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Adams Capital Management: March 2002

One morning in March 2002, the five general partners of Adams Capital Management, Inc. (ACM), a $700 million early-stage venture capital firm, argued amiably over the last jelly doughnut (see **Exhibit 1** for bios) before the start of their meeting. They had convened in ACM's Pittsburgh office, as they did every six weeks, for an intensive two-day meeting to review their existing 27 portfolio companies and to evaluate new investment opportunities in their target industries—information technology (IT) and telecommunications/semiconductors. This meeting, though, had an unusual agenda item: "ACM's *'markets first'* strategy—is it still appropriate for today's investment environment?"

ACM's investment strategy, in which the partners focused on particular markets to identify attractive opportunities and then managed the resulting portfolio companies in a defined and structured way, had served the firm well through the good times, with performances in or close to the top quartile for its first and second funds (see **Exhibit 2** for performance data). Much had changed, however, in the five years since ACM's first fund had closed. The investment environment had gone from robust to hysterical to what now appeared to be a full-fledged collapse in 2001, extending into 2002. By early 2002, the market collapse had been exacerbated by a general sense of economic uncertainty, fueled by threats of war, accounting improprieties, the Wall Street analyst scandal, and declining private equity prices.

ACM had adopted its strategy in part to differentiate itself for potential limited partners. But the partners also believed that the loose structure of most venture firms—where each investor was often given wide leeway in determining which, and how many, markets and business models to invest in—could cause a firm to lose sight of the portfolio as a whole. Without a "markets first" strategy, through which the entire firm agreed upon the markets of interest *before* considering individual companies, the partners felt that firms would invest more on the basis of the fashion of the moment than on business fundamentals or market analysis.

But the past 18 months had turned recent experience on its head. The partners wondered whether now was the time to change their strategy significantly, and if so, in what way.

Professors Felda Hardymon and Josh Lerner and Senior Research Associate Ann Leamon prepared this case. This is a rewritten version of "Adams Capital Management," by Felda Hardymon and Bill Wasik, HBS No. 899-256 (Boston: Harvard Business School Publishing, 1999). 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.

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Venture Investing in 2002

The final years of the 1990s had seen an unprecedented run-up in venture activity. Everything had increased—the amounts of capital raised, the management fees paid, the amounts invested, the prices that companies could command, the exit valuations received, and the speed with which investments became liquid (see **Exhibit 3**).

In 2001, the party had come to a grinding halt. After a decade marked by continuously rising amounts of capital flowing into venture funds, the first half of 2001 had seen roughly the same amount raised as the first *quarter* of 2000. Nor had this trend reversed in the latter half of the year; fund-raising for the entire year had trailed 2000 by half. Moreover, the run-up of the preceding years had generated a significant overhang of funds raised but not yet disbursed. This was reflected in the growth of the median fund size, which had risen from $250 million in 1990 to well over $500 million a decade later.[1]

The numbers of deals, their price levels, and the size of the rounds in 2001 had all fallen considerably from the levels of the previous year (see **Exhibit 4**). This reflected the fact that almost three years of record-breaking venture activity had funded too many companies chasing too few customers in almost all technology sectors. In addition, the larger companies that portfolio firms targeted as customers had cut their capital expense budgets and were suffering from the backlog of earlier technology investments that had not yet been fully implemented. Spending on technology fell off sharply. As a result, portfolio companies significantly performed below expectations, often forcing their investors to resort to inside rounds for continued financing. The number of inside rounds for 2001 had doubled compared with that of the year before.[2]

A further complication for the venture capital (VC) industry was the longer path to liquidity. The initial public offering (IPO) market had dried up—the first half of 2001 had seen nine venture-backed IPOs, compared with 111 in the same period in 2000. Mergers and acquisitions had become the primary path to liquidity, although 2001 saw far fewer of these transactions as well, and at far lower prices.[3]

Adams Capital Management

Joel Adams, founder of ACM, grew up in Phelps, New York, a small town between Rochester and Syracuse. "My dad owned a dairy farm," he recalled, "and on his program, as soon as you turned six, you started getting up at 4:45 in the morning and doing chores." Adams was 15 when his mother passed away, leaving his father with no choice but to delegate most of his wife's responsibilities to the three kids. Looking back on those days, Adams said, "At the time the confluence of events was a hell of a wake-up call for a teenager, but I learned invaluable lessons about money and time management."

After graduating from the University of Buffalo in 1979, Adams joined nuclear submarine manufacturer General Dynamics, where he became a test engineer, the lead engineer responsible for starting and testing a sub's nuclear reactor and representing General Dynamics during the Navy's sea

[1] Unpublished study by VentureOne presented to Silicon Valley Bank, March 30, 2002.

[2] *Ibid.*

[3] *Ibid.*

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trials of the new boats. In 1984 he moved to Pittsburgh to attend the business school at Carnegie Mellon University (CMU), lured by its strong program in entrepreneurship.

During Adams's second year at CMU, he worked part-time for Fostin Capital, a small VC firm that invested on behalf of the Fosters, a wealthy Pittsburgh family. Adams joined Fostin after graduation as a junior partner, just as the firm closed a new $14 million fund. Shortly thereafter, the firm and Adams became involved with APA/Fostin I, a joint venture formed with Patricof & Co. to manage the $40 million fund that the state of Pennsylvania wanted to invest in VC.

In 1992, APA/Fostin II closed at $60 million. The following year, after seven years with the firm, Adams, CFO Andrea Joseph, longtime secretary Lynn Patterson, and former partner Bill Hulley formed Adams Capital Management, Inc., to handle the Fostin portion of the new fund. ACM raised its first fund, the $55 million ACM I, in 1996, and it had a strategy.

Discontinuity-based Investing

Ever since he had joined Fostin, Adams had been dissatisfied with what he considered a lack of focus and discipline in the firm's investing style. "Here's a nuclear engineer, walking into this industry, with a very small fund in Pittsburgh whose strategy was to be diversified by stage, by industry, *and* by geography," Adams recalled. "After about a year, I said, 'This isn't a strategy at all.' You could do anything." He was especially nonplussed by the method of developing deal flow. Rather than learning about markets and then targeting specific deals within them, he said, "The approach at Fostin was to open the mail in the morning" to see what business plans had arrived.

