**SECTION 1**

# APX NEXT RADIO SOLUTION

## 1.1    OVERVIEW

APX NEXT and APX NEXT XE are Motorola Solutions' next-generation P25 platforms purpose-built for first responders to access and act on information while maintaining their focus in critical situations. With natural and accessible touch interface, best-in-class audio optimized for high-noise environments, and extended coverage through broadband connectivity, APX NEXT and APX NEXT XE deliver actionable intelligence to the point of engagement for personnel to stay connected and in control wherever the mission takes them. In addition, APX NEXT XE delivers all of this in a form factor designed for extreme environments.

Equipped with broadband, LTE, WiFi, Bluetooth 5.0, and GPS capabilities, APX NEXT brings future-ready applications, services, and best-in-class connectivity to the field and control room. The APX NEXT platform's cloud-based provisioning system will allow your agency to quickly procure, provision, and update the APX NEXT fleet, reducing the downtime needed to get devices into the field and saving your support staff valuable time.

Key benefits and advanced capabilities of the APX NEXT device include the following:

- SmartTouch Experience – Easier operation with a redefined touch UI, centered around a new 3.6" impact resistant touch display and shallow menu hierarchy that offer more information at a glance and quicker engagement with critical applications. This cleaner and more intuitive visual layout increases the usability of the APX NEXT radio and helps your users find the information they need without pause or distraction.
- Ruggedized, Ergonomic Design – Increased personnel safety and efficiency with an improved T-Grip ergonomic design, full-color top display, and tactile knobs for efficient use in emergency situations. Patented touch technology enables for reliable gloved use, while also making the screen immune to false actuations from water, snow, ice, or debris. The APX Next device meets the same MIL standards for ruggedization achieved by our APX platform radios.
- Interoperability – Supports all public safety frequency bands (7/800 MHz, VHF, UHF) for full interoperability across radio systems with minimal intervention by the radio user.
- Easy Fleet Management – Easier and quicker radio provisioning, remote updates, and streamlined management for support staff, delivering greater awareness of your APX NEXT fleet. Using Motorola Solutions' cloud-based RadioCentral (RC) programming, APX NEXT supports faster provisioning and deployment to get devices in the hands of responders and out into the field.

Across all aspects of the radio experience — deployment, operation, maintenance, and evolution — APX NEXT brings critical advancements to usability and performance. This platform brings

streamlined interfaces, accelerated workflows, and mission-critical reliability to your agency's operation, while the focus that responders, dispatchers, and technicians need to stay safe and effective is protected.

## 1.2 EVOLVING WITH APPLICATION SERVICES

If proposed, a host of application services will enhance the APX NEXT device's capabilities in the following ways:

- Quick access to immediate, actionable intelligence via intuitive voice control and ViQi—a virtual partner that can run tags and provide detailed information through voice.
- Better coverage through automatic switching between LMR and broadband connectivity via SmartConnect.
- Accurate location data over a broadband network for more informed decision making via SmartLocate.
- Immediate software and security updates in the field using high-speed bandwidth and extended coverage of LTE networks via SmartProgramming.
- Precise and accessible location information for field users on a modernized map interface via SmartMapping.
- Seamless and discrete multimedia communications over a broadband connection via SmartMessaging.

## 1.3 MANAGING AND PROVISIONING DEVICES

APX NEXT delivers greater awareness and faster management of radio fleets with optimized provisioning, networking, and monitoring tools that transform accurate data into smarter action. These features enable dispatchers and network managers to make more informed operational decisions, keep radios in the field, and, above all, protect first responders' focus and safety.

Device Management Services (DMS) packages provide programming, management, and maintenance services to maximize the effectiveness of this APX NEXT solution, while reducing maintenance risk, workload, and total cost of ownership. The DMS packages are separated into tiers designed for a range of customer needs, whether the solution is self-maintained or managed by Motorola Solutions.

Using Motorola Solutions' cloud-based RadioCentral (RC) programming, APX NEXT supports faster provisioning and deployment to get devices in the hands of responders and out into the field. Parameters such as talk groups, interface options, and security keys can be programmed remotely within minutes. Access to RadioCentral is provided through the Device Management Service package.

