

The Changing Dynamics of Video Programming

By Laura Littman and Stephanie Minnock

Keynote Speaker: [Chet Kanojia \(Aereo\)](#)

The “time is upon us, whether you like it or not,” for the cable industry to change said Chet Kanojia at the Silicon Flatirons Center’s conference, The Changing Dynamics of Video Programming. Despite being slightly hampered by what he could discuss due to the current litigation surrounding Aereo, Kanojia, the keynote speaker at the September 4th conference, regaled the crowd of over 200 people with what he thought the changing dynamics of video programming were.

He began his presentation with a video describing the services that Aereo currently provides to New York residents, detailing his company’s production of tiny antennas that pick up “awesome HD reception.” These antennas are controlled by the user through an Internet interface that allows users to store the live broadcast and transmit it to any device they want without cords, cables, or boxes. The interface allows users to record live television and watch it at their leisure, as if they had DVR’d it off of their cable box.

On a subscription basis, Aereo licenses the technology to the consumer for either \$12 per month or \$1 per day for on demand service. Dean Weiser, moderating the speaker, mentioned how analogous this technology was to the birth of the cable industry: the cable industry began by setting up large antennas, allowing users to access broadcasting networks’ content with a clear picture, solving the problem of fuzziness. Kanojia agreed that this was analogous except as the technology industry is growing that idea has evolved from being able to provide consumers with a clear picture. The problem is no longer trying to access a clear picture, but access a clear picture on any device, anywhere.

Aereo began with a narrow launch, focusing on the New York City area, but will be expanding their technology to connecting television sets, game consoles, and the like as well as making this technology available to multiple cities. Kanojia was careful to emphasize that Aereo is providing a technological platform rather than a competitor to the cable and satellite industry. He stressed that this digital disruption is everywhere. The newspaper and recording industry have certainly felt the negative affects of it. Admittedly, certain classes will follow the traditional model of purchasing cable or satellite subscriptions. Just as there are certain people still buying newspaper subscriptions and purchasing their music solely through cds.

However, there is an expectation by those who have moved towards a more Internet-based way of obtaining information and entertainment: Why can’t I watch cable everywhere? He supplements this point with an economic argument; disposable income is limited, and viewers would like to obtain their video experience for less just as they can obtain other entertainment for less.

Regarding the technical question of whether or not bandwidth can support such a service, Kanojia assured the audience that the bandwidth is there. 1-2 Mbs is enough to stream and there is an average of 5-6 Mbs in each home. There is also sufficient capacity in the access network, with 400 to 600 MHz of spectrum being enough to support the technology. There is a lot of capacity leftover, Kanojia assured

the crowd, especially with compression of data. Innovation occurs under compression a lot faster than in other industries, hinting that this technology would be able to spur further innovation, which would allow for more efficient use of the finite spectrum available.

When faced with the question from Weiser regarding how Aereo plans to pay for both pipes and content. Kanojia assured him that the appetite is there. "Pipes" refers to the amount that people pay for broadband and subscription. Content is funded primarily through advertising and is bolstered by licensing subscriptions to cable and satellite providers. Kanojia referenced the website "HBO take my money," where consumers ask that HBO allow them to pay to view HBO content without a classic satellite or cable subscription. When asked if he is offering an alternative that undermines a revenue stream, Kanojia came back with the answer that people who would be purchasing his product are the ones that would be bootlegging anyway, and would not disrupt the revenue stream. Those in the cable and satellite industry are worried that they would only be able to charge for broadband, and not for a subscription for content any longer. This raises concerns because you must pay for a resource when you consume it. However, Kanojia stated that Internet providers could set prices based on usage and stated that his product was one of convenience, an option value product like Netflix.

The technology Aereo has created presents cable and satellite industries with an Innovator's Dilemma: should they invest in this technology, which is disrupting their business model? Is Aereo asking the cable and satellite industry to cannibalize their own offerings by offering similar products? Kanojia stated that he would rather see the industries innovate than cannibalize themselves. The price of content is currently tucked into the price of technology. Disassociating the price of content from the price of technology is a decoupling that Kanojia would like to see. However, he declined to agree with Weiser's comment that having ownership of both pipes and content is an unholy alliance.

