Multiple UP Group Support

Revision History

Table 1: Revision History

Revision Details	Release
First Introduced	21.25

Feature Description

Remote CUPS allows a progressive configuration rollout on an operator network. You can deploy and activate a pilot or canary version N+1 on a given CP or UPs pool, while the version N configuration is still active on the other CP or UP pool until the operator decides to roll out this N+1 configuration to all the CP or UP pools after the monitoring period.

Use cases for this feature are as follows:

- ECS or ADC configuration update rollout: The ability to test the configuration using one CP or UP pilot, while the other CP or UP uses the old configuration.

- New APN configuration update: Ability to test new APN configuration using a set of CP or UP pilot, while another component uses the old configuration.

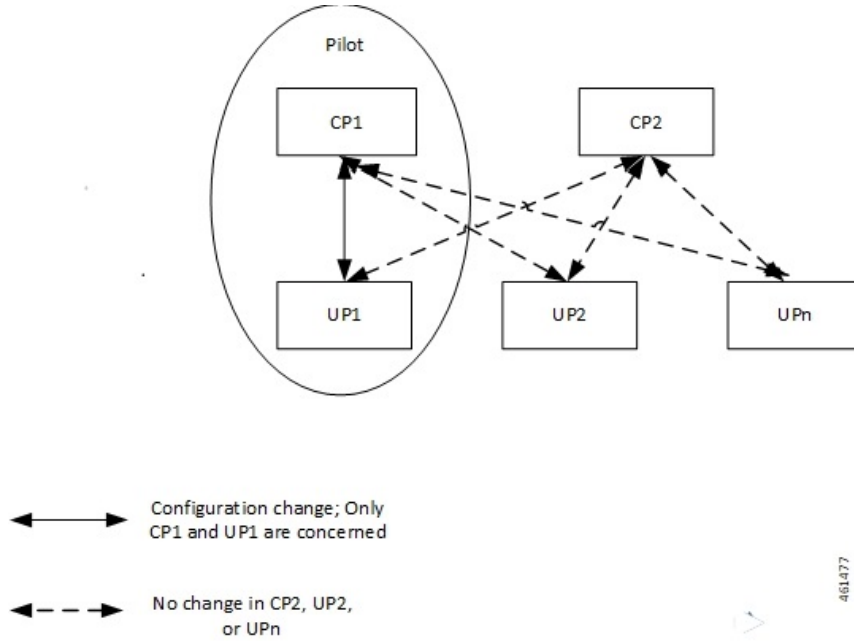- Add or remove the IP pool configuration update.

Relationships

TAC RAC profile support feature is related to the Multiple UP Group Support feature, which is used to select a test virtual APN.

Architecture

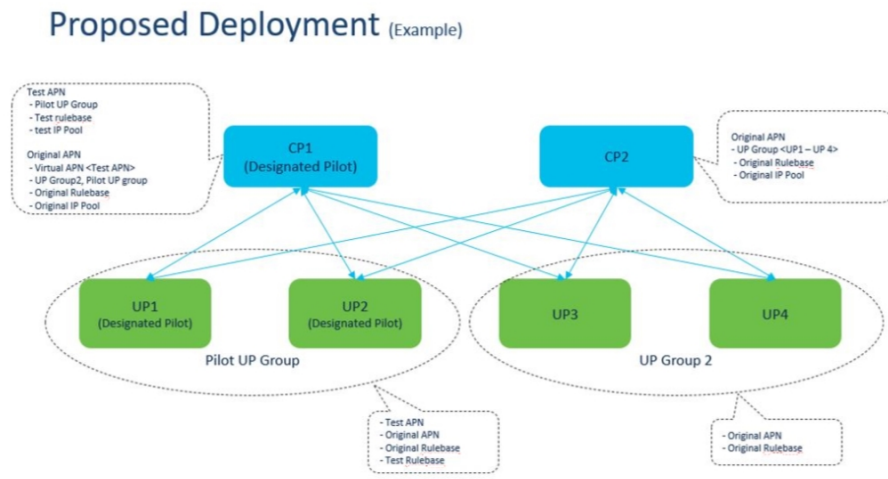The following diagram depicts the progressive configuration rollout architecture.

Figure 1: Progressive Configuration Rollout

Components

The following diagram depicts the proposed deployment components.

Figure 2: Proposed Deployment

How It Works

Pilot CP routes the incoming test pilot calls to the pilot UP group.

Pilot CP also routes usual business calls to any UP as per its original deployment. Therefore, this feature supports multiple UP groups under an APN. The first UP group includes the pilot UPs, and the second UP group includes all the other nonpilot UPs. A single UP cannot exist in two UP groups simultaneously. There is a strict 1:1 mapping between UP and the UP group.

Limitations and Restrictions

The Multiple UP Group Support feature has the following limitations and restrictions:

- You can apply the pilot configuration only at the UP-group level.

- Configure CP and UP independently.

- ECS configuration changes that occur at lower levels like ruledef, Charging Action, and so on, cannot be isolated from the pilot UP. Rule base level differentiation is required.

- Pilot CP and UPs must be designated at deployment. Post deployment designation requires the existing sessions to be cleared.

- If any user group is not attached to any of the APNs, then the corresponding UP nodes must be de-registered and removed from the CP configuration.

- Static-IP-Pools are not supported.

Configure the Multiple UP Group Support Feature

This section describes how to configure the Multiple UP Group Support feature.

Configuring the Multiple UP Group Support feature involves the following steps:

Serial Number	Configuration	For Pilot Configuration
1	ECS or ADC configuration (For example, ruledef, rulebase, charging action)	On Pilot CP: Configuration differentiation must be performed at the rulebase level. Changes in configuration entities like ruledef, charging action, and so on, needs duplication. On Pilot UP: Corresponding configuration changes must be performed on one or more pilot UPs directly.
2	APN configuration	• Create a new APN with desired configuration changes. • Configure the test APN as a virtual APN in the existing APN with required redirecting rules. Alternatively, use MME to redirect calls to the test APN.

Serial Number	Configuration	For Pilot Configuration
3	UP group configuration	• Select pilot CP and UPs at the time of deployment. • Enable multiple UP-groups that must be configured for an APN.
4	IP pool configuration	New IP pool: • Create a new IP Pool and associate it with the test APN. Update existing IP pool: • Perform the configuration changes to the IP pool directly. **Note:** Change cannot be localized to one or more pilot UPs only.

Use the following CLI commands to configure the UP-management policy:

```
configure
   up-mgmt-policy policy_name
      user-plane-group group_name
      end
```

Use the following configuration for UP selection on Pure-P and Collapsed call types:

```
configure
   context context_name
      apn apn_name
         up-mgmt-policy policy_name
         end
```

Use the following configuration for UP selection on a Pure-S call type:

```
configure
   context context_name
      apn-profile  profile_name
         up-mgmt-policy policy_name
         end
```

Notes:

- *policy_name* must be a string of size 1-31.

- You can configure either the APN profile level UP-group or the UP-management policy.

- For an APN profile, you can configure only a single UP-management policy.

- Assign a pool name for the IP address allocation.