

**VVYO, INC.**  
**NASDAQ: VVYO**  
**RATING: BUY**  
**PRICE TARGET: \$35**

**vyyü**  
**MAY 1, 2000**

## VVYO – INITIATING COVERAGE OF BROADBAND WIRELESS PURE PLAY

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Price (04/28/00)	\$21.13	FY Ends Dec	1999A	2000E	2001E
S&P 500 Index (4/28/00)	\$1,452	<b>Revenue (MM)</b>	<b>\$4.2</b>	<b>\$13.4</b>	<b>\$53.5</b>
52-Week Range	\$34.75 – 13.50	EPS			
Shares Outstanding (MM)	34.0	Q1	(\$0.32)	(\$0.17)A	(\$0.18)
Market Capitalization (MM)	\$718	Q2	(\$0.37)	(\$0.16)	(\$0.17)
Enterprise Value (MM)	\$632	Q3	(\$0.40)	(\$0.19)	(\$0.15)
Avg. Daily Vol. (1 Month) (MM)	0.5	Q4	(\$0.51)	(\$0.20)	(\$0.14)
Projected 3 Yr. Rev. CAGR	100%	<b>Fiscal Year EPS</b>	<b>(\$1.60)</b>	<b>(\$0.73)</b>	<b>(\$0.63)</b>
Debt/Total Cap. (3/00)	0%	<b>EV/Sales</b>	<b>150.4x</b>	<b>47.1x</b>	<b>11.8x</b>
Cash/Share (3/00)	\$3.18	<b>P/E</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>

Source: WR Hambrecht + Co and Company reports

## INVESTMENT HIGHLIGHTS

- **We are initiating coverage of VVYO with a Buy rating and a \$35 price target.** We believe the Company is an early leader in the broadband wireless access equipment market, with trials with key carriers such as MCI WorldCom and BellSouth, significant commercial systems deployments, and strategic relationships with major systems integrators such as ADC Telecommunications. We note that MCI WorldCom alone intends to spend \$300 million this year building broadband wireless networks in the MMDS (Multichannel Multipoint Distribution System) frequency range, and we expect wireless to emerge over the next several quarters as a major residential broadband access technology along with cable modems and ADSL. According to the Strategis group, the global market for broadband wireless services is expected to grow to \$16.3 billion by 2004 with a compounded annual growth rate of 140%.
- **Our financial forecast for the Company underscores the enormous potential market opportunity that lies ahead for suppliers of broadband wireless access.** Our 2000 revenue estimate of \$13.4 million for Vvyo represents more than 200% growth from 1999. For 2001, we expect continued acceleration in top-line growth of 300% to \$53.5 million. Given our outlook for subscribers, the Company's early market leadership, and 2000 capital spending plans by major carriers that are close to \$500 million in the US alone, we believe there could be major upside to these numbers going forward. In addition to financial results, we believe additional catalysts for the shares could include additional strategic partnership activity, increasing carrier commitments to broadband wireless access technologies, and the transition of the Company's current trial activities to full deployment.
- **On a valuation basis, VVYO trades at a slight premium to comparable companies in both the wireless infrastructure and broadband access arenas.** Shares of VVYO trade around 11.8 times estimated 2001 sales, versus a group of peer multiples in the area of 9.2 times. We believe this premium is driven by the strong potential for upside in revenues going forward, which we believe will serve as a major catalyst for the shares.

## INVESTMENT SUMMARY

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**Enormous demand for broadband Internet access.** We believe there is considerable pent-up consumer demand for higher-speed access to the Internet than provided by traditional dial-up modems in the 28.8-56 Kb/s range. Of the estimated 35 million online households in the U.S. at the end of 1999, just over 2 million, or less than 6 percent, are currently using broadband access technologies. We view broadband wireless as the final piece of the broadband puzzle, which, to date, has included cable modem, ADSL, and fiber optic technologies.

**Early leader in rapidly emerging broadband wireless access market.** Vyyo, through its partnership with ADC Telecom, has product in trials with major U.S. carriers such as MCI WorldCom and BellSouth. The Company has also deployed systems commercially in more than 20 locations to date and has recently introduced its second generation MMDS and LMDS systems. We believe the Company maintains a substantial time-to-market lead over its competitors in the MMDS market and may be able to leverage this leadership through additional strategic partnerships with systems integrators.

**Strong core technology and product platform.** Vyyo has strong Media Access Control (MAC) networking technology based on the DOCSIS cable modem standard from its stint in the cable modem business and has filed for 22 U.S. patents covering various aspects of its broadband wireless access technologies. The Company's products include a wireless hub located in central office or base station environments and customer premise equipment (CPE) in the form of a wireless modem.

**Strong strategic partners.** ADC Telecom is Vyyo's primary channel into the U.S. MMDS market and also owns 8% of the Company. ADC is a large well-established vendor with significant carrier relationships and systems integration capabilities. Vyyo also works with Alcatel to address the Latin American market, and we expect the Company to develop further strategic relationships with major systems integrators.

**Proven management team.** The core of Vyyo's management team hails from DSP Communications, a supplier of wireless communications components, which was sold to Intel for \$1.6 billion in cash in October of 1999. David Gilo, chairman of DSP Communications from its founding through November of 1999, joined Vyyo as CEO in April of 1999 and owns 49% of Vyyo's outstanding shares.

