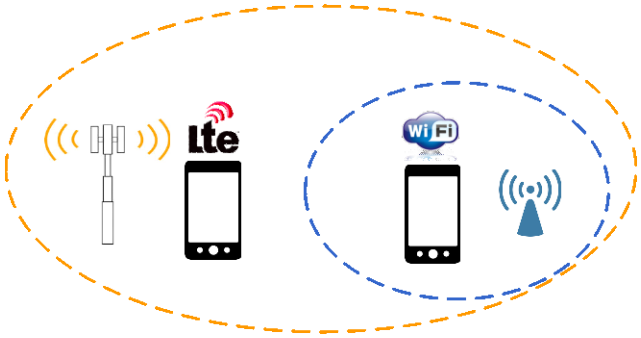
Heterogeneous Communication

MediaTek White Paper

February 2015

Introduction



Today most smartphones are equipped with both cellular (3G or LTE) and WiFi radio interfaces, and both interfaces are capable of packet data transmission. However, usually only one of them at a time is enabled for packet data transmission. For example, if you walk into a WiFi hot spot with your smartphone WiFi module enabled, your phone will turn off its mobile data connection and route all data traffic over WiFi even if it is still in LTE coverage (assuming the phone has the proper credential to camp on WiFi hotspot). In case there is huge demand in network throughput, e.g. downloading a file of large size, the aforementioned design cannot fully utilize all available bandwidth resource from both cellular and WiFi radios.

Heterogeneous Communication

Heterogeneous Communication (HetComm) improves bandwidth utilization by enabling simultaneous cellular and WiFi radio interfaces and by aggregating available bandwidth from both radio interfaces. The data generated by applications are routed over different radio interfaces to utilize the bandwidth resource of both. In addition, HetComm dispatches proper amount of data to different radio interfaces according to the network condition. Our experiments show that HetComm improves the user experienced throughput with less battery energy.