



# Emerging Technologies And Their Clever Applications

By Greg Heifner ■ *Orbital Data Net, Inc.*

New opportunities seem to spring from the development of new technologies. For instance, the rise of the private cable industry, in no small part, came as a result of hotels trying to compete with each other as cable franchises were established. Those hotels outside the cable franchise just could not compete with those that advertised HBO in the rooms. Apartment complexes were soon to feel the same pain. The development of (relatively) inexpensive TVRO satellite systems designed for the living rooms of high rollers, spawned the first headends that a hotel could realistically afford to own. That very effect, plus the battle we waged to get licensed satellite programming, started this entire industry.

As the saying goes, "what goes around, comes around again." The same effect is being seen with lodging trying to offer

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broadband to its business customer base. Apartment complexes have similar issues at stake. From a business standpoint, there are few perfect answers to these problems. One issue is the number of mouths to feed when these deals are created, but as a technologist, I will address in the coming months some novel and cost-effective means to:

- Tie your property to the Internet cloud for the most reasonable and available price and;
- Get that service to the rooms, for the right price and least amount of disruption. I'll let calmer minds than mine tackle the

problems of revenue sharing. My purpose is to generate some revenue to share.

I will address each of these topics from radically different angles. And, I will try to

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do so in such a fashion that those that are not career nerds, such as myself, will find the ideas easy to digest.

If you are going to swim with sharks that wear cell phones and carry 3G enabled PDA's, it is wise to understand their Kung Foo. Every technology has strengths and weaknesses, but the real gains for entrepreneurs are made within emerging technolo-

gies and their clever application. As a private broadband operator with just one property or a hundred, it makes sense to not always dip into the same set of tools each time. For instance, a property that is already wired with CAT5 cable has the infrastructure needed to proceed with a broadband system in short order. But for the sake of illustration, let's take a hotel or hospital that has not been post wired. Traditionally, you could offer cable modem, DSL or wireless to the rooms. Each has its own set of problems as well as restrictions relating to those that lay claim to those wires.

For the past two decades, I have controlled the lights and coffee pots in my home by sending signals to devices over the power lines. It is called X-10 technology and I use

to love it until X-10 began to saturate the Internet with pop up ads (they practically invented the pop up). I have retaliated by imposing my own small embargo on their products, but I digress. It was a cool concept that worked for the most part. I was a consistent fan of data over power lines after that, but not much seemed to happen for years. This was a tough technology to get to work, as the power grid is not a "quiet" environment for broadcasting signals. Operators of large urban and rural power grids saw regulatory hurdles as well as technical issues to be dealt with. But large buildings, that's a different matter entirely. Nobody was fighting over the access to the power lines in a building.

The introduction of the Telkonet Inc. Power Line Connectivity (PLC) products was a breath of fresh air to me. It has allowed us to add a bullet to our gun belt. It solved a huge number of issues for us from customers that needed robust video conferencing solutions, to the small hotel operator that doesn't want to tear his property up to deliver Internet services. Coupling powerline connectivity networks to a commercial VSAT, T1, or DSL services for access to the open Internet, can allow you to stand up an entire broadband system in a hotel in a

Those of you out there that have been involved with private cable and broadband services for a number of years might remember my old organization, Heifner Communications. We were involved in the fundamental days in the creation of this unusual space, along with notable others such as Bob Vogelsang, the owner of this fine magazine. We at Heifner Communications provided satellite technology and programming for over 15 years until we merged with WSNNet in 1998. I only remained with WSNNet for a year, but then decided my opinions were worth more elsewhere and left the organization I helped to build. The rest is unfortunate history, both for WSNNet and the industry that I loved. I have been watching with utter astonishment as private cable operators, investors and property owners retracted into their shells. But I was certainly not immune to any of this; I had left WSNNet with the intention of building and financing my own systems in a joint venture. As it turned out, my timing was so precise, that I didn't even see the bus that hit me. I got hosed, as we say here in the Midwest. I slid off the planet with many others in the telecommunications sector in 2001.

But it was a sign of the times. Our industry changes so fast that an idea you had yesterday may be too late for current circumstances. The business landscape may not change all that fast, but the technology sure does and that is what seems to shape the business's I have been in.

It has taken a few years to re-group, but we did and are happy to be back. The company, Orbital Data Net ([www.orbitaldata.net](http://www.orbitaldata.net)) specializes in exotic and new technologies to find solutions for the military, state governments and the private broadband sectors. We offer PowerLine Connectivity, Commercial VSAT as well as the other traditional technologies that we all use, such as DSL and cable modems. Most of the time, our systems are designed to use several different technologies blended in such a way as to solve some very thorny problems. There are very few instances where one product provides the best overall solution to any building.

matter of hours. It is not even necessary to enter all the rooms. A modem can be handed to a business traveler on check in or the modems can be permanently installed in the rooms, we adjust the business model as needed. Security is built into each modem, so it is almost impossible for a customer's data to be compromised and the signal cannot propagate through an electrical transformer, so each buildings network is secure.

But best of all, it's easy to install. We connect a PLC Gateway unit to your choice of outside Internet feed. The Telkonet Gateway unit then feeds a small device called a Power Line Coupler (PLC) through a small piece of coax cable. The coupler in turn attaches to the buildings meter bank or circuit breaker panel (a licensed electrician must do this part, but it is simple). These two components will condition the data and then



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drive it across all the power lines in the building. In some smaller buildings we can

as this. I personally have powered up a building in minutes.

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even plug the PLC network into a 220V dryer jack in a laundry room. The point is, we need to send data across all AC circuits in the buildings. The network provides for about 11mbps throughput in this version, with 4-5mbps at each modem being average. Perfect for most systems designed to deliver the Internet. Each Gateway will address up to 256 modems. If there are separate buildings not feed from the central breaker panel, we use an Extended Gateway at that site to further extend broadband signals across that buildings wiring.

Every power outlet, even the Christmas tree lights now have broadband Internet access.

We have seen few technologies as flexible

It is technologies such as this one that can rebalance the equation we all use to determine cost effectiveness. It is a new solution that as it matures, will become even more powerful. Historical buildings and any other site that is a problem to post wire is a fit for this technology. There are many applications where wireless simply cannot be made to work dependably. This may be an answer in those circumstances.

Orbital Data Net is proud to be involved as a distributor of Telkonet's products and believe they will find a happy home in the private broadband industry. We would be glad to supply anyone with more information or share our experiences with you.

Next month I am going to explore the

differences in VSAT (two way data by satellite) services and which ones we think are useable within our markets. Very Small Aperture Terminals are quite misunderstood. We will try to clarify the issues.

It is a pleasure to pollinate your garden again. ■

### **About the Author**

*Greg Heifner is one of the early pioneers of satellite communications. As the founder of Heifner Communications, he was instrumental in the technology that our industry uses, as well as helping to develop the relationships our industry has with video programmers. He is an "unabashed nerd" and has devoted his life to technology in its various forms. He is now the founder and CEO of Orbital Data Net, Inc., which provides broadband and video solutions to the military, state governments, educators and business' nationwide. He may be reached at 573-445-8101 or greg@orbitaldata.net.*

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