## COMPANY DESCRIPTION

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Vyyo, formally PhaseCom Inc., was founded in 1996 with an initial focus on the development of cable broadband communications systems. The Company changed its name to Vyyo in February 2000 to reflect its strategic focus on becoming a leading global supplier of broadband wireless access systems for LMDS and MMDS frequencies used by telecommunications service providers delivering wireless high-speed data to residential and business subscribers. The Company's DOCSIS-based systems consist of a wireless hub and a subscriber wireless modem and have a point-to-multipoint architecture based on Internet protocol (IP) networking. The Company's systems are currently deployed in 21 wireless networks throughout the U.S., Canada, and Latin America. Its customers include ADC Telecommunications, Sioux Valley Wireless, and other leading wireless operators and systems integrators. With locations in Cupertino, California, and Jerusalem, Israel, Vyyo employs more than 135 people worldwide. The Company completed an IPO of 7.762 million shares on April 4, 2000 at \$13.50 per share.

## RESIDENTIAL BROADBAND ACCESS TECHNOLOGIES

Vyyo's broadband wireless solution allows carriers to deploy high-speed data services using the **MMDS and LMDS spectrum**, and is an alternative to other technologies that utilize cable, copper, or fiber as the physical means for transport. Although the market for broadband wireless is just emerging, indications from carriers holding licenses to use the MMDS and LMDS spectrum for high-speed services suggest a growing market for services revenue, which is forecasted by The Strategis Group to reach \$16.3 billion by 2004.

**There are four major technologies that enable the delivery of high-bandwidth connectivity over the local loop to residential users.** The first technology to come to market capable of delivering Megabit type speeds to consumers for Internet access was cable modem technology. With an estimated 1.6 million subscribers at the end of 1999, cable modem technology remains the predominant form of residential high-speed Internet access. Gaining ground quickly is ADSL technology, which allows higher speeds, up to 8 Mb/s, to be delivered over the copper twisted pair access facilities that are currently delivering voice services. Technologies that incorporate more fiber and less copper are currently rolling out, employing VDSL technologies to deliver 25 Mb/s to the end user to support voice, video, and data services. Wireless technologies with similar cost-per-subscriber metrics for high-speed bandwidth services that compete with cable and ADSL are in the early stages of deployment, and we believe that mass adoption is ensuing. The table below outlines the different high-speed residential access technologies.

EXHIBIT 1: BROADBAND ACCESS TECHNOLOGIES

Technology	Cable Modem	ADSL	Fiber	Wireless
Strengths	Cost effective First to market	Utilize existing infrastructure Dedicated connection	Unlimited dedicated bandwidth	Time-to-market Broad reach
Weaknesses	Network upgrades required	Limited reach	Cost Time-to-market	Last to rollout
Bandwidth/sub	1 Mb/s	1.5-8 Mb/s	25 Mb/s	25 Mb/s
Cost/sub	\$500	\$600	\$1,000	\$600
Trials	1996-97	1997-98	1999	2000
Mass Rollout	1998	1999	2000-2001	2001
Carriers	Cable operators	Local telcos	Local telcos/ CLECs	Long haul carriers/ CLECs

Source: WR Hambrecht + Co estimates

**The principal wireless technology enabling residential broadband access is MMDS (Multichannel Multipoint Distribution Service).** Originally focused on the delivery of analog cable television, the technology has witnessed a roller coaster ride in terms of carrier support over the past few years. Poorly financed operators, limitations of analog technology, and too little spectrum to support channel lines competitive with local cable operators resulted in limited penetration of MMDS-based wireless video offerings in the early-to mid-1990s. In 1995, local telephone companies such as Bell Atlantic, BellSouth, and NYNEX made investments in or purchased wireless cable operators with the objective of employing digital technologies. As with several video strategies over the past several years, most of the local telcos, save BellSouth, backed away from MMDS as a digital video strategy in the late 1996 time frame. BellSouth has continued to rollout the video service in several markets in its territory. The FCC made a major ruling in September of 1998 allowing two-way service via MMDS and opening up applications beyond broadcast video. Historical limitations of the technology have included requirements for line-of-sight broadcast, although the transition to digital technologies have produced higher-signal quality, two-way capabilities and transmission ranges of up to 35 miles. The technology can deliver a wide range of data rates, from 128 Kb/s up to 10 Mb/s per user with a total of 27 Mb/s in a 6 MHz downstream channel. Given the operating frequencies for MMDS in the 2.5 GHz spectrum, weather issues such as rain, which have impacted other wireless services such as Direct Broadcast Satellite (DBS), are not significant for MMDS.

Other fixed wireless technologies being considered for residential broadband access technologies include LMDS (Local Multipoint Distribution Service). LMDS offers higher bandwidth potential, but with much smaller range (2-3 miles) and much higher cost and power requirements due to much higher frequencies in the 24-40 GHz range. These high-throughput, high-cost characteristics suggest a potentially stronger role for MMDS in serving medium to large business customers. Vyyo has a family of products that operate in the LMDS spectrum called "LMDS-Lite" which employ the LMDS spectrum but offer lower costs and less bandwidth than high-end (e.g., 100 Mbs plus) systems targeted at large businesses. Vyyo has already shipped systems to deployments in Latin America and is expecting to target the U.S. market with its LMDS-Lite solution later this year.

Carriers likely to find the wireless alternative compelling going forward are those without ownership or easy access to local loop facilities and are focused on bringing services to market quickly. The technology also has applications in areas of low subscriber density and those without well-developed wireline infrastructures, particularly overseas. As outlined in the exhibit below, over the last year a number of major U.S. carriers, most notably MCI WorldCom and Sprint, have moved aggressively to accumulate MMDS spectrum through the purchase of struggling wireless cable operators. Other major carriers such as AT&T have also indicated plans to employ broadband wireless access technologies to complement broadband services rollouts based on DSL technologies.

