



Centralization – New Opportunities for Increased Efficiency

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Background

The concept of centralization among US broadcast groups is not a new one. Groups have long sought the benefits of combining operations where possible among collections of stations. This has been a trend for decades. However, more recent consolidation of stations into larger and more complex groups means it's time to look at methods to achieve further operational efficiencies and true, provable return on investment (ROI) for these initiatives.

Station groups and centralization models of today can take many forms. Groups can range from a handful to hundreds of stations. Operations for these stations can be centralized in one to many hubs. What each hub is even centralizing can vary a great deal. Areas that station groups have tended to centralize in the past range from news operations, traffic/sales/billing, short (advertising) and long-form (programming) content management, promo production/management, and others. What makes sense to centralize in one station group may not to another. In many cases, the centralization models in place are the result of past acquisitions and the evolution or growth model of the group.

The real point here is that there is no “one size fits all” model to centralization of station groups. Solutions must be flexible enough to accommodate the wide variety of approaches in place today.

What is new?

Although the idea of centralizing operations for groups of stations is not in itself a new or particularly radical idea, there are a few factors that have emerged recently that offer groups new areas to explore for realizing new efficiencies.

The media landscape is not the same today as it was even a couple of years ago, and the rate of change seems to be accelerating. What might have worked well a few years ago may no longer be the optimal approach.

Add to this the rapid evolution of technology, and the challenge becomes even greater. Buzzwords abound. The Cloud,

Microservices, Blockchain, and a litany of other hot trends and interesting new approaches tend to only add to the confusion as to what direction is the right one to take. Consider the fact that what is hot today may not necessarily be tomorrow, and the potential for confusion or lack of focus increases.

Let's explore a few of the factors in play.

Increase in Size of Station Groups

The more recent advent of consolidation of station groups means that these groups often encompass dozens, if not hundreds of stations. The need for improved efficiency in managing these stations and their content becomes that much more important as these numbers grow.

Processes and systems that can achieve what may have been considered modest improvements in efficiency in the past now see those efficiencies multiplied as the scale expands.

Centralization is not “all or nothing”. Some groups prefer a single hub, some multiple. Some have had their structure imposed on them via acquisitions. Some centralize some tasks and areas, while others focus on other areas.

Increase in Distribution Outlets

It is no longer the case that station groups are simply producing linear playout at the end of their media supply chain.

The number and variety of distribution outlets has exploded, and with it, the complexity of producing and managing content in the many forms needed for these varied outlets.

This is necessary to keep up with the trend of the audience wanting to consume content when, where, and how they prefer. Long gone are the days of a family gathering around the TV for “appointment viewing”.

The diversity of distribution outlets and the many formats required for them could consume a lot of resources if not handled

correctly. Throwing manpower at the production of these diverse formats for all of these distribution outlets is not an option. It's not only the format (video and audio codecs uses) that changes – truly unique versions are typically required for these various distribution outlets. Automation is key here. Processes to manage the creation, versioning and routing of content are becoming critically important.

Increasing focus on Total Cost of Operations

Hand in hand with the increasing size of station groups and the need to diversify the number and nature of distribution outlets, total cost of operations has become critical.

Station groups have taken a hard look at how they can maximize the efficiency of their operations. Economies of scale can really be exploited more today with the higher station counts, not only coupled with the increased complexity of operations and improved technology, but the inherent opportunity to introduce automation to address all of this.

Alongside total cost of operations is the need to focus on return on investment. Just because you can do something doesn't mean you should. Just because a new technology is cool and impressive doesn't mean it's right for you. Just because a competitor or partner thinks something is the best thing since sliced bread doesn't mean it's automatically the answer to all of your problems.

Like any investment, new technology investments need to follow a strict ROI analysis, proving that they are indeed good business decisions.

The Advent of the Cloud

As “the cloud”, whether it be public, private, or hybrid, becomes more practical for use by media systems, opportunities for simpler and less expensive scaling up of solutions has become a reality.

However, returning to the ROI topic, is the cloud always the way to go? It can be tempting to look at the shift from CapEx to OpEx that moving to the cloud implies and think that's enough justification in and of itself. It is not. Depending on a variety of factors, cloud hosting may or may not be the answer for you. In some cases, hosting things on your own (private) cloud might make more sense economically than using one of the big public clouds. In others, a hybrid approach (use of public and private clouds) may be for you.

