NEXTGEN DATACASTING – MONEY TO BE MADE

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Over-the-air television distribution as a business is at a tipping point. No one has ever invented a more efficient way to distribute content to mass audiences. At the same time, it is existential that broadcasters rethink how we are using our core asset – the spectrum that carries our TV channels – to provide that distribution. Yes, we will continue to serve the public by providing free-to-air local and national news, information and entertainment programming that is the *quid pro quo* for our licenses to use that spectrum. It's a good business. But it is plateauing. Embracing the other uses of that spectrum – datacasting uses – will be critical to growing our industry, supporting the existing model and venturing into whole new experiences that ensure our relevance in a world dominated by the internet services of big technology companies. Wired and wireless!

Status quo is not an option. And reliance on a diginet business model to augment our over-the-air revenues will be insufficient to ensure our long-term survival. Niche rerun channels will not be the savior of our current business model. It's good-tasting candy when we really need a banquet of nourishing food to grow. To mix metaphors, why rent out spare bedrooms in a single-family home when we can erect a skyscraper on the same chunk of land using the ground floor to live in and renting the upper stories to multiple businesses? That is the spectrum reuse enabled by NextGen Broadcasting. That is what datacasting is all about.

> ***KEY:** Deploying NextGen Broadcast (ATSC 3.0) capabilities and providing multiple non-TV use-cases will be critical to sustaining our ability to remain in the content distribution business.*

MAKING THE MOST OF SPECTRUM. Across industries and around the world, virtually every spectrum user is constantly striving to improve service offerings with existing spectrum. The beauty of the IP-based NextGen Broadcast transmission standard is that broadcast spectrum can be used for so much more than simple delivery of one-way, unenhanced television program streams. It needs to be seen as an essential element of internet distribution that has never-before been possible. In economic terms, this is the market's way of maximizing productivity and is the essence of how spectrum can be used most effectively. In business terms, it permits broadcasters to match and exceed the best features of competing video delivery platforms while also bringing new services to the public that will provide new revenue streams. This has been a part of the "digital promise" since broadcasters converted from analog transmissions and has been anticipated by regulators and broadcasters alike for many years. Developments to-date justify analysts' predictions that, in the next decade, broadcasters will develop a third revenue stream as robust as advertising and retransmission fees for the content we produce or license.

The government-defined deployment rules, however, complicate this promise. Rather than providing temporary additional spectrum to ease the transformation to this remarkable IP-based broadcast service, the deployment plan is hampered by a requirement that broadcasters simulcast programming in both the current ATSC 1.0 and new NextGen Broadcast standards. That process eats up virtually all of the NextGen digital capacity earmarked for new services. It's like trying to grow new sequoia trees but having to contend with dwarf, bonsai tree clipping protocols. That needs to end.

KEY: ***To be clear, that means that broadcasters must have complete and unfettered access to all of their digital capacity, not just the remnants left over after hosting our competitors on our broadcast towers. And that means a sunsetting of the 1.0 simulcasting rules as soon as possible.***

SPECTRUM AGGREGATION. While individual broadcasters will use a portion of their NextGen spectrum capacity for enhanced traditional linear video services, they may use any "excess" capacity for other offerings. Those offerings can include advanced features such as ultra-high definition and high dynamic range video and immersive audio. They can also include datacasting. Scaling that service on a regional and national basis will require broadcasters to aggregate their capacity and offer it for non-video use cases. The fundamental mission of BitPath, the joint venture between Nexstar and Sinclair, is this aggregation process. The possible use cases for this one-to-many datacasting service are limited only by imagination. The most promising of several initial data uses include:

- **IN-VEHICLE VIDEO ENTERTAINMENT ENHANCED AND TELEMATICS.** The NextGen Broadcast standard is uniquely designed to synergize OTA broadcast and broadband 5G services. Nowhere will this be more immediately beneficial than in automobile servicing. Recent demonstrations by CAST.ERA, a joint venture between Sinclair Broadcast Group and SK Telecom from Korea, and Hyundai Mobis highlighted in-vehicle video entertainment with enhanced geo-targeting capabilities, including hyper-local, location-based, targeted ad and content insertions. Connected vehicles are rolling computers that need servicing. Using NextGen Broadcast capabilities, providers of data services to vehicles will be able to deliver software updates simultaneously to an infinite number of IoT devices in their smart vehicles to upgrade software for new functionality, infotainment, bug fixes, and navigation. Safety updates can be delivered within hours, not days. Services can be provided to hundreds of thousands of devices instantly and simultaneously with no network slowdowns since broadcast architecture is not subject to cell phone network bottlenecks. Live updating of 3D mapping, for example, requires huge amounts of data so that autonomous driving vehicles don't bump into things. You can't do that with WiFi. You can't do that via a spotty cell phone system. You ***can*** do that through a robust, one-to-many broadcast system. And broadcasters with complete access to their NextGen IP capacity will be perfectly positioned to provide those needed services.

KEY: ***Positioning the broadcast industry to take advantage of these new services requires thoughtful advance planning to deploy NextGen Broadcast capability now, not some date in the future. Accelerating the deployment is essential.***

- **CONTENT DISTRIBUTION OFFLOAD.** Well over 80% of all consumer Internet traffic today is for video with more than 1.1 million minutes of video streamed or downloaded ***every second.*** Those are one-to-one events. In other words, streaming a 1 GB movie to 50 million people would consume 50 million GB of spectrum capacity. That's extraordinarily inefficient when compared to the one-to-infinite broadcast architecture that could cover all 210 Nielsen markets with a collective 210 GB. For the math aficionado reader, that's using a mere 0.00042% of the broadband streaming model. If Netflix or some other streaming service wants to complement its data offloading options – viewing NextGen Broadcast as a content delivery network extension – renting broadcast bits to provide the exact same service at a fraction of the expense seems to be a worthwhile pursuit.

<u>KEY</u>: To ensure that capacity exists to provide these types of services, developing the local, regional and national networks <u>now</u> is essential. That means both station deployment and access to the full NextGen digital capacity – sunsetting the 1.0 simulcasting requirement.

- **SIGNAGE.** From electronic billboards to transit signs in buses, trains and taxis to elevator screens to gas station pumps and electronic vehicle charging stations, businesses attempt to grab our visual attention. The marketing tools are omnipresent. But content needs to get to those places. Doing that efficiently and inexpensively is a datacasting service that makes broadcasting part of a holistic 5G distribution plan for any advertiser. Sinclair's spectrum delivery pilot on USSI Global's electronic vehicle charging stations is the precursor of many more applications to come.

- **AUGMENTED GPS**. BitPath has demonstrated its NavPath™ and BitPoint™ systems which can put broadcasters in the center of the fast-growing Positioning, Navigation and Timing market while enhancing their public service commitments. Using a trivial amount of a station's NextGen digital capacity, these enhanced GPS services can provide vast improvements to location accuracy for an unlimited number of users, vehicles and devices – all at a small fraction of the cost of existing services. These new BitPath service offerings will support dozens of use cases, including Internet of Things applications, autonomous vehicle tracking, precise drone delivery, and emergency response. BitPath has committed to make NavPath™ and BitPoint™ available to first responders at no cost.

- **ADVANCED EMERGENCY INFORMATION.** The targeting and IP capabilities built into the NextGen Broadcast standard make advanced emergency information services a natural fit for broadcasters. The expanded capacity of NextGen broadcasts combined with its pinpoint targeting capabilities enables more than a simple crawl on the screen warning of a crisis. Now, viewers can see the weather report, Doppler Radar images, evacuation routes, and shelter locations, and hear them in multiple languages. Similarly, a hazmat spill, school lockdown or AMBER alert can be targeted to specific geographic regions, and viewers can have instant access to critical information. And since the robust over-the-air broadcast system architecture is based on a "one-to-infinite" capability (where the system can never be overloaded), it provides a RELIABLE and dramatic enhancement to current emergency notifications, especially in relation to the fragile cell phone system that does not weather storms or natural catastrophes well.

