Executives of Bluefly.com, the discount apparel e-tailer, offered two pieces of news last week that they say will help ensure the company's survival. First, there will be another round of financing, this one for $4 million from Soros Private Equity Partners, George Soros's venture capital firm. And second, Bluefly (news/quote) has an agreement with Blue Martini, an e-commerce software company, to provide technology that will change in important ways how the site interacts with customers.

The goal is to be able at last to capitalize on what so many e-tailers have said is their great advantage: the ability to analyze data about sales and customer browsing patterns and respond quickly with offers that more consumers will be interested in.

"The reality is, for the past three years, most of us have been focused on building an infrastructure that could handle triple- and quadruple-digit growth," Kenneth Seiff, Bluefly's chief executive, said of online retailers. "It wasn't really until the last 12 months that analysis became central to our daily work and driving the performance of the business."

Even so, Mr. Seiff and others said, e-tailers have struggled in their quest to apply science to online retailing because the analytical software available was designed more for people with Ph.D.'s in statistics than for merchandisers and marketers.

Software companies like Siebel, Blue Martini and others have heard those complaints and have responded. But lest anyone accuse software companies of being responsive simply for the sake of making their customers happy, there was another incentive at work.

The companies that make analysis software have come to understand that their best chance to increase revenues is to make their technology accessible to a greater number of people in a given corporation, so they can extract more fees from each corporate customer. More user-friendly software means more revenues.

Besides, said Larry Barbetta, vice president of Siebel Analytics, a unit of Siebel Systems (news/quote), "what were companies supposed to do?"

"They couldn't just say the stuff we've been selling has just been way too complicated to use," he said.

Whatever the motivation, a new generation of technology that helps companies sift through mountains of sales data seems poised to make a difference in the lives of executives, customers and shareholders.

"We're on the cusp of what'll be a tremendous revolution for retailers, and I'm not a buzz kind of guy," said Jeffrey Roster, a retail analyst for Gartner, the technology consulting firm. "We're not talking about improving a little thing here."

Mr. Roster is quick to point out that the biggest opportunity for retailers who take advantage of the new technology is not necessarily in the online realm. For instance, he said, traditional retailers who are better able to analyze the sales histories of their customers will be able to offer different tiers of service for their more valuable

Peter DaSilva for The New York Times
From the left, Ashok Srivastava, Jeremy Cohen and Ronny Kohavi of Blue Martini, which designs analytical software as well-suited for use by online retailers as by statistics researchers. Traditional retailers will also be able to make use of such technology.
customers — perhaps through express checkout lines or loyalty rewards.

But, Mr. Roster said, the newest wave of analytical software could mean "life or death" for online merchants.

Mr. Seiff, of Bluefly, did not put quite that fine a point on matters, but he said the technology would make a profound difference. For instance, he said, in the past, whenever someone on Bluefly's marketing team wanted to test a promotion — say, 25 percent off a cashmere scarf — the proposal would go to the product development team, which would design a Web page, and then to the technology team, which built that Web page.

The process could take several days, Mr. Seiff said. It would take several more days to generate and analyze the results of that promotion and then design another promotion for testing.

But with the new software, marketing gurus can design and put a promotion into place in a few minutes, and they can test several promotions simultaneously to find the best results. "More importantly, we can target those promotions by customer group, so we could be running a different promotion for men, women or for bargain shoppers versus high-end brand shoppers," Mr. Seiff said. (The Web site would use cookies to recognize site registrants and previous visitors as they arrived.)

Bluefly is in the honeymoon stage with Blue Martini because the two parties struck a deal only recently. The technology will not be fully in effect until late summer or early fall, when Bluefly begins using a redesigned Web site. But other e-tailers that have used the latest analytical software from Blue Martini say it lives up to its billing.

Rowan Gormley, chief executive of Virgin Wines Online, an online subsidiary of the Virgin Group, based in Britain, said, "In key areas of our site, we'll show every odd customer Proposition A, and every even customer will see Proposition B, which will be fractionally different."

Mr. Gormley said the company had created different Web pages for an assortment of different customer segments, depending on, say, how much money they had spent in the past. By testing different combinations of merchandise and promotions on each group and choosing the most effective ones, the company has been able to increase its profit margin by 70 percent per bottle in the last seven months.

"It's like using power tools," Mr. Gormley said. "You can do the same things you always did," but much faster, he added.

Some companies have managed to achieve similar results without spending the roughly $85,000 per computer it costs to get the Blue Martini software running. Analysts have long pointed to Amazon.com (news/quote) as having one of the more sophisticated data analysis systems of all e-tailers. The technology has largely grown within the company, and it rarely makes any details public.

EBags, an online retailer of luggage, backpacks and other cargo-carrying goods, is another example of the do-it-yourself approach. The entire site was built for $5 million to $10 million — a fraction of the cost of most large e-tail sites — said Peter Cobb, vice president for marketing and merchandising.

Mr. Cobb said that in building the site from scratch, rather than relying on outside software vendors, "we were able to do it in such a way that, from the start, we could do A-B testing" — industry vernacular for the simultaneous testing of separate promotions and merchandising patterns. The company has therefore been able to build sales consistently, he said, "just by making small increases in helping people find what they want at the right price."

As one might expect, privacy advocates are not entirely thrilled at the advances being made in analytical software, which is sometimes referred to as data-mining software. Online retailers like Bluefly say their privacy policies clearly explain how a visitor's data will be used and give users the opportunity to opt out of data collection, but that may not be enough to satisfy privacy concerns.
Jason Catlett, president of Junkbusters, a privacy advocacy organization, said companies that used data-mining software to infer something about a customer should give the customer access to that knowledge, too. "This issue hasn't come up terribly much yet," Mr. Catlett said. "But it will."