Two of Adams's experiences at Fostin acquainted him with the power of targeted investing. The first was his involvement with Sherpa Corporation, a developer of software applications for engineering product data management. "I understood the issues of engineering data management from my days at General Dynamics," Adams said. "I was a much smarter investor looking at an industry that I knew." Not only was he a better investment manager and board member, he realized, but he was also a better negotiator. "Entrepreneurs are passionate and biased about their businesses," he said. "If the first time I hear about a market is from the entrepreneur, I'm at a big disadvantage."

His second revelation was even more powerful. Seeking a computer in 1987, Adams happened to learn about a mail-order operation in Texas called PCs Limited that custom-built personal computers and undercut retail prices. After speaking with the company's CEO, Adams invested $750,000 in the future Dell Computer's first outside venture round. At the end of 2000, this holding was worth $470 million.

Adams realized that Dell had created such an explosion of value by exploiting a *discontinuity* — a dramatic and sudden change in a large and established market. In this instance, the discontinuity involved distribution. The rise of direct distribution snuck up on the large personal computer manufacturers, which had highly entrenched networks of retail dealers. These networks, Adams noted, "couldn't be unwound overnight." Dell could build a multi-billion dollar business from scratch because his large and sleepy competitors could not respond to this distribution discontinuity in time.

As ACM expanded, Adams resolved that any new partners would be engineers and bring their technical training to bear in thorough examinations of a few promising markets. By 2002, ACM's strategy had evolved to focus on investments in markets that the partners already knew well and had already identified as attractive.

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A few initial prerequisites had developed over time. The first was that the companies in which ACM invested would sell to businesses, not consumers, and their value propositions would be driven by return on investment (ROI). "That's ROI for the customers, not us," said Adams. "Our first question is, 'If somebody is going to buy this company's product, what does the CFO recommendation look like?'" The second criterion was that the business was "first-generation applied technology," or one of the first companies to use a given technology for a specific application.

In keeping with the partners' engineering backgrounds, the firm focused on the IT and telecommunications/semiconductor industries, areas that were, in their view, experiencing significant discontinuities, shifts in existing markets that would create opportunities for start-up companies to become leaders. Within these industries, ACM's partners focused on identifying four primary causes of discontinuities (see **Exhibit 5**):

1. *Standards.* Despite the emergence of a technology standard in some fields, existing manufacturers would often cling to their proprietary technologies in an attempt to preserve their captive customer base. Even as customers demanded the standard, the existing manufacturers perceived it as a threat to their oligopolistic market positions, and were reluctant to adopt it.

One such example was FORE Systems, which built communications devices that conformed to the asynchronous transfer mode (ATM) standard for communications in wide-area networks. The big players at the time, AT&T/Lucent and Northern Telecom, each had proprietary protocols for those communications. These manufacturers clearly had the technical prowess and market muscle to exploit ATM as well, but they were slow to do so for fear of cannibalizing their own market shares. In April 1999, FORE was acquired by GEC plc for $4.5 billion.

2. *Regulation.* Unexpected regulatory changes could force market players to adapt quickly to a new market reality. An example of such a dislocation had occurred in the U.S. cellular market where a host of new opportunities and networks had emerged after the government's creation of the PCS spectrum. From a technology point of view, the new spectrum provided a chance for GSM, the cheaper and more easily deployed base station technology popular in the rest of the world, to gain ground on the unwieldy proprietary technology dominant in the United States. GSM equipment manufacturers and the upstart carriers that provided the service used their agility in the new regulatory environment to challenge the giants.

3. *Technology.* A technology-based discontinuity could take two forms. In one, it could appear as a whiz-bang package that took big competitors months or years to duplicate, such as Apple's Macintosh operating system. Alternatively, it could involve the convergence of technologies that had hitherto been separate, requiring innovation to allow these once-disparate systems to interact. An example here was the rise of corporate remote access, which forced companies to buy technology that would connect the public carrier telephone networks to the corporations' internal local area networks.

4. *Distribution.* Dell Computer provided the ultimate example of a distribution-based discontinuity—the rise of mail-order completely surprised existing personal computer manufacturers, to the great enrichment of Dell and its shareholders. ACM watched for other such disruptions in established distribution channels.

This top-down approach to identifying markets was crucial in helping ACM achieve consensus about and control over where its partners would invest. Adams firmly believed that "Market due diligence is the only due diligence you can do independent of a transaction. If you present the partners with the industry and market dynamics ahead of time, then we can all talk about each

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other's prospective deals and leverage each other's knowledge base and contacts before we make an investment."

ACM's approach to identifying discontinuities included its Discontinuities Roundtable, a group of advisors who met periodically with the ACM partners to identify and discuss market discontinuities that could lead to fruitful investment theses. The 20-person roundtable comprised industry experts and observers who attended meetings depending on the topic at hand. Among their number had been Clayton Christensen of the Harvard Business School, known for his research on how innovation affected markets; George Kozmetsky, founder and backer of over 200 companies; Atiq Raza, former CEO of AMD, the chip maker that competed against Intel; and Mike Maples, former chief technology officer of Microsoft. The process required partners to write discontinuity white papers that advanced the investment thesis and to present them to a roundtable of appropriate experts drawn from the pool. The group would discuss the merits of the thesis under consideration, usually agreeing to pursue two or three of the eight to ten papers presented in a meeting. The meetings would also identify other avenues for future exploration.

Once an investment thesis was thoroughly vetted by the Discontinuities Roundtable, the ACM partners would systematically search for deals in that domain. Sometimes this meant identifying pockets of excellence in the appropriate technology and supporting entrepreneurs as they formed a company. In other cases, partners would find an opportunity by sorting through several existing potential investments. This intensive process gave the partners deep knowledge of the companies' opportunities and therefore made ACM more attractive as an investment partner.

Structured Navigation

Along with a systematic approach to identifying markets, ACM also developed a system for managing its investments, called "structured navigation." The system was born out of the observation that early-stage technology companies shared many of the same benchmarks and needed many of the same elements to succeed. Jerry Sullivan, a general partner who had joined the firm from MCC, Tektronix, and Phillips, explained: "Our investments typically have high development costs coupled with the direct sales force characteristic of early-stage companies. The majority of our investments—90%—are software-based, so resource planning and allocations are well understood by all of our general partners. We feel that our structured navigation strategy applies to all companies within the model."

