



Innovation * Performance * Passion: It's Gotta be a Grass!

50 Years of Broadcast Excellence

Wisconsin Broadcasters Show
October, 2009

*The Metadata-Driven Approach to Repurposing
Broadcast Content for Web and Mobile*



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Presentation Synopsis:

The Metadata-Driven Approach to Repurposing Broadcast Content for Web and Mobile

Few will argue that the way we produce, and distribute television content has changed dramatically in the last several years. At no time in the history of the industry have a collection of technological, market, and economic forces converged to alter the business of broadcast.

This submission is to present an analysis of the technical options available to broadcasters today to make the process of repurposing content more efficient, productive, and drive the creation of “better” content, as far as its ability to be indexed, discovered, and viewed on multiple devices.

Many broadcasters today utilize primitive repurposing tools and a linear, manual process to take their over-the-air content to the web and mobile platforms. Recent advancements in automation make it possible to significantly improve these workflows, resulting in repurposed content that is easier to create, and gets to multiple distribution points within minutes (it is News content after all!).

The Metadata-Driven approach to content repurposing involves clusters of technologies that will be delved into and analyzed at each point in the production process – pre-production, live production / live streaming, post production, and distribution via multiple providers.

All distribution mediums will be discussed, such as Web (via ASP, YouTube, etc.), 3G Mobile (iPhone, etc.), Mobile Television (DVB-H, MediaFLO, etc.).

Distribution formats will be discussed, such as Flash, Windows Media, H.264, 3GP, etc.

Fifty Years of....

- Innovation
- Performance
- Passion



Doc Hare, circa 1960

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Hello everyone, I am very happy to be here this afternoon to speak with you about some of the challenges facing broadcasters today with respect to how we utilize our most important asset, our locally produced content, to reach viewers wherever they are. Along with all challenges come opportunities, and I will go through some of the technical innovations we have today to make this process fast, easy, and inexpensive.

As some of you may know, this year marks the 50th anniversary of Grass Valley, founded by the physicist Doc Hare in California in 1959.

We have been proud to be a part of this rich industry for so long, and we appreciate your support.

This afternoon, let's discuss...

- How content consumption is evolving
- Using technology and new ideas to create new revenue streams and expand existing reach
- Implementing the C.O.P.E. workflow
- The “*multi-media journalist*”
- Who will win the local media “eyeball” race?

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I am going to start this afternoon with a look at a recently released video consumption survey, which shows how Americans are changing the way few they consume television and multi-media content, and how that impacts local broadcasters.

Then we will examine how new technologies can help to create new revenue streams by expanding the reach of locally produced content.

Well, expanding how our content reaches existing and new viewers is great, but it can also be expensive and time consuming unless we find a better way to leverage our investment in producing content. We believe that a metadata driven Create Once, Publish Everywhere workflow is the answer to this, and we will delve into how that works.

We'll take a look at how our traditional journalists can become multimedia journalists, and how we can get close to 100% utilization of our newsroom resources.

Finally, I'll take a look at the ongoing battle for eyeballs, for all of the available content that is out there competing with our local broadcast content.

- Many content providers are vying for control of the “1st Screen”, or the main / living room household TV



There is a battle underway for access to the home television, the home computer, and to mobile devices by content distributors.

Never before has there been so much content available for consumers.

On any given day, the typical consumer watches television, listens to an iPod or other MP3 player, views some type of multimedia content on their home and or office computer, “maybe” listens to radio, and “maybe” reads a newspaper...

Consumers are watching more TV than ever, and they are somehow also finding time to do these other things.

■ Nielsen / Ball State Video Consumer Mapping Study

376 People
Studied

972 Total Days



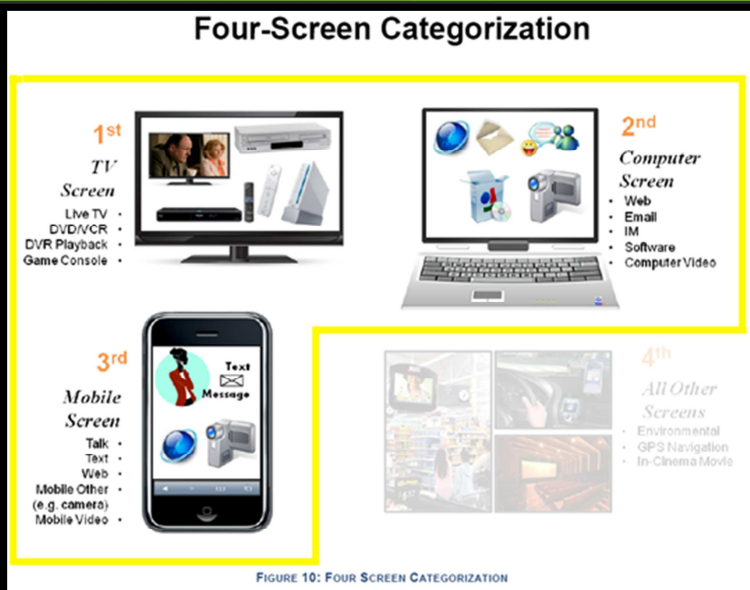
FIGURE 6: MAP OF VCM STUDY DMAs

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Why is the main living room TV so important, you may ask?

Well, a \$3.5 million dollar study released earlier this Summer by Nielsen and Ball State provides some telling statistics about how Americans consume content. I don't want to push a lot of statistics at you, but a few of the results are somewhat surprising, and are especially relevant to local broadcasters.

■ The “Four Screens” of the typical American consumer.

