

Sinclair Broadcast Group (SBG)

Who we are, what we do, what is changing and why that keeps the 'CIO' awake at night.

July 2016

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Introductions

▶ Sinclair Broadcast Group History

- Founded in 1971 by Julian Sinclair Smith as Chesapeake Television Group with the first station, WBFF.
- In 1985 becomes Sinclair Broadcast Group with 3 stations and in 1991 David Smith takes over as CEO. In the mid-late 90's we grow to 58 stations with approximately 2500 employees.
- The 2000's are marked by the analog-digital conversion, retransmission consent and technology advances driven by COTS hardware.
- In 2011-2014 string of acquisitions increases station count to 162 in 79 markets and 7500 employees
- More recently, we've been acquiring content creation centers (Ring of Honor Wrestling, American Sports Network and Tennis Channel) and helping develop the next generation television standard, ATSC 3.0.
- Named to Fortune 1000 in 2016 with 2.2B revenue.

Introductions

- ▶ My background and path with Sinclair
 - Always been a technology geek but bad at sticking with school!
 - Enrolled at University of Maryland at College Park (Engineering) but dropped out and enlisted in the US Navy
 - Accepted/Attended the US Naval Academy (Computer Science) and... dropped out after 2 years
 - Joined a small 12 employee company writing E-commerce software for 1 year
 - Joined SBG in April of 2000 as a Software Developer
 - While working with SBG went back to Towson University and *finished!* my computer Science degree.
 - Took on additional roles over the years as Systems Admin, Database Admin/Developer and eventually Director, Data Systems
 - Graduate school at Loyola University MD and completed an MBA in 2013, first try!
 - Became VP, Data Systems and IT in 2014, reporting to the CTO. No CIO at SBG

Introductions

- ▶ What we do
 - Connect people to content!
 - Run television stations from content acquisition to transmission
 - Build digital properties, station sites, mobile news, OTT applications
- ▶ Revenue generation
 - At our core we sell advertising. In network affiliate content (CBS,ABC,NBC, etc.) we have some “spots” to sell. In local news and syndicated content, we have nearly all “spots”. Massive local news production – nearly 3000 hours/week.
 - Retransmission Consent with cable providers
 - Digital Advertising through our sites and our digital services

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Broadcast and IT Technology

▶ IT Technologies versus Broadcast Technologies

- These were two very different areas that are experiencing considerable blending now. Each area still has different concerns that drive their technology decisions.
- Broadcast technology background...Two sides to broadcast technology, production and distribution.
 - Production concerned with all content generation and contribution
 - Distribution concerned with HA ad insertion and video path to transmitter
- All broadcast technology (production or distribution) was historically single purpose. Frames, cards, routers, ASICs. 1 physical connection per video stream. Redundancy built with duplicate hardware and stream paths.
- First IT-based changes came with COTS hardware late 90's, early 2k's.
- Now hardware virtualization common and accepted (when HA). Still an issue with video processing (graphics insertion, crawls, weather bars) and video routing. Compressed video doesn't process easily.

Broadcast and IT Technology – IP Video

- ▶ Latest IT-Broadcast push is IP Video for routing in the station.
 - Existing technology standard for uncompressed video streams is SDI (Serial Digital Interface). 1.5Gbps for SD, 3Gbps for HD.
 - New standards now exist that simply take the SDI stream and encapsulate it in IP, improved standards being worked on that leverage multiple standards and can be up to 25% more bit-efficient.
 - Why now? Commodity hardware cheaper and 10Gbps commonplace.
 - Other benefits:
 - 128x128 Video router that consumes 14RU rack space and hundreds of connections can be replaced with 1RU and 48 connections.
 - Completes the circle for software-defined broadcast distribution. Video all processed over commodity IT hardware.
 - Gives us a path towards cloud for distribution

Broadcast and IT Technology – Other influencers

▶ Cloud

- Major issue to greater cloud adoption in broadcast is contribution (production) quality.
- Need to produce and edit in high bitrates and uncompressed formats because multiple (lossy) compressions and decompressions compromise quality and incur latency; however, 3Gbps doesn't yet translate well to the cloud. Transfer, latency and above all cost are excessive.
- Cloud distribution on the other hand is a possibility because we're already going to compress (current ATSC 1.0 broadcast uses MPEG-2 transport stream @ 19.39Mbps)

▶ Storage

- Primarily a production concern while editing, moving, transcoding uncompressed video and required specialized hardware and software.
- SSD massive speed improvement removes the need for this specialized hardware and removes concern over virtualizing broad swathes of production processes.

Broadcast and IT Technology

▶ Digital versus Broadcast

- Where are we similar and where do we blend?
- Live Video Delivery...
 - Encoding technologies similar and requirements similar except on quality requirements and rate of technology change.
 - Ad-insertion requirements similar but tracking and analytics diverge.
 - Broadcast with ratings based sales. Rating books by Nielsen and others estimates “points” and sales are booked based on rating points.
 - Digital sales on impressions and CPM basis. Actuals not estimates.
 - Broadcast viewer measurement is significant hurdle towards actual measurements and industry is comfortable with current sales process but CPM based buying trials are ongoing.
- Content Management...
 - Sharing content throughout the organization. With nearly 3000 hours of news a week. Can there be a ‘single’ source of the *content*?

Broadcast and IT Technology

▶ ATSC 3.0 Broadcast Standard

- ATSC 3.0 Video - <https://youtu.be/CAiQVRFFh84> - demonstrates a few key concepts
- Single frequency network – tower to tower hopping...similar to a cell network and providing robust reception.
- UHD, HD+HDR. What will the standard be? Initially 1080P, 1080P+HDR. Why? Compression technology still needs to advance. UHD squeezes out other business opportunities.
- ATSC 3.0 gateway concept. Single receiver, Wi-Fi gateway to content. What is the presentation layer? HTML5.
- IP backbone encourages CDN like data distribution. Potential iPhone firmware updates, multi-language services, music services, real-time autonomous vehicle updates.

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Keeping me up at Night

▶ ATSC 3.0 Broadcast Standard and Security

- ATSC 3.0 security in the broadcast plant. Is our network secure? Station operations and no direct line of responsibility, limited visibility in acquired stations. Organization change required for new business model realities.
- Right now we're a little fish. ATSC 3.0 business expectations make us a much more "juicy" target.

▶ Rapid Growth

- Keeping up with industry/technology changes and building the ability to quickly bring standardization and consistency to bear on new technology.

▶ IT/Broadcast blending and Human Capital

- Training IT employees on broadcast and retaining them.

What questions can I answer?

- ▶ What do I think about UHD/4K?
- ▶ Did you hear that the FCC is saying no more required set-top boxes for cable?
- ▶ What limits Sinclair's growth?
- ▶ What brand TV should you buy?