The figure below illustrates the expedited RC provisioning process of APX NEXT.
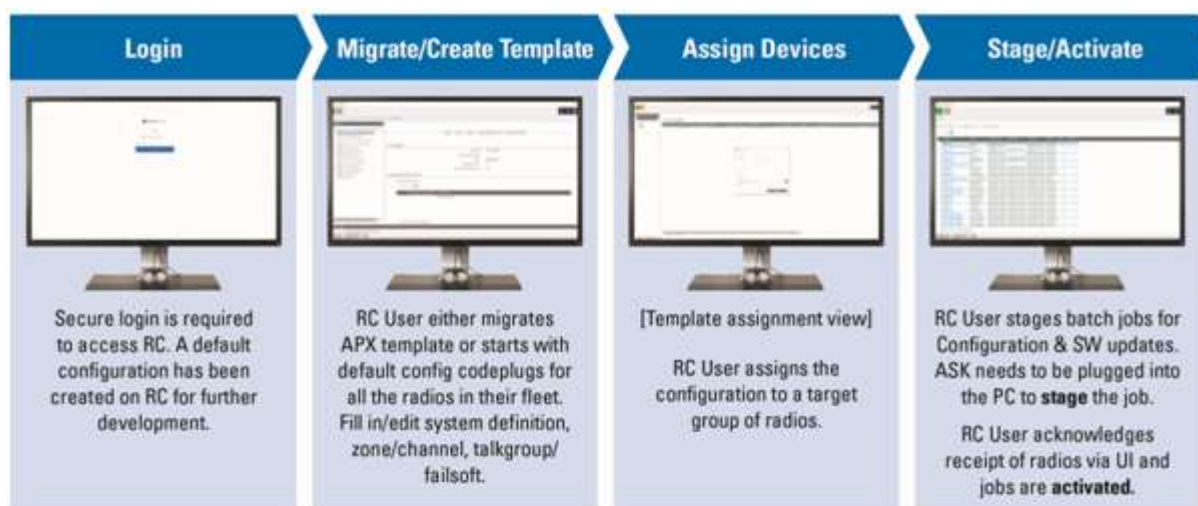
**APX NEXT Provisioning Process via RadioCentral**

The APX NEXT out-of-the-box experience is streamlined with a few simple steps. Users will power on the device and view a boot-up animation with startup. Status bar icons on the front display indicate when a connection is made and an update download is initiated. If the APX NEXT device is being started for the first time, a "peek-in" device management notification will indicate that the default configuration is detected. When the update download is complete, the device reboots and installs the update. When the install is complete, the device goes back to the full home screen and notifies the user that the update is complete. For Encryption and Authentication users, a KVL needs to be connected to the radio for those services. From power on to provisioning completion takes less than a minute.

## 1.4   EVOLVING WITH UPDATES AND UPGRADES

APX NEXT is a future-ready platform that will evolve alongside users through updates and upgrades, delivering expanded mission-critical capabilities while keeping personnel in the field where they are needed. To this end, APX NEXT eliminates the extended downtime and shop visits often associated with device upgrades; now, software patches can be automatically installed regardless of geographic location over a broadband connection, or, if proposed, immediately pushed to the field over LTE with Motorola Solutions' SmartProgramming service.

This streamlined process eliminates bottlenecks in the upgrade process and delivers important new features into users' hands. Firmware upgrades will also fit more seamlessly into workflows to avoid unnecessary disruptions. The figure below illustrates how feature updates are easily deployed to the entire radio fleet.
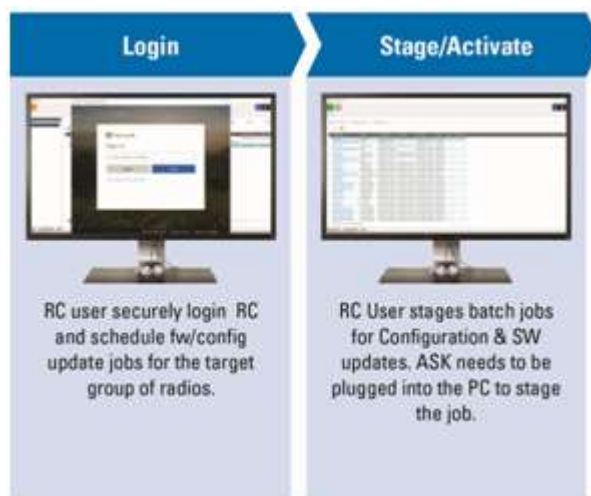
**Typical Firmware and Configuration Update Process via RadioCentral**