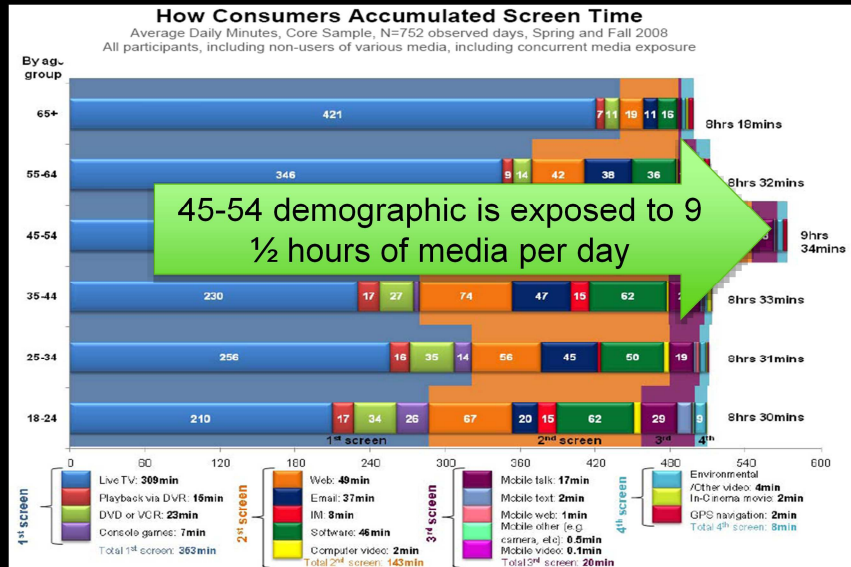


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This study found that Americans consume content basically on four different categories of screens. The 1st screen is the main living room TV screen, the 2nd is the computer screen, the 3rd includes mobile phones and other mobile video player devices, and finally, the 4th screen includes pretty much everything else.

As local broadcasters, we are primarily concerned with the first 3 screens, and what we have to do to ensure that we have continued access to those portals.

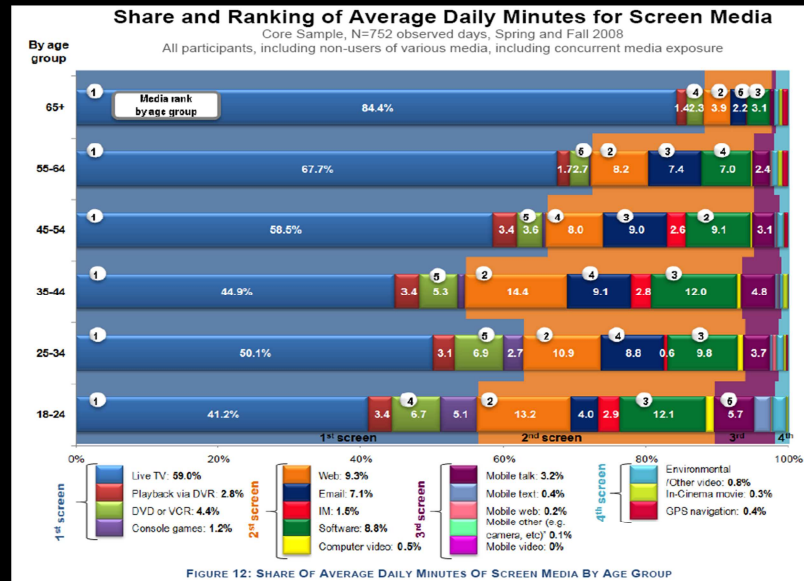
- Average time exposed to media across “4 Screens” per day



This slide shows the daily time spent on each of the 4 screens, by age demographic.

In reading through the notes of this research study, it was apparent that the statistic in which the 45-54 year old demographic were exposed to more media daily than any other group was a great surprise.

Average percentage of time per screen, per age demographic

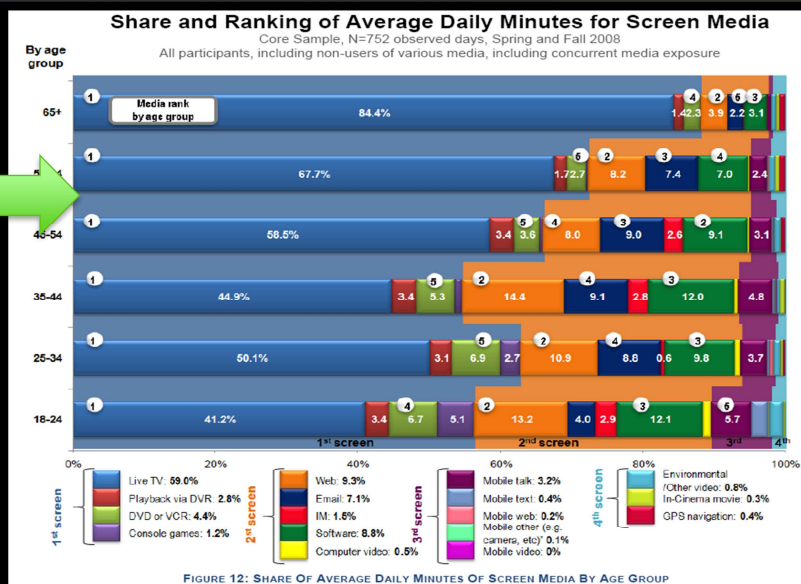


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This slide shows the share of daily time spent on the 4 screens, by age demographic.

This is one area where you will note that all but the oldest demographics are really beginning to spend their media consuming time on the 2nd and 3rd screens. This has been a trend for a number of years, but is expected to continue in that direction. Less and less blue means that there is less and less main television set viewing occurring.

■ 45-65+ still get the majority of their media exposure on the “1st Screen”



That same 45-65+ age group stills gets most of their content on the main screen, but if you look further down to the younger audiences, then you will see that we are already at a less than 50% share of time on the main TV.

■ What this means for local broadcasters...

- 45-55 demographic bridges the gap
View television like those 55+
Uses the Internet like those 25-44
- Consume “serious” video online
Recent Oregon senate race contestant had
30% of his YouTube videos viewed by this
demographic source: citizentube.com



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What do these numbers mean for local broadcasters?

Well, arguably, the over 40 crowd is still the primary target audience for local news. This demographic watches TV in a similar manner to those 55 and older, but they use the Internet like the younger adults. This is a key factor for the strategies that broadcasters need to adopt, both content and access-wise, in order to continue to reach these bridge viewers.

This middle age group also consumes more “serious” video. Much of the YouTube watching is for piano playing cats and that sort of thing, but in the last major election, the groups who watch more political style videos, were these older demographics.

■ What this means for local broadcasters...