<u>KEY</u>: NextGen Broadcasting can save lives. It's imperative that the government act swiftly and decisively to accelerate NextGen Broadcasting deployment with access to all of a station's NextGen digital capacity, enabling these critical services.

- **REDUNDANT FIRST RESPONDER PLATFORM**. In a successful display of the advanced emergency datacasting features of the NextGen Broadcast standard, SpectraRep recently demonstrated a sophisticated deployment of advanced interagency sharing protocols for emergency communications in connection with the 2022 U.S. Marine Corps Marathon. It did the same for activities surrounding the July 4th celebrations in the nation's capital. The company deployed its redundant datacasting solution during the complex and dynamic security event to deliver encrypted video, alerts, and file sharing among eight public safety agencies. All data was delivered securely over-the-air on a broadcast station without the need for internet or wireless data transmission (LTE)

services. With NextGen datacasting, public safety departments can communicate and exchange alerts without having to rely on cellular systems that can become overloaded at large scale events.

> ***KEY: FCC, please take note. This is a life-saving application of NextGen Broadcasting. Access to all of a station's NextGen Broadcast capacity can hasten these services.***

- **ELEARNING.** NextGen's datacasting capabilities are being specifically targeted for enhanced e/ and distance learning. The need for these services was dramatically demonstrated during the COVID pandemic as educators struggled to reach students where broadband connectivity was limited or unavailable. All broadcast stations – commercial and public – will have the capability to improve the learning environment of students significantly across the country, especially in places where the Internet just doesn't reach. In cooperation with SpectraRep, Sinclair has been demonstrating those services over existing NextGen stations. Today that's done with a separate reception box – a gateway – but tomorrow the reception capability will be built into all receivers.

DEVELOPING THE DISTRIBUTION NETWORK. The datacasting use cases described above are just the low hanging fruit. Many, many additional applications are waiting to emerge as we devise tools and protocols to aggregate NextGen Broadcast spectrum. Two additional fundamental requirements are also under development that will help spread these sophisticated new services offerings. They are:

- **CORE NETWORK**. Connecting multiple NextGen-transmitting stations with potential customers in need of diverse datacasting capacity is a critical new but economically rewarding challenge. Never before have we had the ability to connect television stations logically as a distribution platform. Stations existed as islands – separate, independently addressable, disparate entities. We now have the ability to link them. That infrastructure does not yet fully exist but is in an active planning stage. Cutting edge broadcasters are on the cusp of designing, building, and operating an innovative and interconnected broadcast platform intended to provide a wireless broadcast backbone for IP data delivery across the country. ATSC, itself is supporting some of this activity through a Specialist Group to develop standards for a "core network" that will enable datacasting and permit it to scale across multiple stations and markets.

- **BROADCAST MARKET EXCHANGE (BMX)**. Maximizing the efficiency of matching aggregated spectrum capacity from multiple broadcasters with the needs of data users is the holy grail of an efficient datacasting network. This will eventually be accomplished in the cloud using artificial intelligence in a broadcast market exchange – BMX – giving data users and other distribution platform operators an alternative distribution tool. Sinclair has been at the forefront of designing the underlining BMX superstructure that will be integral to the core backbone network.

> ***KEY: Creators and innovators need an environment to succeed. A network this complex doesn't just happen. It requires advanced planning and, importantly, a regulatory environment that nourishes this type of evolution.***

PREDICTION. Within 15 years, broadcasters will make as much money selling their bits for data distribution as they will for selling commercial ads in TV programs.

How's that for an incentive for broadcasters to begin deploying NextGen Broadcast services? We are at an existential pivot point in time where the fundamental basis of our industry is at stake. Fortunately, we've met the technological challenge to keep our businesses relevant.

> ***KEY:*** ***We now have a data delivery pipe that is the envy of the world – integrated with the Internet and reaching mobile viewers with targeted programming and ads, ultra-rich video and audio programs reaching deep into buildings. Perhaps most important, we now are at the table for a myriad of NEW businesses apart from linear TV. It's now time to capitalize on it.***