Regarding a recommendation engine, Kanojia felt that those were better suited for large libraries; personal recommendations work better for television shows. Regarding advertisements, Kanojia felt that it is possible to engage consumers through different types of advertisement. He detailed how shows could allow viewers to swap ads, to connect them to social networks, and to be more like YouTube regarding interstitials: allow individuals the choice of not watching the ad after fifteen seconds.

Regarding ratings and other consumer tracking information, Kanojia detailed that Aereo now collects names, addresses, and credit card information of their subscribers. The subscribers have the option to give their demographic information, but Aereo does not provide rating information.

When asked by the audience how Aereo is not a cable system, Kanojia described how Multiple Video Platform Distributors have to be facilities based, not Internet based. Because Aereo is not capturing a signal and sending it out, but giving the individual an antenna, they are removed from that classification system. Aereo simply provides a technology platform, one that individuals would be able to provide to themselves with a powerful enough antennas.

Panel I: Changing Economics of Video Content Delivery and Distribution Arrangements

[Matt Bond](#) of NBCUniversal; Byron Grandy, the Vice President and General Manager of KMGH-TV, Scripps-Howard; Jim Packer of Lionsgate; Allen Singer of Charter Communications; and [Niki Frangos Tuttle](#) of Hogan Lovells, LLP made up this panel.

Regarding the movement in technology, as discussed by the keynote speaker Chet Kanojia of Aereo, towards digital distribution platform and digital revenues from such platforms, technological developments that have devastated the recording and newspaper industry, the panelists were optimistic. Matt Bond began by averring that people love television. These digital distribution platforms offer opportunities, Bond said, for content providers to obtain revenues from a different source. Unlike the recording industry, the content industry provides all new, refreshed video content. This will only provide, Bond concluded, people more opportunities to watch television, which will be monetized.

Byron Grandy added that local broadcasters, with a strong enough brand, would be able to retain local viewers despite the change in platform as long as the cable and content industries were not decoupled too often.

The good part of technology, and all of the advancements, Jim Packer stated, was that it was enabling so much consumption. There is unprecedented consumerism of video content, yet there is still a need for an ecosystem that fuels not only the content providers, but also the cable and satellite industries. As long as the technology does not cannibalize the ecosystem, Packer, as a content provider, is in favor of innovation in the form of digital distribution.

As a distributor, Allen Singer stated that you could monetize the pipe (in that you can monetize the technology that allows the consumers to access content). Subscription television is good as long as it is combined with other services. Content, Singer affirmed, is really expensive. And within a secure system, subscription on a digital platform is good. However, because two-thirds of revenue is from advertisements for distributors, disruptive technology could destroy that revenue.

The evolution of advertisements, Bond stated, will need to take into account the provision of content over the Internet. Currently there is only one point at which advertisements can reach the consumers; with digital distribution that approach may need to change.

From a legal standpoint, Niki Frangos Tuttle added that negotiations between programmers and distributors are already tense. The new technology makes it more so. If there can be ways to monetize over-the-top content distribution, this could ease some of these tensions.

Allen Singer brought up the example of Watch ESPN as being indicative that it is harder and harder to find a win-win solution for cable and satellite providers and distributors to reach agreements, since the content providers are already starting to allow for over-the-top content distribution. When Singer first saw the iPad, he thought it was just an iPod for video content. Larger media companies are starting to embrace the digital platform model, especially if part of a value proposition is that

the paying customers are authenticated and the advertisement revenues are protected.

Packer brought up the point of modifying the windows in which content is delivered. It's harder and harder, he says, to keep windows closed. The content distributors must maximize profits far earlier because broadcasters are not buying their content. Therefore, in the theaters, bigger hits are even more important. Downstream revenues are smaller and smaller. The ecosystem, Packer says, is strong enough, but when there are no places to place content, the content providers struggle. Yet without enough original content, the broadcasters and distributors will not be able to maintain their audience base.

Bond wrapped up this portion of the discussion by stating that although viewership of movies is up, the revenue has declined. He assured the audience, however, that the ecosystem has remained stable despite movement towards a digital platform.