- **More buying power for local goods**
Non-traditional advertisers for local goods and services want to reach this group
- **Increasingly mobile group**
Use of mobile media is growing
Uses time shifted viewing more than most other groups



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I think that one thing the Internet has done to change advertising is to make it easier for local businesses, who may not be the traditional advertisers for local TV, to reach out to these important demographics via the web and mobile advertising.

Going after these non traditional advertisers will be an important growth factor for local advertising, in my opinion.

This more mature group is also an increasingly mobile group. I am astonished at the number of older adults I see on planes and in airports who have iPhones, iPods and other devices.

■ What about the younger viewers?...

- **National and retail advertisers covet this group**
Non-traditional advertisers for local goods and services want to reach this group
- **Much more technical group**
This group uses all portals for media
This group is more likely to try new portals
- **Important group for local broadcasters to reach**
Will require new ideas and content
Tomorrow's lucrative audience



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Going after the younger audiences is not always easy for local broadcasters, but if efficient processes are put into place to get the content they want to see in the places they want to view it, this could be a source for future growth.

I have a teenager myself, and to be honest, she watches zero local news, but that is because the news where I live consists of stories that simply do not interest her.

This group uses all portals to watch media, so if you are going to reach them, it is essential that you find ways to produce the content they want, and put it in all of those places. Produce special high school sports programming, find teenage talent, send them to schools and events. There are creative ways to reach these important groups, if you have the right production efficiency tools to make that part of the process painless.

■ “Primary” screen time

How Consumers Accumulated Screen Time – Sole Or Primary Media Exposure Only

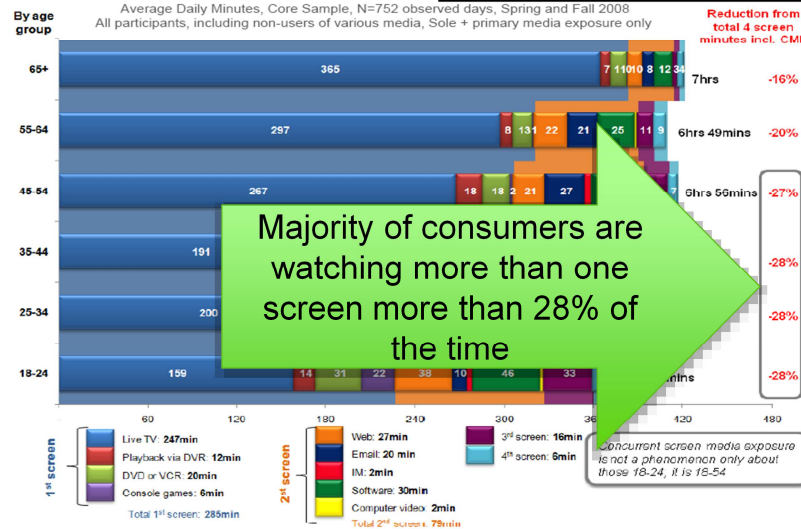


FIGURE 14: AVERAGE DAILY MINUTES OF SCREEN MEDIA BY AGE GROUP, PRIMARY MEDIA EXPOSURE ONLY

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One interesting trend that is starting to take place is the amount of time that American consumers are watching more than one screen, as this slide shows.

- How we used to watch TV...



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This is the way we used to watch TV – on a regular schedule, at a regular time.

- This is how a growing percentage, especially for those younger than 45, watch TV



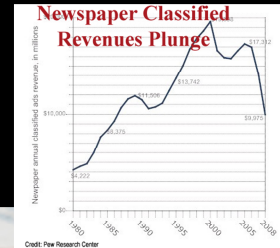
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Now, this is the way that more and more of us are watching television! Sometimes in my house, I have 2 kids on two different computers with the TV on in the background, and I am in the middle of it with my laptop.

As local broadcasters, we need to make sure that we are offering a true interactive multimedia experience, where there is linkage and relevancy of the content across these different mediums that are “on” simultaneously.

■ Prepare for a very different future for broadcasting...

- **Adopting a multi-screen strategy is critical**
All broadcasters should have a comprehensive plan for getting their content to all 3 important screens
- **Erosion of local radio audiences foretells challenges**
Radio has been impacted by streaming audio and iPod intrusions
Newspapers were caught off guard by Craig's List
- **By 2011, repurposed video content will be the norm**
The living room screen will dominate, but the content will come from a variety of sources



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So how do we, as local broadcasters, make sure that we prepare for a very different future in our business?

For one thing, it is absolutely essential that we adopt a multi-screen strategy.

Streaming audio and iPod downloads significantly affected radio .

Newspapers were caught completely off guard by Craig's List, and had the opportunity to react, but failed to do so.

In a few years, in my opinion, we will still sit around the living room TV, and several other TV's in the house, but what we watch on those sets is going to continue to come from a variety of sources.

- “We aren’t making that much money on web distribution...”



**Gartner
Hype
Cycle**

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I sometimes hear from local broadcasters that they are not making much money on their web and mobile offerings, so why should we worry about investing in this technology.

That is a valid question, but I think it is too early to make that call, and this graph may help to explain why.

This is something called the Gartner Hype Cycle. It is somewhat tongue in cheek, but it is useful to understand where we are in terms of webcasting.

We have gone through a protracted “period of inflated expectations” – and a consequential dip down to the “trough of disillusionment”, but now we are on the “slope of enlightenment”

Very soon, we will make it to the “plateau of productivity”. In all seriousness, this is where the expectation meets the hype, and we will really begin to make money on webcasting and other multimedia on the Internet and mobile platforms. Most new technologies go this way, and you want to make sure that your sites are ready when we get to this point, where consumers will simply “expect” your content to follow them to wherever they are, or, simply put, they will cease to watch your content, and consume your ads.

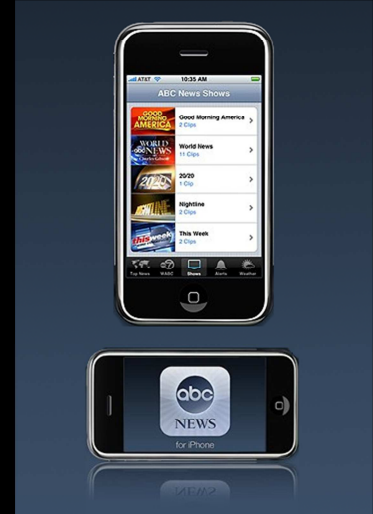
■ Interesting Applications

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I want to briefly go through some recent examples I have found of different broadcast applications for the web and mobile. After we look at these, we will then start to look at the technology behind how we can efficiently adopt some of these strategies.

