



Update, add and remove individual embedded software components on any mobile device. Red Bend's vRapid Mobile SCOTA (software components over the air) creates new revenue opportunities for the entire mobile value chain to deliver software features, applications and services easily and securely over-the-air to feature phones and smartphones in the hands of consumers.

■ Mobile Software Management

vRapid Mobile SCOTA enables mobile phone manufacturers, network operators and ISVs to enhance, customize and manage the software assets of mobile devices at any point during the handset lifetime. vRapid Mobile SCOTA is based on Red Bend's market-leading vRapid Mobile FOTA (firmware over the air) updating solution and goes further by pioneering the ability to update individual embedded software components over the air (SCOTA).

As the volume and sophistication of mobile handset software has grown, the process for effectively managing the software lifecycle has become complex and costly, limiting flexibility and delaying the introduction of new services.

Operators can instantly deliver new revenue-generating services to the entire subscriber base, without being constrained by the software capabilities of existing handsets or waiting for new handsets to become available.

Manufacturers gain substantial flexibility and efficiency in their software maintenance processes, and can provide consumers with the ability to personalize the core functions of their phones to match their lifestyles.

ISVs benefit from a dramatic reduction in time-to-market for deploying new features and versions of their applications, as well as an expanded addressable market for their products.

■ Standards Support

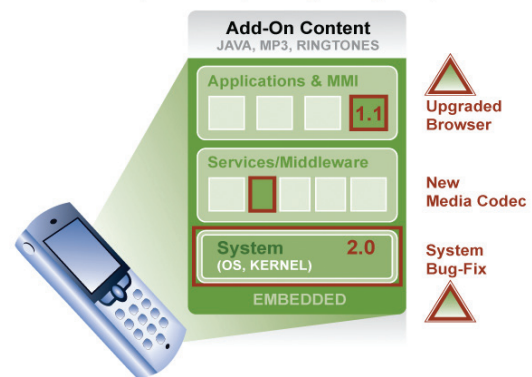
vRapid Mobile SCOTA supports industry standards, including OMA-DM and DL, and the Software Component Management Object (SCOMO) enabler. The solution integrates with Device Management (DM) servers and major service delivery platforms.

■ vRapid Mobile SCOTA Solution

vRapid Mobile Device Suite, integrated into mobile devices, contains Update Installer and Software Management Extension.

- **Update Installer** enables independent updating, adding and removal of embedded software components on monolithic

Software Component Updating using vRapid Mobile®



firmware images and Read-Only File Systems. It includes Red Bend's Failsafe feature for ensuring completion of the update process, even during power loss to the device. It supports NAND and NOR flash, requires a low memory footprint, and offers rapid handset integration via APIs.

- **Software Management Extension** is a device management client "plug-in" responsible for validating and updating device configuration data such as software component inventory. It is fully integrated with Red Bend's vDirect Mobile™ DM client and can interface with any standard OMA-DM client.

vRapid Mobile Device Suite currently supports select RTOS-based platforms, key Linux-based platforms and Symbian OS.

vRapid Mobile Software Management Server Application is a J2EE application that manages and executes the workflow logic of software component management. It is a key enabler for providing revenue generating software management services. The application manages a repository of components and updates received from software owners; queries the device for component inventory and configuration; analyzes versions and dependencies; dynamically selects, assembles and packages the appropriate software components for OTA distribution to devices; and ensures security.

Support is offered for both pull (user initiated) and push (server initiated) modes for delivering components OTA. The application offers a set of interfaces for use by Customer Care or other applications to trigger the component delivery process and for various service provider business systems.

vRapid Mobile Component Management Suite is an extensive tool-suite designed for handset manufacturers. A GUI-based central management console enables OEMs to define, describe, organize and store the software components constituting a device software release. It creates an initial component "inventory" data file, describing the components to be stored on the device.

The tool enables adding new software component versions, generating component updates, packaging components and updates with the appropriate management metadata, and uploading them to the management server. These functions can be provided as a remote extension to trusted parties, such as ISVs and Operators, who are authorized by the OEM to manage their software assets.

vRapid Mobile Component Builder is an optional tool used for statically linked, monolithic image-based device platforms. It augments the standard Compiler-Linker tool chain and introduces a dynamic mechanism into the monolith to enable management of defined firmware components as separate entities.

■ vRapid Mobile SCOTA Advantages

Operators and Service Providers

- Increase revenues by providing a Feature Customization subscription service, allowing subscribers to constantly enhance their device
- Achieve an instant installed base for new services by retrofitting devices in the field with the required software component or update
- Improve service management by keeping an operator custom application suite or UI constantly updated for all subscribers
- Customize devices for specific segments at the point-of-sale via updates to specific components

vRapid Mobile updates individual Software Components Over the Air (SCOTA), such as:

- **Embedded applications** – messaging clients, Web browser, homescreen client and media players
- **Key middleware and service enablers** – Java Virtual Machine, Flash Lite, position location software, media codecs, SIP and IMS clients, and DRM agents
- **Device features** – Bluetooth profiles, multimedia and 3D graphics engine

Handset Manufacturers and Platform Providers

- Reduce the cost and complexity of software maintenance by deploying the same feature update/fix to the multitude of handset model variants in the field, without the need to re-create a new firmware version and a firmware update for each variant
- Surgically deploy handset feature enhancements individually or in packages without waiting for a maintenance release, also decreasing update package sizes
- Generate additional revenues from software assets
- Increase customer satisfaction by providing customers with an ongoing application update service
- Reduce bill of materials (BOM) by delivering software components on-demand after the handset has shipped

Independent Software Vendors (ISVs)

- Shorten lead times for handset integration as enhancements can be made post-factory
- Improve time-to-market for new software releases
- Generate additional revenues by providing periodic software feature updates
- Deploy new applications or features over the air for new revenue streams

■ About Red Bend Software

Red Bend Software, the leader in Mobile Software Management (MSM), provides software solutions for managing firmware, applications and devices over the air. The company's award-winning MSM products enable device manufacturers, mobile operators and software developers to increase revenues, reduce support costs and achieve faster time to market by remotely managing their software assets on mobile devices. Red Bend's software has been deployed in more than 620 million mobile devices and adopted by eight of the top 10 handset manufacturers, including Kyocera, LG Electronics, Motorola, Sharp, Sony Ericsson and ZTE, as well as dozens of other leading companies in the mobile, M2M and WiMAX markets. Unlike device management vendors with proprietary end-to-end systems and manufacturers' internally developed solutions that are platform specific, Red Bend is the only company offering independent client software that is interoperable with any standards-based server and that works with any platform on any type of mobile device. Founded in 1999, Red Bend is a privately held, venture capital-financed company with offices in China, Israel, Japan, Korea, the U.K. and the U.S. Visit www.redbend.com.



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