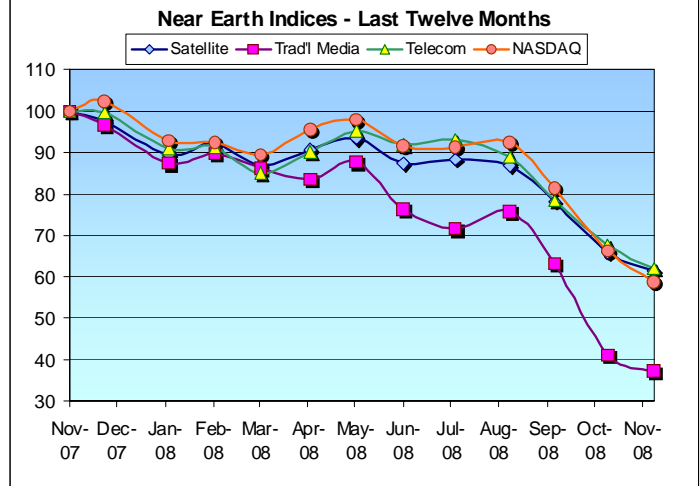


# FROM THE GROUND UP

**December 2008**
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**THE WAY WE SEE IT...**
**Satellite:**

**SES** and **EchoStar** announced the QuetzSat-1 deal for DTH joint venture **Dish Mexico**, showing along with **Sling.com** announcement that it is way too soon to underestimate Charlie Ergen's prospects after the recent **AT&T** loss to **DirectTV**. The failure of **NigComSat** was a tragic double loss for both the African continent and the credibility of Chinese satellite manufacturing and launch capabilities. **EMS Technologies** announced the acquisition of **Satamatics Global**, highlighting continued strong interest in and consolidation of the growing maritime satcom and M2M industries. **SpaceX** completed a successful full mission test firing of its Falcon 9 engines, continuing its epic mission to make space access more affordable.

**Telecom:**

In a boost to the WiMax evolution and ubiquitous broadband coverage, **Clearwire** and **Sprint Nextel** announced the completion of their high speed wireless business combination, which also received financial backing from **Comcast**, **Time Warner Cable**, **Bright House Network**, **Intel**, and **Google**. From a financial perspective, it is encouraging to see the terms unchanged from the original deal announcement date last spring. To remind us, however, that the telecom world is nevertheless far from immune to economic woes, **AT&T** announced 4% workforce cuts and reduction in capital spending. We will closely monitor the performance of communications tower companies in this environment – **Crown Castle**, **American Tower**, and **SBA** – as these are directly tied to levels of telco capital expenditures, but also the build-out of WiMax networks like Clearwire's, and the general ebbs and flows of credit markets that underpin much of our economic direction these days.

**Media:**

It is difficult to keep up with the rumors circulating in the blogosphere, and separate fact from fiction, but according to some reports there is renewed discussion between **Microsoft** and **Yahoo!**, now that the latter's CEO Jerry Yang has stepped down. This time, however, any discussion is supposedly centered very narrowly on Yahoo's search engine. Other rumors that have circulated involve the acquisition of Yahoo! by an investment group headed by former **AOL** CEO Jonathan Miller, although it isn't clear if/how the necessary funding could be raised in our currently illiquid capital markets. In the meantime, the economic malaise seems to have hit a wide variety of media companies, from **Viacom** (which recently announced 7% layoffs) to **Google** (which is reportedly cutting down employee perks, development expenditures, and even the number of independent contractors).

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## ***A new style of consolidation for a new industry***

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... because the main sector economics – advertising, consumer spending, and when operating efficiency is tapped out, capital structure – are all being challenged, the answer may be in industry consolidation...

There is no more interesting way to follow volatile capital markets and a fragile economy than through the eyes of a fragmented industry in massive transition. We are of course referring to the media and telecom sector, broadly defined, an industry that for several years now has seen (and continues to see) unprecedented change in the way we communicate, consume entertainment, and receive advertising. The trends that have pushed analog to digital, broadcast to interactive, paper to online, professional to user-generated (and maybe back again), fixed to mobile, programmed to customized, and the convergence and reformulation of all these facets, have been well documented. The principal questions that linger, even as the described evolution shows little sign of abatement in a slowed economy, center around P&L. How will companies in this dynamic industry sustain profit, in some cases even generate profit, and more often than not, begin by just generating revenue? As has been the case in the media and telecom world going back as far as the early days of radio, newspapers, cable television, and other traditional modes of communication, sector economics are still largely dependent on advertising, consumer spending, and when operating efficiency is tapped out, capital structure. Because all three of these factors are now being challenged by uncontrollable circumstances, we are left to wonder how the sector will fight its way through the 2009 timeframe and find ways to create value for shareholders. One of the answers, maybe the only answer for some, will be industry consolidation. This also has been a staple of the industry landscape since time immemorial, but in the current environment we look for variations on the theme, reflecting new industry realities that have emerged.

... in the current environment we look for variations on the theme, reflecting new industry realities that have emerged.

Fundamentally, the issue is one of cash. In a slowing economy that is likely to pressure discretionary spending, as advertising dollars are by all accounts expected to diminish or grow at a much reduced rate, and as capital expenditures on network build-outs are likely to be squeezed, alternatives for cash generation seem limited. There is the traditional cost cutting strategy, but there are limits to the cutting that can occur before business suffers – and business growth will already be challenged in the described environment. In the past, such cycles could be bridged with new cash infusions – even if in the form of DIP finance, a sore subject – but capital markets do not present much of an option for new cash infusions these days, and even DIP finance is more difficult to obtain. For the fiscally sound projects, traditional financing sources that remain active are now growing accustomed to the luxury of cherry-picking the very best opportunities, and pricing these as if distressed. And in the normally private world of venture capital, high profile investors (most famously Sequoia with a slide deck that generated more page views than YouTube) are quite publicly asking portfolio companies to make do with existing resources. Private equity firms and their limited partners are in the

## ***A new style of consolidation for a new industry (con'd)***

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meantime looking for ways to sell parts of their funds or LP interests in the [cough] secondary market.

