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1 Introduction

2 PTT+ R8.1.2—Client requirements

2.1 Push To X

2.1.1 Provisioning
User should be able to disable/enable PTX features from ECM on per MDN base.
PTX features are grouped as following and can each be individually disabled/enabled:
• Text
• Text and Multimedia (picture and video)
• Location

By default all PTX features are enabled for users with upgraded client. ECM should check user’s client version and only display PTX options if client supports it.

2.1.2 Scope
Provide interim CALEA solution until the standards are updated to account for CALEA capabilities.
Messages go through the same APN as PTT calls.
PTX can be used to send message to single user, pre-defined groups and ad-hoc groups.
For Broadcast groups only text are allowed.

2.1.3 Client types
PTX will be supported on iOS and Android Smartphone/Tablet clients.

2.1.4 Features

Send Message
To send a message, there are two entry points:
1. Select a contact or group from contact/group/favorite/recent tab then go to call-ready screen, click on a message icon (text, location, camera or voice message)
2. from recent tab, click on the arrow at end of entry and go to threaded history with the contact/group.
If user has certain PTX features disabled, the corresponding message icon should not show up for user. And user won’t be able to receive the specific type of messages.

**Store and Forward**
Messages to offline users are stored and forwarded when recipient is back online. Time-to-live for notifications is configurable up to 7 days. Set as 7 for this release.
Messages are stored on primary servers as well as geo site servers.
Messages will not be delivered after TTL expiry and will not be delivered to recipient when recipient becomes available.

**Receive Message**
User gets notification from standard notification bar when there is incoming message by default.
User can choose to turn on/off notification by going to app settings and toggle on/off PTX alerts.
PTX alert tone can be configured from Settings.

**View Message**
Message details can be viewed by selecting contact/group from Recent tab and go to communication thread for the selected contact/group.
The newest messages are displayed at the bottom by default, User can configure sorting in settings.
From “Recent” page, any entry with unread messages is indicated with a dot. And the contact/group name is in bold. The dot and bold font disappear once user enters to threaded history and returns to recent tab.

**Delivery Receipt**
There are 4 different statuses:
1. **Pending**: Message hasn’t reached server from sender side.
2. **Sent**: Message reached server but hasn’t been delivered to recipient.
3. **Delivered**: Message is delivered to recipient (in case of multimedia message, recipient may not have downloaded the message content). This status applies to 1-1 message only.
4. **Failed**: Message failed to be sent. (message delivery to recipient not supporting PTX will be shown as Failed)
Messages sent to users without corresponding PTX features will be shown as Failed.

**Reply Message**
In a group message window, user can long click on one single message and select reply to reply to the sender only.

**Forward Message**
User can forward a message to other PTT user by long click a message and select from menu forward to a contact or group or a quick group.
- If forward to a contact: pick a contact from a contact list
- If forward to a talkgroup: pick a group from a group list
- If forward to a quick group: select multiple contacts from contact list, up to 10 are allowed.

**Delete Message**
User can long click a message and choose delete to delete the message.
User can also long click a conversion and delete the whole conversion.

**Attachments**
Pictures, video, location and voice messages are sent by attachment.
Attachment is automatically downloaded (can be changed in Settings). Lifetime for downloads is configurable up to 30 days. Set to 30 days for this release.
Attachment size limit is 20MB/msg.
Automatic compression for video messages. In Android the resolution is 640X480 after compression and in iOS it is Medium Resolution. Video is compressed in both choose from gallery and take video case.
Push To Talk Plus

Message Storage
Messages are stored on server for 30 days (configurable, set to 30 days for this release) to support device change.

Local message expiry
Client stores up to 1000 messages locally and older messages are deleted automatically. (Kodiak is conducting a performance testing to evaluate whether 1000 will cause issue. Subject to change.)

No Access to Camera/Gallery
In the case of user does not have or does not grant access to camera/gallery, user will get permission error while trying to go to gallery/camera and send multimeda messages.

2.1.4.1 Text
Max length of text is 2000 bytes.
UTF-8 encoding is supported with text length of up to 500 characters. Supports international language.
Once max length is reached user is not allowed to continue tying.

