Cost Considerations for Centralized RAN and Cloud RAN

Market Report
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Abstract

This report examines the process of moving from today's conventional remote radio head (RRH) deployment where the baseband units (BBU) are deployed at the base of the cell tower, to an architecture in which the BBUs are deployed in one (or more) centralized data centers.

The next step in this evolution is to an architecture in which the baseband units are deployed in data center and the baseband functionality itself runs in virtualized software on generic computing platforms. This eventual architecture would divorce the 1:1 ratio between baseband and RRH, and thus give mobile operators the ability to support the same number of cell sites and sectors on less hardware. This would therefore be a true cloud RAN (C-RAN) deployment in a commercial data center.

Once this C-RAN evolution takes place, operators are likely to realize CapEx and OpEx savings, as well as realize less easily quantifiable benefits such as increased flexibility, faster/easier upgrade cycles and the ability to deploy new services/technology in fewer physical locations in less time and at a lower cost.

Key questions addressed in this study:

- What are the traditional benefits of the hosting model?
- What is the current regulatory environment and what is its impact on the hosted RAN model?
- How will the perceived loss of control of the RAN due to hosting / centralization impact the network evolution?
- What are the issues surrounding the ability of third parties to host a RAN / baseband unit rack?
- How important is the availability of fiber in the viability of centralized RAN?
- How important is the distance from the cell site to the data center?
- What are the key differences between hosted baseband and existing architectures?
- How can data centers and C-RAN support "Small Cells as a Service"?
- How can traditional central offices (CO) support centralized RAN deployments?
- What are the CapEx and OpEx costs associated with moving to a centralized data center deployment compared to a virtualized C-RAN? How do these costs compare to today's RRH deployments?

- Who are the main vendors likely to be offering data center services to the mobile operators?

Who should read this report?

- Mobile operators
- Telecom / Datacom Equipment Manufacturers
- Tower companies
- Data center providers
- Financial analysts and investors.