Aspects of the structured navigation included:

1. *Round out the management team.* Like most other VC firms, ACM was deeply involved in helping its entrepreneurs complete their management teams. "Almost 80% of the time, we're the first money in, so the entrepreneur has been trying to build a management team without capital," said Martin Neath, a former vice president with IBM and now an ACM general partner. "People are going to join a company that has some capital behind it, so we fundamentally believe that if you've got a great opportunity that's well funded, you're going to attract a lot of talent." ACM had devoted significant resources to the creation of its Services Group to help its portfolio companies in this area.

2. *Obtain a corporate partner or endorsement.* The notion that an early-stage company, hoping to exploit a sea change in a large existing market, could forge a partnership (an endorsement, a distribution deal, or an equity investment) with one of the very players from which it hoped to steal market share seemed entirely contradictory. But the ACM partners believed that this should almost always be possible. From ACM's perspective, forging these relationships early would often create other exit opportunities while on a path to a public offering.

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3. *Gain early exposure to industry and investment banking analysts.* Industry analysts such as Gartner, Giga, and Forrester often created the first wave of market interest in a new technology. This group's validation could speed the acceptance or application of a new technology. While industry analysts could help create a market for the technology, analysts at investment banking firms could create an exit for the company, and ACM tried to make sure they met the portfolio companies early. "First of all, the good analysts really do understand the businesses of these little companies," explained George Ugras, a general partner in ACM's Silicon Valley office. "But the second thing is, [bankers are] in the fee business, and they need to put marriages together. [Introducing the two parties early] is a tactic that will set you up for deals later on."

4. *Expand the product line.* A first-generation applied technology company would be confronted by high initial costs of development and sales. Bill Frezza, the general partner in ACM's Boston office, observed, "The marginal cost of the development for subsequent products or the next sale is much lower." Once the first product using the new technology had been developed and a base of customers secured, the costs of leveraging that technology into another, similar product and selling it into a base of existing accounts was comparatively small. But "sometimes the entrepreneur hasn't thought that out yet," he noted. "Our approach ensures that the companies are adequately focused on this value creation opportunity."

5. *Implement best practices.* ACM's partners felt that their entrepreneurs should focus on developing products and selling them to customers, not on structuring stock option packages or compensation plans. After working with dozens of companies with similar structures, the partners felt that they could provide boilerplate versions of effective plans.

ACM used these five "steps" (in no particular order) to manage its investments, keeping track of which steps each company had "finished" and which it still needed to complete. The process, the partners felt, not only made their investments more successful but also provided the partners in four offices across the United States with a commonly understood internal barometer of a company's progress (see **Exhibit 6** for offices). "If 10 months into a deal you can't attract talented people, corporations don't care, and you can't get the bankers interested—you're learning something," Sullivan said. "And maybe you ought to get out."

Defending the Strategy

Was it really necessary to formulate such a rigorous strategy for investing in early-stage businesses? Adams admitted that, to a certain extent, the strategy was motivated by the practical necessities faced by a small firm based in Pittsburgh raising a $55 million fund in 1996. "We had to get ourselves above the muck, and the way you do that is with a well-defined, market-centric strategy that you execute in a disciplined manner," he said.

But Adams also balked at the conventional wisdom about VC and venture capitalists—namely, that VC was a personality-driven business and that successful venture capitalists were all genius deal makers whose vision turned everything they touched into gold. "I just don't buy the 'rock star' model that many venture firms promote," Adams said.

Instead, he wanted to build a venture firm in the same way that most businesses were built—with a structure in which any of its employees were, in principle, replaceable. "We wanted to develop a system where you could throw anybody out of here and the thing will still cook along," he said. "We wanted to build a system for executing this business. All of us are engineers, we think that way.

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We're not rock stars. We have a system for finding areas that are of interest, getting deals, and making them valuable. That's what we do."

Over the last five years, the partners felt that the strict adherence to strategy, combined with the systematic portfolio management that navigation provided, had served the firm well. During that period, ACM I had invested in 15 companies for a total cost basis of $53 million. That fund, primarily invested by four partners operating out of offices in Pittsburgh, Philadelphia (later Boston), and Austin, Texas, had distributed stock valued at $122.7 million. Based on the early success of that fund, ACM had raised the $150 million ACM II in 1999, followed quickly by the $420 million ACM III in 2000 (see **Exhibit 7** for fund statistics).

ACM in 2002

The discussions at the March general partner meeting centered on the investment pace of ACM III, the new $420 million fund. Since closing in November 2000, the partners had made 10 investments (see **Exhibit 8** for companies). In the fund's prospectus, ACM had committed to its limited partners that it would make 20 to 25 investments in the IT and telecommunications/semiconductor industries, with no more than 10% of the fund's total value in any one company. Each company had conformed to ACM's strategy, despite the market decline. Frezza explained:

> We're on target with investing Fund III, and we've been able to find compelling opportunities with extremely low—and therefore attractive—valuations. These will enable us to generate returns in any market conditions. When valuations are unrealistic in the investment phase, only unrealistic valuations in the exit phase will give you the returns you need. It's true that the industry, at times, appears to be caught in an investment decision "paralysis" with this $100 billion of uninvested cash that you hear about, but we continue to execute our strategy diligently, and we have found some extremely attractive deals in our domains.

Sullivan pointed to recent data on capital spending by the *Fortune* 1,000, an important source of partners, customers, and acquirers for many of ACM's portfolio companies:

> Software spending was flat to down in 2001 and expected to be the same for 2002. Telecom equipment spending was down approximately 30% in 2001 and is expected to be lower in 2002. Overall, the economy appears to be in a macro-recession, and the telecom equipment industry is in a depression. We still expect some consolidation among the biggest players in telecom. It will be a slow and painful process that could last well beyond 2002, but the data are not showing a permanent shift away from technology investments. Technology investments that create efficiencies, generate cost savings, and improve performance or productivity are the main catalysts driving economic growth. Every one of our portfolio companies provides real solutions that create these improvements—otherwise, we wouldn't have invested.