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#### EXHIBIT 2: MAJOR U.S. CARRIERS' COMMITMENTS TO BROADBAND WIRELESS ACCESS

Date	Carrier	Event
3/27/00	MCI WorldCom	Announces technology partnership with ADC and Boston MMDS trials
3/7/00	MCI WorldCom	Announces MMDS trials in three cities
12/9/99	BellSouth	Announces WCS trial in rural markets with ADC
5/3/99	Sprint	Acquires Videtron U.S.A for \$180 million - 6.4 million MMDS PoPs
4/26/99	MCI WorldCom	Acquires CAI/CS Wireless for about \$700 million - 23.8 million PoPs
4/27/99	Sprint	Acquires American Telecasting for \$550 million - 10 million PoPs
4/12/99	Sprint	Acquires People's Choice TV for \$126 million - 7.8 million PoPs
1/14/99	Nextlink	Acquires WNP Communications for \$850 million - 16 million LMDS PoPs

Source: Company reports and WR Hambrecht + Co

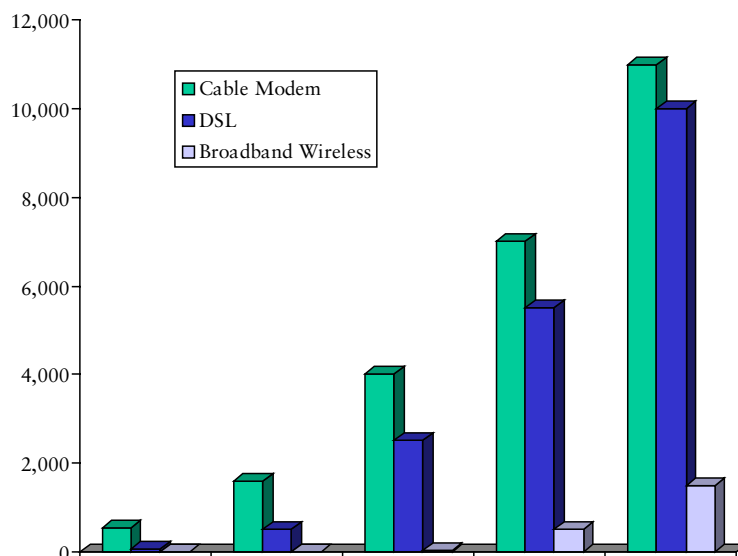
Subsequent to the investment of more than \$2 billion in MMDS spectrum, carriers have initiated large-scale customer trials of the technology this year with aggressive service rollout plans.

- **On March 27, MCI WorldCom and ADC Telecom announced joint development of MMDS technology and field trials in the Boston area. This development is based on the Vyyo platform.**
- **On March 7, MCI WorldCom announced trials of MMDS-based Warp 310 broadband Internet access services in three cities: Jackson, MS, Baton Rouge, LA, and Memphis, TN. The service offers 310 Kb/s Internet access for \$39.95 per month.**
- **Sprint has announced an MMDS trial in Phoenix, AZ, and indicated intentions to roll out service in 20 U.S. markets by the end of 2000. Sprint owns MMDS spectrum covering approximately 30 million homes in 40 markets.**
- **In December 1999, BellSouth announced a trial of high-speed Internet access services in rural areas of Louisiana in the 2.3 GHz WCS (Wireless Communications Service) spectrum. BellSouth also has MMDS spectrum covering 2 million homes and a total of 120,000 wireless video subscribers.**

**Both the MCI and BellSouth MMDS trials feature Vyyo systems marketed through the Company's OEM partner, ADC Telecommunications.** While pricing strategies for broadband wireless Internet access are still developing, we note that in the MCI trial the carrier is charging \$39.99 per month for 310 Kb/s access, about the same as competitive ADSL and cable modem service offerings.

**We have several precedents with which to gauge the potential ramp of broadband wireless services in the U.S., in addition to the announced deployment plans of major players such as MCI.** Both the cable modem and ADSL markets reached approximately the 500,000-subscriber level in their first full year of mass commercial deployment. We note that these levels were achieved by historical monopolists with (a) limited marketing savvy, and (b) limited new product rollout experience. In the hands of the battle-hardened competitors of the long-distance market and with well-established consumer awareness of broadband services, we believe there is potential for the ramp to be sharper. The overall competitive imperative on the part of would-be broadband wireless service providers is time-to-market as the cable and local telco industries sign up subscribers at a clip close to 10,000 per day. MCI WorldCom has publicly announced that its goal, including the merged Sprint properties, is to offer broadband wireless services in 100 U.S. cities by the end of 2001. The two combined have MMDS spectrum covering about 60 million PoPs; thus our year-end subscriber forecast indicates penetration of less than 1% in the first year assuming no other contributors to subscriber growth.

