

Voices of Innovation

Interview With Sam Sheng

As the mobile phone continues to evolve from a simple voice device to a personal communications hub, we begin to realize that there are almost no limits to its potential. One of the most exciting new areas for mobile handsets in recent memory has been mobile TV. However, despite a strong push from the industry, the reality of the mobile TV market has been slow consumer uptake. However, 2008 may be the year that mobile TV really begins to gain traction, so we thought it would be a good time to get an overview from mobile TV receiver supplier Telegent.



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Dr. Samuel Sheng co-founded Telegent Systems in 2004. A world-renowned expert in CMOS RF and DSP development, Dr. Sheng has extensive experience in architecting and designing leading-edge CMOS RF and DSP chips for silicon tuners, ADSL transceivers, magnetic recording and DVD RF/servo technologies. He has a proven track record of sampling first silicon for all the chips developed under his leadership. Prior to co-founding Telegent Systems, Dr. Sheng was at LSI Logic and responsible for architecting and implementing a series of silicon RF tuners for video-band applications, targeted for cable modems, analog/digital video over cable, and voice over IP as well as highly integrated DVD front-end technologies. Before LSI Logic, Dr. Sheng co-led the ADSL front-end (AFE) development effort at Datapath Systems, Inc. He has been awarded seven patents in the areas of RF tuner and DSL modem design. Dr. Sheng received his B.S., M.S., and Ph.D. degrees in electrical engineering, and the B.A. degree in applied mathematics, all from the University of California, Berkeley.

Question: What is the current state of the Mobile TV market?

Answer: Mobile TV has a bright future, but global consumer adoption has been slower than originally anticipated. We see the primary issue as being one of content. Repeated studies show that the content consumers want to watch on mobile TV is the same free live content that they receive on their television set at home. Most mobile TV deployments, however, are not able to deliver this content and additionally carry a subscription fee for accessing a limited number of unfamiliar channels. A secondary issue is that of technology, in that there are issues of spectrum, standards, infrastructure and handset performance that must be overcome to successfully get solutions to market.

Question: Is the standards war still an issue? Or has this been mostly resolved?

Answer: Standards are an issue. It can take several years for a technology to mature such that commercial solutions can be developed and deployed; additionally, it takes substantial time and money to roll out infrastructure to support these new standards. This is why Telegent has chosen to deliver solutions that support the existing free-to-air ecosystem, as well as emerging standards. This provides consumers with a hybrid solution – one that can receive ubiquitous mobile TV today by leveraging the current television ecosystem, as well as one that will support the emerging standards.

Question: When and where do you expect to see the hype about Mobile TV catch up to the reality?

Answer: We expect that mobile TV adoption will first become widespread in Asia, then in Europe, and then the U.S., following the adoption path of camera and other technologies that are now standard in handsets. In Asia, consumers are very gadget-oriented and are quick to adopt technologies. Additionally, because handset manufacturers do not need operator endorsements to reach the consumer market, manufacturers can deliver solutions to market very quickly. We expect to see widespread adoption of free-to-air mobile television in Asia in 2008.

Question: What is the most under-appreciated Mobile TV deployment to date?

Answer: There has been much attention given to mobile TV trials based on emerging technologies. However, we have sold five million mobile TV receivers that support existing free-to-air standards in less than nine months, surpassing the cumulative number of global DVB-H subscribers. What this tells us is that there is significant global consumer demand for the content that consumers view and enjoy on their television at home. These solutions can be made available to them without requiring any investment in spectrum, standards, infrastructure, or content development.

Question: Which upcoming deployments have the greatest chance for success?

Answer: Deployments that deliver free-to-air mobile TV—the content that consumers view and enjoy on their television sets at home, free of charge—will see the fastest uptake.

Question: What regions are most likely to see significant uptake of mobile TV next?

Answer: In the immediate future, we expect to see very rapid uptake in emerging markets in Asia and Eastern Europe.

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Interview With Sam Sheng (Continued)

Question: *What are the benefits of the free-to-air model vs. the pay-tv subscription model vs. pay-per-view model?*

Answer: Free-to-air mobile TV accelerates adoption by providing consumers with mobile access to the free, live programming that they already view and enjoy on their television sets at home. For operators, it is an offering that can be used to immediately differentiate their services, attract subscribers, reduce handset subsidies, and drive incremental revenue with new business models. Additionally, deployment of free-to-air mobile TV requires zero investment, leveraging an existing and mature broadcast ecosystem that includes mature, global standards, spectrum that is already allocated, existing tower infrastructure and existing content.

Question: *How critical is free-to-air in driving consumer uptake of mobile TV?*

Answer: Live, familiar content is the key driver of mobile TV consumer adoption, and free-to-air mobile TV is what delivers this programming. Once consumers become accustomed to watching TV on their handsets, it will then be possible to see greater up-sell to custom pay-to-view content.