These are sweeping generalizations, of course, and there are still exceptional success stories (e.g., Huffington Post on the heels of a successful political season, raised another round of venture capital at a reported \$100 million valuation). As a general notion, however, to cover the span of an entire industry and capital market, we arrive at consolidation as a nearly inevitable path to cash flow and economies of scale, even if only by process of elimination. There are, however, other reasons also.

...when we speak of consolidation in this new environment, and the motives behind it, we are not only referring to economies of scale but... new technologies that complement an existing core application...

When the media and telecom world was simpler, consolidation within a fragmented field in some cases signified the combination of geographical markets (radio and television broadcast, newspapers, cable, cellular service), in others the combination of brands or other franchise assets (magazine titles, entertainment studios, television networks), and in others still the combination of discrete and defensible assets (satellite fleets, tower portfolios, server farms). This brand of consolidation, however, which is probably not yet complete, does not add to an acquirer's or merger partner's capabilities as much as it does to size. It is a difference of quantity as opposed to quality. The Internet and its slew of constituents, dependencies, and supply chains, have changed this quantity dynamic, on account of its two principal features: ubiquity and low barriers.

The Internet and new media brings with it a new profile that is not based on geographical markets, franchised assets, or capital intensive properties, as much as unique technologies and features, popular applications, and audiences (or advertisers) that are drawn to these at least until the next best thing comes along. Thus, when we speak of consolidation in this new environment, and the motives behind it, we are not only referring to economies of scale but also to ways that media or communications companies may find to add new features and integrate new technologies that complement an existing core application or set of services. In this environment, consolidation is not only a growth strategy, but also a defensive measure in a dynamic field.

In this environment, consolidation is not only a growth strategy, but also a defensive measure in a dynamic field.

We saw a large symbol of such activity in what was the collapse of the proposed Microsoft/Yahoo merger, to be redesigned as a much more modest but also more focused combination based on Yahoo's search engine and related technologies alone, (reportedly under consideration). We also saw a hint of this type of consolidation in the proposed acquisition of Twitter by Facebook, which transaction was reportedly rejected on the basis of valuation (rather than strategic rationale, which was to enhance the offerings and features of Facebook with a new popular application). We are also now beginning to notice select deals that involve the acquisition of distressed new media targets at negligible prices, mainly in

## ***A new style of consolidation for a new industry (con'd)***

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order to obtain high quality personnel in the process. Six Apart has done just that, reportedly acquiring Pownce but planning to shut down its service while retaining its key staff.

In light of the sophistication and continuing innovation of digital media, it will be imperative for traditional players to keep up, and we suspect that they will...

It can't be very long now before the traditional media and communications companies join in on this emerging wave. The development of web platforms by newspapers, radio operators, satellite radio, and even the television networks, has been a good start, but not nearly enough and probably the tip of the iceberg. In light of the sophistication and continuing innovation of digital media, it will be imperative for traditional players to keep up, and we suspect that they will. Just yesterday, CBS announced that it will take over Yahoo's Launchcast music service, combining this huge streaming platform with its popular social music and interactive Last.fm property.

By Dan Ramsden  
Near Earth LLC

## **“Clear” skies ahead?**

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The new service will be branded as “Clear”, and will expand beyond the current fixed broadband

On December 1<sup>st</sup>, while the rest of the market was heading south, the folks at the new Clearwire were crowing over their completed merger/financing transaction. The transaction creates a new company, also to be named Clearwire. The new service will be branded as “Clear”, and will expand beyond the current fixed broadband with VOIP (i.e. “double play”) offering to include mobile WiMax services for both voice and broadband – putting them in direct competition with the incumbent wireless providers. While this is a daunting challenge, Clearwire touts its superior spectrum holdings (which allow greater throughput) and green field network rollout (which eliminates legacy network issues) as compensating factors.

Under the terms of the transaction, Clearwire and Sprint contributed their WiMax assets to the new firm, receiving ~50% and 30% shares while a host of strategic investors contributed \$3.2 billion in fresh cash at \$20 per share (subject to adjustment within a collared range of \$17-\$23 per share). These were the same terms agreed to at the time of the deal’s announcement last spring, and given the stock’s current trading level near \$7, represents a strong vote of confidence on the part of the new investors.

...helps fund a new broadband provider, one not coincidentally committed to an “open” network free of the “walled gardens”...

Of course, it’s not all confidence – it’s also a reflection of the strategic value of the deal to these investors. Intel has been a big backer of the entire WiMax ecosystem, from box builders to software companies, and was an earlier backer of the “old” ClearWire – which is going to provide the network to use all those WiMax chipsets. Cable operators like Brighthouse, Time Warner and Comcast have been active bidders in many of the recent FCC auctions, seeking to add a mobile component to their fixed business and resident offerings – what better way to buy spectrum than a large stake in arguably one of the largest spectrum plays out there? (Following the transaction, ClearWire can boast over 42 billion MHz-POPs of spectrum – more than anyone). And Google, forever seeking to democratize the Internet (and thus reach more users) helps fund a new broadband provider, one not coincidentally committed to an “open” network free of the “walled gardens” that herd users to certain websites on competing networks.