If a situation occurs where users do not have the time for an update, those updates can be delayed through a prompt until the next power cycle. This puts personnel directly in control of when updates work best for responders, especially in the chaotic environment of public safety. A snapshot of the APX NEXT device with "Install Update" prompt is shown below.



**APX NEXT In-Field Update on the Device**

## 1.5     PROVIDING INSIGHT

SmartInsight services provide an end-to-end view into your agency's APX NEXT device usage. From 24/7 monitoring and data collection to actions pertaining to fleet management, SmartInsight helps administrators collect, analyze, report, and act on diagnostic information to optimize your APX NEXT fleet's performance. The application is easy-to-view, with accessible interactive dashboards to gain more visibility into the fleet's health status.

SmartInsight delivers the following capabilities to enhance APX NEXT operations:

- Monitor various device parameters like signal strength, device usage, and inventory data.
- Store collected information securely in the cloud, where data exploration, cleansing, and correlation is performed to extract descriptive, predictive, and prescriptive insights for device management.
- Use analytics to take corrective actions and identify potential issues before they occur.

## 1.6 SECURING COMMUNICATIONS

APX NEXT uses Motorola Solutions' hardened End-to-End security to protect communications and allow only authorized units in the system to listen to transmissions. End-to-End security provides seamless protection from the device and data in transit to the cloud and the LMR system.

This solution ensures each component in the system is designed and validated against ongoing threat assessments to ensure vulnerabilities are detected and remedied, while potential new vulnerabilities will be addressed with seamless security updates. This offers transparent, real-time protection and keeps critical information and infrastructure safe.
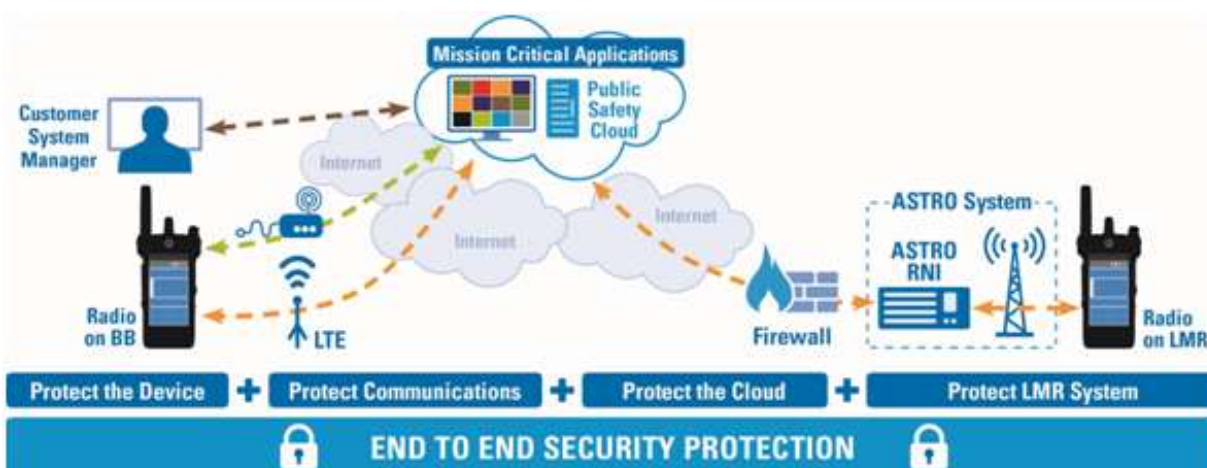


**Motorola Solutions' End-to-End Security Solution**

## 1.7 VIQI VIRTUAL PARTNER APPLICATION SERVICE

Maintaining situational awareness and first responder safety through natural operation is integral to the APX NEXT radio. This outcome is achieved through ViQi™ Virtual Partner—a cloud-based service that provides vital public safety information via voice. With a single button press and simple audio prompt, your personnel can use natural language to run a license plate or driver's license, and search for vehicles with matching vehicle identification numbers straight from the field without disruption.

