
# Rethink Technology Research—Optimization

## Module 2: RAN Optimization Deployments and key trends including VoLTE 2015 to 2020

### *December 2015*

Among the clearest trends in mobile network deployment is operators' push to reduce network capex, and increase capacity and quality of service, as far as possible, by optimizing the networks they have.

This is driving investment in a wide range of network optimization tools, as forecast in this module, which analyses deployments and dollar spend in each major product category including SON, video and web optimization, as well as the wide variety of RAN tools such as new-generation probes. There is also a focus on how far data from RAN tools is being fed into the OSS to support a holistic view of the network and subscriber. All forecasts are broken down by region.

Optimization investment as a proportion of total network software and services investment is calculated for the coming five years. Another important trend is towards cloud-based 'as a service' offerings, as well as outsourcing some or all of an operator's optimization activities, and uptake of these approaches is also included in the forecasts and commentary.

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All modules contain between 6 and 13 data tables plus regional breakdown, with accompanying commentary consisting of graphs and concise commentary on the assumptions underlying the forecasts, and the key factors driving them.

The wireless forecast included in this report is based on research on the top 40 international mobile operator groups, which account for 80% of the global mobile subscribers (IMG-40). A total of 122 operating companies are included. From this representative group of operators, the macrocell and metrocell forecasts are developed.

From the starting point of a calculation of the number of cell sites already deployed worldwide, forecasts were made of the numbers of base stations that would be rolled out a) to brand new sites and b) to replace or upgrade existing sites. These deployment forecasts were then categorized by network topology, spectrum band, spectrum mode, region and other factors. The equipment deployed in each case was also surveyed and modelled.

These forecasts were based on a combination of data from:

- Detailed surveys, interviews and operator-by-operator modeling of the IMG-40 groups.
- Studies of the deployments and strategies of the top 100 4G operators, as tracked by Rethink Technology Research's quarterly surveys, interviews and desk research.
- A survey of 25 tier one operators about their detailed plans for RAN deployments to 2020.
- Input from ecosystem vendors on shipments, technology strategies and competitive landscape, also updated quarterly.

Based on the surveys of operators and vendors, it was then calculated how those cell sites would be equipped – by base station type, technology, frequency band etc, leading to a detailed unit and market size measurement.

# Sample from the Report

**Commentary to accompany data tables**

## Introduction: RAN Optimization

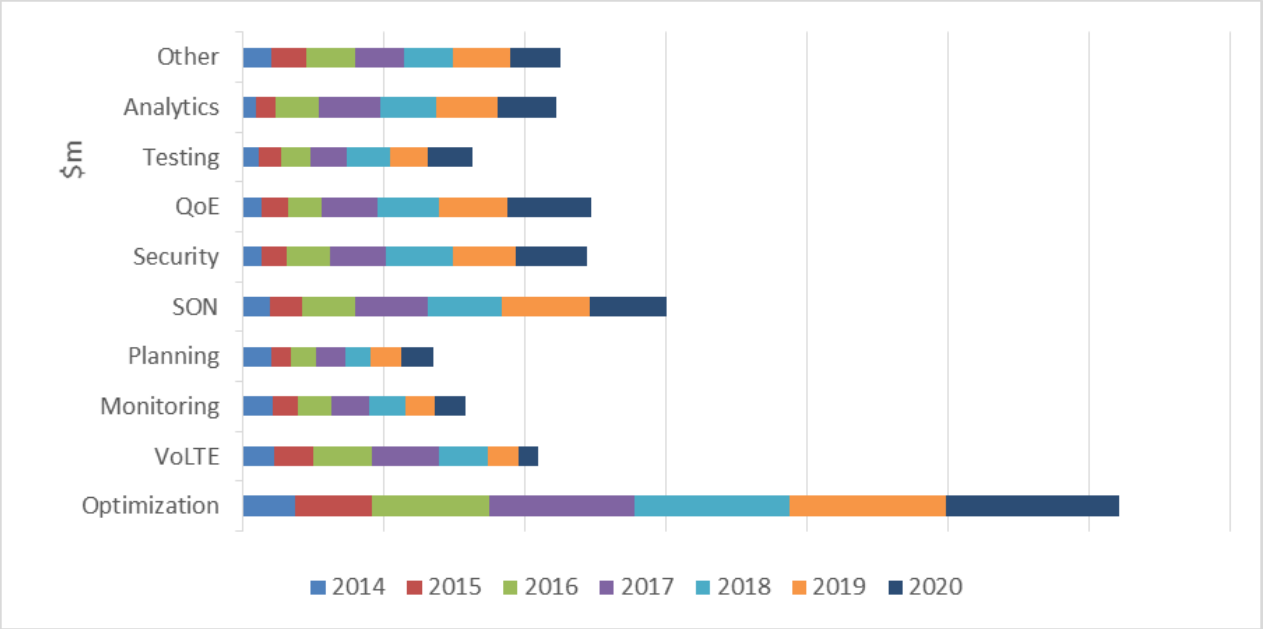
Optimizing the mobile network is no longer just a question of adding a welcome dose of cost efficiency while reducing the number of dropped calls. Those basic objectives remain important, but as operators roll out 4G and think about 5G, optimization has become critical.