Fortunately for Clearwire, synergy can be a two way street. Intel, with its strong relationships to the laptop and other device supply chains, is in a unique position to push the meaning of “Intel Inside” to include a WiMax chip set. Likewise, the cable firms plan to extend their triple plays by reselling Clearwire – which unlike Verizon and AT&T, has the virtue of not being in the video business! While the commitment level of the cable companies is probably weaker than Intel’s (as is their level of investment), it is nevertheless substantial.

## **“Clear” skies ahead? (con’d)**

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...investments will be driven by the company’s ability to drive subscriber growth, and extract as much in subscription fees as possible from each of those subscribers

While these strategic drivers have been present since the deal was announced, what has been more interesting to observe is their durability even in the face of unprecedented strain in the financial markets. Going forward, with this strain likely to remain elevated for some time, Clearwire is likely to find its access to the capital markets similarly constrained. While \$3.2 billion is a lot of cash by any standards, it is a fraction of what Clearwire is ultimately going to need to roll out a nearly nationwide 2.5 GHz network.

As a consequence, we would not be at all surprised to see Clearwire’s investors need to make future investments – potentially diluting existing investors that don’t tag along. In addition to financial market conditions, the terms of these investments will be driven by the company’s ability to drive subscriber growth, and extract as much in subscription fees as possible from each of those subscribers. Given the strong position of the incumbent wireless providers, Clearwire’s strategic partnerships and developing consumer demand for greater mobile bandwidth will be the chief factors that determine their finances going forward.

By John Stone  
Near Earth LLC

# Can you hear me now?

...infrastructure capabilities and capacity have not kept pace with mobile consumers' demand for ubiquitous coverage and greater bandwidth.

The holiday shopping season is upon us, and the deluge of new mobile phones has begun with the introduction of the BlackBerry Storm & Bold, the Google Android G1, the ever-popular iPhone 3G, and coming soon, the Nokia N97. They are equipped with the latest touch screens, browsers, games, maps, and widgets. But what good are all these features if you can't get a signal from inside your home or office? Indoor wireless coverage is still a major issue with all wireless carriers as infrastructure capabilities and capacity have not kept pace with mobile consumers' demand for ubiquitous coverage and greater bandwidth.

According to CTIA, minutes of use and the number of SMS messages have increased by 77% and 927% within the last three years, respectively, while the number of cell sites has only increased by 24% over the same time period, albeit tower growth has been restricted by zoning restrictions. Moreover, the percentage of wireless-only U.S. households has increased from 7.7% in 2005 to 15.8% in 2008 (see table below). As more people replace their fixed line phones with a mobile plan, this poses a large public safety issue.

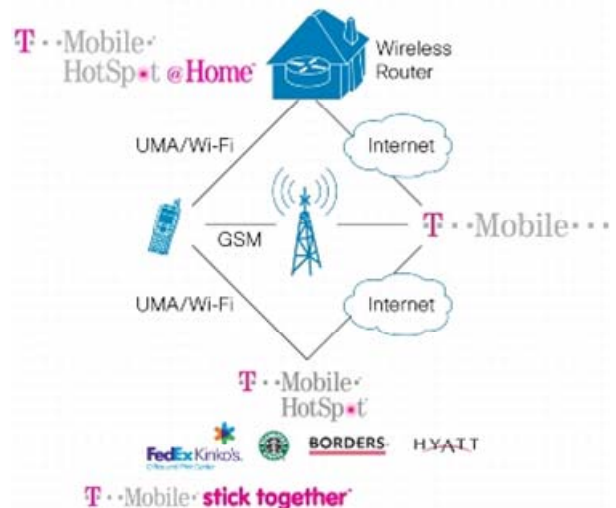
Wireless Statistics	June 2008	June 2005	% change
Wireless-only households	15.8%	7.7%	100%
Annualized minutes of use	2.23 trillion	1.26 trillion	77%
Monthly SMS Messages	74 billion	7.2 billion	927%
Cell sites	220,472	178,025	24%

Source: CTIA

...ways to take advantage of fixed broadband connectivity...to offload data capacity from cellular networks, improve indoor coverage...is called fixed mobile convergence (FMC).

Today, most cellular traffic is relayed by outdoor communication towers. However, wireless carriers are developing alternative ways to take advantage of fixed broadband connectivity in homes and offices (DSL, cable, T1) to offload data capacity from congested outdoor cellular networks, improve indoor coverage for seamless voice calls, and enable high speed wireless data connections for faster web browsing. This trend is called fixed mobile convergence (FMC).

In the U.S., there have been two FMC deployments by the wireless carriers. T-Mobile launched its service called HotSpot@Home in the summer of 2007. The service allows users to place calls or access



Source: Cisco and T-Mobile

## Can you hear me now? (con'd)

the Internet over a Wi-Fi network. A T-Mobile subscriber buys a wireless router and sets up a Wi-Fi hotspot in his or her home. When the person is at home, the call goes over the unlicensed mobile access (UMA) network (aka T-Mobile HotSpot), then routed to the Internet via the fixed broadband connection without touching the cellular network. Once out of range of the hotspot, the calls go over the standard GSM network (see chart above). Such subscribers are required to use a dual mode GSM/Wi-Fi compatible handset. T-Mobile has partnered with retailers and public venues such as Starbucks and airline lounges to offer T-Mobile branded hotspots outside of the home where Wi-Fi calls can also be made. Subscribers benefit from increased indoor coverage, while T-Mobile benefits from less traffic clogging up its GSM network and saves them substantial cost of having to increase the number of cells in its network.