Send Predefined Messages
User can select a predefined Quick Text message to send.
To send:
1. From communication thread page with a contact or group, user clicks on double arrow next to “Enter text” box, which takes user to “Select Quick Text” screen with a list of predefined messages.
2. User clicks on one of the Quick Text messages and it is sent, user is back to communication thread page.

Compose Predefined Messages
User can create up to 10 predefined messages.
To compose:
• From Select Quick Text page, select + Add Quick Text
• Type in the message
• Save the message
To delete a Quick Text:
• From Select Quick Text page, click on the pen icon on the top bar
• Click on the X next to a defined message
• Confirm delete

Quick Text, Compose and Select Predefined
2.1.4.2 Picture/video
User can send picture, video as attachment via PTX.
Supported file format:
Image format: JPEG, PNG, GIF 87a, GIF 89a, animated GIF 89a
Video format: H.263, H.264, MPEG-4

Send Picture/Video
User can send multimedia files from two entry points:
- From threaded history with a contact or group, click on camera.
- From call ready screen, click on camera.

A menu is displayed which includes options to Take Photo/Record Video and Gallery.
If user chooses to take a picture/video and send, the picture/video taken is not automatically saved to local gallery. User can go to threaded history to explicitly save picture/video.
If gallery is selected, user can select one picture or video file to send.

Display Picture/Video
In communication thread, thumbnails are shown for phones and videos if available, otherwise a generic icon is shown.
Once clicked the picture/video opens in a full screen view.

Save to local gallery
User can choose to save a received picture or video to local gallery from full screen view page.

2.1.4.3 Voice message
Supported audio format: AAC, MP3, AMR-NB

Send explicit voice message
Voice messages have the same two entry points as picture/video, from call ready screen and communication thread page, with a separate voice message icon.
To send:
1. Touch and hold record button to start recording.
2. Release record button when done to stop recording.
3. Review by pressing Play
4. Click on check mark to send.

To erase:
1. Click on X on top to erase recording and go back to previous screen.

**Voice Message Fallback**

Voice Message fallback happens when
- User makes call to unavailable (offline, DND, Busy, Out of coverage) single users,
- User makes call to a group where none of the recipients are available.

A unique chirping tone and a visual cue (icon turns from PTT to VM) are given to indicate that the call is now a voice message. Message will be delivered when recipient becomes available.

If the recipient becomes unavailable when call starts, it takes server 5-7 seconds to detect the call cannot be delivered. At this time:
- If the caller is still taking the floor and talking, caller will hear the voice message chirping tone indicating now a voice message can be sent.
- If the caller already released floor, an error message will be displayed to tell caller your call cannot delivered.

**Display Voice Message**

Both explicit and implicit Voice Messages are displayed in communication thread as voice messages with no difference. User can click on the play icon to play the message.

### 2.1.4.4 Location

**Send location**

To send location:
1. Select location pin icon
2. My location is marked by default. User can use search box to search for a different address, or zoom and swipe to pinpoint another location.
3. Click share icon to send location and return to previous page.
Display Location
Location message will be displayed as a generic icon in communication thread. When clicked it opens as a full screen map view with the sent location marked.

2.1.5 Impacts/dependencies

ECM
ECM changes to support enable/disable the following PTX features per MDN base.
• Text
• Text and Multimedia (picture, video and voice message)
• Location

The first two permissions above are mutually exclusive, and Location is independent of the other two.
ECM should be able to check client type and version and only display the options to disable/enable the features when the client supports it. By default all PTX features should be enabled if the client supports it.

Kodiak Hardware
Additional hardware is needed for message storage.

CALEA
Interim solution for CALEA will be included in the release.

UDR
Usage Detail Record of PTX messages will be provided in separate file in addition to current PTT call UDR and sent to REVO.

Network
TFT change for new PTX servers.
PCRF policy change required for PTX over IMS.

2.2 Location tracking from client

2.2.1 Provisioning
From ECM admin can assign group supervisor capability for location tracking on all group members, similar to Supervisory Override. Only one supervisor per group can have location tracking capability.
Location tracking and geo fencing are combined into one Location Capability permission for 8.1.2. They are planned to be separated in future releases.

