MOBILE UC SOLUTION ADMINISTRATOR GUIDE

VERSION 1.1
LAST UPDATED 9.20.2011

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▌1▐ PREREQUISITES FOR RUNNING MOBILE UC CLIENT

1.1 Mobile UC Client on Android Smartphones

The Mobile UC client is an Android application which supports targeted Android smartphone devices. It is an integrated dialer which supports Business and Mobile calls. The Business calls can be placed through the Verizon Wireless CDMA Network without a docking station or through the Enterprise network directly with a docking station. Both kinds of calls are made through an Enterprise PBX server, which can be Cisco or Avaya IP PBX. The mobile calls are placed directly through the mobile network.

1.2 Docking Station with Mobile UC Software for Docking Station

The Docking Station is a separate device running OpenWRT Linux-based OS. The device has a keypad and LEDs, handset, a plug for headset, two Ethernet ports (LAN and PC pass-through), and a USB port for connecting the Android device.

The Docking Station can be accessed via SSH with the following credentials:
+ Username: **root**
+ Password: **velvet**

This access can be used for troubleshooting.

The Docking Station network drivers support VLAN tagging and 802.1q protocol. The two Ethernet ports are named LAN and PC. The LAN port is for the Ethernet connection to the enterprise network. It is the port near the USB plug. The PC port is for the Ethernet connection to the user's PC. Through this port the user's PC is connected to the Enterprise network.

In order to connect directly to the company's PBX, the Mobile UC Android client needs to be docked in the Mobile UC docking station. This can be done when the Android device is connected to the Mobile UC docking station through a USB cable.

The endpoints and ports that the Mobile UC client accesses are the following:

PBX – the port where the Mobile UC client connects to the PBX using SIP protocol (over UDP or TCP). The port can be changed on the PBX side, but is usually 5060 (for both UDP and TCP). This port is configurable on configuration file of the Mobile UC client.

LDAP – port 389 (TCP). This is access to the Active Directory to validate the username and password provided by the user.

TFTP – port 69 (UDP). This is the access to the TFTP server (the IP can be provided by either DHCP option 66 or set in the configuration file itself).

Other ports - other ports can be used in the SIP and media communication with the PBX or other SIP phones.

> **With PBX:**
>> The SIP protocol allows for the PBX to direct subsequent traffic in a SIP dialog to another location/port via the
>> mechanism of Contact, and Route headers. These ports are dynamic and unknown from client standpoint initially; they are communicated via the SIP protocol.

> **With other SIP phones:**
>> Whether the Mobile UC client will communicate directly with the other SIP phone during a VoIP call depends on the PBX configuration and whether it acts as a proxy for the SIP and media traffic. Each VoIP call uses using dynamic ports with each SIP endpoint (or the PBX if the PBX acts a media proxy) for media and potentially SIP traffic. These ports are dynamic and unknown from client standpoint initially; they are communicated via the SIP protocol.

Docking Station

> + OpenWRT Linux-based OS
> + 802.1q protocol
> + PoE (Power over Ethernet) 802.3af - Class II & III
> + Draws 10W max
> + Firmware updated via USB

1.3 You Will Also Need

+ **PBX** - Avaya or Cisco IP PBXs supported
> Cisco Unified Communications Manager 6.1.4 & above, 7.1.5 & above and 8.0 & above; with the following features enabled, and configured:
>> 1. Mobile Connect
>> 2. Mobile Voice Access
>> 3. Enterprise Feature Access with Two-Stage Dialing
>> 4. Simultaneous ring
>
> Avaya - Communication Manager 5.2 and above
>> 1. Support EC500 (Extension to Cellular) feature. Requires software licenses
>> 2. Platform to support SIP devices (SIP Enablement Server required to provide SIP services)
>>   - Mobile UC is a SIP device.
>> 3. DHCP Services to support option 224 (voice VLAN assignment)

+ **Configuration Server** - running TFTP, SFTP or HTTPS service – it will be used to update the configuration file on the client. Enterprise will have to place the configuration files on the appropriate server (TFTP, SFTP or HTTPS) for download to docking station.

+ **DHCP server** – options which will be requested by Mobile UC:
> + tftp-server-name – option 66 – string which represents the name or IP address of the configuration server

+ custom option 224 – this option contains the values for two parameters:

　+ VLAN IDS - if you have VLANs in your LAN/WAN and the Mobile UC users will reside in these VLANs, then you need to set up your main DHCP server to provide custom option 224 with value in the following format:

　　+ VVLAN=X[,DVLAN=Y]

　+ Download method – this parameter is mandatory – it tells the Mobile UC which protocol to use to download and upload its configuration file to the configuration server. Currently three protocols are supported: TFTP, SFTP (SSH FTP), HTTPS. The format is as follows:

　　+ DNLD=[X[:Y[:Z]]]
　　　Where X, Y, Z = T, S, or H
　　　T for **Trivial File Transfer Protocol (TFTP)**
　　　S for Secured File Transfer Protocol **(SFTP)**
　　　H for Secured Hypertext Transfer Protocol **(HTTPS)**

　　+ DNLD=
　　　Use default serial or sequenced download methods, which are TFTP first, SFTP second, and HTTPS third

As a result the custom option 224 should look like this:

VVLAN=X[,DVLAN=Y],DNLD=[X[:Y[:Z]]]

+ **NTP server** – local NTP server, or network access to remote NTP server

+ **DHCP server in your VLANs** – if you have VLANs and plan to set up Mobile UC to use them, you need a separate DHCP server to reside and assign IPs in the VLANs

+ **LDAP server** – on first run, the Mobile UC client authenticates against the enterprise Active Directory. It also pulls contact information from the Active Directory server.

2 OVERVIEW OF OPERATION

2.1 Network Configuration

The docking station default state is to use dhcp. If a dhcp server is available, the docking station will get its network settings through the dhcp, if not, it won't be accessible if a device is not docked. When a device is docked, it configures the docking station with the network settings from the configuration file.

