Mobility Architecture

Here are the mobility components in the new mobility architecture:

Mobility Agent

A mobility agent manages AP connectivity, CAPWAP tunnel terminations from APs and builds a database of client stations (endpoints) that are served locally as well as roamed from an Anchor WLC. Mobility agent can be either a Catalyst 3850 or a CT5760 mobility controller with an internal mobility agent running on it.

Mobility Controller:

A mobility controller provides mobility management tasks including inter-SPG roaming, RRM, and guest access. Mobility roaming, where a wireless client moves from one physical location to another without losing connectivity and services at any time, can be managed by a single mobility controller if roaming is limited to a mobility sub-domain. Roaming beyond a mobility sub-domain can be managed by multiple mobility controllers in a mobility group. The mobility controller is responsible for caching the Pairwise Master Key (PMK) of all clients on all the mobility controllers, enabling fast roaming of the clients within its sub-domain and mobility group. All the mobility agents in the sub-domain form CAPWAP mobility tunnels to the mobility controller and report local and roamed client states to the mobility controller. The mobility controller builds a database of client stations across all the mobility agents.

Mobility Oracle

Mobility oracle further enhances mobility scalability and performance by coordinating roaming activities among multiple mobility groups, which removes the need for N2 communications between mobility controllers in different mobility groups to improve efficiency and performance.

Mobility Group

The mobility group is a logical group of mobility controllers to enable fast roaming of clients within the mobility controllers of a mobility group.

Mobility Sub-domain

Multiple SPGs can be grouped together and collectively managed as a mobility sub-domain. One mobility controller is required for each mobility sub-domain.

Switch Peer Group

The Converged Access deployment defines an SPG as a logical group of mobility agents within one mobility controller (or mobility sub-domain). The main advantage of configuring SPGs is to constrain the roaming traffic to switches that form the SPG. When the mobility agents are configured in one SPG on the mobility controller, the software automatically forms full mesh CAPWAP tunnels between the mobility agent switches. These CAPWAP tunnels can be formed in a multi-layer network design (where the mobility agent switches are L2 adjacent on a VLAN spanned across) or a routed access design (where the mobility agent switches are L3 adjacent).

The SPGs should be designed as a group of mobility agent switches to where the users frequently roam.

Note Roams within an SPG are local to the SPG, and need not involve the mobility controller. Roams across a SPG require traffic to traverse the mobility controller.