...femto cells are miniature "fill-in" sites to expand the capacity of a wireless network

Sprint launched a second FMC solution this summer called AIRAVE available only in select areas. AIRAVE is slightly different because it uses a technology called "femto cell" rather than Wi-Fi. A femto cell device is a small cellular base station or a miniature indoor cell tower that boosts the cellular signal for indoor use (see picture to the right). Each base station can support up to 3 mobile phones. The calls are still routed through the fixed broadband connection in the home rather than the cellular network. The main difference is that T-Mobile's service uses unlicensed Wi-Fi signals while Sprint's femto cells use licensed cellular spectrum to connect calls between handsets and the base station. In other words, femto cells are miniature "fill-in" sites to expand the capacity of a wireless network, and a unique advantage to femto cell is that you do not need a dual-mode handset like the Wi-Fi solution.



Source: Samsung

Last month, Verizon confirmed plans to launch its FMC service in early 2009. They are using Samsung's femto cell base station, so we expect it will be very similar to Sprint's AIRAVE. AT&T has not announced any definitive plans, but there are rumors that they picked ip.access, a UK company backed by Cisco, Intel, Motorola, and Qualcomm, for its femto cell base station. A table of each carrier's FMC solution is shown below.

	<b>AT&amp;T</b>	<b>Verizon</b>	<b>Sprint</b>	<b>T-Mobile</b>
Launch date	na	Early 2009	August 2008	June 2007
Service name	na	na	AIRAVE™	HotSpot@
FMC type	Femto Cell*	Femto Cell	Femto Cell	Wi-Fi / UMA
Base station	Ip.access*	Samsung UbiCell	Samsung UbiCell	Linksys
Handsets	na	na	all Sprint	only dual mode
Phones / base	na	na	Up to 3	Up to 5
* not confirmed; na – not available				

## ***Can you hear me now? (con'd)***

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...more and more capable networks using converging technologies will fill wireless gaps.

It will be interesting to see the cable companies' response to wireless companies using cable lines to offload cellular traffic. Sprint's recent deal with Clearwire (see related article in this issue) to develop a nationwide mobile WiMax service could be a harbinger of this competitive dynamic. Strategic investors in Clearwire include leading cable companies, Comcast and Time Warner. They can use Clearwire's WiMAX network to compete directly with the wireless companies. As part of this deal, Comcast fought for 5MHz of spectrum across the U.S. to be set aside solely for WiMax femto cells, which can be used to offer a wireless service.

Whether Wi-Fi and femto cell solutions will be widely accepted by consumer and enterprises is yet to be seen. There are other wireless solutions such as distributed antenna systems that are trying to address the last mile problem particularly in the enterprise, and technical hurdles such as frequency interference and management need to be addressed. In any case, the added competition will most certainly be good for consumers as more and more capable networks using converging technologies will fill the wireless gaps. We expect indoor wireless coverage to continue to improve over the next couple years, and finally we can all say, "Yes! I can hear you now!"

By Kuni Takahashi  
Near Earth LLC

## ***Guest Column: Give Digital Broadcasting a Chance***

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From the very beginning, the content was wireless and traversed the airwaves to TVs throughout a station's viewing area

Once upon a time, broadcast television was the darling of the advertising world. Families would gather together to watch their favorite shows. This huge audience was an awesome platform for advertisers who wanted to reach the mass market. From the very beginning, the content was wireless and traversed the airwaves to TVs throughout a station's viewing area.

Over the last few decades, new technologies have transformed the way people watched television. New distribution technologies such as cable and satellite TV continue to increase the number of available channels. New storage technologies such as digital video recorders let viewers record shows, watch them whenever they want and even skip over commercials. Additionally, new Internet-based technologies allow users to stream video content from almost anywhere in the world and create a two-way interactive experience.

Some industry analysts believe that these new forms of content distribution will render the over-the-air broadcast model obsolete. However, this author believes that the new capabilities of terrestrial digital television (DTV) will breathe new life into these traditional broadcast businesses.

It's happened in Europe. Across the ocean, over-the-air broadcast receivers are everywhere. Even though customers have cable or satellite TV systems, they also use over-the-air broadcast systems for much of their viewing, including free and subscription-based services. The Yankee Group even forecasts the expansion of terrestrial digital television in Europe. However, rather than lure customers away from cable and satellite TV, broadcast TV will be used in conjunction with these subscription-based services.

... many people just don't know what is available over-the-air, and the equipment that enables a good experience is just starting to come to market.

It is hard to believe the analysts' prediction of no growth for the 17 million households, or 15%, in the U.S. that receive their programming from terrestrial broadcasters. Why wouldn't more folks purchase a digital TV tuner and antenna, and receive television for free?

The answer is simply that many people just don't know what is available over-the-air, and the equipment that enables a good experience is just starting to come to market. This is likely to change over the next few years as high-end antennas and digital receivers come to the market.

The mobile technical standard for the next generation of digital broadcasts is expected to be finalized in 2009. The next iteration of digital broadcast will come with new features, such as allowing mobile phones and other handheld devices to receive broadcast signals. Enabling mobile phones to receive DTV programming without a recurring monthly cost is likely to expand the broadcast audience. Many people will take advantage of this

## ***Guest Column: Give Digital Broadcasting a Chance (con'd)***

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free service, if only as a backup in case their main cable or satellite system doesn't function.

My theory is very simple: Over-the-air broadcasting will not supplant the majority of cable and satellite systems, but will be used in addition to other forms of distribution. As mobile phones, PDAs, laptops and computers come with DTV tuners built into them, more people will be enjoying free over-the-air broadcast channels.

Over-the-air broadcasting will not supplant the majority of cable and satellite systems, but will be used in addition to other forms of distribution.

This fits in well with the Internet culture, which expects everything for free. Since these new devices allow “no-cost” content, it is reasonable to believe that terrestrial broadcasting may be revived. It is also important to note that devices such as laptops and computers can take advantage of their storage capabilities and provide digital video recording functionality, allowing users to time-shift their viewing.

