

Telkonet, Inc. (TLKO – OTCBB)

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Jeff Howlett is a financial analyst who for over the past 10 years has provided research services to companies lacking adequate coverage. Mr. Howlett was previously affiliated with a major Canadian investment firm specializing in Mergers & Acquisitions and has received a B.Sc. in Economics from the Wharton School of the University of Pennsylvania.

Now Commercializing Leading High Speed Powerline Communications Technology Tailored to Enterprise Markets.
New Alliance With Choice Hotels Represents Major Milestone.

The Technology

Telkonet has developed and is successfully introducing a Powerline Communications solution for commercial and industrial markets. This technology delivers two-way, **broadband Internet access** over existing electricity networks – it involves a "gateway" which distributes the data to multiple modems, which users plug into ordinary outlets to gain access to data at whatever speeds are offered by the ISP.

The technology offers a variety of benefits, including: ❶ ease of installation and access from multiple locations, ❷ minimal setup cost, ❸ security, ❹ lower operating and maintenance cost, ❺ high reliability.

Telkonet technology differs markedly from others that cater to the home market – additional boards in the modems incorporate sophisticated software that extend the reach of the basic technology, work in more noisy infrastructures and different environments in the commercial sector. It is also much more secure due to its architecture. **We are not aware of other companies that now offer working solutions at the enterprise level.**

Markets and Marketing Successes

Since the onset, Management has targeted the commercial sector, initially targeting hospitality markets with a direct sales effort (at the regional and national level). The multi unit dwelling, government, and international markets will follow, accessed through network administrator and systems administrator partners (incorporating the system as a high value added offering to existing customers). These markets have **rapidly growing demand for broadband** and are now served only by wired and wireless technologies which are costly to install and have significant ongoing costs. **Telkonet is ideally suited to a large, underserved mid-tier market.**

The new strategic alliance with Choice Hotels (CHH–NYSE, - over 5000 franchised hotels, inns etc.) provides a ringing endorsement to Telkonet.



Share Data (\$US):

Recent Price:	\$1.48
52-week Price Range:	\$0.40 - \$2.08
Shares Outstanding (12/31/02):	15.7 million
Fully Diluted Shares (1):	31.6 million
(1) Incl. 10.7 million options/warrants @ \$1.00 + \$1.69 Convertible Debt @ \$0.5 + 1.69 assoc. warrants @ \$1.00	

Capitalization (\$US):

Market Capitalization:	\$23.2 million
Total Debt (2):	\$2.07 million
(2) Incl. \$1.69 million Conv. Debenture	

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THERE APPEARS TO BE FEW IMPEDIMENTS TO A HIGHLY SUCCESSFUL PRODUCT INTRODUCTION STRATEGY:

- The R&D effort has been successful – Telkonet's advanced technology has been proven with early adopters.
- The technology lends itself to easy adoption given its nominal up front cost and painless, non-intrusive setup.
- Manufacturing is in place and there appears to be no bottlenecks to filling large orders rapidly.
- The technology competes very favorably with others in the marketplace.
- The market is growing very rapidly – management has identified industries that offer high adoption rates and large revenue potential.
- Telkonet offers ISP's and system integrators a tremendous new tool to gain new customers and enhance service.
- Financing has recently been put in place to fund large initial orders (i.e. 500 hotels).
- Seasoned management with proven track records with respect to product introductions on a large scale.

We believe that Telkonet has the ability to grow revenue streams significantly and rapidly and offers investors tremendous exposure to this ground-breaking technology. If the company is successful with its strategy (and initial results are promising), it could represent an attractive takeover candidate for a variety of communications companies.

