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It's all in the delivery

August 29

This article is from the August 15, 2001, issue of Red Herring magazine.

In last year's issue devoted to digital media, *Red Herring* lamented the distress caused by ferocious technological change, going so far as to pen a cover story, "[The Sorry State of Digital Hollywood](#)." There was a dearth of sustainable business models for online video, free music services, and interactive television. We found that technology -- no matter how innovative -- held little sway over the entertainment industry's dominant forces: overpaid talent and institutionalized means of distribution. Now, however, things are beginning to change -- perhaps for the better.

Though technology will never develop satisfactory replacements for movie stars or pop idols, it is enabling new players to challenge the established distribution order. A year ago, nobody had heard of [Lime Wire](#) or [Audiogalaxy](#). This year these online music services are all the rage on campus. And some of the players have been around a long time. Take [Microsoft](#) (Nasdaq: [MSFT](#)): for the first time, the company seems to have a coherent strategy for transforming itself into a media company -- or at least a company that might control the distribution of digital media in the same way that Windows dominates personal computing. Then there's Hollywood: after seeing the music industry fumble through the Internet revolution, Sony Pictures Digital Entertainment and [Warner Bros.](#) have taken things into their own hands, planning to sell movie downloads through a service called [Moviefly](#), with help from [Metro-Goldwyn-Mayer](#) (NYSE: [MGM](#)) and [Universal Studios](#). And [Disney](#) (NYSE: [DIS](#)) and the Viacom Entertainment Group have a budding venture of their own, called [Movies.com](#).

It seems Hollywood's executive ranks, who are generally Luddites, may actually be learning a little bit about computing technology. Many who flocked to the Internet and other technology ventures are returning chastened but wiser. But there remains another force in entertainment that technology cannot corral -- consumer behavior. Determining what new forms of entertainment, if any, consumers will be willing to pay for remains the greatest story yet untold. Until companies figure this out, startups will fail, giants will stumble, and billions will be spent. But hope springs eternal.

On Wednesday: Even with free broadband, college students won't pay for online content. So who will?

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New habits die hard

August 30

This article is from the August 15, 2001, issue of Red Herring magazine.

Editor's note: In a series of stories appearing online this week, Red Herring is examining the state of digital entertainment. On Tuesday, Robert La Franco wrote about the [new players](#) challenging the established distribution order in Hollywood. Today, we look at how, even with free broadband access, the Web's supposed prime demographic isn't inclined to pay for digital content.

College campuses should be the dream marketplace for online entertainment. Robust computing power, high network bandwidth, and fast processing speeds abound. Even interactive content is common. Today's college students have a veritable digital revolution in their dorm rooms. But ask companies like [Icebox](#), [Nibblebox](#), [Heavy.com](#), and [The Romp](#), which targeted the one demographic in the United States with the requisite high-speed Internet connections and desktop computing power to enjoy online entertainment, and they'll say otherwise. All of these companies are now either out of business or they're struggling to stay afloat.

No wonder. When asked about sites like Nibblebox or Heavy.com, University of Texas at Austin junior Jim Dang and his roommate Jeff Thompson respond with blank stares. Yet Mr. Dang and Mr. Thompson are exactly the target audience that edgy broadband sites need. They are ravenous Internet users, spending hours online every day, and like many of their friends, they fill their hard drives with MP3 files of well-known bands and DivX-compressed downloads of teen movies like *American Pie* and *Road Trip*. But they and their friends eschew the broadband sites tailored to college students. "I don't buy CDs anymore," says UT Austin student Lester Sampson. "They can shut down [Napster](#), but we will still get free music."

Simply put, college students have gotten too accustomed to getting their online entertainment for free (or next to nothing). They don't expect to pay for it. The entertainment industry's worst nightmare is that this has turned out to be a habit that's hard to break.

Every dorm room at UT Austin has a high-speed, always-on Internet port for each student. Such Internet access is fairly standard these days, and colleges and universities without them often find it more difficult to attract applicants. UT Austin charges a modest \$6 a month for access, something that typical DSL users paying \$50 for service (when they can get it) would envy. When UT Austin initiated high-speed access in 1996, it was an unlimited, all-you-could-download service. At the time, placing limits on the amount of bandwidth available didn't seem necessary. That all changed in 1999 with the advent of the music file-sharing service Napster. Suddenly, the university's bandwidth demand soared. Like many other institutions, UT Austin blocked access to the Napster site until it could find a solution to the skyrocketing bandwidth needs.

The solution was to put a 3.5-GB limit on the amount of data each of its 7,000 dorm residents could download per week. This may seem like a lot to some and criminal to others, but according to William Green, UT Austin's manager of computing services, only about 2 percent of users actually max out their allotment in any given week. "Everybody thinks that bandwidth is infinite and has zero cost, but it's not," says Mr. Green. "You have to meter this stuff."