HD radios and digital TV tuners are just now starting to trickle into the market. In fact, I couldn't find an HD radio or a good DTV tuner to purchase from a local electronics retailer. I even had a problem finding a salesperson who knew anything about digital broadcast receivers. One would think that selling equipment that provides the consumer with no-cost programming would make it easier to sell radios and TVs.

The moral of the story is: Give digital broadcasting a chance before you write it off. Let TV and radio households enjoy the benefits of superior video and audio quality, as well as the new capabilities for mobile devices. Then and only then will we start to see the true value of DTV.

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By Robert C. Raciti, Ph.D.  
GE Commercial Finance

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# ***An Open Letter to President Elect Obama – Ideas for a Space Legacy***

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First of all, congratulations on a brilliantly run campaign. We add our hopes to that of our fellow citizens that this same degree of enthusiasm, optimism, organization, planning, intellect, and civility can be infused top down into all of Washington, D.C.

It will indeed be a daunting task to maintain our country's lead in space on a \$20 billion budget and we offer no advice on the many complicated budgetary trades

We have also been impressed with the thoroughness of your transition team's efforts in relation to reviewing NASA and its goals and challenges. It will indeed be a daunting task to maintain our country's lead in space on a \$20 billion budget and we offer no advice on the many complicated budgetary trades between completing the International Space Station and perhaps extending its life, accelerating development of the Ares and Orion programs to lessen any gap in our independent access to space or alternatively extending the Shuttle fleet's life. There are enough experts of differing opinions and no shortage of interested parties to make these decisions quite difficult. Good luck.

Do we really want to explain to our children and grandchildren ... how we landed on the Moon in 1969, but somehow lost the ultimate space race to China, India, Russia, Europe or all of the above? At the very least, let's find some partners and go back together.

What we really want to address is your legacy in space, because your legacy will be our legacy too. It is of course highly unlikely (though certainly not technically beyond our means) that any country will send people to the Moon, and certainly not onto the surface of Mars, within the next eight years. So, all audacious hope aside, that is unlikely to be your legacy. But like JFK, a clearly stated goal to boldly move forward on one or both can be your legacy and we would strongly suggest it should be. Do we really want to explain to our children and grandchildren in 2020 or 2025 how we landed on the Moon in 1969, but somehow lost the ultimate space race to China, India, Russia, Europe or all of the above? At the very least, let's find some partners and go back together.

As for the difficult decisions mentioned above, in 25, 50 or 100 years the world will little note whether the International Space Station was operated a few more years or not. What the world will remember is what wonderful new drugs or materials were first created there. So far the track record of investment and achievement is underwhelming. In the future, the world will not care so much as to whether re used Ares, Soyuz or the Shuttle to get into space during your Administration. They are all just upgrades of varying degrees of German rocket technology from WWII. The world will, however, be impressed if during your Administration new reusable launch vehicle technologies and systems are finally developed that allow us to gain the order of magnitude reduction in cost per kilogram we so desperately need. The world will remember if space tourism becomes a reality or if any country can add its citizens to the ranks of astronauts. Please consider how you might smartly invest in these new technologies and how access to space can be expanded for all. Looking back from the future, we suspect the world will also want to say that during your

## ***An Open Letter (con'd)***

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...we suspect the world will also want to say that ... we finally took Earth monitoring seriously and put in place new satellite constellations to measure, predict and better understand our global climate.

Administration we finally took Earth monitoring seriously and put in place new satellite constellations to measure, predict and better understand our global climate. We should really not be guessing when and where hurricanes will form and what direction they will head. That is so 20<sup>th</sup> century.

Your Administration could also mark a renaissance of sort in mankind's quest to explore and use space. To date, other than for some notable commercial applications from Earth orbit, space has been almost exclusively the domain of governments. With recent and continuing advancements in technology that no longer has to be the case. The world is full of space enthusiasts and entrepreneurs, as we are sure you have discovered, and many are quite willing and able to risk their lives and their own capital. But operating in space is expensive and what they need are government incentives to attract additional capital. This has been talked about for years, but nothing major has ever happened. What we have gotten are X prizes of \$10 or \$20 million to accomplish things costing 10x to 100x more money. What we need are XXX Prizes, meaning amounts large enough to spur the private sector forward with realistic hopes of just rewards for accomplishing tasks the government would otherwise spend considerably more to achieve.

... XXX Prizes, meaning amounts large enough to spur the private sector forward with realistic hopes of just rewards for accomplishing tasks the government would otherwise spend considerably more to achieve

Lastly, as you contemplate a potential trillion dollar stimulus package, please keep in mind that we need more than just bridges and roads and the temporary construction jobs they entail. In fact, we would argue the jobs we really want to create for our country's long term competitive advantage are jobs in science and technology. We know you understand as your green technology, alternative energy and terrestrial broadband initiatives are exactly along these lines. What we humbly suggest is that a significantly increased investment in space also be considered. We need to do more than just maintain the "high ground" of space for our military and intelligence communities. We need to recommit ourselves to aggressively lead the world in exploring and using space for commercial, scientific and peaceful purposes for the benefit of all mankind. To achieve these gains we will of course need more home grown scientists and engineers. Sadly, we are falling woefully behind our important competitors in this regard. You, as President, can use your bully pulpit to make science and math cool and important to our youth and there is no better stimulus for that than Space, the Final Frontier.