EXHIBIT 3: **BROADBAND ACCESS SERVICE SUBSCRIBER FORECAST (000s)**



Service	1998	1999	2000E	2001E	2002E
Cable Modem	525	1,600	4,000	7,000	11,000
DSL	50	500	2,500	5,500	10,000
Broadband Wireless	NM	NM	25	500	1,500
Total	575	2,100	6,525	13,000	22,500

Source: WR Hambrecht + Co

**To put these forecasts in context, we note that our combined estimate for broadband access subscribers in 2002 represents only 30% of total forecasted online households in that time period.** Both MCI and Sprint have indicated the intention to rollout broadband service capabilities ubiquitously, with DSL planned to cover about half of the country and wireless planned to cover the other half. MCI has announced plans to spend \$300 million this year building out MMDS networks, and we estimate Sprint will add at least another \$150 million to that number. This yields at least a \$450 million U.S. market opportunity versus our current Vvyo estimate of \$13 million. Alternatively, with an assumption of about \$600 per subscriber in equipment cost, our forecast indicates a 2001 market potential for MMDS in the U.S. of at least \$300 million based on subscribers, although we suggest that infrastructure builds could take that number to at least \$500 million and potentially higher. We therefore view our \$53.5 million revenue estimate for Vvyo in 2001, implying a 10% market share, as quite conservative, given the Company's early market leadership in key carrier trials with MCI and BellSouth and field deployments. The estimate is even more conservative considering the substantial opportunities for broadband wireless technologies outside of North America, with dozens of LMDS and MMDS spectrum holders worldwide. Vvyo has already shipped product into Latin America, and we expect that over a third of the Company's market opportunity over time will come from outside the US. This is especially true in the LMDS area, as evidenced by the recent announcement by Convergence Communications (CCI) and Alcatel, a Vvyo partner. The two companies announced in March a three-year \$175-million agreement to build an IP-based broadband wireless network in 17 cities across Central and South America.

## PRODUCT OVERVIEW

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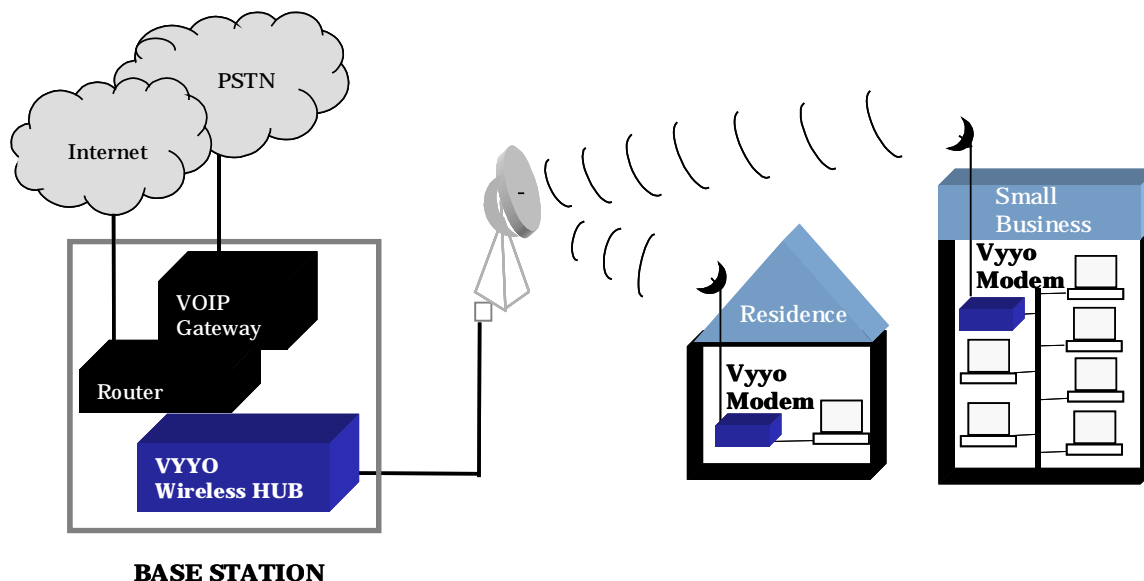
**Vyvo's product family consists of point-to-multipoint systems for the two major broadband wireless frequency bands, MMDS and LMDS. The Vyvo system consists of a wireless hub, located at a base station, and a wireless modem, located at a home or business location.** The hub, connected to the Internet or a public telephone gateway through a router, transmits network traffic via the base antenna over short distance (1-3 miles) LMDS or long distance (up to 35 miles) MMDS spectrums to modems residing at residential and business locations. The Company's IP-based solution is based on the well-established DOCSIS cable modem standard, which the Company terms DOCSIS+. We believe the Company has an opportunity to drive the standardization of its technology as standards for broadband wireless access are still developing, and also note the cost and time-to-market advantages of this approach. This should be effective in helping Vyvo leverage its relationships with systems integrators to gain access and exposure to major U.S. carriers in the near future. The Company's point-to-multipoint products are as follows:

- The V251 Wireless Modem, which is the size of a typical desktop modem, is designed for residential and SOHO deployment. It functions over both LMDS and MMDS frequencies and supports four types of downstream modulation. Additionally, it accommodates a  $\pm 100\text{kHz}$  frequency, well above the DOCSIS range of  $\pm 32\text{kHz}$ .
- The V3000 Wireless Hub manages data communications between the V251 modem and routers located in COs or base stations. This carrier-class hub enables radio frequency performance in any of the currently licensed bands and can communicate with up to 8,000 end-user modems.

**Looking ahead, plans are in place to further develop the LMDS-Lite product,** which should provide a cost-effective opportunity for the residential and SOHO markets to take advantage of the higher frequencies of the LMDS spectrum. Additionally, the Company is working to implement VoIP and QoS features into its systems.