Figure 4-1 Mobility Domain

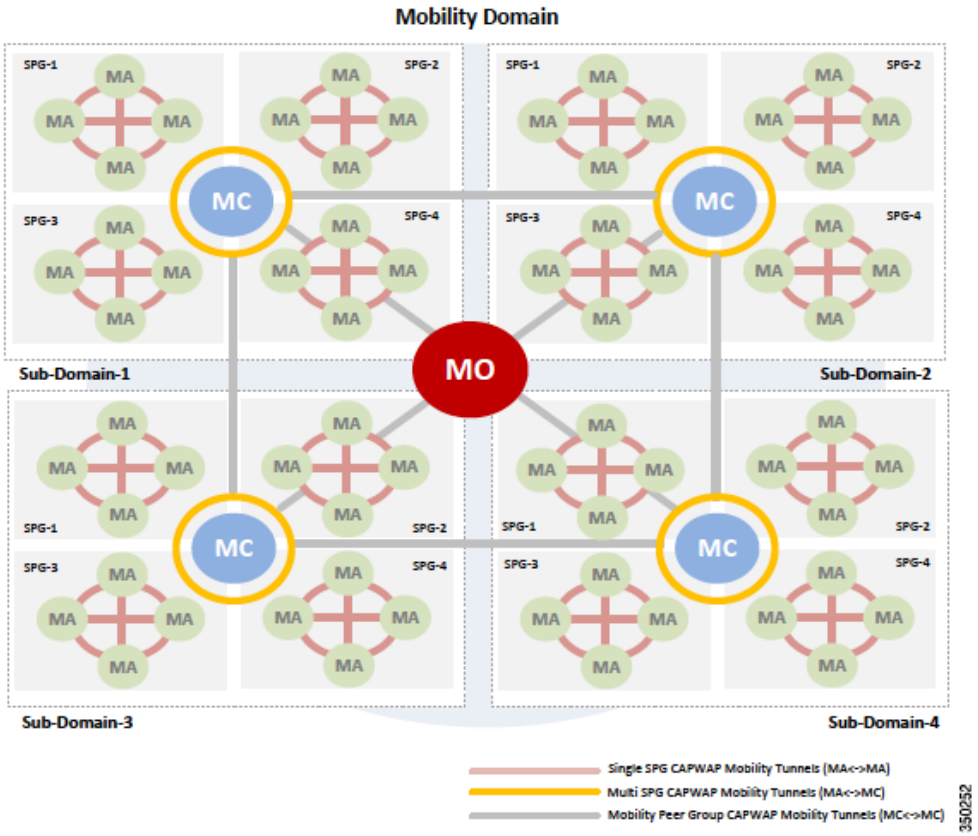
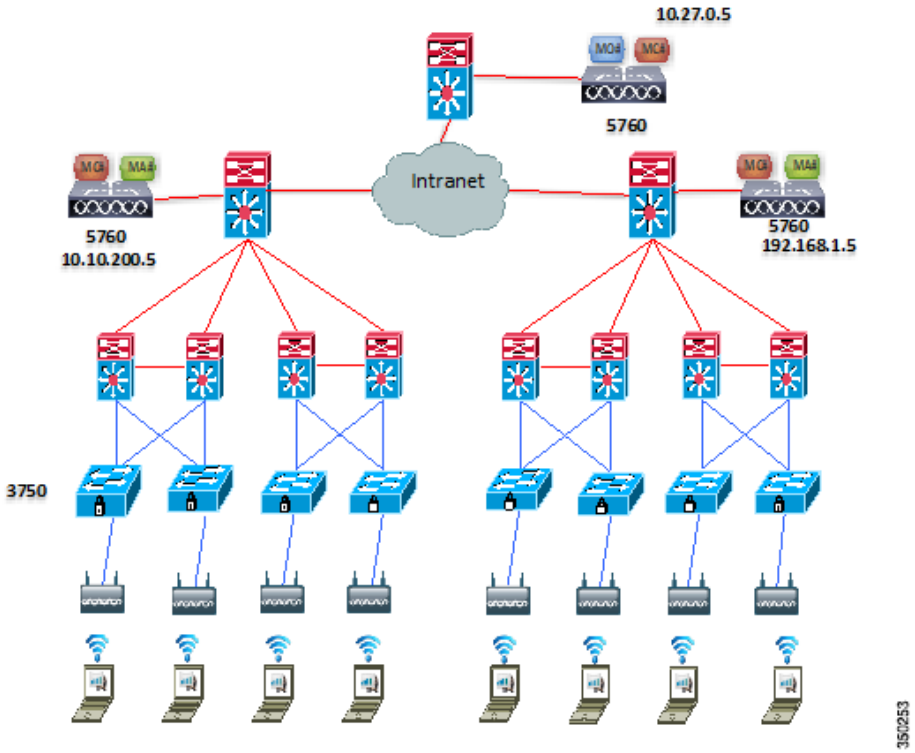


Figure 4-2 Mobility Design and Configuration: WLC5760 in Centralized Mode



Mobility Configuration on WLC5760-Mobility Controller

```
wireless mobility controller
wireless mobility group member ip 10.27.0.5 public-ip 10.27.0.5
wireless mobility group member ip 192.168.1.5 public-ip 192.168.1.5
wireless mobility dscp 46
wireless management interface Vlan21
```

Mobility Configuration on WLC5760-Mobility Controller-Mobility Oracle

```
wireless mobility group member ip 10.10.200.5 public-ip 10.10.200.5
wireless mobility group member ip 192.168.1.5 public-ip 192.168.1.5
wireless mobility oracle
wireless management interface Vlan27
```

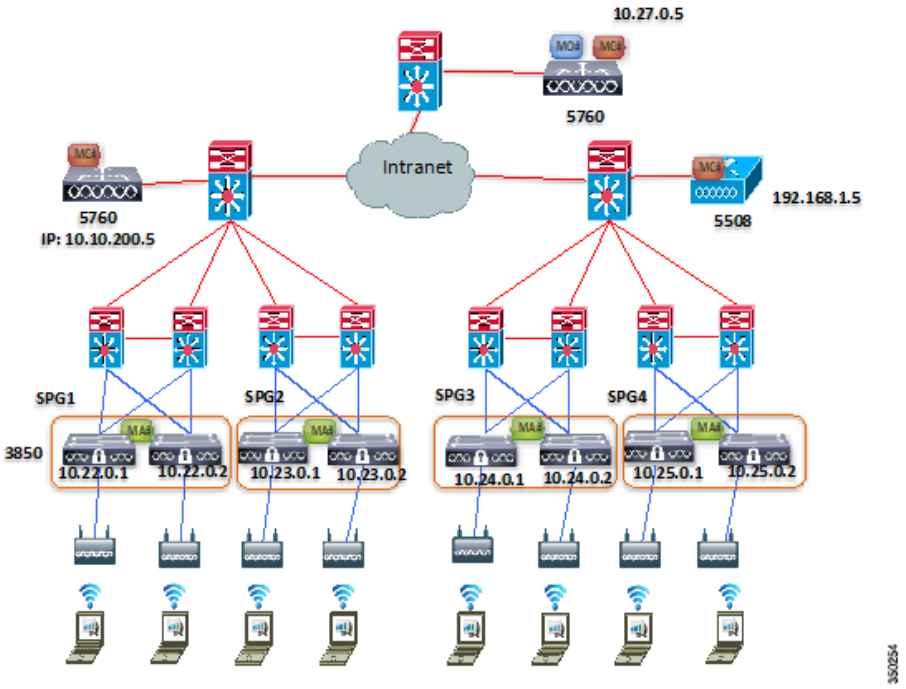
Mobility Configuration on WLC5508-Mobility Controller

```
config mobility new-architecture enable
```

```
config mobility mobility-oracle10.27.0.5
config mobility group member add 10.10.200.5
config mobility group member add 10.27.0.5
config mobility dtls-mode enable
config mobility dscp 46
```