Very respectfully,

By Hoyt Davidson  
Near Earth LLC

# NEAR EARTH ANALYSIS: MARKET COMPARABLES

## Public Market Valuation Analysis of Selected Companies in the NEAR EARTH MEDIA INDEX

(\$ in millions, except per share data)		Stock Price:			Enterprise Value as a Multiple of:			Price as a Multiple of:			
Ticker	Company	12/3/08	Market Value of Equity	Enterprise Value (a)	LTM Sales	LTM EBITDA	LTM EBIT	LTM EPS	2008E EPS (b)	2009E EPS (b)	
<b>Satellite Television (DBS)</b>											
BSY	British Sky Broadcasting (f)	\$ 6.40	\$11,195.3	\$12,911.9	1.8x	9.2x	12.3x	18.4x	14.9x	13.0x	
DISH	Dish Network Corp	\$ 10.77	\$4,954.7	\$9,503.1	0.9x	3.4x	7.9x	7.6x	5.4x	4.6x	
DTV	DirectTV Group Inc.	\$ 21.38	\$23,753.2	\$26,686.2	1.4x	5.5x	9.8x	15.0x	15.3x	12.1x	
	Mean				1.4x	6.0x	10.0x	13.7x	11.9x	9.9x	
<b>Cable Television</b>											
CHTR	Charter Communications Inc.	\$ 0.17	\$61.2	\$20,158.2	3.2x	8.7x	20.2x	n/m	n/m	n/m	
CMCSA	Comcast Corporation	\$ 16.06	\$46,097.6	\$74,655.6	2.2x	5.8x	11.4x	16.2x	17.8x	15.3x	
MCCC	Mediacom Communications Corp.	\$ 2.39	\$231.6	\$3,425.0	2.5x	6.9x	13.2x	n/m	n/m	n/m	
TWC	Time Warner Cable Inc.	\$ 20.80	\$20,346.6	\$31,725.6	1.9x	5.1x	10.0x	15.1x	17.9x	18.9x	
	Mean				2.4x	6.6x	13.7x	15.7x	17.9x	17.1x	
<b>Television</b>											
TVL	LIN TV Corp.	\$ 1.63	\$82.5	\$901.5	2.2x	5.2x	7.5x	2.1x	n/m	40.8x	
SBGI	Sinclair Broadcast Group	\$ 3.27	\$281.7	\$1,683.4	2.2x	5.2x	9.7x	4.0x	5.2x	12.1x	
YBTV	Young Broadcasting Inc.	\$ 0.03	\$0.8	\$804.8	5.3x	18.0x	n/m	n/m	n/m	n/m	
	Mean				3.2x	9.5x	8.6x	3.1x	5.2x	26.4x	
<b>Satellite Radio (DARS)</b>											
SIRI	Sirius XM Radio	\$ 0.17	\$436.8	\$3,449.9	1.4x	n/m	n/m	n/m	n/m	n/m	
	Mean				1.4x						
<b>Radio</b>											
CMLS	Cumulus Media Inc.	\$ 1.02	\$42.7	\$552.5	1.7x	6.6x	7.7x	2.8x	2.0x	3.8x	
CXR	Cox Radio Inc.	\$ 5.87	\$489.5	\$902.7	2.1x	6.3x	6.8x	2.9x	7.7x	9.2x	
EMMS	Emmis Communications Corp.	\$ 0.32	\$11.7	\$581.7	1.6x	8.3x	10.7x	n/m	n/m	n/m	
ETM	Entercom Communications	\$ 1.09	\$39.6	\$912.9	2.0x	6.7x	7.9x	0.9x	n/m	1.3x	
ROIA	Radio One Inc.	\$ 0.60	\$56.7	\$792.6	2.4x	9.5x	12.2x	n/m	6.7x	4.3x	
	Mean				2.0x	7.5x	9.1x	2.2x	5.5x	4.6x	
<b>NewsPrint</b>											
MNI	The McClatchy Company	\$ 2.15	\$177.2	\$2,374.8	1.2x	7.2x	12.9x	7.3x	3.1x	4.6x	
NYT	New York Times	\$ 7.75	\$1,114.3	\$1,804.5	0.6x	5.3x	9.6x	10.2x	11.1x	13.6x	
WPO	Washington Post	\$ 400.05	\$3,743.7	\$4,016.7	0.9x	6.7x	12.5x	22.6x	14.5x	15.4x	
	Mean				0.9x	6.4x	11.7x	13.4x	9.5x	11.2x	
					MEDIA SERVICES INDEX (excludes Satellite Radio (DARS) stocks)						
					High	5.3x	18.0x	20.2x	22.6x	17.9x	40.8x
					Mean	2.0x	7.2x	10.7x	9.6x	10.1x	12.1x
					Low	0.6x	3.4x	6.8x	0.9x	2.0x	1.3x