2.2.2 Client types
Location tracking is available in iOS and Android Smartphone/Tablet clients.
Location reporting will be included in feature phone client, but not location tracking.

2.2.3 Features
Google Map is used for location features in this release.

Track Location
Supervisors enabled for location capability can track location of group members by:
• Select a group, press location icon on Call-Ready screen
• Go to map tab and select a group

On the location display map, the following info is shown:
• Group name
• Location marker for each member and supervisor self location
• Location marker color indicates member presence status (online, DND)
• InfoWindow shows group member name, time of location and nearby location name
• Call icon in InfoWindow allows supervisor to PTT call the member

Map can be zoomed in and out. By default it fits all the available member locations.
A search box on top of the view allows the user to search for an address to display in the map.

Refresh Location on Demand
Supervisor can refresh location on demand by press refresh button in map page.
Define GeoFence
Supervisor with location tracking permission can define geo fence for fleet members and get notification when members enter or leave the boundary.

Only one GeoFence can be defined per group.
To create a geo fencing, the supervisor clicks on the fence icon on top left corner of map, and specify:
• Fence type: static (fixed center) or Follow me (center moves along with supervisor)
• Fence distance
• Location update interval (60s to 60m, default 5m)
• Fencing period (up to 7 days, default 8 hours)
• Notify me (enable notification for supervisor when member cross fence)
• Notify member (enable notification for a member when crossing fence)
• Initial member notification (initial notification to members indicating the member is inside or outside the fence)

View GeoFence
Supervisor can go to Map tab and select a group to view defined GeoFence for the group.

Cancel/modify GeoFence
Geo fence can be canceled and modified at any time from the map tab. To modify a GeoFence supervisor has to turn it off first then turn it back on after the change.

Initial notification for member
If turned on, when geofence is created, members get the following notification:
• Inside fence: Inside area for group <Group Name>
• Outside fence: Outside area for group <Group Name>

Cross GeoFence Notifications for members
Members get the following notifications while they cross geofence, if member notification is turned on:
• Traveling from inside to outside: Left area for group <Group Name>
• Traveling from outside to inside: Entered area for group <Group Name>

Cross GeoFence Notifications for supervisor
Supervisor get the following notifications while member crossing geofence:
• Traveling from inside to outside: <Member Name> left area for group <Group Name>
• Traveling from outside to inside: <Member Name> entered area for group <Group Name>

Members turns off location
iOS client requires GPS to be on for members to be able to use PTT+ app.
Members using Android client can disable GPS and will not show up in location tracking map.

2.2.4 Known limitations
iOS client only reports significant location change (>500m). If a user stays in one location for a long time the reported location may appear expired though it is still correct.

2.2.5 Impacts
ECM needs to support location permission administration. Only one supervisor per group can be assigned the permission.

2.3 Background calling mode

2.3.1 Enable/disable feature
Background calling can be turned on/off by user from app settings (default = off).

Members turns off location
iOS client requires GPS to be on for members to be able to use PTT+ app.
Members using Android client can disable GPS and will not show up in location tracking map.

2.2.4 Known limitations
iOS client only reports significant location change (>500m). If a user stays in one location for a long time the reported location may appear expired though it is still correct.

2.2.5 Impacts
ECM needs to support location permission administration. Only one supervisor per group can be assigned the permission.

2.3 Background calling mode

2.3.1 Enable/disable feature
Background calling can be turned on/off by user from app settings (default = off).
2.3.2 Client types
Available in Android and iOS clients.

2.3.3 Features
Receiving PTT call/IPA With Background Calling Turned On
When a PTT call comes in
• If app is in the foreground, normal UI applies.
• If app is in background, it stays in background and PTT audio will barge.
• If display is off, it stays off and PTT audio will barge.

Floor Control
Floor control while app is in the background can be achieved with OEM support so that PTT key events must reach PTT app under all conditions. App stays in background when PTT key is pushed to take floor.
Kyocera and upcoming Sonim devices support it.

2.3.4 Known limitations
Wired accessories have a limitation that floor control is possible only when app in foreground, Recommend use wireless accessories.