A note of caution is in order here. As “the cloud” is a hot topic today, every vendor feels the need to be able to provide solutions there. However, it is worth your time to investigate whether a particular solution has truly been designed from the ground up as

a cloud hosted application. Due to the pressure to provide cloud-based solutions quickly, the expedient way for some vendors to get there (particularly ones who had well-established legacy applications) was to “lift and shift”. This basically means that the application was simply moved from an on-prem hosting platform (a unit in a rack at your facility) to one outside of your facility. It's still the same application. What's wrong with that? Lift and shifted applications generally don't leverage all of the advantages that come along with cloud hosting. They generally are not based on a microservices architecture (to be discussed below) and cannot efficiently scale (up or down) or take full advantage of their presence “on the cloud”.

Another factor to consider in your ROI analysis is whether “serverless” cloud hosting is appropriate? In this model, you are not paying for cloud resources you don't need. You trust the host to allocate resources dynamically, on an as-needed basis, and only pay for computing resources when and as you use them.

Microservice Architectures

Along with a shift to cloud hosting of not only the content itself, but the various systems and solutions that manage and process that content, microservice-based architectures has been a transformative change.

Moving from the old model of monolithic applications, coupled together with large and complex APIs to a microservices approach has many advantages.

First off, what is a microservice? There are many definitions out there, but in general, a microservice is a service that provides the smallest useful bit of functionality possible. Monolithic applications are broken down into their smallest useful capabilities, and each of those is placed into its own microservice. For example, let's look at the process of making a sandwich. In the monolithic world, a single application would handle the entire process. In a microservices approach, you might have services to: select bread choice, slice the bread, add meat (could even have a different service for each type), add veggies, add condiments, heat up the sandwich, etc. You get the idea.

There are many advantages to this approach. First of all, in a cloud environment, where you are likely paying for processing time on a consumption basis, making the most efficient use of these resources is critical to your ROI. You can realize this by only using the resources needed for each microservice. Then, there is the ability to scale up and down quickly...it's as easy as spinning up (or down) another service.

Microservices can also de-risk your organization significantly. Whereas software updates to monolithic applications can have the risk of unintentionally breaking other (seemingly unrelated) pieces of the application, in a microservices model, updates/patches can be isolated just to the microservices needed, reducing or even eliminating the risk of other things

being broken. Because these updates are smaller and isolated, it also means that they can be rolled out much quicker (often multiple times a day) than was the case in the monolithic world, where large, complex updates had to be assembled, QCd, and perhaps deployed a few times a year at best.

From a broadcaster's perspective, perhaps the greatest promise that microservices offer is the ability to stitch together custom solutions based on a collection of commercial off the shelf (COTS) services. This is truly the best of both worlds for you as a broadcaster.

In summary, microservices offer a lot of potential improvements to efficiency for station groups. It's a topic you should understand and be able to query your vendors on. Focus on how they use microservices to benefit you, in terms of things like efficient use of resources, quick reaction times for bug fixing, and the ability to integrate with microservice-based solutions from other vendors.

Machine Learning / Artificial Intelligence

This is one of the hottest topics of today, not only in media, but in the world in general. Like all hot topics and buzzwords, misinformation abounds, and misinterpretation of what it really means to media companies is commonplace.

Most of what we are seeing in the media industry that might be considered falling into this category could be more accurately considered Machine Learning than Artificial Intelligence. Artificial Intelligence (AI) is a broad term, relating to the ability of computers to perform tasks typically associated with human beings. Machine Learning (ML) is a subset of this, focusing on the ability of computers to learn and improve the more they perform tasks. An example is in the area of facial and object recognition. The more times an ML process is used to identify particular things, it can learn which of those were successful, and which weren't, allowing it to do a better job the next time it's used to identify a similar thing. Same thing with speech to text processing. If you've ever used Google or Microsoft's language translation tools, you may have noticed that they seem to be getting better with time. With the millions of people using them with such high frequency, they have the opportunity to learn and refine their abilities continually.

Station groups can realize the benefits of AI/ML in a variety of ways today. Content segments and things like bars and tone, slate, black can be automatically removed. Scene descriptions can be generated automatically. People and objects can be automatically identified (useful for a variety of use cases, including identifying product placement), captions and voice to text capability can be used to automatically identify and log sounds and dialog.

