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Analysis - Bandwidth Bonanza II

Sat, 05/30/2009 - 8:46pm

by Keith Mallinson

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Plummeting fixed network costs fueled the Internet boom a decade ago. Mobile broadband growth also demands much lower network costs.

The problem with 3G data services until a year or so ago was that they were hardly being used. U.S. carriers priced with flat-rate, all-you-can-eat data plans to stoke up demand. They succeeded, but in so doing created other problems – data traffic levels that threaten to outstrip supply and undermine profitability. This growth is a very positive development, but carriers must significantly adjust if they are to be competitive with prices and costs in the emerging mobile broadband market.

Much of the 3G/4G competition debate is about spectral efficiency (i.e., CDMA versus OFDMA) and headline speeds (i.e., for WiMAX versus EV-DO, versus HSPA, versus LTE). With escalating demand, cost-per-bit as well as network capacity are also crucial. It's why Clearwire's Barry West boasts about his 100-120 MHz of cheaply acquired spectrum. It's also why Verizon Wireless is hurrying to deploy LTE.

Until the recent explosion in mobile data demand, there was little incentive to reduce, let alone minimize, network costs. With predominantly text messaging, mobile data was a gravy train generating revenues of around 10 cents per message for a maximum of 150 characters (\$700/MByte). Voice traffic is priced with a global average equivalent to \$1/Mbyte.

Network economics are being disrupted though escalating demand with 20-50 times the data traffic a year or so ago. Data is rapidly exceeding voice traffic on many networks worldwide. Ericsson's chief technology officer, Håkan Eriksson, foresees a global market of 4 billion users averaging 20 GBytes per month by 2020. That represents 1,000 times more network traffic than with the world's 300-minute voice and text-centric average user.

SLIDING PRICES

U.S. users are being weaned off flat rates to data plans with caps – typically 5 GBytes per month – that limit the small proportion of extremely heavy users. Smartphone subscribers pay around \$30 and average 5 Mbytes per month (\$6/Mbyte), with much higher usage by iPhone owners. Laptop users pay around \$50 and average 500 Mbytes or more per month (\$0.10/Mbyte).

This reduction in yield is just the start of the slide. Effective prices per Mbyte will continue to fall under competitive pressure and as demand is stimulated from more price-sensitive users and usage. How rapidly and how far depends on several factors, including elasticity of demand, the number of competitors and most critically, the costs of the most efficient operators.

Price declines can be beneficial for carriers so long as demand volume growth is sufficiently large and if their costs are low enough. A former



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colleague pertinently challenged Verizon CEO Ivan Seidenberg on the profitability of Verizon Wireless' EV-DO-based data services at a CTIA press conference. Seidenberg refused to answer; instead, saying that the questioner was "trying to chase a chicken [he] will never catch". That left us all guessing whether Verizon knows what its EV-DO network profitability is, or if it was simply unwilling to tell us.

SLASHING COSTS

What is clear, however, is that with massively increasing data volumes, wireless network costs per bit transported will become an increasingly important competitive issue. The radio access network accounts for around 55 percent of network cap ex, spectrum costs many billions of dollars and backhaul is still predominantly over high-cost per-megabit 1.5 Mbps T1 leased lines in the United States.

History teaches us some lessons. As a fixed network analyst around the turn of the decade, I uncontroversially forecasted transatlantic fiber-optic transmission growth at a compound annual rate of 80 percent for five years. What did not go down well with suppliers was my forecast that the corresponding price per bit would fall 40 percent per annum over this period. This undermined the business case for several projects. My forecasts turned out to be fairly accurate: A string of bankruptcies and steeply discounted sales of distressed assets ensued within a few years.

The DSL and cable modem service providers did not suffer this distress due to only rather benign competition in broadband access. Unfortunately for the wireless operators, mobile broadband is not such a cozy duopoly. There are already four or five carriers in most urban locations and mobile broadband is increasingly a direct competitor with fixed services. There is still the risk of excess investment, desperation pricing and some kind of collapse – just as there was in long-haul fiber.

Ericsson's upbeat traffic projections are quite plausible; but what prices, data ARPUs and network costs can drive this demand on a sustainable basis? This is my kind of question, but my answer might not be to everyone's liking.

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