

CIENA CORP
Form S-4
March 24, 2004

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As filed with the Securities and Exchange Commission on March 24, 2004

Registration No. 333-

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM S-4

REGISTRATION STATEMENT

**UNDER
THE SECURITIES ACT OF 1933**

CIENA Corporation

(Exact name of registrant as specified in its charter)

Delaware
*(State or other jurisdiction of
incorporation or organization)*

3661
*(Primary Standard Industrial
Classification Code Number)*

23-2725311
*(I.R.S. Employer
Identification Number)*

**1201 Winterson Road
Linthicum, MD 21090
(410) 865-8500**
*(Address, including zip code, and telephone number,
including area code, of registrant's principal executive offices)*

Russell B. Stevenson, Jr.
Senior Vice President, General Counsel and Secretary
CIENA Corporation
1201 Winterson Road
Linthicum, MD 21090
(410) 865-8500
*(Name, address, including zip code, and telephone number,
including area code, of agent for service)*

Copies to:

Michael J. Silver
Amy Bowerman Freed
Thene M. Martin
Hogan & Hartson L.L.P.
111 South Calvert Street
Baltimore, MD 21202
(410) 659-2700

Jodie M. Bourdet
Peter H. Werner
Cooley Godward LLP
One Maritime Plaza, 20th Floor
San Francisco, CA 94111
(415) 693-2000

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective and all other conditions to the merger contemplated by the Agreement and Plan of Merger dated as of February 18, 2004, as such agreement may be amended, described in the enclosed Prospectus have been satisfied or waived.

If the securities being registered on this Form are being offered in connection with the formation of a holding company and there is compliance with General Instruction G, check the following box.

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If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, please check the following box and list the Securities Act of 1933 registration statement number of the earlier effective registration statement for the same offering. o _____

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act of 1933, check the following box and list the Securities Act of 1933 registration statement number of the earlier effective registration statement for the same offering. o _____

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, \$.01 par value(1)(2)	75,894,864 shares	Not applicable	\$32,757.37(3)	\$4.15

- (1) The Registration Statement covers the maximum number of shares of CIENA common stock that are expected to be issued in connection with the transactions described herein in the proposed merger of Catena Networks, Inc. with and into CIENA.
- (2) Includes corresponding rights to purchase shares of CIENA Series A Junior Participating Preferred Stock pursuant to a Rights Agreement dated as of December 29, 1997, as amended, between CIENA and Equiserve Trust, N.A. (formerly BankBoston N.A.)
- (3) Pursuant to Rule 457(f)(2), because there is currently no public trading market for Catena's common and preferred stock, the registration fee was computed on the basis of 1/3 of the par value of the shares of common and preferred stock of Catena computed as of March 23, 2004. The par value equaled \$98,272.11 in the aggregate.

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this proxy statement/ prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This proxy statement/prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated March 24, 2004.

Dear Stockholders:

After careful consideration, the boards of directors of Catena Networks, Inc. and CIENA Corporation have approved the merger of Catena with CIENA. I am pleased to provide to you the enclosed proxy statement/ prospectus relating to a special meeting of the stockholders of Catena to be held on _____, 2004, at 8:00 a.m., local time, at the offices of Catena at 307 Legget Drive, Kanata, Ontario, Canada. At the special meeting, you will be asked to vote, in person or by proxy, on the proposed merger of Catena with CIENA and other related matters described below. All of these matters are described in more detail in the notice of special meeting immediately following this letter and the enclosed proxy statement/ prospectus.

The first item we are asking you to approve is the merger agreement itself. If the merger is consummated, each outstanding share of capital stock of Catena would be converted into the right to receive shares of CIENA common stock and each outstanding warrant and option to acquire Catena capital stock would become exercisable for shares of CIENA common stock. In the merger, CIENA would issue up to a total of approximately 75.9 million shares of CIENA common stock. These shares would be allocated between Catena's outstanding shares of capital stock and outstanding warrants and options to purchase Catena capital stock as described in the enclosed proxy statement/ prospectus. CIENA common stock is traded on the Nasdaq National Market under the symbol CIEN. The closing price for CIENA common stock reported on the Nasdaq National Market on March 22, 2004 was \$4.77 per share. Following the merger, based on 475,254,814 outstanding shares of CIENA common stock as of March 17, 2004, and assuming all of the Catena stock options and warrants have been exercised, Catena stockholders would own approximately 13.2% of the combined company and CIENA stockholders would own approximately 86.8% of the combined company (including shares that may be issued to former stockholders of Internet Photonics, Inc., which CIENA is proposing to acquire in a separate merger agreement announced by CIENA on February 19, 2004).

We are also asking you to approve a proposed amendment and restatement of our certificate of incorporation. As described in the enclosed proxy statement/ prospectus, the distribution of merger proceeds under the merger agreement is different from the distribution that would be obtained if the merger proceeds were allocated in accordance with the liquidation provisions of our certificate of incorporation. In order to effect the distribution of merger proceeds as described in our merger agreement with CIENA and to complete the merger, our certificate of incorporation must be amended to provide that the merger with CIENA is not an Acquisition or Asset Transfer that would trigger the application of these liquidation provisions. The amended and restated certificate of incorporation would be filed and become effective immediately prior to the merger.

In addition, we are asking you to approve certain benefits provided to our U.S. executive officers. In connection with the merger, CIENA and Catena agreed to cause all Catena options held by each of our officers to vest (i.e., become exercisable) in full if his or her employment is terminated by CIENA or Catena without cause, or if the officer terminates his or her employment for good reason, at any time. In the event of such termination, an officer also would receive a severance payment equal to six months of his or her base salary and continuation or subsidization of his or her medical benefits for the six months following termination of employment. If granted to officers that are U.S. taxpayers, such acceleration of vesting and severance benefits may result in the imposition of an excise tax on such officers and a denial of a U.S. federal income tax deduction for Catena or CIENA, as Catena's successor, with respect to such payments unless such payments are approved by the Catena stockholders. We are seeking your approval for such acceleration of vesting and severance benefits so that our U.S. executive officers may receive the same severance payments as our other executive officers.

Further, we are asking that you specifically grant our board of directors the discretionary authority to postpone or adjourn the special meeting of stockholders if needed to obtain the necessary votes to approve the matters described above.

Our board of directors has carefully reviewed and considered the terms of the merger and the merger agreement, including the distribution of proceeds and officer benefits provisions described above, and has concluded that the terms are fair to, and in the best interests of, Catena and its stockholders. Catena's board of directors recommends that you vote **FOR** approval and adoption of the merger agreement, **FOR** approval and adoption of the amendment and restatement of Catena's certificate of incorporation, **FOR** approval of the executive officer benefits and **FOR** the grant of discretionary authority to postpone or adjourn the meeting.

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Your vote is very important. Whether or not you plan to attend the special meeting, please take the time to vote by promptly completing and mailing the enclosed proxy card in the postage-paid envelope provided. **Before you vote, please review the enclosed proxy statement/prospectus and in particular review the matters referred to under Risk Factors starting on page 10.**

Finally, this letter, together with the enclosed proxy statement/prospectus, constitutes the notice of actions taken by our stockholders that we are required to provide under Section 228(e) of the Delaware General Corporation Law to stockholders that did not consent to such actions. First, we recently amended our certificate of incorporation (i) to prohibit holders of our preferred stock from voluntarily converting their shares into shares of our voting common stock prior to July 31, 2004 and (ii) to prohibit the automatic conversion of various series of our preferred stock into voting common stock prior to July 31, 2004, based on group elections by the holders of the various series of preferred stock. The amendment was approved by our board of directors on February 17, 2004, and by our stockholders by written consent effective February 17, 2004. Second, by written consent effective March 4, 2004, our stockholders granted our board of directors discretionary authority to declare, in total, a cash dividend to holders of our preferred stock of up to \$10 million.

On Behalf of the Board of Directors of Catena,

/s/Gudmundur Hjartarson

Gudmundur (Jim) Hjartarson
President and Chief Executive Officer

Prospectus dated [], 2004
First mailed to stockholders on or about [], 2004

Neither the Securities and Exchange Commission nor any state securities regulator has approved or disapproved of these securities or passed upon the adequacy or accuracy of this proxy statement/ prospectus. Any representation to the contrary is a criminal offense.

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CATENA NETWORKS, INC.

307 Legget Drive
Kanata, Ontario K2K 3C8

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS

TO BE HELD ON [], 2004

To the stockholders of Catena:

A special meeting of the stockholders of Catena Networks, Inc., a Delaware corporation, will be held at the offices of Catena Networks, Inc., 307 Legget Drive, Kanata, Ontario, Canada on [], 2004 at 8:00 a.m., local time, for the following purposes:

1. To approve and adopt the Agreement and Plan of Merger, dated as of February 18, 2004, as amended, by and among CIENA Corporation, Catena Networks, Inc. and certain officers of Catena pursuant to which Catena will be merged with and into CIENA, with CIENA being the surviving corporation. A copy of the Agreement and Plan of Merger, as amended (the merger agreement), is attached as Annex A to the proxy statement/prospectus accompanying this notice;
2. To approve and adopt the amendment and restatement of Catena's certificate of incorporation to provide that the merger of Catena into CIENA is not an Acquisition or Asset Transfer of Catena that would be treated as a liquidation of Catena as defined therein;
3. To approve the payments to [] (the disqualified individuals) of amounts that would otherwise result in parachute payments under Section 280G of the Internal Revenue Code of 1986 (the Tax Code);
4. To grant discretionary authority to the Catena board of directors to adjourn or postpone the Catena special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary; and
5. To consider and act upon any other matter that may properly come before the special meeting.

This proxy statement/prospectus and the accompanying proxy card are being furnished to the stockholders of Catena in connection with the solicitation of proxies by Catena's board of directors for use at the special meeting of stockholders.

Catena's board of directors has approved the merger agreement and the amendment and restatement of Catena's certificate of incorporation and unanimously recommends that you vote **FOR** approval and adoption of the merger agreement, **FOR** the amendment and restatement of Catena's certificate of incorporation, **FOR** the payments that would otherwise result in parachute payments to disqualified individuals and **FOR** the grant of discretionary authority to adjourn the special meeting. The proposals are described in more detail in the accompanying proxy statement/prospectus, which you should read in its entirety before voting.

The board of directors has fixed the close of business on [], 2004 as the record date for determining the stockholders entitled to receive this notice, and to vote their shares at the special meeting or any adjournment or postponement of the special meeting. Only holders of record of voting common stock and series A, series A-1, series AA, series AA-1, series B, series BB, series C, series CC, series D and series DD preferred stock (the voting preferred stock) will be entitled to vote at the special meeting and any adjournment or postponement of the special meeting. Holders of non-voting common stock and series B-1, series BB-1, series C-1, series CC-1, series D-1 and series DD-1 preferred stock will not be entitled to vote at the special meeting. Holders of all classes and series of Catena's common stock and preferred stock are entitled to notice of the matters proposed to be voted on at the special meeting. As of the record date, there were (i) [9,371,695] shares of voting common stock outstanding, (ii) [10,100,000] shares of series A preferred stock outstanding, (iii) [440,000] shares of series A-1 preferred stock outstanding, (iv) [7,677,856] shares of series B preferred stock outstanding, (v) [7,514,978] shares of series C preferred stock outstanding, and (vi) [61,982,888] shares of series D preferred stock outstanding. As of the record date, no shares of series AA, series AA-1, series BB, series BB-1, series CC, series CC-1, series D-1, series DD or series DD-1 were issued and outstanding. A complete list of stockholders entitled to vote at the special meeting will be available for examination by

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Catena stockholders at the company's principal executive office for purposes pertaining to the special meeting, during normal business hours for a period of 10 days prior to the special meeting, and at the time and place of the special meeting.

The board of directors has designated the two persons named on the enclosed proxy card, Gudmundur Hjartarson and Kevin Forbes, to serve as proxies in connection with the special meeting. All properly executed proxy cards will be voted (except to the extent that authority to vote has been withheld), and where a choice has been specified by the stockholder as provided in the proxy card, it will be voted in accordance with the specifications on the proxy card. If you sign and send in your proxy card and do not indicate how you want to vote, it will be voted in favor of the approval and adoption of the merger agreement, the approval and adoption of the amendment and restatement of Catena's certificate of incorporation, the approval of the payments that would otherwise result in parachute payments and the other proposals. You may revoke a proxy prior to its execution by giving written notice to Kevin Forbes, the Secretary of Catena, by submission of another proxy bearing a later date, or by voting in person at the special meeting. Such notice or later dated proxy will not affect a vote on any matter taken prior to the receipt of the proxy revocation by Catena. Abstentions from voting identified as such on the proxy card are treated as present or represented for purposes of determining the presence or absence of a quorum at the special meeting. However, abstentions as to a proposal will have the same effect as votes against that proposal.

The proxy statement/prospectus materials are being mailed on or about [], 2004 to holders of record of Catena's capital stock as of [], 2004. The principal executive office and mailing address of Catena is at 307 Legget Drive, Kanata, Ontario K2K 3C8.

WHETHER OR NOT YOU PLAN TO ATTEND THE SPECIAL MEETING, PLEASE SIGN, DATE AND PROMPTLY RETURN THE ENCLOSED PROXY CARD, WHICH YOU MAY REVOKE AT ANY TIME PRIOR TO ITS USE. **PROMPTLY SIGNING AND RETURNING YOUR PROXY CARD WILL HELP ENSURE THE PRESENCE OF A QUORUM FOR THE SPECIAL MEETING.** A postage-paid, self-addressed envelope is enclosed for your convenience. Your shares will be voted at the special meeting in accordance with your proxy.

By Order of the Board of Directors of Catena,

/s/ GUDMUNDUR HJARTARSON

Gudmundur (Jim) Hjartarson
President and Chief Executive Officer

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This proxy statement/ prospectus incorporates important business and financial information about CIENA from documents that it has filed with the Securities and Exchange Commission but that have not been included in or delivered with this proxy statement/ prospectus. For a listing of documents incorporated by reference into this proxy statement/ prospectus, please see the section entitled "Where You Can Find More Information" beginning on page 78 of this proxy statement/ prospectus.

CIENA will provide you with copies of this information, without charge, upon written or oral request to:

CIENA Corporation
1201 Winterson Road
Linthicum, Maryland 21090
Attention: Investor Relations
Telephone Number: (410) 865-8500

In addition, you may obtain copies of this information by sending an e-mail to ir@ciena.com.

In order for you to receive timely delivery of the documents in advance of the special meeting, CIENA should receive your request no later than [], 2004.

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QUESTIONS AND ANSWERS ABOUT THE MERGER

Q: When and where will the special meeting take place?

A: The special meeting will be held on [], 2004 at 8:00 a.m., local time, at the offices of Catena at 307 Legget Drive, Kanata, Ontario, Canada.

Q: What do I need to do now?

