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It was a bitterly cold winter day in January 2003 as the wind whipped around the Charles River. Perched high above the frozen landscape in Zero Stage Capital's offices in Cambridge, Van Chu, the current CEO of OuterLink Corporation and, Edwin Wang, later a General Partner of Zero Stage Capital, were preparing their recommendation for OuterLink's Board of Directors meeting to be held the following week. As Wang looked across the bleak landscape of the Charles, it seemed that the outlook for OuterLink was equally gloomy.

OuterLink offered secure, real-time, continent-wide tracking and two-way messaging for high-value assets. The total addressable market was substantial, projected to be a multi-billion dollar opportunity. However, the company could not gain sufficient traction in any one segment of the market to be profitable. After delays in going to market and technology development, and a failed market bet to serve the long-distance trucking industry, OuterLink was struggling. It had burned through $26 million, and was written off by all but one of its investors as another victim of the technology bubble. In September 2002, Chu was appointed the new CEO of OuterLink. Wang and Chu orchestrated a strategic and operational turnaround, slashing its burn rate, restructuring the organization and repositioning its products. By December 2002, OuterLink had $400,000 in the bank and a capital deficit of $30 million. Chu and Wang had to decide immediately the fate of the company, whether it could be saved, at what cost, and consider the impact of a shutdown on OuterLink and Zero Stage Capital.

The option to close OuterLink and write off the investment was always on the table. It would impact the performance of Zero Stage Capital's funds that had invested in OuterLink, and the ability of Zero Stage Capital to raise capital in the future. A second option was to focus on the high margin aviation market to achieve profitability. This would require a re-start of the company and an outside investor to set the price for OuterLink, potentially wiping out Zero Stage Capital and all other investors. A third option, to execute a strategic merger with a public company, would require Wang and Chu to identify and woo potential acquirers in a down market. At the same time they would have to reposition Outer Link's strategy and products to be sufficiently attractive. "Was this a case of window dressing?" Wang mused. This was the most difficult and time-consuming option to execute, but would provide a path to liquidity that had so far eluded OuterLink's investors.

As Wang braced for a chilly reception at the Directors' meeting, he knew that he and Chu did not have much room—or time—for error.

Professor Josh Lerner and Brenda Chia, MBA '96, prepared this case. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Venture Capital Conditions

The public markets and venture capital activity levels in 2003 were in stark contrast to the height of the market in 2000. Deal volume and valuations in the IPO market had fallen precipitously by 90% and 95%, respectively. Exits through mergers and acquisitions were similarly hit. Though deal volume was down only 27%, valuations were down 87%. The number of VC firms making investments had fallen 40% from 2000 to 2003. The amount of VC dollars raised in 2003 was 11% of the amount in 2000. In the technology space, around 38% of VC exits were shut-downs, 58% M&A transactions, and 4% IPOs.

As VC firms worked through the correction, they monetized clear winners and closed obvious losers. A great many portfolio companies fit neither category. The number of "orphaned" start-ups accounted for as high 80% of some portfolios. While these portfolio companies were unable to raise more cash on acceptable terms, they had sales, intellectual property, promising technologies and customers. They generated enough cash to survive but held out little hope for a big exit. Over time the VCs typically turned their attention away from these companies to focus upon raising a new fund or making new investments. The orphaned companies were left on their own to find new strategic partners, markets and customers.

The effect of the correction was clearly seen in the returns generated by VC funds. Where even a lowest quartile fund generated positive returns if it was closed in 1996 and invested through a portion of the bubble, the average top quartile fund lost money if it was closed in the years 1999-2002. See **Exhibit 1** for VC industry trends. The markets and liquidity cycles had come back to earth. The liquidity cycles of six months to two years had indeed been an aberration. The VC industry was looking at five- to seven-year cycles once again for a portfolio company to achieve a liquidity event. It was a wakeup call for rationality and fundamental business practices.

Zero Stage Capital

Zero Stage Capital was founded in 1981 by Paul Kelley to fund and commercialize the technologies coming out of universities, laboratories and research groups in the Boston area. Its partners balanced risks by typically investing in a mix of early-stage and later-stage companies in a fund. The funds invested in the communications, information technology, life sciences, industrial productivity and energy sectors. The returns generated tracked the overall VC market performance. **Exhibit 2** shows Zero Stage Capital's historical fund performance.

Fund 1994 was closed at $50 million. The firm closed sixteen deals, varying sector and stage, a proven approach that had served them well in earlier funds. Approximately 40% of investments were in communications and information technology, 40% in life sciences and 20% in energy and industrial startups. Two-thirds of the investments were in early-stage companies and one-third in later stage companies. The fund was in top quartile for its vintage year (see **Exhibit 1(D)** for comparables), netting an overall IRR of 53%. Some of the companies were significant success stories even during the technology bubble years, and returned over 190% IRR.[1] The firm was riding high on market conditions and investor confidence.

[1] Kana Communications Inc's IRR was 213%; Open Market Inc's IRR was 272%. In life sciences, Viacell's IRR was 43% and Kinetix was 82%.

Fund 1999 was closed at $150 million. It represented a significant scaling up of Zero Stage Capital's operations. Five new investment professional were hired to manage the fund. Five deals were closed by Paul Kelley, applying to the firm's historical philosophy of risk mitigation. Thirty-three deals were done in the communications and dot-com spaces.

Fund 1999 was a Small Business Investment Company (SBIC) fund. This was a program where the federal government's Small Business Administration (SBA) program invested in funds that invest in small businesses, defined as having less than $18 million in revenues and profits of less than $6 million. The limited partners (LPs) committed $50 million, and $100 million was committed by the SBA as a participating preferred security with a maximum return of 10%. Returns greater than 10% would accrue to the LPs and Zero Stage Capital. The benefits to Zero Stage Capital were a lower cost of capital compared to investment by traditional LPs, and that the leverage could provide potentially a greater return to the firm and the LPs.

Fund 1999 was seriously damaged by the market downturn. The fund had several successful exits such as Kinetix Pharmaceuticals which was sold to Amgen (IRR 192%). However the successes were more than offset by portfolio e-commerce companies that were either significantly devalued (such as Mothernature.com) or went out of business entirely (such as Swift Rivers). The overall fund performance was an IRR of -15.5%. The fund's negative net asset value triggered a regulation in the SBIC regulations, and the fund went into SBA receivership. The LPs were alarmed. VC firms such as Yankee Tech were going out of business, and the fear was that Zero Stage Capital would suffer the same fate.

Zero Stage Capital was in turnaround mode itself. A new team with a non-traditional mindset was put together by Paul Kelley. "Changing general partners is equivalent to waving a red flag in front of the LPs. In this case, it was prudent to bring in investment professionals who had the experience and expertise to execute the strategy that addressed market changes," Paul Kelley noted. Chu, Wang, Matt Kelley, who had run his own expansion capital and LBO funds during the bubble period, and Theodore Tedeschi, legal counsel, began actively structuring the majority of portfolio companies for exits, rather than leaving them orphaned. This approach was more fully tested in Fund 2001.

Fund 2001 closed at $160 million on the strength of the unrealized gains in Fund 1999. This was an all equity fund with no SBIC leverage participation. Returning to the firm's philosophy of risk mitigation and focus, deals were closed by sector and stage. Eight portfolio companies with clear outcomes were prepared for exit the traditional VC way through IPOs and M&A. For the rest of the slow-growth portfolio, Zero Stage Capital hypothesized it could improve returns through strategic M&A, rather than leaving the companies orphaned.

Classic venture capital investing monetizes investments through the long term funding of a portfolio company over a series of investment rounds, or rebuilding business plans with the goal of achieving liquidity via an IPO or M&A transaction. The risk profile of venture capital investments require a percentage of the portfolio company investments—typically 20%—to provide a very high multiple on capital invested. The winning deals make up for the also ran and written-off investments in a portfolio. Because it takes a protracted period of time for venture capital investments to mature to the harvest stage, exit options are typically explored five to seven years after the initial investment. Zero Stage Capital began testing its strategic M&A structured exit approach. The strategy's hypothesis was to create a lower multiple, but with a much higher probability of success. This is how it would work: for each slow-growth portfolio company, information arbitrage was used to explore near-term monetization of the company; the Zero Stage Capital team and the company board would preplan and agree to the exit before any additional capital was invested. The team would then identify the potential

value within each company and develop it by a combination of overhauling the business plan, restructuring the management team and recasting the market focus. One infusion of capital would be provided to facilitate the structured exit. The company's management team or Zero Stage Capital's operating executives would execute on Zero Stage Capital's plan, with hands-on guidance by Zero Stage's investment team. The investment can then be monetized, typically through M&A, and liquidity realized three to five years after the single investment. Monetizing the investment would generate returns for Zero Stage Capital over and above what could be achieved by traditional VC exits. Other shareholders would benefit from capital recovery or income. Strategic M&A required a team with different skills – operational insider, investment banker and legal advisor – to work together.