As with other topics discussed earlier, you shouldn't just do AI/ML because "it's cool". A careful ROI analysis is warranted, looking at the costs of current (largely manual) processes as compared with costs associated with these new automated processes. One should avoid the temptation to dismiss AI/ML processes whose accuracy is less than 100%. Many fall into this trap, and say they won't implement such processes until they can be proven flawless. There are two reasons that this logic is flawed. First, humans are not perfect. There is an inherent level of inaccuracy with human/manual tasks (often higher than many would like to admit). Second, keep in mind that AI/ML processes improve with time, so a process that operates at a 90% accuracy level today might be expected to improve to 95% and higher levels in a relatively short period of time. The same can't be said for all human/manual processes.

Traditional Content Management

Traditionally, content management has focused mostly on long-form materials. We typically think of movies and tv shows in this context. This is important, but perhaps in the station group context less so, as the volume of long-form content having to be managed is often lower than that which might be the case with networks or other program providers.

Still, it's an area that warrants attention. Automating the management of your long-form content can offer real savings over more traditional manual processes, particularly when you look at it from a station group-wise perspective.

Short Form Management

While efficiency gain for long form content is important, think about the largest volumes of content that you deal with – short form. The sheer number of assets you need to manage and move across your enterprise is staggering when you consider short form content.

If we consider a typical one-hour program to have 16 minutes of commercials, and the typical length of those commercials being 30 seconds, that implies a 32:1 ratio of short form to long form content! This means that on a transactional level, even small gains can have a much higher impact on short form content than long form.

Having the correct systems in place to manage the processing and movement of this content is critical and can offer a much higher ROI than that which you may already be familiar with in your management of long-form content.

Versioning

If the numbers stated earlier in terms of short-term content volume surprise you, think then about the topic of versions. Each single commercial can have dozens of versions that you need to deal with across your station group.

Localization of commercials, with custom graphics, audio tags, etc. can multiply the number of commercials you are managing by a significant factor.

Thus, the opportunity for significant ROI gains in the automation of versioning of short form content (promos and commercials) is not one to be overlooked.

Promos

When discussing short form content, most people jump straight to commercials. However, the volume of promos that must be managed across a station group is not insignificant. Also, remember that while commercials are produced externally and provided to you, the production of your promos are entirely within your domain. That means that efficiencies realized in their production and distribution fall straight to your bottom line.

Versioning comes up again as a significant issue when it comes to promos. While the core content may remain relatively consistent as promos air on different stations within your group, they require customization to properly reflect not only the look and feel of each individual station, but to also correctly reflect the program schedule of each station.

Customizing promos for the stations across your group can be largely automated by having characteristics such as graphics and text overlays, sponsor logos, and audio overs created while minimizing human intervention. Integration with Traffic and Scheduling systems allows for further automation when it comes to creation of promos in that those systems know when and where the programs being promoted will air, allowing for those pieces of information to be automatically generated and placed on the correct versions of the promos.

Commercials

A prime area for automation in this area is in the delivery of commercials from advertisers and agencies. Rather than delivery taking place to each individual station in your group, central delivery and management of commercials at a centralized location can achieve real efficiencies.

In a group of stations, there is much duplication of commercials across them. Rather than obtaining, storing, and managing different copies of commercials for each station, a single copy can be handled at a single location.

It can then be delivered to each station (potentially with custom versioning, as needed) on an as-needed basis via integration with Traffic and Scheduling systems. Centralizing this management cannot only save on storage and management solutions at each station, but can improve quality control, as a single spot can be QC'd once, before distribution to each station, ensuring consistent quality across all stations

Workflow Automation and Management

With all of this talk of realizing improved efficiencies and ROIs using microservices, AI/ML, and other means of automation, station groups require a robust and scalable solution to manage their asset workflow from onboarding of content all the way through to distribution. A plethora of solutions exist today to address this need, but the challenge is in finding which is best suited to your specific workflows, as well as current and future operational needs.

On a recent project, I identified over 30 viable solutions (from among closer to 100 total solutions) for a particular client in this area. Weeding through these can be overwhelming, and requires proper diligence in determining your unique requirements, and mapping those against the capabilities of the solutions under consideration. You should not underestimate the importance of this step, lest you end up with a solution (or solutions) mismatched to your unique needs.

Some Cautions

It is easy to get caught in the trap of making several key assumptions when considering all of the factors and technologies outlined earlier in this paper. My best advice is to do your best to avoid this temptation. Question everything.

Here are some of the most common traps that people tend to fall into. It's easy to assume certain things are one way, when in fact they are not.