The properties which affect the docking station network settings are:

+ **netDhcpAssigned** – Possible values: **TRUE**, **FALSE**. This setting indicates if the docking station will get its network settings through DHCP or not. If this setting is **TRUE**, the following three settings are ignored.
+ **dsIpAddress** – IP address which will be assigned to the docking station, if its network configuration will be static, i.e. **netDhcpAssigned=FALSE**
+ **dsSubnetMask** – net mask which will be assigned to the docking station, if its network configuration will be static, i.e. **netDhcpAssigned=FALSE**
+ **dsDefaultGateway** – default gateway which will be assigned to the docking station, if its network configuration will be static, i.e. **netDhcpAssigned=FALSE**
+ **dsDomainName** – the name of the domain which the docking station will become a member of, if not provided by DHCP
+ **dsDnsServer1** – the primary DNS server which will be used by the docking station, if not provided by DHCP
+ **dsDnsServer2** – the secondary DNS server which will be used by the docking station, if not provided by DHCP

After the device configures properly the docking station network, it connects to the LDAP server and authenticates against it. After the LDAP authentication is successful, the device connects to the PBX and is ready to make and receive calls.
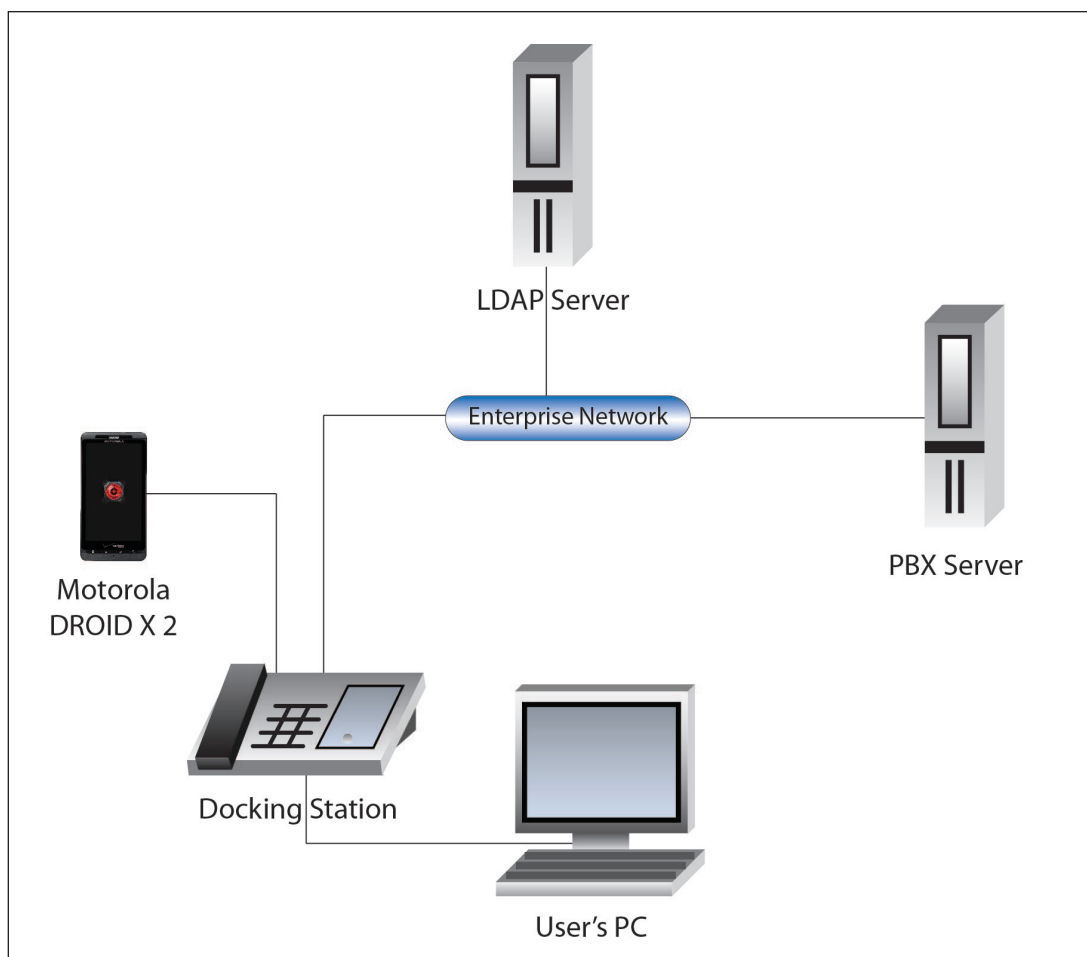
LDAP Server

Enterprise Network

PBX Server

Motorola
DROID X 2

Docking Station

User's PC

Figure 1 – Diagram of network components

2.2 PROVIDING CONFIGURATION FILE TO THE CLIENT

The configuration file is the most important aspect of successfully running the Mobile UC client. There are two ways to provide the configuration file to the client.

1. The first and more automated way is through a configuration server which is running one (or a combination) of the following services – TFTP service, SFTP (SSH File Transfer Protocol) service or HTTPS service. The configuration file must be uploaded on the server in advance, before docking the device. The IP or name of the server must be provided as an option on the DHCP server. The running service must be provided as an option (custom option 224) on the DHCP server. The Mobile UC client will download the configuration file from the server upon docking.

There are two ways to upload a set of configuration files on the TFTP, SFTP, or HTTPS servers.

a. Using the Configuration Tool TFTP upload feature.

The Configuration Tool supports uploading the generated configuration file to a TFTP server. The address of the TFTP server can be configured in the Configuration Tool settings (for TFTP server configuration). The Configuration Tool does not support upload to SFTP or HTTPS servers. Once the configuration files are generated, the tool can be uploaded them to the configured TFTP server.

b. Manually copying the generated configuration files to the TFTP, SFTP, or HTTPS server.

Alternatively, the ready generated configuration files can be manually uploaded or copied to the desired server – TFTP, SFTP, or HTTPS. The Configuration Tool creates the configuration files in a folder Subscriber Configuration Files under the designated data folder during setup of the tool. The administrator can manually copy the files into the desired server, so that they are available for download from the Mobile UC client.

Note: For SFTP and HTTPS servers, the configuration files need to be placed in the root folder of the servers.

2. The second way is the configuration file to be placed on the SD card of the device. This can be done by emailing it as an attachment and saving it to the SD card. It can also be manually copied on the SD card. The Mobile UC client will automatically import the configuration from the SD card.

Note: In case you need to manually edit some values on one or more configuration files directly on the configuration server, keep in mind to update the cfgTimestamp value in the configuration file. This value is used to determine the date of the configuration file. The mobile device compares the timestamp of the configuration file (from the cfgTimestamp value) with the timestamp of the last downloaded configuration file to determine if the new file should be applied. Although SFTP and HTTPS server do provide last-modified timestamps of each file from the file system, the TFTP protocol does not. That is why the Mobile UC client needs to look at the cfgTimestamp value inside the configuration file and it should be kept updated in case manually editing the configuration files.

2.3 Docking Process

When the Android device is docked for the first time, it doesn't have a configuration file. Its default behavior is to configure the docking station to retrieve its settings through DHCP. The client expects that the DHCP will provide the IP or name of the company TFTP server. If this is provided, the client tries to download its configuration file from the TFTP server. If a configuration file cannot be downloaded from the TFTP server, the Mobile UC client tries to find a configuration file on the SD card. If no configuration file exists, the client aborts the docking process.