## Public Market Valuation Analysis of Selected Companies in the NEAR EARTH TELECOM INDEX

(\$ in millions, except per share data)		Stock Price:			Enterprise Value as a Multiple of:			Price as a Multiple of:			
Company		12/3/08	Market Value of Equity	Enterprise Value (a)	LTM Sales	LTM EBITDA	LTM EBIT	LTM EPS	2008E EPS (b)	2009E EPS (b)	
<b>Satellite Capacity Leasing (FSS)</b>											
ETL.PA	Etelsat Communications	\$ 22.19	\$4,796.7	\$7,958.2	7.1x	9.2x	16.5x	20.6x	19.2x	17.8x	
LORL	Loral Space & Comm. Inc.	\$ 8.93	\$180.2	\$406.1	0.5x	3.4x	7.8x	n/m	n/m	n/m	
SESG.PA	SES Global S.A. (c)	\$ 17.56	\$8,897.1	\$13,368.7	6.5x	9.7x	18.0x	18.7x	12.9x	11.7x	
	Mean				4.7x	7.4x	14.1x	19.6x	16.1x	14.8x	
<b>Satellite Equipment Manufacturers &amp; Integrators</b>											
CDV	COM DEV International (d)	\$ 2.32	\$158.4	\$170.9	1.1x	13.2x	31.0x	16.8x	11.6x	7.5x	
CMTL	Comtech Telecommunications	\$ 45.32	\$1,281.6	\$1,025.5	1.9x	8.0x	9.5x	16.4x	13.1x	10.7x	
GCOM	Globecomm Systems Inc.	\$ 5.23	\$108.2	\$51.6	0.3x	3.1x	4.6x	4.4x	18.7x	11.4x	
GILT	Gilat Satellite Networks	\$ 2.36	\$99.8	(\$0.5)	n/m	n/m	n/m	8.2x	15.7x	16.9x	
HUGH	Hughes Communications, Inc.	\$ 16.47	\$350.4	\$736.1	0.7x	5.5x	10.8x	25.0x	22.6x	7.9x	
ISYS	Integral Systems Inc.	\$ 22.10	\$378.5	\$370.6	2.3x	12.9x	13.8x	18.2x	20.5x	18.4x	
ORB	Orbital Sciences	\$ 15.80	\$917.6	\$576.9	0.5x	4.4x	5.2x	11.2x	16.0x	17.4x	
SATS	EchoStar Corp.	\$ 14.98	\$1,435.6	\$832.5	0.4x	n/m	n/m	n/m	n/m	n/m	
VSAT	ViaSat Inc.	\$ 21.60	\$694.2	\$607.3	1.0x	10.8x	22.2x	n/m	13.9x	11.1x	
	Mean				1.0x	7.4x	11.0x	13.9x	17.2x	13.4x	
<b>Towers</b>											
AMT	American Tower	\$ 27.83	\$10,963.4	\$15,330.7	9.8x	15.6x	29.2x	n/m	n/m	n/m	
CCI	Crown Castle	\$ 15.35	\$4,337.6	\$10,667.7	7.1x	13.0x	n/m	n/m	n/m	n/m	
SBAC	SBA Communications	\$ 14.36	\$1,651.7	\$4,040.0	9.0x	17.0x	n/m	n/m	n/m	n/m	
	Mean				8.6x	15.2x					
<b>General Telecom</b>											
S	Sprint Nextel Corporation	\$ 2.57	\$7,337.4	\$25,786.4	0.7x	3.3x	n/m	n/m	n/m	n/m	
T	AT&T	\$ 29.08	\$172,677.0	\$247,857.0	2.0x	5.7x	10.5x	12.1x	10.2x	9.8x	
VZ	Verizon Communications, Inc.	\$ 33.19	\$98,495.0	\$178,466.0	1.8x	5.8x	10.8x	15.7x	12.9x	12.1x	
	Mean				1.5x	4.9x	10.7x	13.9x	11.6x	11.0x	
					TELECOM SERVICES INDEX (excludes Towers stocks)						
					High	7.1x	13.2x	31.0x	25.0x	22.6x	18.4x
					Mean	1.7x	6.3x	12.4x	11.9x	14.4x	11.7x
					Low	0.3x	3.1x	4.6x	4.4x	10.2x	7.5x

(b) EPS estimates from Thompson First Call. Near Earth does not estimate EPS and does not condone or validate these estimates.

n/m Not Meaningful.

(c) Converted to US \$ from Euro at an exchange rate of 1.2708 US \$ per Euro.

(d) Converted to US \$ from C\$ at an exchange rate of 0.7973 US \$ per C\$.

(f) Converted to US \$ from British Pound at an exchange rate of 1.4523 US \$ per British Pound.