■ ABC News iPhone Application

- **Provides "Location-Based" Content Targeting**
Uses the iPhone's built-in GPS to determine location and provides links to participating local ABC news sites.
- **Combines National Programming with Local Access**
Gives quick access to video stories from "Good Morning America," "World News with Charles Gibson," "20/20," "Nightline" and others.
- **Advanced Breaking News & Media Capabilities**
Users in New York & San Francisco will be able to receive civil alerts, and all can opt for breaking news, view slide shows, etc.



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Of course, the biggest thing to happen to mobile multimedia in the past few years has been the iPhone. The installed base and the use by demographics we want to reach makes the iPhone something that local broadcasters simply cannot ignore. If you haven't developed your own iPhone application, or signed up with a system like the ABC app, then you have some catching up to do.

KPHO

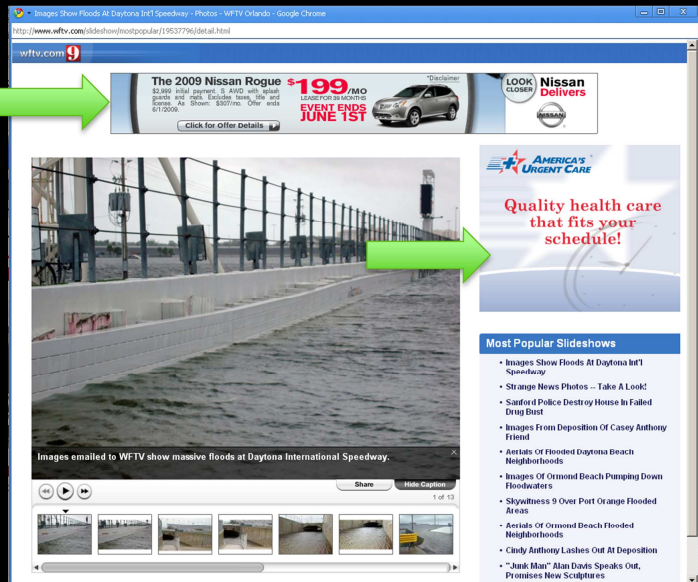
- Develop your own application
Broadcasters may elect to develop their own applications like the iPhone app.



I am seeing more and more broadcast groups develop their own, customized iPhone application. KPHO is an example of a Meredith station that has done a great job of this.

■ Slide Shows

- **Image and Textual View**
A quick way for viewers to read a story and see key frames
- **Provides Unique Ad Opportunities**
Average slide show has 12 images & 2 ads providing 24 impressions per view
- **Surprising Popularity**
This is a very popular version of content on WFTV.com



Slide shows are becoming a popular means of quickly delivering non-video, but based on video, content to viewers. Sometimes, it is not convenient to watch video online, like when I don't want my boss to walk by and see me watching a video! Seriously though, the attraction of slide shows for broadcasters is that these provide a means of serving more banner ads per story than any other content delivery. A typical slide show based on a 2 minute video has 12 to 15 still images, and in most cases, two banner ads are displayed per image, for a nice total of 24 to 30 ad impressions per story.

One of our customers, WFTV in Orlando, tells us that slide shows are one of their most popular items on their web site, often getting tens of thousands of views+ per day.

■ Twitter

- **Perfect for Breaking News**

Service allows users to subscribe to an SMS feed to receive short updates & links

- **Has Been Embraced by about 26% of U.S. TV stations**

TVonTwitter.com reports 589 / 2200

- **Addresses iPhone App Complaint**

Allows broadcasters using the iPhone app. To “push” breaking news alerts via text message.



The screenshot shows the TVonTwitter.com website, which is a searchable database of television stations and networks on Twitter. The page features a search bar with options to search by City, State, Market Size, Station ID, or Network. A 'Search By State' section shows results for Wisconsin (WI), listing 20 TV stations. The 'View' section includes buttons for 'Last 10 Added' and 'All Stations'. The 'Links' section provides links to 'Newspapers' and 'Radio Stations'. The main content area displays a list of TV stations with their logos, names, and brief descriptions.

| Station | Network | Market | Description |
|---------|---------|--------------------------|---|
| WQOW | ABC | Eau Claire, WI | Market #127 |
| WQOW | ABC | 18 Eau Claire, Wisconsin | |
| WEAU | NBC | Eau Claire, WI | Market #127 |
| WEAU | NBC | | Important To You! |
| WAOW | ABC | Eau Claire, WI | Market #135 |
| WAOW | ABC | | The Coverage You Can Count On |
| WFRV | CBS | Green Bay, WI | Market #70 |
| WFRV | CBS | | 5, 6 & 10 anchor Erin Davison tweeting for newsroom at WFRV-TV, CBS station serving northeastern Wisconsin and upper Michigan |
| WBAY | ABC | Green Bay, WI | Market #70 |
| WBAY | ABC | | Local NorthEast Wisconsin news from WBAY Channel 2. |
| WLUK | FOX | Green Bay, WI | Market #70 |
| WLUK | FOX | | Your Source for Balanced News and Severe Weather Coverage |

And then there's Twitter...

Most people who haven't used Twitter will question its value, but I have to tell you, the more I use it, the more I see Twitter as a very valuable tool for spreading information both to targeted groups and to the masses.

For broadcasters, Twitter is perfect for breaking news, and has been embraced to date by about 25% of U.S. TV stations.

Twitter also addresses one of the complaints about the limitation of pushing content to iPhones – Twitter allows users to push messages directly to any phone or device that can receive text messages.

