

# COAP: A Software-Defined Approach for Managing Residential Wireless Gateways



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## MOTIVATION

- WiFi deployment in dense residential settings
- Unorganized deployment
- Heterogeneous hardware
- Many neighboring APs (20 - 60 SSIDs)
- Multiple WiFi / non-WiFi devices
- Lack of user experience in managing devices
- No co-ordination between neighboring APs

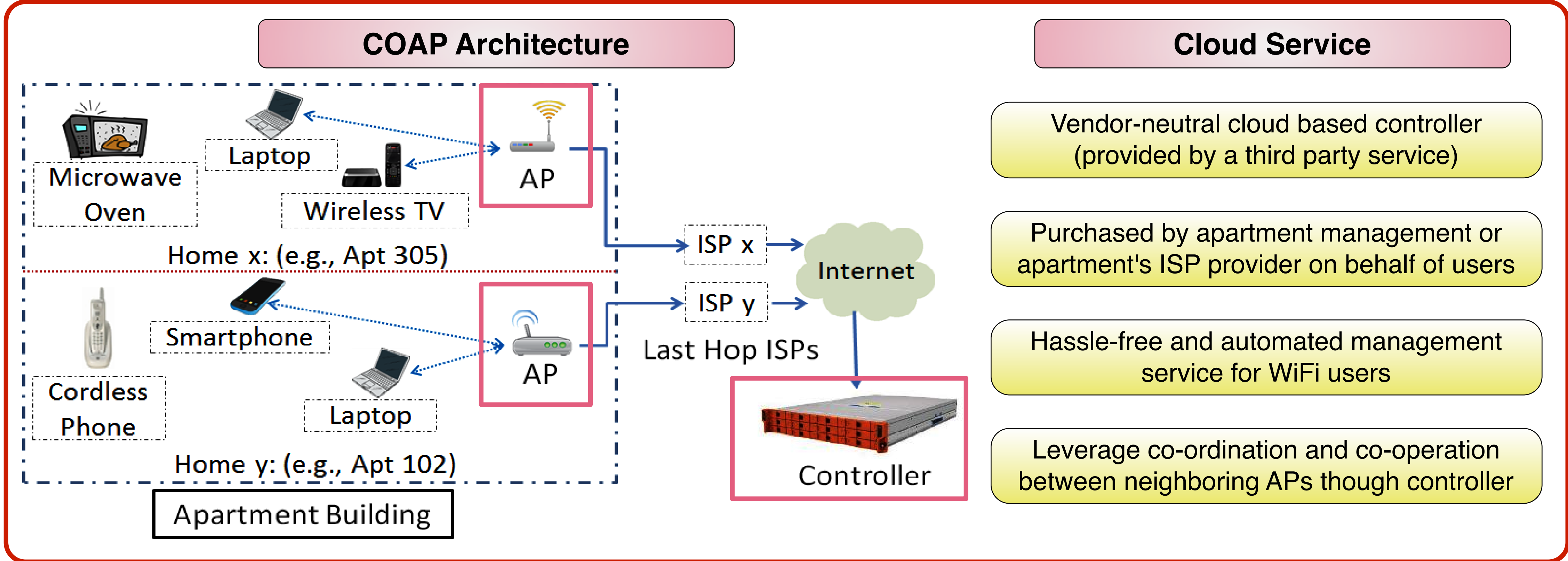
### Potential problems at homes

- Router configuration
- Environmental effects
- Wireless Interference
- Non-WiFi interference