THE COMPANY

Telkonet was formed in 1999 as a high technology systems application developer for power line carrier technologies. Its primary focus was to develop a system of high speed Internet distribution over electrical power lines tailored specifically for the commercial and the multi-dwelling residential markets. Milestones have included:

- **July 2001.** Telkonet completes initial product development phase of its proprietary system.
- **August 2001.** Successful demonstration testing in a 28-unit residential apartment building and a 5-story commercial office building. Clear and unrestricted high-speed data connectivity was successfully achieved from the basements to the farthest receptacles on the top floors.
- **Q2, 2002.** Telkonet readies for deployment and field testing with early adopters and potential customers that have indicated interest in the solution for a variety of installations.
- **Balance of 2002.** Company moves toward finalizing testing, manufacturing arrangements, and executing a marketing and sales initiative.
- **December, 2002.** Certification received from the HomePlug Powerline Alliance, Inc. (comprised of roughly 70 industry-leading companies).
- **January, 2003.** ① Successful testing by an FCC-Accredited laboratory – Telkonet may go to market without further regulatory obstacles. ② Telkonet begins to receive positive feedback from noteworthy potential hotel customers. ③ Begin 1st "build" at manufacturing facility to satisfy significant number of anticipated new orders.
- **February, 2003.** Receipt of \$2.5 million financing, overcoming the last major obstacle to a full roll out.
- **March, 2003.** News of ground breaking strategic alliance with Choice Hotels (CHH – NYSE), involving cooperative efforts on marketing, advertising and promotion to its 5000+ franchised hotels, inns, etc.

Telkonet has clearly well positioned itself – R&D on the 3rd generation technology has been successful, customer feedback is highly positive, markets and marketing strategies have been identified, and management has put in place a sales and marketing organization to leverage its core strengths for maximum impact.

THE TECHNOLOGY

Issues Related to PLC Technology

There has been interest in using existing power lines for data distribution owing to the fact that such networks offer the most ubiquitous form of the "last mile" to the consumer. This has been particularly true as more use is made of the Internet, demand increases for broadband solutions, and the tremendous advantages that a *Powerline Communications (PLC)* technology would have. However, development has proven difficult owing to critical technical obstacles including *line noise*, *electrical load imbalances*, and *transformer interference*. The technology also remained on the fringes due to problems of *interoperability* and *high cost*. Breakthroughs which have paved the way for new technologies include:

- The *Homeplug Alliance*, a major consortium, released industry wide standards in 2001 (see www.homeplug.org for more information).
- The required *Digital Signal Processors* were not adequately developed until recently to implement needed modulation techniques to deal with electrical noise and unpredictable attenuation.
- Reduced unit costs.

These obstacles are now beginning to be overcome – interestingly, our research indicates that the great majority of participants are involved in the home (retail) sector and there is somewhat of a "scramble" in that market segment. Some of the participants involved in the retail sector include *Siemens*, *Netgear*, *Phonex*, and *Linksys*. Major companies announcing their intention to enter that market include *Motorola*, *Philips*, *Microsoft* and *Apple*. Others are working with various utilities.

The new PLC Homeplug standard is *fully compatible with other networking standards*, and the *technology can also be used to extend an existing network without any problems* – there is no need to abandon existing investments in their networks.

Elements of PLC Systems

- Receipt of Internet signal in the traditional manner (broadband).
- Plugging the Internet connection into a **gateway**, a small appliance attached to the electrical system.
- Internet signals are transmitted over the existing electrical wiring to every standard outlet.
- Users plug a **modem** (the size of a standard modem) into any electrical outlet and then plug the computer into the modem for instant access at whatever speeds are offered by the ISP.

TELKONET FOCUS ON COMMERCIAL SECTOR

Critical Differences With Retail Units

Unlike virtually all other developers, management has focused on the enterprise sector rather than the home market. Telkonet is specifically focused on the needs of the business customer where issues like *security*, *support for greater distances*, and *enhanced network management* preclude the use of a product developed to suit the home market (i.e. the problem of degradation of signals over greater distances in commercial environments).

