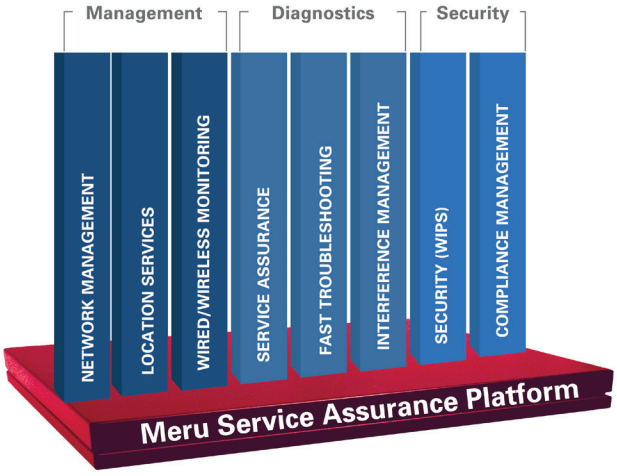
MERU NETWORKS®

# MERU **E(z)RF NETWORK MANAGER**

The E(z)RF Network Manager, a core application running on Meru Service Assurance Platform, is designed to simplify management of wireless networks and improve IT productivity.

**VIRTUALIZED WIRELESS LAN MANAGEMENT**

Intelligent Wireless Network Management System for Managing Meru's Virtualized WLAN

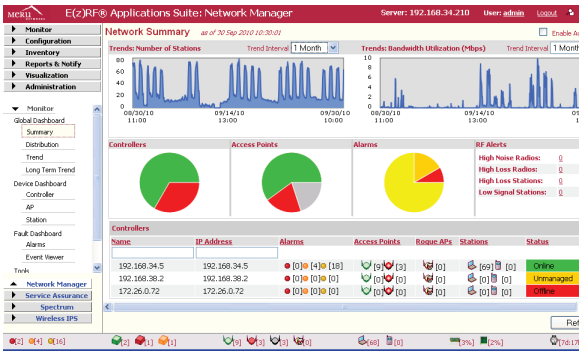



## PRODUCT OVERVIEW

The Meru Networks® E(z)RF™ Network Manager 2.1 is an intelligent and comprehensive network management system for all Meru 802.11 network solutions. E(z)RF Network Manager's Web 2.0-based graphical interface provides network administrators with views that simplify operations, such as wireless performance dashboards, RF visualization, centralized monitoring, proactive troubleshooting, fault management and reporting.

Meru E(z)RF Network Manager runs on an extensible Meru Service Assurance Platform. It's embedded relational database empowers administrators with the ability to manage large-scale WLANs with hundreds of controllers and thousands of APs. With advanced correlation and diagnostic inference techniques, E(z)RF Network Manager can detect and analyze anomalies before they impact the end-user as well as allow for rapid trouble-shooting of network events.

E(z)RF OnTheGo, an add-on application for the Services Appliance, is available to leverage the power of E(z)RF Network Manager from a mobile device for anywhere, anytime WLAN management.




**The E(z)RF Network Manager** provides many dashboards to monitor your Meru wireless network.

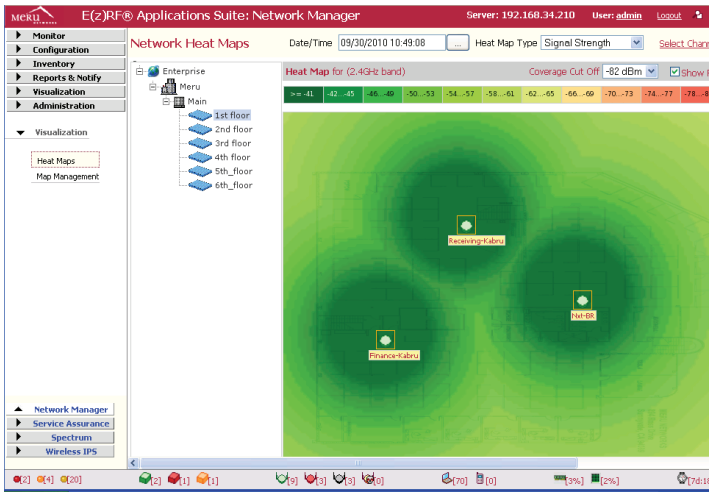
## Product Benefits

- Comprehensive Web 2.0-based real-time and historical WLAN performance trends dashboards including RF metrics for a centralized view.
- Real-time and historical RF visualization enables remote management and saves on-site truck-roll expenses.
- Current and historical wireless station metrics enable rapid resolution of issues by rewinding and recreating past state.
- Customized dashboards for mobile devices allow anytime, anywhere management of WLAN network.
- Integrated Rogue AP detection enhances enterprise security.
- Extensive wireless reports support network audits and enterprise reporting requirements.
- Alarms and events with customizable notifications facilitate proactive wireless network monitoring and troubleshooting.
- Enterprise scalability allows management of up to 25,000 APs.