Member of NEAR EARTH SATELLITE INDEX

# NEAR EARTH ANALYSIS: M&A TRANSACTIONS

## Selected Satellite, Telecom & Media Transactions (US\$ in millions)

Date Announced	Acquiror	Target	Equity Value (a)	Transaction Value (b)	Transaction Value/	
					LTM Sales	LTM EBITDA
<b>Satellite Operators</b>						
04/21/04	KKR	PanAmSat Corporation	\$3,532.0	\$4,300.0	5.2x	7.7x
06/06/04	Blackstone Group	New Skies Satellites NV	956.0	956.0	4.5x	7.7x
08/17/04	Zeus Holdings	Intelsat Ltd.	3,100.0	5,000.0	5.2x	7.6x
08/29/05	Intelsat Ltd.	PanAmSat Holding Corporation	3,065.0	6,271.1	7.5x	9.7x
12/14/05	SES Global	New Skies Satellites NV	760.0	1,160.0	5.0x	8.0x
12/05/06	Abertis Telecom	EutelSat (32% share)	1,000.0	1,838.0	7.3x	9.7x
12/18/06	Telesat (new)	Telesat (old)	2,800.0	2,940.0	7.1x	12.0x
12/18/06	Telesat (new)	Loral Skynet	691.0	1,050.0	7.1x	19.6x
12/18/06	Telesat (new)	Telesat/Skynet Combined	3,491.0	3,990.0	7.1x	13.4x
06/19/07	BC Partners	Intelsat	5,000.0	16,400.0	7.7x	11.3x
08/02/07	Abertis Telecom	Hispasat (28.4% share) (Pending)	199.0	199.0	5.8x	7.9x
				Mean	6.3x	10.4x
<b>Ground Equipment &amp; Systems Integrators</b>						
03/03/05	Radyne Comstream	Xicom Technology	41.0	46.0	1.1x	n/d
08/15/05	Stratos	Xantix	191.0	191.0	1.1x	n/d
11/11/05	SkyTerra / Apollo	HNS (Hughes' VSAT, Broadband)	155.0	460.0	0.8x	n/d
08/03/06	Thrane & Thrane	Nera's Mobile Satellite Communications	89.6	89.6	1.1x	n/d
03/19/07	CIP Canada Investment Inc.	Stratos Global Corporation	293.3	621.5	1.2x	2.9x
05/12/08	Comtech	Radyne	201.9	223.6	1.5x	16.0x
07/10/08	Nokia	Navteq	7,719.0	8,100.0	8.8x	29.5x
				Mean	1.1x	9.4x
<b>Aerospace and Defense</b>						
04/23/07	Kratos	SYS Technologies	49.3	49.3	0.6x	n/m
05/03/07	Globecomm	GlobalSat	18.4	18.4	0.9x	n/d
07/31/07	LMI Aerospace, Inc.	D3 Technologies, Inc.	65.0	65.0	1.0x	7.2x
11/29/07	Finmeccanica SPA	VEGA Group PLC	59.2	56.2	0.9x	9.6x
05/12/08	Finmeccanica SPA	DRS Technologies Inc	3,358.0	4,930.0	1.4x	11.0x
05/13/08	Cobham plc	M/A-COM	425.0	425.0	0.9x	6.8x
06/04/08	Cobham plc	Sparta Inc	416.0	416.0	1.4x	12.1x
				Mean	1.0x	9.3x
<b>Video Distribution</b>						
09/29/05	International Datacasting	Proflin (c )	4.5	3.9	1.1x	n/d
11/18/05	Cisco	Scientific Atlanta	6,900.0	5,300.0	2.7x	13.2x
02/08/06	Tandberg Television	Skystream	80.0	80.0	2.6x	n/d
12/21/06	Motorola	Tut Systems	39.0	39.0	1.0x	n/d
04/23/07	Motorola	Terayon Communication Systems Inc.	139.7	127.2	1.9x	n/m
12/07/07	Macrovision Corp	Gemstar-TV Guide Intl Inc	2,842.1	2,325.1	3.7x	21.9x
				Mean	1.9x	13.2x
<b>Towers</b>						
05/04/05	American Tower	Spectrasite	3,100.0	3,800.0	10.2x	17.0x
03/17/06	Crown Castle	Trintel Communications	145.0	145.0	10.1x	n/d
03/17/06	SBA Communications Corp	AAT Communications Corp	1,002.0	1,002.0	12.0x	17.9x
05/08/06	Crown Castle	Mountain Union Telecom LLC	309.0	309.0	11.9x	n/d
10/06/06	Crown Castle	Global Signal	4,000.0	5,800.0	12.1x	26.6x
07/21/08	SBA Communications Corp	Optasite Towers	253.2	428.2	14.8x	n/m
				Mean	11.2x	20.5x
<b>General Telecom (Wireless)</b>						
02/17/04	Cingular	AT&T Wireless	\$40,770.0	\$47,105.0	2.8x	10.7x
12/15/04	Sprint Corp	Nextel Communications Inc	28,449.0	36,200.0	2.7x	7.1x
01/05/05	Alltel	Western Wireless	4,300.0	6,181.0	3.2x	10.7x
07/01/05	Sprint Nextel Corporation	US Unwired, Inc.	1,000.0	1,266.0	2.9x	13.2x
03/06/06	AT&T (new)	Bell South	67,000.0	89,000.0	4.3x	10.7x
				Mean	3.2x	10.5x
<b>Television</b>						
03/31/05	Lin TV Corp.	WNDY-TV, WWHO-TV	\$85.0	\$85.0	4.3x	12.9x
05/10/05	Various Acquirors (d)	Emmis Comm TV Portfolio	1,350.0	1,350.0	5.2x	14.6x
06/30/05	Univision Communications	WLII (2 TV Stations in Puerto Rico)	190.0	190.0	4.0x	16.7x
01/18/07	Citadel Investment Group LLC	ION Media Networks Inc	98.8	1,654.3	7.1x	16.9x
03/29/07	Umbrella Holdings LLC	Univision Communications	12,300.0	13,700.0	6.3x	18.1x
				Mean	5.4x	15.8x
<b>Radio</b>						
06/21/05	Emap PLC	Scottish Radio Holdings	713.0	793.0	4.5x	17.7x
11/01/05	Cumulus Media Inc.	Susquehanna Radio	1,200.0	1,200.0	n/d	15.0x
02/07/06	Citadel Broadcasting	Disney (ABC Radio)	1,500.0	2,700.0	4.7x	13.5x
07/30/08	Bain Capital	Clear Channel	17,923.8	23,724.1	3.5x	10.8x
				Mean	4.2x	14.3x
<b>New Media</b>						
03/06/06	NBC Universal	iVillage Inc.	600.0	550.0	6.0x	32.4x
03/15/07	Cisco	WebEx	2,900.0	2,900.0	7.6	29.3
01/31/08	Amazon.com	Audible	280.7	257.0	2.4x	n/m
02/11/08	Microsoft	Danger	-	500.0	8.9x	n/m
03/04/08	Demand Media	Pluck	-	75.0	7.5x	n/d
05/28/08	comScore	M:Metrics	-	44.3	4.0x	n/d
05/15/08	CBS	CNET	1,800.0	1,800.0	4.4x	n/m
				Mean	5.4x	23.7x

(a) When Equity Value was not disclosed, Transaction Value was used

(b) Calculated as Value of Equity plus interest bearing liabilities and preferred stock, less cash & equivalents

(c) Values reflect closing figures. Converted at 1.1757 C\$ per US\$

(d) Transaction includes the divestiture of Emmis' TV portfolio to: Lin TV (\$260M), Journal Comm (\$235M), Gray (\$186M), Blackstone (\$259M)

It also includes estimated transaction value of \$410M for the final sale of 3 TV stations. This is predicted to occur sometime in 2005.

n/d Not Disclosed

n/m Not Meaningful

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