A: You should carefully read and consider the information contained in this proxy statement/ prospectus. You should then complete and sign your proxy card and return it in the enclosed return envelope as soon as possible so that your shares will be represented at Catena's special meeting. If you sign, date and mail your proxy card without identifying how you want to vote, your proxy will be voted **FOR** the merger, **FOR** the amendment and restatement of Catena's certificate of incorporation, **FOR** the approval of the payments that would otherwise result in parachute payments and **FOR** the grant of discretionary authority to adjourn the special meeting. If you do not vote, it will have the same effect as a vote **AGAINST** the proposals. You may also vote by appearing at the special meeting and voting in person.

Q: Who must approve the merger?

A: In addition to the approvals of the boards of directors of CIENA and Catena, which have already been obtained, the following approvals of the stockholders of Catena must be obtained:

holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis; and

holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three stockholders each beneficially owning at least 400,000 shares of Catena's capital stock (on an as-converted into common stock basis), each of whom must not be an affiliate of Catena as such term is defined under the federal securities laws (those stockholders are referred to as unaffiliated investors throughout this proxy statement/ prospectus).

Q: Who must approve the amendment and restatement of Catena's certificate of incorporation?

A: In addition to the approval of the board of directors of Catena, which has already been obtained, the following approvals of the stockholders of Catena must be obtained:

holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis;

holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three unaffiliated investors; and

holders of at least 70% of Catena's series C preferred stock.

Q: Does the merger depend upon approval of the amendment and restatement of Catena's certificate of incorporation?

A: Yes. Because the distribution of merger proceeds under the merger agreement is different from the distribution that would be obtained if the merger proceeds were allocated in accordance with the liquidation provisions of Catena's existing certificate of incorporation, Catena's stockholders must approve the amendment and restatement of Catena's certificate of incorporation to provide that the merger will not trigger the application of these provisions.

Q: Who must approve the benefits to disqualified individuals?

A: Holders of more than 75% of Catena s outstanding stock, considered on an as-converted into common stock basis, excluding
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shares held by the disqualified individuals, must approve the payment of amounts that would otherwise result in an excise being imposed on the disqualified individuals. However, approval of the benefits to disqualified individuals is not a condition to the consummation of the merger.

Q: Can I change my vote after I mail my signed proxy?

A: Yes. You can change your vote at any time before your proxy is voted at the special meeting of Catena s stockholders. You can do this in one of three ways. First, you can send a written notice stating that you would like to revoke your proxy. Second, you can complete and submit a new proxy. If you choose either of these two methods, you must submit your notice of revocation or your new proxy at the address on page 16. Third, you can attend the special meeting of stockholders and vote in person. Your attendance alone will not revoke your proxy.

Q: Should I send in my certificates now?

A: **No, you should not send in your stock certificates with your proxy.** You will receive instructions for exchanging your stock certificates if the merger is consummated.

Q: Who can help answer my questions?

A: If you have any questions about the merger, how to vote or revoke your proxy, or if you need additional copies of this proxy statement/prospectus or the enclosed proxy, you should contact Kevin Forbes, Catena s Secretary, at (613) 591-7838.

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SUMMARY

This summary highlights selected information from this proxy statement/prospectus. It does not contain all of the information that is important to you. You should carefully read this proxy statement/prospectus and the other documents incorporated by reference into this proxy statement/prospectus. See Where You Can Find More Information on page 78. In this proxy statement/prospectus, we, us and our may refer to either CIENA or Catena, depending on the context in which they are used, and you and your refer to stockholders of Catena.

The Companies (page 60)

CIENA Corporation

1201 Winterson Road
Linthicum, Maryland 21090
(410) 865-8500

CIENA is a leader in innovative networking solutions to service providers and enterprises worldwide. CIENA's customers include long-distance carriers, local exchange carriers, Internet service providers, wireless and wholesale carriers, systems integrators, large businesses and governmental and non-profit institutions. CIENA offers network solutions that enable service providers to provision, manage and deliver economic, high-bandwidth services to their customers. On February 19, 2004, CIENA announced an agreement to acquire Internet Photonics, Inc., a private provider of carrier grade optical Ethernet transport and switching solutions. CIENA expects to issue approximately 24.1 million shares of common stock in that acquisition.

Catena Networks, Inc.

307 Legget Drive
Kanata, Ontario K2K 3C8, Canada
(613) 599-6430

Catena's integrated broadband access solutions enable service providers to profitably deliver voice, data and video services and smoothly migrate to packet-based networks. These solutions include the Catena CNX-5 Broadband DSL System, the Catena CN1000 Broadband Loop Carrier, and the Catena CN1000FX Fiber-to-the-X solution suite.

Vote Required for the Merger and Other Proposals (page 13)

Under Delaware law and Catena's certificate of incorporation, the following stockholder approvals are required to approve the merger:

holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis; and

holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three unaffiliated investors.

Under Delaware law and Catena's certificate of incorporation, the following stockholder approvals are required to approve the amendment and restatement of Catena's certificate of incorporation:

holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis;

holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three unaffiliated investors; and

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holders of at least 70% of Catena's series C preferred stock.

Holders of more than 75% of Catena's outstanding stock, considered on an as-converted into common stock basis, excluding shares held by the disqualified individuals, must approve the payment of amounts that would otherwise result in an excise tax being imposed on the disqualified individuals, and the approval of the holders of a majority of Catena's outstanding stock, considered on an as-converted into common stock basis, is required to grant the discretionary authority to Catena's board

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of directors to adjourn or postpone the special meeting to solicit additional votes to approve the matters considered at the special meeting.

There were [9,371,695] shares of Catena voting common stock and [87,715,722] shares of Catena voting preferred stock, comprised of [10,100,000] shares of Catena series A preferred stock, [440,000] shares of Catena series A-1 preferred stock, [7,677,856] shares of Catena series B preferred stock, [7,514,978] shares of Catena series C preferred stock, and [61,982,888] shares of Catena series D preferred stock, outstanding as of the record date. Each holder of Catena common stock is entitled to one vote per share and each holder of Catena preferred stock is entitled to one vote for each full share of common stock into which its shares of preferred stock would be convertible (assuming such shares are then convertible into common stock).

CIENA and the directors and officers of Catena, including stockholders affiliated with the directors and officers, entered into agreements under which such stockholders agreed to vote their shares in favor of the merger and approval of the merger agreement and in favor of the amendment and restatement of Catena's certificate of incorporation. As of the record date, these directors, officers and other stockholders held the following numbers of Catena shares:

[6,155,675] shares of voting common stock, representing approximately [66]% of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

[63,036,614] shares of voting common stock and voting preferred stock considered on an as-converted into common stock basis, representing approximately [57]% of Catena's common stock and preferred stock entitled to vote at any annual or special meeting of Catena stockholders, on an as-converted into common stock basis;

[56,880,939] shares of voting preferred stock considered on an as-converted into common stock basis, representing approximately [56]% of Catena's voting preferred stock, on an as-converted basis, and [54]% of the series C preferred stock.

Grant of Options to CIENA (page 51)

Catena officers, directors and affiliates of such directors and officers, owning in the aggregate [6,155,675] shares of Catena voting common stock, representing approximately [66]% of the outstanding Catena voting common stock as of the record date, and [56,880,939] shares of Catena voting preferred stock, representing approximately [56]% of the outstanding voting preferred stock as of the record date, have granted to CIENA options to purchase their Catena shares, subject to the limitation that CIENA cannot purchase more than 45% in the aggregate of Catena's outstanding capital stock pursuant to the exercise of such options. The options are exercisable under several circumstances, including those when Catena is required to pay CIENA the \$14.5 million termination fee provided for under the merger agreement. CIENA required these stockholders to deliver the options as a condition to CIENA's willingness to enter into the merger agreement. Although the number of shares of Catena capital stock subject to the options is not sufficient to ensure the approval of the merger with CIENA, if the options are exercised following receipt of a competing offer to purchase the capital stock of Catena, CIENA's consent may be necessary to complete the closing of that alternative transaction.

The Merger (page 18)

The merger agreement provides that Catena will merge with and into CIENA and CIENA will be the surviving company.

The merger agreement, as amended, is included as Annex A to this proxy statement/prospectus. It is the legal document that governs the merger.

Recommendation of Catena's Board of Directors and Reasons for the Merger (page 24)

The Catena board of directors has determined that the merger is advisable and in the best interests of Catena and its stockholders, as well as the proposed amendment and restatement of Catena's certificate of incorporation and the proposed approval of parachute payments to the disqualified individuals. The Catena board of directors recommends that Catena stockholders vote **FOR** the proposal to approve and adopt the merger agreement and each of the other proposals.

See The Merger Recommendation of Catena's Board of Directors and Reasons for the Merger

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for the reasons supporting the Catena board of directors' recommendations.

What you will receive in the Merger (page 37)

In the merger, you will receive CIENA common stock for each share of Catena common stock or preferred stock that you own. In the case of Catena common stock, each share is exchangeable for 0.493 shares of CIENA common stock. In the case of Catena preferred stock, the number of shares of CIENA common stock exchangeable for each share of Catena preferred stock is determined by application of the formulas set forth under "Terms of the Merger Agreement and Related Transactions - Treatment of Stock, Options and Warrants." These formulas generally provide that holders of Catena preferred stock are entitled to the number of shares of CIENA common stock that such holder would receive if the merger were an "Acquisition" or "Asset Transfer" under Catena's current certificate of incorporation (including by conversion of preferred stock into common stock to the extent the holder would receive more shares by doing so, disregarding for this purpose the fact that the stock is not currently convertible and the fixed exchange ratio for the Catena common stock), with this number of shares adjusted upward or downward ratably among holders of Catena preferred stock, depending on the extent to which holders of Catena common stock receive more or less consideration in the merger than they would have received were the merger to be treated as an "Acquisition" or "Asset Transfer" of Catena under Catena's current certificate of incorporation. Accordingly, the number of shares each holder of Catena preferred stock will receive in the merger will depend on the value of CIENA's common stock at the closing of the merger. The number of shares of CIENA common stock to be received for each share of Catena preferred stock also is subject to adjustment in the event that Catena's fully-diluted outstanding capital stock changes due to option issuances, stock repurchases and similar events. In addition, the number of shares to be received by each Catena stockholder is subject to adjustment for stock splits, combinations and the like that may occur before the closing of the merger.

The following table illustrates the number of shares of CIENA common stock a holder of Catena preferred stock would be entitled to receive per share under the merger agreement at various hypothetical average closing prices of CIENA's common stock calculated in accordance with Catena's existing certificate of incorporation ("illustrative average closing prices") assuming the total number of shares of Catena capital stock outstanding on a fully-diluted basis on the day the merger is completed is [130,205,604], which was the number of shares of capital stock outstanding on a fully-diluted basis on the record date. Fully-diluted basis means that all outstanding options and warrants are exercised and that all outstanding preferred stock is converted into common stock based on the then-effective conversion rates of the preferred stock. Under Catena's existing certificate of incorporation the value of each share of CIENA common stock issuable to Catena stockholders in the merger equals the average closing price of one share of CIENA's common stock over the 30 days ending three days prior to the closing of the merger.

	Illustrative Average Closing Price(1)			
	\$ 4.19	\$ 5.63	\$ 6.28	\$ 8.14
Exchange Ratio of CIENA Common Stock for Catena Series A and AA Preferred Stock	0.324	0.450	0.466	0.501
Exchange Ratio of CIENA Common Stock for Catena Series A-1 and AA-1 Preferred Stock	0.576	0.772	0.710	0.567
Exchange Ratio of CIENA Common Stock for Catena Series B, BB, B-1 and BB-1 Preferred Stock	1.130	1.356	1.320	1.256
Exchange Ratio of CIENA Common Stock for Catena Series C, CC, C-1 and CC-1 Preferred Stock	2.092	2.228	2.128	1.883
Exchange Ratio of CIENA Common Stock for Catena Series D, DD, D-1 and DD-1 Preferred Stock	0.521	0.450	0.466	0.501

(1) The hypothetical values chosen in the foregoing table as illustrative average closing prices reflect the high and low sales prices of CIENA's common stock on the Nasdaq National Market for the 52 weeks and three months ended February 18, 2004, and the closing price of CIENA's common stock on the Nasdaq National Market on February 18, 2004.

You will receive cash for any fractional share of CIENA common stock that you would otherwise receive in the merger.

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Following the merger, based on 475,254,814 outstanding shares of CIENA common stock as of March 17, 2004, and assuming all of Catena's stock options and warrants have been exercised, Catena stockholders would own approximately 13.2% of the combined company and CIENA stockholders would own approximately 86.8% of the combined company (including shares that may be issued to former stockholders of Internet Photonics, Inc., which CIENA is proposing to acquire in a separate merger agreement announced by CIENA on February 19, 2004).

Please do not send your stock certificates at this time.

Treatment of Options and Warrants (page 37)

CIENA will assume each option or warrant to acquire Catena common stock and preferred stock granted under Catena's stock plans or otherwise issued by Catena and that is outstanding and unexercised immediately prior to the effective time of the merger. At the effective time of the merger, CIENA will replace Catena's options and warrants with options or warrants, respectively, to purchase CIENA common stock, in each case, adjusting the number of shares issuable upon exercise and the exercise price of such option or warrant to reflect the exchange ratio in the merger applicable to the Catena common or preferred stock underlying such Catena option or warrant. The duration and other terms of each such CIENA option or warrant, including the vesting schedule, will be the same as the prior Catena stock option or warrant.

Total Consideration CIENA Will Pay (page 37)

In the merger, CIENA would issue a total of up to approximately 75.9 million shares of CIENA common stock to be allocated between Catena's outstanding shares of capital stock and outstanding warrants and options to purchase Catena capital stock. Based on the closing price of CIENA's common stock on March 22, 2004, these shares would have an aggregate market value of approximately \$362 million.

Appraisal Rights of Dissenting Stockholders (page 34)

If you object to the merger, Delaware law permits you to seek relief as a dissenting stockholder and have the fair value of your shares of Catena common stock and Catena preferred stock determined by a court and paid to you in cash.

If you are a Catena stockholder and wish to dissent, you must deliver to Catena, prior to the vote on the merger at the special meeting, a written demand for appraisal of your shares. You also must not vote in favor of the merger agreement. To not vote in favor of the merger agreement, you can either:

vote no in person at the special meeting or by proxy;

abstain from voting;

fail to vote; or

if you returned a duly executed proxy, revoke your proxy prior to the special meeting.

Beneficial owners of Catena common stock or Catena preferred stock whose shares are held of record by another person, such as a bank, broker or nominee, and who wish to seek appraisal, should instruct the record holder to follow the appraisal procedures of Delaware law. The relevant provisions of Delaware law are technical in nature and complex. If you wish to exercise appraisal rights and obtain appraisal of the fair value of your shares, you may wish to consult with legal counsel, because the failure to comply strictly with these provisions may result in waiver or forfeiture of your appraisal rights.

A copy of the relevant section of Delaware law governing this process is attached as Annex B to this proxy statement/prospectus.