**It is important to note that Vyvo's core competencies lie in the networking arena, at layer 2 and above, and not in the physical transport area.** That is, while Vyvo is focused on the broadband wireless market, it is explicitly not a radio company. The Company's systems are essentially frequency-based, and thus radio independent, with systems integrator partners or customers able to mix and match appropriate transceiver components. We view networking functionality as the real value added in broadband access systems on both the central office and CPE sides of the network. The extent of the Company's core technology expertise is indicated by a licensing agreement with Philips Semiconductor for its MAC (Media Access Control) networking technology and 22 patent applications filed.

## EXHIBIT 4: VYVO'S BROADBAND WIRELESS SOLUTION



Source: WR Hambrecht + Co

## CUSTOMERS

**Vyvo markets and sells its wireless systems to OEMs, systems integrators, and independent wireless operators worldwide.** Systems integrator ADC Telecommunications, which is a 10% shareholder of Vyvo, is the Company's largest and most important customer. Currently, all ADC MMDS systems incorporate Vyvo's wireless hubs and modems. This is a critical point, given the recent partnership between ADC and MCI WorldCom to develop an MMDS platform in the Boston area and the ADC trial announcement with BellSouth. In 1999, sales to ADC accounted for nearly 20% of total revenues and should increase to more than 50% of total revenues in 2000. Sales to ADC in the first quarter of 2000 amounted to 69% of total sales for Vyvo. Moving forward though, sales to ADC as a percentage of total revenues should decrease as Vyvo actively pursues relationships with additional large systems integrators, such as Alcatel, Lucent, Motorola, and Nortel.

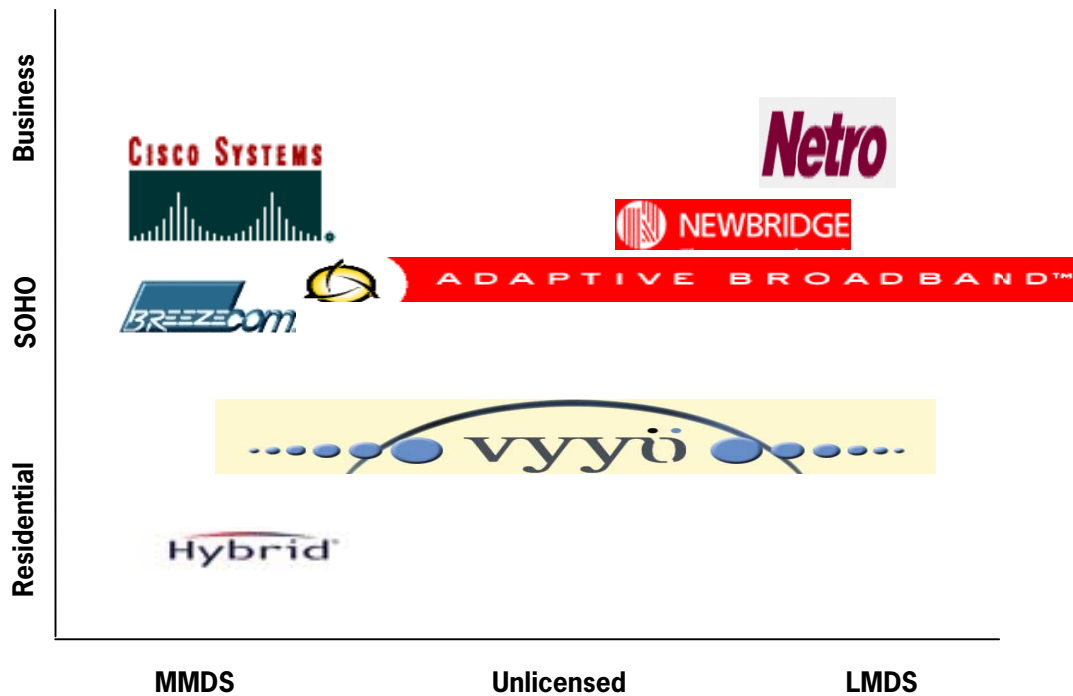
**Vyvo also sells its wireless systems directly to small independent wireless operators.** The Company recently won a contract with Sioux Valley Wireless to supply the wireless access system for Sioux Valley's MMDS spectrum. Internationally, the Company has commercially installed LMDS systems in Latin America with CCI and it expects to pursue additional LMDS opportunities overseas with carriers such as Nextlink, Teligent, and Winstar. Overall, international sales accounted for nearly 40% of total revenues in 1999 and should continue to remain significant.



## COMPETITION

Compared to the DSL and cable modem markets, the broadband wireless market is still in its infancy and not as heavily saturated with many established players. In the MMDS market, we believe Vyyo has established a clear early lead in major carrier trial activity. Competing with Vyyo for a piece of the MMDS wireless market are both upstart companies and larger equipment vendors. Hybrid Networks manufactures and sells wireless broadband access systems for the MMDS frequency, which are available for deployment today. Hybrid has also received an equity investment from Sprint, a major MMDS spectrum holder, although we believe that had a fair bit to do with Hybrid's precarious financial position (the shares have been delisted from the NASDAQ) and its installed base at some of the properties Sprint acquired. Hybrid recently announced a systems integration deal with Andrew Corp. and remains a meaningful competitor. Vyyo recently received a second letter from Hybrid notifying Vyyo of several Hybrid broadband wireless patents, similar to a letter received in 1999, which resulted in no action. Adaptive Broadband, a fixed broadband wireless manufacturer, is developing a competitive MMDS system that is ATM-based, focused on higher bandwidth requirements in the small to large business market and high-end residential markets and on the 5 GHz unlicensed spectrum. This product is currently in prototype stage with production shipment expected in the June quarter. We note that Vyyo remains principally focused on the large-scale residential broadband rollout in the U.S. and on the MMDS markets.