To continue to meet users' rising demands for mobile data, it is not viable just to throw extra capacity at the flood, especially when consumers' expectations of low costs and high quality of experience are going up in parallel.

To keep costs low, operators need to squeeze every last bit of capacity and performance from their existing networks before having to invest in additional equipment. And to deliver that QoE – even more important than raw pricing to reduce churn in many markets – they need to ensure that coverage is ubiquitous and speeds are consistent (this is more important than being super-fast in many applications).

The use cases for the mobile network are diversifying, and moving towards the Internet of Things, so there are far more parameters which need monitoring and tweaking to ensure a high quality and cost -effective service delivery. That challenge will, of course, get even greater when operators start to plan for 5G, which will span an even bigger range of applications and traffic types.

Even in 4G, though, a network has to perform excellently in many separate ways – ubiquitous coverage for voice and some machine-to-machine services; high speed and predictable connectivity for streamed video; ability to deal with peaks of demand in certain locations or times of day.



# Sample from the Report

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## Who Should buy these reports

Every business which is involved with - or wants to be involved with - mobile and wireless, particularly those with an interest in RAN deployments and technologies, including small cells/HetNet and virtualization. The reports include essential information and analysis for mobile and converged operators; their hardware and software suppliers; the wider value chain, including components suppliers and vertical market integrators; as well as investors in these areas, and professional institutions whose members will be affected by the shifts and changes in these markets.

Our reports are usually purchased by senior operational executives, strategists, analysts and marketing departments.

## How can I buy these reports

Theses reports can be purchased individually from our website
http://shop.maravedis-bwa.com
To enquire about corporate licenses call us on +1 (305) 865-1006, or you can email
afellah@Maravedis-bwa.com
Subscribers to Rethink publications, including Wireless Watch and Faultline can just assume a 25% discount on the report prices. Just deduct it and say why.

## When will the other RAN Research modules be available.

Each module will be completed and published in the following months.

**Rethink Small Cells**

Module 1: Small cells deployments and installed base 2014-2020— *July and updated September 2015*

Module 2: Enterprise small cells 2014-2020—*September 2015*

Module 3: MNO WiFi deployments and installed base 2014-2020—*December 2015* **HetNet**

Module 1: HetNet deployments and key trends 2015-2020—*July 2015*

Module 2: Macro layer deployments and key trends 2015-2020— *December 2015*

**Optimization**

Module 1: SON deployments and key trends 2014-2020— *October 2015*

Module 2: RAN optimization deployments and key trends inc VoLTE 2014-2020—*November 2015*

**Mobile network ownership, MVNOs and NWaaS**

Module 1 : Wholesale, sharing and NWaaS 2015-2020—*January 2015*

**Virtualization**

Module 1: Cloud-RAN deployments and key trends 2015-2020—*November 2015*

Module 2: NFV and SDN deployments and key trends 2015-2020—*December 2015*

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