Indemnification and Escrow Arrangement (page 45)

If the merger occurs, all holders of Catena capital stock who have not elected the appraisal rights described above will be obligated to indemnify CIENA and its affiliates against losses due to, among other things, the breach or inaccuracy of any of Catena's representations and warranties made in the merger agreement. This obligation is limited to 10% of the total number of shares of CIENA common stock issued in the merger to holders of outstanding Catena capital stock. An escrow arrangement will be established at closing to hold these shares. Gary Morgenthaler, who is affiliated with Morgenthaler Ventures, Catena's largest stockholder, will serve as stockholders' representative on behalf of all former Catena

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stockholders. In general, the escrow and indemnification obligations will end one year after closing. At that time, the escrowed shares will be released to the former Catena stockholders, reduced by any amounts paid or reserved for claims made by CIENA. Catena stockholders will also contribute a total of 40,128 shares of CIENA common stock to the escrow fund to pay the expenses of the stockholders' representative if Catena's other transaction expenses, together with the expenses of the stockholders' representative, exceed \$7 million. These shares had a market value of approximately \$191,000 based on the closing price of CIENA's common stock on March 22, 2004. See Terms of the Merger Agreement and Related Transactions - Indemnification and Escrow Arrangement.

Consequently, in some circumstances you could be required to forfeit to CIENA some of the CIENA common stock you would otherwise receive in the merger.

CIENA has also agreed to indemnify the former Catena stockholders against losses due to, among other things, the breach or inaccuracy of CIENA's representations and warranties contained in the merger agreement. CIENA's obligation is limited to the value of the total number of shares CIENA is issuing in the merger as of the closing.

What is Needed to Complete the Merger (page 47)

Several conditions must be satisfied before the merger will be completed. These include:

- adoption of the merger agreement by the Catena stockholders as described above;
- approval of the amendment and restatement of Catena's certificate of incorporation; and

other customary contractual conditions set forth in the merger agreement, including a condition that CIENA's stock price will be at a certain minimum level at the time the Catena stockholder vote is obtained.

If the law permits, CIENA or Catena may each waive conditions for their benefit and their stockholders' benefit and complete the merger even though one or more of these conditions has not been met. Catena's stockholder approval cannot be waived. We cannot assure you that the conditions will be satisfied or waived or that the merger will occur.

Termination of the Merger Agreement (page 48)

CIENA and Catena may mutually agree at any time to terminate the merger agreement without completing the merger, even if the Catena stockholders have approved it. Either party (so long as it has not materially breached the merger agreement in a manner that caused the merger not to be consummated or caused the failure to obtain stockholder approval) may terminate the merger if:

the merger has not been consummated by July 31, 2004; or

Catena stockholders do not approve the merger.

In addition, either CIENA or Catena may terminate the merger agreement if:

a court or other governmental authority of competent jurisdiction permanently enjoins the merger from occurring; or

the terminating party is not in material breach of its obligations, and the other party has breached its obligations, or the representations and warranties of the other party are inaccurate, in either case such that the terminating party's conditions to closing will not be fulfilled, if such breach or inaccuracy is not cured within ten days after notice.

Catena may terminate the merger agreement prior to obtaining stockholder approval, so long as it has not materially breached the merger agreement, if:

the Catena board of directors determines to enter into an alternative transaction that it views as superior to the merger;

CIENA does not match the offer made in the other transaction; and

Catena pays to CIENA the \$14.5 million termination fee described below.

CIENA may also terminate the merger agreement if Catena's board of directors withdraws, modifies or amends, in any respect adverse to CIENA, its recommendation in favor of the merger and the adoption of the amendment and restatement of Catena's certificate of incorporation or determines to pursue another transaction it considers superior.

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Catena has agreed to pay CIENA a termination fee of approximately \$14.5 million if the merger agreement is terminated under either of these circumstances and specified other circumstances if a third party has made an offer to acquire Catena.

Amendment and Restatement of Catena's Certificate of Incorporation (page 52)

Catena's board of directors has determined that the CIENA stock to be issued as consideration in connection with the merger should be distributed in a manner that differs from the results that would be obtained under the existing certificate of incorporation of Catena if the merger were treated as an Acquisition or Asset Transfer resulting in the liquidation of Catena. Accordingly, Catena's board of directors has approved, subject to stockholder approval, the amendment and restatement of Catena's certificate of incorporation to exclude the merger from the application of certain provisions in Catena's certificate of incorporation that would treat the merger as an Acquisition or Asset Transfer so that the merger consideration will be allocated as provided in the merger agreement. See Approval of Amendment and Restatement of Catena's Certificate of Incorporation for a description of the effect of this amendment.

U.S. Federal Income Tax Consequences (page 30)

In the opinion of Hogan & Hartson L.L.P., counsel to CIENA, and Cooley Godward LLP, counsel to Catena, the merger will qualify as a tax-free reorganization for U.S. federal income tax purposes. As a general matter, therefore, no gain or loss will be recognized under U.S. federal income tax laws by Catena stockholders on the exchange of their Catena capital stock for CIENA common stock pursuant to the reorganization, except with respect to cash received in lieu of fractional shares and cash received for Catena shares by Catena stockholders who dissent to the merger and exercise their appraisal rights under Delaware law.

Canadian Federal Income Tax Consequences (page 33)

A Catena stockholder who is resident in Canada or is deemed to be resident in Canada (other than a holder who dissents from the merger) who receives CIENA common stock in exchange for such holder's shares of Catena capital stock should not realize either a capital gain or a capital loss as a result of the merger.

You should consult your tax advisor for a full explanation of the tax consequences of the merger to you.

Accounting Treatment (page 30)

The merger is expected to be accounted for using the purchase method of accounting. CIENA will be deemed the acquiror for financial reporting purposes. Under the purchase method of accounting, the purchase price in the merger is allocated among the Catena assets acquired and the Catena liabilities assumed to the extent of their fair market value, with any excess purchase price being allocated to goodwill.

Governmental and Regulatory Approvals (page 30)

The Hart-Scott-Rodino Antitrust Improvements Act of 1976 as amended (the HSR Act) and its related rules and regulations prohibit Catena and CIENA from completing the merger until CIENA and Catena each file notifications with the Antitrust Division of the Department of Justice and the Federal Trade Commission, and the Hart-Scott-Rodino waiting period requirements have been satisfied. Even after the Hart-Scott-Rodino waiting period expires or is terminated, and even after the merger is completed, the Antitrust Division or the Federal Trade Commission could challenge the merger on antitrust grounds. In addition, before or after the merger is completed, states and private litigants could also challenge the merger on antitrust grounds. CIENA and Catena each filed Hart-Scott-Rodino notifications with the Federal Trade Commission and the Antitrust Division on February 25, 2004, and the waiting period was terminated on March 8, 2004.

Approval of Parachute Payments in Connection With the Merger (page 56)

In connection with the change in control that results from the merger of Catena into CIENA, certain U.S. executive officers of Catena could receive payments that could constitute so-called parachute payments under the Tax Code. For these individuals, these payments may arise as a result of the following:

the value of acceleration of vesting in shares of restricted Catena common stock;

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the value of acceleration of vesting in options to acquire Catena common stock; and

the value of severance payments and subsidization of medical benefits to be received pursuant to the terms of severance agreements.

Under Section 280G of the Tax Code, an amount paid to certain individuals that is contingent on a change in ownership or a change in control of a corporation is a parachute payment if the aggregate present value of all payments made to an individual in connection with such transaction exceeds three times the disqualified individual's base amount. An amount is an excess parachute payment to the extent the amount exceeds one times the disqualified individual's base amount. To the extent payments are excess parachute payments, they are not deductible by the corporation and an excise tax (in addition to regular income and employment taxes) is imposed on the recipient if the recipient is a U.S. taxpayer. However, payments will not be treated as parachute payments if holders of more than 75% of the voting power of all outstanding capital stock of Catena, other than stock held by the disqualified individuals and certain related persons, approve these payments. If the payments are not approved, each disqualified individual has agreed to forego the portion of the payments that would be taxable as an excess parachute payment. You are being asked to vote to approve these payments by a separate vote from your vote on the merger. For a further discussion of the treatment of these payments and stockholder approval of these payments, see Approval of Payments In Connection With the Merger.

Table of Contents**SUMMARY SELECTED CONSOLIDATED HISTORICAL****FINANCIAL DATA OF CIENA**

The information in the following summary selected consolidated financial data as of October 31, 1999, 2000, 2001, 2002 and 2003 and for the years ended October 31, 1999, 2000, 2001, 2002 and 2003 is derived from CIENA's audited consolidated financial statements. You should read this information in conjunction with the financial statements and notes to the consolidated financial statements that are incorporated by reference into this proxy statement/ prospectus. Selected financial information as of January 31, 2004 and for the three months ended January 31, 2004 and January 31, 2003 is derived from CIENA's unaudited consolidated financial statements, which are incorporated by reference into this proxy statement/ prospectus. See *Where You Can Find More Information* which begins on page 78. CIENA has a 52 or 53 week fiscal year, which ends on the Saturday nearest to the last day of October in each year. For purposes of financial statement presentation, each fiscal year is described as having ended on October 31. Fiscal 1999, 2000, 2002 and 2003 comprised 52 weeks and fiscal 2001 comprised 53 weeks. Historical events are not necessarily indicative of results to be expected in the future and results of interim periods are not necessarily indicative of the results of the entire year.

	As of October 31,					As of January 31,
	1999	2000	2001	2002	2003	2004
(in thousands)						
Balance Sheet Data:						
Cash, cash equivalents, short term and long-term investments	\$ 262,396	\$ 238,318	\$ 1,795,141	\$ 2,078,464	\$ 1,626,218	\$ 1,519,271
Total assets	677,835	1,027,201	3,317,301	2,751,022	2,378,165	2,264,323
Long-term obligations, excluding current portion	4,881	4,882	869,865	999,935	861,149	818,056
Stockholders' equity	\$ 530,473	\$ 809,835	\$ 2,128,982	\$ 1,527,269	\$ 1,330,817	\$ 1,263,611

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	Year Ended October 31,					Three Months Ended January 31,	
	1999	2000	2001	2002	2003	2003	2004
(in thousands, except per share data)							
Statement of Operations							
Data:							
Revenue	\$ 482,085	\$ 858,750	\$ 1,603,229	\$ 361,155	\$ 283,136	\$ 70,474	\$ 66,414
Excess and obsolete inventory costs (benefit)	6,534	15,022	68,411	286,475	(5,296)	(2,657)	1,043
Cost of goods sold	293,235	462,371	836,138	309,559	215,387	56,866	44,818
Gross profit (loss)	182,316	381,357	698,680	(234,879)	73,045	16,265	20,553
Operating expenses:							
Research and development	101,006	125,434	235,831	239,619	199,699	53,734	47,177
Selling and marketing	61,603	90,922	146,949	130,276	103,193	26,605	25,468
General and administrative	22,696	33,960	57,865	52,612	38,478	14,706	7,091
Settlement of accrued contract obligation		(8,538)					
Deferred stock compensation costs:							
Research and development			17,783	15,672	12,824	3,798	2,205
Selling and marketing			8,378	3,560	2,728	759	518
General and administrative	40	40	15,206	1,092	1,225	374	121
Amortization of goodwill	3,197	3,197	177,786				
Amortization of intangible assets	438	438	4,413	8,972	17,870	3,554	3,396
In-process research and development			45,900		2,800		
Restructuring costs			15,439	225,429	31,155		3,393
Goodwill and intangible impairment			1,719,426	557,286	29,596		
Merger related costs	13,021						
Provision (benefit) for doubtful accounts	250	28,010	(6,579)	14,813			
Total operating expenses	202,251	273,463	2,438,397	1,249,331	439,568	103,530	89,369
Income (loss) from operations	(19,935)	107,894	(1,739,717)	(1,484,210)	(366,523)	(87,265)	(68,816)
Interest and other income, net	14,448	13,020	63,579	61,145	42,959	13,301	7,678
Interest expense	(504)	(340)	(30,591)	(45,339)	(36,331)	(12,203)	(7,384)
Gain (loss) on equity investments, net				(15,677)	(4,760)	(10)	454
Loss on extinguishment of debt				(2,683)	(20,606)	(20,606)	(8,216)
	(5,991)	120,574	(1,706,729)	(1,486,764)	(385,261)	(106,783)	(76,284)

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Income (loss) before income taxes							
Provision (benefit) for income taxes	(2,067)	39,187	87,333	110,735	1,256	359	424
Net income (loss)	\$ (3,924)	\$ 81,387	\$(1,794,062)	\$(1,597,499)	\$(386,517)	\$(107,142)	\$(76,708)
Basic net income (loss) per common share	\$ (0.01)	\$ 0.29	\$ (5.75)	\$ (4.37)	\$ (0.87)	\$ (0.25)	\$ (0.16)
Diluted net income (loss) per common and dilutive potential common share	\$ (0.01)	\$ 0.27	\$ (5.75)	\$ (4.37)	\$ (0.87)	\$ (0.25)	\$ (0.16)
Weighted average basic common shares outstanding	267,042	281,621	311,815	365,202	446,696	432,572	472,935
Weighted average basic common and dilutive potential common shares outstanding	267,042	299,662	311,815	365,202	446,696	432,572	472,935

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RISK FACTORS

In addition to the risks described in CIENA's most recently filed Form 10-Q under Item 2, you should carefully consider the following risk factors relating to the merger before deciding how to vote your shares. You should also consider the other information contained in or incorporated by reference into, this proxy statement/prospectus. See Where You Can Find More Information on page 78.

The value and number of shares of the CIENA common stock that Catena stockholders receive in the merger will depend on its market price at the time of the merger.

The value of CIENA common stock that Catena stockholders will receive in the merger depends on the market price of CIENA common stock at the time of the merger. In addition, for the holders of Catena's preferred stock, the number of shares allocated to each class also depends upon the average closing price of CIENA's common stock over the 30-day period ending three days prior to closing. The market price of CIENA common stock may decline, causing the value of the consideration received by Catena stockholders in the merger, and the number of shares to be issued to holders of Catena's preferred stock, to decline. The market price of CIENA common stock is extremely volatile and has fluctuated over a wide range. From March 22, 2003 to March 22, 2004, CIENA common stock traded as high as \$8.14 per share and as low as \$4.19 per share. From February 18, 2004, the last trading day prior to the date on which the merger was announced, through March 22, 2004, the price of CIENA common stock has decreased from \$6.28 per share to \$4.77 per share, a decline of approximately 24%. The market price of CIENA common stock may continue to fluctuate significantly in response to various factors, including:

quarterly variations in operating results principally due to customer purchasing decisions;

changes in estimates by securities analysts;

continued low levels in capital spending by customers; and

general economic conditions.

Directors and officers of Catena may have conflicts of interest that influenced their decisions to approve the merger.

You should be aware of potential conflicts of interest of, and the benefits available to, directors and executive officers of Catena when considering the Catena board of directors' recommendation of the merger agreement and the other proposals. Some directors and executive officers of Catena have interests in the merger and the other proposals that are in addition to, or different from, their interests as Catena stockholders. These interests are described under The Merger - Interests of Executive Officers and Directors in the Merger on page 27.

These interests include:

Executive Officer Benefits. Each of Catena's executive officers may benefit from acceleration of vesting and severance benefits implemented in connection with the merger. Catena's executive officers entered into severance benefits agreements with Catena, which agreements would be obligations assumed by CIENA in the merger. Each such agreement provides that if the officer is terminated without cause or terminates his or her employment for good reason, (a) all vesting restrictions with respect to his or her options and stock would lapse, (b) he or she would receive a severance payment equal to six months of salary and (c) he or she would receive continuation or subsidization of certain medical benefits for up to six months following termination.