Syndication, the sale of a right to broadcast shows, would decrease if the movement to a digital platform was made, discussed Grandy. If less money is made from syndicating, profits would go down as well, providing less support for the industry model as it is now.

Tuttle mentioned accruing revenue from pre-theatrical viewings and HD Internet movies while Packer responded to this question by discussing Lionsgate's recent foray into reverse windowing. Packer felt an interesting phenomena occurred with this experiment: people continued to go to their provider of choice, even if the content was offered both on demand and at theaters. Those who enjoy the experience of the theater went there; same with home viewership. People want to watch content where they want. To take advantage of this, Packer joked, one could provide it in both places and merely increase the price to make up for lost revenues.

Upstart content providers were discussed next: both Tuttle and Singer responded that it would be difficult, if not nearly impossible, to launch a new network, especially, Tuttle emphasized, if they need a higher audience rate to achieve a return on their investment. However, with valuable content, an upstart company would be able to survive. It would be a challenge, said Packer, but with the provision of creative content, and finding other ways to launch companies could provide the boost needed. One audience member asked how it would be possible for a broadcaster to rival the established cable networks. With many cooperating content providers, the panel responded, like with the Spanish language channel, it is possible. New networks will probably not emerge, the panel decided when asked, as it is a mature network.

When asked about traditional networks and the Aereo case pending in the Second Circuit, Bond replied that many people love NBC. And for that content to continue to be made, the revenue has to be in place. Aereo deprives the content providers of revenue and will likely upset the ecosystem. Grandy felt that networks provide something on the local level that creates a lot of value for people. The advertisement model, he stressed, needs to stay in place for this valuable content to continue being made. Citing Judge Chin's decision regarding Cablevision, Tuttle felt that copyrighted material would again be protected by the courts, enjoining Aereo from providing users with content without paying for it in the traditional manner.

The panel was then asked about vertical integration of some over-the-top providers such as Netflix and Hulu, who are providing some of their own content. The panel assured the questioner that producing content is expensive, that Internet based digital content providers will soon be looking for a way to monetize this content, and that the main way to do that is to find an advertising model similar to that which is already in place in cable and satellite provision of network generated content.

PANEL 2: The Dynamics of Sports Programming

[Preston Padden](#), Senior Fellow at the Silicon Flatirons Center and Adjunct Professor at the University of Colorado, moderated the second panel of the conference, focusing the discussion on the changing dynamics of sports programming. The panel included Sean Bratches, Executive Vice President of Sales and Marketing at ESPN; David Hill, Senior Executive Vice President at News Corporation; [Pantelis Michalopoulos](#), Partner at Steptoe & Johnson LLP; David Shull, Senior Vice President of Programming at DISH Network; and Melinda Witmer, Executive Vice President and Chief Video and Content Officer at Time Warner Cable.

Migration from traditional distribution outlets to online distribution:

The panel began with the discussion of authentication. Bratches explained that authentication involves a coupling of the ability to access content live with a cable/satellite/telephone company subscription. He analogized authentication to the benefit of membership with American Express—explaining that to the extent that you pay as a subscriber, you are able to access the content on different mediums.

Padden identified that entertainment programming is accessible online and asked whether sports will be any different. The panel agreed that as long as consumers are paying for the product, it will happen in sports—citing the important role of advertising. Bratches represented that ESPN feels good about the switch, especially given ESPN's ability to provide different, and flexible, forms of advertisement with authentication. Michalopoulos said revenue will be recognized by fine-tuning the revenue stream of advertisements—by focusing on psychographics (targeting viewers). All agreed that the issue is making authentication beneficial to the program providers and distributors as well as consumers.

Next, the panel identified that authentication allows more accessibility to viewers. Witmer highlighted the importance of getting sports to authentication because of its live nature, citing that entertainment television can be watched months after its showing, while sports expires quickly. Thus, consumers highly value watching sports live, wherever they are, and on any device (or as Witmer dubbed it, on the best screen available). Bratches agreed, stating that authentication creates “new markets of time” by providing access to sports in a new way of consumption. Hill and Bratches said that sports are a “vital part of society” and “the last bastion of social currency in the marketplace” respectively—identifying the

social need to know what happened last night in sports, which makes sports leverageable.