EXHIBIT 5: BROADBAND WIRELESS COMPETITIVE LANDSCAPE



Source: WR Hambrecht + Co

**Among the large equipment vendors,** Cisco and Newbridge are rolling out systems designed for the MMDS frequency, but their products face similar constraints to the aforementioned competitors in terms of time-to-market and cost. Cisco also appears focused on higher-end business applications with higher data rates up to 44 Mb/s, and has announced field trials with emerging carrier Nucentrix that are targeted to complete by September of 2000. Cisco is also spearheading a physical layer standards effort for VOFDM (Vector Orthogonal Frequency Division Multiplexing) that was announced late last year. Even so, we feel Vyyo is well positioned to capture a significant share of the broadband wireless market. Vyyo holds a significant competitive advantage in time-to-market as major carriers are eager to begin deployments of wireless systems and we believe will enjoy a cost advantage through leverage of the DOCSIS cable modem standard. This is evident in the recent partnership between ADC and MCI WorldCom and it helps position Vyyo as the early leader in the emerging broadband wireless access market. Vyyo also remains at the forefront of developing next generation transmission and networking technology for the broadband wireless market, including next generation modulation technologies that would allow non line-of-sight operation and next-generation MAC technologies that enable new IP services such as voice.

**Other players typically grouped in the broadband wireless equipment market** include Netro, which is focused on very high-bandwidth LMDS systems for large enterprises, and millimeter wave radio companies such as Telaxis, P-Com, and Digital Microwave, which do not directly compete with Vyyo. In addition, there are a growing number of start-up companies pursuing broadband wireless markets, with players such as Gigabit Wireless and Ensemble Communications.

## FINANCIAL OVERVIEW

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**Vyyo reported strong Q1:00 results on April 17.** Revenues of \$1.8 million were up 60% sequentially and more than 95% annually. Gross margins dramatically improved from 8% in Q1:99 to 24.4% in Q1:00. The Company lost (\$0.17) per share, driven by high levels of research and sales and marketing spending as the Company ramps headcount to support product development, sales, and customer support activities. The Company recorded a \$6.5 million deferred compensation charge in the quarter and will record smaller charges over the next several quarters.

Going forward, we expect the Company to demonstrate impressive revenue growth driven by growth in broadband wireless deployments. We forecast revenues growing sequentially by more than 35% for the remainder of 2000 to more than \$13 million. We expect this financial momentum to accelerate into 2001 with the mass adoption of broadband wireless services starting to ramp, and we forecast revenues growing close to 40% sequentially and close to 300% annually to \$53.5 million. Additionally, we believe significant upside potential exists to these estimates and draw similarities to other suppliers of broadband access technologies in the cable modem and DSL world, providing Copper Mountain Networks (CMTN - Strong Buy), Terayon Communication Systems (TERN - Strong Buy) and Efficient Networks (EFNT - Strong Buy) as examples of this in Exhibit 6 below.

## EXHIBIT 6: FINANCIAL UPSIDE POTENTIAL INHERENT TO BROADBAND ACCESS SUPPLIERS

Company	Ticker	Broadband market	Date of IPO	Original 2000 Rev. Est.	Current 2000 Rev. Est.	% Upside
Copper Mountain	CMTN	DSL CO	6/99	\$108 M	\$305 M	182%
Efficient Networks	EFNT	DSL CPE	7/99	\$72 M	\$250 M	247%
Terayon	TERN	Cable Modem Systems	5/98	\$135 M	\$280 M	107%
Vyyo	VYYO	Wireless Systems	4/00	\$13 M	\$13 M	

Note: Efficient and Terayon current 2000 rev. est. are normalized for acquisitions.

Source: Company reports and WR Hambrecht + Co

Exhibit 7 is a snapshot of Vyyo's financial model with our expectations for significant revenue growth and improving gross margins helping the Company reach long-term operating margins of 15-20% over time. For the near term however, we believe revenue growth and gross margin expansion are likely to be the focus for share appreciation.

## EXHIBIT 7: VYYO'S FINANCIAL MODEL

	1999	2000	2001	LT Target
Revenues	\$4.2	\$13.4	\$53.5	
-growth	73%	220%	298%	
Gross Margin	(2%)	26%	35%	40-43%
R&D	87%	92%	39%	12-15%
SG&A	97%	138%	44%	10-15%
Operating Margin	(186%)	(203%)	(48%)	15-20%

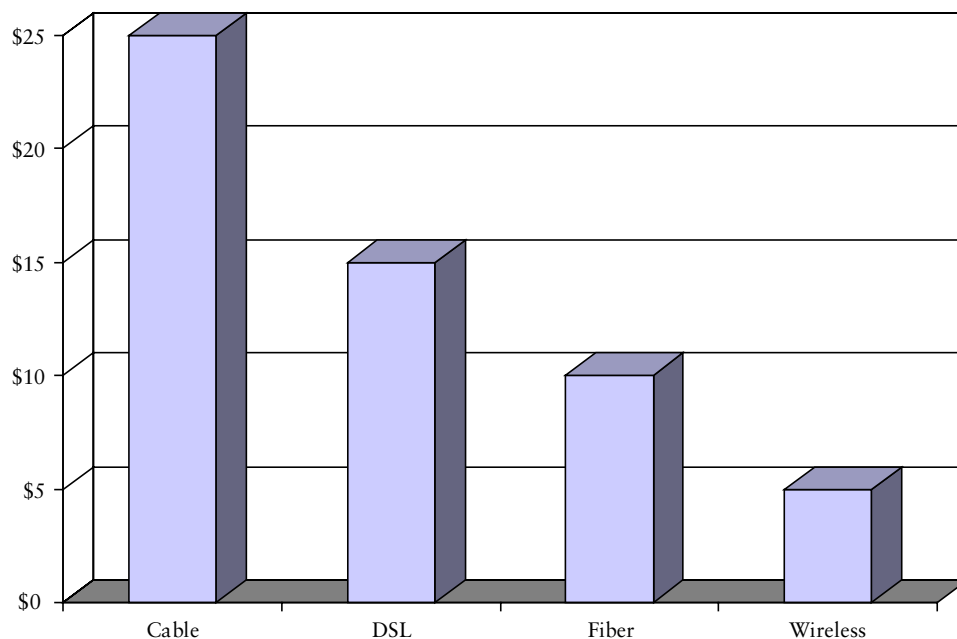
Source: Company reports and WR Hambrecht + Co