Distribution of Proceeds in Merger. As a result of the amendment and restatement of Catena's certificate of incorporation and the terms of the merger agreement, holders of Catena common stock may receive more consideration in the merger than they would if it were treated as an Acquisition or Asset Transfer of Catena constituting a liquidation under Catena's existing certificate of incorporation if the average closing price of CIENA's common stock over the 30-day period ending three days prior to the merger is less than \$7.82. The majority of Catena's outstanding common stock is held by executive officers of Catena. Conversely, if the average closing price of CIENA's common stock over the 30-day period ending three days prior to the merger is

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greater than \$7.82, the holders of Catena's preferred stock would receive more shares of CIENA common stock than they would if the merger were treated as an Acquisition or Asset Transfer of Catena constituting a liquidation under Catena's existing certificate of incorporation. The majority of Catena's outstanding preferred stock is held by affiliates of directors of Catena.

Indemnification. Under the merger agreement, CIENA has agreed to provide continued indemnification for present and former directors and officers of Catena with respect to matters existing prior to the closing of the merger, for six years following the closing, including matters relating to the merger.

Stockholder Agreements. All Catena directors and officers (and their respective affiliates) have entered into stockholder agreements pursuant to which they have agreed to vote shares of Catena common and preferred stock over which they exercise voting control in favor of the adoption of the merger agreement and the merger and in favor of approval of the amendment and restatement of Catena's certificate of incorporation. The stockholder agreements also grant to CIENA an irrevocable option to purchase a portion of the shares of Catena stock that are owned beneficially or of record by the stockholders who entered into the stockholder agreements.

The structure and implementation of the merger involve a number of risks including risks of integration and unknown liabilities.

The merger involves the combination of CIENA with a private company with limited operating history and is a complex transaction. Among the risks the merger involves are risks of successful integration, potential liabilities that may be incurred as a result of the merger, tax consequences and accounting treatment.

Successful integration involves numerous risks, including:

assimilating Catena's technology and product offerings, which may be more difficult than anticipated because the technology is complex;

coordinating research and development efforts, which may involve unexpected problems;

diversion of management attention from business matters to integration issues;

identifying and retaining key personnel, which may be difficult in the combined company;

integrating accounting, engineering, information technology and administrative systems, which may be unexpectedly difficult or costly;

making significant cash expenditures that may be required to retain personnel, eliminate unnecessary resources and integrate the business;

maintaining uniform standards, controls, procedures and policies, which may be harder than CIENA and Catena anticipate and interfere with efficient administration of the combined company; and

changes in the businesses as a result of the merger that impair relationships with employees, customers or vendors.

In addition, as a result of the merger, CIENA will succeed to any liabilities of Catena now existing or arising out of Catena's businesses prior to closing, including unknown liabilities. These liabilities may include liabilities to customers, suppliers or employees, as well as potential liabilities that can arise from intellectual property disputes.

Further, CIENA is proposing to issue up to 24.1 million shares of common stock to acquire another private company, Internet Photonics, Inc., at approximately the same time as the acquisition of Catena and all of the risks described above exist with respect to that acquisition as well.

Failure to overcome these risks or any other problems encountered in connection with the merger could have a material adverse effect on CIENA's business, results of operations and financial condition.

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Only in limited circumstances can Catena terminate the merger due to a decrease in CIENA's stock price.

Catena can terminate the merger agreement if the average closing price of CIENA's common stock listed on the Nasdaq National Market for the 10 trading days immediately preceding the date stockholder approval is obtained is less than \$3.12. Otherwise, neither party has the right to terminate the merger solely due to increases or decreases in CIENA's stock price, even if those fluctuations would materially affect the value of the consideration Catena stockholders will receive in the merger.

FORWARD-LOOKING STATEMENTS

Some of the statements contained, or incorporated by reference, in this proxy statement/ prospectus discuss future expectations, contain projections of results of operations or financial condition or state other forward-looking information. Those statements are subject to known and unknown risks, uncertainties and other factors that could cause the actual results to differ materially from those contemplated by the statements. The forward-looking information is based on various factors and was derived using numerous assumptions. In some cases, you can identify these so-called forward-looking statements by words like may, will, should, expects, plans, anticipates, believes, estimates, predicts, continue or the negative of those words and other comparable words. You should be aware that those statements only reflect our predictions. Actual events or results may differ substantially. Important factors that could cause our actual results to be materially different from the forward-looking statements are disclosed under the heading Risk Factors beginning on page 10 and throughout this proxy statement/ prospectus.

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THE SPECIAL MEETING OF CATENA NETWORKS, INC. STOCKHOLDERS

General

Catena is furnishing this proxy statement/ prospectus to its stockholders in connection with the solicitation of proxies by the Catena board of directors for use at the special meeting of stockholders of Catena to be held on [], 2004, and at any adjournment or postponement thereof. This document is also being furnished to Catena stockholders by CIENA as a prospectus of CIENA in connection with the issuance by CIENA of shares of CIENA common stock as contemplated by the merger agreement.

This document was first mailed to stockholders of Catena on or about [], 2004.

Date, Time and Place

The special meeting will be held on [], 2004 at 8:00 a.m., local time, at the offices of Catena at 307 Legget Drive, Kanata, Ontario, Canada. Catena's telephone number is (613) 599-6430.

Purpose of the Special Meeting

The purpose of the Catena special meeting is to consider and vote upon proposals to:

1. Approve and adopt the merger agreement;
2. Approve and adopt the amendment and restatement of Catena's certificate of incorporation to provide that the merger of Catena into CIENA is not an Acquisition or Asset Transfer of Catena that would be treated as a liquidation of Catena as defined therein;
3. Approve the payments to [] of amounts that would otherwise result in parachute payments under Section 280G of the Tax Code;
4. Grant discretionary authority to the Catena board of directors to adjourn or postpone the Catena special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary; and
5. Consider and act upon any other matter that may properly come before the special meeting.

A copy of the merger agreement is included in this proxy statement/ prospectus in Annex A. Catena stockholders are encouraged to read the merger agreement in its entirety.

Record Date and Voting

Holders of record of common stock and preferred stock of Catena at the close of business on [], 2004 (referred to in this proxy statement/ prospectus as the record date) that are entitled to vote at any annual or special meeting of Catena stockholders, are entitled to vote at the special meeting and any adjournment or postponement of the special meeting. Holders of non-voting common stock and series B-1, series BB-1, series C-1, series CC-1, series D-1 and series DD-1 preferred stock are not entitled to vote at the special meeting. Holders of all classes and series of Catena's common stock and preferred stock are entitled to notice of the matters proposed to be voted on at the special meeting.

On the record date, the following voting securities were outstanding:

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[9,371,695] shares of voting common stock;

[10,100,000] shares of series A preferred stock;

[440,000] shares of series A-1 preferred stock;

[7,677,856] shares of series B preferred stock;

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[7,514,978] shares of series C preferred stock; and

[61,982,888] shares of series D preferred stock.

Each share of common stock entitled to vote at the special meeting is entitled to one vote on each matter brought properly before the special meeting. Each share of preferred stock entitled to vote at the special meeting is entitled to a number of votes equal to the number of shares of common stock into which such share of preferred stock would be convertible pursuant to Catena's certificate of incorporation (assuming such shares were currently convertible). Each share of series A preferred stock is entitled to one vote for each matter brought properly before the special meeting. Each share of series A-1 preferred stock is entitled to approximately 1.13 votes for each matter brought properly before the special meeting. Each share of series B preferred stock is entitled to approximately 1.63 votes for each matter brought properly before the special meeting. Each share of series C preferred stock is entitled to approximately 1.98 votes for each matter brought properly before the special meeting. Each share of series D preferred stock is entitled to one vote for each matter brought properly before the special meeting. However, as described below, approval of the merger agreement and the amendment and restatement of Catena's certificate of incorporation requires special votes of preferred stockholders, including certain unaffiliated investors.

Generally, the representation, in person or by properly executed proxy, of the holders of a majority of all the shares of capital stock issued and outstanding and entitled to vote at the Catena special meeting is necessary to constitute a quorum for the transaction of business at the Catena special meeting. In connection with the separate vote by the voting preferred stock, a majority of the total outstanding shares of such series of capital stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the series C preferred stock, a majority of the total outstanding shares of such series of capital stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the holders of common stock, a majority of the total outstanding shares of common stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. If you sign and send in your proxy card and do not indicate how you want to vote, it will be voted in favor of the merger agreement and in favor of the other proposals.

Under Delaware law and the certificate of incorporation of Catena, approval of the merger agreement and of the amendment and restatement of Catena's certificate of incorporation requires the affirmative vote of:

holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis; and

holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted basis into common stock, including at least three unaffiliated investors.

In addition, under Catena's certificate of incorporation, adoption of the amendment and restatement of Catena's certificate of incorporation requires the affirmative votes of the holders of at least 70% of the outstanding shares of series C preferred stock.

In order to ensure that certain payments made to certain U.S. executive officers of Catena are not treated as parachute payments, the affirmative vote of more than 75% of the voting power of all outstanding capital stock of Catena (other than stock held by the disqualified individuals) is required to approve these payments. Under the applicable Treasury Regulations, approval by a stockholder that is not an individual (i.e., an entity) of a payment generally must be made by the person authorized by the entity stockholder to approve the payment (assuming such authorized person is not a disqualified individual).

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However, if a substantial portion of the assets of an entity stockholder consists (directly or indirectly) of stock in the corporation undergoing the change in ownership or control, approval of such payment by that entity must be made by a separate vote of the persons who hold, immediately before the change in ownership or control more than 75% of the voting power of the entity stockholder entitled to vote. For this purpose, stock represents a substantial portion if the fair market value of the stock held by the entity stockholder in the corporation undergoing the change in ownership or control is equal to or greater than one-third of the total gross fair market value of the assets of the entity, determined without regard to any liabilities associated with such assets.

Abstentions from voting identified as such on the proxy card are treated as present or represented for purposes of determining the presence or absence of a quorum at the special meeting. However, abstentions as to a proposal will have the same effect as votes against such proposal.

As of the close of business on the record date for the special meeting, Catena's directors and executive officers (and their respective affiliates) held approximately _____ shares of Catena voting common stock and _____ shares of Catena voting preferred stock on an as-converted into common stock basis, or approximately [_____] % and [_____] % of the shares of Catena's common stock and preferred stock entitled to vote at the special meeting. In addition, directors, executive officers and stockholders of Catena beneficially owning as of the record date:

[6,155,675] shares of voting common stock, representing approximately [66]% of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;

[63,036,614] shares of voting common stock and voting preferred stock considered on an as-converted into common stock basis, representing approximately [57]% of Catena's common stock and preferred stock entitled to vote at any annual or special meeting of Catena stockholders, on an as-converted into common stock basis; and

[56,880,939] shares of voting preferred stock considered on an as-converted into common stock basis, representing approximately [56]% of Catena's voting preferred stock, on an as-converted into common stock basis, and [54%] of the series C preferred stock, have entered into agreements, pursuant to which they have agreed to vote their Catena shares in favor of adoption and approval of the merger agreement and approval of the amendment and restatement of Catena's certificate of incorporation, against any proposal made in opposition to, or in competition with, the merger, and against any proposal intended to impede, frustrate, prevent or nullify the merger, or that could reasonably be expected to change the voting rights of the capital stock. As of the close of business on the record date, neither CIENA nor any officer or director of CIENA owned shares of Catena common or preferred stock.

Voting of Proxies at the Special Meeting and Revocation of Proxies

All shares of Catena capital stock that are entitled to vote and are represented at the Catena special meeting by properly executed proxies received prior to or at such meeting, and not revoked, will be voted at such meeting in accordance with the instructions indicated on such proxies. If no instruction is indicated, such proxies will be voted **FOR** approval and adoption of the merger agreement, **FOR** the amendment and restatement of Catena's certificate of incorporation, **FOR** approval of the payments that would otherwise result in parachute payments, and **FOR** the grant of discretionary authority to adjourn or postpone the special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary.

The Catena board of directors does not know of any matters other than those described in the notice of the Catena special meeting that are to come before such meeting. If any other matters are properly presented at the Catena special meeting for consideration, the persons named in the enclosed proxy card and acting thereunder generally will have discretion to vote on such matters in accordance with their best judgment.

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Any proxy given pursuant to the solicitation may be revoked by the person giving it at any time before it is voted. Proxies may be revoked by:

filing with Kevin Forbes, the Secretary of Catena, at or before the taking of a vote at the Catena special meeting, a written notice of revocation bearing a later date than the proxy,

duly executing a later dated proxy relating to the same shares and delivering it to Kevin Forbes before the taking of the vote at the Catena special meeting, or

attending the Catena special meeting and voting in person (although attendance at the Catena special meeting will not in and of itself constitute a revocation of a proxy).

Any written notice of revocation or subsequent proxy should be sent to Catena Networks, Inc., 307 Legget Drive, Kanata, Ontario K2K 3C8, Canada, Attn: Kevin Forbes, Secretary, or hand-delivered to Kevin Forbes at or before the taking of the vote at the Catena special meeting.

Catena will be soliciting proxies on its own behalf. Catena intends to solicit proxies through this proxy statement/ prospectus and directly through its directors, officers and regular employees. Solicitation of some stockholders may be made in person or by mail, telephone, facsimile transmission or other means of electronic transmission.

Catena will bear its own expenses in connection with the solicitation of proxies for its special meeting of stockholders, except that CIENA will bear all printing and filing costs and expenses, other than attorneys' and accountants' fees and expenses of Catena. CIENA will bear all other expenses incurred in connection with the preparation of this document and the preparation and filing of the registration statement of which this document forms a part.

Quorum and Abstentions

The representation in person, or by properly executed proxy, of the holders of a majority of all shares of capital stock entitled to vote at the special meeting is necessary to constitute a quorum for the transaction of business at the special meeting of Catena. In connection with the separate vote by the voting preferred stock, a majority of the total outstanding shares of the voting preferred stock (considered on an as-converted into common stock basis) present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the series C preferred stock, a majority of the total outstanding shares of such series of capital stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the holders of Catena's voting common stock, a majority of the total outstanding shares of Catena's voting common stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting.

Shares held by persons abstaining will be counted in determining whether a quorum is present at the Catena special meeting. Catena has appointed Kevin Forbes, its Secretary, to function as the inspector of elections of the special meeting. The inspector of elections will ascertain whether a quorum is present, tabulate votes and determine the voting results on all matters presented to Catena stockholders at the special meeting. If a quorum is not present, or fewer shares of Catena common and preferred stock are voted for the approval of the proposals being considered at the special meeting, and if stockholders approve the grant of discretionary authority to the Catena board of directors to adjourn the special meeting, the special meeting may be postponed or adjourned for the purpose of allowing additional time for obtaining additional proxies or votes, and, at any subsequent reconvening of the special meeting, all proxies will be voted in the same manner as the proxies would have been voted at the original convening of the special meeting, except for any proxies that have been effectively revoked or withdrawn prior to the subsequent reconvening of the special meeting.