# E(z)RF NETWORK MANAGER

## COMPREHENSIVE PERFORMANCE DASHBOARDS

Global Dashboard information provides a summary of all WLAN statistics, including over-the-air metrics, from a single view. These metrics include network-wide controller and access point (AP) specific performance distribution and historical trends. E(z)RF Network Manager is completely integrated with all Meru Controllers on the network, including their interfaces, so navigation to a specific device is simple.

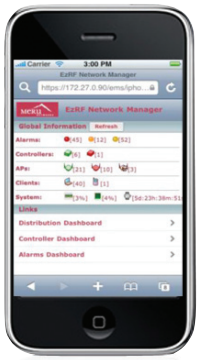



## HELPDESK - STATION TROUBLE-SHOOTING

Station Dashboard simplifies the helpdesk task of triaging and resolving wireless station issues resulting in rapid issue resolution. For a given wireless station, key events and trends in the station history are presented for specific time duration.

## REAL-TIME RF VISUALIZATION

E(z)RF Network Manager communicates with the controllers to access real-time access point and RF data. The interface provides visualization maps for Wireless Throughput, Signal Strength, RF Loss, Channel Utilization and Associated Stations. E(z)RF Network Manager also maintains historical data for the above metrics that lets operators visualize physical areas with wireless capacity issues quickly, minimizing the need for on-site visits.



## MANAGEMENT ON-THE-GO FROM MOBILE DEVICES

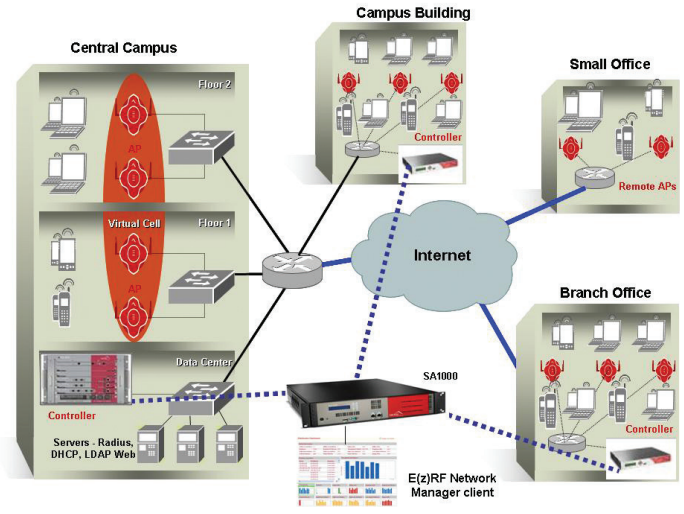
E(z)RF OnTheGo gives you the power of E(z)RF Network Manager on your mobile device for anywhere, anytime management of your network. It provides the network summary dashboard as well as controller and alarms dashboards.

## CONTEXT-AWARE SEARCH NAVIGATION AND ADVANCED EVENT FILTERS

The Meru E(z)RF Network Manager includes a powerful search mechanism where search results have contextual links for navigating to the appropriate functions. Search mechanism includes partial key word searches with various filters. Advanced Event filters enable quick drill-down to specific information for faster analysis.

## ENHANCE SECURITY WITH ROGUE AP DETECTION

Rather than searching for rogue APs by sending someone to the building with a survey tool, network managers can use Meru E(z)RF Network Manager to remotely locate rogue APs, which can then be physically removed. All of these tasks are performed in real time from a central E(z)RF Network Manager console.




## SCALABLE FOR THE ENTERPRISE

The Meru E(z)RF Network Manager is scalable for managing networks with hundreds of controllers and tens of thousands access points. The Meru E(z)RF Application server utilizes a three-tiered architecture, enabling easy scaling and migration as WLAN requirements grow. Ultimately, the system is scalable to 25,000 access points and associated Meru Controllers across multiple geographic regions.