■ 20 Wisconsin Stations on Twitter

| Market | Station | Twitter Name | Total Followers | Total Tweets |
|-----------|------------|---------------|-----------------|--------------|
| Milwaukee | WITI - FOX | fox6now | 5,216 | 22,287 |
| Milwaukee | WISN - ABC | WISN12News | 2,343 | 2,650 |
| Madison | WMTV - NBC | nbc15_madison | 2,196 | 2,797 |
| Madison | WISC - CBS | WISCTV_News3 | 1,746 | 6,461 |
| Green Bay | WFRV - CBS | wfrv5 | 1,667 | 6,005 |
| Milwaukee | WTMJ - NBC | TODAYSTMJ4 | 1,639 | 1,970 |
| Milwaukee | WDJT - CBS | CBS58 | 1,468 | 2,178 |
| Green Bay | WLUK - FOX | fox11news | 1,177 | 3,553 |
| Madison | WKOW - ABC | WKOW | 1,021 | 1,843 |
| Green Bay | WBAY - | WBAY2 | 960 | 25,873 |
| Madison | WHA - PBS | wispublictv | 368 | 171 |
| Green Bay | WGBA - NBC | NBC26 | 365 | 600 |

As of 10-13-2009, source: TVonTwitter.com

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I always try to take a look at how local stations in the areas I visit are using Twitter. Here are some statistics that I put together from TvonTwitter.com for Wisconsin. This isn't every station that is on Twitter in Wisconsin, but it is a representative sampling.

One thing that I am always asked as far as Twitter is concerned is, what is the optimal amount of "Tweeting"? (that's what the kids call it)

Every time I run these kind of statistics, I always see that there is a range of activity levels for the broadcasters. Here you can see that the "follow" or subscriber leader, WITI in Milwaukee, does a massive number of tweets, more than 22,000 in the past year. Does this get you more followers? Hard to say, because look at WBAY who has done even more tweets in roughly the same time period, and doesn't have the number of followers. Very likely, the numbers you can expect are tied to over-the-air promotion.

One of our customers, WFTV, in Orlando uses Twitter in the newsroom very effectively. Many of their reporters routinely "tweet", and they keep a large screen in their news room that shows the twitter feeds from their competitors, and from national outlets, which is used to keep them abreast of what the other guys are focusing on.

■ TV Widgets

- Developed by Yahoo!

“TV Widgets deliver a Cinematic Internet™ experience by converting your favorite Web services like Yahoo!® Finance, eBay®, CBS, Flickr®, USA Today®, and Twitter®, for the TV. “



Images: cnet.com and netflix.com

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Another interesting technology that we will begin to see more of is the widget-enabled, Internet connected television. Both Samsung and LG released models earlier this year, and by the end of 2010, more than 25% of new sets sold will likely support these features.

■ TV Widgets

- Developed by Yahoo!

“TV Widgets deliver a Cinematic Internet™ experience by converting your favorite Web services like Yahoo!® Finance, eBay®, CBS, Flickr®, USA Today®, and Twitter®, for the TV. “



Images: cnet.com and netflix.com

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Yahoo! has developed a specification for informational widgets, which allow viewers to interactively watch television by accessing certain online features in sidebars of the set.

■ TV Widgets

- Every broadcaster should be thinking about designing a widget for their local news.

<http://connectedtv.yahoo.com/developer>



Images: cnet.com and netflix.com

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We will begin to see this more and more, and I believe it is an excellent opportunity for local broadcasters to extend their brand onto viewer's television with news and weather updates. Keep in mind that this branding will take place and make these things available for viewers even when they are not watching your channel.

Check out the URL of the Yahoo! developer site. This is something I would look at and plan for early 2010.

- Questions for Broadcasters...

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OK, we have looked at the latest trends in viewership and new technologies. Now I have several questions for broadcasters...

■ Is your content available WHERE consumers are watching?

**1st Screens****2nd Screens****3rd Screens**

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First of all, is your content available WHERE consumers are watching?

A problem for local broadcasters is figuring out how to be a part of every possible source for content distribution while at the same time keeping production costs under control. How to get content in front of consumers no matter where and when they are in the mood to watch locally produced news and other shows.

■ Is your content available WHEN consumers are watching?



**Home Screens
TV's
Computers**



**Office
Computers**



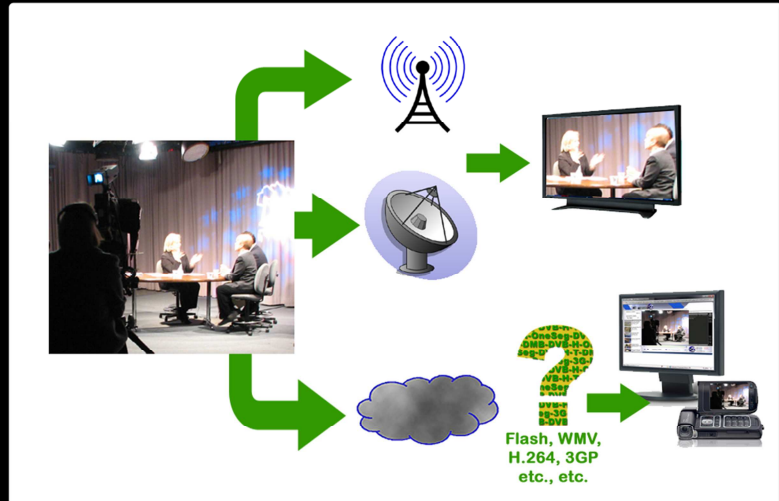
**Mobile
Devices**

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Is your content available WHEN consumers are watching?

The days of a fixed viewing schedule for most consumers is quickly waning. In a few years, how many will arrange their television viewing schedules around a fixed time schedule?

- Is it economically viable for broadcasters to make their content available to all of these “screens”?



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Do you have the resources and technology in your operation to place your content everywhere that consumers want to view it?

Simply having a web site with a few video files and text stories on it is not enough today. Do you have an iphone app? Is there a way for the 80% of other types of phone users to find and consume your content?

You may question if there is enough profitability in web and mobile to make it worth the extraordinary effort to be in all of these places?

Let's face it, the business of local television is changing, and if broadcasters can't find a way to meet those challenges and become part of the time and place shifted content consumption landscape, it will be hard to compete with all of these other sources for information and entertainment, especially for the next generation of viewers.

■ How much content should you repurpose?