If you submit a proxy that indicates an abstention from voting in all matters, your shares will be counted as present for the purpose of determining the existence of a quorum at the special meeting, but they will not be voted on any matter at the applicable special meeting. Consequently, your abstention will

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have the same effect as a vote against the proposal to approve and adopt the merger agreement and the other proposals. If your proxy indicates an abstention only as to a particular proposal, that abstention will have the same effect as a vote against that particular proposal.

Board of Directors Recommendation

The Catena board of directors has unanimously determined that the merger agreement, the amendment and restatement of Catena's certificate of incorporation and the payment of parachute payments to certain U.S. executive officers of Catena are advisable, fair to and in the best interests of Catena and its stockholders. Accordingly, the Catena board of directors has unanimously approved the merger agreement, the amendment and restatement of Catena's certificate of incorporation and the payment of parachute payments to certain of its U.S. executive officers and unanimously recommends that stockholders vote **FOR** adoption and approval of the merger agreement, **FOR** adoption and approval of the amendment and restatement of Catena's certificate of incorporation, **FOR** approval of the payments that would otherwise result in parachute payments, and **FOR** approval of the grant of discretionary authority to adjourn the special meeting to solicit additional votes if necessary. In considering such recommendations, Catena stockholders should be aware that some Catena directors and officers have interests in the merger that are different from, or in addition to, those of Catena stockholders, and that Catena and CIENA have provided indemnification arrangements to directors and officers of Catena. See *The Merger* Interests of Executive Officers and Directors in the Merger.

The matters to be considered at the special meeting are of great importance to the stockholders of Catena. Accordingly, Catena stockholders are urged to read and carefully consider the information presented in this document and to complete, date, sign and promptly return the enclosed proxy in the enclosed, postage-paid envelope.

Catena's stockholders should not send any stock certificates with their proxy cards. A transmittal form with instructions for the surrender of Catena common stock certificates will be mailed to Catena stockholders promptly following completion of the merger. For more information regarding the procedures for exchanging Catena stock certificates for CIENA stock certificates, see *Terms of the Merger Agreement and Related Transactions* Exchange of Certificates; Fractional Shares.

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THE MERGER

General

The boards of directors of CIENA and Catena have each approved the merger agreement, which provides for the merger of Catena with and into CIENA, with CIENA being the surviving corporation of the merger. Each share of Catena common stock and Catena preferred stock outstanding immediately prior to the merger will be converted into the right to receive shares of CIENA common stock. The shares of Catena common stock and Catena preferred stock will be converted into a number of shares of CIENA common stock in accordance with the formulas specified in the merger agreement, as described under Terms of the Merger Agreement and Related Transactions Treatment of Stock, Options and Warrants. Fractional shares of CIENA common stock will not be issued in connection with the merger, and Catena stockholders otherwise entitled to a fractional share will be paid in cash for the fractional share, in the manner described under Terms of the Merger Agreement and Related Transactions Exchange of Certificates; Fractional Shares.

Background of the Merger

As a regular part of their business, CIENA and Catena from time to time have each independently considered opportunities to expand and strengthen their own technology, products, research and development capabilities and distribution channels, including distribution agreements, acquisitions, investments, licenses, development agreements and joint ventures. In particular, CIENA's senior management has been interested in pursuing broadband services as a potential addressable market segment, and from time to time CIENA has had contact with various parties to explore on a preliminary basis strategic alternatives in connection with the same.

On June 4, 2003, at the Supercomm 2003 trade show in Atlanta, Georgia, Beth Perry, then CIENA's Senior Vice President Business Development, and Byron BeMiller, CIENA's Senior Director, Business Development, met with Gudmundur Hjartarson, President and Chief Executive Officer of Catena, and Gary Bolton, Vice President of Marketing for Catena, both of whom provided a brief overview of Catena's business and financial outlook.

The next day, on June 5, 2003, Mr. BeMiller and Steve Chaddick, CIENA's Senior Vice President and Chief Strategy Officer, Steve Alexander, CIENA's Senior Vice President and Chief Technology Officer, and Tom Mock, CIENA's Senior Vice President of Strategic Planning, visited Catena's booth at Supercomm and met with Messrs. Hjartarson and Bolton. Topics of discussion included Catena's products, technology and market.

Subsequently, CIENA and Catena entered into a general nondisclosure agreement.

In the summer of 2003, Catena received preliminary inquiries from several telecommunications equipment providers other than CIENA regarding potential strategic partnerships or acquisitions. At that time, Catena was also beginning to evaluate the prospect of effecting an initial public offering of its common stock in 2004.

In July 2003, Jim Collier, CIENA's Senior Vice President, Corporate Development, spoke with Mr. Bolton about the potential for some form of business arrangement between the two companies. Mr. Bolton indicated that Mr. Hjartarson wished to speak directly with Gary B. Smith, CIENA's President and Chief Executive Officer, to gauge the level of CIENA's interest in a potential business arrangement with Catena.

On July 22, 2003, Mr. Smith spoke with Mr. Hjartarson and indicated that CIENA was interested in pursuing discussions with Catena and, to that end, arranged for a meeting between the principals of both parties.

On August 1, 2003, Messrs. Smith, Alexander and Collier, and Joseph Chinnici, CIENA's Senior Vice President, Finance and Chief Financial Officer, met with Messrs. Hjartarson and Bolton and Kevin

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Forbes, Catena's Vice President of Finance, near Washington, D.C. The parties discussed Catena's business and market opportunities, and explored possible synergies between the two companies in connection with a business combination.

On September 10, 2003, Messrs. BeMiller and Mock, Arpit Joshipura, CIENA's Vice President of Portfolio Solutions Marketing, and Dan Spears, CIENA's Director, Strategic Planning, visited Catena's offices in Kanata, Ontario, Canada to gather more detailed information on Catena and its products and technology. Catena was represented by Messrs. Hjartarson, Bolton and Forbes, as well as Mark Feeley, Vice President, System Development, Jonathan Boocock, Vice President, Line Circuit Development, and Andy Weirich, Vice President, System Architecture. During the meeting, Catena gave a presentation on its products and technology, financial information, and current and future market opportunities. The parties also had a preliminary discussion about the potential for an acquisition of Catena by CIENA. Over the next several weeks, the parties continued to provide each other with additional business and financial information.

On September 16, 2003, Catena retained the services of Goldman, Sachs & Co. as financial advisor to Catena in connection with a potential acquisition of Catena. Entities affiliated with Goldman Sachs hold shares of Catena stock.

On October 8, 2003, the parties entered into a new nondisclosure agreement, incorporating a provision prohibiting the solicitation of each other's employees.

On October 15, 2003, at a regularly scheduled meeting of Catena's board of directors, Catena management reported to the board of directors regarding their meetings with several investment banks relating to a potential initial public offering of Catena's common stock. The board was advised of the criteria these banks indicated were necessary for Catena to effect a successful initial public offering in 2004.

In October and November 2003, Catena's financial advisor contacted six telecommunications equipment providers in addition to CIENA that were identified by Catena and its financial advisor as being most likely to be interested in acquiring Catena. Of those six companies, four requested and were sent additional information regarding Catena. However, only CIENA indicated a continued interest in further discussions regarding an acquisition of Catena. In this regard, on October 30, 2003, Messrs. Collier and Hjartarson met at Catena's offices in Canada to discuss a potential business combination between the parties. Mr. Collier informed Mr. Hjartarson that CIENA would be interested in a possible business combination, provided that the parties could agree on mutually acceptable business terms, and Mr. Hjartarson indicated Catena was prepared to entertain negotiations with CIENA, although it continued to explore the alternative of an initial public offering. Messrs. Collier and Hjartarson also discussed the possible valuation of Catena in connection with a transaction, as well as potential synergies between the two companies.

In November 2003, CIENA engaged Morgan Stanley to act as its financial advisor in connection with a proposed transaction with Catena.

On November 21, 2003, CIENA sent Catena a draft of a non-binding letter of intent with respect to a proposed transaction.

On December 3, 2003, Messrs. Smith and Collier met with Mr. Hjartarson at CIENA's offices in Linthicum, Maryland, to discuss specifics regarding the proposed transaction, including a possible purchase price. Also present at this meeting for CIENA were Emil Savov, Vice President, Corporate Development, and CIENA's financial advisors from Morgan Stanley, and for Catena, Mr. Forbes and Catena's financial advisors from Goldman Sachs.

On December 4, 2003, at a regularly-scheduled meeting of Catena's board of directors, the board of directors discussed the terms of CIENA's letter of intent. After considering all appropriate factors and circumstances, the board of directors determined that the proposed purchase price put forth by CIENA was insufficient. After such discussion, the board of directors authorized Goldman Sachs to deliver a

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counterproposal to CIENA with a higher proposed purchase price and other revisions to the letter of intent discussed at the meeting.

Subsequently, CIENA proposed a revised purchase price and other terms to Catena.

In December 2003, Goldman Sachs continued its discussions with many of the companies (other than CIENA) that had originally been contacted regarding Catena. In the course of these discussions, none of the companies contacted indicated an interest in pursuing an acquisition of Catena.

On December 15, 2003, at a special meeting of Catena's board of directors, Mr. Hjartarson and Goldman Sachs updated the board of directors regarding the revised terms proposed by CIENA. At this meeting, the board of directors reviewed and considered the revised terms proposed by CIENA and discussed with Goldman Sachs the possible range of reasonable IPO valuations of Catena and the likely timeframe for effecting an initial public offering. After such discussion, the board of directors authorized Goldman Sachs to deliver a counterproposal to CIENA bearing certain revisions to the letter of intent discussed at the meeting.

Subsequently, CIENA proposed a revised purchase price and other terms to Catena.

On December 18, 2003, at a special meeting of Catena's board of directors, Mr. Hjartarson and Goldman Sachs updated the board of directors regarding the newly revised terms proposed by CIENA. After such discussion, the Board authorized Goldman Sachs to deliver another counterproposal to CIENA bearing further revisions to the letter of intent discussed at the meeting. The board of directors also authorized Mr. Hjartarson, with the assistance of Goldman Sachs and legal counsel, to further negotiate and enter into a non-binding letter of intent comporting with the terms discussed by the board of directors.

On December 24, 2003, Mr. Smith spoke with Mr. Hjartarson regarding the terms of the letter of intent being discussed.

On December 31, 2003, CIENA and Catena entered into a non-binding letter of intent, which provided, among other things, for a proposed purchase price of 75,000,000 shares of CIENA common stock for all of the equity of Catena on a fully-diluted basis.

On January 6, 2004, at a special meeting of the CIENA board of directors, CIENA's senior management and representatives of Morgan Stanley discussed with the board the status of conversations with Catena regarding a possible business combination, including the strategic and financial reasons for such a combination and the key terms from the letter of intent. After discussion, the CIENA board of directors expressed general support for the strategic value of an acquisition of Catena, and authorized management to continue discussions with a view toward reaching a definitive agreement on acceptable terms.

On January 8, 2004, CIENA's legal advisors from Hogan & Hartson commenced a legal due diligence review of Catena, which continued through January 14, 2004.

On January 12, 13 and 14, 2004, a CIENA due diligence team conducted a series of meetings with Catena representatives in Ottawa, Ontario. CIENA representatives at one or more of those meetings included Messrs. Chinnici, BeMiller, Savov and Joshipura; Jésus Léon, Senior Vice President and Chief Development Officer; Arthur Smith, Senior Vice President Global Operations; Lynn Moore, Vice President Human Resources; Phil Moser, Vice President Sales Operations; Chad Whalen, Vice President Sales; Francois Locoh-Donou, Vice President Marketing; Suzanne DuLong, Vice President Investor Relations; Andrew Petrik, Vice President Finance; Greg Sikon, Vice President Tax; David Rothenstein, Assistant General Counsel; Vijay Sharma, Director Sales; Ralph Masso, Lead Accountant; Nancy Macartney, Senior Operations Director; Rick Conklin, Principal Engineer P&T; Venkata Rangavajhala, Management P&T; and Rebecca Seidman, Human Resources Consultant. CIENA's financial advisors from Morgan Stanley, CIENA's legal advisors from Hogan & Hartson, and representatives from PricewaterhouseCoopers, CIENA's independent accountants, were also present at one or more of those meetings. Catena representatives at one or more of those meetings included Messrs. Hjartarson, Bolton, Boocock, Feeley, and Forbes, Richard DeGabrielle, Vice President Sales and Business Development, Jeffrey Reece, Vice President Operations, Jennifer Kaufield, Assistant Vice President Finance, and Franca

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Marinelli, Vice President Human Resources. Catena's financial advisors from Goldman Sachs and Catena's legal advisors from Cooley Godward were also present at one or more of those meetings.

On January 14, 2004, Mr. Smith contacted Mr. Hjartarson to advise him that CIENA had entered into a non-binding letter of intent with Internet Photonics, Inc. and was in the process of negotiating a possible acquisition of that company.

On January 15, 2004, at a special meeting of Catena's board of directors, Mr. Hjartarson briefed the Catena board of directors on the Ottawa due diligence meetings with CIENA. Catena's financial advisor and legal counsel briefed the board of directors on the expected timing and process for negotiating definitive acquisition agreements. The board of directors also discussed the level of due diligence review that should be performed with respect to CIENA. It was then agreed that a business due diligence session should be scheduled to take place in Linthicum, Maryland prior to the execution of the definitive merger agreement.

On January 16, 2004, CIENA directed Hogan & Hartson to send to Catena and Cooley Godward a first draft of a definitive merger agreement, stockholder voting agreements and related agreements.

On January 20, 2004, Cooley Godward sent to CIENA comments on the draft of the merger agreement and related agreements on behalf of Catena.

During late January and early February 2004, representatives of CIENA and Catena and their respective legal advisors continued to negotiate the merger agreement and related agreements.

On February 3, 2004, CIENA announced its preliminary results for the first fiscal quarter ended January 31, 2004, and reported revenue that was below CIENA's previously announced guidance range. On the same day, Mr. Smith spoke with Mr. Hjartarson to advise him of the announcement and the reasons for it.

On February 9, 2004, a Catena due diligence team conducted meetings with CIENA representatives at CIENA's offices in Linthicum, Maryland. Catena was represented by Messrs. Hjartarson and Feeley, as well as three members of the Catena board of directors, Gary Morgenthaler, Joseph Costello and John Jarve. CIENA representatives included Messrs. Smith, Chinnici, Collier and Moser. Financial advisors for Catena and CIENA were also present at those meetings.

On February 10, 2004, at a special meeting of Catena's board of directors, the Catena board discussed the outcome of the February 9th due diligence session, including their impressions of the business prospects of CIENA in the near term and the relative value to the combined company that would be offered by Catena. The board of directors concluded that while it continued to believe a transaction with CIENA was advisable to Catena and its stockholders, the relative value to the combined company provided by Catena would be greater than originally anticipated and thus the proposed purchase price should be increased to reflect the increase in relative value. After such discussion, the board of directors authorized Goldman Sachs to inform CIENA's financial advisor that the number of shares issuable in the merger would need to be increased in order to enter into a definitive merger agreement with Catena. This information was communicated by Goldman Sachs to Morgan Stanley on February 11, 2004.

