

Mining the Wireless Gold Rush without Getting Shafted



What you Should Know about Point-to-Point Wireless

| Licensed & License-Free

by David S. Theodore

As with any hot market, point-to-point wireless is bait for the pathologically opportunistic. Scrambling for market share, they plunge headlong into uncharted waters dragging customers to the murky depths. Those standing on the shores are left to ford a sea of marketing hype that obscures the pitfalls and dumbs down the knowledge base.

You can't even rely on industry pillars to be careful with their facts. Examples are everywhere. For instance, the Web based "Learning Center" of a Fortune 500 telco lists microwave as *sometimes* achieving data rates from fractional T1 to 10 megabits. Antenna sizes are said to range from 30 cm to a meter. Actually, microwave can push a gigabit of bandwidth and dish size can be anywhere from one to twelve feet. Am I splitting hairs?

In this atmosphere - so often termed "anarchy", trust can't be a matter of faith. To get in on the wireless opportunity without getting shafted, you need to know a few basic and incontrovertible facts concerning the difference between licensed and license-free wireless. A successful outcome depends on making the right choice between them.

FACT #1: There is a difference between licensed microwave and unlicensed wireless. It's reckless for anyone to say otherwise. For starters, an unlicensed link can be put in for a few thousand dollars, but a typical licensed set-up *starts* at \$30,000.

If license-free wireless is "practically the same" or "just as good," then what accounts for the huge cost difference and why do educated buyers go for it to the tune of billions of dollars a year? I would rather submit that they know something.

FACT #2: Licensed microwave is "carrier-class" and unlicensed is not. Forget that vendors are slapping "carrier-class" stickers on everything. Using the term in such a fast and loose way blurs key distinctions that tell whether a product is suitable for mission critical applications. Simply put, a product is "carrier-class" if it meets the exacting standards of a carrier (e.g., Verizon, AT&T, etc.) for its own network infrastructure.

Licensed microwave is the unanimous choice of leading telcos worldwide and that's because nothing else matches the bandwidth and interference protection.

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Central office and co-location rooftops are jam packed with heavy, drum-shaped licensed microwave dishes, yet the last time I stood on the roof of 60 Hudson (NYC), I didn't spot a single license-free antenna.

FACT #3: Licensed microwave is inherently interference-free; unlicensed is not. Licensed radios have to meet exacting FCC rules for transmit power, channel spacing, bandwidth utilization, receiver sensitivity, antenna size and even the width of the radio beam. But that's not all. The actual microwave path has to be licensed before the radios can be turned on. All this promotes efficiency of the licensed radio spectrum so that a multitude of users can enjoy their own pure slices of radio heaven.

By contrast, license-free radios can go from box to rooftop in a matter of hours. Many of these radios operate in the same frequency bands shared by a geometrically expanding number of wireless consumer devices. For some there will be no effect. For others it's a ticking time bomb.

The cost of building radios to FCC licensed standards is high. What you get for the premium price is the assurance that licensed microwave will always deliver to full specification, whether you're in Manhattan or Madagascar. That can't be said about license-free wireless because of varying amounts of congestion in the shared bands. Want a sanity check on this? Just ask a license free vendor for a written guarantee against interference.

FACT #4: Virtually any organization can get an FCC license - schools, hospitals, municipalities, corporations, etc. It's not the privilege of a chosen few. The license is good for ten years and renewable thereafter. The application is submitted on-line and is approved like clockwork, in 3-4 months.

These are some of the chief distinctions between licensed and unlicensed microwave. While I take exception to putting them both on an equal plane, license-free radios should not be discounted. Licensed microwave is as high-end as wireless gets, but it's overkill if you're just looking to replace a few T1s. Also, the affordability of license-free radios lends them to mixed media backup wherever there's line of sight. The fact that there's no licensing time also means that you can get instant relief for a temporary bandwidth bottleneck or catastrophic service interruption.

So when do you go to licensed microwave? Generally for longer paths where you need more than a 20 megabit pipe or where your job depends on the connection being up at all times. There's nothing wrong with saying this - even though we also quote unlicensed products, because it should come as no shock to know that a \$3,000 off-the-shelf solution has its limitations. Telco executives can breathe a sigh of relief - for now.

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