Although a protracted downturn could prove troublesome, Neath felt that venture-backed companies would still have a place in any eventual recovery:

> The *Fortune* 500 will use venture-backed firms to stay viable in the global economy. Start-up companies—and most of them will be venture-backed—take the risk out of new technologies. When the checkbooks reopen, the pent-up demand should bode well for our portfolio companies. Whether they'll be successful depends on how well we know our markets and how well we navigate them.

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Adams agreed. "I still think that this is an excellent time to be investing in early-stage applied technology companies. We're going to look back in a few years and say that some of the best VC-backed technology investments of this decade were made in the 2001–2002 time frame."

At the same time, though, the near-term outlook was uncertain. "You have to admit that the discontinuity well has gone pretty dry in telecom and IT," Ugras said.

The partners determined they had three options if they wanted to revise the firm's strategy. They could go deep, they could go broad, or they could, as they put it, "go all out."

Going Deep

The partners had watched the trends in engineering with interest. Increasingly, design work was done in the United States, and, once the product was standardized, the routine engineering work was outsourced to India, where talented engineers were available for far less than their U.S. counterparts. "Now," Adams observed, "Chinese universities are graduating 125,000 engineers a year. Engineering is being commoditized."

As a result, one option for ACM was to focus on the more fundamental building blocks of technology within its current targeted industries—areas such as components, advanced and specialty materials, and special techniques for production processes, which were less likely to be commoditized. Investing in applied materials was, however, a difficult field. The major players in materials and basic components, New Enterprise Associates' CMEA (Chemical and Materials Enterprise Associates) fund and Ampersand Ventures, had tried this strategy, only to expand their focus in the past five years to include IT, life sciences, and software investments.[4] In fact, Ampersand's Specialty Materials and Chemicals II fund, established in 1992, had invested 40% of its $40 million in biotechnology companies. By 2001, only eight firms, or 13% of Ampersand's 64-company portfolio, were classified as advanced specialty materials. For CMEA, the proportion was even lower, at 6%, or five firms.[5] Rather than focusing on advanced specialty materials, the firms were using their knowledge of the field to identify promising technologies in other sectors.[6] Ampersand, for instance, had shifted from advanced materials to specialty materials, moving toward products that were closer to the consumer—vinyl fencing, composites for medical products, and germicidal soaps.

The shift in emphasis had several drivers. The advanced materials sector was characterized by long lead times and high capital intensity. 3M and DuPont, which had the patience and the strategic interest to back extensive efforts as a type of outsourced research and development, provided fierce competition to traditional VC firms. Said Charlie Yie, general partner at Ampersand:

> We backed a nanotechnology company that was developing superior industrial drill bits. It was an eight-year effort, and we lost everything in the end. It wasn't losing the money that was the biggest problem; it was the eight years invested. Advanced materials share many of the risks of biotechnology—long lead times and capital intensity—but none of its appeal to investors. At the same time, though, if you back the firm that develops the next nylon or Corian, you have incredible returns.

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[4] David Rotman, "Venture Capital," *Chemical Week*, May 29, 1996, p. 22.

[5] Data from VentureSource, accessed January 2, 2003.

[6] <www.ampersandventures.com>, accessed January 2, 2003.

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Going Broad

Another option that the partners considered was increasing the size of the firm. Until now, ACM had only hired partners, looking for the expertise and experience provided by people of that level. In a market with fewer deals, though, perhaps the firm should leverage its position as a top-quartile fund and hire a number of associates to search for promising concepts. Frezza observed, "There is a lot of good talent on the street now—maybe we should take advantage of this."

Additional personnel would increase the number of potential deals that could be discovered, whether at trade shows, university laboratories, or through various journals. Staffing up would also relieve some of the burden on the general partners, who now did everything from writing the initial white papers on potential areas of focus through discovering companies, negotiating deals, and sitting on boards, with the many disparate duties involved. A few good associates might be able to do the research to find the next exciting sector or support the partners in due diligence. Investing ACM III's $420 million at $20 million per company would add another 10 companies to the 10 already in the fund's portfolio, increasing the work load for each partner. "At some point, the time we'd invest in training an associate might be worthwhile," Ugras mused.

Yet that time investment worried the partners, who feared turning ACM into an academy for venture capitalists. They were also concerned about just how many of their tasks could be delegated. "Even without rock stars, there's an element of relationship in VC," Neath said. "Unless you have a really good associate, who is likely to leave for a partner position elsewhere, the CEO wants to talk to the partner."

Additionally, ACM's strategy required deep understanding on the part of the partners. "You get a better understanding of the CEO's grasp of his field and his technology in a direct conversation," Frezza commented. "To what degree will we be willing to rely on an associate for primary knowledge of the company, the technology, and the market?" While the partners knew that staffing up and delegating had worked for some top-tier firms, Adams was concerned that the deep domain expertise on which ACM had built its reputation might be diluted by hiring associates fresh from MBA programs and its performance degraded by devoting partner time and energy to training them.[7]

VC firms had also encountered organizational challenges in expanding their scope and numbers. Adding personnel required venture capitalists to become personnel managers to a certain degree, creating career paths, determining compensation strategies, and managing performance in a way that was not necessary in a four-person partnership.

Expanding ACM's investment focus—into medical equipment, for instance—posed other challenges. Firms that had done so had found that the new experts had to educate the other partners on specialized areas, making the deal approval process tedious, time-consuming, and cumbersome. Additionally, if one sector was underperforming, those that were successful often resented the burden of making up for others' losses. If the underperformance endured, that sector expert might be cut, leaving the remaining portfolio in the hands of the existing non-experts. This had happened to a number of firms in the late 1990s, as high technology consistently outperformed life sciences. Many firms that had invested in both fields moved out of the life sciences sector, leaving a small group of life science companies adrift in a technology-focused firm.

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[7] This discussion was informed by Noam Wasserman, *The Upside-Down Venture Capitalist*, unpublished Ph.D. dissertation, 2002.

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Going All Out

The final option was for the firm to be more aggressive in its approach. In ACM I, the company had invested an average of $3.5 million in 15 companies, leading 11 of these deals and taking board seats on 10 of them. By the time the investee company had completed several subsequent rounds, it was difficult for ACM to maintain a significant ownership position. In ACM II, which closed in December 1999, the firm invested larger amounts, $9.5 million (including reserves), in 14 companies. These deals usually had only a handful of co-investors, and ACM was able to attain greater ownership in the deals it wanted to continue backing. With ACM III, the group had invested an average of $15.3 million (including reserves) in 10 early-stage companies by early 2002, often as the only institutional investor (see **Exhibit 9** for portfolio).