Between February 11 and February 12, 2004, the parties held numerous telephone discussions, including those between Messrs. Smith and Hjartarson and between the parties' respective financial advisors, regarding the number of shares CIENA would be willing to issue for all of the equity of Catena on a fully-diluted basis. On February 11, 2004, members of Catena's board of directors discussed the status of negotiations with CIENA over the number of shares offered by CIENA. After such discussion, Mr. Hjartarson contacted Mr. Smith to negotiate the final number of shares issuable in the merger and all remaining business issues with respect to the merger agreement. On February 12, 2004, Messrs. Hjartarson and Smith discussed an increase in the proposed purchase price and agreed on a purchase price of 77,500,000 shares of CIENA common stock.

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On February 16, 2004, Mr. Smith met with Messrs. Hjartarson, Boocock, Feeley and Weirich and Andrew Deczky, Catena's Chief Scientist, at CIENA's offices in Linthicum, Maryland, to discuss their respective roles in the combined company following the close of the merger and other merger specific matters.

On February 16, 17 and 18, 2004, representatives of CIENA and Catena completed negotiations on the merger agreement and related agreements and discussed the proposed charter amendments and other actions being taken to carry out the terms of the merger.

On February 17, 2004, at a special meeting of Catena's board of directors, the Catena board considered the merger agreement and related agreements. After discussions with Goldman Sachs and Catena's legal advisors, the Catena board of directors, among other things, unanimously determined that the merger is fair to, and in the best interest of, Catena and its stockholders, and unanimously approved the merger, the merger agreement and the transactions contemplated thereby, the amendment and restatement of Catena's certificate of incorporation and certain executive officer benefits described elsewhere in this proxy statement/prospectus.

On February 18, 2004, the CIENA board of directors held its regular scheduled quarterly meeting, at which CIENA's senior management team presented the proposed terms of the merger. The board also received financial advice from Morgan Stanley on the financial terms of the proposed merger. At the conclusion of the meeting, the CIENA board approved the terms of the merger and authorized management to complete and execute the merger agreement and related agreements.

The merger agreement and related documents, including stockholder voting agreements, were executed the evening of February 18, 2004.

On February 19, 2004, CIENA and Catena issued a joint press release announcing the signing of the merger agreement.

On February 27, 2004, Messrs. Chinnici, Petrik and Rothenstein, Russell B. Stevenson, Jr., CIENA's Senior Vice President and General Counsel, and CIENA's legal advisors spoke with Mr. Hjartarson and Catena's legal advisors about the possibility of amending the merger agreement. The proposed amendment would permit Catena to declare and pay a cash dividend to its preferred stockholders in the amount of up to \$10,000,000, and would reduce the number of shares to be issued by CIENA in exchange for all of the equity of Catena by approximately 1,600,000 shares.

On March 3, 2004, CIENA directed Hogan & Hartson to send to Catena and Cooley Godward a draft of an amendment to the merger agreement reflecting these terms.

On March 4, 2004, the parties executed the amendment to the merger agreement and the stockholders subject to voting and option agreements reaffirmed their agreements.

CIENA's Reasons for the Merger

Strategic Fit

Over the past few years, the retrenchment of the telecommunications industry has resulted in dramatically reduced demand for optical networking products that operate in the core portion of a network, including products that account for a significant portion of CIENA's revenues. In response, CIENA has pursued a corporate strategy designed to expand its addressable market and, thus, its opportunities to derive revenue. This strategy incorporates multiple elements, including (i) moving up the Open System Interconnection (OSI) Reference Model, the set of standards that allow for networking communications, from Layer 1, the Physical Layer, into higher layers, (ii) moving out from the core further to the edge of a network, including the access portions of networks where the majority of carrier spending is expected to occur in the near future, and (iii) increasing sales to the most financially stable service providers—the regional Bell operating companies (RBOCs) in the United States and the PTTs and other incumbent operators in Europe and Asia, and multiple-system operators, or cable companies.

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In connection with this strategy, CIENA has identified equipment used to provide broadband services as an attractive element of this expanded addressable market. CIENA believes that the anticipated growth in demand for broadband voice, video and data services, including high-speed Internet access, video on demand and on-line gaming, is reshaping the telecommunications industry and driving the adoption of a new set of enabling technologies. This growth in demand has led and will lead to new revenue opportunities for service providers and, in turn, an increased demand for products that will allow the service providers to capitalize on those opportunities.

CIENA believes that the proposed acquisition of Catena fits with CIENA's strategy of expansion of its addressable market. Catena's suite of broadband access products will enable CIENA to broaden its product portfolio and significantly expand its addressable market by providing immediate penetration up into Layer 2 of the OSI Model, the Data Link Layer, and out into the access portion of networks, i.e., the last mile that actually delivers services to end users. Catena's products enable carriers to deliver broadband services to their subscribers cost-effectively. The CNX-5 Broadband DSL System, a card-for-card upgrade solution for the Lucent SLC® Series 5 Digital Loop Carrier, gives carriers a simple, cost-efficient way to broadband-enable their installed base without reducing the number of available telephone lines. The CN1000 Broadband Loop Carrier is a high-density system engineered to deliver the triple play of integrated voice, data and video services over both copper and fiber infrastructures, at a fraction of the cost of competing systems. The CN1000FX Fiber-to-the-X solutions, consisting of optical line terminations (for Fiber-to-the-Premises) and optical line cards and optical network units (for Fiber-to-the-Neighborhood) for the CN1000 BLC, allow carriers to address multiple applications with the same flexible access system, enabling the delivery of high-speed and high-bandwidth services deep in their networks, including greenfield neighborhoods, broadband overbuild applications and remote, low-density rural locations, and are fully engineered to support Very High Data Rate DSL (VDSL).

Together, CIENA and Catena expect to provide customers with a comprehensive, integrated set of solutions to deliver efficiently the high-growth broadband services that are key to industry recovery. The combined company, with the Catena products and CIENA's complementary products, including the DN7 family of multi-service data networking products and the CoreDirector intelligent optical switch, will allow carriers to achieve multi-service convergence in various portions of the network, facilitating efficient migration to emerging, next-generation services such as VOIP (Voice Over IP), Fiber-to-the-X, XDSL and PON (Passive Optical Networking).

Moreover, Catena's customer base is complementary to that of CIENA, which will allow CIENA to continue targeting the key incumbent service providers, by solidifying and growing CIENA's existing relationships with the RBOCs and adding new incumbent customers, including major Independent Operating Companies (IOCs) and Competitive Local Exchange Carriers (CLECs).

In particular, CIENA believes that the following strategic benefits will result from the merger:

Positive Contribution to Operating Income. CIENA believes that Catena will make a positive contribution in dollar terms to CIENA's operating income, accelerating CIENA's path to profitability.

Customer Relationships. CIENA believes that Catena has developed valuable relationships with the RBOCs and several IOCs. The three largest RBOCs are all existing customers of Catena. CIENA believes that these relationships will enhance CIENA's ability to compete for future business from RBOCs and complement CIENA's existing sales and distribution channels. CIENA believes it will be able to leverage its existing sales channels and customer relationships to offer the Catena products to a wider range of customers than Catena currently reaches.

Expand Addressable Market. CIENA believes that the proposed merger will expand its addressable market. CIENA currently has no product offering in the broadband access space. Catena's product suite will give CIENA immediate entry into this fast-growing market.

Broader Scope. CIENA believes that the current telecommunications environment makes vendors with a broad product portfolio more attractive to large incumbent carriers than companies with

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narrow or single point solutions. In an effort to simplify their networks and reduce operating expenses, large operators are reducing the number of equipment vendors, forming strong relationships with a few large, strategic vendors. CIENA believes that the acquisition of Catena will strengthen its position with major operators by allowing it to offer a more complete, complementary portfolio of products covering a larger portion of network operators' equipment needs.

Strong Engineering Teams. CIENA believes that Catena has a strong engineering team that will add significantly to CIENA's engineering resources and enhance its ability to continue to innovate and rapidly bring new products to market.

In addition, the CIENA board of directors received advice from Morgan Stanley, its financial advisor, in connection with the financial terms of the proposed merger.

In view of the variety of factors considered in connection with its evaluation of the merger, the CIENA board of directors did not quantify or otherwise assign relative weights to the factors considered in reaching its conclusions. In addition, individual members of the CIENA board of directors may have given different weights to different factors.

For the strategic reasons set forth above, after consultation with CIENA's senior management and its advisors and consideration of the terms and conditions of the merger agreement and the transactions contemplated by the merger agreement, the CIENA board of directors determined that the merger agreement and the merger are in the best interests of CIENA and its stockholders.

Recommendation of Catena's Board of Directors and Reasons for the Merger

At a special meeting held on February 17, 2004, the Catena board of directors unanimously approved the terms and conditions of the merger agreement and the transactions contemplated thereby, including the merger, the proposed amendment and restatement of Catena's certificate of incorporation and the proposed approval of payments that would otherwise constitute parachute payments under the Tax Code. At a special meeting held on March 4, 2004, the Catena board of directors also approved an amendment to the merger agreement permitting Catena to pay a cash dividend to its preferred stockholders in the amount of up to \$10 million and reducing the number of shares to be issued by CIENA in exchange for all of the equity of Catena by approximately 1,600,000 shares. In evaluating these matters, and deciding to approve them, the Catena board of directors considered a number of factors, including the following:

the consideration being offered by CIENA for shares of Catena's capital stock;

Catena's prospects if it were to remain independent, including:

- * the resources necessary to insure Catena's future growth;
- * Catena's ability to effect a successful initial public offering of its common stock;
- * Catena's ability to continue to attract and support the RBOCs and other large telecommunications service provider customers, particularly with respect to Catena's CN1000 product line;

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- * Catena's ability to expand internationally;
- * the challenge faced by Catena of dedicating significant resources to growth while at the same time focusing on achieving profitability; and
- * Catena's ability to effectively compete with large telecommunications equipment companies operating in its market;

the potential benefits and adverse effects, timing and likelihood of possible alternatives to the CIENA transaction, including:

- * continuing to operate Catena as an independent entity, either as a private company or as a public company; and
- * being acquired or forming a strategic partnership with another company;

the potential benefits and adverse effects, timing and likelihood of effecting an initial public offering of Catena's common stock;

the contacts that had been made with potential acquirers and the fact that, although companies with a potential interest in acquiring Catena had been contacted, only discussions with CIENA had advanced beyond preliminary stages;

the strategic value of Catena in the hands of a company with significantly greater financial resources, such as CIENA, which by virtue of its existing customer relationships is well positioned to more optimally exploit Catena's products and technology in the telecommunications carrier marketplace;

the ability of the two companies to combine their technological resources to develop new products with increased functionality and bring them to market faster;

the availability to the combined company of greater resources for product marketing and distribution;

the likelihood that the merger would be completed, in light of the experience, reputation and financial capabilities of CIENA and the terms of the merger agreement;

the Catena board of directors' belief, based on its assessment of the negotiations, that a more favorable purchase price could not be achieved through continued negotiations with CIENA or through negotiations with any third party that could be interested in acquiring Catena;

the fact that certain significant stockholders of Catena were willing to support the transaction, thereby increasing the likelihood that the conditions to closing in the merger agreement would be satisfied;

the fact that the other conditions to CIENA's obligations to consummate the merger were customary and, in the assessment of the Catena board of directors, not unduly onerous;

the terms of the merger agreement, including the limited conditions to the parties' respective obligations under the merger agreement;

the opportunity created by the merger for Catena stockholders to share in the combined company's long term growth;

information concerning Catena's and CIENA's respective businesses, historical financial performance and condition, operations, technology, products, customers, competitive positions, prospects and management; and

due diligence discussions with CIENA by the Catena board of directors and reports from Catena management as to the results of its due diligence investigation of CIENA.

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The Catena board of directors also identified and considered a variety of potentially negative factors in its deliberations concerning the merger, including, but not limited to:

the risk that the potential benefits sought in the merger might not be fully realized;

the possibility that the merger might not be completed and the effect such a result would have on Catena's operations;

that the exchange ratios in the merger agreement provided only limited protection against the depreciation of the value of CIENA's common stock;

the challenges relating to the integration of the two companies;

the possibility of management and employee disruption associated with the proposed merger and integrating the operations of the companies; and

the risks relating to CIENA's business and how they would affect the operations of the combined company.

In considering the fixed exchange ratio in respect of the Catena common stock under the merger agreement, and the associated amendment and restatement of Catena's certificate of incorporation necessary to effect such fixed exchange ratio, the Catena board of directors determined that:

it was unlikely that Catena management, who hold the majority of Catena's common stock would approve the merger agreement without such a fixed exchange ratio, which provides significant protection to the holders of Catena's common stock in the event the price of CIENA's common stock declines prior to closing; and

it was likely that the holders of Catena's preferred stock would support the fixed exchange ratio in respect of Catena's common stock and the associated amendment and restatement of Catena's certificate of incorporation.

In considering the approval of the parachute payments, the Catena board of directors determined that they were a necessary incentive to retain Catena's key executives through the closing of the merger or, if the merger does not close, after the termination of the merger agreement. The Catena board of directors determined to recommend the approval of parachute payments to the stockholders in order to properly compensate those executives who are U.S. taxpayers.

In addition, Catena's board of directors considered the interests that its officers and directors may have with respect to the merger in addition to their interests as Catena stockholders. See [Interests of Executive Officers and Directors in the Merger](#) for a more complete discussion of these interests.

The Catena board of directors believed that the risks of the merger were outweighed by the potential benefits of the merger. In view of the wide variety of factors, both positive and negative, considered by the Catena board of directors, the Catena board of directors did not find it practical to, and did not, quantify or otherwise assign relative weights to the specific factors considered and did not find that any factor was of special importance. Rather, the Catena board of directors viewed its position and recommendations as being based on the totality of the information presented to and considered by it. In addition, different members of the Catena board of directors may have assigned different weights to the various factors described above.

After full consideration of the factors described above, Catena's board of directors unanimously approved the merger agreement, the proposed amendment and restatement of Catena's certificate of incorporation and the payment of parachute payments described above. The Catena board also unanimously determined that the merger is fair to, and in the best interests of, Catena and its stockholders, and unanimously recommends that Catena stockholders vote **FOR** approval and adoption of the merger agreement, **FOR** approval and adoption of the amendment and restatement of Catena's certificate of incorporation, **FOR** approval of the payments to executive officer that would otherwise

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constitute parachute payments and **FOR** the grant of discretionary authority to postpone or adjourn the special meeting.

Interests of Executive Officers and Directors in the Merger

In considering the recommendation of the Catena board of directors regarding the matters proposed for approval at the special meeting, Catena stockholders should be aware that some Catena directors and executive officers have interests in these matters that are different from, or in addition to, their interests as Catena stockholders. These interests may create potential conflicts of interest for these directors and officers because they may be more likely to approve these matters than Catena stockholders generally. The Catena board of directors was aware of these interests and took these interests into account in its deliberations and approval of such matters.