2.3.5 Impacts
Client only change. No dependencies and impacts on other systems.

2.4 App icon display on native phone book

2.4.1 Provisioning
The feature is automatically available for all Android devices. No provisioning needed.

2.4.2 Device types
Available on Android devices only.

2.4.3 Features
View PTT contacts in native phonebook
A PTT icon will be displayed in native phone book for contacts that are in PTT contact list.

Make PTT call from native phonebook
In native phonebook, click on PTT icon for any PTT enabled contact will bring the user to Call-Ready screen in PTT+ app with the selected contact.

Sync PTT contacts
For any existing contact in native phone book, if they are added / deleted in PTT phone book, they will have PTT icon added/deleted in native phone book automatically.
New contact added in PTT phone book but not existing in native phone book will not be added to native phone book.

2.4.4 Impacts
Client only change. No dependencies and impacts on other systems.

2.5 HD voice-opus codec

2.5.1 Provisioning
No provisioning needed.

2.5.2 Device types
Available on Android and iOS clients.
Legacy clients continue to use AMR codec.
Server based transcoding across OPUS, AMR and other codec's.
2.5.3 Impacts

UDR will support new data type for Opus codec.

Network bandwidth will increase with the codec change as listed below.

![Opus Codec Bandwidth and Data Usage](image-url)

<table>
<thead>
<tr>
<th>Application*</th>
<th>Details</th>
<th>MOS</th>
<th>Volume (dB) Peak</th>
<th>Bandwidth (Kbps)</th>
<th>Data Usage (KBs per 60 sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition-Opus</td>
<td>• 32 Kbps bit rate Constant</td>
<td>4.4</td>
<td>96</td>
<td>40.5</td>
<td>304 KB</td>
</tr>
<tr>
<td></td>
<td>• 48 KHz sampling rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kodiak AMR</td>
<td>• 12.2 Kbps bit rate Constant</td>
<td>3.4</td>
<td>96</td>
<td>20</td>
<td>150 KB</td>
</tr>
<tr>
<td></td>
<td>• 8 KHz sampling rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kodiak Opus</td>
<td>• 32 Kbps Variable Bit rate</td>
<td>4.4</td>
<td>100</td>
<td>24.5</td>
<td>184 KB</td>
</tr>
<tr>
<td></td>
<td>• 48 KHz sampling rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Opus Codec Bandwidth and Data Usage*
2.6 Client UI refresh

2.6.1 Provisioning
No provisioning needed.

2.6.2 Device types
Available on Android and iOS clients.

2.6.3 Features
Client UI refreshed with this release, including:
• Quick hamburger menu added
• Threaded history for calling and PTX
• Overall new looks and icons
Call-ready screen becomes central location for communication to:
• Initiate PTT calls
• Initiate PTX messages
• View threaded history
• View and edit contact/group
• View group members on map for supervisors
• User returns to Call Ready screen when PTT call ends.

New UI look
2.6.4 Impacts
Client only change. No dependencies and impacts on other systems.

2.7 LMR contacts/groups identification
2.7.1 Provisioning
No provisioning needed.
2.7.2 Client types
Available on Android and iOS clients.
2.7.3 Features
Display LMR Contacts and Groups
PTT user can identify LMR interop subscriber or talkgroup with distinct icon.
LMR interop contacts:
• CSSI console (CSSI)
• LMR Radio (ISSI)

LMR interop talkgroup:
• Talkgroup with CSSI console (CSSI)
• Talkgroup with LMR Radio (ISSI)
• Talkgroup with LMR Radio (RoIP)

2.7.4 Impacts
No dependencies and impacts on other systems.

2.8 Converged client with PTT radio mode
A new LMR Radio mode is introduced to provide better user experience for users accustomed to LMR experience. A single PTT+ client supports both standard full-featured mode and LMR radio mode, configurable by admin from ECM.

2.8.1 Provisioning
Subscriber is provisioned as normal client type (handset, wi-fit/tablet, cross-carrier). Default mode of operation is “Standard.”
From ECM Admin can change client mode from a drop down list, on per MDN base. The mode change is restricted to the same client type. i.e., it can only change from handset standard mode to handset radio mode.
End-user switching from app is not available.

