

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	CS Docket No. 97-80
Implementation of Section 304 of the)	
Telecommunications Act of 1996)	
Commercial Availability of Navigation)	PP Docket No. 00-67
Devices)	
Compatibility Between Cable Systems and)	
Consumer Electronics Equipment)	

COMMENTS OF BIGBAND NETWORKS

BigBand Networks, Inc. (“BigBand Networks” or “BigBand”) submits these reply comments on the Third Further Notice of Proposed Rulemaking in the above-captioned proceeding.

BigBand Networks, headquartered in Redwood City, California, is one of the nation’s leading providers of platforms for broadband multimedia services and a pioneer in advanced methods for enhancing the delivery of video to consumers. Since BigBand Networks’ founding in 1998, it has provided a wide array of products that enable and enhance consumer experiences on both telephone and digital cable platforms. BigBand’s solutions now provide services to more than 50 million digital television and broadband Internet subscribers. This background and experience provides us with considerable insight into the state of advanced video techniques and the future course of innovation.

I. NETWORK INNOVATION FUELS COMPETITION, CONSUMER CHOICE, CONTINUOUS IMPROVEMENT, CREATIVE SERVICES AND INVESTMENTS.

BigBand Networks is a pioneer in several breakthrough video technologies. We introduced digital simulcasting—a technology that allows cable providers to deliver content to

both analog and digital customers across the same HFC plant, and now millions of cable consumers with digital televisions or digital set-top boxes enjoy the higher-quality, richer viewing experience that is digital cable, while subscribers with legacy devices may still receive basic programming in analog formats. We delivered the first NEBS-compliant radio-frequency television solution to telephone companies, and now Verizon delivers its FiOS solution to over 500,000 customers using our solution. Finally, we invented switched digital broadcast, a solution that dramatically increases the volume of content available to consumers by introducing switching into the broadcasting of content in an HFC environment. We have sold our solutions to more than 200 customers globally, including six of the ten largest video service providers in the United States.

BigBand was founded on the premise that greater consumer choice will be driven by video networks innovating to win customer loyalty. In short, we believe innovation in video networks allows competing service providers to offer consumers more plentiful, varied, and creative services. As competing networks continue to innovate, they drive their rivals to do the same, and the consumer wins a higher quality and greater choice of services. For example, cable operators have added approximately eight million voice-over-IP subscribers. In response, telephone companies have begun to upgrade their networks to offer more and richer video content, and now the cable industry has responded with switched broadcasting. Innovation in the network promotes enormous investment. This much is already known; but the real news is that innovation in network techniques for the delivery of video to consumers is in its infancy.

II. CEA'S PROPOSAL TO FREEZE AND COMMODITIZE SWITCHED DIGITAL SERVICES WOULD PREMATURELY LOCK CONSUMERS OUT OF CONTINUOUS IMPROVEMENTS IN VIDEO SERVICE.

We submit these comments because one proposal before the Commission proposes to reverse this promising course and treat switched broadcast technology as a mature technology

that can be frozen into regulated specifications. According to our understanding of the proposal from the Consumer Electronics Association (“CEA”), our application for switched broadcast programming would need to be reconfigured to operate within a modified and redesigned CableCARD, standardized within an ANSI-accredited standards body, and adopted as a federal regulatory requirement defining how switched broadcasting shall henceforth operate. *See* Comments of CEA, Appendix A, “CEA’s Proposed Draft Amendment to Regulations,” §§15.124(c)(4), 76.641(c)(4). As a result, we are opposed to this proposal at this time.

Switched broadcasting is in its earliest stages of development. The first switched system was deployed only two years ago. Of the tens of millions of tuners now in use today, fewer than 1.5 million tuners are currently switched. We are learning from this limited deployment history every month. In concert with our customers, we are making continuous refinements in the application program interfaces (APIs) as our deployment history teaches us lessons. So far this year alone we have seen nearly a dozen changes to the protocols of one customer. For example, we recently adjusted the “are you still watching?” messaging—which is part of the technique used to recover unused spectrum—to avoid plasma burn in. As should be expected, this change required adjustments to the APIs. With cable operators still expected to leverage switched broadcast for at least tenfold the number of tuners over the succeeding years, we expect numerous issues to arise and multiply, and we will continually adjust the APIs (as with all of the technology) to address those consumer quality of service and quality of experience issues. This is as it is with every technology deployment. Freezing the APIs at this time would effectively forestall the very process of our innovation—and prematurely lock consumers out of improvements in video service.