Stock Ownership

The officers and directors of Catena, and the stockholders of Catena affiliated with them, would own the majority of the shares to be issued by CIENA in the merger. As of the date of the merger agreement, the directors and executive officers (and their affiliates) of Catena beneficially owned:

6,155,675 shares, or 66%, of Catena's outstanding common stock;

9,990,000 shares, or 99%, of Catena's outstanding series A preferred stock;

5,528,916 shares, or 72%, of Catena's outstanding series B preferred stock;

4,025,750 shares, or 54%, of Catena's outstanding series C preferred stock; and

29,887,675 shares, or 48%, of Catena's outstanding series D preferred stock.

As of the execution of the merger agreement, the shares described above represented approximately 58% of Catena's capital stock on an as-converted into common stock basis.

Executive Officer Benefits

Each of Catena's executive officers may benefit from acceleration of vesting and severance benefits implemented in connection with the merger, which benefits you are being asked to approve as they pertain to the U.S. taxpayers who are Catena executive officers. In connection with the merger, the executive officers entered into severance benefits agreements with Catena, which agreements would be obligations assumed by CIENA in the merger. Each such agreement provides that if the officer is terminated without cause or terminates his or her employment for good reason, (a) all vesting restrictions with respect to his or her options and stock would lapse, (b) he or she would receive a severance payment equal to six months of salary and (c) he or she would receive subsidization of major medical benefits for up to six months following termination. The following table sets forth, for each executive officer of Catena, the number of vested and unvested shares of Catena common stock held, directly or indirectly, by the executive officer and the number of shares purchasable by the executive officer under vested and unvested options to purchase Catena common stock, as of the date of the merger agreement, assuming vesting

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through April 29, 2004. None of Catena's executive officers owns any Catena preferred stock or any outstanding option or warrant to purchase Catena preferred stock.

Executive Officer	Outstanding Shares of Common Stock		Outstanding Options to Purchase Common Stock	
	Vested	Unvested	Vested	Unvested
Gudmundur (Jim) Hjartarson	1,160,000	0	1,332,860	1,472,989
Mark Feeley	960,000	0	274,322	588,598
Jonathan Boocock	960,000	0	225,062	375,138
Andreas Weirich	960,000	0	225,062	375,138
Andrew Deczky	960,000	0	198,812	261,388
Richard DeGabrielle	865,675	250,000	37,512	197,013
Gary Bolton	40,000	0	501,937	618,263
Steven Bauer	0	0	200,583	124,617
Jeffrey Reece	0	0	157,354	192,846
Franca Marinelli	0	0	115,687	134,513
Kevin Forbes	0	0	12,000	300,000
Jennifer Kaufield	0	0	154,542	130,658
Yit Lee	0	0	59,437	190,763

Distribution of Proceeds in Merger

If the CIENA stock price declines between the date of the merger agreement and closing, the allocation of merger proceeds provided in the merger agreement may disproportionately benefit the executive officers of Catena, all of whom own or have the right to acquire share of Catena common stock. If the CIENA stock price appreciates between the date of the merger agreement and closing, the allocation of merger proceeds provided in the merger agreement may disproportionately benefit the directors of Catena who are affiliated with holders of Catena's preferred stock.

The distribution of merger proceeds under the merger agreement is different from the distribution that would be obtained if the merger were treated as an Acquisition or Asset Transfer constituting a liquidation under Catena's existing certificate of incorporation. In the merger, each holder of Catena common stock will receive 0.493 of a share of CIENA common stock for each share of Catena common stock held by such holder, subject to stock splits, combinations and the like between now and the closing of the merger. In the merger, holders of Catena preferred stock will receive the maximum amount they would if the merger were treated as an Acquisition or Asset Transfer (assuming conversion of the preferred stock to the extent such conversion would result in greater proceeds per share, disregarding for this purpose the fixed exchange ratio for the Catena common stock), except that:

If the merger were treated as an Acquisition or Asset Transfer and the holders of common stock would receive fewer than 0.493 shares of CIENA common stock per Catena common share, then the difference will be deducted from the proceeds to the holders of preferred stock in proportion to the number of shares they otherwise would have received in such Acquisition or Asset Transfer; and

If the merger were treated as an Acquisition or Asset Transfer and the holders of common stock would receive more than 0.493 shares of CIENA common stock per Catena common share, then the difference will be added to the proceeds to the holders of preferred stock in proportion to the number of shares they otherwise would have received in such Acquisition or Asset Transfer.

In the event that the average closing price of CIENA common stock over the 30-day period ending three days prior to the closing of the merger is less than or equal to approximately \$7.82, based on the capitalization of Catena on the date the merger agreement was executed, the holders of Catena's common stock would receive more shares of CIENA common stock than they would have received in the merger

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had it been treated as an Acquisition or Asset Transfer treated as a liquidation under Catena's certificate of incorporation. In such event, the holders of Catena's preferred stock would receive fewer shares of CIENA common stock than they would have received in the merger had it been treated as an Acquisition or Asset Transfer constituting a liquidation under Catena's certificate of incorporation. Conversely, if the average closing price of CIENA common stock over such period is more than approximately \$7.82 per share, based on the capitalization of Catena on the date the merger agreement was executed, the holders of Catena's common stock would receive fewer shares of CIENA common stock, and the holders of Catena's preferred stock would receive more shares of CIENA common stock, than if the merger were treated as a liquidation under Catena's certificate of incorporation. Please see Security Ownership of Directors, Executive Officers and More Than Five Percent Stockholders of Catena for a summary of the common stock and preferred stock owned by each officer and director of Catena.

Indemnification

The merger agreement provides that, upon the completion of the merger, for a period of six years CIENA will fulfill the obligations of Catena to indemnify and hold harmless each person who is or was a director or officer of Catena against any losses incurred based upon matters existing or occurring prior to the completion of the merger to the same extent that these persons were indemnified pursuant to Catena's certificate of incorporation and bylaws, the articles of incorporation of Catena's subsidiary, or any indemnification agreement in effect prior to the merger.

Stockholder Agreements

All Catena directors and officers (and their respective affiliates) have entered into stockholder agreements pursuant to which they have agreed to vote shares of Catena common and preferred stock over which they exercise voting control in favor of the adoption of the merger agreement and the merger and in favor of approval of the amendment and restatement of Catena's certificate of incorporation. The obligation to vote in favor of the adoption of the merger agreement and the merger and in favor of the amendment and restatement of Catena's certificate of incorporation terminates if the merger agreement is terminated, including a termination by Catena's board of directors to pursue a superior offer.

The stockholder agreements also grant to CIENA an irrevocable option to purchase a portion of the shares of Catena stock that are owned beneficially or of record by the stockholders who entered into the stockholder agreements. Such options are limited in that they may be exercised for no more than 45% of Catena's outstanding capital stock on the date of exercise. CIENA may exercise the options if the Catena board withdraws its recommendation of the merger, Catena breaches the terms of the merger agreement or terminates the merger agreement under certain circumstances, or the stockholder fails to comply with the voting provisions of the stockholder agreement. The option price is payable in cash or stock at an exercise price based on the exchange formula set forth in the merger agreement, as if the merger became effective on February 18, 2004. For a more detailed description of the terms of the stockholder agreements, see Terms of the Merger Agreement and Related Transactions Stockholder Agreements.

As of the record date, the total number of outstanding shares of Catena capital stock (on an as-converted into common stock basis) covered by these agreements is [63,036,614], which represents approximately [57]% of Catena's outstanding common stock and preferred stock (on an as-converted into common stock basis) as of that date.

In addition, each director and executive officer of Catena has executed a lock-up agreement with CIENA providing that for a period of two years following the merger such individual will not sell, transfer or otherwise dispose of any CIENA common stock issuable to such individual upon exercise of Catena options vested as of the date of the merger, provided that such individual may sell, transfer or otherwise dispose of up to 50% of such shares after the first anniversary of the merger and the remaining 50% at any time after the second anniversary of the merger. Additionally, such individual may transfer all or a portion

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of such individual s shares at any time to certain related parties or as a bona fide gift in which the transferee agrees to be subject to the same restrictions on transfer as set forth in the lock-up agreement.

Accounting Treatment

The merger is expected to be accounted for using the purchase method of accounting. CIENA will be deemed the acquiror for financial reporting purposes. Under the purchase method of accounting, the purchase price in the merger is allocated among the Catena assets acquired and the Catena liabilities assumed to the extent of their fair market value, with any excess purchase price being allocated to goodwill.

Listing on The Nasdaq Stock Market

CIENA has agreed to cause the shares of CIENA common stock issued in the merger, if required, to be approved for listing on the Nasdaq Stock Market.

Governmental and Regulatory Approvals

The Hart-Scott-Rodino Antitrust Improvements Act of 1976 as amended (the HSR Act) and its related rules and regulations prohibit Catena and CIENA from completing the merger until CIENA and Catena each file notifications with the Antitrust Division of the Department of Justice and the Federal Trade Commission, and the Hart-Scott-Rodino waiting period requirements have been satisfied. Even after the Hart-Scott-Rodino waiting period expires or is terminated, and even after the merger is completed, the Antitrust Division or the Federal Trade Commission could challenge the merger on antitrust grounds. In addition, before or after the merger is completed, states and private litigants could also challenge the merger on antitrust grounds. CIENA and Catena each filed Hart-Scott-Rodino notifications with the Federal Trade Commission and the Antitrust Division on February 25, 2004, and the waiting period was terminated on March 8, 2004.

U.S. Federal Income Tax Consequences

Generally

The following discussion describes the material U.S. federal income tax consequences of the exchange of shares of Catena s capital stock for CIENA common stock pursuant to the merger that are generally applicable to holders of Catena capital stock. This discussion is based on currently existing provisions of the Internal Revenue Code of 1986, as amended (the Tax Code), existing and proposed Treasury regulations thereunder and current administrative rulings and court decisions, all of which are subject to change. Any such change, which may or may not be retroactive, could alter the tax consequences to Catena stockholders as described herein. Neither Catena nor CIENA has requested nor will request a ruling from the Internal Revenue Service with regard to any of the tax consequences of the merger. For a discussion of the tax consequences to Catena stockholders resident in Canada or deemed to be resident in Canada, see Canadian Federal Income Tax Consequences.

Catena stockholders should be aware that this discussion does not deal with all U.S. federal income tax considerations that may be relevant to particular Catena stockholders in light of their particular circumstances, such as stockholders who are dealers in securities, who are subject to the alternative minimum tax provisions of the Tax Code, who are foreign persons, insurance companies, tax-exempt organizations, financial institutions, or broker-dealers, who hold their shares as part of a hedge, straddle, conversion or other risk-reduction transaction, who do not hold their Catena stock as capital assets, who hold their Catena stock through a partnership or other pass-through entity or who acquired their shares in connection with stock option or stock purchase plans or in other compensatory transactions. In particular, this discussion does not discuss the tax consequences of payments that may be subject to the golden parachute provisions of the Tax Code, see Approval of Parachute Payments in Connection with the Merger. In addition, unless specifically addressed below, the following discussion does not address the tax consequences of the merger under foreign, state or local tax laws, the tax consequences of transactions

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effectuated prior or subsequent to, or concurrently with, the merger (whether or not any such transactions are undertaken in connection with the merger), including without limitation any transaction in which shares of Catena capital stock are acquired or shares of CIENA common stock are disposed of, the declaration or payment of any dividend to Catena's stockholders, the tax consequences of the assumption by CIENA of the Catena employee options or the tax consequences of any receipt of rights to acquire CIENA common stock.

Accordingly, Catena stockholders are urged to consult their own tax advisors as to the specific tax consequences to them of the merger, including the applicable federal, state, local and foreign tax consequences.

In the opinion of Hogan & Hartson L.L.P., counsel to CIENA, and Cooley Godward LLP, counsel to Catena, the merger will be treated for U.S. federal income tax purposes as a reorganization within the meaning of Section 368(a) of the Tax Code. The opinions:

will not be binding on the IRS or the courts nor preclude the IRS from adopting a contrary position;

will be based on the assumption that the merger will be consummated in accordance with the terms of the merger agreement; and

will be subject to the limitations discussed below.

Additionally, the opinions will be based on certain assumptions and limitations, as well as factual representations made by, among others, CIENA and Catena. Such representations, if incorrect, could jeopardize the conclusions reached in the opinions. Neither CIENA nor Catena is currently aware of any facts or circumstances that would cause any such representations made to counsel to be untrue or incorrect in any material respect.

Discussion of U.S. Federal Income Tax Consequences

Assuming the merger qualifies as a reorganization within the meaning of Section 368(a) of the Tax Code and the merger is completed under the current terms of the merger agreement, subject to the discussion below under the heading Taxation of Escrowed Shares, the following U.S. federal income tax consequences generally will result:

No gain or loss will be recognized by holders of Catena capital stock solely upon their receipt of CIENA common stock, including CIENA common stock subject to the escrow, in exchange for such Catena capital stock in the merger (except with respect to cash received in lieu of fractional shares as discussed below).

The aggregate tax basis of the CIENA common stock received by each Catena stockholder in the merger (including any fractional share interest in CIENA common stock and CIENA common stock subject to the escrow) will be the same as the aggregate tax basis of the Catena capital stock surrendered by such Catena stockholder in exchange therefor.

The holding period of the CIENA common stock received by each Catena stockholder in the merger (including the CIENA common stock subject to the escrow) will include the period for which the Catena capital stock surrendered in exchange therefor was considered to be held, provided that the Catena capital stock so surrendered is held as a capital asset at the time of the merger.

Any cash payment received by a holder of Catena capital stock in lieu of a fractional share of CIENA common stock will be treated as if such fractional share had been issued in the merger and then redeemed by CIENA. A Catena stockholder receiving such cash will recognize gain or loss upon such payment, measured by the difference, if any, between the amount of cash received and the basis in such fractional share. The gain or loss will be capital gain or loss provided that the shares of Catena capital stock were held as capital assets and will be long-term capital gain or loss

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if the Catena capital stock exchanged for that fractional share of CIENA common stock had been held for more than one year at the time of the merger. However, if the receipt of cash instead of fractional shares is essentially equivalent to a dividend (determined by application of Section 302 of the Tax Code on a stockholder by stockholder basis), some or all of this gain may be treated as a dividend and taxed as dividend income.

If a Catena stockholder dissents to the merger and receives solely cash in exchange for such stockholder's Catena capital stock, such cash generally will be treated as a distribution in redemption of such stockholder's Catena capital stock. Where such stockholder owns no CIENA common stock either directly or by reason of certain attribution rules set forth in the Tax Code, the stockholder should recognize gain or loss measured by the difference between the amount of cash received and the adjusted tax basis of the Catena capital stock surrendered. Different tax consequences will apply to any interest awarded by a court to a dissenting Catena stockholder.