**Having raised \$83.1 million in its April 4th IPO, the Company's balance sheet looks healthy** with more than \$87 million in cash, or \$3.18 per share. The Company has no long-term debt and current assets are \$89.5 million, with a 9.3 ratio to liabilities. As volumes begin to ramp in the coming quarters, current DSO of 45 days should settle in the 45-60 day range.

## VALUATION

Strengthening fundamentals across all facets of the broadband access space have, by our estimates, generated more than \$55 billion of market capitalization for companies focused on these opportunities over the last several years. In conjunction with being the first mainstream technology for broadband access, cable modem vendors and chip makers have amassed a mountain of market capitalization, more than that of their DSL and fiber-based followers combined. We believe this is currently a result of relative market shares of each technology, with cable modems in North America outnumbering DSL lines by a factor of three at the end of 1999, and more so for fiber and wireless access subscribers. Over time, however, we fully expect that wireless technologies will compete, certainly on a global basis, for a plurality of subscribers with all of the terrestrial technologies. We believe all of these technologies will be subject to tremendous growth over the next several years, but view the exhibit below as indicative of even greater upside potential in wireless given the relatively limited market capitalization currently accorded the space.

EXHIBIT 8: BROADBAND ACCESS MARKET CAPITALIZATION



Source: WR Hambrecht + Co

**From a comparable company standpoint,** we believe Vvyo ought to be compared to both other players in the broadband wireless access market as well as other players across the cable, xDSL and fiber-based broadband access markets. On a revenue multiple basis, this group in aggregate is trading at around 9.2 times calendar 2001 revenues versus Vvyo at 11.8 times. We note these valuations remain more than 50% off of recent peak valuations. Vvyo remains at a slight premium, which we believe reflects the strong potential for upside in the numbers.

## EXHIBIT 9: VALUATION OF COMPARABLE BROADBAND ACCESS COMPANIES

Company	Ticker	Price	Mkt Cap	2001E Revs (MM)	EV/01 Revs	Market Focus
<i>Wireless Comparable Companies</i>						
Adaptive Br.	ADAP	\$32.50	\$1,047	\$220	4.7	Broadband Wireless
Interwave	IWAV	\$13.44	\$597	\$72	6.5	Broadband Wireless
Netro	NTRO	\$44.00	\$2,222	\$136	13.5	Broadband Wireless
Telaxis	TLXS	\$27.25	\$512	\$81	5.5	Broadband Wireless
<i>DSL/Cable Comparable Companies</i>						
Com21	CMTO	\$27.50	\$598	\$340	1.5	Cable Modems
Copper Mtn	CMTN	\$83.31	\$4,795	\$470	9.9	DSL Central Office
Efficient	EFNT	\$65.94	\$3,099	\$735	4.3	DSL Modems
Next Level	NXTV	\$79.63	\$6,354	\$250	25.0	VDSL System
Terayon	TERN	\$92.56	\$3,051	\$566	5.2	Cable Modems
				Average	9.2	
Vyyo	VYYO	\$21.13	\$632	\$53.5	11.8	Broadband Wireless

Source: Company reports and WR Hambrecht + Co

## INVESTMENT RISKS

Vyyo's primary risk is the pace of service provider rollout of broadband wireless services. Because the broadband wireless access market is just emerging, unpredictable market and competitive dynamics may emerge without warning. We believe, however, that actions from service providers such as BellSouth, MCI WorldCom, and Sprint have indicated committed efforts toward the trial and rollout of broadband wireless services, with the accelerating rollout of competing broadband technologies from competitors such as AT&T/TCI and data-CLECs providing more pressure.

## EARNINGS PROJECTIONS

(See next page)