Against the backdrop of the technology market meltdown, Zero Stage Capital's own turnaround, a new team and a different exit approach, Wang admonished that "this was not to be the dress rehearsal and execution had to be flawless".

Technology Background

The inventor of spread spectrum radio technology was Hedy Lamar, actress, inventor, and spy. Lamar was born in 1914 in Vienna, Austria to a well-to-do family. In 1937, she moved to Hollywood after meeting MGM bigwig Louis Mayer. She became one of the most successful and recognizable actresses of the 1930s and 40s with movies such as *Algiers* and *Samson and Delilah.* With the outbreak of World War II, Lamar wanted to assist the Allied efforts.

She and friend George Antheil designed a novel concept for radio control of torpedoes. Back then, a torpedo had a very low degree of accuracy. Once it was fired, its path could not be adjusted; torpedoes were often steered off course by sea currents or missed their targets due to evasive maneuvers by the ships at which they had been fired. Her revolutionary technical approach, called frequency hopping, would transmit the torpedo's guidance signal over numerous frequencies rather than on a single frequency which the enemy could easily detect and jam. The jumping back and forth between the individual frequencies occurred in fractions of a second and thus could be neither detected nor disrupted by the enemy. The Lamar-Antheil patent was granted on August 11, 1942. Lamar and Antheil pitched their invention to the Navy. Despite their lobbying efforts, the Navy turned down the invention with the reason that the control mechanism would have been too bulky to fit into torpedoes.

Nothing further was done with frequency-hopping until 1957 when the concept was taken up by engineers at the Sylvania Electronic Systems Division in Buffalo, New York. Subsequent patents in frequency-changing techniques have referred to the Lamar-Antheil patent as the basis of the field, and the concept lies behind the principal anti-jamming devices used today in military and diplomatic radio communications.

Modern frequency-hopping – as employed in mobile telephones, for example – functioned in this same fashion on a digital basis. It prevented signal fading and guaranteed the privacy of conversations. Frequency hopping has evolved to more sophisticated procedures such as direct sequence spread spectrum (DSSS) technology which allowed a signal to travel as noise, making it very difficult to detect and intercept. This combined with packet technology, which broke up a signal into small pieces (also known as packets) and reassembled them at the receiving end into the original signal, is the heart of modern of wireless data transmission.

OuterLink was founded in 1991 by Paul Newcomb, who had been Vice President of Engineering at Railstar Control Technology, a subsidiary of Guilford Transportation. OuterLink was to provide secure, real-time, continent-wide tracking and two-way messaging for high-value mobile assets such as heavy machinery and helicopter fleets. The technology employed was DSSS using packet data transmissions and satellite communications, OuterLink's hardware, and proprietary base-station DSSS demodulators. OuterLink's defensible technology lay in its DSSS demodulator that could scan the background noise received from a communications satellite, detect the legitimate DSSS signal buried within the noise, and instantly decode the signal. The information in the signal then traveled from the earth station via the internet or a virtual private network to OuterLink's customers. They received up-to-the-minute GPS location data of their assets, monitored on-board sensors and conducted two-way messaging. Customers installed a terminal and a small, flat 4-inch square omnidirectional antenna on each asset tracked. The antenna differentiated OuterLink from its competitors, as it could receive signals from any direction and did not have to be electronically or mechanically steered to maintain contact with the satellite. Exhibit 3 is a high level view of how the technology worked.

OuterLink's approach was ideally suited to companies that required 24/7 asset location and status reporting in mission critical and/or remote operations. These companies typically had a combination of airborne assets such as helicopters or military planes, marine assets such as deep sea oil rigs, and ground assets such as heavy machinery and emergency vehicles.

The principal competitors having satellite capability were Qualcomm and Orbcomm. Qualcomm used a mechanically steered antenna mounted on the roof of trucks, behind the windshield. Such an antenna system worked well on trucks but was too bulky for automobiles and aircraft. Qualcomm mainly served the long-haul trucking market. Orbcomm provided global messaging via a network of 30 low earth orbit satellites[2] and earth stations on 4 continents. Messages in Orbcomm's system experience delays anywhere from twenty seconds to two hours but could be sent to/from anywhere in the world. Orbcomm served the utility industry by allowing customers to monitor oil and gas pipelines and water reservoirs. It also served the trucking market but did not have the penetration of Qualcomm.

Iridium and Globalstar were competitors that could potentially encroach upon OuterLink's space. At Iridium's core was a global, satellite phone service with coverage in even the most remote places. Its focus was voice services, but it was moving into messaging and could thereby become a direct competitor to OuterLink. Globalstar's service was similar to Iridium's. Another group of competitors were companies using the cellular infrastructure to deliver messages. The drawback of the cellular approach was the lack of coverage in remote areas and its unreliability during network congestion, which resulted in the unavailability of service and dropped calls.

OuterLink had significant price performance advantages over its competitors. OuterLink's average cost per position report was $0.03 compared to $1.50 for Iridium and $0.99 for Globalstar. The lag time for each report was less than two seconds for OuterLink, compared with anywhere from 20 seconds to 15 minutes for Iridium and Globalstar.

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[2] A low earth orbit satellite (LEO) orbits approximately 700 miles above the earth. Because of its relatively low orbit, it moves faster relative to a point on the surface of the earth. A fleet of LEO satellites is required to maintain communications over a single point. As one LEO moves out of position, another LEO moves in. Signals are passed between satellites to provide seamless service. An LEO carries a finite amount of fuel to power itself when it is put in space, giving it a lifespan of 4–7 years. OuterLink used geostationary satellites for its service. Such satellites orbit at 23,000 miles above the earth and maintain the same position above the earth's surface at all times by rotating with it. The power required to communicate with the satellite is relatively high and not feasible for devices such as cell phones. Geostationary satellites have a useful life of 10–15 years.

OuterLink

OuterLink was in the sweet spot of a large market, with the overall market in 1993 estimated to be at least $21 billion for hardware and software and $4 billion for messaging. Trucking fleets accounted for 84% of the market, aviation 3%, and utilities 7%.

OuterLink raised its first round of financing in 1993, selling private investors 211,700 shares at $3.75 per share. Research and development (R&D) then went into high gear as the technical team focused on improving the hardware and software. Building and testing prototypes were more expensive and difficult than expected. The testing was done using equipment that the company could afford: ham radio equipment to debug the electronic circuits, and obsolete satellites that were operating beyond end-of-life. The cost for production prototypes was $6,800 per unit. The first prototype was used by the Coast Guard in 1994. Though well-received, the Coast Guard's budget cuts meant that it could not be a source of revenue for OuterLink. There was success with customers in the Gulf of Mexico as conditions were ideal for OuterLink's technology. The early adopters were Chevron's oil drilling platforms and two helicopter charter companies. See **Exhibit 4** for OuterLink's funding schedule.

Revenues were initially driven by the hardware sales. Remote terminals were priced at $2,000 for ground, $5,000 for maritime and $11,000 aircraft. Application software was a one-time charge of $2,000–$15,000. Messaging fees were $30-$300 per month. Annual maintenance cost on hardware and software was 5%–15% per year. As the product gained traction, messaging was expected to grow as a larger percentage of revenues every year and account for 50% of the top line in 2003. **Exhibit 5** shows the number of terminals in operation and **Exhibit 6** contains the financial statements.

In 1997, Van Chu was recruited by Paul Kelley to join OuterLink's board as an outside Director. Chu was a native of Taiwan and a serial entrepreneur who had successfully started and sold several companies such as Octocom (a communications equipment manufacturer and Zero Stage Capital portfolio company) and Chipbond in Taiwan (silicon wafer bumping and flipping).