Taxation of Escrowed Shares

Catena stockholders will be treated as owning an allocable portion of the CIENA common stock issued in the merger and deposited in escrow. An allocable portion of any dividends received on escrowed stock will be taxed to each former Catena stockholder as ordinary income when such amounts are received by the escrow agent. CIENA does not anticipate declaring dividends. The escrow agreement provides that a portion of the shares of CIENA common stock placed in the escrow may be sold to reimburse the expenses of the stockholders' representative. In addition, the escrow agreement provides CIENA the option to elect to be indemnified from the escrow fund by either return of escrowed shares of CIENA common stock (valued at \$6.23 per share) or by payment of cash from the sale of escrowed shares of CIENA common stock. In the case of reimbursement of expenses or indemnification in cash through the sale of escrowed shares, the sale of such shares of CIENA common stock will be treated as a taxable sale to the Catena stockholders. Each Catena stockholder will recognize capital gain or loss as a result of such sale, measured as the difference between such Catena stockholder's basis in such sold shares of CIENA common stock and the fair market value of such shares of CIENA common stock, as of the date of such sale. Likewise, Catena stockholders will be allocated their portion of any interest or other income earned from the investment of the proceeds of such sale. No gain or loss will be recognized by a Catena stockholder upon the distribution of escrowed stock to the stockholder upon termination of the escrow arrangement or upon the release of escrowed stock to CIENA pursuant to the terms of the escrow agreement.

Tax Reporting

Each of CIENA and Catena has agreed to report the merger as a reorganization within the meaning of Section 368(a) of the Tax Code in all applicable tax returns filed by each party. Each Catena stockholder will be required to file with such stockholder's U.S. federal income tax return a statement setting forth certain facts relating to the merger.

U.S. Federal Backup Withholding

A holder of Catena capital stock may be subject, under some circumstances, to backup withholding at a rate of 28% with respect to certain payments made in the merger unless the holder provides proof of an applicable exemption or a correct taxpayer identification number, and otherwise complies with applicable requirements of the backup withholding rules. Any amounts withheld under the backup withholding rules are not an additional tax and may be refunded or credited against the holder's U.S. federal income tax liability, provided the required information is furnished to the Internal Revenue Service.

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Canadian Federal Income Tax Consequences

Generally

The following summary describes, as of the date hereof, the material Canadian federal income tax considerations under the *Income Tax Act* (Canada) (the Tax Act) of the merger generally applicable to Catena stockholders who, for purposes of the Tax Act, and at all relevant times hold their shares of Catena capital stock as capital property, and deal at arm's length with, and are not affiliated with, Catena and CIENA.

Shares of Catena capital stock will generally be considered to be capital property to a Catena stockholder, unless the holder holds such shares of capital stock in the course of carrying on a business or has acquired such shares of capital stock in a transaction (or transactions) considered to be an adventure in the nature of trade. This summary does not take into account the mark-to-market rules in the Tax Act that apply to financial institutions and, for purposes of such rules, holders that are financial institutions within the meaning of subsection 142.2(1) of the Tax Act should consult their own tax advisors.

This summary is based on the current provisions of the Tax Act, the current regulations thereunder and the current published administrative and assessing practices of the Canada Customs and Revenue Agency (the CCRA) as at the date hereof. This summary also takes into account all specific proposals to amend the Tax Act, which have been publicly announced by, or on behalf of, the Minister of Finance (Canada) prior to the date hereof. No assurance can be given that such proposed amendments will be enacted as tabled or announced. However, the Canadian federal income tax considerations applicable to Catena stockholders will not be different in a material adverse way if the proposed amendments are not enacted. Except for any proposed amendments, this summary does not otherwise take into account or anticipate any changes to the law, whether by judicial, governmental or legislative decision or action, or changes in the administrative practices of the CCRA. This summary also does not take into account provincial, territorial or foreign income tax legislation or considerations, which may differ from the Canadian federal income tax considerations summarized herein.

This summary is of a general nature only and is not exhaustive of all possible Canadian federal income tax considerations and is not intended to be, nor should it be construed to be, legal, business or tax advice or representations to any particular Catena stockholder. Accordingly, Catena stockholders should consult their own tax advisors for advice regarding the income tax consequences of the merger having regard to their particular circumstances.

This summary is not applicable to a Catena stockholder who acquired shares of Catena capital stock because of his or her employment with Catena or employment with a corporation with which Catena does not deal at arm's length. Such holders should consult their tax advisors with respect to the tax consequences of the merger.

Catena Stockholders Resident in Canada

The following portion of this summary is applicable to a Catena stockholder who, for the purposes of the Tax Act (and any applicable income tax convention) and at all relevant times, is resident in Canada or is deemed to be resident in Canada.

A Catena stockholder (other than a holder who dissents from the merger) who receives CIENA common stock in exchange for such holder's shares of Catena capital stock will realize neither a capital gain nor a capital loss as a result of the merger. A Catena stockholder will be considered to have disposed of such holder's shares of Catena capital stock for proceeds of disposition equal to the adjusted cost base of such holder's shares of Catena capital stock immediately before the merger and to have acquired CIENA common stock at an aggregate cost equal to such proceeds of disposition. The aggregate cost of the CIENA common stock received by a Catena stockholder on the merger will be equal to the aggregate adjusted cost base to the Catena stockholder of the shares of Catena capital stock disposed of in exchange for such CIENA common stock by virtue of the merger. The holder's cost of such CIENA common stock

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must be averaged with the adjusted cost base of all other CIENA common stock held by the holder as capital property to determine the holder's adjusted cost base of such CIENA common stock.

Under the current administrative and assessing practice of the CCRA, a holder of shares of Catena capital stock who on the merger, in lieu of a fraction of a share of CIENA common stock, receives cash in an amount under Cdn.\$200 may ignore the computation of any gain or loss on the partial disposition and reduce the adjusted cost base of the shares of CIENA common stock received on the merger by the amount of such cash. Alternatively, the holder of shares of Catena capital stock may include the capital gain or loss arising on the disposition of the fractional share in the computation of that holder's income.

Dissenting Stockholders of Catena

A Catena stockholder who dissents to the merger and who disposes of such holder's shares of Catena capital stock will be considered to have disposed of such shares of Catena capital stock for proceeds of disposition equal to the cash payment received by the holder (less the amount of any interest awarded by a court in respect of such payment) as a result of dissenting. Such a disposition of shares of Catena capital stock by a dissenting stockholder will generally result in a capital gain (or capital loss) to the extent that the proceeds of disposition, net of any reasonable costs of disposition, exceed (or are less than) the adjusted cost base to such dissenting stockholder of those shares of Catena capital stock immediately before the disposition.

One-half of any capital gain (a taxable capital gain) realized by a dissenting stockholder will be included in computing the income of the dissenting stockholder for the year of disposition. One-half of any capital loss (an allowable capital loss) so realized is required to be deducted by the dissenting stockholder against taxable capital gains realized in the year of disposition. Any excess of allowable capital losses over taxable capital gains of the dissenting stockholder for the year of disposition may be carried back up to three taxation years or forward indefinitely and deducted against net taxable capital gains in those other years to the extent and in the circumstances prescribed in the Tax Act. Capital gains realized by an individual or trust, other than certain specified trusts, may give rise to alternative minimum tax under the Tax Act. A dissenting stockholder that is a Canadian controlled private corporation (as defined in the Tax Act) may be liable to pay an additional refundable tax of 6 2/3% on taxable capital gains. If the dissenting stockholder is a corporation, the amount of any capital loss arising on a disposition or deemed disposition of any share may be reduced by the amount of dividends received or deemed to have been received by it on such share to the extent and under the circumstances prescribed in the Tax Act. Similar rules may apply where the corporation is a member of a partnership or a beneficiary of a trust that owns shares of Catena capital stock, or where a trust or partnership of which a corporation is a beneficiary or a member, respectively, is a member of a partnership or a beneficiary of a trust that owns any such shares.

Any interest awarded by a court to a dissenting stockholder will be included in computing such holder's income for purposes of the Tax Act.

Any Catena stockholder who is considering dissenting to the merger should consult with such holder's tax advisor with respect to the income tax consequences of such action.

Appraisal Rights of Dissenting Stockholders of Catena

If the merger is consummated, a holder of record of Catena stock on the date of making a demand for appraisal, as described below, will be entitled to have those shares appraised by the Delaware Court of Chancery under Section 262 of the Delaware General Corporation Law, or DGCL, and to receive payment for the fair value of those shares instead of the consideration provided for in the merger agreement. In order to be eligible to receive this payment, however, a Catena stockholder must (1) continue to hold his or her shares through the time of the merger; (2) strictly comply with the procedures discussed under Section 262; and (3) not vote in favor of the merger. This proxy statement/ prospectus is being sent to all holders of record of Catena stock on the record date for the Catena special meeting and constitutes notice of the appraisal rights available to those holders under Section 262.

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The statutory right of appraisal granted by Section 262 requires strict compliance with the procedures in Section 262. Failure to follow any of these procedures may result in a termination or waiver of dissenters' rights under Section 262. The following is a summary of the principal provisions of Section 262.

The following summary is not a complete statement of Section 262 of the DGCL, and is qualified in its entirety by reference to Section 262, which is incorporated herein by reference, together with any amendments to the laws that may be adopted after the date of this proxy statement/prospectus. A copy of Section 262 is attached as Annex B to this proxy statement/prospectus.

A holder of Catena stock who elects to exercise appraisal rights under Section 262 must deliver a written demand for appraisal of its shares of Catena prior to the vote on the merger. The written demand must identify the stockholder of record and state the stockholder's intention to demand appraisal of his or her shares. All demands should be delivered to Catena, 307 Legget Drive, Kanata, Ontario K2K 3C8, Canada, Attention: Kevin Forbes.

Only a holder of shares of Catena stock on the date of making a written demand for appraisal who continuously holds those shares through the time of the merger is entitled to seek appraisal. Demand for appraisal must be executed by or for the holder of record, fully and correctly, as that holder's name appears on the holder's stock certificates representing shares of Catena stock. If Catena stock is owned of record in a fiduciary capacity by a trustee, guardian or custodian, the demand should be made in that capacity. If Catena stock is owned of record by more than one person, as in a joint tenancy or tenancy in common, the demand should be made by or for all owners of record. An authorized agent, including one or more joint owners, may execute the demand for appraisal for a holder of record; that agent, however, must identify the record owner or owners and expressly disclose in the demand that the agent is acting as agent for the record owner or owners of the shares.

A record holder such as a broker who holds shares of Catena stock as a nominee for beneficial owners, some of whom desire to demand appraisal, must exercise appraisal rights on behalf of those beneficial owners with respect to the shares of Catena stock held for those beneficial owners. In that case, the written demand for appraisal should state the number of shares of Catena stock covered by it. Unless a demand for appraisal specifies a number of shares, the demand will be presumed to cover all shares of Catena stock held in the name of the record owner.

Beneficial owners who are not record owners and who intend to exercise appraisal rights should instruct the record owner to comply with the statutory requirements with respect to the exercise of appraisal rights before the date of the Catena special meeting.

Within 10 days after the merger, the surviving or resulting corporation is required to send notice of the effectiveness of the merger to each stockholder who prior to the time of the merger complies with the requirements of Section 262 and has delivered notice of intent to demand appraisal.

Within 120 days after the merger, the surviving corporation or any stockholder who has complied with the requirement of Section 262 may file a petition in the Delaware Court of Chancery demanding a determination of the fair value of the shares of Catena stock held by all stockholders seeking appraisal. A dissenting stockholder must serve a copy of the petition on the surviving corporation. If no petition is filed by either the surviving corporation or any dissenting stockholder within the 120-day period, the rights of all dissenting stockholders to appraisal will cease. Stockholders seeking to exercise appraisal rights should not assume that the surviving corporation will file a petition with respect to the appraisal of the fair value of their shares or that the surviving corporation will initiate any negotiations with respect to the fair value of those shares. The surviving corporation is under no obligation to and has no present intention to take any action in this regard. Accordingly, stockholders who wish to seek appraisal of their shares should initiate all necessary action with respect to the perfection of their appraisal rights within the time periods and in the manner prescribed in Section 262. **Failure to file the petition on a timely basis will cause the stockholder's right to an appraisal to cease.**

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Within 120 days after the time of the merger, any stockholder who has complied with subsections (a) and (d) of Section 262 is entitled, upon written request, to receive from the surviving corporation a statement setting forth the total number of shares of Catena stock not voted in favor of the merger with respect to which demands for appraisal have been received by Catena and the number of holders of those shares. The statement must be mailed within 10 days after Catena has received the written request or within 10 days after the time for delivery of demands for appraisal under subsection (d) of Section 262 has expired, whichever is later.

If a petition for an appraisal is filed in a timely manner, at the hearing on the petition, the Delaware Court of Chancery will determine which stockholders are entitled to appraisal rights and will appraise the shares of Catena stock owned by those stockholders. The court will determine the fair value of those shares, exclusive of any element of value arising from the accomplishment or expectation of the merger, together with a fair rate of interest, to be paid, if any, upon the fair value.

Stockholders who consider seeking appraisal should consider that the fair value of their shares under Section 262 could be more than, the same as, or less than, the value of the consideration provided for in the merger agreement without the exercise of appraisal rights. The Court of Chancery may determine the cost of the appraisal proceeding and assess it against the parties as the Court deems equitable. Upon application of a dissenting stockholder, the Court may order that all or a portion of the expenses incurred by any dissenting stockholder in connection with the appraisal proceeding (including, without limitation, reasonable attorney's fees and the fees and expenses of experts) be charged pro rata against the value of all shares of Catena stock entitled to appraisal. In the absence of a court determination or assessment, each party bears its own expenses.

Any stockholder who has demanded appraisal in compliance with Section 262 will not, after the merger, be entitled to vote such stock for any purpose or receive payment of dividends or other distributions, if any, on the Catena stock, except for dividends or distributions, if any, payable to stockholders of record at a date prior to the merger.

A stockholder may withdraw a demand for appraisal and accept the CIENA common stock at any time within 60 days after the merger. If an appraisal proceeding is properly instituted, it may not be dismissed as to any stockholder without the approval of the Delaware Court of Chancery, and any such approval may be conditioned on the Court of Chancery's deeming the terms to be just. If, after the merger, a holder of Catena stock who had demanded appraisal for his shares fails to perfect or loses his right to appraisal, those shares will be treated under the merger agreement as if they were converted into CIENA common stock at the time of the merger.

In view of the complexity of these provisions of the Delaware corporate law, any Catena stockholder who is considering exercising appraisal rights should consult a legal advisor.

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TERMS OF THE MERGER AGREEMENT AND RELATED TRANSACTIONS

The following summary of the material terms and provisions of the merger agreement is qualified in its entirety by reference to the merger agreement. The merger agreement, as amended, is attached as Annex A to this proxy statement/ prospectus and is incorporated herein by reference. All stockholders are urged to read the merger agreement carefully.

General

The merger agreement provides that Catena will be merged with and into CIENA, at the effective time of the merger. Pursuant to the merger agreement, Catena will cease to exist and CIENA will be the surviving corporation. At the effective time of the merger, each outstanding share of Catena capital stock (other than treasury shares and shares held by dissenting stockholders) will be converted into CIENA common stock, all as more fully described below. The certificate of incorporation of CIENA will be the certificate of incorporation of the surviving corporation. The bylaws of CIENA will be the bylaws of the surviving corporation and the board of directors and the officers of CIENA will remain the board of directors and officers of the surviving corporation.

This section of the proxy statement/ prospectus describes aspects of the merger, including the material provisions of the merger agreement.