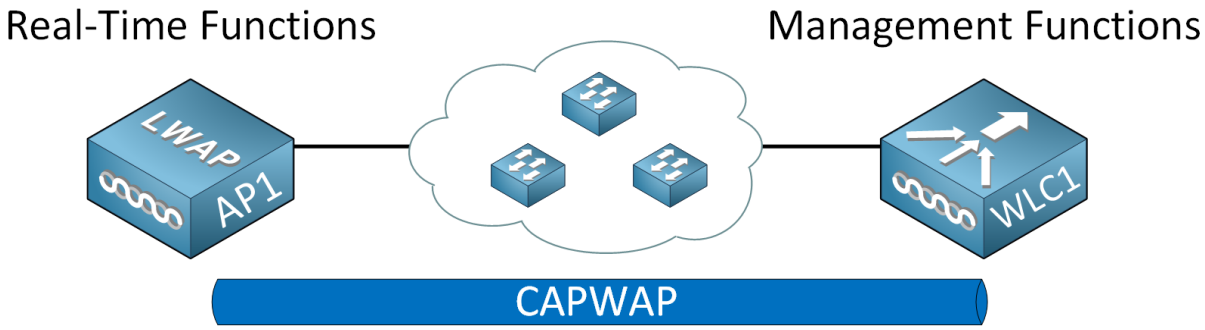
- Cloud-based AP management function is pushed out of the Enterprise into Internet cloud.
- Cisco Meraki is a cloud based solution that offers centralized management of the Wireless.
- Network is arranged same as autonomous AP, but managed would be redirected to a cloud.
- Where AP management function is pushed out of enterprise and into the Internet cloud.
- From cloud, can push out code upgrades & configuration changes to APs in the enterprise.
- Cloud-Based all of APs are managed, controlled, and monitored centrally from the cloud.
- The cloud-Based this is almost a 'hybrid' between Autonomous and Split-MAC architecture.
- Meraki are autonomous access points but All of managerial functions are available in cloud.
- This managerial style can be useful to administrators want to be able to oversee remotely.



Split-MAC Architecture:

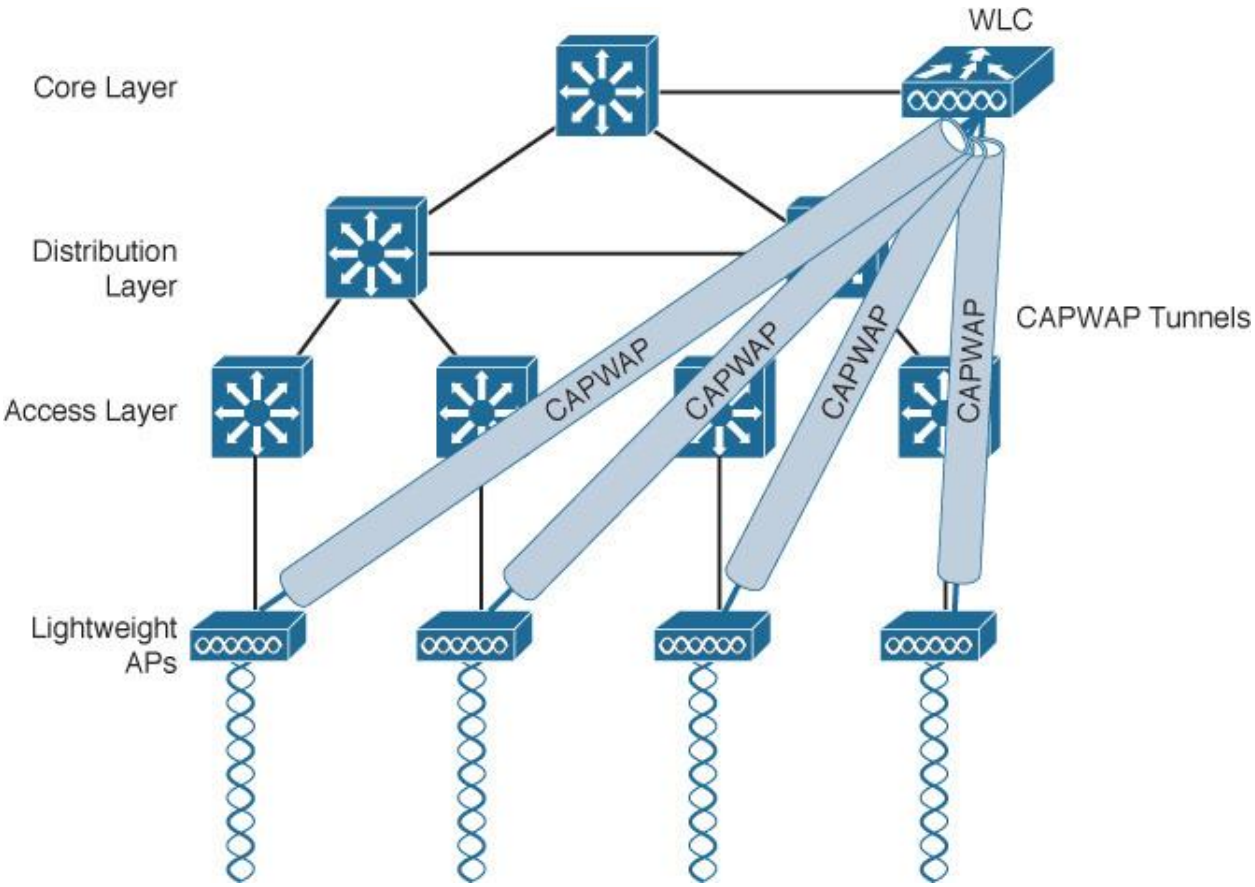
- Split-MAC means is that management process is divided into two separate streams of data.
- Access points get configuration from designated controller who orchestrate entire process.
- Wireless Controller have the ability to see all access points & coordinate them accordingly.
- In Split-MAC design because everything is centralized, this leads to reduced overhead costs.
- For a large-scale deployment, you're going to want to consider that split-MAC architecture.
- Entire data process is going to be handled by the Wireless Access Points (AP) themselves.
- Real-time functions always stay in the AP and the management functions go to the WLC.
- WLC for multiple APs, where do we set up WLC so that it can cover as much APs as it can.
- Split MAC architecture divides implementation of MAC functions between AP & controller.
- For that set Wireless LAN Controller in core layer, to have a centralized view of the network.
- Since these functions are not the real-time, we can move them to a central point, the WLC.
- take away some of intelligence of the AP, which is why we call them lightweight APs (LAP).
- The lightweight AP requires a Wireless LAN Controller (WLC) it can't function on its own.
- Splitting functions between the AP and WLC is what we call the split-MAC architecture.
- When a lightweight AP boots, it uses discovery mechanisms to search & connect to a WLC.





Centralized Wireless Network:

- WLC for multiple APs, where do set up WLC so that it can cover as much APs as it can.
- For that we set the WLC in the core layer, to have a centralized view of the network.
- If you want to deploy a WLC to support the multiple lightweight APs in your network.
- One approach is locate WLC in central location that maximize number of APs joined it.
- Traffic to & from wireless users travel over CAPWAP tunnels reach into center of network.
- Centralized WLC provides convenient place to enforce security policies that affect all users.
- In this design lightweight access point (LWAPP) performs only real-time 802.11 operation.
- All management functions are usually performed on a wireless LAN Controller (WLAC).



Converged Wireless Network Architecture:

- When we want a WLC to be closer to the APs and is more about a distributions functions.
- In that case, the Wireless LAN Controller (WLC) is move further down to the Access layer.
- In this Architecture the WLC function is moved closer to the LAPs and the wireless users.
- In this Architecture, the WLC function becomes distributed, rather than the centralized.
- The access layer turns out to be a convenient location for the Wireless LAN Controllers.
- With all types of user access merged into one layer called converged wireless network.
- In this architecture converged controllers are known as Wireless Control Modules (WCMs).
- One other advantage of the converged network architecture relates to wireless scalability.
- Connect Wireless LAN Controller and an Access Point both to the same access Layer switch.
- Now LAPs are reaching the Wireless LAN Controller through the Access/Distribution switch.
- This leads to a shorter distance CAPWAP, hence faster Wi-Fi and less delays for connectivity.