- QUANTITY helps to attract a wide variety of visitors
- QUALITY content keeps them coming back

QUANTITY
VS.
QUALITY

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How much content should you repurpose?

My opinion is that you should repurpose every single bit of content that you can. Long form, short form, ten weather spots per day, local sports specials and interviews, investigative reports, etc.

Why?

I have had many discussions with broadcasters about the optimal level of video content to post to their web site. Some tell me that it is better to focus on "quality" versus "quantity". Well, my advice to this, is why do you have to choose? Why not do both?

I hear things like "Putting our over-the-air newscast on the Internet or mobile is just re-gurgitation of the same old news. We want to put only new content onto our web site."

Although I understand the tendency to think like this, it is important take a look at why this isn't the best way to do it.

■ How much content should you repurpose?

■ Quality of content means:

- Full metadata
- Accompanying textual story
- Meaningful thumbnails
- Accompanying slide show

QUANTITY
VS.
QUALITY

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So what exactly is quality content?

It really isn't about the production value, because we will assume that local broadcasters always emphasize production quality.

Quality repurposed content is really all about the elements that allow it to be found in searches on Google and on the local site, and these things include a full compliment of metadata, which we will discuss in a moment, accompanying textual stories, meaningful thumbnails that show the viewer at a glance what the content is about, and an accompanying slide show that presents snapshots of the content.

It is possible to do this efficiently, with the staff you have today.

■ Do you emphasize Quality, or Quantity?

With the right tools, you can do both!

**QUANTITY
AND
QUALITY**

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Do you emphasize quality, or do you emphasize quantity, when it comes to the amount of content you wish to repurpose?

Well, that is an easy question!

With an automated repurposing environment, you can do both!

Imagine if YouTube had only a few “high quality” videos instead of the millions of both high and low quality ones? Do you think the traffic would be the same? Would the appeal be as broad? Of course not. The Internet, and soon mobile, have the advantage of providing something for everyone. And if your sites also provide something for everyone, you will get more “everyone’s” to visit regularly, and that is what it is all about from a monetization standpoint – More repeat visitors!

Also keep in mind that we are likely going for different audiences here. The folks who loyally watch your over-the-air newscast at 6 or 11 will very likely not be the same folks who watch the content online or on their mobile. So, for this latter group, this isn’t regurgitation at all! Rather, it is extending the opportunities for those who don’t otherwise have the opportunity to consume your content.

- How do we economically push out a higher quantity of better quality content?

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So in today's reality of shrinking budgets, how do we economically push out a higher quantity of higher quality content?

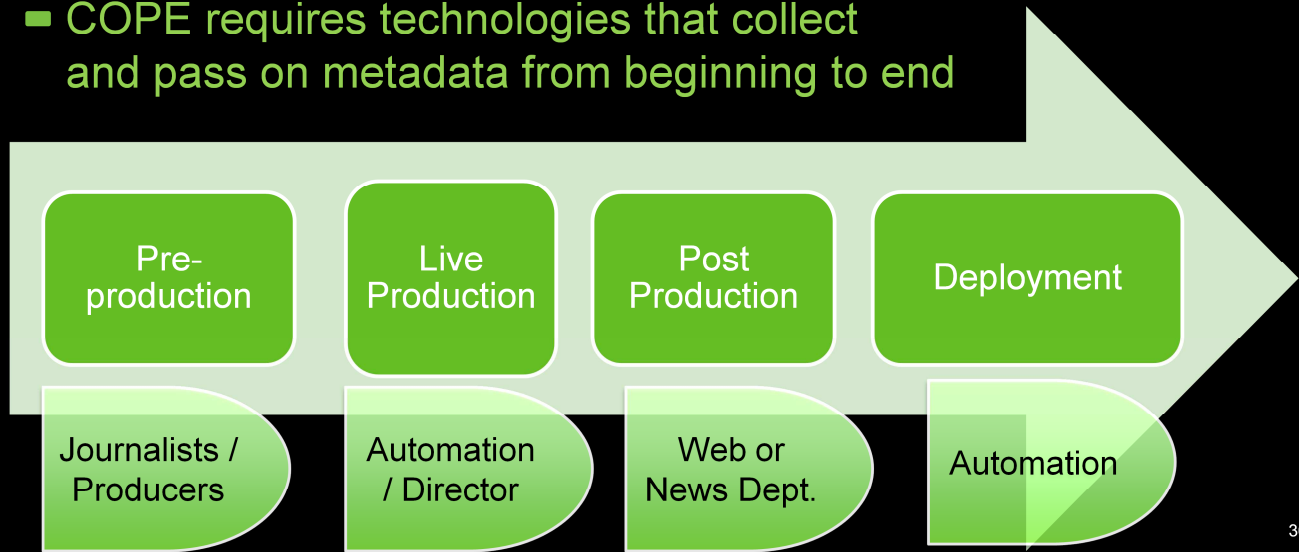
C O P E
create once publish everywhere

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Well, I believe that the answer for broadcasters is to implement something we call Create Once, Publish Everywhere, or COPE.

COPE is a workflow that is dependent on metadata, both human entered, and automatically generated metadata.

- COPE requires technologies that collect and pass on metadata from beginning to end



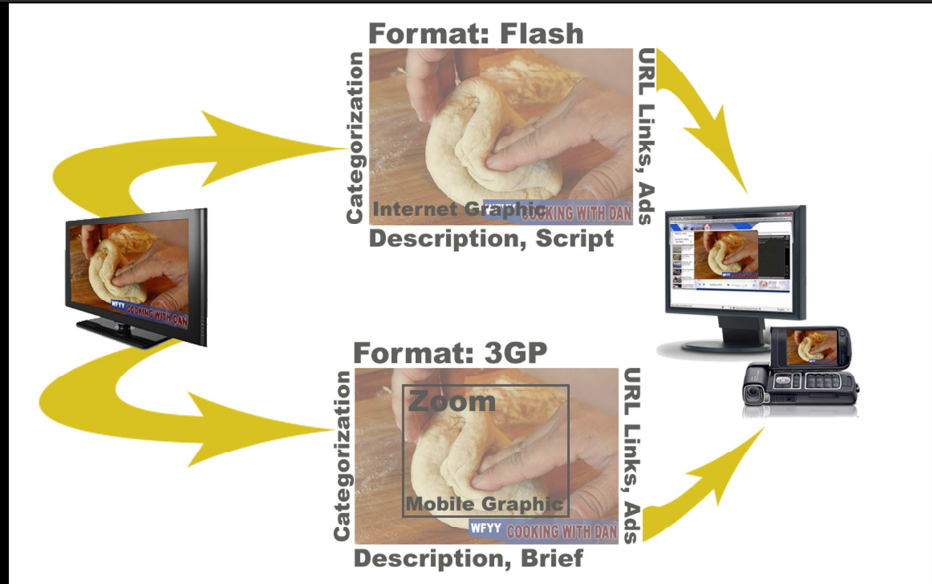
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So, what exactly is the COPE workflow?

