



How much intelligence will you pack into your LTE network?

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Introduction: Dumb Networks Are History

Mobile development and innovation appears to happen in cycles of a decade. The 1980s saw the first mobile networks. By the 1990s we had Global System for Mobile (GSM) Communication. Another 10 years later, Second Generation (2G) and then Third Generation (3G) technology changed mobile networks. In 2010, 4G, also known as Long Term Evolution (LTE), made an appearance. Each development has seen slow, incremental change: from voice and SMS to MMS and video calls; then mobile TV and video calls; and finally real-time interactive information and transactions.

With each change, user expectations have grown. Today, users expect anytime anywhere access to their personal and enterprise information, data and applications. The opportunities before network operators have

been increasing, but they have been slow to leverage it. Their response has been one dimensional - each network improvement has been limited to delivering more data with less pain.

Fundamentally, the approach to meeting growing traffic has meant putting fatter pipes in place to deliver the data. The underlying nature of the pipe has remained the same. They continue to be dumb. Could network operators have missed an opportunity to enhance services and revenue by building intelligent pipes to deliver the data?

An examination of public or private roadways designed as toll ways provides an effective analogy. Toll for road usage varies depending on the type of vehicle - truck, bus, car, two-wheeler - used and on time-based access. The road infrastructure owner ensures level of quality that delivers a predictable drive experience. But usage fees are not flat. They are based on the type of vehicle passing through. Is there a takeaway in this for network operators? Can network operators charge users based on the type of content passing through their pipe? What are the implications of such a model? What are the technical requirements? How can Quality of Service (QoS) be guaranteed for different kinds of traffic? What kind of partnerships will need to fall in place to make such a model effective? How will the mobile ecosystem - from operator to content provider and the subscriber - benefit?

SLAs. The emergence of OTT players that challenge traditional operator revenue sources, such as voice and SMS, has accentuated the need for CSPs to mine new revenue sources such as network, quality and customer data to third parties.

Convergence of Prepaid and Postpaid Services: The trend is for enterprises to allow employees to bring their own devices. Employees use the same device for personal as well as business applications. Employees (subscribers for the provider) would want personal use based on prepaid balance and a managed quota, whereas postpaid would be preferred by the enterprise for business use.

How IT can unlock the opportunity

As the LTE ecosystem evolves around collaborative efforts, structural changes in the IT stack become necessary. These changes are around:

- **Provisioning and Activation:** LTE will co-exist with 2G, 2.5G and 3G networks for some time and IP Multimedia Subsystems (IMS) for the future. This adds to the complexity of provisioning and activation of services
- **Policies:** LTE will need an introduction of Policy and Charging Rules Function (PCRF), allowing subscriber-based profiling at an individual

level. Policies will need to be integrated with activation systems, billing function and performance management systems to ensure QoS control

- **Customer analytics:** LTE networks will need to analyze subscriber content consumption in relation to CSPs and cross charge. This also emphasizes the need for partner management systems (product catalogue, order management, revenue calculation and settlement)
- **Payment Processes:** New protocols based on Diameter and GTP need to be supported for collection and distribution. New products need to be configured for real-time billing systems

At the center of the opportunity is content availability. A major reason 3G failed to gain traction in many non-urban geographies is because of the lack of local content.

Content provides a compelling reason for users to opt for carriers who provide the necessary data and also to increase their data usage. Meaningful content – news, social, business, transactional – increases stickiness. It also drives networks to provide and maintain QoS that users are willing to pay for.

Much work needs to be done in addition to creating CSP collaboration and revenue sharing models. LTE networks that focus on new products and services based on content; packaging and marketing of new bundles; billing and support services; and applications that create service differentiators, will lead the way in leveraging the true potential of LTE networks.

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