The partners contemplated continuing this trend. By being counter-cyclical and increasing its stake in its portfolio companies, ACM would essentially place a major bet and then support it. The future might lie in raising a number of $400 million funds and taking 35% to 45% stakes in 20 to 25 companies. Although Coretek, ACM I's major home run, had been sold to Nortel for $1.4 billion, the partners believed that the future lay in $200 million exits. Each $200 million exit represented an $80 million opportunity. "With 20 or 25 investments per fund," Sullivan observed, "we would have to do well on a quarter of them to achieve respectable returns for our limited partners." The group felt that such performance was possible.

This strategy presented two major problems, though. In a particularly difficult market, far fewer companies might succeed. If a downturn cost ACM its entire investment in half the portfolio, every single remaining company would have to be a significant success just to return capital. Moreover, execution might be difficult. ACM would have to find companies good enough that the firm would want to own 35% to 45%. Competitively, ACM would not be able to compromise—it would have to get 35% to 45% ownership or walk. This might preclude it from syndicating, even with a good co-investor and even if the company might prefer additional venture backers. It might be doubly hard to find companies that were not only superb but also wanted ACM as their sole venture backer.

This strategy would impose its own costs on ACM. Without the complementary networks of other venture firms in the deal and their contacts with potential partners, customers, and executives, ACM would have to supply these contacts itself. The firm might have to hire someone to help with such tasks or add partners with complementary networks.

To Boldly Go . . .

Given the dramatic changes in the economic environment, the partners knew they had to act quickly. Some of the portfolio companies were struggling, as other technology companies funded by the over-exuberant venture markets had converged on the same shrinking pool of customers beset by their own financial woes. Venture firms too had sustained heavy losses and were concentrating on rescuing their existing deals rather than searching for new investments.

This latter change could have two opposing effects on ACM. There might be less competition for new deals, perhaps allowing ACM to gain greater visibility within the industry and with top-tier VC firms. Yet ACM's existing co-investors were distracted by internal dynamics, reductions in management fees and fund sizes, and the need to reply to concerns among their limited partners, forcing ACM to devote more time and resources to the portfolio.

Were ACM's systems imprisoning it or protecting it? Was now the time to become more aggressive and more opportunistic? Should ACM enter new markets? Would the discontinuity

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process help or hinder this change? Would structured navigation be more or less effective in the new environment?

From a broader perspective, the partners had to wonder if the private equity industry itself had encountered a discontinuity. If so, what would be the best way for ACM to exploit it?

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Exhibit 1 Biographies of ACM's General Partners

Joel P. Adams founded Adams Capital Management in 1994, and has led its growth to $700 million capital under management. Before establishing ACM, Joel served for eight years as Vice President and General Partner of Fostin Capital Corp., a Pittsburgh-based, family-owned investment firm. Prior to Fostin, Joel served for seven years as a nuclear test engineer for General Dynamics, where he managed chemical, electrical and mechanical engineering teams and directed nuclear power plant sea trials. Joel is a director of several private and public companies, a member of several charitable organizations, a frequently requested speaker on the topic of venture capital, and a board member of Carnegie Mellon University.

Education:

- M.S. Industrial Administration—Carnegie Mellon University
- B.S. Nuclear Engineering—State University of New York at Buffalo

Martin Neath, who helped build Tivoli Systems, Inc., now an IBM company, into a multi-billion dollar software and service operation, joined Adams Capital Management in August 2001 as a General Partner. Martin was the seventh employee and first application engineer at Tivoli when he began his career there in 1990, after working at Texas Instruments for five years. While at Tivoli, Martin was responsible for product strategy and development, marketing, customer support, product services and information technology, and was extensively involved in sales and customer service. Tivoli went public in 1995 and was acquired by IBM a year later. Martin served as Executive Vice President of Tivoli overseeing much of the company's day-to-day operations, including five business units, engineering, corporate marketing, customer service, training and education, office of the Chief Technology Officer, and North American sales. In 1998, he was named a member of the IBM Senior Management Group (SMG), a team of the top 300 executives from around the world charged with the overall responsibility for IBM's strategy and business execution. After retiring from IBM in 1999, Martin helped build several young emerging growth technology companies in the Austin area, including two years as President and COO of Works, Inc., a provider of procurement applications to midsize companies.

Education:

- B.S. Computer Science—Tufts University

N. George Ugras George joined Adams Capital Management in 1999 as a General Partner, after spending a year as an investment professional at APAX Partners, a private equity firm in New York. Prior to joining APAX Partners, George spent four years as a Management Consultant at McKinsey & Co. in New York, working closely with clients in the telecommunications and media industries on strategic and operational issues.

Education:

- Research Fellow, Physics—California Institute of Technology
- Ph.D. with honors, Applied Physics—Yale University
- B.S. Engineering Physics—Fairleigh Dickinson University

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William A. Frezza Bill joined Adams Capital Management in 1997 as a General Partner. Prior to his work at Adams Capital, Bill was Founder and President of Wireless Computing Associates, providing technology strategy and consulting services to major vendors in the telecommunications industry. Bill served as the Director of Marketing and Business Development for Ericsson, Inc.'s wireless data division and has extensive engineering and product management experience from General Instrument Corp. and Bell Laboratories. Bill has also been involved in several start-up ventures, holds seven patents, and was a columnist for *Internet Week*.

Education:

- M.S. Electrical Engineering—Massachusetts Institute of Technology
- B.S. Biology—Massachusetts Institute of Technology
- B.S. Electrical Engineering—Massachusetts Institute of Technology

Jerry S. Sullivan Jerry joined Adams Capital Management in 1997 as a General Partner. Prior to joining the team, Jerry was President of Design Technologies, Inc., focusing on evaluating and assessing the design and manufacturing processes used in electronic product creation. Jerry came to Design Technologies from Microelectronics and Computer Technology Corporation (MCC), where he served as Vice President. Prior to joining MCC, Jerry spent several years at Tektronix, and 10 years with N.V. Philips. In addition, Jerry honed his international management skills through five years on location with Philips in Europe.

