DVRS—DRIVING THE DVR EXPERIENCE HOME: SOFTWARE AT THE WHEEL

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Abstract

Perhaps the most powerful TV evolution has been the ability to let viewers take total control of their viewing, particularly in recording whatever they want, whenever they want. It's called DVR.

And software is at the wheel, as set-top value is defined by its ability to support services and applications through its software.

This paper will discuss the DVR software solution and the impact it is having on the cable industry and its customers.

Since their introduction, Digital Video Recorders (DVRs) have changed a consumer's TV viewing experience—from pausing live TV to recording an entire series for playback according to the viewer's schedule. The time shifting advantage of DVR is what makes it so valuable. Making it easy and convenient for the consumer is what will continue to drive the category and take it to new heights.

DVRs were projected to be what some experts said would be a "life changing experience" and would drive TV viewers to a new user experience of time shifted programming that included controlling live TV with slow-motion, instant replay, pausing and re-winding, fast-forwarding, and recording from on-screen program guides, and more.

And most importantly, with the user interface software as the engine, DVRs will allow consumers to record and view their favorite programs or series of programs on their own schedules via time-shifting features with a simple click of a button on the remote control.

A life changing experience is probably a stretch, but DVRs are allowing cable subscribers to do what they want with their viewing experiences. And it is user interface software that's driving DVRs.

DVR models are in their infancy, but the stage has been set for DVRs as a valuable feature to cable's digital offerings.

For example, data from Leichtman Research Group (LRG) reveals that as a cable set-top box feature, DVRs make good business sense, and have generated high interest among customers. Four times as many customers were interested in a DVR when it is charged as a monthly service, especially among the crucial 18-34 year-old age group.

In addition, 31 percent of current digital cable subscribers expressed a strong willingness to pay for DVRs as a monthly service, while experts predict anywhere from 15-37 million DVRs in consumers' homes by the year 2007.

And, according to a Forrester Research study, the combination of VOD and DVR is

expected to reach half of US households by 2007, with customers paying $6 billion for on-demand content. Additionally, consumers now spend $13 billion per year for home video sales and rentals. Most experts agree a significant portion of that money will be channeled into the cable business once DVRs and VOD gain traction.

Getting there requires two crucial components to DVRs—usability and positive user experience. Those are the keys to DVRs' success, beginning with the question: What does the consumer expect from this product?

By integrating software into set-top boxes, the one box/user friendly approach to DVRs has the attention of cable operators as an appealing feature to their expanding digital service. We know DVRs can record, pause live TV, accommodate a viewer's own schedule, allow broadband connectivity for digital music and more. And all with a simple click of the remote. We also know it's the user interface software that will allow all of this to happen, and create the user-friendly experience of time shifting, recording and pausing live TV that DVR delivers.

The User Interface (UI) is a crucial component to the DVR experience, including how the UI looks on the TV. DVR is a new product and service and it runs on a high-end set-top with additional capabilities over the standard digital set-tops we are all used to. Among these additional capabilities is increased graphics abilities and processing power. The UI (software) should take full advantage of those increased capabilities. Using high-resolution graphics, among other UI components, gives the user a more

pleasing experience that helps make them feel they are using an advanced, consumer oriented, and easy to use product and service.

The usefulness of the IPG is another key to a positive user experience. The UI should allow the recording of programs directly from the IPG, along with just watching TV or setting up recordings of TV series' making it a completely seamless, integrated part of the overall navigation process. Recording part of the overall UI and not a separate piece is essential.

Timely, rich, and accurate program data is also a key to a positive user experience. In a typical cable TV headend system, the program data is updated each night. Efficient and intuitive DVR software should have the native intelligence to track this data and use it for series scheduling purposes, even if a series has been re-scheduled for a different time, channel or day.

Now that you can record, and you have a cache of stored programs on your DVR's hard drive, how involved must the user be in managing and maintaining the contents on the hard drive? Since there is a finite amount of space to store recorded shows, an important element to usability is the ability of the software to manage hard drive space for the user. By simply pressing a few buttons, users should be able to select and see what's been recorded and choose and modify the way they record a scheduled recording or a series of recordings—by time, day, category, etc. There is essentially a table of contents, where users can modify the parameters of the scheduled recordings of deleted shows they aren't interested in.

The experience should be as easy and effortless as the user wants. Make it simple to record and to manage the hard drive. The user should not have to resolve all conflicts, but must be notified of conflicts if they arise while setting recordings. The software has to be smart enough to do most of the hard drive management. An efficient and effective default way to manage content on the hard drive is to maintain the content on a first-in first-out basis. The last show recorded is at the top of the list and the first one to go is at the bottom.

Each show is stored chronologically, but in an advanced process the users would be allowed to move shows up and down in the chronological hierarchy by identifying which show is next to be deleted if space is needed. That show being at the bottom of the list. The user can also choose to delete or tag the show so that it will not be deleted without the user manually deleting it. Each show has an estimated time that it will be available before being deleted so that something else can be recorded. The estimate is based on hard drive space and scheduled programs and series recordings.

This all goes back to the benefit of time-shifting. Even though the user may have several recordings scheduled and several TV series set to record, the user has an expanded window in which to watch those programs. They can decide, which puts them in control.

For example, a recent Forrester study found DVR viewers increasingly watch TV stored on their hard drives, and on-demand viewing will expand from 3.5 percent of all viewing today to 28 percent in 2007.

The result is that more DVR users go to see what is on their hard drive, not what is on TV, evidenced by a Forrester study which revealed current DVR viewers watch from the hard drive about 75 percent of the time.

Advancing developments are now making it easier to find what customers want to watch or in the DVR world, record. Yet there must be logic in the software to better identify program content. It's all in keeping with simplifying and maximizing the user experience and managing the hard drive. The better the metadata, and keeping the data fresh will help take DVRs to the next level.

It's no slam dunk, however. In fact, it is very difficult, especially with the increased demands on networks, particularly with the added demands of high definition television.

DVR hardware evolves as quickly as the market demands. DVR-capable set-tops must be able to evolve and stay current with other technologies and services offered by cable operators, like Video-On-Demand an High Definition TV. Some DVRs can record high definition, but the effect on the hard drive space can be significant.

This may require increasingly larger hard drives or the capability to have external, renewable hard disk drives.

In the meantime, UI software can help the user optimize the use of the hard disk drive by providing behind the scenes defaults for hard drive management. This can also be augmented by providing additional capabilities to allow the user to fine-tune their choices and take more control if they desire.

Having high resolution graphics on the UI is even more important when the user has a high definition television signal. Consumers have grown to expect more from the HD services and poor graphics in an HD environment leave much to be desired.

From a business perspective, DVR is a revenue generator that doesn't require a huge capital investment, like a plant upgrade would, prior to getting the first customer. Operators can buy a DVR set-top and make their technology investment decision one box at a time. As in every business case, operators have to weigh the features and functions and how they affect their business. At the end of the day, DVRs are all about giving consumers options and control over their viewing experiences—controlling live TV and pausing a show for up to an hour; using instant replay anytime, pre-scheduling an entire series of TV shows, creating a personal library of favorite TV shows or displaying two programs simultaneously on the screen. And all with a simple click of the remote control. DVRs are about usability, user experience, user interface and giving the customer what they want. And user interface software is leading the way.

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