UT Austin is one of the first universities to institute a bandwidth allotment, but it probably

won't be the last. At the University of California at Berkeley, bandwidth costs more than doubled last year, from less than \$250,000 to \$600,000. Cliff Frost, manager of network services at UC Berkeley, concedes that ultimately some sort of pay-as-you-go system will have to be instituted.

THE BIG WEBOWSKI

Just a few short years ago, the Internet promised to make the film studios and television networks obsolete. Startups like the Digital Entertainment Network, Pseudo.com, Pop.com, and Quokka Sports all tried to capitalize on what they thought would be a mass migration to the Web for so-called televisual entertainment. Each of these companies has since failed, saying that not enough people have access to the high-speed Internet connections needed for streaming, full-motion video over the Web.

The bandwidth excuse made perfect sense -- but it was wrong, as Icebox and Nibblebox learned. The problem is that when high-speed connections are ubiquitous, the rules of the game change in unexpected ways that no one truly understands (see "[Korea's entertainment conundrum](#)"). The promise of Internet-connected set-top boxes, interactive TVs, and merged media has had entertainment executives running in circles for more than a decade. They have yet to find what works, even as they blather on about the glories of convergence and the importance of protecting copyrighted materials.

Napster's court-ordered filtering of many popular artists may help the entertainment industry in the short term, but it is having an unintended effect that may prove disastrous for them in the long term. The sanctions against Napster are diverting students from the music-only Napster network toward whole new worlds of unlicensed content found on alternative services, like [Audiogalaxy](#), [BearShare](#), [Lime Wire](#), [Toadnode.com](#), and [iMesh](#). With these services, it is easy to find and download pirated copies of movies, television shows, music, and video games -- free of charge.

To counteract these services, entertainment companies are hoping to attract students to streaming-media sites, where content is available on a single-use basis. But these hopes are fraught with problems. Besides the cost of producing original content, the entertainment companies will have to shoulder burdensome distribution costs.

For example, [Akamai Technologies](#) (Nasdaq: [AKAM](#)), which specializes in Web-content delivery, charges about one or two cents per megabyte for streaming. Multiply that by 500 MB for a high-quality streamed film, times 100,000 users, and suddenly the costs are prohibitive, even for the biggest studio. Costs can easily add up to more than \$1 million for a single Webcast. With ad rates in the gutter and sinking lower, there is practically no way to make money from advertising alone. And subscriptions are proving to be only slightly more reliable, especially for an audience unaccustomed to paying for online entertainment. Moreover, unlike TV or radio broadcasting, where the cost of adding an additional user is essentially zero, streaming requires costly additional bandwidth, especially to maintain high quality. Free file-sharing services like Gnutella work because they "steal" content and then pass off the bandwidth costs to ISPs. Nobody makes money, which might be part of the appeal for broke college students.

At UT Austin, the bandwidth cap is another reason for students to avoid streaming-media sites. Instead, they go where they can get the most bang for their 3.5 GB. Streaming content makes no sense when there are limits on bandwidth usage. For students, it's a poor use of their allotment, particularly if they ever want to watch or listen to something more than once. More importantly, off-campus is soon to follow. Many DSL providers offer different levels of connection speeds already. Tiered usage fees are inevitable for high-speed cable modem users, according to Mike Luftman, a spokesperson for Time Warner Cable, especially with the pending adoption of DOCSIS 1.1, a delivery standard for cable modems that allows providers to offer a range of service plans. Users who want to get the premium bandwidth can pay up while the cost-conscious will get the herky-jerky version.

THE GRADUATES

As Hollywood and its media cousins pray that low-cost high-speed Internet access will lead to new revenue, they would be wise to look closely at the typical college dorm room. Powerful computers are more prevalent than TVs and there is no shortage of interactive content being displayed on desktop monitors. As for bandwidth, that is equally plentiful. Yet, no form of online entertainment has transformed this blend of capable infrastructure and ready consumers into a market. And that is an ominous sign.

Still, such a ripe market needs to be harvested. That's why college campuses will be the first line of attack for studio executives at Sony Pictures Digital Entertainment and [Warner Bros.](#) when they roll out their direct-to-consumer pay entertainment service, [Moviefly](#), later this year. When it comes to fresh content, both companies are focusing on games rather than the animated shows the failing startups focused on (see "[Game theory](#)"). And like cable programmers before them, the studios will soon be offering subscription-based

channels that, like games, go after small, niche audiences, rather than mass markets. No more messing with failed portals like Entertaimdom, Pop, or Go.

But the UT Austin students represent a generation that has become accustomed to getting their entertainment for free. So when The Romp, a site cofounded by Eric Eisner, the son of Disney chairman Michael Eisner, switched from a free to a pay model -- \$35 per year -- they signed up only about 2 percent of the site's visitors, of which the company claims college students were an overwhelming majority. Another Web site targeted at college students, Nibblebox, was unable to attract enough of an audience for its collection of college student-made short films to become profitable. After burning through \$5.5 million in venture funding, the site merged with a similar site, [Hypnotic](#), in June. The outlook of all such content sites, regardless of recent life-saving mergers, is no better than it was last fall when they all started crumbling (see "[The sorry state of digital Hollywood](#).")

