Wireless networking in 2013

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The outlook for wireless networking keeps getting brighter as more devices — some as large as automobiles — become connected. Megatrends also drive wireless growth with the single most important being the conversion of electricity grids into Smart Grids, which in turn creates markets for smart meters and smart homes.

Although many very substantial niche markets are well-served by proprietary technologies perfectly aligned with their target applications, the lion's share of growth will still be in standards-based technologies such as Bluetooth, Wi-Fi, and ZigBee.

RF Wireless Technology

The networking installed base created by the existing ecosystem of Bluetooth Smart devices in smartphones and laptops will create a fertile field for hardware and software developers. The emphasis in 2013 will be on wearable devices, including fitness and quasi-medical devices such as smart T-shirts integrated with cardiac sensors and a heart-rate monitor with GPS tracking. Bluetooth Smart technology will also extend its reach into remote control for consumer electronics and home automation.

ZigBee RF4CE will give Bluetooth stiff competition in the handheld A/V market. With smartphones becoming commonplace – seemingly all of which are Bluetooth wireless technology enabled – the Bluetooth ecosystem should give it an edge in

attach rates over RF4CE. Smartphones will also boost Bluetooth technology in the Smart Home market. For example, using Bluetooth Smart technology the phone can set thermometers and turn appliances on as soon as the owner comes home.

Nevertheless ZigBee probably has the Smart Home edge because of its near-perfect alignment with the Smart Grid standards being developed. The utility meter is the gateway to the Smart Grid – and conversely the Smart Home – and the ZigBee Alliance's gateway strategy seems to be working. The heavy-hitters of the semiconductor world are also trending toward ZigBeeA number of silicon suppliers are offering development kits that include a wireless energy harvesting switch and ZigBee/RF4CE remote control.

The respective strengths of ZigBee and Bluetooth Smart technologies will drive developers toward choosing Bluetooth technology for point-to-point applications and ZigBee for more complex systems with high node counts because Bluetooth technology has support for a limited number of nodes.

Judging by the broad swath of applications it serves, Wi-Fi will remain the 800-pound gorilla of the wireless networking world. From Wi-Fi Direct™ for smartphones to gigabit Wi-Fi (IEEE 802.11ac) to 60 GHz multi-gigabit point-to-point wireless, its reach just keeps expanding.

Not as sexy as gigabit data rates, but more potent in the long run is the Wi-Fi Direct peer-to-peer connection capability. Already in wide use in smartphones and tables, it will also dominate in automotive applications such as in-car hotspots, wireless screen duplication, tethering, wireless car diagnostics, and wireless software upgrading.

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