Critical to an understanding of Telkonet is that its technology has several important points of departure from the home-oriented product, including:

- **"Smart" Modems.** Home based products and the Telkonet system both use the same chipsets – however, whereas the home units are designed to simply send and receive data, the Telkonet units several additional boards that incorporate additional software.
- **Distance.** Retail products can service a house roughly 3000 square feet in size. Telkonet networks can *very* easily service buildings up to 4 stories and 150 units – with some additional Telkonet equipment and installation time / expertise, larger buildings can be serviced (although not targeted initially due to the large sales potential in the readily accessible mid-tier market).
- **Electrical Design / Different Environments.** Home systems must be hooked into the same 110 v breaker panel. Telkonet has developed its system such that it can handle *3-phase power* with ease, which can often be the case in commercial environments. Telkonet has also solved problems associated with *more noisy electrical infrastructures*.
- **Networking.** The Telkonet "smart" modems utilize a hub and spoke approach – each of its modems sends encrypted signals back to the gateway for complete security within the network. Home terminals do not do this – security is maintained within the home, but individual users in the network have access to all signals. This would be unsuitable for a commercial system. In the same fashion, those seeking access to the Telkonet gateway must have a Telkonet modem.

It is critical to appreciate the significance of the fact that the present home based solutions are not effective at the enterprise level, where requirements and operating environments are different. Telkonet has spent years developing the additional layers of intelligence required.

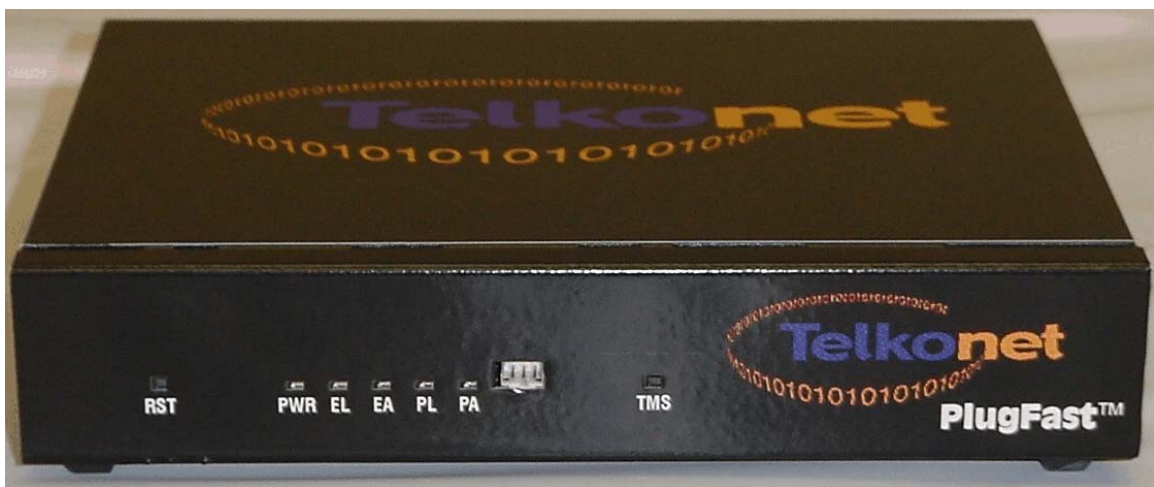
The current generation of the Telkonet PlugPlusInternet system delivers data at speeds in excess of 7 Mega bits per second (Mbps), with burst speeds of 12.6 Mbps, which means that *data flow is restricted by and large only by the speeds delivered by the ISP.*

From the point of view of the business sector, many PCs, each equipped with one Telkonet PlugPlusInternet modem, can communicate amongst themselves and can share a single broadband resource via the Telkonet Gateway.

The Company has applied for patents that cover its unique technology, and intends to utilize recently announced advancements in transmission speeds to build next generation devices for field tests and marketing demonstrations.

In the future, Management expects to enhance core technologies to offer additional functionality, diversification of application and desirability.

We are not aware of any other PLC solution that has successfully captured the elements required to conduct a product launch to the commercial sector.



(example of Telkonet PlugPlusInternet gateway – about 6" x 4.5" x 1.5")

COMPETING TECHNOLOGIES IN ENTERPRISE SECTOR

There are many type of ISP's, including fiber, cable, microwave networks, and 2-way satellite. They all share the same problem – getting the access to where the customers want it (the "last mile"). There are two methods currently employed in the commercial sector, namely *wireless* and *wired*. Both are billion dollar businesses. *The design of the Telkonet system allows it to compete directly with these major providers of "last mile" broadband services to the commercial sector, both technically and on cost.*

The Advantages Summarized

- Many installation issues – reduced cost, much less time, no disruption.
- Less maintenance
- Can operate on much lower cost DSL (don't need T1).
- Convenience (only limited by number of outlets)

Technical Advantages

We believe that Telkonet possesses clear advantages over other both wired and wireless technologies.