An excess of free entertainment combined with high bandwidth costs and a disintegrating ad market brought down many a startup and has made the entertainment industry reluctant to take further risks. Reflecting on his own company's demise, Steve Stanford, former CEO of Icebox, says it might be a long time before the situation changes: "The big entertainment companies aren't willing to get into original Web content ventures. It'd be different if you could point to one successful venture, but everyone is going out of business or changing what they're doing. Any new efforts will be very cautious and not heavily funded."

For now, the entertainment industry's best hope is that once students leave school and get real jobs, they will find it easier to buy than to steal. The question of what exactly they will buy remains unanswered.

On Thursday: Web-weary executives, having taken their best shot at the Internet, are slinking back to Hollywood. Also, our list of the ten companies that could disrupt the entertainment markets.

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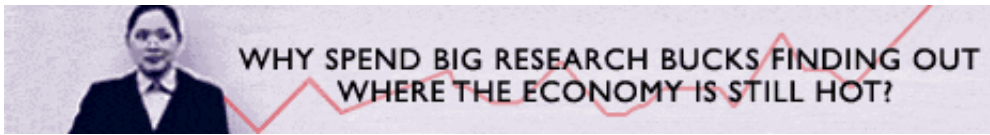
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Apocalypse Net

August 31

This article is from the August 15, 2001, issue of Red Herring magazine.

Editor's note: In a series of stories appearing online this week, Red Herring is examining the state of digital entertainment. On Wednesday, Peter Rojas wrote about how college students, the Web's supposed prime audience, are showing reluctance to pay for digital content. Today, we look at how Web-weary executives, having taken their best shot at the Internet, are slinking back to Hollywood.

For Rob Kenneally, the recruiter's call came at just the right time. Mr. Kenneally was a president of television at Rysher Entertainment, an independent production company based in Los Angeles. In his five years there, he had helped develop HBO's *Oz* and CBS's *Nash Bridges*. He had supervised production of *Sex and the City* and other television series. He packaged programs, developed scripts, hung out with talent, and, more deliciously, was pulling in a seven-figure income in salary and bonuses. But when control of Rysher was taken over by Viacom's (NYSE: VIA) Paramount Studios in May 1999, Mr. Kenneally's job vanished.

"At some point, you need to know your endgame," Mr. Kenneally reflects. And 1999's endgame -- replacing Hollywood's sometimes arduous route to financial independence with the instant wealth of the Internet business -- was alluring for many executives.

Mr. Kenneally's first move: become president of Iz.com, an affinity marketing startup that produced cable TV and Web content for the college crowd. When Iz.com was sold to sports affinity startup PopMail.com (OTC: POPM) in January 2000, Mr. Kenneally was courted by ReplayTV. Three months later he joined the Mountain View, California, startup as the executive in charge of original content. Initially, ReplayTV was hoping to get consumers to buy \$800 set-top boxes that would allow them to control live TV, store it for future viewing, and decide just which commercials they saw -- if any. "We were threatening a delicate ecosystem," Mr. Kenneally recalls of the potential disruption to television's ad-based business model.

But as Mr. Kenneally and other media executives would soon find out, it was too good to be true. Maybe they should have known better. Mr. Kenneally and his peers were actually part of a second wave of Hollywood types to be seduced by technology. In the mid-'90s, an earlier group flocked to CD-ROM startups, created online units at the studios, or launched independent entertainment sites like Scott Zakarin's short-lived TheSpot.com. TheSpot, an early Web fascination, became the foundation of American Cybercast, a planned media empire that burned through \$6 million of venture funding between January 1996 and January 1997, taking TheSpot and its sister efforts down with it. Most of the first-wave Web efforts failed just as miserably -- and instantly.

NOTHING VENTURED, NOTHING GAINED

Now the dreams of the second wave of executives have fizzled, too, and many of them are returning to traditional media and Hollywood -- all of them older, but few of them wiser. "These people didn't operate in a capacity where they could extend their skills," one recruited executive fumes. "What did we learn? Nothing."

Media executives like Mr. Kenneally joined startups expecting to perform the same work they'd done in their traditional jobs -- creating original content and orchestrating packaging deals. But they got more than they bargained for. Mr. Kenneally's days

became 18-hour grinds of early morning shuttle flights to Silicon Valley, long engineering meetings at ReplayTV's headquarters, and living out of a suitcase.

And when their companies floundered, the Hollywood executives got caught in the mad scramble for workable business models. ReplayTV's business model assumed its set-top boxes would be sold through retail outlets. But when sales failed to grow as quickly as expected, Mr. Kenneally had to rejigger his plans. Establishing revenue splits with the studios on what was primarily ad-supported programming was impossible to pin down. Exactly who would produce and pay for specialized advertising content on the platform changed constantly. "I felt like I was belly-punched every day," Mr. Kenneally recalls.