Education:

- Advanced Management Program—Harvard Business School
- Ph.D. Physics—University of Colorado
- B.S. Engineering—University of Colorado

Source: Company information.

Exhibit 2 Investment Returns for ACM Funds as of December 31, 2001

	ACM I (starting 9/30/97)	**ACM II** (starting 12/31/99)	**ACM III** (starting 12/31/00)
Russell 2000 Index	14.2%	-0.3%	2.7%
NASDAQ	17.2%	-51.8%	-20.8%
Upper Quartile Private Equity IRR	60.9%	-2.1%	-16.0%
ACM Net IRR to LPs	**63.5%**	**-1.3%**	**-25.9%**

Source: Company information.

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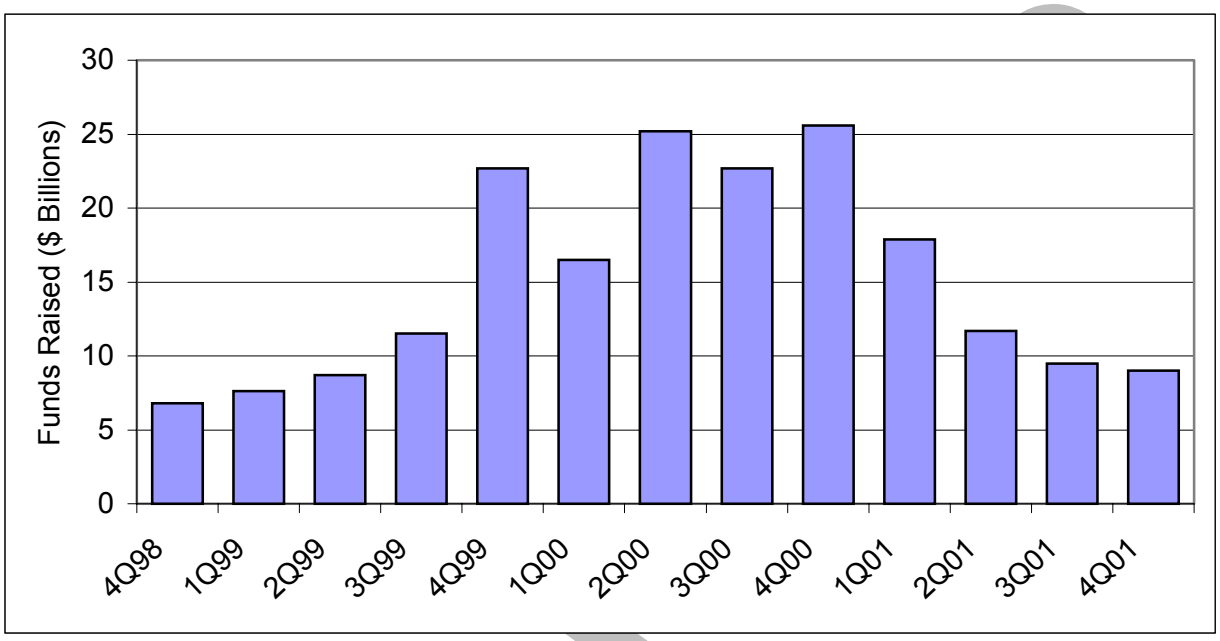
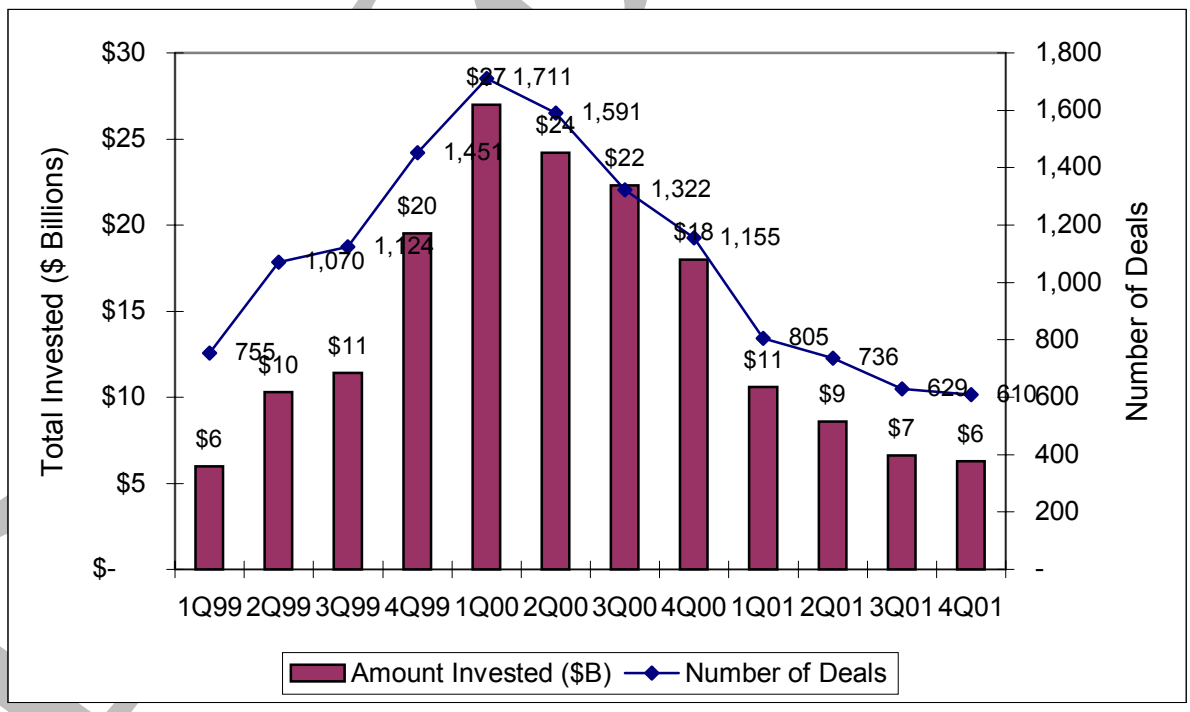
Exhibit 3 Venture Funds Raised



Source: Adapted from an unpublished study by VentureOne presented to Silicon Valley Bank, March 30, 2002.