While Smartphone is docking the undock indicator on the docking station will light up solid amber while docking and remain lit while smartphone is docked. The Mobile UC client home screen will appear once successfully docked.

2.4 Undocking Process

Undocking of a device can be done in two ways:
+ by pressing the Undock button – this performs graceful undocking, or,
+ by unplugging the USB cable from the Motorola Device – ungraceful undocking is performed.

It is recommended that users always undock the device gracefully by pressing the Undock button first and waiting for the undocking procedure to finish. Pressing the Undock button allows the client to gracefully shut down all connections to the PBX and transfer an active call to mobile.

To undock the smartphone, press the undock button on the docking station or on the screen of the smartphone. While going through the undock process the undock button will flash an amber color. When complete, the undock button on the docking station will turn solid green indicating you can unplug micro-USB and remove mobile device from the docking station. You will also see notification on the screen.

After the device is undocked, the Docking Station will get its network setting from the DHCP server and will be accessible with the leased IP from the DHCP server.
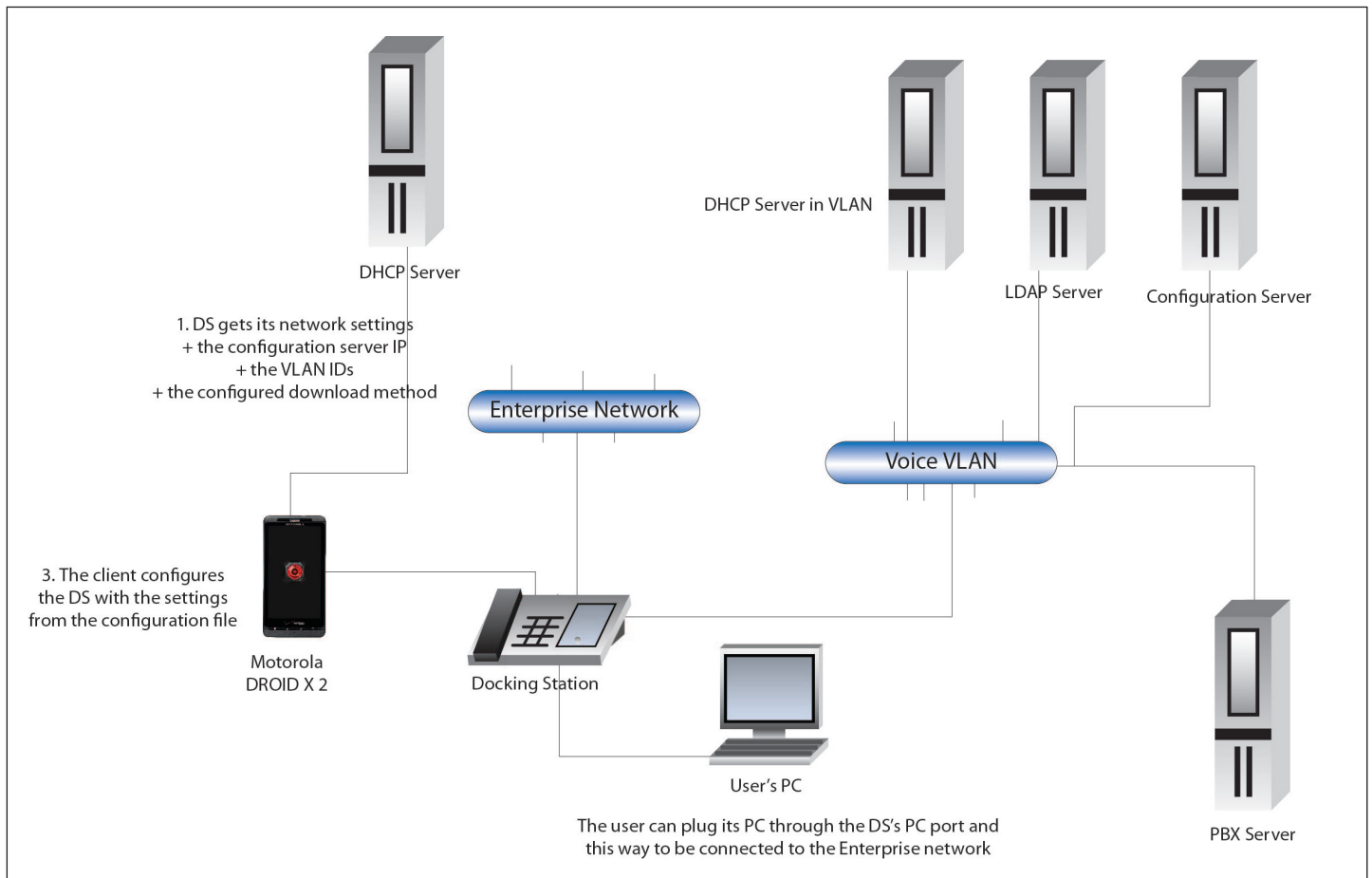
Figure 2 - Docking Sequence

2.5 Docking Station Firmware Upgrade Process

How to perform an update for the docking station firmware:

Instructions:

1. Obtain copy of latest firmware from VzW in *.upd format. Copy to the "*.upd" file to a flash drive. (Confirm there is no other file with a .upd extension on the flash drive)
2. Power on docking station; wait about 1 minute for it to finish powering up
3. Plug in the USB flash drive into the back of the docking station
4. In a few seconds you will see the "Undock" LED turn amber
5. If the update was successful the "Undock" LED will turn green in a minute or two
6. If the update was unsuccessful the "Do Not Disturb" LED will turn red
7. After about 10 seconds the unit will reboot itself
8. When all LED are turned off the docking station is ready for normal use

3 CONFIGURATION FILES

The Configuration Tool is a Windows desktop application that facilitates the creation of multiple configuration files for business users. An improperly configured setting within the tool can be the cause for the client not docking or otherwise misbehaving. Please see the "Mobile UC Configuration Tool Administration guide" for step-by-step guidelines and examples on creating Mobile UC configuration files allowing interoperability with your IP PBX.

4 USE CASES

4.1 DHCP + Dynamic

The most automated use case of the Mobile UC client is in companies where a DHCP server is available and all clients will be with dynamic configuration. The DHCP server must be configured to provide option 66 – tftp-server-name in ASCII. The option's value must contain the IP address or the name of the configuration server, where the configuration files for the Mobile UC clients reside. You must configure the DHCP server to provide custom option 224 in ASCII with following syntax:

+ **VVLAN=xxx[,DVLAN=yyy]**
  + **VVLAN** – this VLAN ID will be used on the LAN port of the docking station. It will tag all traffic from the Mobile UC client with this ID.
  + **DVLAN** – this VLAN ID will be used on the PC port of the docking station. It will tag all traffic from the user's PC with this ID.