Question: *How successful has free-to-air Mobile TV been in driving ARPU for network operators? Has this been through network usage or handset sales?*

Answer: Operators are reporting that free-to-air mobile TV is helping attract and retain subscribers and reduce handset subsidies. We believe that new innovative monetization models will emerge in 2008 as free-to-air mobile TV becomes more widespread, with increased ARPU resulting from increased use of data network services such as SMS, targeted advertising and up-sell of premium content.

Question: *What is the key content for driving free-to-air uptake with consumers? What is the key content for driving consumers to upgrade to pay-per-view?*

Answer: News, sports, and soaps are popular programs with consumers watching free-to-air mobile TV. The upsell path to drive consumers to pay-per-view will likely be similar to the situation with cable and satellite services – the paid-for content will be far more specialized in nature, and be targeted specifically for the mobile user. For example, broadcast news is only available at certain times of the day, yet CNN and MSNBC have been phenomenally successful at the creation of a premium 24-7 news-only channel. Interestingly, we believe that the kind of content that will attract subscribers to a pay-per-view service is already being developed—ESPN Mobile, Disney Mobile, and MTV Mobile. What is lacking is the availability of “local channels” in the content lineup.

Question: *Who is doing the best job acquiring content?*

Answer: If you look at the success of the 1-seg ISDB-T deployment (20 million users in 2007) in Japan, the key hallmark was the fact that the existing free-to-air broadcasters were part of the solution. A rich mix of existing “free-to-air” content (simulcast over ISDB-T), as well as mobile-specific content, was available at launch, and the variety of content is increasing. Certainly, the content slate available on an ISDB-T enabled handset eclipses any other mobile TV deployment. Again, the theme of “free-to-air” prevails here – the ISDB-T service itself is free-to-air, with the simulcast of free-to-air content. Of course, ISDB-T has little adoption outside of Japan. Telegent’s goal is to create the same kind of success for mobile TV on a worldwide scale, by enabling handsets to receive existing free-to-air broadcasts.

Question: *Is mobile TV based advertising effective on such a small screen?*

Answer: What we’ve seen to date is that with the handsets on the market today, customers are satisfied with the screen size and picture quality for TV viewing. What we don’t know yet is what kind of advertising models will prove most popular with consumers – whether it will be a broadcast model such as you see on your TV set in your living room, or more of a banner model similar to Internet-based advertising.

Question: *How much of an impact, if any, will the analog switch-off have on mobile TV? Where do you expect to see this impact?*

Answer: Only 12% of the global population will be affected by analog shutoffs by the year 2012. As a result, we believe that it is critical to support the global market with existing analog standards such as NTSC, PAL, and SECAM, in addition to supporting digital standards such as DVB-T and DVB-H.

Question: *What impact do you think the network evolution to WiMAX/4G (OFDM Multiple Access) will have on mobile TV?*

Answer: It is unclear that the deployment of a WiMAX or 4G network will actually spur mobile TV to any great extent. The data rates available even in existing 3G HSPDA deployments are more than sufficient to support mobile TV; the real challenge is the question of spectral efficiency. Broadcast television is remarkable for how much data is delivered in a very small chunk of spectrum – for an event like the Super Bowl, consider the number of users watching a given show at a given time, all of whom are serviced by a single broadcast tower on a single channel. To replicate this kind of capacity in any substantive way would be prohibitively expensive to the cellular operators for 3G, and even WiMAX/4G-type technologies.

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Question: *How significant an issue is power consumption for mobile TV uptake, especially with the current trend of smaller, thinner handsets with smaller batteries?*

Answer: Power consumption, picture quality, and mobility support are three of the key factors required to deliver a successful mobile TV consumer experience. Today, our solutions support up to six hours of television viewing, and our customers are satisfied with this performance and the fact that power consumption related to mobile TV viewing does not significantly impact mobile phone usage.

Question: *In Europe, do you see DVB-T & DVB-H having an impact?*

Answer: In Europe, we see DVB-T playing a critical role in accelerating consumer adoption of mobile TV, because it is a free-to-air broadcast standard that delivers preferred programming. It is still not clear what role DVB-H will play in the long-term adoption of mobile TV, whether it will become a de facto standard, or whether it will be one of many standards used to deliver “made-for-mobile” content. Regardless, we see the combination of free-to-air and pay-per-view broadcast standards as complementary to one another.

Question: *What is the biggest challenge currently facing the mobile TV market?*

Answer: For technologies such as DVB-H and MediaFLO, the biggest challenge is the “perfect storm” of infrastructure, spectrum, and content. For operators, spectrum and infrastructure are phenomenally expensive. For consumers, asked to subsidize the cost, the content is not compelling. The broadcasters, cellular operators, and the end consumers all have to be in agreement for mobile TV to be truly successful, and Telegent believes that a free-to-air mobile TV model—providing a compelling raison d’être for all three stakeholders—is the key to the long-term success of mobile television.