Exhibit 4 Venture Investment by Quarter



Source: Adapted from an unpublished study by VentureOne presented to Silicon Valley Bank, March 30, 2002.

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Exhibit 5 ACM's View of Discontinuities

Discontinuity: The Mother of Opportunity

Our strategic focus is built upon the concept of a discontinuity—a circumstance or event that disrupts the equilibrium in a particular industry and creates new entry opportunities. Discontinuities are rapid and permanent structural changes in established markets that incumbents, hindered by economics or aging infrastructure, are not able to respond to in a timely fashion.

Examples of specific discontinuities that create new entry points into large established markets include:

- The development of software technology allowing protection of content without proprietary hardware;
- The de-monopolization of the utility industry to permit customer choice among power producers, leaving incumbent utilities burdened with uneconomical infrastructures;
- The changes in the FDA approval processes affecting the introduction of advanced, technology-driven diagnostic devices supporting the convergence of new technologies into tightly integrated, software-based lifesaving systems;
- The emergence of communications protocols that support efficient transaction clearing over public networks, allowing digital content owners to greatly lower distribution costs and improve customer service;
- The move to a property-based spectrum management regime via FCC spectrum auctions, vastly increasing the amount of spectrum available for the introduction of innovative narrowband and broadband wireless technologies.

Compelling market opportunities that can be exploited by breakthrough innovation are created by discontinuities such as ***industry standards***, ***regulations***, ***technology convergence*** and ***distribution***. And because even the best product or service will not stimulate great returns in a small or mediocre market, we focus on established markets approaching a billion dollars in size. We constantly watch these markets for discontinuities and the emerging companies that are positioned to take advantage of them. This is where we concentrate our investments.

Source: Company information.

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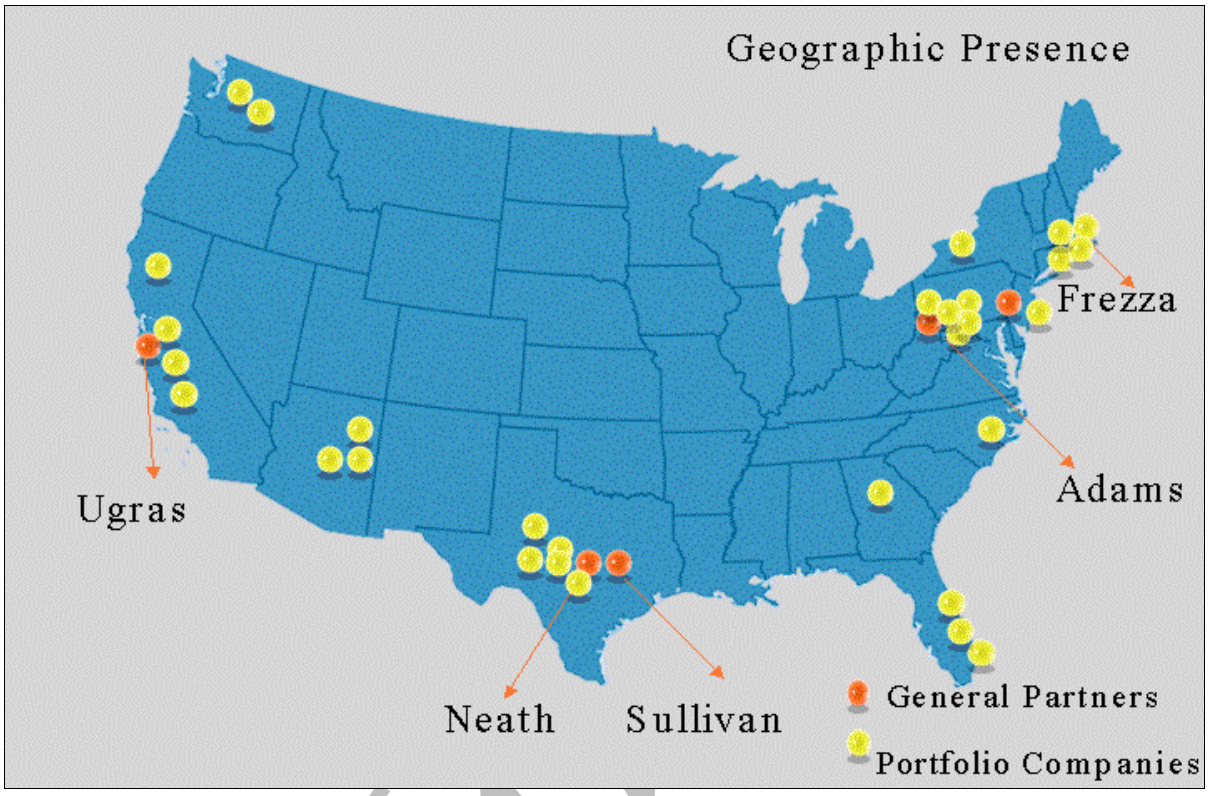
Exhibit 6 ACM's Offices



Source: Company information.

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Exhibit 7a ACM's Three Funds, Performance as of December 31, 2001

	ACM I	ACM II	ACM III
Inception	December 8, 1997	October 8, 1999	November 17, 2000
Contributed capital	$ 55,000,000	$ 105,000,000	$ 69,300,000
Capital due from partners	$ —	$ 45,000,000	$ 350,700,000
Committed capital	$ 55,000,000	$ 150,000,000	$ 420,000,000
Realized gains or (losses)	$ 110,203,081	$ —	$ —
Unrealized gains or (losses)	$ (10,912,252)	$ 4,631,220	$ (2,996,000)
Income from investments	$ —	$ 91,181	$ —
Net operating loss from inception	$ (4,261,745)	$ (6,717,322)	$ (10,446,432)
Gross value of partnership	$ 150,029,084	$ 148,005,079	$ 406,557,568
Less distributions	$ (122,699,588)	$ —	$ —
Net Partnership Capital (includes capital due from partners)	$ 27,329,496	$ 148,005,079	$ 406,557,568
Percentage increase from inception	**172.78%**	**-1.33%**	**-3.2%**
Represented by:			
Value of current portfolio investments	$ 27,254,967	$ 96,598,696	$ 55,148,155
Cash and temporary investments	$ 103,069	$ 6,415,192	$ 751,103
Capital due from partners	$ —	$ 45,000,000	$ 350,700,000
Other net current assets	$ (28,540)	$ (8,809)	$ (41,690)
Partnership Capital	**$ 27,329,496**	**$ 148,005,079**	**$ 406,557,568**
Less capital due from partners	$ —	$ (45,000,000)	$ (350,700,000)
Current Net Partnership Capital	$ 27,329,496	$ 103,005,079	$ 55,857,568

Source: Company information.