Virtual Partner leverages artificial intelligence capabilities to interpret voice queries and quickly deliver query results in an audible format. This empowers field personnel to submit queries with the radio without the risk of losing situational awareness while typing a manual query. The automated nature of the solution also allows officers to obtain critical information faster than relaying the query

to dispatchers. The APX NEXT radio will leverage either LMR or supported broadband networks to send queries and return responses.
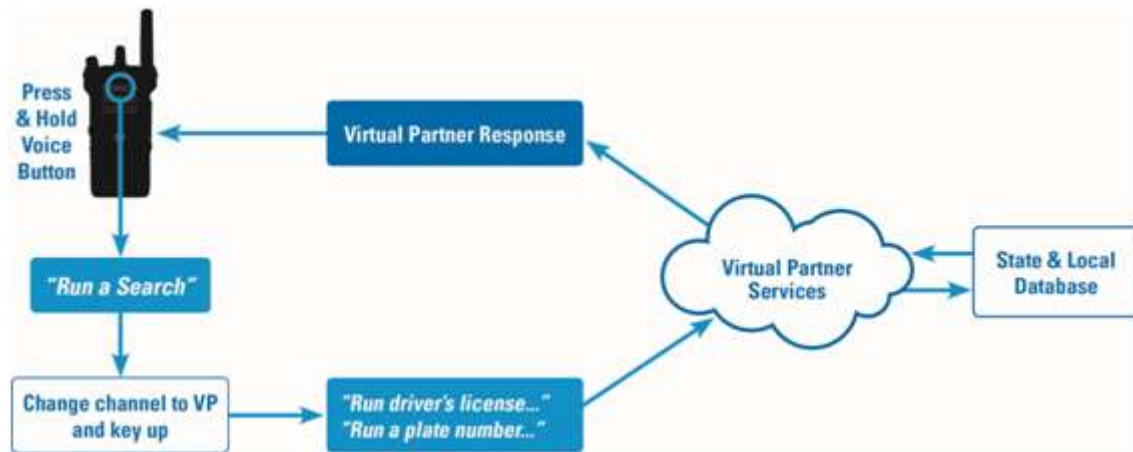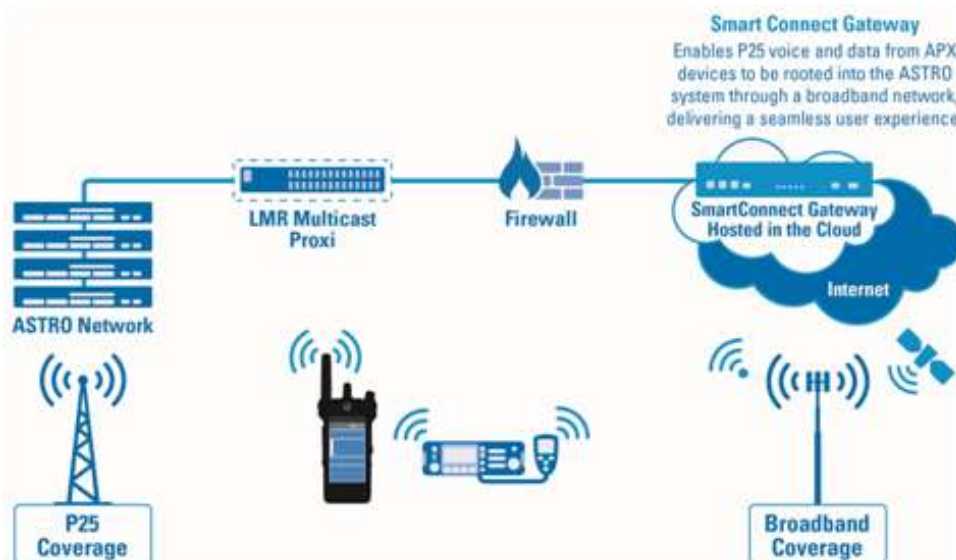


**ViQi - Virtual Partner Services Flow Diagram**

The Virtual Partner Application Service is proposed as a subscription-based model to optimize budget and scale to meet evolving needs.