More importantly, switched broadcast itself is merely a step in the evolution of video services available to consumers. There are still more profound innovations ahead. With switched broadcasting, our cable customers are able to offer consumers more high-definition television programming and a greater volume and variety of increasingly personalized programming content, such as ethnic packages. Ultimately, however, we believe content will be made available to consumers on a unicast model in which there will be a dedicated stream for each active subscriber, such that programming decisions and delivery can be allocated on an individual, consumer-by-consumer basis. If this occurs, the consumer viewing experience will change radically, and further believe that new service models could develop—whether a subscription-only model, a pay-per-view model, an ad-supported model or a model that combines parts of all of the foregoing. Wherever it leads, we believe with some confidence that the personalized unicast model will ultimately introduce further service provider competition, which will redound to the benefit of the consumers who will receive the richer, more robust and more relevant content.

Importantly, from a technical perspective, the move to a unicast model will require a great deal more innovation, including substantially different tuning concepts and different APIs. If the CEA Proposal were to be adopted at this time, we believe it would substantially impede the development of the unicast model, and consequently impede consumers from receiving content that is customized to their individual interests.

Finally, we would ask the Commission to consider what would have happened if it had taken an approach to the development of the Internet that is analogous path suggested by the CEA Proposal. If the Commission had done so, the networks as they existed in the mid-1990s would have been codified such that the financial incentive for network providers to invest in

innovations that brought high-speed data services would not have existed. We believe the result for consumers would have been a significantly reduced quality of experience—mired in an ISDN-based world in which they would surf the Internet at a maximum speed of 128 kilobytes per second. Service offerings from Google, Yahoo! and Apple’s iTunes would have been largely unavailable to consumers, or at the very least would have been delivered with a significantly diminished quality of consumer experience. The CEA Proposal risks introducing an analogous set of limitations into the delivery of high-quality, interactive video content at a time in which the technologies that will drive these new, increasingly rich video services are in their infancy.

III. CEA’S PROPOSAL WOULD UNDERMINE THE INTELLECTUAL PROPERTY FOUNDATIONS FOR INNOVATION.

From the perspective of BigBand Networks, the CEA proposal presents another significant problem: it is unclear which APIs it would imagine forming the foundation of the standardized protocol for switched broadcast. As the innovator of switched broadcast, we have developed substantial intellectual property in the technology, including our proprietary APIs. In addition, we own what we believe to be the fundamental patents in switched broadcasting, including U.S. Patent No. 6,999,477. The invention, design, marketing, and success of our innovations in video delivery all come from years of effort and creativity, much of which is wrapped in intellectual property. We believe the CEA Proposal risks attempting to either simply declare our intellectual property moot or to make it part of the public domain.

The very purpose of intellectual property is to provide incentives for invention, and as such it is constitutionally protected against confiscation. Nothing in the Communications Act authorizes the Commission to take vendors’ intellectual property or to abrogate the agreements on which we have based our business. From our reading, the CEA Proposal does not offer any suggestion on how to address the significant intellectual property interests in this technology or

how they would imagine compensating us for their use of the intellectual property. We trust that the Commission does not expect companies, such as BigBand Networks, that are founded on invention to unwind their years of effort, to turn their work into static commodities, or contribute their intellectual property into a solution that may seem convenient to consumer electronics manufacturers but that would deprive the innovators of the fruits of their labors.

IV. CONCLUSION

In summary, we believe the CEA Proposal risks forestalling the many advances in content personalization and consumer choice that are about to occur in the delivery of video. The CEA Proposal also risks violating intellectual property that we have spent years to develop. If the Commission were to adopt the approach proposed by CEA, it will be undermining the very engine of continuous innovation that allows competing service providers to offer consumers more plentiful, varied, and creative services.

Respectfully submitted,

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