# E(z)RF NETWORK MANAGER

## GRAPHICAL USER INTERFACE

| | |
|---|---|
| Context-based information and actions | Mouse rollover provides added details via tool-tips<br>Right click provides actionable options for details |
| Always-on-Summary | Controllers (online and offline)<br>APs (online and offline)<br>Stations<br>Registered Phones<br>Rogue APs<br>Alarm Counts – Critical, Major, Minor<br>Network Manager Metrics – CPU, Memory, Uptime |
| Network Context Navigation | Drives display of logical network device info in Topology view. |
| Deep dive drill-downs | Links to drill up and the network with minimum mouse clicks. |

## MONITOR – Network Summary/Distribution/Trend/AP-Radio Dashboards

| | |
|---|---|
| Dashboard types | Network summary with Pie Charts/ Trends<br>Network-wide distribution<br>Network-wide trends<br>Controller specific<br>Long term trends<br>AP-Radio trends |
| Problem Controllers | Controllers with Critical/Major alarms and with links to controller GUI. |
| Performance metrics for Network/ Controller distribution and trend dashboards | Throughput<br>Stations<br>Online APs<br>Offline APs<br>Ongoing calls<br>Registered phones<br>Critical alarms<br>High Noise Radios<br>High Loss Radios<br>High Loss Stations<br>Low Signal Stations<br>Rogue APs |
| Configurable Trends | Network summary and long term trends configurable up to 12 months.<br>From 1 hour to 48 hours on network-wide and controller specific dashboards. |

## STATION TREND DASHBOARDS

| | |
|---|---|
| Helpdesk interface | Enter MAC address or username and time period to get station history.<br>Charts Station's Throughput, Signal quality, Loss, Airtime utilization & events. |
| Event Details | History of all station events during the time period |
| Event History | Station history showing connection time, duration, connected AP info, controller info, BSSID, L2 state, L3 state |
| Station Locator | Show connected AP flashing on floor map |

## VISUALIZE PERFORMANCE

| | |
|---|---|
| Maps Management | Create geographic navigation<br>Load maps at each level<br>Drag-n-drop APs in geographic location<br>Lock APs in place for visualization<br>Supports multi-campus/building/floor hierarchy<br>Zoom maps for easy placement |
| Real-time & historical heat-maps | For performance metrics: Throughput, Loss, Channel utilization, Associated stations, Signal strength |
| Filtering by | Channel, 2.4 Ghz., 5.0 Ghz.<br>Show floor |

## CONTROLLER GROUPING

| | |
|---|---|
| Logical Controller Groups | Groups to delegate management tasks.<br>Only Users with access privileges can manage these groups.<br>Up to 100 controller groups for admin delegation. |

## USER MANAGEMENT

| | |
|---|---|
| Users and User Groups | User Groups with specific access privileges to management functions (Monitor, Configuration, Reports, Visualization etc).<br>Users tied to specific User Groups<br>Up to 100 user groups<br>Dashboards specific to user access |

## CONFIGURATION MANAGEMENT

| | |
|---|---|
| Wireless Service Profiles | Centralized configuration of multiple controllers & access points.<br>Glue for all profiles such as ESS, Security, VLAN, RADIUS.<br>Automatically checks for configuration completeness.<br>Audit trail of configuration changes.<br>Local configuration to override global configuration.<br>Separate ownership compared to configuration directly created on controller. |

## SOFTWARE UPGRADES

| | |
|---|---|
| Controller/AP upgrades | Centralized software downloads and upgrade of multiple controllers/APs.<br>Upgrade progress info.<br>Auto deletes non-running image if no space.<br>Upgrade history for 1 year. |

## FAULT MANAGEMENT

| | |
|---|---|
| Event Viewer | Detailed history of events.<br>Search/sort on several categories.<br>Advanced filters with multiple pattern matches. |
| Alarms Dashboard | Distribution based on Category & Severity |

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E(z)RF

| REPORTS | |
|---|---|
| Instant/Scheduled Reports | Configurable start and end times<br>Scheduled for daily, weekly, monthly |
| Various report types | Global Statistics<br>Inventory<br>Controller Statistics<br>Alarms & Rogues<br>Unique Stations<br>Station Details<br>Top N AP<br>Long term, up to 12 months |

| SEARCH | |
|---|---|
| Keyword Search | Partial word searches<br>Filters based on Inventory, Alarms, Configuration, Stations<br>Results with summaries and related links |

| Administration | |
|---|---|
| Notifications | Configure notification profiles<br>Customizable filters for specific alarms |
| Backup | Scheduled backups – daily, weekly |

| SCALABILITY | |
|---|---|
| Scalable Enterprise-class architecture. | Scalable to 25,000 APs |

## PLATFORM SPECIFICATIONS

The following table lists the product specifications for the Meru E(z)RF Network Manager running on Service Appliance (SA1000 or SA200). Refer to Service Appliance datasheet for details.

| | |
|---|---|
| Supported Browsers | Firefox 3.x<br>Internet Explorer 7.x |
| Supported Controllers | MC1000 and higher |



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