It really is a description of an end-to-end process in which created content is thought of, from the very beginning, as being suitable for distribution onto ANY platform, in a multitude of different formats and forms.

COPE enables tools for Journalists and Producers, the production personnel and automation systems, the ability to quickly and efficiently perform post production in any department, and finally the automated systems to distribute the content to multiple distribution outlets.

■ Metadata for multi-distribution of content



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Metadata is used extensively in the COPE workflow to describe and control how the content is handled as it moves from ingest, through live production, and ultimately out to where the consumer can find, and consume it.

You may say – We are facing the prospect of having to do more work with fewer staff. So how does all this metadata get into the system?

Some of the metadata is entered by a person. The trick is, for that manually entered metadata, providing common and easy-to-use tools that allow everyone in the operation to be able to add certain metadata elements.

The metadata that is automatically generated should not involve human interaction, except to read it.

■ Types of metadata for content repurposing

- **Static Metadata**

Title, Subtitle, Rating, Credits, Copyright, Air Date/Time, Duration, Categories, Keywords SMPTE 377M (MXF), RSS, MRSS

- **Temporal Metadata**

Script Text, Accompaniment Text Story, Closed Captions, Timecode, Segment Timing, Descriptive Scene Changes, Key Frames, Synchronous Auxiliary Events (Web URL, RSS, Surveys). W3C Synchronized Multimedia Integration Language (SMIL)

- **Distribution Metadata**

Syndication Points, Expiration Date, Associated Content, DRM, Target Resolution, Bitrate, Codec.

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Let's look at the different types of metadata for repurposing of content.

Static metadata are the basics like the title of the clip or story, the date, keywords, categories, etc. Much of this metadata needs to be entered as soon as possible, and for the vast majority of content available on the Internet today, static metadata is all there is.

Temporal metadata are things that we typically do not see added to content today, although they are critical to the process of being able to adequately monetize the content. The reason that temporal metadata is not usually there is due to the fact that it is time consuming and difficult to manually add using the typical tools in use today by content producers.

Distribution metadata are details that "could" be used in an automated environment to get content transcoded and sent out for distribution much faster. I say "could" because automating these processes has not been easy.

■ Where the metadata comes from

- **Static Metadata**
Newsroom – Journalists, Producers
- **Temporal Metadata**
Newsroom – Journalists, Producers
Production Personnel
Web Personnel
Automation
- **Distribution Metadata**
Web Personnel

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So where does all this metadata come from?

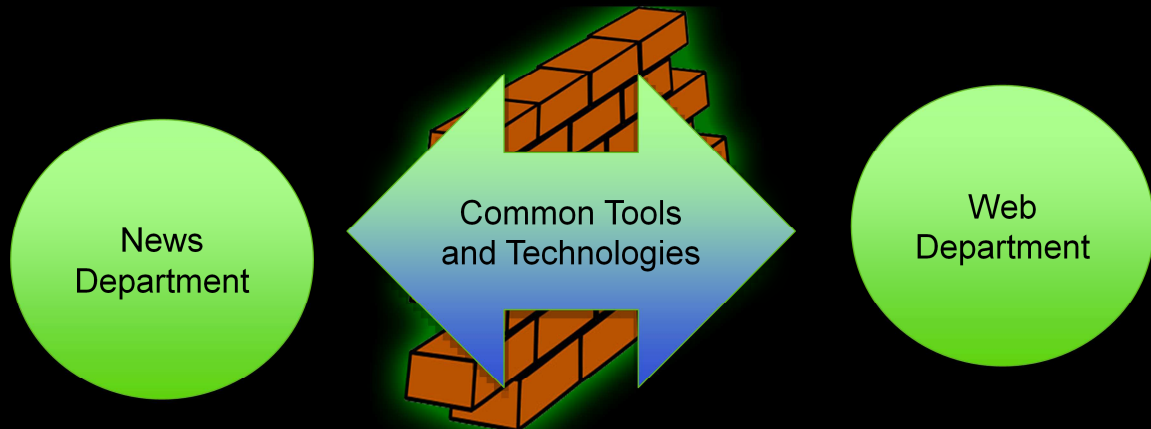
Well, static metadata is generally obtained from the newsroom, from journalists, producers and others. Today, it is typically the web department who enters this metadata for content that will be repurposed, but they usually have to go through a time consuming process to get the metadata.

Temporal metadata can come from many places within the organization, some from the news department, some from the production personnel, some from web personnel, and some automatically generated. Keep in mind that we don't usually have temporal metadata available to us because it is difficult to obtain, and that is a big problem for content producers.

Distribution metadata, like temporal metadata, is in rare supply, and these activities are generally just manually performed by web personnel when they log into the various content management systems.

You may ask – How do we get these different department to work together to assemble all of this metadata?

- COPE helps to “Break Down” the wall between the news department and the web department



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C.O.P.E. is driven by breaking down walls between departments with common tools and technologies that allow everyone in the operation, technical or not, to take part in the content repurposing process.

■ COPE Requires “Multimedia Thinking” Throughout



Acquire



Ingest

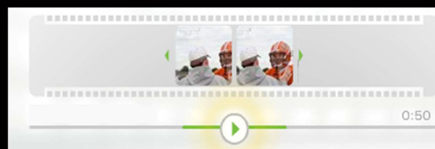
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In a create once, and publish everywhere workflow, the most important work begins in acquisition and pre-production. Reporters and videographers need to think of themselves, not only as “over-the-air journalists”, but as “multimedia journalists”, and produce content in such a way that it will be effective and interesting on the living room TV screen, on a desktop computer monitor, a laptop screen, and on a variety of mobile devices. Small details in how the content is produced and shot can ultimately make all of the viewing experiences much more enjoyable for the consumer.

