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New *i*GR research forecasts U.S. bandwidth usage by time and location, quantifies excess bandwidth demand

Model forecasts unmet mobile data demand will rise from 4.52 GB/day/KM^2 in 2011 to 72 GB/day/KM^2 in 2016

AUSTIN, Texas, January 18th, 2012 – It is no secret that mobile/cellular data usage will greatly increase over the next few years, driven by ongoing LTE rollouts and the increasing adoption of mobile devices. Recent *i*GR research suggests that by 2016 U.S. end users will, on average, devour about 2.6 GB of mobile data per month. What's not typically discussed in much detail is the impact this data consumption will have when it is condensed into relatively small, localized geographic areas at certain times of the day.

The model presented in *i*GR's new report, *Localized U.S. Bandwidth Demand Forecast, 2011-2016*, considers data consumption by time of day and geographic location, forecasting the severity of the problem that mobile operators face today and moving forward. Put simply, this model indicates that bandwidth consumption exceeds the average of what the macro network can currently handle and indicates, despite the availability of LTE, that the problem will only get worse.

"The first step in intelligently preparing for an extremely data-hungry future is understanding when and where bandwidth demand spikes occur and how much of this bandwidth is in excess of what a carrier's macro network is able to deliver," says *i*GR President Iain Gillott. "Exceeding bandwidth demand is a multi-dimensional problem that can be evaluated by both time and geography. How much bandwidth – over and above what is already planned – might an operator have to deliver per kilometer squared (KM^2) per hour to meet the bandwidth demand that their macro network cannot deliver?"

In the hypothetical City X – 3 million people living in a metro area of 500 KM^2 – the model estimates approximately 4.52 GB/day/KM^2 in mobile bandwidth demand that the cellular data network did not meet in 2011. By 2016, the unmet demand will increase nearly sixteen fold when viewed over the whole area. This forecast assumes that people are not moving around. The reality is that people move around during the day and congregate where they use

voice/data while they do so. So, while 2016 paints a dire picture, the actual problem is much worse.

If *i*GR instead assumes, more accurately, that people in City X commute to work and congregate in an area of 20 KM^2 (core business district) then the unmet bandwidth demand problem grows nearly 200 hundred times in the 20 KM^2 business district.

Simply put, in most all markets, there is higher demand for mobile services during the workday and, typically, in a much more concentrated area. Ultimate, the number, size, duration and intensity "bandwidth pain points" vary depending on the population movement but one trend remains constant – the macro layer of a mobile network, including LTE and LTE Advanced deployments, can not handle the average level of traffic and significant "pain--points".

The model set forth in the *Localized U.S. Bandwidth Demand Forecast, 2011-2016* answers several key questions:

- How much cellular data will be consumed in the U.S. through 2016?
- When does this data usage occur during the day?
- How much of bandwidth consumption during given time periods is in excess of what a carrier's macro cellular data network is able to deliver (on average)?
- How much bandwidth might an operator have to deliver per kilometer squared per day to fulfill the bandwidth demand that their macro network cannot deliver?

Additionally, *i*GR's research suggests that significant "pain-points" will emerge in the cellular data network that will necessitate a different approach to network architecture. In short, the heterogeneous network. With this type of approach, carriers stand a much better chance of weathering the massive and concentrated surges in data traffic that are already occurring and will only get worse.

For additional information on *i*GR's localized bandwidth forecast, please contact Amanda Louie, *i*GR's Director of Strategic Development, at (512) 554-1701 or amandal@*i*GR-inc.com.

About *i*GR

*i*GR is a market strategy consultancy focused on the wireless and mobile communications industry. Founded by Iain Gillott, one of the wireless industry's leading analysts, in late 2000 as *i*GillottResearch, *i*GR is now entering its twelfth year of operation. *i*GR continuously researches emerging and existent technologies, technology industries, and consumer markets. We use our detailed research to offer a range of services to help companies improve their position in the marketplace, clearly define their future direction, and ultimately improve their bottom line.

*i*GR researches a range of wireless and mobile products and technologies, including: smartphones; tablets; mobile applications; bandwidth demand and use; small cell architectures; DAS; LTE; WiMAX; VoLTE; IMS; NFC; GSM/GPRS/UMTS/HSPA; CDMA 1x/EV-DO; iDEN; SIP; macro-, pico- and femtocells; mobile backhaul; WiFi and WiFi offload; and SIM and UICC. *i*GR is a member of the Rural Cellular Association.

A more complete profile of the company can be found at www.*i*GR-inc.com.