



▶ Graham Media Group overhauls technology infrastructure to empower local newsrooms with live stream capabilities

YouTube and the Google News Initiative introduced Innovation Funding to help news organizations experiment with digital video and build sustainable video operations. Graham Media Group, an American news media organization, was one recipient. The GMG team created an innovative new technology infrastructure to help reporters go live wherever they are. Below, we detail the steps they took to set this up.

Graham Media Group (GMG) wanted to better integrate live stream digital video across the organization so its seven local news teams could use it more effectively as a storytelling tool. The goal was for reporters to be able to start live streams in the field, quickly and reliably, and publish directly on the news properties, including websites, mobile and OTT applications, and social platforms, and then have those videos available nearly immediately as videos on demand (VOD).

But the GMG team faced a fundamental barrier. Their existing live stream infrastructure introduced multiple points of friction and required many different people and resources to get content from the reporter to the viewer.

Graham Media Group used the GNI YouTube Innovation Funding program to help create a brand new technology infrastructure — one that reduced complexity and empowered individual reporters with the tools to produce and distribute live streams via various platforms. In doing so, GMG laid the foundation for long-term, commercially viable digital video operations, reduced costs, and reached a wider audience. In a trial rollout during coverage of a live event in late 2019, GMG saw a **118% increase in live streams played and 130% increase in sessions watched** (compared to a similar event in 2017).

Let's take a look at how they achieved this.

Out with the old, in with the new

Back in early 2019, streaming a single live event was a massive production for the GMG news teams, requiring multiple people and a ton of resources — generally these were the most valuable human and video distribution resources, which, during a breaking news event are already limited and expensive to scale. A reporter would send video to a news van, that would send it to the station, where it would be routed to the physical hardware, into an encoder, back up to the cloud, and out to the website. Only then would it be available to the viewing audience.



The fact that it required such a specialized set of skills impacted GMG's ability to tell breaking news as it happened. For example, in 2017, when Hurricane Irma was about to hit the people in the station were so focused on getting the broadcast on air that the team who was required to start the servers and plug in the physical cables at the station were at the broadcast transmitter — and GMG missed out on getting full live stream reporting of the event.

Fast forward a year, and things are vastly different. With the new infrastructure, including elements developed in collaboration with Arc Publishing, live events are initiated in the field by the reporter (with reasonable defaults that can be editorially controlled by in-studio editors or on-the-ground producers/reporters) and then streamed direct to audiences (via the GMG websites, YouTube, or social platforms) or used for GMG TV news broadcasts.



Basically, anyone on the team can now shoot from their phone and then schedule, live edit, and deliver the content to any of the group's publication platforms. It's a simple, seamless, and elegant solution.

Of course, rebuilding technology infrastructure from the ground up isn't something you can do overnight. But by investing the time and resources to get it right, you'll be setting yourself up for long-term success.

Graham Media Group's roadmap to better live streaming

With the following steps, GMG reduced complexity, reliance on human resources, and potential sources of failure — while greatly improving the overall user experience.

1. Overhaul underlying technology

As a first step, the GMG team established a new end-to-end infrastructure for capturing and publishing live video. They designed it quickly, but progressively improved each component through biweekly sprints. Specifically, they:

Updated cloud technology solutions: They provisioned and configured their encoders, mirrors, content delivery network, monitoring, and automation systems. This was the software-based infrastructure implementation of the hardware investment they had made the previous year, specifically to support this project.

Automated metadata connectors: This enabled them to send personalized push notifications to users (alerting them to specific live streams and applications, OTT, websites, and social) as well as allow management of live video through the Arc Publishing Video Center.

Implemented a dashboard web application: This meant local news station web editors and producers

could create, manage, and publish live stream events. The application was built on top of the Arc Publishing Video Center and tied into the Graham Digital admin web application.

Installed distribution connectors: They implemented connectors between newsroom video systems and content distribution endpoints (owned and operated websites and apps, OTT applications, YouTube, etc.). The desired publishing endpoints are specified in the dashboard web application.

Established systems for automated monitoring and control of video streams: This enabled them to monitor quality assurance, log faults, status report, and track analytics.

Introduced a new way to capture and clip video from live streams: They leveraged the capabilities available in the Arc Publishing Video Center through which all live streams were routed. Video clips were then automatically delivered to user-specified endpoints, including the content management system, making them immediately available for publishing as part of a story or feature on all digital platforms.