ReplayTV lost money on every box it sold -- more than \$1,000 per unit, taking all costs into account. To broaden distribution, ReplayTV tried to piggyback its technology on satellite and cable set-top boxes, offering those services' operators "unique services" like remote access, targeted advertising, and asset management -- to little effect. "Our piece of the pie kept getting smaller and smaller," Mr. Kenneally says of the company's bids for new revenue. "Replay was simply not run like a business," adds a former insider. Between August 1997 and December 1999, according to its IPO registration, ReplayTV spent \$41 million, sold only 6,000 boxes, and produced just \$932,000 in income, all from interest on cash.

In April 2000, the Nasdaq slide caused ReplayTV's IPO to be delayed -- indefinitely as it turned out. At a time when the previous wave of online entertainment pioneers like Mr. Zakarin were busy managing their millions of dollars of equity, Mr. Kenneally and his cohorts at companies like [Space.com](#), [Icebox](#), and Digital Entertainment Network watched their hefty options packages turn to dust. In November 2000, Mr. Kenneally, along with other top executives and about half of ReplayTV's 260 employees, were laid off. The company, which had burned through \$160 million in cash and had \$50 million in debt, has since been acquired by device manufacturer [SonicBlue](#) (Nasdaq: [SBLU](#)) for \$120 million, including \$47 million of debt.

WAR STORIES

With nowhere else to turn, these fallen executives are scurrying back to Hollywood (see "[The career hunters](#)"). Some have had an easy landing. Just days before Icebox folded, Gary Levine bailed as president of the company to become executive vice president of original programming at [Showtime Networks](#). Lou Dobbs left Space.com and returned to CNN, his previous employer. Others have yet to regain their footing. Former Disney TV president David Neuman, who was CEO of online entertainment poster child Digital Entertainment Network, is working at a hazily defined digital cinema venture. Former Z.com CEO Joe DiNunzio only recently returned from a trek through Bhutan. David Wertheimer left Paramount Digital Entertainment two years ago to start [WireBreak Entertainment](#), a Web destination site. The company is now moribund, reduced to just six staffers, and Mr. Wertheimer, who once said the Internet was "Hollywood's Vietnam," is fulfilling his own prophecy. When he founded WireBreak, Mr. Wertheimer told a gathering of industry executives: "All these people are going to be rushing into new media not knowing why they are there. There'll be bloodshed everywhere."

Fortunately, many will find a way back. "Hollywood is a very forgiving town," says Lynda Keeler, former general manager of Columbia-TriStar Interactive who is now chief marketing officer and managing director of the Redleaf Group, a VC firm. "You're allowed one big mistake. Maybe a few small ones."

Of course, there are always costs associated with mistakes. Mr. Kenneally says he lost money during his new-media stint -- a result of a lower salary and evaporating stock options. And when his job at ReplayTV ended, he was passed over for a couple of Hollywood jobs because he was labeled a "tech guy." In May, Mr. Kenneally joined the Creative Artists Agency as a senior agent. He has broad responsibility for television, cable, off-network packaging, and marketing, but unlike his days in new media, he no longer owns a stake in the ventures he puts together. Also, after being out of the loop for two years, Mr. Kenneally says he now scrambles to keep up with "young people who have been in the business every day since I've been gone."

But for someone who didn't have a PC in his office during his years at Rysher, Mr. Kenneally has gained a valuable understanding of the connections among content, hardware, and software. Moreover, it's likely that returning executives will infuse Hollywood with tech savvy -- and caution. He says he has a better idea of what a "200-to-300-channel universe will look like for advertisers." And in the end, Mr. Kenneally has no regrets about his experience. "It toughened me."

Also today: Check out our list of [Digital Disrupters](#), the ten companies that hope to unsettle the entertainment empire. And on Friday: [Microsoft stakes its claim in Hollywood](#) -- and your living room.

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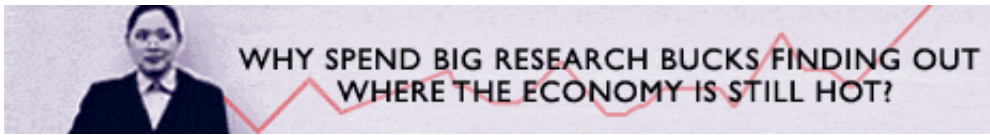
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The digital disrupters

August 31

This article is from the August 15, 2001, issue of Red Herring magazine.

Editor's note: In a series of stories appearing online this week, Red Herring is examining the state of digital entertainment. In addition to [today's feature](#) by John Geirland on the veteran Hollywood executives who ventured unsuccessfully into new-media companies, we also include our list of Digital Disrupters -- the top ten companies whose ideas or technology could unsettle the entertainment empire.

1. Advertising -- Anonymous Content

Los Angeles-based Anonymous Content has developed a bright Web-content idea. Guess what. It's advertising. The film production company, along with the Fallon ad agency, produced a [film series](#) that blends art and commerce, using Hollywood stars and directors, including Madonna and her director/husband Guy Ritchie. The five shorts feature BMW cars as much as they do stars. Founded by Steve Golin, Anonymous has a business model that breaks new programming ground and off-loads the cost of content at the same time -- to the client.

