1Q 2014 - Wireless Issues

Wireless Backhaul Backbones

Infonetics Research expects a 100-fold growth in small-cell wireless backhaul traffic in the next few years. The providers expect to ultimately connect to fiber backbones, after a few wireless hops – or no hops. Perhaps that's why you hear references to "less wired" networks. There aren't any pure wireless networks when you consider the backbone. There was a time when it appeared that wireless would take over the world; now they just don't have enough bandwidth. Perhaps fiber to the tower could take over at least part of the world.

4G wireless and 'offload'

AT&T and Verizon argue about who has the most 4G wireless coverage. Towerstream CEO Jeff Thompson notes that "the cheapest way to acquire spectrum is to use offload" (meaning shifting cellular traffic to local networks). The existing 3G network handles almost all the voice traffic. 4G service is now used just for data traffic, and most wireless data usage is around the subscriber's home and office. A couple of well-placed Wi-Fi nodes or even micro-cells could take almost all that subscriber's data off the air.

'White Spaces' and Unlicensed wireless

More spectrum will be freed up by moving some UHF TV stations. "White spaces" refers to currently unused UHF frequencies and the guard bands between channels. The promise is for transmission in those relatively long-wavelength frequencies of up to 20 Mbs per user link for distances of up to 60 miles, although that kind of performance is pretty enthusiastic. The FCC has approved several spectrum database administrators, and equipment vendors are gearing up. What's the timeframe for the frequencies? It may really happen in 2014.

Other wireless options? The 3.65 GHz band works well in most rural areas but obviously has capacity limits. This is still better than purely unlicensed frequencies, which have interference concerns that won't be easily resolved.

Satellite Broadband

What has happened to the satellite providers who trumpeted 20 Mbs for $50 a month? They certainly got the FCC's attention, but they seem to have 'fallen to earth.' It just doesn't work as well as they said it would. Hughes Networks has demonstrated the ability to support broadband data at rates of 1 Gbps per channel. That's about double what the Jupiter satellite launched last year currently supports. But company-watchers anticipate they are more likely to just try to support more customers at lower rates. Each individual channel supports numerous subscribers, who currently can obtain service at rates in the range of 10 to 15 Mbps

downstream and 1 to 2 Mbps upstream. This sounds good in very rural areas, but not too impressive elsewhere.

To support the 1 Gbps capability, Hughes has to upgrade some of its network operations centers and VSAT transceivers – and at present the company has no public plans to upgrade that infrastructure.

FirstNet

FirstNet is intended to be a federally-funded cellular network for 'first responders', loosely defined as all types of public safety and emergency response parties. Things like determining who qualifies still remain to be determined. And a lot of these groups are hoping the government will give them free gear and service, whereas some say the plan is to build the network and charge the users. FirstNet has essentially been promised billions from sources such as wireless spectrum auctions to build out this nationwide network. Some of FirstNet's initial 'grants' have been to States, to conduct Statewide studies and do some investigating on the requirements and possible methodologies. Some (including groups like NTCA) have worried the money will just be given to the 'big guys' to build it all out. FirstNet does have a mandate to use local infrastructure and service providers as much as can be efficiently and cost-effectively done. FirstNet also has dedicated spectrum, and the network provider could potentially gain 'secondary' access to that spectrum – when it is not being used by First Responders. This could be a big attraction for the big players, but, none of them really 'took the bait' when this spectrum was essentially offered in exchange for building such a network when the first 700 MHz auction took place several years ago.

Perhaps the most important asset or biggest cost in building this network will be the backbone. And, throughout most of rural America, who owns the optical fiber backbones? Rural telcos.

We recommend you get involved with your State initiative (or the people who might drive such an effort) and make sure your area – and backbone – isn't overlooked, for FirstNet, or for cellular backhaul and offload.