**WR Hambrecht + Co Equity Research**

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**Income Model**  
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	1999				2000E				2001E				
	Q1 Mar-99	Q2 Jun-99	Q3 Sep-99	Q4 Dec-99	Q1 Mar-00	Q2E Jun-00	Q3E Sep-00	Q4E Dec-00	Q1E Mar-01	Q2E Jun-01	Q3E Sep-01	Q4E Dec-01	2001E
<b>Fiscal Year Ends Dec.</b>													
<b>Revenues</b>	\$ 942	\$ 1,024	\$ 1,110	\$ 1,154	\$ 4,230	\$ 3,800	\$ 3,800	\$ 5,300	\$ 13,441	\$ 15,000	\$ 15,000	\$ 20,000	\$ 53,900
Cost of Revenues	864	1,147	1,111	1,194	4,316	2,812	2,812	3,869	9,948	7,370	9,750	12,600	34,970
<b>Gross Profit</b>	78	(123)	(1)	(40)	(86)	988	988	1,431	3,493	3,630	5,250	7,400	18,930
<b>Operating Expenses</b>													
Research and Development	785	868	842	1,183	3,678	2,800	3,600	4,000	12,303	4,900	5,400	6,400	21,100
Sales and Marketing	378	376	574	644	1,972	2,400	2,750	3,000	9,600	3,400	3,600	3,800	14,000
General and Admin.	429	415	597	707	2,148	2,200	2,400	2,500	8,883	2,200	2,400	2,700	9,900
Amortization of deferred stock comp.		400	200	3,000	3,600	3,200	2,600	2,000	14,300	1,400	1,100	900	5,100
Total Operating Expenses	1,592	2,059	2,213	5,534	11,398	11,350	11,350	11,500	43,086	11,900	12,500	13,800	49,900
<b>Operating Income</b>	(1,514)	(2,182)	(2,214)	(5,574)	(11,484)	(10,362)	(10,362)	(10,069)	(41,593)	(8,270)	(7,250)	(6,400)	(30,970)
Interest /Other Income (Exp.)	(198)	(195)	(163)	(161)	(717)	1,100	1,000	1,000	3,232	800	700	600	3,000
<b>Pretax Income</b>	(1,712)	(2,377)	(2,377)	(5,735)	(12,201)	(9,262)	(9,262)	(9,069)	(38,361)	(7,470)	(6,550)	(5,800)	(27,970)
Taxes	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Net Income</b>	(1,712)	(2,377)	(2,377)	(5,735)	(12,201)	(9,262)	(9,262)	(9,069)	(38,361)	(7,470)	(6,550)	(5,800)	(27,970)
<b>Reported EPS</b>	\$ (0.32)	\$ (0.44)	\$ (0.44)	\$ (1.06)	\$ (2.27)	\$ (0.26)	\$ (0.26)	\$ (0.25)	\$ (1.16)	\$ (0.21)	\$ (0.18)	\$ (0.16)	\$ (0.77)
Shares Outstanding	5,385	5,385	5,385	5,385	5,385	35,100	35,100	35,600	32,989	36,100	36,100	36,100	36,100
<b>Supplemental Information</b>													
Reported operating income	(1,514)	(2,182)	(2,214)	(5,574)	(11,484)	(10,362)	(10,362)	(10,069)	(41,593)	(8,270)	(7,250)	(6,400)	(30,970)
Non-operating expenses/charges		400	200	3,000	3,600	3,200	2,600	2,000	14,300	1,400	1,100	900	5,100
Non-operating gains													
Adjusted operating income	(1,514)	(1,782)	(2,014)	(2,574)	(7,884)	(6,775)	(7,762)	(8,069)	(27,293)	(6,870)	(6,150)	(5,500)	(25,870)
Pre-tax income excluding non-operating items	(1,712)	(1,977)	(2,177)	(2,735)	(8,601)	(5,575)	(6,662)	(7,069)	(24,061)	(6,070)	(5,450)	(4,900)	(22,870)
Taxes													
Net income excluding non-operating items	(1,712)	(1,977)	(2,177)	(2,735)	(8,601)	(5,575)	(6,662)	(7,069)	(24,061)	(6,070)	(5,450)	(4,900)	(22,870)
<b>Operating EPS</b>	\$ (0.32)	\$ (0.37)	\$ (0.40)	\$ (0.51)	\$ (1.60)	\$ (0.16)	\$ (0.19)	\$ (0.20)	\$ (0.73)	\$ (0.17)	\$ (0.15)	\$ (0.14)	\$ (0.63)
<b>% of Revenue</b>													
Gross profit	8.3%	-12.0%	-0.1%	-3.5%	-2.0%	25.0%	26.0%	27.0%	26.0%	33.0%	35.0%	37.0%	34.6%
R&D	83.3%	84.8%	75.9%	102.5%	87.0%	112.0%	94.7%	75.5%	103.4%	44.5%	36.0%	32.0%	39.4%
S&M	40.1%	36.7%	51.7%	55.8%	46.6%	96.0%	71.4%	56.6%	71.4%	30.9%	24.0%	19.0%	26.2%
G&A	45.5%	40.5%	53.8%	61.3%	50.8%	88.0%	63.2%	47.2%	66.1%	20.0%	16.0%	13.5%	17.4%
Operating income	-160.7%	-174.0%	-181.4%	-223.1%	-186.4%	-271.0%	-204.3%	-152.2%	-203.1%	-62.5%	-41.0%	-27.5%	-48.4%
Net income	-181.7%	-193.1%	-196.1%	-237.0%	-203.3%	-223.0%	-175.3%	-133.4%	-179.0%	-55.2%	-36.3%	-24.5%	-42.7%
<b>Yr - Yr % Change</b>													
Revenues													
Gross profit													
Operating income													
<b>Qtr-Qtr % Change</b>													
Revenues		8.7%	8.4%	4.0%									
Gross profit		-257.7%	1,200.0%	-410.0%									
Operating income		-44.1%	-1.5%	151.8%									

Sources: SEC documents and WRH+Co estimates

## STOCK RATING SYSTEM

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Buy	We anticipate the stock will outperform the S&P 500 over the next 12 months.
Market Neutral	We anticipate the stock will perform in-line with the S&P 500 over the next 12 months.
Market Underperform	We anticipate the stock will underperform the S&P 500 over the next 12 months

## IMPORTANT NOTE

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