ONRAMP
WIRELESS

The On-Ramp Total Reach Network is the only wireless network purpose-built to power the M2M revolution

Delivering the M2M Vision

The On-Ramp Total Reach Network is the first wireless network designed from the ground up to power wide-area machine-to-machine (M2M) communication. The On-Ramp Total Reach Network offers unmatched range, capacity and scalability enabling wide-area wireless communications for dramatically less total cost of ownership than competing solutions. Based on On-Ramp's patented Random Phase Multiple Access™ (RPMA) technology, the On-Ramp Total Reach Network operates in the unlicensed, globally available 2.4 GHz band.

Connect Anywhere

The On-Ramp Total Reach Network, with a receive sensitivity of -142 dBm, has a link budget of 172 dB. This significant performance advantage over other RF technologies allows the On-Ramp Total Reach Network to compensate for propagation challenges such as long distances, clutter, or local interference. The On-Ramp Total Reach Network is proven to provide up to 400 square miles of coverage from a single Access Point (AP) and to penetrate below ground from distances up to a mile away. A recently completed United States Department of Energy study involving multiple investor-owned utilities demonstrated both this unprecedented coverage as well as On-Ramp's highly accurate network planning techniques. Only the On-Ramp Total Reach Network can cover millions of devices for hundreds of square miles and even underground—that is Total Reach.

Connect Anything

In addition to unparalleled coverage, On-Ramp's RPMA technology delivers immense capacity with each AP capable of servicing tens of thousands of endpoints. Even a fully deployed electric AMI solution has plenty of available capacity to add gas metering, water metering, grid automation and demand response on the same network. The same network that securely carries battery-powered distribution automation sensors also delivers data from powered electric meters. Deploying one network for all meter and sensor monitoring applications simplifies device monitoring and accelerates realization of benefits.

"On-Ramp Wireless is a Top Ten Smart Grid Company to Watch in 2012" - GreenTech Media

Fastest ROI, Made Faster

With unprecedented range and capacity come dramatically reduced network infrastructure costs and significantly faster return on investment. To further accelerate deployment and reduce operational burden, the On-Ramp managed network service option allows our customers to focus on their business while On-Ramp's team of network and IT professionals ensures critical infrastructure data is readily available for their operations teams.
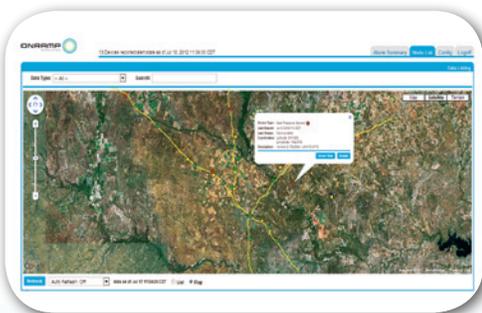
The On-Ramp Total Reach Network Architecture

On-Ramp's Total Reach Network solution delivers advanced communications features and standard integration with any meter or sensor endpoint as well as with a customer's management systems such as meter data management, outage management and data historian. With proven network-wide security, the simple On-Ramp Total Reach Network star topology enables very accurate network planning, rapid and flexible deployment scheduling, and lower capital and operations costs than other solutions.
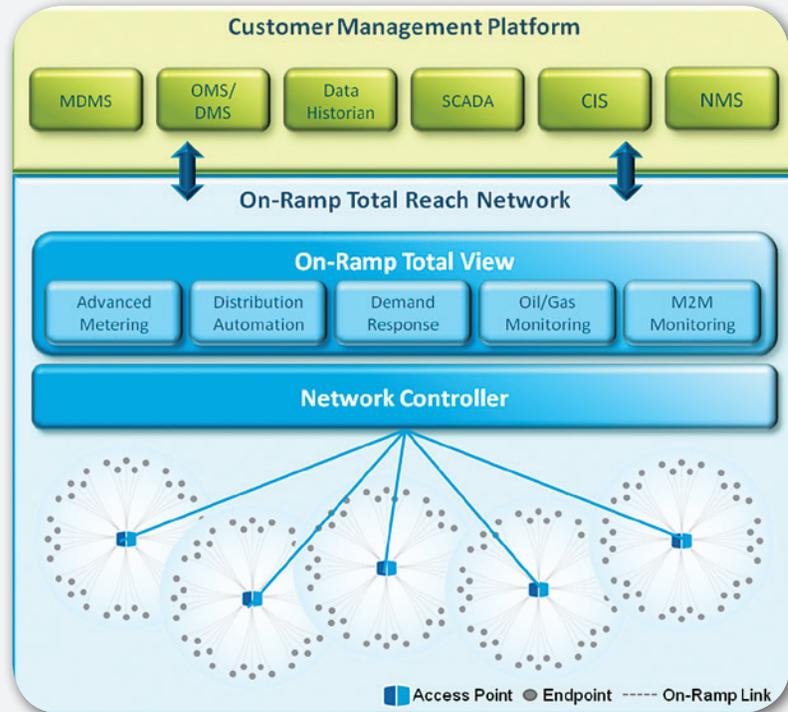
On-Ramp Total Reach Network Appliance

For customers who are not able to take advantage of the On-Ramp Managed Network Service, the On-Ramp Total Reach Network back office application suite is provided on an integrated appliance available in a variety of configurations based on performance and management needs.