In 1998 OuterLink ran into setbacks that delayed its revenue. First, its satellite service failed to complete its contract on international frequency coordination. This delayed revenues by several months as service could not commence. Second, there were delays in securing a permanent regulatory license. Motorola and Iridium filed a Federal Communications Commission (FCC[3]) petition to block OuterLink's application for a permanent license.

There were two concerns raised by Motorola and Iridium: that there would be insufficient bandwidth to support aeronautical safety services operating in the same frequency and any expansion in OuterLink's service would interfere with Iridium's. At the same time, Iridium and Globalstar filed an opposition to OuterLink's application for licenses for 20,000 mobile ground terminals. The alleged concern was signal interference. OuterLink had the burden of proving that there was no interference generated by its existing 20 terminals in operation and that it could increase the number of terminals without adverse effect. The filings took months to resolve. OuterLink also had to wait for Iridium to begin service before it could proceed. "These roadblocks came with the territory of competing with established giants," Chu observed. It was estimated that these delays cost OuterLink more than $1 million in lost revenue.

[3] The Federal Communications Commission grants licenses to allow companies to operate in a frequency band.

OuterLink raised its second round of financing in 1999, which coincided with the granting of its permanent FCC license. This was a much bigger round that brought in institutional investors Zero Stage Capital, Chevron Technology Ventures and Green Mountain Capital. The company sold 9.5 million shares priced at $1.44 per share. Zero Stage Capital's Fund 1994 led the round. A new management team including a CEO, VP of sales, VP of Engineering and CTO were installed as a condition of the financing. Paul Newcomb retained his seat on the Board of Directors.

With money in the bank, the company accelerated R&D and customer acquisition. The CEO made the strategic decision to pursue the long-haul trucking market. This was a sizeable market with eight million trucks on the road throughout the year, and the need for fleet owners to track asset efficiency such as fuel usage, hours worked by truckers, and distances traveled.[4] The estimated market size for hardware was $32 billion and $10 billion for messaging. Qualcomm was already established in this market serving 500,000 trucks. OuterLink formed a joint-venture with a Canadian company to use their technology for the trucking market, which was believed to be superior. This cost OuterLink approximately $1 million a year and did not capitalize on any of its existing R&D. A team of costly consultants was hired to work with OuterLink's sales and marketing department to build the distribution channel. The goal was to use the consultants to penetrate the trucking companies and build a book of business. The projected annual revenue from this strategy was $15 million and the expenses were scaled to that number.

The third round was raised in 2002. The company sold 6.3 million shares at $0.90 per share. Zero Stage Capital led the round with Fund 1999 and owned 49% of OuterLink. A fourth round of financing was raised on the heels of the third in 2002 with 3.3 million shares sold at $0.90 per share. Zero Stage Capital invested with Fund 2001 and owned 56% of equity in OuterLink. The projected annual revenue had been revised down to $11 million. In spite of the meltdown in the technology market, Zero Stage Capital tried to support its portfolio companies with cash injections and other resources.

By August 2002, it was clear that OuterLink was in deep trouble. As the CEO spent the dog days of August sailing the blue waters of the Mediterranean, OuterLink was about to weather its worst storm.

OuterLink had spent $15 million to build up its long-haul trucking business, but had signed up fewer than 350 trucks. Cost was the main obstacle to adoption. The hardware cost per truck was $2,000 and messaging costs were incremental. The direct competitor in the trucking market turned out to be cell phone services, which had improving coverage and was much cheaper than satellite. OuterLink had a run rate of $2.7 million in sales and $4.3 million operating loss. It owed the Massachusetts Business Development Corporation $1.2 million. Its earth station in Reston, VA, was running without spare parts or a backup plan, as the company that built it had gone out of business. OuterLink had shelved its own technology and bought into one that was costly and substandard. OuterLink's competitors were also struggling, with Globalstar and Iridium filing for Chapter 11 bankruptcy protection. See **Exhibit 7** for comparables' financial information.

In September 2002, the Board called for a meeting without the CEO to get to the bottom of the situation. The Board agreed to fire the CEO. The day before the board meeting, at Chu's behest, the CEO resigned. Chu was appointed CEO and immediately got to work salvaging OuterLink.

[4] The information is required for filing reports to the Department of Transportation.

Turnaround

Chu slashed OuterLink's burn rate and cleaned up its operations. The senior managers took a 50% pay cut, driving their salaries below $120,000 a year. He terminated all consulting contracts. The marketing department was closed and with it, the public relations function. Chu also canceled the technology joint-venture with the Canadian firm to focus OuterLink on re-establishing its own technology and products.

Chu met with investment bankers from Deutsche Bank, Credit Suisse First Boston (CSFB), Covington Associates, and Adams Harkness and Hill to discuss a possible sale of OuterLink. The bankers listened politely but never returned his calls. Chu then contacted Edwin Wang, a technology-focused private equity investor at Cross Pacific Technology Partners. Wang had engineered several successful exits at Cross Pacific: UTStarcom (NASDAQ:UTSI), Zhone Technologies (NASDAQ:ZHNE) and Convergent Networks. In addition, Wang had 20 years of investing experience in private equity, technology investments and cross-border investments in Asia. He had worked in the U.S. for CSFB, Lehman Brothers and Fidelity Management and Research Company.

Wang immediately saw the inherent value of the technology and the possibility of an exit. However, OuterLink needed a cash injection to stay afloat. Under new management, the priorities were to (i) build on OuterLink's existing small, but high margin aviation business, and (ii) enter international markets in 2003 with a new version of terminals and systems. OuterLink planned to enhance its service offering with revenue-generating services in improved mapping, archival options and weather overlays.

In November 2002 Chu and Wang turned to the two main investors, Zero Stage Capital and Chevron Technology Ventures, convincing them to invest a total of $1.2 million in an issue of convertible debt with warrants. The first priority was to build a second earth station in Concord, MA for $600,000 to provide uninterrupted service to OuterLink's customers. This was completed and operational in four months.

Wang knew that "it was time to fish or cut bait."

The Options for OuterLink

In January 2003, an IPO for OuterLink was out of the question. The options that lay before Wang and Chu were either closing OuterLink, growing OuterLink to profitability, or a strategic merger.

To shut down OuterLink and write off the $26 million invested, $13 million of which was invested by Zero Stage Capital's affiliated funds, was a strong possibility. OuterLink had been in existence for 12 years, twice as long as a typical VC-backed company. It was not clear that the technology worked well enough or that its market share could grow to achieve a meaningful exit. OuterLink could file for Chapter 11 and dispose of its assets. This would free up Zero Stage Capital's team to focus on more promising portfolio companies and on raising the next fund.

In a twist of logic, OuterLink's revenue put it at a disadvantage to other VC-backed companies. Its upside could be defined and measured, whereas a company without revenues did not have the same reality check and could make the case for much larger, albeit illusionary, upside. The biggest drawback of closing OuterLink was obviously losing the capital invested, as well as the negative impact on Funds 1994, 1999 and 2001. Fund 1999 would be the worst hit as it already had a negative IRR. The IRR impact could be quantified and Wang and Chu knew full well this was an unpalatable

option for Zero Stage Capital. The historical performance of a venture firm's funds served as a track record for raising future funds and was a significant determinant for the size of future funds. Shutting down the company would foreclose the possibility of any return on OuterLink.

On the other hand, a case could be made to keep funding OuterLink as a portfolio company and reducing the burn rate to a breakeven level of $250,000 per month. OuterLink still had a large, addressable market. OuterLink had traction in the domestic aircraft market. International expansion could increase its aviation market by three to four times. Chu explored getting into the international market but there was a two year wait time to test its services with Inmarsat, the only commercial international satellite service.

Revenues of $3.9 million with a loss of $1.5 million were projected for 2003. OuterLink could conceivably reach cash flow breakeven in October 2003. Over the longer term, the highly profitable messaging service would have to grow at a more rapid pace as an increasing percentage of revenues. OuterLink needed additional $5 to $10 million in equity to reach profitability and achieve these goals. However, as there had been a failed approach to long-haul trucking, the Directors would probably be wary of yet another market bet.