+ **DNLD=X[,Y[,Z]]]**
  + **T** – for **TFTP**
  + **S** – for **SFTP**
  + **H** – for **HTTPS**

If you don't use VLANs, you must provide VVLAN parameter empty.
As an end result the custom option 224 must contain:

VVLAN=xxx[,DVLAN=yyy],DNLD=X[,Y[,Z]]]

On boot up, the docking station gets its network settings from DHCP. The Docking Station takes care to obtain and store the provided configuration information – server address and download method and the provided VLAN IDs from the DHCP. If a VVLAN ID is provided, the currently set IP address from the first DHCP request will be released. The provided VLAN IDs will be set and a second DHCP request will be made. The second request will be placed in the configured VLAN. This means that a DHCP server must be placed in the VLAN also. After the second DHCP request is completed, the docking station will be properly configured in the VLAN.

On device docking, the Mobile UC client will get the configuration server address and the configured download method from the Docking Station and will download its configuration. On successful download, the Mobile UC client will configure itself and will configure the Docking Station. In this case, with dynamic configuration, the docking station will remain with its current configuration and no changes will be made.
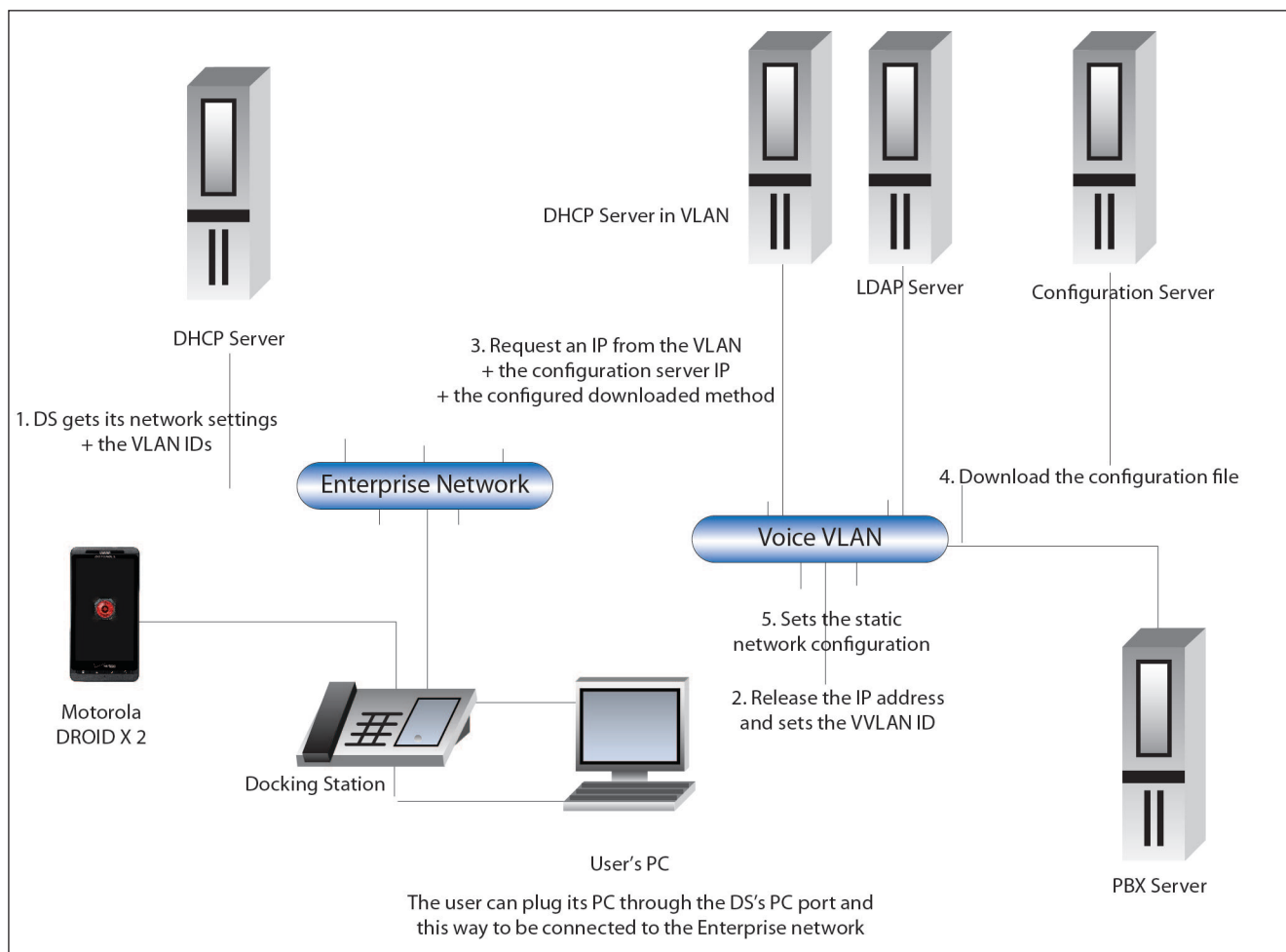
Figure 3 - DHCP + Dynamic + VLAN

4.2 DHCP + Static

Another supported company model is when a DHCP server is available, but the clients will use static configuration. The static configuration must be provided in the configuration file. In this use case the configuration and docking flow will be slightly different from the use case above.

The company DHCP server must be configured to provide option 66 in ASCII (tftp-server-name). Its value must contain the company TFTP server IP address or name. You must configure the DHCP server to provide custom option 224 in ASCII with following syntax:

+ **VVLAN=xxx[,DVLAN=yyy]**
    + **VVLAN** – this VLAN ID will be used on the LAN port of the docking station. It will tag all traffic from the Mobile UC client with this ID.
    + **DVLAN** – this VLAN ID will be used on the PC port of the docking station. It will tag all traffic from the user's PC with this ID.

+ DNLD=X[,Y[,Z]]]
        + T – for **TFTP**
        + S – for **SFTP**
        + H – for **HTTPS**

If you won't use VLANs, you must provide VVLAN parameter empty.
As an end result the custom option 224 must contain:

    VVLAN=xxx[,DVLAN=yyy],DNLD=X[,Y[,Z]]]

On boot up, the docking station gets its network settings from DHCP. The Docking Station takes care to obtain and store the provided configuration information – server address and download method and the provided VLAN IDs from the DHCP. If a VVLAN ID is provided, the currently set IP address from the first DHCP request will be released. The provided VLAN IDs will be set and a second DHCP request will be made. The second request will be placed in the configured VLAN. This means that a DHCP server must be placed in the VLAN also. After the second DHCP request is completed, the docking station will be properly configured in the VLAN.

