



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

Mail Stop 3720

November 6, 2008

Mr. Maurice Castonguay
Chief Financial Officer
BigBand Networks, Inc.
475 Broadway Street
Redwood City, California 94063

RE: BigBand Networks, Inc.
Form 10-K for Fiscal Year Ended December 31, 2007
Filed March 12, 2008

Form 10-Q for Fiscal Quarter Ended June 30, 2008
File No. 1-33355

Dear Mr. Castonguay:

We have reviewed your filings and have the following comments. Please address the following comments in future filings. If you disagree, we will consider your explanation as to why our comment is inapplicable or a future revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for Fiscal Year ended December 31, 2007

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 37

Overview, page 37

1. We note that you identify the three customers that accounted for greater than 10% of your revenues in 2007. In future filings, to the extent any particular customer accounts for a substantial portion of your revenues, please quantify the percentage of your revenues derived from such material customer. For example, we note from your disclosure on page 60 that one customer accounted for 40% of your total revenues in 2007. Also provide additional disclosure describing the terms of your relationship with any such customer. Although we note from your risk factor on page 20 that you do not have a contract guaranteeing continuing sales, you should describe any contractual or other arrangements that are in place to the extent material so that shareholders may better assess the reliability of these revenues. If any such contract exists, please explain to us in your response letter why you determined it was not required to be filed as an exhibit pursuant to Regulation S-K Item 601(b)(10).
2. In future filings, please provide additional analysis of known material trends impacting your business. For example, in 2007, certain positive revenue and income trends through 2006 appear to have stalled or reversed. Your disclosure should provide insight, from the viewpoint of management, into the most material underlying causes of these trends. The disclosure should also provide information about actions the company is taking in response to these trends as well as management's assessment as to how future performance could be materially impacted.

Results of Operations, page 44

3. In future filings, please provide more detail about the material causes of changes in results of operations line items, including quantitative detail to the extent practicable. When material, you should quantify the significance of your different video products and services to revenues. If you achieve growth in a specific class of products or services, you should provide an assessment of the degree that such growth was generated from increased volume of sales, increased pricing, new product offerings, or otherwise.
4. In the paragraph at the top of page 45 you describe the primary reason for the decrease in product revenue was due to the decrease in Data revenue because of the unsuccessful transition to the new modular CMTS product application. This caused delays in revenue recognition and the retirement of the CMTS platform. With a view towards expanded disclosure in future filings, please explain to us in more detail the impact of the unsuccessful transition and retirement of this platform. Specifically what impact did this have on transactions where revenue recognition was delayed and when and under what circumstances will the related revenue be recognized.

Item 9A. Controls and Procedures, page 80

5. Confirm in your response letter that your Chief Accounting Officer was your principal financial officer, or performing similar functions, at the time that this Form 10-K was

filed. In future filings to the extent not apparent, please disclose who was your principal financial officer, or performing similar functions, at the time of filing so that it is clear that such person performed the requisite evaluations and provided the requisite certifications. Refer to Compliance & Disclosure Interpretations, Exchange Act Rules, Questions 161.02, 161.05, and 161.06, available at our website.

Item 11. Executive Compensation, page 81

Incorporated by Reference to Proxy Statement

Compensation Discussion and Analysis, page 20 of Proxy Statement

6. Please tell us in your response letter who served as principal financial officer, or served in a similar capacity, after Mr. Ball's resignation on November 26, 2007. If this person is not included in your compensation disclosure as a named executive officer, explain to us why. Refer to Regulation S-K Item 402(a)(3).

Compensation Framework, page 20 of Proxy Statement

Variable Pay, page 21 of Proxy Statement

7. In future filings, please provide a clearer explanation of how actual ICP awards to each named executive officer were determined. Please compare actual performance during the relevant time periods against the relevant targets for such time periods. Explain how and why this resulted in the award as a percentage of salary which is shown in the Summary Compensation Table. To the extent any inputs other than the identified corporate revenue and operating margins were material, please identify and explain them. Tabular disclosure may be helpful.

Equity-Based Pay, page 22 of Proxy Statement

8. In future filings, please explain how and why actual equity awards granted to each named executive officer were determined. Although we note that the compensation committee considers various factors in exercising its discretion and judgment, you should explain in more detail its decision-making process with respect to awards to named executive officers.

Severance and Change in Control Arrangements, page 24 of Proxy Statement

9. In future filings, quantify the value to each named executive officer of the vesting of equity awards upon termination or change of control as identified on page 24. Refer to Regulation S-K Item 402(j) and Instruction 1 thereto. Also consider revising your disclosure so that all potential payments or benefits (both severance and vesting) upon termination or change of control are described and quantified in one section of your disclosure. We note that certain disclosure is included here and certain additional

disclosure is included in the section beginning on page 29 titled "Employment Agreements and Change in Control Arrangements." We also note that you cross-reference on page 24 a section entitled "Employee Benefit Plans" that we are unable to locate.

Signatures, page 83

10. In future filings, please indicate parenthetically who signed the annual report in the capacity of principal financial officer.

* * * *

Please respond to these comments through correspondence over EDGAR within 10 business days or tell us when you will provide us with a response. Please furnish a letter that keys your responses to our comments and provides any requested information. Detail letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require for an informed decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comment, please provide, in writing, a statement from the company acknowledging that

- the company is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filings; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filings or in response to our comments on your filings.

You may contact Melissa Kindelan, Staff Accountant, at (202) 551-3564 or Robert S. Littlepage Jr., Accounting Branch Chief at (202) 551-3361 if you have questions regarding comments on the financial statements and related matters. Please contact John Harrington, Attorney-Advisor, at (202) 551-3576 or me at (202) 551-3810 with any other questions.

BigBand Networks, Inc.
November 6, 2008
Page 5

Sincerely,

Larry Spigel
Assistant Director