Storage is not free

While it might be tempting to try to apply Moore's Law to storage, and even go beyond that to thinking that the cost is so low now that it's practically free, don't do it.

If you're not familiar with Moore's Law, it states that the number of transistors on integrated circuits doubles approximately every

two years. Although he came up with this in 1965, it has continued to be true, but for CPU and memory performance... not for storage.

Kryder's Law came in more recently (2005), and it actually stated that magnetic disk storage density was increasing at a rate exceeding Moore's Law. Great news, right? Well, maybe not.

As storage has moved to solid state devices, one could argue that Moore's Law now applies again. It's all an interesting argument, but the bottom line is that while storage density continuing to increase, and costs continuing to decrease, they are not zero, nor should you expect the costs to become "free".

Remember that one of the characteristics of the media business that makes it unique when compared to others is that the size and number of data files we deal with is enormous. Just because storage costs are approaching relatively insignificant cost levels for other industries doesn't mean that's necessarily true for us.

Bandwidth is not unlimited

Did I mention that the file sizes we deal with are huge? This not only makes our use case for storage different than other verticals, but it means the same for bandwidth. We require significant bandwidth to move or stream these large media files we deal with every day.

While the large bandwidth pipes available today seem sufficient and even in some cases overkill for other industries, we still run up against limitations implied by bandwidth limitations. Compression is still critically important for video.

When moving content around, station groups need to remain mindful of bandwidth limitations. Making the most efficient use of the bandwidth you have is not only good business, but it leads to more streamlined operations and reduced costs.

Latency is not zero

With today's high speed and high bandwidth connections, it's tempting to forget about latency, and assume it's not an issue. The fact is that it can be an issue, particularly with the most to service-based models on "the cloud".

Security cannot be assumed

The value of your organization is largely based around the content you own. This is what advertisers pay to be associated with. Protecting this value is the role of security. Too many assume that security is inherent with solutions that are out there. This is not necessarily the case.

Redundancy doesn't "just happen"

When it comes to cloud-based deployments, redundancy can't just be assumed. Whether based around a single cloud provider's platform, a hybrid of multiple platforms, or a combination of cloud and on-prem hosting, redundancy needs to be specifically considered.

Transport cost is not zero

With station groups spanning a wider geographical area now, and hubbing of operations being a reality, the cost of transporting content and data from point A to point B cannot be underestimated, or thought to be virtually free.

Integration with other systems

Assuming this is dangerous. As discussed above in our exploration of microservices, integration has actually become more challenging with today's cloud-native microservice-based implementations. Rather than a few monolithic systems integrating with each other, the potential now exists for many more services having to co-exist and integrate smoothly.

The solution here is not only vendors who work well together, but a good workflow orchestration solution to oversee all of this.

Conclusion

At the station group level, the opportunity for significant benefit at an efficiency and financial level are perhaps greater than anywhere else in our industry. Whether you are dealing with a few or over 100 stations, and one or multiple hubs, the potential benefit of automating operations is real and measurable.

Moving to "the cloud" and embracing new tech such as microservices and AI/ML can bring huge gains. However, it's not as simple as just calling up your vendors and asking them to move you to their cloud solutions. A careful analysis of your needs, the current costs involved in processes, and what those would look like with new solutions is required. Just moving to new tech without this can be worse than doing nothing at all. This is a business decision more than it is a technology decision and should be treated as such.

Filtering out the hype surrounding all of this and distilling things down to what really matters to your operation (and make the most financial sense) is key. There is no end to the number and types of solutions available to you. Consider them carefully. New tech comes and goes. Some is helpful, some less so. However, by focusing on true ROI of each decision and solution you implement, you can rest assured that you are making the correct decisions for your unique situation.

About the Author



Chris Lennon is President and CEO of MediAnswers, specialists in media technology workflow. He has over 30 years of experience in the media business, and has led large projects on every continent except Antarctica. He is known as the father of the widely-used Broadcast eXchange Format standard, and has led this effort since its inception in 2004. He also serves as Standards Director for the Society of Motion Picture and Television Engineers. He has been active in a wide array of other industry organizations, including SCTE, ATSC, and AMWA.

About MediAnswers

MediAnswers is a ground-up new approach to broadcast consultancy, specializing in software interconnectivity, workflow optimization, and the integration of old and new media. Its team of experts bring a wealth of knowledge to bear on a wide array of media topics.

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