On device docking, the Mobile UC client will get the configuration server address and the configured download method from the Docking Station and will download its configuration. On successful download, the Mobile UC Client will configure itself and will configure the docking station. In this case the static configuration from the file will be applied. The configuration properties which will be applied are the following:

+ **netDhcpAssigned** – must be set to **FALSE**. This way the parameters below will be applied to the docking station

+ **dsIpAddress** – the desired IP address which will be assigned to the docking station

+ **dsSubnetMask** – net mask which will be assigned to the docking station

+ **dsDefaultGateway** – default gateway which will be assigned to the docking station

+ **dsDomainName** – the name of the domain which the docking station will become a member of

+ **dsDnsServer1** – the primary DNS server which will be used by the docking station

+ **dsDnsServer2** – the secondary DNS server which will be used by the docking station
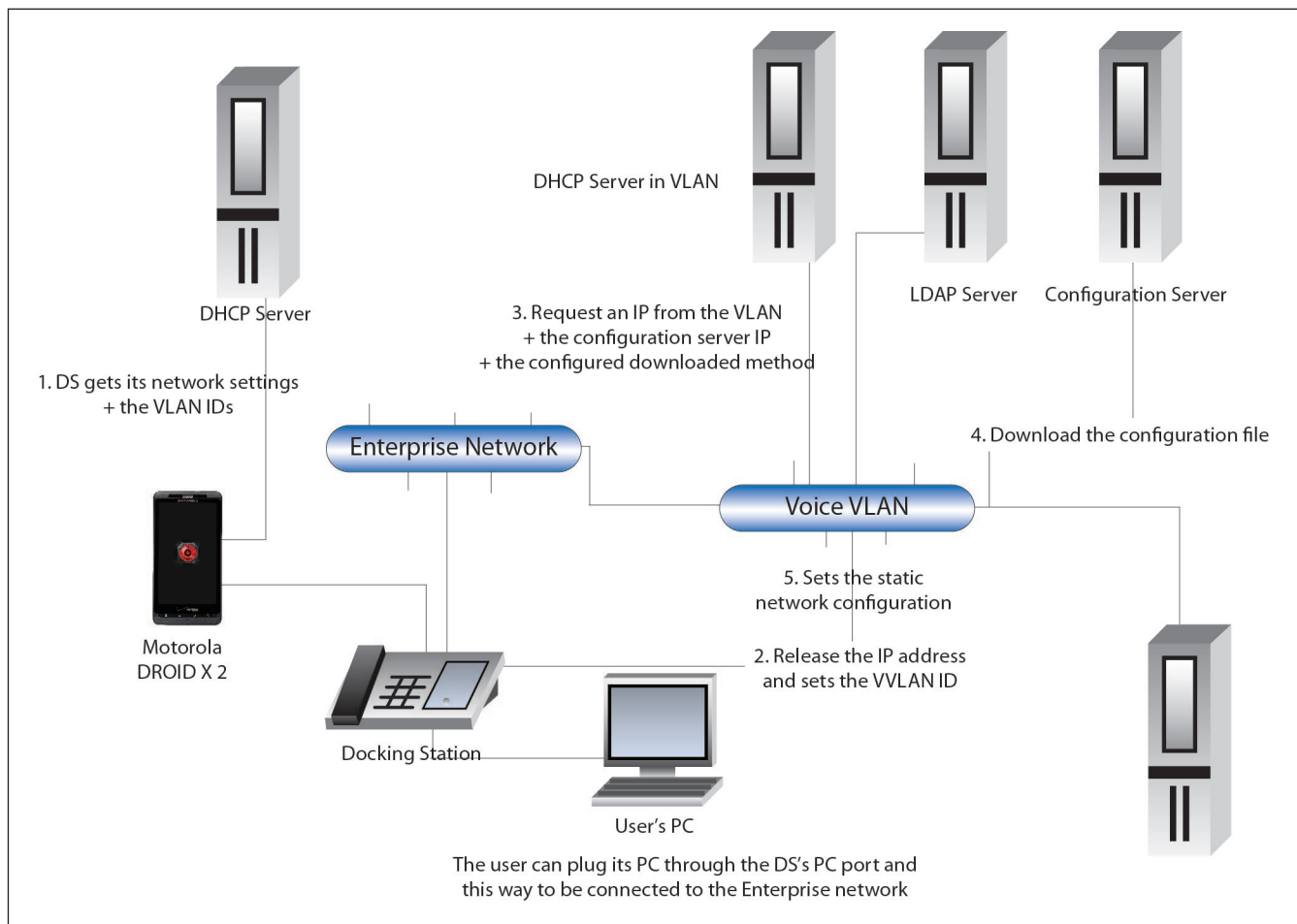
Screen 18

4.3 No DHCP Available

When the company doesn't have a DHCP server, the Mobile UC client must be configured with static configuration. On boot up, the docking station won't be accessible because no DHCP server is available. The Android device must have a configuration file emailed and imported in advance. On device docking, it will configure the docking station with a static configuration – IP, subnet mask, default gateway, primary and secondary DNS servers and domain name. Then the docking station will become accessible on the configured IP address and will operate in the network with this static configuration. In order to set up the static configuration of the docking station, a configuration file must be preliminary provisioned to the device either through e-mail or SD card, as there is no mechanism to provide the configuration server address, except in the configuration file.

5 PBX REQUIREMENTS

This section provides a list of requirements for the PBX so that all features of the Mobile UC client can be supported.

The basic assumption (and first requirement) is that the PBX is already configured to handle SIP-to-SIP and SIP-to-PSTN calls. The following configurations must be applied on the PBXs in order to support all features of the Mobile UC client: Direct Transfer (Blind Transfer), per line Call Limitations, Shared Lines and DTMF, Voice Mail profile modifications, etc.

Shared lines support for Cisco, and Bridged appearances for Avaya may not be supported at initial launch of Mobile UC client.