2. Television -- News Corporation (NYSE: NWS)

Rupert Murdoch has a history of disrupting business. He launched the Fox network, a challenger to the big-three TV networks in the United States. He also built the satellite broadcaster BSkyB, which is changing television in the United Kingdom. Now Mr. Murdoch hopes to acquire [General Motors's](#) (NYSE: GM) [DirectTV](#), a U.S.-based satellite TV broadcaster. DirectTV offers set-top boxes with personal-video-recorder technology, giving it an edge over cable TV companies. The only thing that may stop News Corporation is GM's asking price for DirectTV -- a reported \$5 billion.

3. Radio -- Clear Channel (NYSE: CCU)

Satellite radio looks like it's still in the dream stages. Internet-only radio stations appear moribund, and thanks to a recent U.S. Federal Communications Commission ruling and a fight with the actors guild, simulcasting terrestrial radio over the Web is suddenly much more expensive. Clear Channel is thriving in this environment, aiming to take advantage of the impending consolidation. Its revenue of \$1.6 billion for the first quarter of this year beat lead competitor [Infinity Broadcasting's](#) \$1 billion for the same period.

4. Streaming Media -- RealNetworks (Nasdaq: RNWK)

Though its flagship product, RealPlayer, is losing market share to Microsoft's Windows Media Player, RealNetworks is fighting back. The company has forged content deals with the National Basketball Association and Major League Baseball to broadcast their games. It also offers a music subscription service called MusicNet, a joint venture with the media giant [AOL Time Warner](#) (NYSE: AOL) and the record labels [Bertelsmann](#) and [EMI](#). In addition, RealNetworks's player requires less hard-disk space than Microsoft's, 500 Kb vs. 750 Kb, giving it a potential edge for portable devices.

5. Gaming -- Microsoft (Nasdaq: MSFT)

Microsoft's [Xbox](#) will be a winner. The game console, which the company promises to release this fall, offers several times the graphics power of any other console on the market, including [Sony's](#) (NYSE: SNE) PlayStation 2. Game developers, whose blockbuster games are the unit's lifeblood, are thrilled with the platform. While Xbox won't necessarily be the market share winner, its technology and developer support are good enough to put Microsoft in a lead position in this global industry, pegged at \$6 billion for the United

States alone.

6. E-Publishing -- Adobe Systems (Nasdaq: ADBE)

Adobe aims to establish its software as the publishing standard for the emerging electronic-book market. It's betting that the first generation of e-books will be read on laptops, not separate electronic tablets -- a business Microsoft and [Gemstar](#) (Nasdaq: [GMST](#)), with its eBooks, are both chasing. Adobe's software is designed to replicate the look and feel of a book, keeping the familiar pagination and page-turning functionality. In years to come, all e-books may require a separate device with a higher-definition screen, but for now, Adobe's strategy lets customers use the devices they already own.

7. Wireless -- NTT DoCoMo

NTT DoCoMo, [NTT](#)'s (NYSE: [NTT](#)) wireless subsidiary, has conquered Japan and may disrupt almost every other national market. The company says the number of Japanese who have subscribed to its i-Mode wireless Web service has topped 24 million, after launching only two years ago. In November, the company bought a stake in [AT&T Wireless](#) (NYSE: [AWE](#)) and announced that the [AT&T](#) (NYSE: [T](#)) spin-off would be the exclusive U.S. platform for DoCoMo's i-Mode service, which in early 2002 will compete with other carriers' wireless application protocol services.

8. Film -- Nothing Real

Hollywood films are rarely made without software-generated special effects. While [Discreet](#)'s Inferno is the major player in effects compositing, Nothing Real's new suite of products comes at a cost per seat of only \$75,000, compared with Inferno's \$600,000. Nothing Real introduced its Shake image-manipulation software in 1997. Shake has been used to create effects for the upcoming *Matrix: Reload* and *Lord of the Rings*. The software is coded to port easily to other platforms -- including Linux, which is gaining ground in shops like [Digital Domain](#), [Industrial Light & Magic](#), and [DreamWorks](#).

9. Digital-Rights Management -- Loudeye Technologies (Nasdaq: LOUD)

The Seattle-based audio-digital-rights specialist Loudeye recently agreed to license its digital-fingerprinting technology to [Napster](#). Loudeye's technology identifies a song by examining the audio file's wavelengths, then matching the pattern to a catalog of songs. It has deals with the five major music labels to digitally encode and store music samples, which it then packages for customers like online CD retailers. Loudeye boasts similar deals with MSN and AOL Time Warner.

10. Music -- Audiogalaxy

Which music service will be heir to the original, illegal version of Napster? Audiogalaxy looks to be it. The company, based in Austin, Texas, logs 1 million visitors each month, its numbers increasing as Napster begins filtering out illegal music files. Audiogalaxy's application, Satellite, searches its own filtered network for legal MP3s, but if needed, it can also search beyond the company's network to find any song available and download it. If Audiogalaxy can avoid running afoul of the law, it may become as popular as the old Napster.