This time, it would be essential to bring an outside investor for a syndicated investment and to set a price for OuterLink. Wang and Chu met with Ridgewood Partners, Pequot Capital Partners and Lehman Brothers. The feedback was skepticism coupled with aversion to any technologies and ideas beyond what these investors already knew. Given the market conditions, OuterLink would be valued at one times revenue, bringing its valuation down from a high of $28 million to $3 million. If this option were chosen, Zero Stage Capital's investment would be wiped out and OuterLink would have to be recapitalized. "This would be toxic, cram down financing that incinerates the current cap table," said Wang to Chu as they left the meeting with Lehman Brothers. On the other hand, the management team and staff would have continued employment.

The third option was to structure a near term exit through strategic M&A, an approach that was atypical of a VC firm in good times because of the projected multiple on investment. The advantage to OuterLink was an accelerated path to liquidity. For Zero Stage Capital, the advantages were capital recovery and positive impact on fund performance. The team was working well together: Chu had extensive operational experience and Wang could structure deals quickly. The experience of September 11, 2001 showed that land-based and other conventional forms of communication could not function well in a disaster. What was needed was a wireless, satellite-based, low-power consumption method of two-way communication, which OuterLink could provide. This possible homeland security application was intriguing and potentially lucrative. Chu and Wang began looking for a partner with complementary products and services, and a liquid currency. They studied @Road,[5] Garmin,[6] Trimble Navigation[7] and Digital Angel.[8] See **Exhibit 8A** for comparables and **8B** for OuterLink's forward cash flows. Wang and Chu held meetings with each potential acquirer and assessed technology compatibility and integration costs.

Wang and Chu had an ongoing relationship with the management team and board members at Digital Angel though other investments. Digital Angel was in the business of animal identification

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[5] Real-time tracking of employees, mobile assets and goods; NASDAQ:ARDI.

[6] Navigation equipment for the aviation market; NASDAQ:GRMN.

[7] Wireless communication and GPS; NASDAQ:TRIMB.

[8] Amex:DOC.

and tracking, using radio frequency identification (RFID) ear tags and software. This was typically used for livestock and domestic pets. Digital Angel's market capitalization was approximately $60 million, and was on a slow growth trajectory.

Although Digital Angel had the lowest market capitalization of all the comparables, the ease of interfacing with OuterLink's technology meant it would incur the lowest cost of integration. The combination of asset identification (Digital Angel) plus 24/7 tracking, monitoring and messaging (OuterLink) would immediately address a gap in the homeland security market and be highly valued by large defense contractors such as Raytheon, Lockheed Martin and Boeing. Digital Angel would have a compelling reason for a higher multiple, both in the capital market and as an acquisition candidate.

A series of meetings were held with Digital Angel's management and Board over a six month period. The concerns within Digital Angel were OuterLink's financial state, lack of growth and how well the technology worked. It would be reflected in the price for an acquisition, if any could be agreed to. As the talks proceeded, it was unclear that Chu and Wang had convinced Digital Angel of the benefits of a merger. "We need to create an auction where none exists presently," Wang said to Chu as they crossed the parking lot after a meeting with Digital Angel's finance team.

Raytheon entered the picture while Wang and Chu were in discussion with Digital Angel. In 2002, Raytheon (NYSE:RTN) was one of the largest defense and aerospace companies, with more than 70,000 employees worldwide and a market capitalization of approximately $13 billion. Raytheon was in the early stages of defining its homeland security capability and were keen to build it up through M&A. OuterLink had an ongoing relationship with Raytheon's aircraft and network systems unit and a strategic alliance was a distinct possibility. Raytheon had not made any acquisitions since 1998 but was in discussions with a number of small companies with technologies that would fit their portfolio and strategy. In particular, Raytheon was in the process of acquiring JPS Systems, which could provide seamless communications among emergency services—police, fire departments and hospitals—without a complete replacement of infrastructure. OuterLink would be a strategic fit within Raytheon's current capabilities and JPS by extending the communications, tracking and control services to high value military assets.

Several meetings were held with different groups within Raytheon for three months. The decision making process was slowed by layers of bureaucracy, personalities and politics. However, if the deal could be done, it would provide revenue and liquidity for OuterLink and possibly generate the highest financial return of all the options considered.

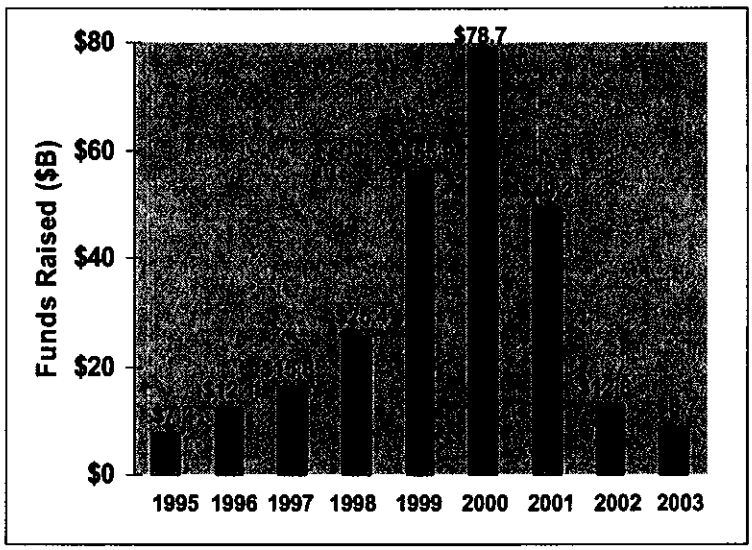
Crafting the Recommendation

OuterLink was in deep financial trouble after a failed market focus on the long-haul trucking segment. More than half of its capital raised was spent in the pursuit; management time and attention was diverted from other potential markets and its own technology neglected in the process. OuterLink's investors were facing their own set of problems in the market downturn and no more money could be expected from them. However, OuterLink had a working technology that addressed a real market need in homeland security.

As it started to snow in Cambridge, Wang and Chu looked over OuterLink's latest financials. Shutting down OuterLink was an option that could be triggered at any time and was not mutually exclusive to the other two of raising more capital and finding a buyer. The search for an investor or a

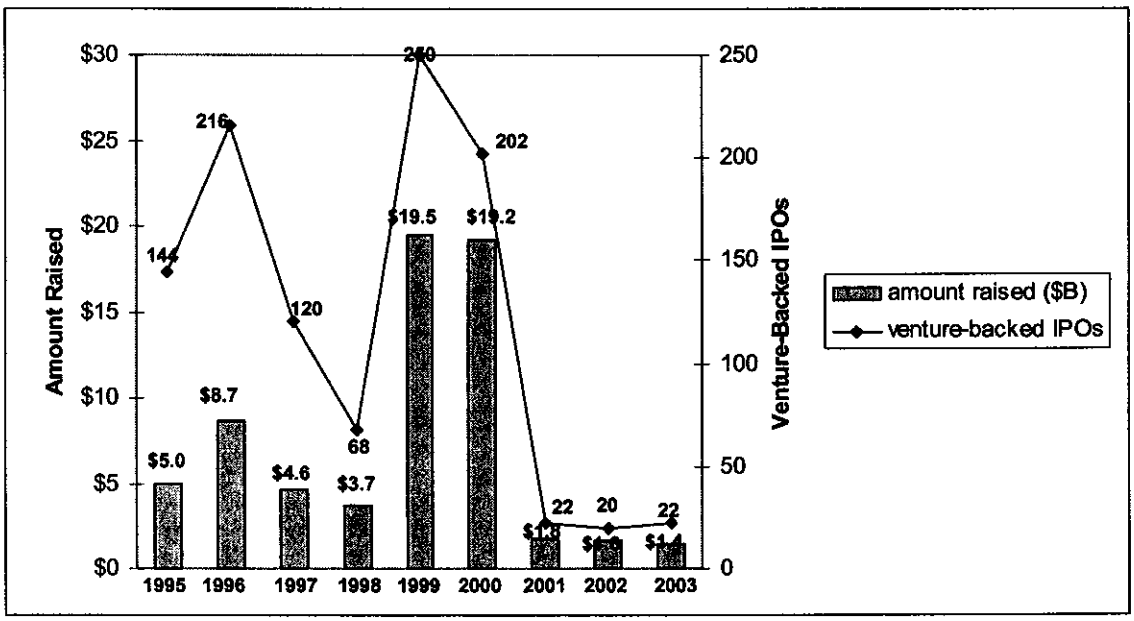
potential buyer could take several months. Would Wang and Chu have enough time before money ran out and their hand forced to close OuterLink? Could Wang and Chu optimize the needs of various stakeholders: Zero Stage Capital, other OuterLink's investors, the employees and the customers? "The time to decide on a course of action is right now", Wang said to Chu.

