Report For PRI PSD Project
from jazz89 KUVO, Denver, CO
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1. Generating PAD from the station automation system
How was it accomplished? Please respond in detail, including specifics on any/all equipment used, cost and personnel required. What were the challenges and how was each overcome.

KUVO uses E-Radio as the basis for its PAD system. The Enco automation system is running the Enco PADapult software to format the data and transmit it via IP to the E-Radio software. Currently the only sources for PAD data are from the Enco and the E-Radio software.

The E-Radio software lets us generate and schedule messages (like underwriting announcements, who is on the air, and other messages). We don't do news beyond the NPR top of the hour broadcasts and they don't ship any data.

The Enco software takes care of formatting the data into a format that the E-Radio software can handle. As for the scheduled announcements that are generated in E-Radio they are simple text messages that are created in a database allowing the messages to be scheduled to run at specific times and dates. The scheduler lets you determine how many times an announcement is run in a given time period and what priority it has over the Enco generated data.

The E-Radio message scheduler can be accessed via the Internet and it is a GUI based application. It is easy to use and we expect that when we turn the system over to development/underwriting that the amount of time spent running it will be about one-person hour per day.

We chose the E-Radio system because they were willing to work with us, it was significantly cheaper than any other system and it didn't tie you to having to use an external source for data formatting from the automation system (like one of the competing systems does).

The E-Radio system is a Linux based application. We received 8 floppy disks from E-Radio and simply booted the PC from the first floppy disk and it installed Linux and configured the OS to the computer. From there we assigned the computer a hard IP address and E-Radio logged into the machine and installed the software.

You will need hard IP addresses for the E-Radio computer, the HD Radio NE IBOC exciter at the transmitter site. If you are going to generate RDS you will need an RDS encoder, if your analog FM exciter doesn't have one built in. You might find it easier to put the E-Radio box at the transmitter site than trying to figure out how to get the data to the HD Radio exciter and your RDS input.

I know that there is a general reluctance to put computers at transmitter site but we have been doing it for more than a couple of years and we haven't had any issues. We use a double conversion UPS made by MGEUPS and have had very few issues.

The specific challenges to getting any of this to work has been that for the most part none of this has been done before. Therefore the E-Radio system had never communicated to the Enco gear and the Enco gear until recently didn't have formatting capability. We aren't in the Chicken or Egg stage we are in the DNA stage…

I figure we have spent in the range of 100 hours on this project over the last 18 months. The E-Radio software we have is beta and I don't know what it costs. The Enco software is $1,499 standalone and $999 if you buy it with one of their systems.

We don't have sufficient experience with the E-Radio system to know what it isn't capable of doing. I think we will have a better handle on this once we hand the system over to Development/Underwriting.

Since we barely have the system up and running it would be premature to anticipate the life expectancy of this system. Knowing how rapidly this is evolving I would expect 12 months would be the longest that this system would be viable for.
Since we planning more automation it would appear that the E-Radio/Enco solution would be able to meet our future needs.

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2. Generate PAD from live programming
How was it accomplished? Please respond in detail, including specifics on any/all equipment used, cost and personnel required. What were the challenges and how was each overcome.

At this time we do not generate PAD from live programming. Live programming is defined in our book as live concert broadcasts. Everything else coming out of the Enco is in the system. This is a limitation of personnel not systems. What

we would need to do would be to have a body entering the broadcast information live while it is going on. We just don't have the manpower.

3. Pass through of PAD from national feeds
How was it accomplished? Please respond in detail, including specifics on any/all equipment used, cost and personnel required. What were the challenges and how was each overcome.

PAD is not currently available from any national feeds we use. Until we get actual live data from the Content Depot system and see what it looks like and get E-Radio to support the data format and the Content Depot gear to deliver the data via IP to the E-Radio box we won't be able to determine how to implement it.

4. Pilot the use of PAD in locally produced programming
How was this accomplished from both a technical and operation perspective? Please respond in detail, including specifics on any/all equipment used, cost and personnel required, what were the challenges and how was each overcome.

At this time we do not generate PAD from locally produced programming. I haven't considered what it will take to provide PAD using the E-Radio system.

I would suspect that the requirements to implement this would be similar to that of live programming as detailed above under live programming.

5. Pass through of EAS Messages to PAD exciter
How was it accomplished? Please respond in detail, including specifics on any/all equipment used, cost and personnel required. What were the challenges and how was each overcome.

The E Radio system has support to take the RS-232 data from our SageEndec EAS box. I did this because I thought it was a great application of the technology. It took a cable and a call to E-Radio to get it to work.

6. Localize EAS messages to geo-specific area of a given repeater
How was it accomplished? Please respond in detail, including specifics on any/all equipment used, cost and personnel required. What were the challenges and how was each overcome.

We don't localize EAS messages for our translator in Laramie WY or Breckenridge CO. For us to do this we would have figure out how to insert this information for just these sites and how we would get the local EAS alert from these areas.

7. Synchronize MPS and PAD at the broadcast studio to the PAD Exciter
In testing the synchronization and transmission of MPS and PAD via various studio-to-transmitter links, what worked/what didn't? How did you resolve any issues?

We generate the PAD at the transmitter site and the data from the studio is shipped to the site via public IP network, which is very short latency.

8. Synchronize RBDS and PAD
In testing the synchronization of RBDS and PAD what worked, what didn't? How did you resolve any issues?

The E Radio system generates both PAD and RBDS and formats it for the limitation of each format. Since every HD Radio receiver handles PAD a little differently, with different about of processing latency it difficult to determine if the RDS and PAD are in sync and I don't think it really matters much.