Broadband Solution	Advantages	Disadvantages
Wired	<ul style="list-style-type: none"> • Reliable • Secure 	<ul style="list-style-type: none"> • Costly installation for special cabling (i.e. \$30,000 for 100 room hotel). • Disruptive installation process. • Need T1 for network for high speed (i.e. 10 users) • Need for maintenance contract.
Wireless	<ul style="list-style-type: none"> • Ubiquitous technology 	<ul style="list-style-type: none"> • Costly installation (60% of the cost of wired - \$18,000 for 100 room hotel). • Security issues • Less reliable. • Complex • Requires RF conversion hardware devices. • Coverage issues. • Need for maintenance contract.
PLC (Telkonet)	<ul style="list-style-type: none"> • Easy, low cost, non-disruptive installation (1 day) • Reliability • Secure • Ubiquitous technology • Do not need T1 (DSL only) 	<ul style="list-style-type: none"> • Cost of Access Modem. • No known distance limitation, but slightly more hands on approach for structures exceeding 4 story, 150 unit buildings. • Points of attenuation in the grid which are mitigated significantly by Telkonet's proprietary software.

We believe that a particular benefit from an adoption point of view is the easy, instant installation of Telkonet – this enables a "try-before-you-buy" model, which is highly attractive. This is also true for customers with existing networks – they can add the Telkonet solution seamlessly to the system. Also an added benefit for sales by channel partners to their existing customers.

Cost Advantages

Our understanding is that Telkonet has clear cost advantages over the other competing technologies in its market space.

Broadband Solution	Initial Cost (representative for 100 room hotel)	Monthly Ongoing Cost (representative of 100 room hotel)
Wired	<ul style="list-style-type: none"> • \$30,000 	<ul style="list-style-type: none"> • \$500 per month for T1 • \$500 for maintenance contract.
Wireless	<ul style="list-style-type: none"> • \$18,000 	<ul style="list-style-type: none"> • \$500 per month for T1 • \$500 for maintenance contract.
PLC (Telkonet)	<ul style="list-style-type: none"> • 0 or Minimal (paid for by Telkonet) 	<ul style="list-style-type: none"> • \$1000 per month for all-inclusive lease (declining to \$495 per month after 2 years).

In the lodging sector, Telkonet has a clear advantage in certain areas. The top competitor in the market, *Lodgenet*, has begun to offer its new wired broadband solution to its existing network of 5400 hotels (800,000+ rooms). In 2001, the company completed installations in *over 100,000* of those rooms.

Lodgenet, the leading wired solution, has stated that for cost reasons, its technology is not currently targeted at hotels with less than 75 rooms. This "mid market" is very much underserved and open to Telkonet.

We believe that Telkonet possesses some key technical and financial advantages with respect to competing technologies. In addition to these, because the system involves easy and quick installation with virtually no start up costs to the operator, the obstacles associated with market penetration are significantly reduced. For example, with a chain of hotels, a simple trial at one over a relatively brief period could be expected to sell over the entire system, limited only by the ability of Telkonet to install the system and have the access modems put in place.

NEAR TERM ACCESSIBLE MARKETS

Management has identified several lucrative market opportunities with virtually unlimited potential.