Exhibit 1A Money Raised in VC Funds



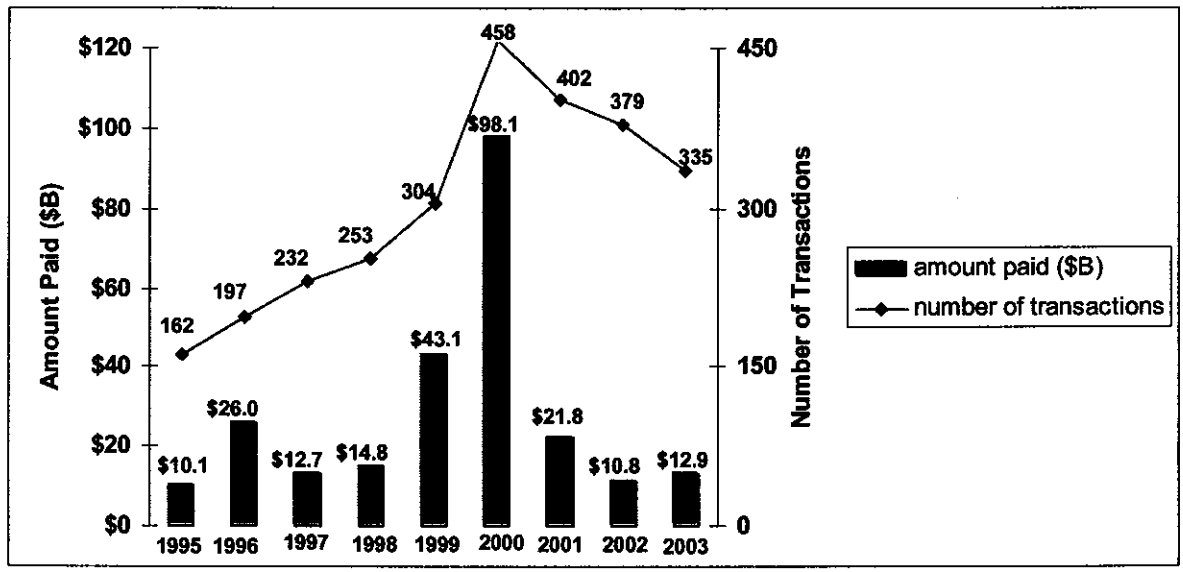
Source: Compiled from data published by Ernst & Young and VentureOne by the casewriters.

Exhibit 1B Number of Deals and Amount Raised Through IPOs



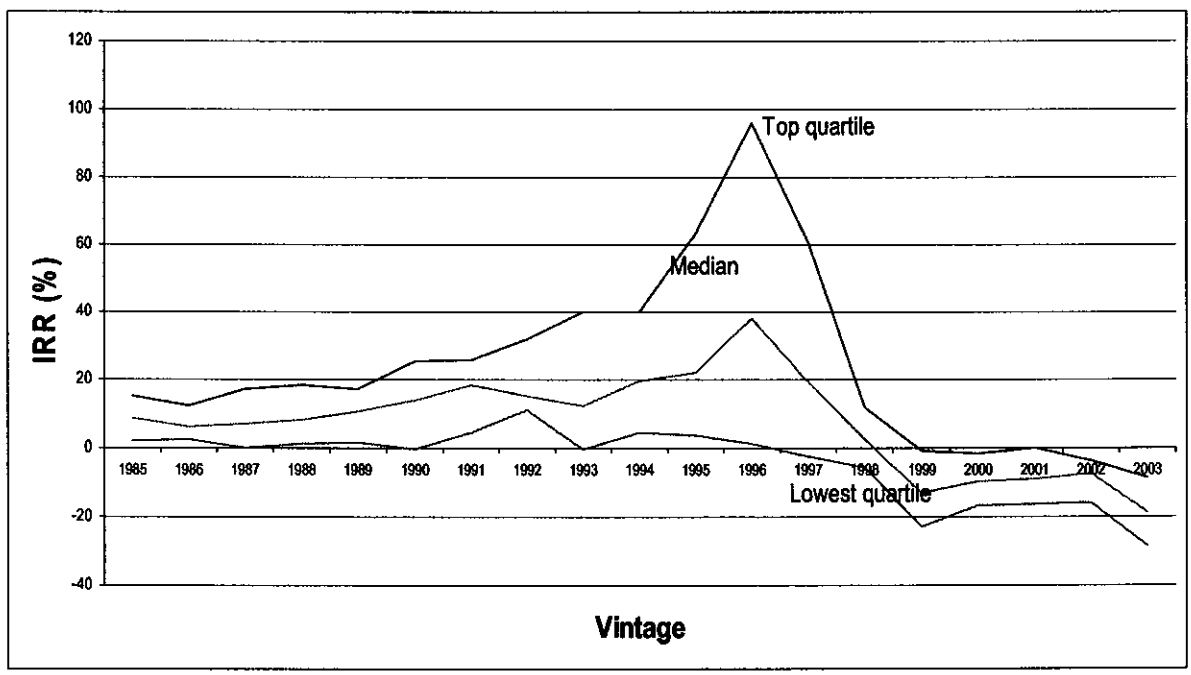
Source: Compiled from data published by Ernst & Young and VentureOne by the casewriters.

Exhibit 1C Number of Deals and Amount Raised Through M&A



Source: Compiled from data published by Ernst & Young and VentureOne by the casewriters.

Exhibit 1D VC Fund Performance by Vintage



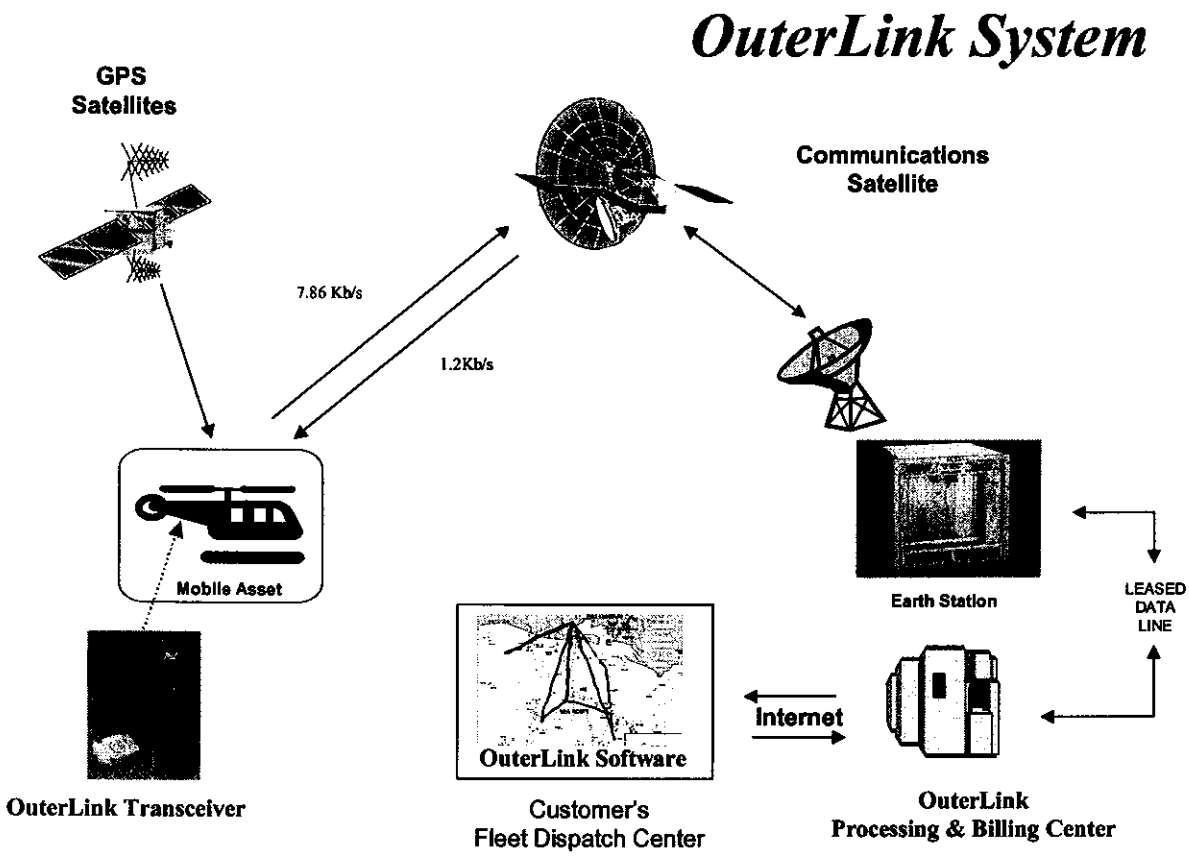
Source: Thomson Financial Venture Economics/NVCA.