2.8.2 Client type
Converged client is supported in both Android and iOS smartphone/Tablet clients.
### 2.8.3 Feature comparison of two modes

<table>
<thead>
<tr>
<th>Feature</th>
<th>PTT Radio</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTT calling</td>
<td>Talkgroup + Private Call Quick Groups - Receive Only</td>
<td>Talkgroup + Private Call + Quick Groups</td>
</tr>
<tr>
<td>Corporate-managed talkgroups</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Corporate-managed contacts</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>User-managed talkgroups</td>
<td>None</td>
<td>30</td>
</tr>
<tr>
<td>User-managed contacts</td>
<td>None</td>
<td>300</td>
</tr>
<tr>
<td>Talkgroup scanning</td>
<td>Yes, fixed scan list with all talkgroups</td>
<td>User-controlled scan list</td>
</tr>
<tr>
<td>Priority scanning</td>
<td>CAT-assigned priorities (3)</td>
<td>User-assigned priorities (3)</td>
</tr>
<tr>
<td>Group avatars</td>
<td>CAT-assigned</td>
<td>User-assigned</td>
</tr>
<tr>
<td>Instant Personal Alerts</td>
<td>Receive-only</td>
<td>Receive/Send</td>
</tr>
<tr>
<td>Missed call alerts</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Self-availability</td>
<td>Online/Offline/No Connection</td>
<td>Available/DND/Offline/No Connection</td>
</tr>
<tr>
<td>Manual dialing</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Call history</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 2.8.4 Features

#### Change from standard to PTT Radio mode prior to activation

Before activation, admin changes Client Type to Handset PTT Radio on ECM. A warning message will be displayed to inform admin that “You will have to assign the scan list and channels for the groups of this subscriber before the client is used. Are you sure?” User will have to confirm to proceed.

- When subscriber activates PTT+ service on a converged client, client will open directly to PTT Radio mode.
- When Subscriber activates PTT+ service on a client not supporting converged client, client activates with legacy feature set and ECM disables Client Type option after activation.

#### Change from Standard to PTT Radio mode after activation

After activation, admin changes Client Type to Handset PTT Radio on ECM. A warning message will be displayed and user will have to confirm to proceed.

Once changed, subscriber’s scan list assignments are deleted.

On end user’s handset:

- Client changes mode of operations and performs re-login
- Popup message informing user of mode change by admin
- Call history, user-managed groups/contacts, scan list assignments are removed
- Standard client features are disabled
Change from PTT Radio to Standard after activation
After activation, admin changes Client Type to Handset Standard on ECM. A warning message is displayed and user will have to confirm to proceed.

On end user’s handset:
• Client changes mode of operations and performs re-login
• Popup message informing user of mode change by admin
• Standard client features are enabled

PTT Radio mode specific settings
From ECM, once admin changes client type to PTT Radio mode, admin should assign talkgroups to channel positions shown in the client.
Admin can also set priorities to talkgroup scan list.
Admin can assign avartar to a talkgroup which will be used for all the group members in Radio mode.

Talk Group Scanning on/off
In Radio mode, use can go to the hamburger menu icon to turn on/off scanning mode.
When the scanning is off, user can select one single channel to use. When the channel is selected, PTT calls from other talkgroups will not be delivered. One to One calls and broadcast calls will still come in.
User can change channel at any time.
When scanning is on, BAU scanning behaviors in standard client apply.

Lock on/off
From Radio mode UI, user can toggle lock on/off. When lock is on, it locks the PTT+ app UI and no touch event will have effect if PTT+ app is in the foreground. Lock only applies to PTT+ app.

One Touch Call in Radio Mode
In Radio Mode, One Touch call behavior differs from the standard mode behavior outlined in 2.9 in the following aspects:
Radio mode One Touch Settings doesn't support select contact/group/most recent/landing page, only supports locked screen on/off. One Touch call is always applied to the selected Channel.

2.8.5 Impacts
ECM
ECM needs enhancement to support client mode change between full-featured client and radio client. The option is only enabled when:
• Subscriber’s account is not activated OR
• Subscriber’s activated client supports converged client

Appropriate warning messages should be displayed when user initiates mode change.
Feature options applicable for specific mode should be enabled/disabled in ECM depending on admin’s mode option. In PTT Radio mode ECM needs to support channel and scan list priority assignment.

