

**Mark Cuban**, Chairman & Co Founder HDNet, Owner Dallas Mavericks

## [My FCC Presentation on the Future of Digital Media](#)

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Its hard to get much said in a 5 minute limit, but hopefully I made a few points that got people thinking.

Thank you for allowing me to offer this presentation on the Future of Digital Media. Its great to be back in Pittsburgh. A city that continues to grow in its vibrance, entrepreneurial spirit and verve to continually reinvent itself. Im proud to have grown up here.

The future of any technology can be defined by the economic opportunities it creates. One just look around Pittsburgh to see the explosion in the number of businesses built around advances in medical technology to see the importance of entrepreneurs focusing on new technology. The impact has been enormous.

Which brings us to today. What are the opportunities in front of us to get excited about in the digital media field ?

The first thing to understand is that digital media is not synonymous with the internet. There is a vast and growing world of digital media opportunities that exist outside the internet. Here are some examples:

1. While the wonders of the internet often keep us glued to our screens and at home, they also contribute to our need to get away. One of the shortest term opportunities is out of home entertainment. One opportunity that will expand is the use and implementation of 3D entertainment. While its not unusual for movies to be produced in 3D, there is a market for other types of 3D entertainment that is ready to take off. The Dallas Mavericks did a live 3D broadcast of one of our games this past season that we broadcast to a local movie theater enabled with a 3D digital projector. It was a huge success, fans loved it, 3D glasses and all, and have asked for more. We have seen the same demand for other types of content as well. Fortunately, there are not any production trucks dedicated to 3D live programming, so we are looking at building one.

From games to gaming to concerts to plays to specially developed events. 3D will be a mainstay of the future of digital media. Using entertainment as the starting point, the technology will advance, decline in price, and applications will be developed that will expand the use of 3D from entertainment to corporate to medical and personal and more. 3D is and will continue to be an exciting digital media application for a long

time to come.

In order to support future digital media applications such as 3D, the networks that will carry them will need to evolve. That evolution will lead to new and exciting digital media applications, but will require new protocols and a far greater integration into the fixed routers of existing networks.

2. The second opportunity is with application specific networks. Unfortunately, the best networks cant be all things to all people and applications, which is exactly what the internet has to be. Not only does it have to be all things to all people, it has to be dumbed down to continue to be open for everyone and anyone. i believe we will see an expansion of networks that are optimized for specific protocols, performance guarantees and applications.

The most obvious example of this is are satellite and digital cable networks. These networks are optimized for broadcast and on demand applications at as high a quality as their bandwidth can support. They also have become platforms for application development and are starting to see increasingly robust toolsets. Unlike the internet, which is best delivery effort, with no promises or guarantees, the networks which deliver our digital TV are optimized to be reliable to five 9s with near instantaneous delivery.

These networks create unique opportunities for interactive applications, and for the delivery of content to mass audiences. There are open, or reasonably open standards such as Docsis 3.0/Tru 2Way that are now becoming available to any and all developers. I would strongly recommend that those of you who are looking at digital media applications to consider the opportunities available on these networks which already reach almost every home in the US.

That said, while platforming on an advanced media network is enticing, there are risks here. The consolidation of ownership among video distributors , who own both the networks and content could create roadblocks of discrimination towards their own products, or for the products of major media corporations with considerable market clout. These could preclude small programmers and entrepreneurs. Which is why HDNet is supportive of a shot clock to resolve these conflicts and to encourage those here to consider applying these same conflict resolution elements to not just content, but to software developments as well. However, even with these risks, as an entrepreneur, I think application development on proven digital media networks is a great opportunity for myself and others

There is one last point I would like to make in my allotted time. The one area of digital media that will create the greatest opportunity for entrepreneurs is the ability to develop and or control applications on fixed routers on internet connected networks. As those who want to see better performance of digital media, particularly

live streaming over the internet will realize, best performance will come from utilizing application specific protocols such as multicast. This will create significant demand that will quickly and easily outstrip providers ability to support the demand. This will have the affect of putting ISPs in the role of gatekeeper for determining who gets the ability to broadcast over the internet vs who has to deliver content on a one to one, unicast basis. At some point in time, someone will realize that the holy grail of distribution of digital media over the internet will come from partnering with the many ISPs to enable multicasting and its related protocols, and to peer them as an unwired network. It wont be cheap, fast or easy, but it would be a game changer.