Exhibit 2 Zero Stage Capital Fund Performance, December 31, 2002

Fund Vintage Year	1982	1986	1994	1999	2001
Investments made	3,894,463	16,963,977	57,380,103	155,205,352	102,397,696
Unrealized value			23,427,630	64,269,911	90,501,223
Realized Value	11,306,699	45,491,117	188,535,328	29,964,606	1,856,895
Total value	8,684,734	36,680,211	211,962,958	94,234,517	92,358,119
IRR	15%	21%	53%	-15.5%	-5.4%
Multiple	2.9	2.7	4.9	-0.4	0.9

Source: Zero Stage Capital.

Exhibit 3 Technology Schematic



For an asset—in this case a helicopter—to send a message to its company's dispatch center, it used the OuterLink antenna. The signal was picked up by a leased communications satellite and sent to the earth station in Reston, VA. The signal traveled to OuterLink for processing and billing, and then on to the customer's dispatch center. For messages going to the asset, the reverse path was taken. The location of the asset was determined within the OuterLink transceiver via a GPS satellite signal.

Source: OuterLink

Exhibit 4 Outerlink's Funding Schedule

	Series A Preferred	Series B Preferred	Series B1 Preferred	Series C Preferred
Year	1993	1999	2002	2002
Shares sold	211,688	9,553,769	6,268,541	3,341,187
Per share price ($)	3.75	1.44	0.90	0.90
Funding raised ($)	793,830.00	13,757,427	5,641,687	3,007,068
Price change from previous round		-62%	-38%	
Ownership (noncumulative)				
Zero Stage Capital		72%	41%	50%
ChevronTexaco		15%	27%	50%
Misc. Investors	54%	8%	5%	
Employees	6%			
CMS Companies			18%	
Wynnefield Capital			9%	
Integral	40%	2%		
Green Mountain Capital		1%		
MB Capital		2%		

Source: OuterLink.

Exhibit 5 Number of Terminals in Operation

Year	Maritime	Ground	Aviation
1994	10		10
1995	15		49
1996	12		60
1997	10		72
1998		10	40
1999		50	70
2000		300	100
2001		350	140
2002		40	180

Source: OuterLink.

Exhibit 6 OuterLink's Financial Statements (1997–2002)

	Year-End					
Income Statement	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
REVENUES	111,099	13,099	1,073,273	1,074,623	2,030,669	2,769,461
OPERATING COSTS AND EXPENSES						
Cost of goods sold	63,111	7,000	1,052,577	1,950,510	3,053,609	1,820,833
Satellite services—net	671,883	92,861	545,980	–	-	–
Warranty expense	–	–	100,000	–	-	–
Research and development	785,600	1,069,653	2,505,758	1,852,155	1,952,118	2,122,375
Sales and marketing	187,807	76,400	425,022	739,172	1,267,791	1,388,875
General and administrative	402,047	361,982	708,765	1,858,133	1,175,794	1,768,808
Total operating costs and expenses	2,110,448	1,607,896	5,338,102	6,399,970	7,449,312	7,100,891
OPERATING LOSS	1,999,349	1,594,797	4,264,829	5,325,347	5,418,643	4,331,430
Renegotiated MSV Adjustment	–	–	–	–	–	-1,495,033
OTHER EXPENSES						
Interest expense	305,373	377,367	479,845	113,171	518,588	115,438
Financing expenses	49,731	346,482	388,610	–	10,931	4,812
Interest and dividend income	–	–	-19,156	–	-11,732	-10,456
Depreciation	34,690	30,520	85,363	–	–	–
Compensation from stock options	582,300	284,700	4,400	–	–	–
Other expenses	-	-	273,536	–	–	–
Total other expenses (income)—Net	972,094	1,039,069	1,212,598	113,171	517,787	109,794
EXTRAORDINARY ITEM						
Debt extinguishment	180,179					
NET LOSS BEFORE TAX	3,151,622	2,633,866	5,477,427	5,438,518	5,936,430	2,946,191

Exhibit 6 (continued)

Balance Sheet	Year-End 1997	1998	1999	2000	2001	2002
ASSETS						
Current Assets						
Cash	164,334	225,976	2,974,023	710,562	173,911	408,380
Accounts receivable	35,181	25,104	763,114	91,635	672,764	380,806
Inventory	--	--	282,537	552,403	959,998	972,405
Deferred and prepaid expenses	8,351	31,940	138,644	684,504	839,566	190,791
Deferred product costs				1,150,264		640,570
Total current assets	207,866	283,020	4,158,318	3,189,368	2,646,239	2,592,952
Property and equipment—net	636,076	683,403	428,497	452,995	440,375	366,616
Deferred product costs—noncurrent				441,782	415,370	364,127
Deferred financing costs	14,321	88,000	4,400	--	100,198	88,066
Other long-term assets				74,104	73,474	84,353
TOTAL ASSETS	858,263	1,054,423	4,591,215	4,158,249	3,675,656	3,496,114
LIABILITIES, REDEEMABLE PREFERRED STOCK, AND CAPITAL DEFICIENCY						
Current Liabilities						
Accounts payable	339,105	603,047	707,325	1,068,465	953,595	825,586
Accrued expenses	97,164	91,024	511,350	1,658,416	1,881,841	460,189
Current portion of long-term debt	206,525	2,685,920	169,497	88,400		2,105,121
Deferred revenue				1,585,028	1,682,154	71,722
Convertible Note Payable				1,918,333	83,333	375,000
Accrued interest	4,554	476,064	--			
Customer and supplier deposits	223,229	378,796	333,968			
Warranty reserve	240,000	240,000	340,000			
Capital leases						29,349
Total current liabilities	1,110,577	4,474,851	2,062,140	6,318,642	4,600,923	3,866,967

Exhibit 6 (continued)

Balance Sheet (continued)	Year-End 1997	1998	1999	2000	2001	2002
Long-Term Liabilities						
Long-term debt	3,209,283	2,226,879	105,558	43,750	916,667	1,000,000
Accrued interest	326,271	151,916				
Deferred revenue				622,767	1,083,695	1,481,487
Capital leases						55,779
Total long-term liabilities	3,535,554	2,378,795	105,558	666,517	2,000,362	2,537,266
Redeemable Preferred Stock						
Series A—Authorized 300,000 shares issued 211,668	811,700	909,800	1,018,200	793,759	793,759	793,759
Series B—Authorized 14,700,000 shares issued 9,553,769	--	--	13,932,830	15,279,066	21,964,508	17,932,593
Series B1—Authorized 8,000,000 shares issued 6,268,541	--	--	--	--	--	5,641,685
Series C—Authorized 5,500,000 shares issued 3,341,187	--	--	--	--	--	2,962,021
Total redeemable preferred stock	811,700	909,800	14,951,030	16,072,825	22,758,267	27,330,058
Capital Deficiency						
Common stock	20,394	21,189	20,471	22,289	22,289	22,344
Additional paid-in capital	3,495,796	3,693,912	3,674,816	2,250,390	1,402,659	
Accumulated deficit	-7,624,604	-10,258,470	-486,903	-21,172,414	-27,108,844	-30,260,521
Accretion of preferred stock redemption price			-15,735,897			
Total capital deficiency	-4,599,568	-6,709,023	-12,527,513	-18,899,735	-25,683,896	-30,238,177
TOTAL LIABILITIES	858,263	1,054,423	4,591,215	4,158,249	3,675,656	3,496,114

Source: OuterLink.