5.1 Cisco
Cisco SIP based IP-PBX platforms compatible with Mobile UC solution:
Cisco Unified Communications Manager 6.1.4 & above
Cisco Unified Communications Manager 7.1.5 & above
Cisco Unified Communications Manager 8.0 & above

The following features must be enabled and configured:
5. Mobile Connect
6. Mobile Voice Access
7. Enterprise Feature Access with Two-Stage Dialing
8. Simultaneous ring

+ To support Direct Transfer (Blind Transfer), the following settings must be applied:
    + Select device from Device->Phone-><Device Name>
    + If device Directory Numbers exist into logical Partitions:
       + Device Rerouting Calling Search Space and Calling Search Space must be set to the same calling search space containing its directory partition (section: Protocol Specific Information, property: Rerouting Calling Search Space)
+ If no partitions are used, you must leave properties "Rerouting Calling Search Space" and "Calling Search Space" to None.
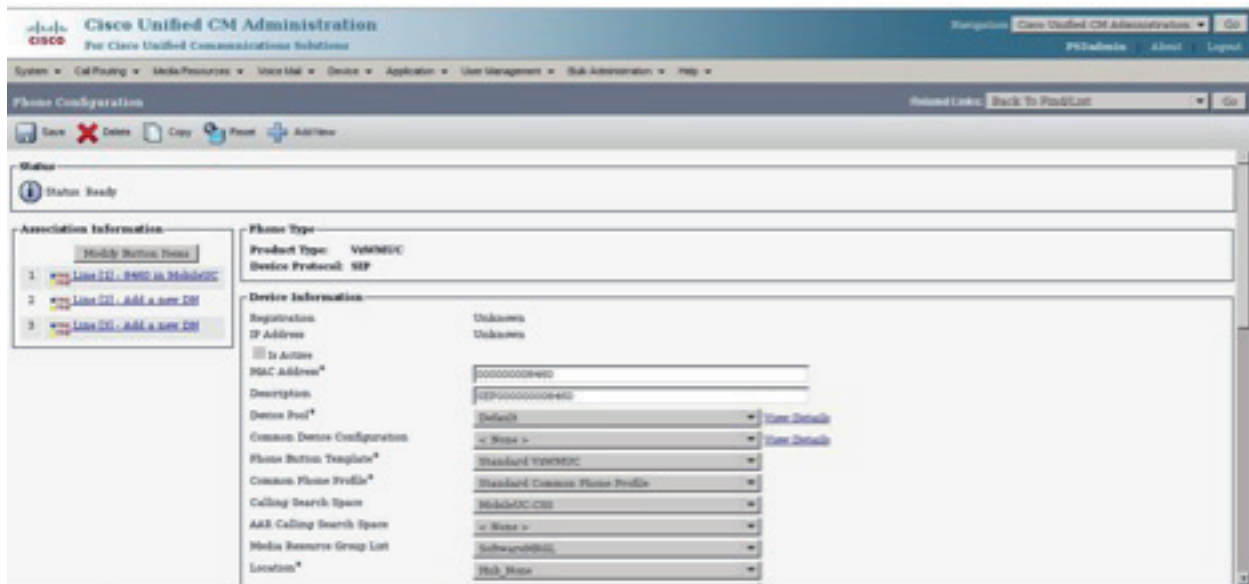
Figure 5 - Calling Search Space and Media Resource Group List – Cisco
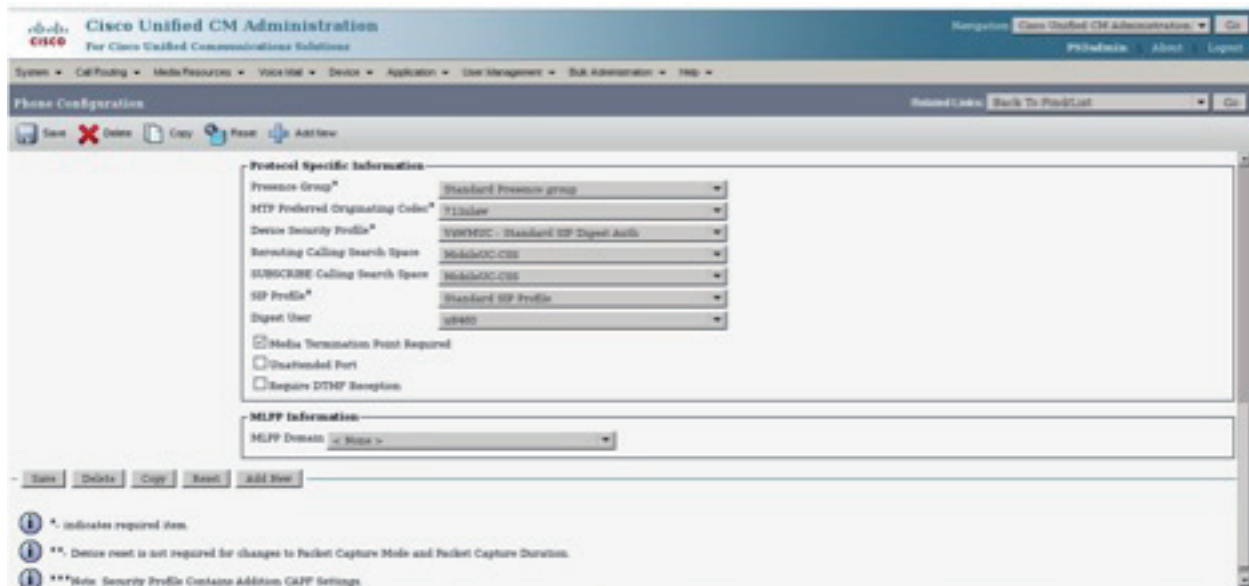
Figure 6 - Rerouting Calling Search Space – Cisco
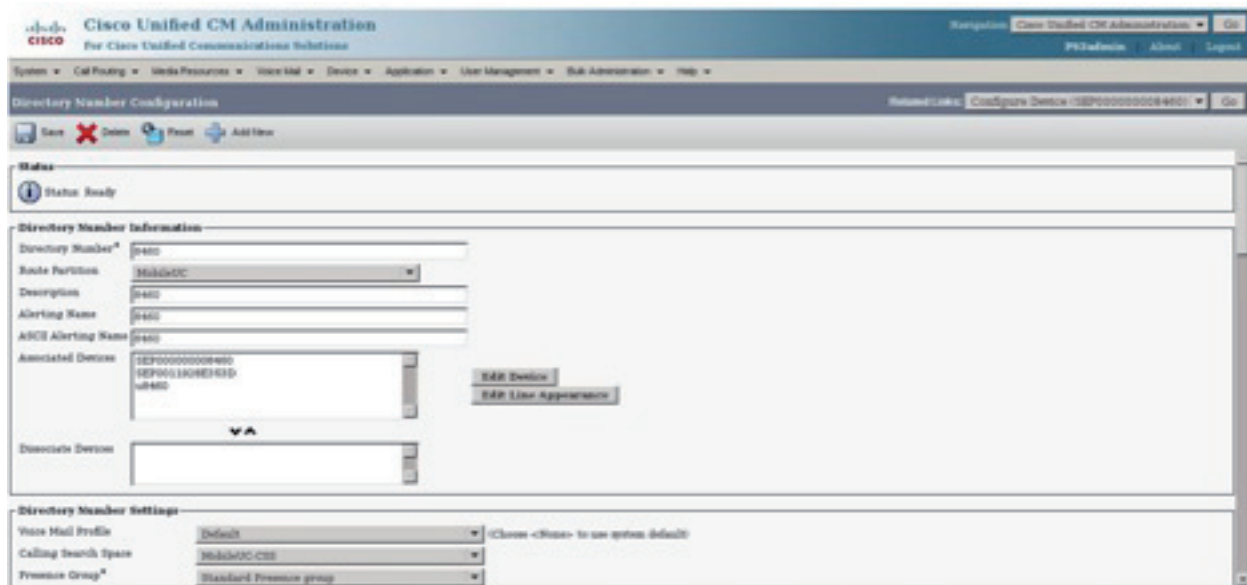
Figure 7 - Directory Number in Logical Partition and Calling Search Space – Cisco