The On-Ramp Total View application is an enterprise, back-office platform that stores, manages, and monitors endpoint updates and asynchronous event-based alarms transmitted over the On-Ramp Total Reach Network. On-Ramp Total View provides a web-based dashboard that allows the user to manage and monitor endpoint data, and a Google Maps™ view that illustrates sensor status and alarms across the customer territory. On-Ramp Total View enables email alerts and the Total View data can be integrated directly with other back-office systems using a suite of standard XML or RDBMS interfaces.

The On-Ramp Network Controller is the terminating point for the APs and endpoints communicating on the On-Ramp Total Reach Network. The high capacity, high availability Network Controller manages network communications, network security and, if required, supports integration with a separate customer security database using the Diameter protocol. The On-Ramp Element Management System (EMS) provides an operator console to visualize network-wide system status and execute network management operations such as diagnosing a network outage or updating firmware on an AP or endpoint. The EMS supports SNMP integration with third-party network management systems.

On-Ramp Total Reach Access Point

The On-Ramp Total Reach APs are the only field-installed network infrastructure and a single AP can cover over 400 square miles when deployed on a communication tower, building or hilltop. Depending on the data model of the endpoints, each AP communicates in a simple and efficient star topology with up to 64,000 endpoints. On-Ramp Total Reach Networks are planned to ensure coverage for all required endpoints using AP diversity and redundancy. With built-in security, dynamic failover, IP network management and simple provisioning, the On-Ramp AP provides wide-area machine-to-machine networking with the least field infrastructure. The On-Ramp AP is available in a variety of standard configurations including solar powered, rack-mountable and OEM packaging.

On-Ramp Total Reach Node

The On-Ramp Total Reach Node is the RF modem for any endpoint on the On-Ramp Total Reach Network. When integrated and deployed with an On-Ramp Node, endpoint devices report both scheduled status updates and asynchronous event messages triggered by alarm states, change of state, and other sensor events. The On-Ramp Node is designed to provide unparalleled communications performance, integrated antenna diversity, and industry-leading power conservation. The Node is available in an SMT form factor and also packaged with a 20-pin connector that is pre-configured to enable dual endpoint antennas. The On-Ramp Node offers a standard SPI interface for rapid integration with metrology and sensor hardware.

POWERED BY ON-RAMP

For those developers interested in enabling a Powered by On-Ramp device, we offer a complete reference platform designed to accelerate integration and time-to-market.

The kit includes:

• Reference Application Communication Module (rACM) for a Freescale K20® based development board with integrated On-Ramp Node, USB-to-Serial cable/adapter, rACM power cable, power supply, and magnetic provisioning tool.

• Sample end-device application software and integration documentation, including reusable application framework and Node interface code and libraries.

• An Access Point with OEM accessory kit.

• A VM-Ware® machine image containing all back-office and management software, including end-device provisioning and diagnostic tools.

To further accelerate your time-to-market, On-Ramp offers engineering support services including solution design, device integration, and network compatibility testing. Please contact On-Ramp sales for information on ordering an On-Ramp reference kit and enabling your device to be Powered by On-Ramp.

Standards Based

On-Ramp Wireless is committed to the standardization of the On-Ramp Total Reach Network technology. In an effort to accelerate this process, On-Ramp Wireless was a founding member of the Institute of Electrical and Electronics Engineers, Inc. (IEEE) 802.15.4K task group. Through this group, and in cooperation with other industry leaders, On-Ramp Wireless continues to move toward an open standard under the IEEE umbrella. For more information, see http://www.ieee802.org/15/pub/TG4k.html.

Total Reach Is Here

The On-Ramp Total Reach Network enables low-power monitoring and control applications for Smart Grid, oil and gas operations, water management, industrial sensing, and location tracking. Operating in unlicensed spectrum, the On-Ramp signal processing innovation finds weak signals even in high noise environments, yielding unprecedented range, extreme coverage, immunity to high interference, and significantly lower cost. The purpose-built On-Ramp Total Reach Network is, by far, the most comprehensive, robust, secure, and cost-effective wireless sensor networking solution on the market today.

- Up to 400 square miles of non-line-of-sight coverage from a single Access Point.

- Coverage to underground assets over 1 mile away from an AP site.

- Random Phase Multiple Access (RPMA) technology delivering capacity to support millions of devices on a single network.

- Ultra low power consumption allowing up to a 20-year battery-life for water meter applications, gas pressure sensors, etc.

- Comprehensive, third-party validated security.

- High reliability with acknowledged message delivery and seamless failover in case of an AP or backhaul outage.

- Quick time to market for applications developers in the Powered by On-Ramp program.

- Simple and flexible integration with back-end automation systems, such as OMS, DMS MDMS, and process automation systems.

- Worldwide applicability in license free spectrum that is adaptive to local regulatory regimes.

ABOUT ON-RAMP WIRELESS

On-Ramp Wireless has developed the first wireless communication system purpose-built to efficiently connect billions of hard-to-reach devices in metro scale and other challenging environments. On-Ramp Wireless and the Total Reach Network ecosystem of solution providers offer a ground-breaking advantage over any other critical infrastructure monitoring solution. For more information, visit www.onrampwireless.com or follow @onrampwireless.

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