CDR/RAR
RAR supports new client type (mode) as additional enumerated value
CDR supports new remote entity (client type) as additional enumerated value

2.9 One touch calling (standard mode)
One Touch Calling provides a simplified calling experience for PTT users who typically communicate with a single contact or group. It allows making a PTT call to the user defined contact or group with one push of button, even when the device is locked or app is in background.

2.9.1 Turn on/off feature
User can go to PTT app setting to set up One Touch Calling action in applicable devices. By default One Touch action is set to open Contacts.

2.9.2 Client types
Only available in Android client on IMS devices that supports DRX control(Kyocera DuraForce at launch).

2.9.3 Features
One Touch Action Settings
From app settings, user can define One Touch Action with the options of Call Most Recent/Call Contact/Call Group/Landing Page and None. User will pick a contact or group if contact or group is selected. One Touch Settings should only be available on supported Android device.

Make One Touch Call
Once set up, user can push PTT button to invoke One Touch action under the following cases:
• PTT app is idle and in the background
• PTT app is in the foreground but in a non-callable screen (callable screen calls user-selected contact/group)
• PTT app is idle and device screen is locked (if Call from Locked Screen is enabled)

Call from Locked Screen
With feature enabled, user can use PTT button to make One Touch call in locked screen without having to unlock it.

PTT actions other than pre-set One Touch Call are not allowed while the screen is locked. If One Touch Action is set as Landing Page it won’t be allowed in locked screen.

Device goes back to locked screen once the call ends. User cannot access any other applications on the device. If user uses Home, Back or Recent apps keys the phone lock screen will be displayed.

2.9.4 Impacts and dependencies
One Touch depends on device support in various areas and is only available in limited devices. There is no other dependency.

Device requirements for PTT Button
• PTT key press and release events must be provided to PTT app when screen is off, screen lock is enabled, or keypad lock.
• PTT key press and release events must be provided to PTT app when PTT app is in background.
• Mechanical design of PTT button that reduces accidental key press.
• Programmatic way to assign side button to PTT app.
• Key press event notification of less than 50 ms, including phone side key, wired PTT accessories, Bluetooth PTT accessories.

Device requirement for network
• APIs to set DRX cycle dynamically (supported values include: 320, 640, 1280ms)

For comprehensive device requirements, refer to attached Application Requirement in 4.1.

2.10 Web dispatch

2.10.1 Provisioning
Existing Desktop Dispatch client users can be migrated into Web Dispatch to gain portability and new features. Migration process is outlined in Feature section.

All new dispatch provisioning will be for Web Dispatch. Desktop dispatch client will no longer be an option.

2.10.2 Client type
Web Dispatch is supported on Windows platform on browsers that supports plugin or extension – IE 11, Chrome 45 & higher, Firefox 41 & higher.

Windows tablet is not supported in this release.

Users will be prompted to install a plugin before Web Dispatch can be used. See details in Features/Web Dispatch First Time Use section.

2.10.3 Features

2.10.3.1 Migration and activation
Migration from Desktop Dispatch to Web Dispatch
Admin can initiate migration from ECM from Dispatch Console to Web Dispatch with the following steps;
• In existing Desktop Dispatch account, check Web Dispatch under User Type
• A warning message is displayed that dispatcher will not be able to use Desktop application once migrated. Click OK to proceed.

• Put in email as User ID. If it is not unique an error will be displayed.
• Choose to turn on/off features including Bread Crumb, Geo Fence & PTX. By default they are on.
• Click OK to confirm user ID creation.
• An email will be sent to the email used as User ID, with URL to sign in to Web Dispatcher.
• User will be prompted to choose a password, and be directed to a “Sign in” screen.

Once migrated, user won’t be able to use desktop dispatch application.

Following data on desktop dispatch will not be available on the Web Dispatch post migration:
• Local groups created on Desktop Dispatch
• Historical logs and call recordings. (They can be viewed on archival utility provided in Desktop Dispatch 3.0 only.)

All corporate Groups and Contacts will be available on Web Dispatch. The same dispatch MDN is maintained after migration.

Web Dispatch New Activation
The only option to provision new Dispatch is Web Dispatch. Admin needs to put in a unique email as user ID and configure Bread Crumb, Geo Fence and PTX features. Click OK to confirm user ID creation.