Segment	Profile	Estimated Size	Comments
Hotel	<ul style="list-style-type: none"> Distance limitations not known, but maximum 150 rooms, 4 stories "sweet spot" from product introduction perspective. 	<ul style="list-style-type: none"> Roughly 4.5 million rooms, 3.5 million in sector having 75+ rooms. Estimated tens of thousands of hotel properties. Management estimates that under 2% of properties having 150 rooms or less have broadband (are "wired").. 	Several ideal candidates, each of which represents several hundred thousand units annually, including ① those not presently served, ② newly constructed units, and ③ those with contract expirations.
Multi-Unit Dwelling (MDU)	<ul style="list-style-type: none"> Same as hotel parameters 	<ul style="list-style-type: none"> In U.S. 28,439,000 housing units, of which 18,543,000 are grouped into properties of 5 or more units 	Roughly 95% of the population is estimated to be within the service area of a high-speed access provider (fractured T-1, T-1, or 2-way satellite).
Government & Military	<ul style="list-style-type: none"> Schools Offices Housing Fed / State / Local 	<ul style="list-style-type: none"> Virtually unlimited 	
International	<ul style="list-style-type: none"> Identical to U.S. Market opportunities 	<ul style="list-style-type: none"> Virtually unlimited (could be several times the size of U.S.) 	<ul style="list-style-type: none"> Lack of infrastructure and capital in many countries lends itself to wide scale adoption of Telkonet solution. Ease of penetration with "country partners".

Of significant note, *we are highly encouraged by Telkonet's recent announcement on the new strategic alliance with Choice Hotels*, which calls for "cooperative efforts for the marketing, advertising, and promotion of Telkonet's Internet access solution to their franchises". This opens up 5000 hotel, inn, all-suite hotels, and resorts to Telkonet. Management is aware of additional chains having 100 room size, upscale regional chains not targeted by wired people.

MANUFACTURING

Telkonet outsources parts and equipment and contracts with an assembly plants. Control over the technology is maintained in several ways, including having multiple suppliers for the several key components. We understand that Telkonet placed an initial, yet significant order recently at one plant and is in the process of completing the "first build", a 4 month process. Units are expected to be available in April, 2003. The number of assembly plants used is expected to increase to 2- 3 over time. *Following the successful completion of this initial stage, it will then be possible to produce units quickly and in very large amounts, sufficient to meet very significant new orders, which we expect will also add to the competitive offering.*

Given the nature of the production process, it appears very possible to realize a dramatic ramp up in sales.

SYSTEM OPERATION

The Telkonet system can be installed (i.e. the gateway) in less than a day by a contract electrical worker. Initially, however, Telkonet intends to take a very hands on approach and work directly with its early stage customers. Telkonet will also provide the necessary expertise with respect to installation and support to resellers.

MARKETING / COMMERCIALIZATION STRATEGY

Telkonet is now at a point in its business development cycle at which the system requirements and hardware have been developed, testing has proven successful, initial manufacturing is underway, and the Company is at the point where sales can be made. We see a well laid out product introduction strategy put in place, involving several elements, including:

1. **Work with early adopters.** Several customers were identified in the hospitality industry that fit the ideal profile for the Telkonet system. To date, Telkonet has been working with Summit Hospitality Group Ltd., which has developed, built and operated over **40 hotels in 7 states**. The system has been tested in a 90 unit Wilmington, NC hotel and was the subject of a recent positive news release. The system has also been installed and operated with great success at the historic, 156 room Partridge Inn in Augusta, GA, a traditional, full service hotel.
2. **Add marketing professionals.** Management has recently added several individuals to its staff to target potential regional and national accounts with an initial focus on the hospitality industry. Because of the "chain" nature of the hospitality industry, it is possible to access strong central organizations to work as strategic partners, which it clearly has done with the Choice Hotels announcement.
3. **Create strategic alliances.** Outside the hospitality industry, Telkonet will market its products principally through **service providers** and **network system integrators** who already use a variety of network technologies and have an established customer base. These organizations seek additional ways to enhance their service offerings, create new revenue streams, and gain new customers.

Initial efforts have been very encouraging – management has stated:

"virtually every large systems integrator and property management company that we have met with as part of our marketing efforts has immediately identified properties and situations that are ideal for the Telkonet approach. Our products will allow them to reach whole new classes of users, enhance their property offerings, and ultimately provide a vehicle for incremental revenue.