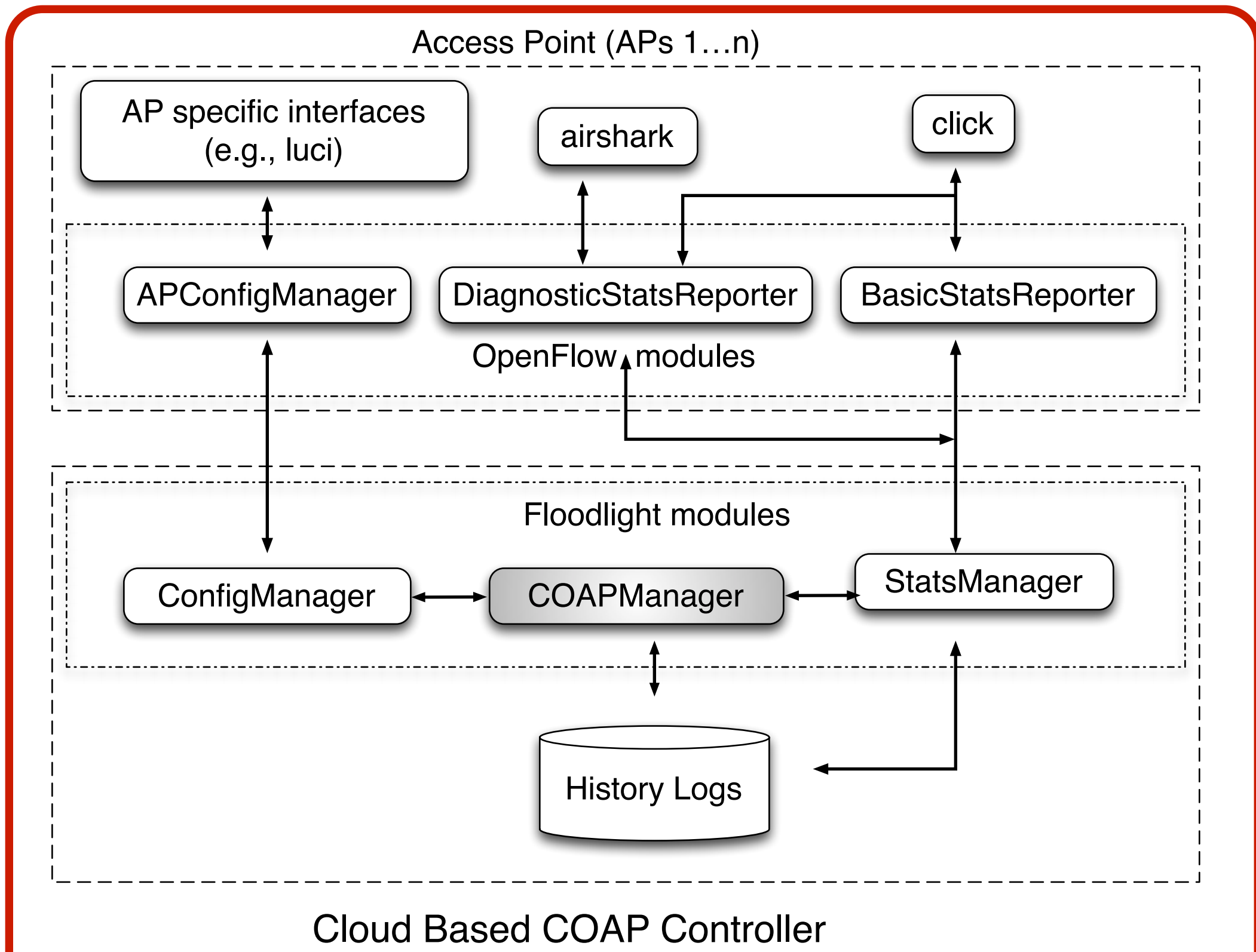


Wireless Devices at Homes

## CLOUD BASED MANAGEMENT



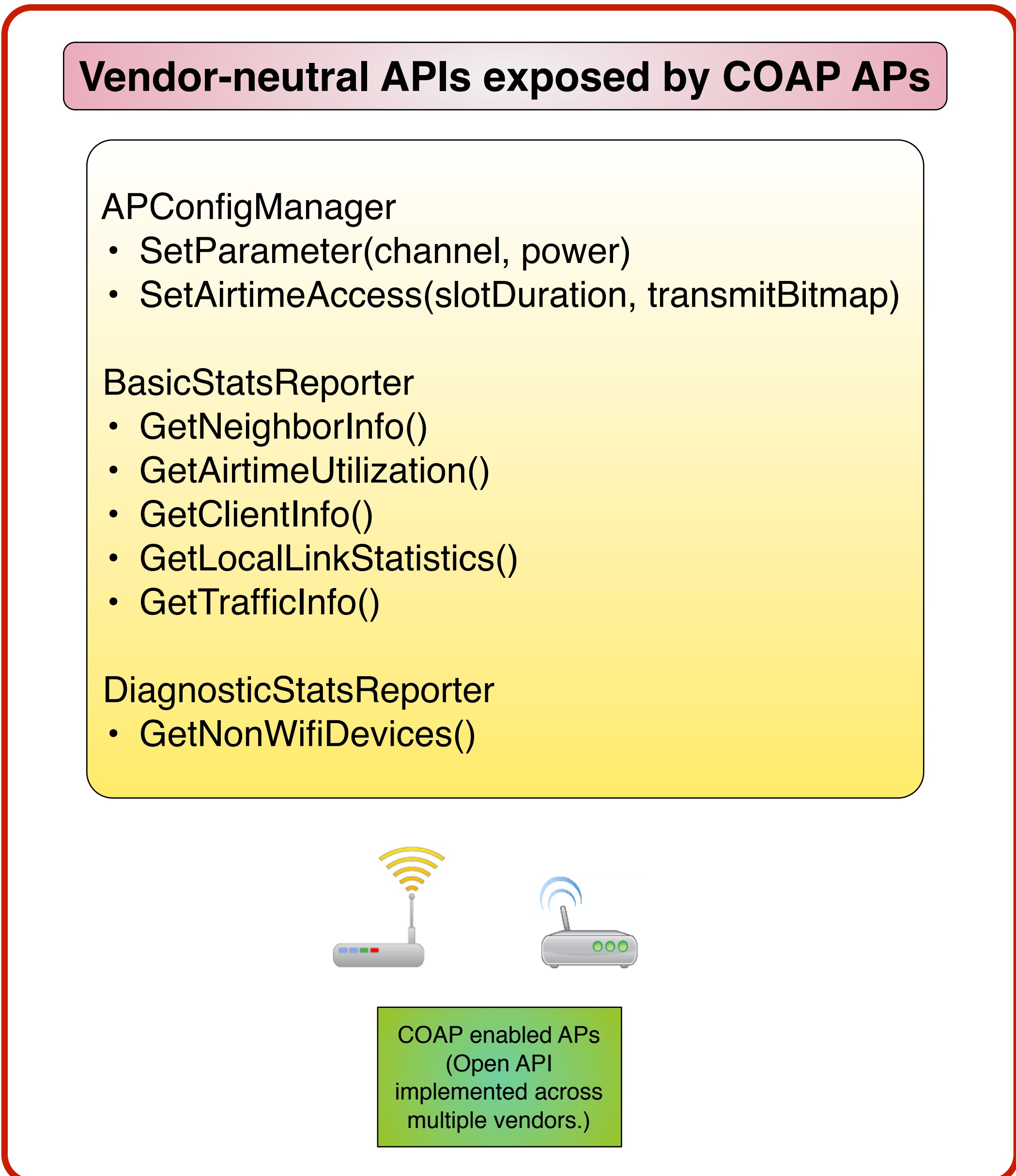
## COAP FRAMEWORK



### Controller Applications

- Automated remote AP configuration
- Per-AP neighborhood map to determine activity in the vicinity of each AP.
- Interference detection and mitigation
- Context aware management (e.g., traffic, client device type, time of day)

## COAP API



## EXAMPLE APPLICATION