On Friday: Microsoft stakes its claim in Hollywood -- and your living room.

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The giant that would be king

September 4

This article is from the August 15, 2001, issue of Red Herring magazine.

*Editor's note: In a series of stories appearing online this week, Red Herring is examining the state of digital entertainment. On Thursday, John Geirland wrote about veteran Hollywood executives who **ventured unsuccessfully** into new-media companies, and Jon Maples presented a list of the top companies whose ideas or technology could **upend the entertainment markets**. Today, in the final part of our series, Microsoft stakes its claim in Hollywood -- and your living room.*

On June 7, **Microsoft** (Nasdaq: **MSFT**) president and CEO Steve Ballmer was in Lisbon, Portugal, basking in the glory of a small victory. TV Cabo, a broadband television service, had successfully tested Microsoft TV, the company's interactive TV middleware. It will soon begin offering its 2 million subscribers interactive content and online shopping. Six thousand miles away, Microsoft TV's senior vice president, Jon DeVaan, was meeting with investors and technology executives in Silicon Valley, hoping to win another battle: the so-far elusive industry support for its middleware in the United States.

Meanwhile, Will Poole, vice president of Microsoft's Windows Digital Media division, has been giving Hollywood a hard sell of his own. Just days after **Viacom Entertainment Group** (NYSE: **VIA**) confirmed it had joined **Disney** (NYSE: **DIS**) in a video-on-demand partnership, he called on Hollywood's most notorious technophobe, Jonathan Dolgen, chairman of the Viacom Entertainment Group, to push Microsoft's newest media codec and rights-management software. These days, Microsoft executives are obtrusive fixtures at the Sundance Film Festival, the E3 gaming exposition, and all of the cable TV trade shows.

"They are insidious," says Chris Lutz, cofounder, president, and CEO of **Mediachase**, a broadband content developer in Los Angeles. "From my perspective, they are 100 percent on it. They are not coming at the studios saying they will be competing with them with content of their own. They are helping us find partners rather than just getting us to buy their software and development kits. They want people to perceive them as entertainment savvy."

Actually, Microsoft wants to be seen as more than just entertainment savvy. Microsoft's executives want the entertainment industry to view it as indispensable. And buoyed by its recent successful antitrust appeal, the company's aspirations are now in the open: Microsoft doesn't plan to be a typical media company. It intends to become a media company by supplying the software that will deliver all forms of entertainment to any playback device.

If successful, Microsoft will be the software platform that executives use to view digital dailies of movies they're funding, that directors use to encode demo reels, and that consumers use to watch video on demand or to listen to downloaded music.

BLANK SCREENS

Microsoft did not have an easy time getting to its current position. The company's previous media strategies were incoherent and haphazard. Five years ago, Microsoft tried to look like a studio. It invested in special effects makers, movie studios, and digital archives, often with lousy results. It started a television network, an online magazine, and a city directory. Nathan Myhrvold, the company's chief technology officer, wrote lengthy missives about the importance of editorial brands. *Wired* featured a cover story in June

1996 titled "[Microsoft morphs into a media company](#)." At the time, the magazine couldn't have been more wrong.

Now the time is right for Microsoft's new media plans. Convergence is creeping up on us. The Internet as a commercial medium is paving the way for interactive entertainment. High-speed bandwidth is in the ground, satellites are in the sky, and computing power is cheap enough to make living room devices more accessible to consumers. In 1993, [Silicon Graphics](#) (NYSE: SGI) and Time Warner launched an interactive TV trial with set-top boxes that cost \$4,000. Today, Internet-ready set-top boxes and video game consoles cost a good deal less than \$1,000. Web media players are used by 68 million PC owners. Shrewdly, and perhaps by necessity, Microsoft is prepared for this. It has all but ceased production of entertainment content, yielding the opportunity to its newest bitter enemies, companies like [AOL Time Warner](#) (NYSE: AOL). Instead, Microsoft aims to control the delivery of digital media -- from how it's encoded to how it's played.

It won't be easy. Last year, Microsoft failed to sell its interactive TV middleware to cable operator [AT&T](#) (NYSE: T), opening the door for competitor [Liberate Technologies](#) (Nasdaq: LBRT). It didn't matter that Microsoft had invested \$5 billion to help AT&T install broadband networks throughout the United States. AT&T still selected Liberate -- only to later kill its interactive TV project altogether. In total, Microsoft has spent \$11 billion on similar deals, with just a few interactive TV victories so far in relatively minor markets like Mexico, Israel, Canada, and Portugal.

Microsoft must also overcome problems at the local level -- the living room. Its [UltimateTV](#), with one of the most powerful set-top boxes on the market, is rife with problems. In April, consumers discovered a bug that mysteriously shrunk its hard drive, decreasing the amount of space available to record programs and deleting previously saved shows.