The price of sports programming:

Padden identified that sports channels are more expensive than other channels, giving the example that ESPN runs for about five dollars, per subscriber, per month. Padden asked Shull whether Charlie Ergen, CEO of DISH Network, is “serious” about possibly running his DISH television service without ESPN. Shull responded that sports prices are going up and DISH cannot have 95% of its customers pay for what 1% watch.

Shull’s comment ignited a discussion about whether sports programming is a niche product. Bratches argued that 80-90% of all multichannel subscribers tune into an ESPN product. But Shull argued that many sports markets are niche. Witmer said that given the enormous content offering provided, consumers have so much to choose from that the value proposition goes to the assessment of “does the consumer care” and if so, “how many care” and “how much do they care.” But, she identified that it is a complicated analysis of what consumer is paying for what viewership—it is not as simple as, “it is just a penny a day.”

A la cart offerings and emerging networks:

The niche market discussion led Padden to ask whether consumers should be able to pick the channels they want, and pay for the channels they pick. Two conflicting FCC reports exist on the subject (available [here](#) and [here](#)). The two reports represent the two layers of the a la carte issues: (1) the ability of the subscribers to pick and choose at the retail level, and (2) on the upstream level, the need to deal with packaging asked for of the programmers.

Witmer, from the distributors’ side, identified that a la cart sounds like a great idea from the consumer’s side because they watch 5 to 15 networks. However, she said it is not a viable economic model to support the expensive business of creating content. Witmer identified the goal as trying to strike a balance, identifying the ability of packages to spread the cost and support the advertising model. The rest of the panel agreed that the cost of making content is high and must be covered.

Bratches argued that consumers have chosen to buy the bundled product. He identified that cable has provided smaller packages, but those packages have not been oversubscribed to. He continued that this is likely because households are a composition of a number of individuals that make collective decisions. But other panel members agreed that the question is whether the customers have really had the choice.

However, everybody agreed that pricing is beyond complicated. Shull said that at some point there is a breaking point and there will be some fragmenting of packages. Bratches argued that a la carte will cause consumers to pay more and get less. He argued that the industry focuses on the cost of certain programs and their effect on the bill, when it should be focusing on the value proposition of the entirety of cable.

Finally, Witmer brought up the role of emerging networks (such as Netflix or Aereo). She said distributors will need to be more selective given the navigational

experience from cable to content through an Internet pipe. This adds a new dynamic because a product may not be needed if it is adequately represented in the Internet world. In terms of sports, emerging networks include the League Passes. Witmer argued that an analysis needs to be done on whether consumers will get a product through the Internet and whether the audience is still big enough to carry a product. Finally, she said that Internet distribution is taking away the need to market a brand or network, so smaller shows will likely never see the light of day.

Regional Sports Networks:

Padden transitioned the discussion to Regional Sports Networks (RSNs), identifying that they are costly and proliferated, using the Los Angeles market as an example. He asked where the explosion of RSNs would end, how many RSNs a market can support, and whether consumers can afford to pay for them? The panel did not jump at a response, saying only that nobody could have ever conceived paying more for sports.

Changing broadcast signals:

Finally, Padden asked Witmer whether her boss, the CEO of Aero, is “serious” about changing the way broadcast signals reach consumers—specifically, without paying broadcasters retransmission consent fees. She responded that broadcast is complicated because the broadcaster does not have copyrights and it is a completely different dynamic than producers. She said, given that programming costs are rising, and it is more complicated to pass on price, the fastest growing programming is in broadcasting and retransmission fees for distributors. Specifically, she said, if consumers must have “American Idol” or “Dancing with the Star,” it is more inefficient to buy the shows from the local broadcaster than to go to the source and buy from the networks. She said that money is going “out the back door” and not bringing value to the consumer, identifying that technology enables consumer to have an antenna system that works, and she is in favor of seeing it evolve. Finally, she said that having to go to the broadcaster to buy content is an anomaly of the broadcast business that leads to the inefficiency of products.

To end the session, Padden expressed thanks to all of the panelists for coming to Colorado Law School and Silicon Flatirons.