+ To allow the Mobile UC client to handle 3 calls at a time, including 3 conference calls, the PBX must be configured to allow 6 or more calls per device line. Make sure each device has correct max number of allowed calls:

  + Select device from **Device->Phone-><Device Name>**
  + For each line assigned to selected device, check section "**Multiple Call/Call Waiting Settings on Device <SEP.....>**".
    + Maximum Number of Calls must be greater or equal to **6**.
    + Busy Trigger must be equal to 6.
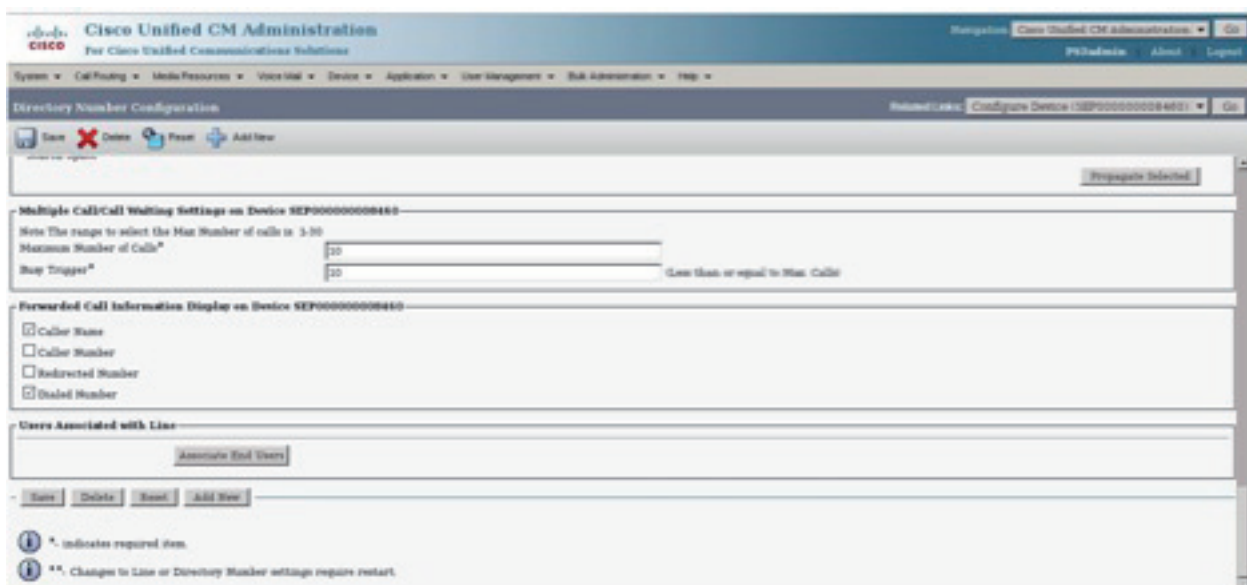
Figure 8 - Maximum Number of Calls – Cisco

+Shared lines support for third-party SIP devices is not available, thus additional PBX update must be applied. The update is to install an additional VzW MUC (Verizon Wireless Mobile UC) phone type that allows the support of shared lines. The update is in form of a "cop" file that installs the VzWMUC phone type. For each account that uses the VzWMUC phone type, its configuration file must have the following property set as follows:

+appSipLineContactParams=;+u.sip!model.ccm.cisco.com=\"618\"

+If the Cisco PBX is configured with H323-based system users will not be able to interact with voice mail system by DTMF using SIP. When the user dials voice mail, the call needs go through Call Manager, not though the voice mail system itself. Call Manager will take care of interoperability of H323 and SIP, and PBX administrator may need to set up MTP to support RFC2833 and H245 signaling. First the PBX administrator must define Media Resource Group List. Then for each device with VM, set Media Termination Point Required and Media Resource group list for this device defined in first step.

5.2 Avaya

+Avaya SIP based IP-PBX platforms compatible with Mobile UC solution:
+Avaya Communication Manager 5.2 and above
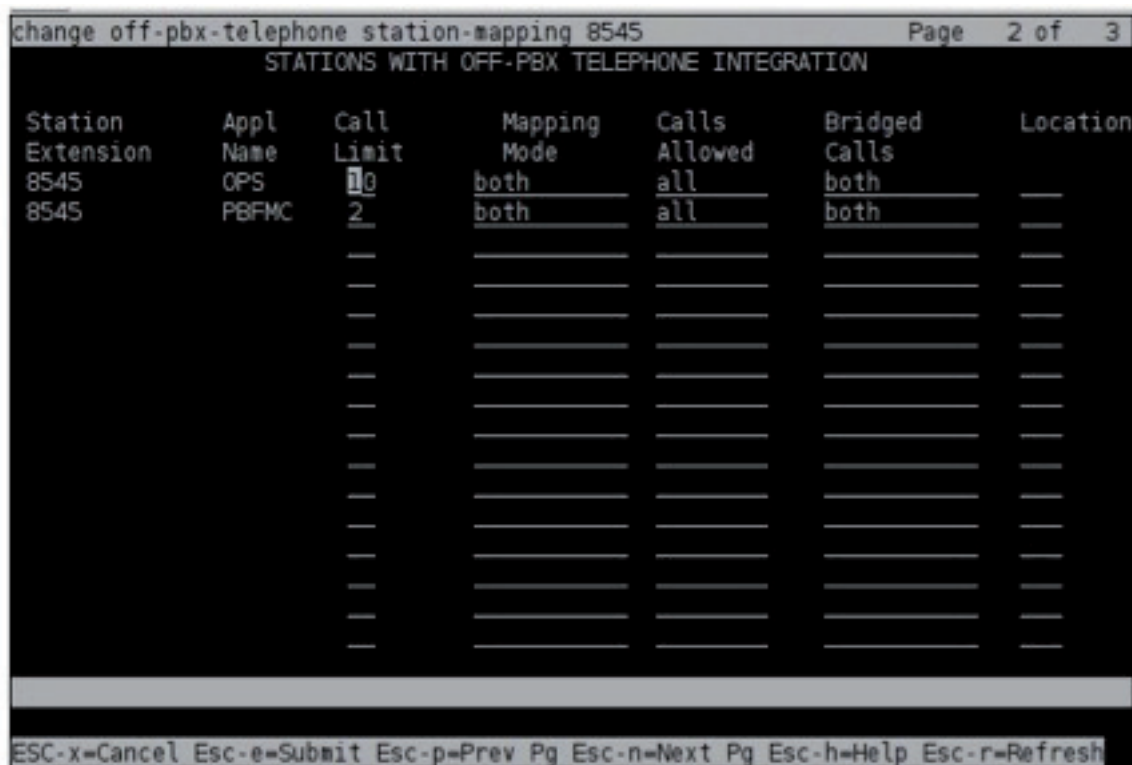
The following features must be enabled and configured
1. Support **EC500 (Extension to Cellular)** feature. Requires software licenses
2. Platform to support **SIP devices (SIP Enablement Server required to provide SIP services)** - Mobile UC is a SIP device.
3. DHCP Services to support option **224 (voice VLAN assignment)**