Making it worse, in the battle for control of media delivered by IP (the likely platform for on-demand and high-end interactive programming), Microsoft still lags market leader [RealNetworks](#) (Nasdaq: RNWK). Last year, usage of Microsoft's Windows Media Player rose 32 percent to 21 million users, vs. a 48 percent increase to 26 million for RealNetworks's RealPlayer, according to Jupiter Media Metrix, a research firm. In December, [Philips Electronics](#) (NYSE: PHG), [Cisco Systems](#) (Nasdaq: CSCO), [Sun Microsystems](#) (Nasdaq: SUNW), [Apple Computer](#) (Nasdaq: AAPL), [IBM](#) (NYSE: IBM), and [Kasenna](#) formed an alliance to push an open-standard application called MPEG-4, seriously threatening the proprietary dreams of both Microsoft and RealNetworks (see "[Playing for keeps](#)").

WINDOWS ON THE WORLD

But Microsoft is relentlessly executing its plan for the media business. Due to be released in late October, the Windows XP operating system is intended to be nothing short of an OS that can control every digital device that a consumer might be tempted to install or carry.

Windows XP will advance the company's "Windows everywhere" campaign. The Windows OS is the core software powering the Xbox game console, also due out this fall. UltimateTV is also powered by Windows. The Pocket PC runs on Windows CE, a scaled-down version of the Windows OS. Then there's the Windows Media Player, which, thanks to its Windows platform dominance, boasts distribution in 250 million PCs. With this player platform, Microsoft also claims the world's most widely used digital-rights-management tool. And the company's .Net initiative aims to unite it all under one tidy, connected roof. "Nobody really thinks about this the way that we do," puffs Jim Allchin, vice president of Microsoft's platforms products group and one of its senior media warriors. "This is big, big, big numbers."

And though the market numbers have yet to be seen, early displays of engineering prowess are visible. Windows Media Player's latest codec and the user interface included with the new XP OS that Mr. Poole has demonstrated to industry insiders are impressive. Playing at an encoded 500 Kbps, a particularly data-rich clip from *Gladiator* looks clean and sounds great -- even on Mr. Poole's portable system. The same clip played on the current RealPlayer looks fuzzy and primitive by comparison. With the Media Player's new codec, audio clips consuming 96 Kb of disk or streaming resources sound as good as 128-Kb MP3 clips -- a major concern for portable devices with limited processing power. "And," adds Mr. Poole, "they are secured by our rights-management tool."

These technical superiorities are cost-effective. [Intertainer](#), a streaming media service that offers Web-delivered video on demand for cable operators, cut its bandwidth usage by 33 percent with the upgraded codec, reducing its per-movie stream size from 750 Kbps to 500 Kbps. Microsoft wants to leverage that technological expertise to complete ownership of the distribution chain. Look at the streaming business. If a company wants to use Microsoft's encoding software, it also has to use the company's proprietary

streaming protocol, MMS, which, of course, works with the Windows NT OS. RealNetworks and Apple, whose QuickTime player is a minor competitor with a modest 9 percent market share, use the real-time protocol, or RTP.

Though there are others, like [SightSound](#) and [CinemaNow](#), Intertainer is the perfect model of a Microsoft media client. The startup, in Culver City, California, boasts Microsoft as a lead investor and uses Windows NT servers and Windows Digital Media rights-management software to collect payments from consumers, each of whom watches the programming, which is delivered over proprietary cable networks, with the Windows Media Player running on set-top boxes. "We want to be in the day-to-day activities of the entertainment business," says Mr. Poole.

One major obstacle, though, is open-source OS Linux, which is making inroads in the entertainment industry, initially in the hardscrabble special effects business. When founded in 1993, [Digital Domain](#), one of the largest special effects houses in Hollywood, ran entirely on a Unix-based OS. Not anymore. Offering faster, stronger, and cheaper machines, Windows NT moved in quickly, handling half of the computing workload last year, says Doug Roble, Digital Domain's director of software. This year, however, Digital Domain is adding Linux-based effects to the mix. Linux runs the same inexpensive software as NT, but interfaces much more easily with Unix. Linux now handles 10 percent of Digital Domain's workload, while NT has slipped to 40 percent. [DreamWorks](#) and [Industrial Light & Magic](#) are also testing Linux systems, says Mr. Roble, their first break from Unix.

Of course, the own-it-all strategy may pose legal trouble as well. The company's grand plans for bundling Windows Media Player with XP are similar to the earlier bundling of Internet Explorer with the Windows OS, an effort that landed Microsoft in antitrust hot water in 1998 (see "[Microsoft fights new battles in the same war](#)").

And the rest of Hollywood is responding coolly to Microsoft's ambition. Viacom's Mr. Dolgen has given the Windows Media Player technology nothing more than a lukewarm embrace. The same goes for Yair Landau, president of Sony Pictures Digital Entertainment, and Kevin Tsujihara, executive vice president of new media at [Warner Bros.](#), who are building their own Internet video-on-demand business called [Moviefly](#).