Introduced a digital asset management system: This system serves as a staging point for storing, managing, searching, and routing the content produced through the newly-created video platform. For externally-produced content, this system makes it simpler to connect existing and new platforms or streaming cameras. In addition, the asset management system functions as a temporary holding, organization, and routing platform to feed the video and content management systems during live content production, and also captures all live streams and converts them to VOD. Reporters in the field can also capture VOD and upload it to the CMS for distribution.

2. Prove the infrastructure works

GMG worked closely with the Arc Publishing team to build Broadcast, an internal iOS app for reporters/producers to use as an input source for live stream publication. Broadcast, which has since been incorporated into Arc, was developed to be a viable alternative to proprietary live streaming apps.

It provides news organizations with the ability to publish via owned and operated digital platforms, ultimately



giving creators the ability to directly monetize content.

The team also purchased, tested, and integrated a 360 camera into their new infrastructure as an input source for continuous live streams. The camera delivers a 360 video stream direct to YouTube during a live event.

3. Deploy the live stream system

GMG wanted to test the new system at one local station before rolling out more broadly, and selected the July 4th 2019 Orlando Fireworks event as a proving ground. The preparation, planning, and coordination for this event engaged every person from Orlando's WKMG station.

For the first time in the station's history, every team and department worked together to cover an event from a digital-first perspective.

In addition to the primary streaming coverage, over 20 extra reporters covered the event, using nothing more than a smartphone, the app, and a cell signal. There were dozens of parallel live streams, live audience engagement, participation, and feedback. For example, over the course of the 10-hour live stream some reporters created best-of-the-fireworks videos and others offered individual streams. Audiences had the choice to watch the station's guided stream or to follow specific reporters throughout the day.

Not long after the fireworks, Hurricane Dorian threatened Florida with landfall. The WKMG newsroom was able to immediately mobilize and use the same digital-first planning and execution to cover the event. There was a massive audience response — especially when compared with a similar event in 2017, Hurricane Irma. For Dorian, the digital audience was several hundred percent higher due to this digital-centric storytelling and coverage approach. Not only that, the new infrastructure freed up so many resources that one reporter even had time to search for pet-friendly hurricane shelters, while still fully covering the event!

4. Scale the project

Over the course of this year GMG plans to distribute live stream capabilities to all of its newsrooms.

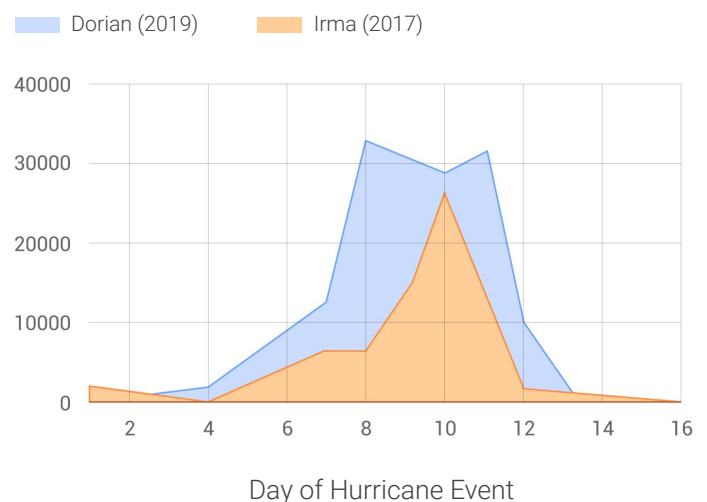
Because the system is built on just-in-time cloud infrastructure, the largest bottleneck will be the cellular broadband coverage and capacity at the time of an event or breaking news. This has always been an issue, so the GMG team is working with bonded cellular and direct connections to improve reliability. And because the networks are constantly getting better, this will become less of a problem over time.

Has all the hard work been worth it?

For Graham Media Group, the answer is a resounding YES! The team has increased the number of videos they publish by 15%, and grown the number of available simultaneous streams from 25 to over 100. Concurrently, they've significantly cut down the time it takes for reporters/producers to add and publish more live streams from weeks to merely hours.

GMG has also drastically grown its live stream audience: Comparing the live stream coverage of Hurricane Irma (2017) and Hurricane Dorian (2019), there was a 130% increase in sessions watched live and a 118% increase in plays.

Livestream Plays During Hurricane Event



But the most important thing is the impact the system will have on Graham Media Group's long-term video strategy. Once it's fully rolled out, the new system will empower their seven local teams to publish content faster and with reduced friction, ultimately resulting in more live streams and videos for the GMG audience — and greater growth for the brand.