9. Integrate PAD with online station content
Did you integrate your website or PI's Composer to your PSD exciter? If not, when and how are you planning to do so?

While we're planning to do this in the future, we haven't gotten that far yet. I frankly haven't even thought what is going to take to make this happen. I would like to move the Website in house to get better control and lower costs. This might make integration of the PAD into the website easier. It is going to take resources that we don't currently have access to.

10. Review the display of PAD data on HD receivers
What was your first response to seeing your station PAD display? What other thoughts or new ideas have you had, now that you're accustomed to looking at your station PAD display?

It looks pretty close to RDS in the first generation HD Radio's. I think it is going to take a couple of generations of HD Radio's before we get to the "Whiz Bang" display point.

11. Prototype Station Activities in Programming

Define program-specific or format-specific issues encountered while implementing PAD

Since there is not yet full implementation of PSD we can only comment on anticipated challenges. For our current posting of play list on our website we developed a scanning program for CDs. However, many of our CD's cannot be scanned because they do not have the UPC bar nor are listed on any Internet source. For these CD's the information has be input manually. We will have to continue this practice and have all the information from our play list, regardless of scanning or manual input, interface with PSD.

We would also like to implement "Traffic Conditions on Demand" so that people could at any time ascertain traffic conditions before venturing out and not having to wait until the DJ talks about the traffic.

I looked at the BE product at the NAB Show that supports getting the data stream off from the CD players and the cost ($3K) seems to be prohibitive. I think we would be better off applying our efforts towards getting more of our CD library into to automation system

12. Prototype Station Activities in Development
Determine role of PAD, if any, in station revenue generation

Preliminary discussions make us want to have scrolling underwriting, membership information, car donation requests – in essence to scroll the on-air announcements during the music on a rotating basis with the song information and station identification – however, since the music information is the most important element we need to wait for implementation of PAD to ascertain the viability of the plan, the cost in human resources, and any potential increase in revenue generation for the station.

Once we turn the system over to Development/underwriting we will have a much better ideal of what is possible and how best to use it.

13. Prototype Station Activities in Marketing
Determine role of PAD, if any, in station marketing.

The "wanna know what's playing, by whom and on what station" feature of our service is certainly something to tout in marketing materials. The exact method we'll use to promote that feature has yet to be determined. Since PAD is the sexiest aspect of HD radio for those who have to see, not just hear, a significant difference between HD and regular radio, it is extremely important to promote PAD.

The issue about promoting PAD is that we have so few HD Radio receivers in the marketplace. We first must promote HD Radio to generate HD Radio sales long before it makes sense to promote PAD otherwise we confuse the listeners.

14. Assess the baseline PSD specification
What do you like about the baseline PSD spec? What would you improve, if you were the King of PAD?

Way too new to determine any aspect of this question.

- Fair enough.

15. Assess your overall experience as an early-adopter of PAD
Did your station face any issues as an early-adopter of PAD that other stations may or may not ace when they deploy PAD? (i.e. issues related to branding, standards, vendors, technology, etc…). Please be as specific as possible.

First we have so few HD Radio receivers in the marketplace that we have zero feedback. Since we haven't turned the system over to Development/Underwriting to use we really don't know the full impact that PAD can have. I think it will take getting more HD Radios in the market before we see any impact on the listeners.

16. Assess the costs and resources necessary to deploy PAD
What are the one time costs to deploy PAD?

You will need the E-Radio software and a PC to run it on. If you are running an Enco system you will need the Enco PADapult software. Beyond that you need to figure out where to put the E-Radio computer and how to get the data to it (or from it to the transmitter should you decide to put it at the studio).
Our automation plans are going to increase as we get most of our music library online and use it as live assist. This makes generating PAD much easier. On the Development/Underwriting front we really need to get this handed over to them to see the impact on its operation and what (if any) marketability PAD has to potential Underwriters.

I would figure that the costs to implement our system ran in the range of $3K to $4K.

17. What are the estimated ongoing costs?

It is very hard to estimate the ongoing costs of running PAD. It would seem that once a station has it up and running it should be relatively easy to keep running. Again we are too new in the process to really have a handle on this.

18. How many staff will be responsible for ongoing preparation, care/feeding/proofing of PAD? (Please list the titles of each staff along with an estimate of their weekly contribution to PAD workflow)

Unknown at this time. I am figuring that Development/Underwriting will need to have 1 hour of one person's time per day to run the basic scheduler and get the underwriting data into the system.

19. Does PAD require extra full or part-time staffing?

One person for one hour per day

20. How does PAD affect the day-to-day workflow of station engineers, producers, webmasters, and others?

Unknown at this time

21. Are changes in workflow required to capture, manipulate and route PAD data?

Not that is apparent at this time. It appears that the system is reasonably transparent.

22. What investments in technology and personnel are needed to incorporate PSD?

Unknown outside of our test.

23. Would stations with a lower/higher level of technical expertise face markedly different challenges in deploying PSD?

Frankly there is so much unknown with the PAD and what it is capable of that I can't really ascertain the issues with deploying PAD. Stations with lower levels of technical capability are going to be hard pressed to do a full implementation. Stations with automation systems are going to have a much easier time generating meaningful PAD. I am quite concerned about the handling of PAD

from live shows transmitted via the PRSS system as none of this has been seen yet and might be quite complex to implement.

Additionally PAD generation from shows that are fed delayed on the PRSS system also are a concern for PAD deployment and may have to be handled via generating local PAD data manually. This could require significant amount of local labor to get into the system and maintain.