PANEL 3: EMERGING TECHNOLOGICAL PLATFORMS AND MARKET RESPONSES

The third panel covered emerging technological platforms and market responses. [Doug Sicker](#), Associate Professor of Computer Science and Interdisciplinary Telecommunications Program at the University of Colorado moderated the discussion. The panel consisted of [Richard Green](#), Senior Adjunct Fellow at Silicon Flatirons Center and former President and Chief Executive Officer at CableLabs; Irv Kalick, Principal of TV Partnerships at Google; Tom Lookabaugh, Senior Adjunct Fellow at Silicon Flatirons Center and Vice President of Commercial Mobility at ViaSat; and John Suranyi, Board member of Sencore, Inc. and Cable and

Satellite TV industry veteran. The core question Sicker identified was what are the trends going forward in the video space? Specifically, “who will own, control, or benefit from content in the future” and “how is technology going to impact that delivery and use of content?”

Video Compression

Lookabaugh began with the history of video compression. He explained that video compression is not revolutionary, but that it keeps grinding along. He identified that technology continues to double the performance of video compression. Doubling continues even today with High Efficiency Video Coding (HEVC) coming out in a year or two. He identified that there are two drivers reinforcing each other: (1) that compression is reducing the number of bits needed to get quality video to somebody, and (2) bandwidth is increasing because of the ability to produce more cable channels. However, he acknowledged that doubling cannot continue forever. He said that exponential growth, as explained by Moore’s Law (that performance doubles every 18 or 24 months), cannot go on indefinitely for physical objects (e.g. the geometry of a feature of a chip cannot be smaller than an atom). Further, he said that cost is going up—and although technology may allow smaller geometry—only chips in the biggest markets can take advantage of Moore’s law economically. Thus, he argued that continuous doubling, as experienced in previous decades, will slow down.

Green put the discussion in context, saying that wireless and DSL pathways that were not possible are now enabled by technology. But in terms of Moore’s law and the chip situation—as a physicist he knows there are limits—he explained that every time the industry gets close to a limit, engineers find a way to zigzag around it—for example moving from one plane to a three-dimensional plane. Finally, Green explained the disadvantage of high compression as causing more processing at the end of the network, which requires more processing needs and will change video development. For example, a cloud network requires more processing capability in house (in the phone).

Additionally, Lookabaugh identified a disconnect between technology and law and regulation. He identified that often the proposed regulation or law encompasses technology that is obviously inefficient. For example, he says the thousands of antennas Aereo proposes is technologically inefficient, given that one antenna could do the job.

Finally, a member of the audience asked whether the art of compression has progressed to the point where the same performance can be provided on a primary TV station with half the channel—as the FCC is proposing. Green and the panel responded that it is technically possible, but that there are other issues prohibiting the change. Specifically, that current TV sets would not support the technological change, and a translation device would be needed.

Networks and search and discovery

Kalick said that because video technology is improving, the adoption of new technology will be the next step—and the race is on. However, he identified that it will take time for consumers to catch on. The key, he said, is to simplify use for

consumers. Thus, Kalick identified the importance of Google's mission to bring the web to the television—especially in search and discovery. He said, mixing web content with linear content will benefit consumers and give them what they want in a simple format.

From here, the discussion turned to the importance of networks. Kalick argued that consumers no longer care about networks (despite previous ties to networks) but care about shows. He argued that the increasing proliferation of the iTunes Store, Amazon, and Google Play is changing the way consumers search for content. Therefore, he said, by bringing chrome browser and YouTube to the television set, Google will bring thousands of channels to the marketplace.

In response, Lookabaugh said that what keeps networks in place is the market structure and that technology dictates market structure—however, he said people forget that the market structure was derived from the technology. He argued that video network and channel structure is no longer fundamentally important in video anymore. Specifically, although identifying that bundling works and bundling happens for different reasons, he argued that networks are not necessary. Kalick agreed, but argued that networks should not be abandoned—especially given the hundreds of millions of dollars spent on creating brands. Kalick returned to the importance of search and discovery, given the many choices consumers face. However, he said, you can still give brand attribution—and that Google's model is not trying to break up brands. Likewise, Lookabaugh agreed that it is not rebranding, but more access and the potential for the consumer electronics industry to participate in home entertainment differently than before. Green concurred, adding that it is a good time to be a video consumer, given the access to a variety of distribution mechanisms.