Mobility Design and Configuration: WLC5760 (mobility controller) and Catalyst 3850 (mobility agent) in Converged Access Mode

Figure 4-3 Mobility Design and Configuration in Converged Access Mode



Mobility Configuration on WLC5760-Mobility Controller-Mobility Agent

```
wireless mobility controller
wireless mobility controller peer-group SPG1
wireless mobility controller peer-group SPG1 member ip 10.22.0.1 public-ip 10.22.0.1
wireless mobility controller peer-group SPG1 member ip 10.22.0.2 public-ip 10.22.0.2
wireless mobility controller peer-group SPG2
wireless mobility controller peer-group SPG2 member ip 10.23.0.1 public-ip 10.23.0.1
wireless mobility controller peer-group SPG2 member ip 10.23.0.2 public-ip 10.23.0.2
wireless mobility group member ip 10.27.0.5 public-ip 10.27.0.5
wireless mobility group member ip 192.168.1.5 public-ip 192.168.1.5
```

```
wireless mobility dscp 46
wireless mobility oracle ip 10.27.0.5 wireless management interface Vlan21
```

Mobility Configuration on WLC5760-Mobility Controller-Mobility Oracle

```
wireless mobility group member ip 10.10.200.5 public-ip 10.10.200.5
wireless mobility group member ip 192.168.1.5 public-ip 192.168.1.5
wireless mobility oracle
wireless management interface Vlan27
```

Mobility Configuration on WLC5508-Mobility Controller-Mobility Agent

```
config mobility new-architecture enable
config mobility mobility-oracle10.27.0.5
config mobility group member add 10.10.200.5
config mobility group member add 10.27.0.5
config mobility switchPeerGroup create SPG3
config mobility switchPeerGroup member add 10.24.0.1 SPG3
config mobility switchPeerGroup member add 10.24.0.2 SPG3
config mobility switchPeerGroup create SPG4
config mobility switchPeerGroup member add 10.25.0.1 SPG4
config mobility switchPeerGroup member add 10.25.0.2 SPG4
config mobility dtls-mode enable
config mobility dscp 46
```

Mobility Configuration on Catalyst 3850-Mobility Agent 1

```
wireless mobility controller ip 10.10.200.5 public-ip 10.10.200.5
wireless management interface Vlan22
```

Mobility Configuration on Catalyst 3850-Mobility Agent 2

```
wireless mobility controller ip 10.10.200.5 public-ip 10.10.200.5
wireless management interface Vlan22
```

Mobility Configuration on Catalyst 3850-Mobility Agent 3

```
wireless mobility controller ip 10.10.200.5 public-ip 10.10.200.5
wireless management interface Vlan23
```

Mobility Configuration on Catalyst 3850-Mobility Agent 4

```
wireless mobility controller ip 10.10.200.5 public-ip 10.10.200.5
wireless management interface Vlan23
```

Mobility Configuration on Catalyst 3850-Mobility Agent 5

```
wireless mobility controller ip 192.168.1.5 public-ip 192.168.1.5
wireless management interface Vlan24
```

Mobility Configuration on Catalyst 3850-Mobility Agent 6

```
wireless mobility controller ip 192.168.1.5 public-ip 192.168.1.5
wireless management interface Vlan24
```

Mobility Configuration on Catalyst 3850-Mobility Agent 7

```
wireless mobility controller ip 192.168.1.5 public-ip 192.168.1.5
wireless management interface Vlan25
```

Mobility Configuration on Catalyst 3850-Mobility Agent 8

```
wireless mobility controller ip 192.168.1.5 public-ip 192.168.1.5
wireless management interface Vlan25
```