Once Web Dispatch is configured, a verification email will be sent to the email used as user ID. Inw ECM account status will show as “Pending Verification”

After user uses the link in verification email to choose a password and signs in Web Dispatch, account status in ECM will show as “Verified”.
Web Dispatch First Time Use
Users get an email with verification link in once
Admin goes through migration or new activation.
Upon successful choosing the password the user
will be directed to the sign-in link where the
user needs to enter USER ID and password
chosen earlier.

The Sign-in URL in the email are listed below:

<table>
<thead>
<tr>
<th>APN</th>
<th>Production VZ Certificate</th>
<th>Lab Kodiak Domain Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>INET</td>
<td>webdc.vzwpttplus.com</td>
<td>webdc.labpttplus.com</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>webdc.wifizwpttplus.com</td>
<td>webdc.wifi.labpttplus.com</td>
</tr>
<tr>
<td>IMS</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

After signed in on a Windows PC for the first time,
user will be prompted to download the plugin (msi).
Installation wizard is displayed on clicking
the downloaded msi file. Once installation is
finished user clicks Finish button and Web Dispatch is ready to be used.

ID Management
Admin should be able to create Web Dispatch
User ID, resend sign-in link if expired, and send
reset password link from ECM. All emails with
repect to activation/reset password will be sent
to the email used as User ID.
Admin should be able to change User ID with new
User ID email from ECM.

2.10.3.2 Landing screen
Landing screen includes 5 sections: Call Activity
window, Contacts and Groups window, Alerts
window, Monitored Group Activity window and
Other activity window.
Panel undocking is not supported in this release.
2.10.3.3 PTX
Web Dispatch PTX features are similar to mobile client PTX except in the following:

**Receive Notifications**
Incoming PTX chat message will raise a toast message along with configured PTX alert tone if the Web Dispatch is on active browser tab.

**Send PDF file**
User can send PDF as an attachment from Web Dispatch.

**No taking picture**
User cannot take a picture and send from Web Dispatch as there is no camera access.

**Voice message**
Dispatcher can attach pre-recorded audio or use the microphone to record a vm same as handset.

**Delete PTX messages**
Web Dispatcher can delete a set of messages in bulk from conversation thread.

**Message Expiry**
Messages older than a time limit (configurable, up to 36 months and default to 12 months) are deleted.

**Message Size Limit**
Message size limit is 20MB same as mobile client.

2.10.3.4 Geo-fencing
Geo-fencing on Web Dispatch works same as mobile client except the following:

**Limit of Geo-fence**
Only 1 Geo Fence can be defined per dispatcher per group. If a group has multiple dispatchers, each dispatcher sees only the geo fence defined by himself and gets notifications related to it.
Define and use favorite Geo Fence
Web Dispatcher can add a defined geo fence to favorites.
Web Dispatcher can click a contact/group and chooses "Add Geo-Fence" option then choose "select from favorites" to use the pre-defined geo fence.

Notifications
Geofence Notifications are displayed as toast messages similar to PTX notifications.
Member notification: Entered/Left area for group <GroupName> created by Dispatcher <Dispatcher Name>
Dispatcher notification: <Member Name> entered/Left area for group <GroupName> created by Dispatcher <Dispatcher Name>

View Event History
Dispatcher can view a list of cross fence history from Event View with thee following info:
Member Name, Event (entering/leaving fence), Fence Name, Distance and Time.

2.10.3.5 Bread crumbs
View Bread Crumbs
From Bread Crumbs tab, dispatcher can view historical locations of one or multiple fleet members:
- Select contacts or groups
- Check one or more fleet members under contacts or selected group
- Select start and end time
- Click track

Bread crumbs of different members are coded by different colors. Dispatcher can hover mouse over a path to see more details including name, phone number, arrival/departure time, duration spent, and location. Dispatch can play and pause the path traversed for a maximum of 24 hours interval from start time.

External contact and fleet members who do not have capability to report location cannot be selected for bread-crumb.

Export Location Report
Dispatcher can click on export icon to export the location report in CSV format for the selected fleet members.