Content Ownership

Green identified that the world is diversifying in terms of ownership and distribution of content with Google and Amazon and other entrants providing more and more content to consumers. Suranyi added that content is not only being diversified, but it is also being consolidated, and content is moving into different hands (e.g. cable operators and big Internet companies). This, he said, is changing the consumer experience by giving consumers choices. However, Suranyi argued that consumers are slow to change (although technologically savvy people are starting to cut the cord). Instead, people just want things to work (on their TV, computer, phone, DVR, and tablet). While cable, satellite, and other new players will create new choices for consumers—he says the race is who can solve the problem of simplicity the quickest. He said people are not putting up antennas because they get a significant amount of programming over the air and putting up an antenna is too complicated. But, if there was a simple way to incorporate antennas, it would provide more choice for consumers.

Kalick agreed, using the example of the Olympics on NBC and the dramatic improvement of viewership usage (part of it being the single sign-on right), where the goal was to get content to consumers on any device at any time—easily. Green added that NBC did a great job, providing streaming to watch a venue live (generally without commentary), watch aggregate channels on cable (on one of the NBC

channels with minimum commentary), and over the air that was tape delayed (a produced version). He said people tuned into all three—providing a new direction, with multiple formats and multiple delivery. Kalick agreed, saying it helped the industry understand how to scale many streaming products going live all over the world. He said the industry learned a lot about multiple channel distribution and that this is just the beginning.

Role of policy:

Lookabaugh is weary of the role of government in controlling technology trends. He argued that there are some technologies that persist and provide value for a long time (AM or TV broadcast) and some expire quickly (Tape or CD). The difference between the two, he argued, is that AM or TV is regulated while Tape and CD is not. Thus identifying that government regulation is slow to change and causes a sticky effect in technology. For example, in spectrum reallocation, although an engineer knows that a frequency would be much more useful for some other use, it is very hard to get around business interests. Thus, Lookabaugh worries about government trying to set standards and thinks innovation needs to occur when technology makes it natural. However, he identifies the need for government to protect against anticompetitive effects suppressing innovation (such as monopolies or market control).

In response, Sicker identified that sometimes technology can be used in anticompetitive ways (e.g. encryption may make it difficult for fair use) and asked whether the government should watch out for the anticompetitive role of technology. Lookabaugh answered that he is nervous about the move of TV everywhere, and while he identified that bundling is okay, he stressed the need for consumers to have choices. He argued that if the primary motivation is to protect the existing business model of original subscription—it is not right to perpetuate the model longer than is technologically necessary. He identified the balance between providing value versus protecting a business model—and he argued that as long as the market is competitive, there is no need for government intervention.

Kalick agreed, adding that today, the market is more competitive than ever with more choices—citing that just a few years ago the term “cord cutter” did not exist. Green agreed that Netflix has proved that there is an expanded market and he suspects to see more packages of streaming content outside the TV everywhere model. Green restated the need to harvest revenue to pay for the content, and he argued that experimentation with technology, as a vehicle to solve the problem, will expand the experience beyond TV.

In conclusion, while some members of the panel were concerned, all agreed that unless there is harm, there is no need for government interference. However, Lookabaugh said he urges regulators to pay attention to the emerging issues caused by the new models.

AUDIENCE QUESTIONS

One audience question addressed the issue of the expensive nature of content, and the question to Kalick was whether leveraging cheap user-generated content is successful. Kalick responded that Google, through YouTube, is taking the

opportunity to produce quality content in a cost effective way, and then sell advertisement around that. He conceded that there will be the “offbeat stuff online,” but that YouTube has hundreds of quality channels. Identifying that a program like TED adds value, and Google is trying to incorporate that into the television corpus.

Finally, a member of the audience asked how technology is being used to support the move towards segmentation of content itself, such as splitting shows into searchable segments. Green identified that there are trends in television, especially educational television, of breaking content into, say, ten-minute segments to facilitate consumption. Kalick agreed, but noted that the content creator and owner control this. Instead, he identified the trend as a huge proliferation of second screen development, creating submersible contextual information while watching shows. Finally, the panel agreed that it is just the beginning of using technology on the production side, and that it will be interesting to see how technology is used in future production.