We will continue to examine, select and approach entities with existing distribution channels that will be enhanced by the Telkonet offerings. Several DSL, fiber and satellite access providers have indicated significant interest with demonstrations and technical discussions underway"

4. **International.** Access to the Internet is restricted in some developing countries by the limitation of the infrastructure of the basic Public Service Telephone Network and the pricing methodology of charging the user for every minute that the user is online. The Telkonet solution would allow economical access to the Internet by simply bypassing the per-minute charge to the user when implemented in conjunction with a 2-way satellite link, dedicated landline or fixed wireless access.

FINANCIAL

Revenue Stream

The company's revenue stream will closely parallel a key competitive advantage, which is the very low installation costs (i.e. one day) vs. competing systems. Ongoing revenues will be derived on a flat rate, which will in turn parallel all in costs of competing technologies. The company has stated that the first 1,000 buildings that subscribe will have a rate of \$1000 per month for the first 2 years, declining to about \$500 per month thereafter. Obviously, these are ballpark figures related primarily to the hospitality industry with an assumed 10 units put in place. For multi-unit-dwellings having many more units put in place, these rates could be much higher, depending on the arrangements that the various systems integrators have with their customers. This model would presumably involve a revenue sharing model with the ISP / SI.

Although we have no special information regarding how quickly the the company can generate orders, we can certainly point to an ability to satisfy orders from a manufacturing point of view and see very few bottlenecks to a rapid ramp up in sales.

Given the market size of the sectors targeted and virtually no other competitors (aside from those with the traditional wired and wireless solutions), we can see potential limited only by the business acumen of its marketing staff and ISP / SI partners. Certainly there are many ISP's having many thousands of commercial customers. On a blue sky level, we could see PLC technology becoming standard fare in the mid-tier hotel market (i.e. 50 – 150 rooms).

Assuming just 1,000 hotels become subscribers, this would generate \$1 million in revenue per month.

In view of the fact that the potential for sales is virtually unlimited, we are reluctant to forecast or project any particular levels sales levels at this time.

Costs

We note that the company's burn rate is roughly \$250,000 - \$300,000 per month currently, including interest (\$802,000 for the quarter ended 9/02). This will edge closer to the \$300,000 level including the interest on the new Convertible and the costs of additional sales and marketing efforts.

MANAGEMENT

Simply put, *we believe that the management of Telkonet is one of the highlights of the company.* The team has over a century of experience in both the public and private sectors, including high level success at well-known entities including: *General Dynamics, Data General, 3Com, US Robotics, Penril Datacomm, CompuCom Systems, Nortel Networks, Fujitsu, Digital Equipment Corporation, Deloitte and Touche, Textron, Safeguard Scientifics, IBM and NASA.*

The team clearly has the requisite knowledge, experience, and contacts within the powerline and data networking industry critical to the success of a start up venture.

Additional details on individuals' backgrounds and their achievements, too numerous to mention here, can be found at the companies website (www.telkonet.com/management.htm).

CONCLUSIONS

There are many companies that attempt to make the transition from R&D to successful commercialization of their technology. Much of the time there are one or more aspects of the strategy that serve to prevent wide adoption and produce very muted results. ***From what we have seen, we have not identified any parameter that would prevent Telkonet from succeeding on a grand scale.*** Management has positioned the company well to capitalize on all of its advantages.

- The R&D effort has been successful – Telkonet's advanced technology is proven.
- Work with early adopters has been highly successful and very encouraging.
- Manufacturing is in place and there appears to be no bottlenecks to filling large orders rapidly.
- The technology can compete very favorably with others in the marketplace.
- The market is growing very rapidly.
- Management has identified particular industries that offer high adoption rates and large revenue potential.
- The technology lends itself to easy adoption given its nominal up front cost and non-intrusive setup – it is totally painless to "try before you buy".
- Because the technology is fully compatible with existing networks, Telkonet offers ISP's and system integrators a tremendous new tool to gain new customers and enhance service to existing customers.
- Financing has been put in place to fund the large initial manufacturing run (sufficient for about 500 hotels).

For these reasons, we believe that Telkonet has the ability to grow revenue streams significantly over the near to medium term and offers investors tremendous exposure to a potentially ground-breaking technology. We also believe that for these reasons, if the company is successful with its commercialization strategy, it could represent an attractive takeover candidate for a variety of communications companies.

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