Exhibit 7 OuterLinks Comprables' Financials

	1997	1998	1999	2000	2001	2002
Globalstar Telecommunications, Ltd.('000 except market cap)						
Market capitalization	1,505M	1,651M	3,617M	96M	18M	14M
Debt outstanding	1,099	1,316	1,799	NA	NA	NA
Net income	-24	-50	-32	-2,029	-142	-55
Revenues	0	0	0	3,657	6,400	NA
EBIT	0	0	0	0	0	NA
EBITDA	0	0	0	0	0	NA
Assets	612	580	1,034	0	0	NA
Book value of equity	309	580	672	-1,043	-1,149	-1,160
Beta	NA	NA	NA	2.69	2.23	1.63
Iridium LLC ('000)						
Market capitalization	NA	NA				
Debt outstanding	1,887	2,854				
Net income	-293	-1,252				
Revenues	0	186				
EBIT	-296	-987				
EBITDA	-177	-435				
Assets	3,645	3,738				
Book value of equity	1,594	431				
Qualcomm, Inc. ('000 except market cap.)						
Market capitalization	680M	750M	13,338M	32,379M	21,476M	14,991M
Debt outstanding	10,967	6,921	3,894	1,377	235	94,288
Net income	91,943	108,532	200,879	622,146	-578,078	359,677
Revenues	2,096,365	3,347,870	3,937,299	3,196,780	2,679,786	3,039,560
EBIT	97,422	242,665	405,140	722,638	38,687	486,856
EBITDA	191,380	384,557	563,569	868,281	38,942	741,856
Assets	2,274,680	2,566,713	4,534,950	6,014,917	5,669,733	6,509,521
Book value of equity	1,024,178	957,596	2,871,755	5,468,263	4,812,415	5,391,956

Source: S&P, Research Insight, Company 10k's.

Notes: Orbcomm is private; Iridium filed for Chapter 11 in 1999 and was not required to submit financial information to the SEC; Globalstar filed for Chapter 11 in February 2002 and was not required to submit financial information to the SEC.

Exhibit 8A Digital Angel's Comparables, December 2002

	@Road	Garmin	Trimble	Digital Angel
Stock price ($)	5.50	31.00	9.80	4.00
52 week high ($)	8.44	31.00	12.10	8.00
52 week low ($)	3.07	17.70	5.20	3.80
Shares outstanding (M)	48.10	108.00	29.40	27.50
Projected Revenue ($M)				
2002 Actual	48.50	488.10	489.90	33.00
2003 Estimate	63.10	538.20	510.00	36.00
2004 Estimate	86.10	612.20	544.00	46.00
EPS ($)				
2002A	-0.23	1.32	0.72	-3.76
2003E	-0.01	1.63	1.15	-0.14
2004E	0.24	1.83	1.38	0.04
P/E				
2002A	--	34.08	33.35	--
2003E	--	27.60	20.88	--
2004E	32.92	24.58	17.40	8.00

Source: Company 10Qs.

Exhibit 8B Outerlilnk's Forward Cashflow

	December 2003	December 2004	December 2005
Cash from Operations			
Net income after taxes	(2,497,956)	(984,822)	1,772,233
Depreciation & amortization	240,000	317,046	610,412
Change in accounts receivable	(1,436,836)	(1,354,795)	(2,439,594)
Change in inventory	685,600	(285,000)	(479,000)
Change in accounts payable	496,107	359,110	3,812,936
Change in other assets		(49,629)	(100,000)
Change in accrued expenses		836,842	542,592
Change in deferred taxes			1,500,000
Net cash from operations	(2,513,085)	(1,161,248)	5,219,579
Cash from Investing Activities			
Fixed asset purchases	(405,800)	(818,900)	(1,086,300)
Cash from Financing Activities			
MBDC loan	(375,000)	(375,000)	(375,000)
Series D preferred stock	4,000,000		
Total Cash from Financing	3,625,000	(375,000)	(375,000)
Net Cash Flow	706,115	(2,355,148)	3,758,279
Beginning Cash	407,400	1,113,515	(1,241,633)
Ending Cash	1,113,515	(1,241,633)	2,516,646

Source: OuterLink.

Exhibit 9A Financial Statements for Digital Angel

Balance Sheet ('000)	2001	2002
ASSETS		
Current Assets		
Cash and cash equivalents	596	214
Accounts receivable and unbilled receivables	5,402	4,126
Inventories	5,819	4,945
Other current assets	1,168	1,478
Total Current Assets	**12,985**	**10,763**
Property And Equipment, net	14,476	7,769
Goodwill, net	73,168	48,893
Investment in Affiliates	6,779	
Other Assets, net	263	373
TOTAL ASSETS	**107,671**	**67,798**
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities		
Notes payable and current maturities of long-term debt	82,643	816
Accounts payable	3,757	4,142
Accrued expenses	2,044	3,704
Due to Applied Digital Solutions, Inc.		462
Total Current Liabilities	**88,444**	**9,124**
Long-Term Debt And Notes Payable	2,425	3,314
Deferred Revenue		50
Total Liabilities	179,313	12,488
Minority Interest	392	298
Stockholders' Equity		
Common shares: Authorized 95,000 shares in 2002 and 10,000 in 2001, of $.005 par value; 25,405 shares issued and 25,355 shares outstanding in 2002 and 20,187 shares issued and outstanding in 2001	101	133
Additional paid-in capital	38,213	167,365
Accumulated deficit	(21,697)	(114,059)
Common stock warrants	300	1,801
Treasury stock (carried at cost, 50 shares in 2002)		(43)
Accumulated other comprehensive income (loss)	(507)	(185)
Total Stockholders' Equity	**16,802**	**55,012**
TOTAL LIABILITIES AND EQUITY	**196,115**	**67,798**

Exhibit 9A (continued)

Income Statement ($000 except for per share value)	2001	2002
Product revenue	**30,946**	33,220
Service revenue	**2,685**	2,518
Total net revenue	**33,631**	35,738
Cost of products sold	**18,293**	20,252
Cost of services sold	**2,216**	2,047
Gross profit	**13,122**	13,439
Selling, general and administrative expense	**37,538**	22,798
Research and development expense	**2,422**	5,071
Asset impairment charge	**63,818**	726
Interest income	**(2)**	(17)
Interest expense	**2,109**	2,119
Other income	**-599**	--
Income (loss) before minority interest and equity in net loss of affiliate	**(92,164)**	(17,258)
Provision for income taxes	**--**	41
Income (loss) before minority interest and equity in net loss of affiliate	**(92,164)**	(17,299)
Minority interest share of losses	**96**	217
Equity in net loss (income) of affiliate	**(291)**	(327)
Net (loss) income	**(92,359)**	(17,409)
Net (loss) income per common share-basic and diluted	**(3.76)**	(0.93)

Source: Company 10Qs.

Exhibit 9B Financial Statements for Raytheon

Balance Sheet ($ million)	2001	2002
ASSETS		
Current assets		
Cash and cash equivalents	1,214	544
Accounts receivable, less allowance for doubtful accounts	480	675
Contracts in process	3,204	3,016
Inventories	2,030	2,032
Deferred federal and foreign income taxes	669	601
Prepaid expenses and other current assets	309	247
Assets from discontinued operations	1,631	75
Total Current Assets	9,537	7,190
Property, plant, and equipment, net	2,196	2,396
Deferred federal and foreign income taxes	11,370	281
Goodwill, net	3,572	11,170
Other assets, net		2,909
Total Assets	26,675	23,946
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Notes payable and current portion of long-term debt	1,363	1,153
Advance payments, less contracts in process	883	819
Accounts payable	910	776
Accrued salaries and wages	573	710
Other accrued expenses	1,529	1,316
Liabilities from discontinued operations	550	333
Total Current Liabilities	5,808	5,107
Accrued retiree benefits and other long-term liabilities	1,283	2,831
Deferred federal and foreign income taxes	563	6,280
Long-term debt	6,874	858
Mandatory redeemable equity securities	857	8,870
Stockholders' equity	11,290	
Total Liabilities and Stockholders' Equity	26,675	23,946

Exhibit 9B (continued)

Income Statement ($ million except for per share value)	2001	2002
Net sales	16,760	16,017
Cost of sales	13,358	13,664
Administrative and selling expenses	1,199	1,131
Research and development expenses	449	456
Total operating expenses	15,006	15,251
Operating income	1754	766
Interest expense	497	696
Interest income	(27)	(36)
Other expense (income), net	210	(18)
Nonoperating expense, net	680	642
Income from continuing operations before taxes	1,074	124
Federal and foreign income taxes	319	106
Income from continuing operations	755	18
Loss from discontinued operations, net of tax	(887)	(757)
Income (loss) before extraordinary items and accounting change	(132)	(739)
Extraordinary gain (loss) from debt repurchases, net of tax	1	(16)
Cumulative effect of change in accounting principle, net of tax	(509)	–
Net income (loss)	(640)	(755)
Earnings per share from continuing operations		
Basic	1.88	0.05
Diluted	1.85	0.05
Earnings (loss) per share		
Basic	-1.59	-2.12
Diluted	-1.57	-2.09

Source: Company 10Qs.