# 1.8 SMARTCONNECT APPLICATION SERVICE

First responders need to know that they are covered and supported with critical intelligence no matter where the mission takes them. Leveraging APX NEXT and supported devices, SmartConnect keeps users connected and maintains critical LMR features through a broadband connection. By seamlessly switching between P25 LMR and LTE cellular networks, SmartConnect extends reliable PTT communications as radio users roam onto supported broadband networks. Authentication, status, talkgroups, and encryption are all preserved automatically, without interruptions or resets to ensure that end users continue to have access to the critical features they need in emergency situations.



**APX NEXT Network Elements of SmartConnect**

SmartConnect allows users to retain most P25 radio features when out of range of LMR, including the following:

- Agency Groups.
- Dynamic Regrouping.
- Call Alert.
- Emergency Call & Alarm.
- FDMA/TDMA to/from LMR System.
- Group Call Clear/Encrypted.
- Group Regrouping.
- Multigroup.
- PTT ID.
- Priority Monitor Scan.
- Radio Authentication.
- Radio Check.
- Radio Inhibit/Uninhibit.
- Radio Interrupt/Console Takeover.
- Status Update.
- ViQi Virtual Partner via LMR network.

The SmartConnect Application Service is proposed as a subscription-based model to optimize budget and scale to meet evolving needs.

## 1.9 SMARTMESSAGING APPLICATION SERVICE

SmartMessaging is an application service that allows APX NEXT users to seamlessly and discreetly share multimedia communications over a Broadband connection, offloading traffic from mission-critical LMR networks while enhancing public safety capabilities. From the APX NEXT home screen, users can send more detailed multimedia messages, with image, video, or audio file attachments, to enhance situational awareness and improve response success. An enhanced search and history functionality is available for users to easily access previous messages by name, content, and time range, helping them find specific information when needed.

SmartMessaging also supports the following capabilities:

- Receive "Be On the Lookout" (BOLO) images, videos, locations, and audio from a WAVE dispatch application sent to an APX NEXT user or predefined groups.
- Send text messages to an individual or group of contacts to provide all necessary personnel with updated intelligence.
- Secure communications with encrypted messaging data from an APX NEXT device to the server.
- Adapt to changing agency needs as new integrations and collaboration tools become available for the SmartMessaging application.

## 1.10 SMARTLOCATE APPLICATION SERVICE

The APX NEXT SmartLocate application sends accurate GPS location information of field personnel over a broadband network, enabling dispatchers to track units more frequently and improve resource deployment. With Dynamic Mode, SmartLocate can dynamically switch from LTE to P25 to continue sending location reports, without requiring the user to change inputs. This fallback capability provides an extra layer of reliability and enhances location tracking to build an effective operating picture as

situations evolve. The use of broadband increases the frequency of location reporting beyond an LMR system to allow for a higher number of users without LMR infrastructure capacity limitations.

SmartLocate also enhances location information accuracy using nearby cell-towers and WiFi access points. This leads to more accurate APX NEXT radio unit tracking and improved location performance when a user moves indoors or enters marginal conditions (deep street canyons, forested areas).

SmartLocate is seamlessly integrated with CommandCentral Aware and features location triggers such as time, distance, push-to-talk (PTT), emergency, and accelerated cadence during emergency.

The SmartLocate Application Service is proposed as a subscription-based model that optimizes budget and scales to meet evolving needs. SmartLocate provides enhanced capabilities to existing CommandCentral Aware application investments. Access to CommandCentral Aware is not included with the SmartLocate subscription. Dynamic Mode requires IMW and a cloud connector on the P25 system.