■ COPE Requires “Multimedia Thinking” Throughout

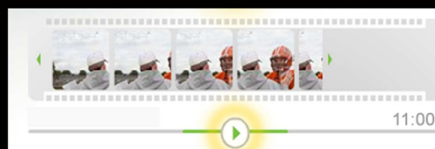


**Markup for
OTA broadcast,
web & mobile video,
web & mobile text,
web & mobile metadata**



Clip for OTA

**Edited story
with intro**



“Raw Video” Clip for Web

**Long form
“Raw Video” clip**

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In order to make COPE work, we need all of our journalists, production personnel, and web producers to have access to a common set of tools that allow anyone the opportunity to take part in the content repurposing process. We should be able to add descriptive metadata to the content as we are marking up the rundown, and we should have powerful backend processes that read this layman’s metadata and then decide how to repurpose the content. For example, I may want my weather segments to always go out as a high quality flash file, a low quality flash file, a windows media file, and an H.264 files. These files will all go to different places, and I want them to have a thumbnail that is a picture of my weather person.

The producer marking the rundown for this weather segment shouldn’t have to know anything about flash, 3GP, publication points, etc. The tool should be smart enough to do this based strictly upon the layman’s metadata that was selected.

In addition, all of my journalists should be able to come in with their long form content, things like interviews, ingest them, and then easily apply metadata and send them out for distribution, or to a web producer for approval.

The idea is to get ALL of my content to the web or to mobile distribution, as quickly as I possibly can.

■ Formats / Wrappers – Which ones to use?

- Flash, H.264, WMV, 3GP, ATSC, DVB-H, etc.
- Make sure your transcoding system supports them all!



ONE PROCESS → MULTIPLE OUTPUTS

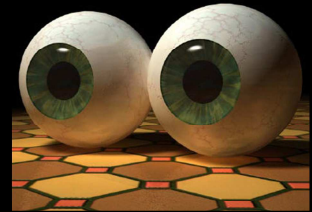
43

A common challenge for repurposing content is to figure out which formats to transcode content into. Flash is a necessity for computer viewing, but for mobile, there are a number of considerations. The iPhone uses H.264, Windows mobile devices can natively view windows media files, and add-on viewers allow for other formats. 3GP is required for certain handsets.

My recommendation is to pick a transcoding system that supports all of these formats, and is upgradeable to support the formats of tomorrow that will be popular.

Our MediaFUSE system, for example, supports more than 40 formats with selectable qualities for each format. Since that system has automated transcoding, this can be done as a single process, so it is not necessary to manually choose formats or publication points.

- The race for eyeballs – Who will win?
 - Three Screens will be irrelevant
 - Consumers will “expect” your content to be available where and when they want to view, or they will go elsewhere
 - Most markets will see further consolidation of local news distribution, and newspapers and independent content producers will be competing for eyeballs



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I'll finish up this afternoon with a look at what could be the future of interactive broadcasting.

This is just my opinion – I believe that the next five years will see a continual evolution in the distribution of local content. Today, we talk about 3 screens. Tomorrow we will really just talk about the eyeballs, or rather how many of them are watching our content versus the competition's. The screen will be largely irrelevant as consumers grow to expect our content to follow them wherever, and whenever they choose to watch it.

That is why I always recommend that broadcasters invest now into multi distribution. Put all of your locally produced content in every possible place that you can put it. Invest in automation technologies that will make the effort of doing this minimal. Concentrate on the content, because that is your most valuable asset, and it is one that will always be in demand.

The problem is, I believe most markets will be reduced to three or four producers of local content, and these may consist of a newspaper, a couple of TV stations, and possibly some start up hyper local operations.

Now is the time to get in front of this curve. If you continue to push relevant content to consumers in a variety of ways, and have something that meets the interests of your viewers, you will ensure that your station is not just one of the 3 or 4 local content producers, but is growing and profiting from all of this new technology.



- IGNITE – Control room automation



- MediaFUSE – Content repurposing automation

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We have looked at a number of challenges facing broadcasters, but also I believe a number of opportunities. I haven't discussed many particular solutions, but before I close I want to make you aware of a unique combination of products from Grass Valley that allow you to do many of the things we have talked about. Today, broadcasters and web departments are using by and large a manual process to get content to the web and mobile, and a number of sometimes highly technical tools.

Our Ignite and MediaFUSE products offer a unique solution that implements an end-to-end live to air, web and mobile workflow that can make the best use of your current resources.

[Note: More information on Ignite and MediaFUSE is available at www.grassvalley.com]

Grass Valley Ignite and MediaFUSE®

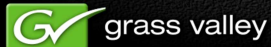
- Ignite and MediaFUSE are control room and content repurposing automation platforms that empower broadcasters to:

BUILD A
HIGH DEF
AUTOMATED LIVE
CONTROL
PRODUCTION
ENVIRONMENT

IMPLEMENT
A SET OF COMMON
EASY-TO-USE
TOOLS FROM PRE-
PRODUCTION TO
DISTRIBUTION TO
AIR, WEB &
MOBILE

REPURPOSE
ALL OF THE
CONTENT YOU
WANT, WITH
THE SAME STAFF
YOU HAVE
TODAY

ALLOW
EVERYONE
IN THE OPERATION
TO BECOME
MULTIMEDIA
PRODUCERS AND
JOURNALISTS



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Ignite and MediaFUSE are platforms that empower broadcasters to:

Build a high definition, automated live control environment that is scalable to fit the needs of any market size.

Implement common tools that allow various non technical and technical personnel to input metadata, or choose presets that contain all of the metadata we discussed earlier.

Repurpose ALL of the content you want, using existing staff.

Allow everyone in the operation to take part in the content production and repurposing process, and become multimedia producers and journalists.

Thank You!

Scott Matics

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Thank you for the opportunity to speak to you this afternoon.