+**Maximum allowed calls** must be set:
+Login from **SAT -> change off-pbx-telephone station-mapping <extension>**
+Set **Call limit to 6 (or greater)**.

Figure 10 - Call Limit – Avaya

+ Changes needed for undocked conferences:
    + change off-pbx-telephone configuration-set 1 (Page 1)
        + CONFIGURATION SET: 1
        + Use Shared Voice Connections for Second Call Answered? **Y (change from N to Y)**
        + Use Shared Voice Connections for Second Call Initiated? **Y (change from N to Y)**

```
change off-pbx-telephone configuration-set 1                    Page   1 of   1



                              CONFIGURATION SET: 1

                  Configuration Set Description: SIP
                            Calling Number Style: network
                             CDR for Origination: phone-number
             CDR for Calls to EC500 Destination? y
                     Fast Connect on Origination? n
                     Post Connect Dialing Options: dtmf
                     Cellular Voice Mail Detection: timed   (seconds): 4
                                   Barge-in Tone? n
                      Calling Number Verification? y
          Call Appearance Selection for Origination: primary-first
                                 Confirmed Answer? n


 Use Shared Voice Connections for Second Call Answered? y
 Use Shared Voice Connections for Second Call Initiated? y




ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

Figure 11 - Configuration Set – Avaya

+ change station <extension> (Page 4) – do this for each station
   + BUTTON ASSIGNMENTS – add as many call-appr buttons as is the defined call limit (6 or greater)
   + **3: no-hld-cnf** (define a button to have no-hld-cnf)


```
change station 8545                                    Page   4 of   5
                              STATION
  SITE DATA
         Room: █                          Headset? n
         Jack: ____                       Speaker? n
        Cable: ____                       Mounting: d
        Floor: _____                Cord Length: 0
     Building: _____                  Set Color: _____

  ABBREVIATED DIALING
       List1: _____      List2: _____      List3: _____




  BUTTON ASSIGNMENTS
   1: call-appr              5: call-appr
   2: call-appr              6: call-appr
   3: no-hld-cnf             7: call-appr
   4: call-appr              8: call-appr

      voice-mail Number: 8545


ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

Figure 12 - Button Assignments – Avaya

+ change off-pbx-telephone station-mapping <extension>
      + Change application column to '**PBFMC**'

```
change off-pbx-telephone station-mapping 8545              Page   1 of   3
                 STATIONS WITH OFF-PBX TELEPHONE INTEGRATION

Station          Application Dial    CC  Phone Number    Trunk       Config  Dual
Extension                   Prefix                       Selection   Set     Mode
8545             OPS         ___   . __  8545            3           1       __
8545             PBFMC       1     . __  9085073609      5           1       __
_____          ____        ___   . __  _____      ____        _       __
_____          ____        ___   . __  _____      ____        _       __
_____          ____        ___   . __  _____      ____        _       __
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_____          ____        ___   . __  _____      ____        _       __
_____          ____        ___   . __  _____      ____        _       __


ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

+ change system-parameters features (page 6)
   + Long Hold Recall Timer (seconds): **0**

Figure 14 - Long Hold Recall Timer – Avaya

+ change system-parameters features (page 7):
> + CONFERENCE/TRANSFER:
> + No Dial Tone Conferencing? **Y**

Figure 15 - No Dial Tone Conferencing – Avaya

+ List of FNEs needed for undocked operation:
> + Idle Appearance Select
> + Active Appearance Select
> + Conference Complete
> + Off-Pbx Call Enable
> + Off-Pbx Call Disable
> + Recall
> + Transfer to Voice Mail

Figure 16 - Example Station Configuration (Page 2) – Avaya

This section provides a list of requirements for the PBX so that all features of the Mobile UC client can be supported.

The basic assumption (and first requirement) is that the PBX is already configured to handle SIP-to-SIP and SIP-to-PSTN calls. The following configurations must be applied on the PBXs in order to support all features of the Mobile UC client: Direct Transfer (Blind Transfer), per line Call Limitations, Shared Lines and DTMF, Voice Mail profile modifications, etc.

Shared lines support for Cisco, and Bridged appearances for Avaya may not be supported at initial launch of Mobile UC client.

5.3 PBX Version Limitations And Other Information

SIP based IP-PBX platforms compatible with Mobile UC solution

Cisco Unified Communications Manager 6.1.4 & above, 7.1.5 & above and 8.0 & above; with the following features enabled, and configured:

+ Mobile Connect
+ Mobile Voice Access
+ Enterprise Feature Access with Two-Stage Dialing
+ Simultaneous ring

Avaya - Communication Manager 5.2.X and above

+ Support EC500 (Extension to Cellular) feature. Requires software licenses
+ Platform to support SIP devices (SIP Enablement Server required to provide SIP services) - Mobile UC is a SIP device.
+ DHCP Services to support option 224 (voice VLAN assignment)

NOTE: At launch, Shared Lines support for Cisco, and Bridged Appearances for Avaya will not be supported by the Mobile UC client. Plan to add the feature to Mobile UC client near term.