Exhibit 7b ACM I's Portfolio Company IRRs for Exited Investments as of December 31, 2001

Date	Company	Cost	Proceeds	Gain/Loss	IRR
1/1/1999 & 9/99	Coretek (acq. by Nortel)	$ 3,227,718	$ 122,699,588	$ 119,471,870	495%
11/97 & 12/99	AirNet Communications	$ 5,271,045	$ 553,346	$ (4,717,699)	-69%
11/97—10/99	Triton Network	$ 2,315,443	$ 1,040,491	$ (1,274,952)	-32%
Sep-97	Physicians Data Corp.	$ 1,300,000	$ 43,611	$ (1,256,389)	-68%
3/1998 & 8/1998	Reciprocal	$ 2,019,749	—	$ (2,019,749)	NA

Source: Company information.

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Exhibit 8 ACM III's Companies as of March 1, 2002

Initial Investment	Company Name	Sector
11/00	Intrinsity Inc.	Telecommunications/Semiconductor
2/01	Revenue Technologies Corp.	IT
3/01	Optellios, Inc.	Telecommunications/Semiconductor
6/01	InfoLibria, Inc.	IT
6/01	SmartOps Corp.	IT
7/01	Lovoltech Inc.	Telecommunications/Semiconductor
7/01	Works, Inc.	IT
7/01	TimeSys Corp.	IT
8/01	AmberWave Systems Corp.	Telecommunications/Semiconductor
2/02	Flashline Inc.	IT

Source: Company information.

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Exhibit 9 ACM's Portfolio

Name	Fund	1st Investment Date	Board Seat? (Yes/No)	Amount ($Thous)	Stage	Company Status
AirNet Communications Corporation	1	11/1/1997	Y	4,001	Expansion	Went public
AmberWave Systems Corporation	2,3	12/1/1999	Y	15,625	Early stage	Privately held
Bluestone Software, Inc. (FKA: Bluestone, Inc.)	Pre-ACM	4/18/1997	Y	2,604	Expansion	Went public
CAVU, Inc. (AKA: E-xpedient)	1,2	2/11/2000	Y	16,153	Early stage	Bankrupt
CoManage Corporation	1	10/7/1998	Y	5,378	Early stage	Privately held
Context Media, Inc.	1,2	3/21/2000	Y	6,750	Early stage	Privately held
CoreTek, Inc.	1	1/15/1999	Y	3,500	Early stage	Acquired
Cytyc	Pre-ACM	3/1/1989	Y	3,858	Early stage	Went public
Dell	Pre-ACM	11/30/1987	Y	750	Early stage	Went public
Factory Logic Software, Inc.	2	7/17/2000	Y	4,000	Early stage	Privately held
FFWD, Inc. (FKA: eToll, Inc.)	2	7/28/2000	Y	14,024	Expansion	Privately held
First Avenue Networks, Inc. (FKA: Advanced Radio Telecom)	1	6/8/1999	N	3,000	Expansion	Went public
Flashline	3	2/1/2002	Y	6,000	Expansion	Privately held
Hologix, Inc. (FKA: MBA Technologies, Inc.)	1	6/1/1998	Y	6,218	Expansion	Out of business
InfoLibria, Inc.	1,3	6/14/2001	Y	10,011	Early stage	Out of business
Integrated Micromachines, Inc. (AKA: IMMI)	2	4/11/2000	Y	10,470	Expansion	Privately held
Intellego (FKA: Physicians Data Corporation)	1	9/12/1997	Y	1,300	Early stage	Bankrupt
Intrinsity, Inc. (FKA: EVSX)	2,3	11/8/2000	Y	17,507	Early stage	Privately held
Journee Software, Inc.	2	4/14/2000	Y	8,863	Expansion	Privately held
Lovoltech, Inc.	2,3	4/1/2000	Y	8,600	Early stage	Privately held
MedAcoustics, Inc.	1	9/15/1999	Y	3,813	Expansion	Out of business
MediaDNA, Inc. (AKA: eLuminator)	2	10/1/1999	Y	4,550	Early stage	Acquired
ModeTek, Inc.	2	5/1/2000	Y	8,140	Early stage	Privately held
NetSolve, Inc. (FKA: Southwest Network Services, Inc.)	Pre-ACM	11/30/1989	Y	6,168	Expansion	Went public
nLight Photonics Corporation	2	1/17/2001	N	2,980	Expansion	Privately held
NP Photonics, Inc.	2	8/1/2000	Obs	2,500	Early stage	Privately held
Optellios, Inc.	3	3/15/2001	Y	3,510	Early stage	Privately held
Partnerware Technologies, Inc.	1	10/3/1999	Y	4,500	Expansion	Out of business
Reciprocal, Inc. (FKA: Rights Exchange, Inc.)	1	3/16/1998	Obs	2,019	Expansion	Out of business
ReturnCentral.com	2	4/1/2000	Y	6,667	Early stage	Privately held
Revenue Technologies Corporation	3	2/1/2001	Y	4,900	Early stage	Privately held
Sensys Medical, Inc. (FKA: Instrumentation Metrics, Inc.)	1	2/25/1998	Obs	2,112	Later stage	Privately held
SmartOps Corporation	3	6/5/2001	Y	8,000	Early stage	Privately held
TimeSys Corporation	3	7/1/2001	Y	8,994	Early stage	Privately held
Triton Network Systems, Inc.	1	12/1/1997	N	2,315	Early stage	Went public
VBrick Systems, Inc.	1	3/23/1999	Y	5,020	Early stage	Privately held
Works, Inc.	3	7/23/2001	Y	10,000	Expansion	Privately held

Source: Company information. Note: *Obs=Observer status.

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