## 1.11 SMARTMAPPING APPLICATION SERVICE

The SmartMapping application provides precise and accessible location information for field users on APX NEXT's modernized map interface, improving situational awareness and informing response. Users can see their own location and the location/status of other officers at a glance and immediately tap to communicate with these personnel. SmartMapping streamlines engagement by providing access to the application directly from the APX NEXT home screen to best support users wherever the mission takes them.
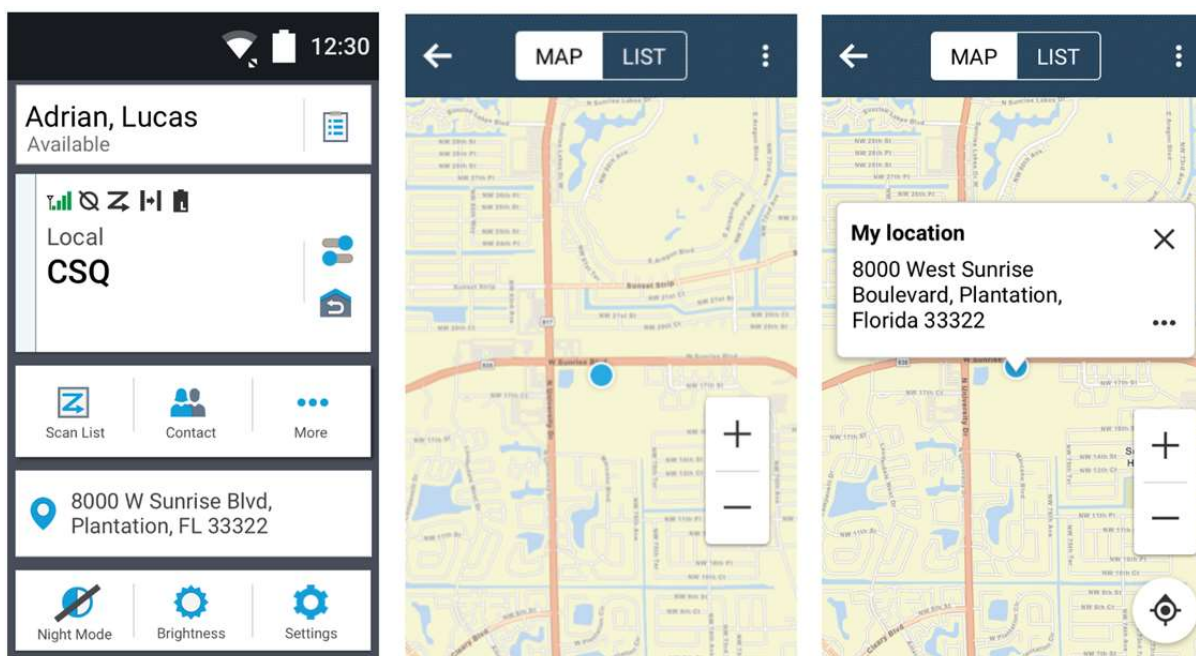


**SmartMapping Widget, Map View, and Location Pop-Up Display (Left to Right)**

SmartMapping also provides the following capabilities for APX NEXT users:

- Search for specific agency users to communicate with by using accessible, on-screen navigation and search tools.

- Select map layers to get a different view of an area, including Street View, Terrain, or Satellite Image.
- Adapt to changing agency needs as new integrations and capabilities are introduced into the SmartMapping application.

## 1.12 SMARTPROGRAMMING APPLICATION SERVICE

Leveraging Device Managed Services (DMS) and RadioCentral provisioning capabilities, the SmartProgramming application allows radios to be updated anywhere within an agency's local LTE network coverage area. APX NEXT devices no longer need to be tied to a computer via USB cable, limited to WiFi network coverage, or gated by Land Mobile Radio (LMR) bandwidth. SmartProgramming allows the APX NEXT device to take advantage of LTE broadband data speeds to pull programming jobs from RadioCentral devices in minutes.

The SmartProgramming Application Service is proposed as a subscription-based model to optimize budget and scale to meet evolving needs.