2.10.3.6 On-demand location for groups
Request On-Demand Location for Group
Dispatcher can request ODL to all members of group at once instead of individually requesting ODL for group members.
Under Map tab, expand map window and select group, request for one time or Periodic on-demand location. Interval and Duration are configurable for periodic on-demand location.

2.10.3.7 Categorization of monitored groups
Create Category
Web Dispatcher can create categories under Monitored Group Activity. Once a category is created, Dispatcher can drag and drop groups under the category. Dispatcher can also move groups across categories.

Delete Category
To delete a category, Web Dispatcher will need to delete all the groups under the category first. Then the category can be deleted.

View Category
Categories are displayed in top right Monitored Group Activities window. Dispatcher can right click on a group under any category to chat, locate or view the dispatchers in the call.
If there are no categories/groups in the monitored group activity window, then the window will collapse and the lower panel will be expanded up.

2.10.3.8 REPORTS AND LOGS
Generate Report
Web Dispatcher can generate the following reports from Reports tab:
- Alert report
- Audit report (Activities include dispatcher logs in/out, monitored group added/removed)
- Call report
- Location report
For each report, a From Date and To Date should be specified. Reports can be downloaded in CSV format.

View Logs
Dispatcher can go to logs tab to view the following logs:
- Call log
- Alert log
- Activity log
- Geo Fence Log (new)
Geo Fence log includes the following fields:
- Group Name
- Fence Name
- Fleet member or MDN
- Event (in, out)
- Time of event log
- Snapshot of geo fence (image of fence on map)
Web Dispatcher can also download Geo Fence log details in CSV format.

2.10.3.9 Dispatch additional settings
Additional settings added to web dispatcher includes:
- Change password for sign-in
- Export recording format (MP3 only)
• Choose additional tones
  - Geo Fence Alert Tone
  - Chat Alert Tone
  - Talk Permit Chirp
• Enable/disable additional notifications
  - Visual notification for chat
  - Visual notification for Geo-fence
• On-demand location interval and period
• Geo-fence interval and period

2.10.4 Impacts

ECM
ECM should support migration from Desktop Dispatch to Web Dispatch, and create new Web Dispatch User.
ECM should support enable/disable Web Dispatch features including:
• Messaging (Text, Text and MultiMedia)
• Location Attachment
• Bread Crumb
• Geo Fence
By default they are enabled.

RAR
Additional User ID field added at end

Network
TFT for new FQDN.

Branding
Components that can be branded include
• Icons & Images
• Labels & Strings
• Background colors

• Front Type and Size
• Email Templates
• EULA or TOS

Email server
Kodiak confirmed that OneMessage cannot be used and options being explored now include:
1. Use Kodiak configured email server which is really 3rd party application for ID management called StormPath.
2. Stormpath can be set up to send all the email to Verizon oneMessage which then can forward the emails to the appropriate user. This option needs further investigation and discussion with Verizon.
Will update when finalized.

2.11 IOS cross carrier support
iOS Client will support Cross Carrier in this release. Users on a different carrier will be able to download PTT+ App and use it.

2.11.1 Provisioning
Client will need to be provisioned as Cross Carrier client from ECM.

2.11.2 Client types
iOS only.

2.11.3 Features
Download and activate PTT+ from non-VZ device
From a non-Verizon device, user should be able to search and download PTT+ app. When the app is opened, user will be prompted to enter an activation code, which was given to Admin when Cross Carrier client is provisioned on ECM. Upon successful activation, PTT+ app can be used.

2.11.4 Impacts
ECM already supports Cross Carrier client. No other impacts.

3 PTT+ R8.1.2—Backend requirements

3.1 IPV6 support
Starting June/2016 all applications submitted to the Apple Store must support IPv6-only networking. Release 8.3 client will support IPv6 over wi-fi.

3.2 Apple push notification and significant location change
iOS deprecated support for APIs that affect two critical features in iOS 9.x:
• Keeping a TCP connection alive for VoIP background applications
• Use of a keep live timer used for periodic wakeups
PTT+ app will use Apple Push Notification Service (APNS) for delivery of notifications and Significant Location Change OS Event for location reporting.

3.3 API support
API support including Mobile API and Web API will be included in the 8.3 release