Exhibit 10 Biographies

Paul Kelley, Chairman, Zero Stage Capital

- Co-founded Zero Stage Capital in 1981
- Investment focus: medical/biotechnology
- Expert on venture capital formation
- Operational experience with Ciba-Geigy Corporation, The Gillette Company
- BA from Harvard College, MBA from Northeastern University

Paul founded Zero Stage Capital in 1981. He has invested in, been a director of, or advised more than 80 early-stage venture companies over the past 25 years.

At Zero Stage Capital, Paul leads investments primarily in the life sciences. Companies that Paul has helped develop include Lexidata, Inc., Spire Corporation, Xylogics Limited, Pacer Systems, Inc., Collaborative Research Corporation, SystemSoft Corporation, Aseco Corporation, PerSeptive BioSystems, Inc., Matritech, Inc., AD Tech, Inc., Discom, Inc., and Telebit Corporation, all of which have had initial public offerings. He was also involved with Kurzweil Computer Technologies, Inc., which was acquired by Xerox Corporation, SmartFoods, Inc., which was acquired by Frito-Lay, Inc., and Peptimmune, Inc., which was acquired by Genzyme Corporation.

Paul was a delegate to the White House Conference on Small Business, served on the SBA Task Force on Small Business and Innovation, which was instrumental in the legislative proposals to create both the Patent Law Reform Act and the Small Business Innovation Research Act. He also served on the SBA Task Force that developed the guidelines for the revised SBIC program, was elected to the Board of Governors of the National Association of Small Business Investment Companies and was a founder and Executive Committee member of the MIT Enterprise Forum.

Prior to starting Zero Stage Capital, he had a major role in organizing and capitalizing the Massachusetts Technology Development Corporation, a quasi-public enterprise, which for the past 25 years has invested in new high-technology ventures in Massachusetts. Earlier in his career, he held various operating positions in Ciba-Geigy Corporation, The Gillette Company and Standby Systems, Inc.

Edwin Wang, Managing General Partner, Zero Stage Capital

- 20 years investing experience
- Managing Director, Cross Pacific Technology Partners, LLC
- Developed first institutional greater China cross-border private equity direct investment fund
- BA from Columbia University; visiting fellow, MIT Sloan School of Management

Ed Wang is an investment professional with 20 years of experience in private equity, technology principal investing, and cross border investment banking.

At Cross Pacific Technology Partners, he led successful late-stage private equity technology investment financings in Convergent Networks, Inc.; Multiplex, Inc.; UTStarcom, Inc. (UTSI:NASDAQ); and Zhone Technologies, Inc. (ZHNE:NASDAQ).

Ed was president & CEO at SCM Investment Management Corporation and its predecessors ("SCM"), an investment manager and advisor to U.S. and Asian institutions. SCM, which manages public equity technology investments with its affiliates, was investment manager for a Tier 1 Japanese property/casualty insurer.

Ed has been a director and manager for non-Japanese Asia cross-border and private equity investments at Credit Suisse First Boston. While there, he originated, structured, arranged, and placed the first institutional greater China cross-border private equity direct investment fund, the $150 million Asia Corporate Partners Fund, on behalf of China Development Corporation, one of the leading indigenous private equity investment firms in Asia.

He was also vice president for private placements at Drexel Burnham Lambert and an associate in the Capital Markets Group at Lehman Brothers. He began his career in the investment business at Fidelity Management & Research Company and subsequently managed municipal bond funds for the Bank of New England Asset Management Division where he delivered top decile performance.

Van Chu, Venture Partner, Zero Stage Capital

- More than 25 years of IT industry experience
- Former chairman & CEO of Octocom and Leap Technology, Inc.
- Broad international business development experience
- B.S., University of Melbourne: M.Eng., MBA, Boston University

Van Chu, who has more than 25 years of IT industry experience, has been a venture advisor and/or CEO of Zero Stage Capital portfolio companies for two decades.

Van co-founded and headed Octocom Systems, Inc., a former Zero Stage Capital portfolio company. Van was chairman and CEO of Octocom from its founding in 1984 through 1989. The company is a manufacturer of data communications equipment sold in 160 countries and used by major service providers such as Swedish PTT, Italian PTT and Nippon Telecom (Japan). Under Van's leadership, the company grew to over $40 million in annual sales. The company also compiled an enviable record of 27 consecutive profitable quarters, and was named "Small Business of the Year" in 1989 by the Greater Boston Chamber of Commerce.

Prior to his involvement with Octocom, Van held senior product management and business unit management positions at Digital Equipment Corporation, Motorola-Codex and Infinet, Inc. At Infinet, a manufacturer of wide area network control and management products, he was director of international business. He implemented sales and marketing programs that increased international revenues by $10 million in less than two years.

Matt Kelley, Managing General Partner, Zero Stage Capital

- More than 14 years experience as a venture capitalist and private equity investor
- Extensive fund organization, portfolio and firm management experience
- Experience in venture capital information technology and life sciences investments and generalist experience in private equity investments
- AB from Dartmouth College, MS and MBA from Northeastern University

Matt rejoined Zero Stage Capital as General Partner in 2002, having previously spent two years as an analyst and three years as an associate with the firm starting in 1991. He invests across technology sectors and growth stages.

Prior to joining Zero Stage Capital, he was involved in the initial planning and development of NTV, a government sponsored research lab seed fund. Previously, he was the founding partner and managing director of MB Capital, a private equity firm with funds raised from regional banks including Bank of America, BankBoston, Citizens, Eastern Bank, Fleet, State Street Corporation, and U.S. Trust in 1997. While at MB Capital he invested in 14 companies that spanned a wide range of stages and industry sectors. His investments at MB Capital have generated a 21% net IRR. Matt has extensive venture capital and private equity fund organization experience and was involved in the formation and fund raising of MB Capital I & II, Penn Venture Partners I and Zero Stage Capital V. As an associate at Zero Stage Capital he focused on life science and IT/communication investments.

Earlier in his career, Matt was a member of the Emerging Business Group Practice at Coopers & Lybrand (now PricewaterhouseCoopers), where he assisted in the growth of venture capital backed technology companies by providing management consulting, assurance and strategic planning.

Theodore Tedeschi, Special Counsel, Zero Stage Capital

- Responsible for the legal affairs of Zero Stage Capital
- Expert in business law and mergers and acquisitions
- Admitted to practice in Massachusetts and U.S. Federal Courts
- Graduate of Princeton University; JD, Columbia Law School

Ted Tedeschi, who has had a relationship with Zero Stage Capital for approximately 20 years, has overall responsibility for the legal affairs of the firm, its relationships with its investors and portfolio companies, and corporate governance.

He works closely with the firm's investment professionals and partners. His work with portfolio companies includes evaluating the legal affairs of potential investments, and post-investment monitoring, as well as all aspects of harvesting investment value, mergers and acquisitions, and implementing the firm's exit strategies. He also facilitates the maximization of value in unsuccessful portfolio companies, by workout or disposition.

In private practice Ted represented numerous diverse public and private companies, financial institutions, and governmental and quasi-governmental authorities such as the United States Pension Benefit Guaranty Corporation, the United States Federal Deposit Insurance Corporation, Resolution Trust Company, and the Massachusetts Bay Transit Authority.

Ted has been a practicing attorney for more than 30 years. An expert in complex business litigation strategy and settlement, he is admitted to practice in Massachusetts, and relevant United States Federal Courts including the United States Supreme Court.

Source: Zero Stage Capital.