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## Sluggish Internet Performance?

*The problem could be nearer than you think*

A dozen years ago, wireless Internet was a very new concept. Service delivered to a home or business over a wireless link was then typically connected to one or more computers (or printers etc) via Ethernet cable. The occasional interference issues were usually external (caused by other ISPs), or internal, caused by cordless phones and microwave ovens.

Newer wireless technology and a more cooperative environment has allowed most ISPs to resolve and avoid interference conflicts. Cordless phones and microwave ovens can still create interference when they are operating near any other 2.4 GHz wireless device, but that is only while those devices are in use.

However, much has changed since those days. In particular, many (if not most) homes and businesses now have multiple computers and printers. And, "hard-wired" Ethernet connections have been largely replaced by the convenience of wireless routers, especially in homes – it's very handy to sit down with a laptop pretty much anywhere you wish.

Before wireless routers became so commonplace, they could be configured without much concern about interference, since there usually weren't too many others operating in the same neighborhood. But now, it's entirely conceivable that nearly every house on the block may also be using a wireless router, and that's causing a present and growing issue over nearby interference.

For reasons related mostly to the FCC's allocation of radio frequency spectrum, wireless routers and other similar devices that use the 2.4 GHz band can operate on one of only eleven preset channels, numbered from 1 through 11 (although only three of these are non-overlapping). The default setting for a new wireless router "out of the box" is Channel 6, so it's easy to guess where most of these devices remain set.

A customer recently complained about intermittent sluggish performance, even at times when we could see that signal strength, latency, packet loss and other tell-tale indicators were all excellent.

After a closer on-site look with a scanner, we could see that the nearby neighborhood was not only saturated with other wireless routers, but also that most of them were competing for Channel 6 and several others had been reconfigured to use the same other channel as our customer.

During peak usage times of the day and night, all of these

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## Super WiFi News

In July 2011, the IEEE approved 802.22 as a wireless regional area network (WRAN) standard. The new standard, known



informally as Super WiFi, operates in the TV UHF and VHF channel bands – also known as "white space" spectrum – which was vacated by the move to digital television.

The new technology holds great promise for wireless broadband, especially in rural markets (see also our October 2010 newsletter).

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## Sluggish Internet Performance?

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routers were essentially creating channel congestion and causing the sluggish performance ... changing the router to use a less-congested channel solved the problem.

We've found other cases where all channels in the 2.4 GHz band are simply filled up. Solutions can then include replacing the router with one that uses the 5 GHz bands, where another 20 channels are available (which are currently much more lightly used), or a "dual-band" model that supports both.

Or, consider going back to "hard-wired" Ethernet cabling, where wireless interference is a non-issue. This solution has the added advantages of faster speed, with no need for wireless security or encryption.\*

\*The default security settings for wireless routers are basically "off." That may seem to be the simplest and easiest option, but this is what allows neighbors or drive-by scammers to connect to your router and basically piggyback on your service for free – security settings on wireless routers should always be enabled.

If you have questions or concerns about your wireless router, please don't hesitate to give us a call. You may also test whether wireless congestion or interference may be causing problems by temporarily connecting your computer to your router with an Ethernet cable.

## Super WiFi News

(Continued from Page One)

Theoretically, Super WiFi will be able to provide up to 22 Mbps of speed over more than 60 miles. The new standard also requires a lot of behind the scenes coordination, to avoid the kind of interference problems we experienced in the similarly unlicensed 2.4 GHz spectrum.

Measures will include a national database registry, to identify frequencies in use in any given region. New radio equipment will be required to automatically coordinate with this database to determine which spectrum bands are available for operation, and the FCC is in the process of approving the first such equipment for commercial availability.

But there's a potential wrinkle in the deployment process. New legislation has been proposed that would require any spectrum made available for commercial use to be auctioned, even if it is intended to be unlicensed. Should this pass, no smaller service providers like OCS will be able to compete with mega-players like AT&T, Verizon and others, or even current non-carriers like Microsoft, Cisco or Google.

If that proposal concerns you as much as it does us, you may want to express that opinion to your federal representatives.

### Fan Mail



*"We decided to try another service provider, but they are having way more problems and we want to come back to OCS!" -CM (Editor's Note: Check your exit options carefully before trying this – most other providers make it very hard to get out of their contracts!)*

### WIRELESS SERVICE AREAS

- Porterville
- Springville
- Pleasant Valley
- River Island
- Globe Drive
- Strathmore
- Terra Bella
- Lindsay
- Exeter
- Badger Hill
- Visalia East
- Yokohl Valley
- Camp Nelson
- Success Valley
- Richgrove
- Delano East

## OACYS WIRELESS INTERNET SERVICE PLANS

Wireless Plan Types	Average Speeds			Monthly Usage <sup>1</sup>	Mailboxes	One-Time Fees		Monthly Service <sup>3</sup>
	Min	Typ	Max			Installation	Equipment Deposit <sup>2</sup>	
<b>RESIDENTIAL</b>								
Basic	125K	500K	750K	12GB	5	100.00	100.00	49.95
Premium	250K	1M	1.5M	20GB	5			79.95
<b>BUSINESS</b>								
Business	375K	1.5M	2M	30GB	10			129.95
Professional	500K	2M	3M	35GB	25			159.95
Corporate	750K	3M	4M	45GB	30			199.95
Enterprise	1M	4M	5M	60GB	40			249.95
<b>MOUNTAINS</b>								
Alpine, Pierpoint, Camp Nelson	125K	375K	750K	5GB	5			69.95

1. Monthly usage is the allowed bandwidth per month. Surcharges apply for excess usage.
2. Equipment deposit is fully refundable upon termination of service after one year.
3. For areas served by Blue Ridge tower, add \$10 monthly rural service fee.

### I Didn't Know That!

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