At some point Microsoft would likely collect a transaction fee, not just for the delivery of entertainment files, but also for managing the associated digital rights. But when speaking to a group of students at the Stanford University Graduate School of Business in April, Disney chairman and CEO Michael Eisner boomed: "Why should I pay 5 percent of the revenue on my movies to a company just because it has come up with a way simply to deliver my content safely? That's just too much." Adds Mr. Landau: "People are worried about depending on one company."

For now, Microsoft is following a distribution strategy similar to what it did with Internet Explorer: give away the software, hook users, and bilk them later. And Microsoft may just be able to pull it off. Microsoft does, after all, generate monthly revenue of \$1 billion and has \$30 billion cash in the bank -- \$30 billion buys a lot of market share. That's why Mr. Ballmer, in addition to trips to Portugal, has been chumming it up with media baron Rupert Murdoch. And why Mr. Poole has been courting executives like [Vivendi Universal](#) (NYSE: V) chairman Jean-Marie Messier and [EMI Recorded Music](#) senior vice president of new media Jay Samit. "Microsoft is looking at this from so many angles," says Mr. Samit. "You need software for all these devices to talk to each other, and software is what they do best."

HOLLYWOOD BILLS

The software opportunity in media distribution is indeed sweet. While [InterTrust](#) (Nasdaq: ITRU), a rights-management company, charges content owners less than 1 percent of the gross transaction value for use of its protection scheme, [Liquid Audio](#) (Nasdaq: LQID), an online music distributor, gets 15 to 25 percent of the transaction for encoding, storing, distributing, protecting, and monitoring that same content. According to PricewaterhouseCoopers, in the United States, music is a \$15 billion business, home video \$23 billion, and pay-per-view \$2.2 billion. Even a 5 percent cut of those businesses would yield \$2 billion a year in revenue. Non-U.S. revenue could triple that figure. RealNetworks, which last year generated \$242 million in revenue by distributing digital media, has gross margins of 84 percent. Half of that business, the licensing of media distribution software, has 90 percent gross margins. Sounds an awful lot like the financial performance of Microsoft.

But a victory for Microsoft is far from assured -- on several fronts. The company plans to spend more than \$4 billion during the next four years to pit its Xbox game platform against [Sony's](#) (NYSE: SNE) PlayStation2 and [Nintendo's](#) GameCube. It has already spent an estimated \$1 billion on WebTV, the core of its struggling Ultimate TV service. And, in

addition to the \$11 billion it has invested in cable and telephone companies, Microsoft is offering \$3 billion of [News Corporation's](#) (NYSE: [NWS](#)) bid to unite its global satellite assets with U.S.-based [DirecTV](#) in a \$50 billion merger.

Elsewhere, Microsoft is desperately seeding the market. It is giving away its rights-management tool, player technology, streaming services, and digital storage space to record labels, online music distributors, and movie studios. In some cases, say media executives, it even pays customers to use its technology.

Then there are upstart competitors. Jordan Greenhall, cofounder and CEO of compression scheme company [DivXNetworks](#), is hoping to have his software imbedded in chips, one-upping Microsoft's OS strategy. The only encryption stronger than one that sits on the OS -- as Microsoft's does -- is one embedded in the chip. Steve Perlman, the cofounder of WebTV Networks who now runs entertainment technology company Rearden Steel Technologies, is building a living room device with backing from AOL Time Warner, Cisco, and satellite provider EchoStar Communications. [Hewlett-Packard](#) (NYSE: [HWP](#)) and AOL Time Warner have equally grand designs for controlling the living room. As yet, there is no Intel of the living room device market.

And if the threat of Linux isn't enough, there are established companies with their fingers deep in the pie. According to Stephen McKenna, Sun Microsystems's director of media and entertainment industry sales, his company's entertainment server business has grown from \$120 million in 1995 to more than \$1 billion today. Sun's Java was recently selected as the European standard for digital broadcast video. "I don't think a large company like Sony wants to see a Microsoft system running across all of its devices," says Mr. McKenna.

Neither does any other media giant, especially AOL Time Warner. Though Moviefly executives deny it, sources close to Microsoft say that in June, AOL Time Warner issued a mandate to the service that its films be encoded for RealPlayer, not just Windows Media Player. One reason: having an in-house version of Microsoft-funded Intertainer was too close for comfort. Another: when AOL bundled RealPlayer into its version 6.0 software last year, the company's user base increased by almost 3 million. It's no surprise that the Warner Music Group partnered with RealNetworks to form [MusicNet](#), an online distribution venture in which RealNetworks has a 40 percent stake.

Despite the many challenges they face, Microsoft executives remain defiant. Ask Mr. DeVaan about the many skirmishes in which Microsoft is engaged across myriad entertainment categories, and he just shrugs. He may know something we don't: he was one of the executives who used Microsoft's Exchange software to defeat Lotus Notes, IBM's once market-leading office communications software. According to Mr. DeVaan, "It's not important to win any particular battle. It is important only that you win the war."

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