ESTHER DYSON'S MONTHLY REPORT

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Reinventing TV: Network TV Signs Off. Networked TV Logs On.

INSIDE

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BY SCOTT KIRSNER

We're delighted to introduce Scott Kirsner, a longtime observer of the IT/media industry broadly defined. He has been a contributing writer for Fast Company *and* Wired *since 1997. He also writes the weekly @large column for the* Boston Globe, *which runs each Monday and covers the tech and biotech ecosystems of New England. He has written for the* New York Times, *Salon,* Newsweek, *the* London Sunday Telegraph *and the* Columbia Journalism Review *among other publications. Last year, one of his essays was included in the book "The Good City: Writers Explore 21st Century Boston" (Beacon Press). He is now working on a book for Random House on how technology is changing film-making – and why the Hollywood establishment reflexively resists new technologies. Kirsner is a founder of the annual Nantucket Conference on Entrepreneurship and Innovation, and also of Future Forward: The New England Technology Summit.*

– Esther Dyson

"The problem with television in this country is that commercial television makes so much money doing its worst, it can't afford to do its best."

– Fred Friendly, TV journalist and former president of CBS News

Inventors are inveterate optimists, certain that the fruits of their toil will elevate society. Alexander Graham Bell imagined that his telephone would be used to pipe live classical music into the home, not as an instrument of Bart Simpson-esque pranks involving Prince Albert in a can. Tim Berners-Lee thought the World Wide Web would allow researchers in different academic centers to collaborate, reading and citing each others' work; little did he think that

{ *continued on page 2* }

bored office workers would use it to pass judgment on whether a random person's photo is hot or not.

And the man most responsible for the invention of television, Philo Farnsworth, believed that TV would wipe out illiteracy. It would create an electronic classroom capable of accommodating an infinite number of students. And by showing viewers how people lived in other parts of the world, Farnsworth felt television would probably bring an end to poverty and war, to boot.

Nearly a century later, we still have illiteracy, poverty, war – and Paris Hilton in "The Simple Life."

Television, because of its high production and distribution costs and FCC regulation, has always been the most massive of all the mass media. It seeks the middle ground, and usually finds it. The ads that accompany today's shows are made with a similar shotgun mentality: There's no such thing as one-to-one marketing on the tube. Decisions about programming are made centrally, by programming executives who rely on audience research (and ratings of existing shows) to determine which shows will attract the biggest and most desirable audience for advertisers. Any niche-oriented programming that does exist – eccentric stuff, foreign language shows, intensely local content – tends to be available only to small audiences, on obscure satellite channels or community cable access stations.

That will change over the next decade, as a growing number of television sets, PCs and mobile devices are connected to what Jeremy Allaire, the founder of Brightcove (PAGE 21), has dubbed "the Internet of video." Plugging TV into IP, rather than into a terrestrial cable system or a fleet of geosynchronous satellites, could redeem – or at least reinvigorate – the medium. The hermetically sealed world of television is about to be cracked open and rewired, transformed into an open publishing platform as a variety of new devices and services emerge to make independent video content easier – and perhaps even profitable – to produce and distribute to smaller subsets of the population. These devices and services, which will be native speakers

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of Internet Protocol, will coexist with today's modes of distributing TV content for a long time, just as cable and broadcast have coexisted for 50 years.

Note that IP TV is not WebTV redux. It is a set of Web-based software and services that allows video content stored on any server to be delivered to any device located anywhere, including the TV in the living room. The point is not to surf the Web from your TV, though consumers may choose to do so. It's also not to download video to a PC – something that millions do today. The IP TV audience will get video content delivered over the Net to the device of their choosing and anytime they want. They'll rely on Web-based directory services, program guides and utilities to establish personal preferences and to explore content marketplaces for good stuff to watch. More than that, some members of the audience will participate in the production, editing and remixing of that content.

If network TV as we know it is programmed centrally for the largest possible audience, the new medium of networked TV is programmed by you and the friends or community whose advice you trust. (It may even be programmed by marketers you trust.) On network TV, there are schedules. On networked TV, there is only your schedule. On network TV, new shows enter a broadcast lineup immediately after a hit, in the hopes of piggybacking on the more established show's audience. On networked TV, one show can be linked to another because the content is actually related – or the audiences for the two shows are similar in some way. On network TV, a new show is aired because of the presumed preferences of tens of millions of TV watchers. On networked TV, people can view content according to their *own* preferences and suggestions from editors and critics they choose.

Will channels survive, attempting to cobble together a line-up of shows that will appeal to a particular demographic? Probably. Cable channels such as SpikeT try to appeal to young men. Not everyone will want to be active in hunting for their own entertainment or subscribing to content feeds from editors they trust. There will always be a place for passively soaking in an old movie or a "Will & Grace" marathon.

Perhaps the most important difference between the two models is that on network TV, the lion's share of the content is produced and distributed by established media concerns, whose main concern is to create shows that will become popular enough to sell mass advertising around. On networked TV, anyone with a video camera, a piece of inexpensive (or free) video-editing software and an Internet connection can make and distribute content. You might videotape your daughter's high school grad-

THE BIRTH OF "VISUAL BROADCASTING"

How did we get the TV we have today?

Farnsworth was a classic venture-backed entrepreneur, obsessed with the idea of electronically capturing images and transmitting them long distances. He taught himself the physics and the skills he needed to develop television, including how to blow glass in order to produce cathode ray tubes. Later, Farnsworth's company battled David Sarnoff and RCA, a vastly larger company, to lead the commercialization of TV. (Farnsworth ultimately lost after a long stretch of legal wrangling with RCA; Sarnoff went on to launch NBC.)

Much early television programming consisted of simply "porting" live radio shows to the new medium. Similarly, early cable TV content consisted only of broadcast stations – no "Curb Your Enthusiasm" yet. Following that pattern, early IP TV, at least as deployed by the telcos, will consist of familiar cable/broadcast/satellite fare.

In the late 1920s and early '30s, television was governed by the Federal Radio Commission, which tallied fewer than 30 "visual broadcasting stations" around the country. In 1930, when a Boston station broadcast video from a CBS radio program called "The Fox Trappers," which featured a popular orchestra, the show included one of the first television ads, for I.J. Fox Furriers. The FRC fined the station; regulations at the time prohibited advertising on television. It wasn't until 1941 that the first legal commercial ran, for Bulova watches. That ad, which aired before a Brooklyn Dodgers-Philadelphia Phillies baseball game, cost Bulova all of $10.

Television became more popular and widespread as the technology improved. Color television was demonstrated in 1946, and cable TV, initially intended to help rural viewers get TV broadcasts, originated in 1948 in places such Pennsylvania and Oregon. (Often, a community antenna was erected on a mountaintop to receive clear broadcast signals from a distant city, and nearby homes were connected to it via cable.) That favorite instrument of couch potatoes, the remote control, was introduced in 1957. Marketed by Zenith, it was called the "Space Commander."

In 1962, television actually arrived in space, with the launch of TELSTAR I, the first telecommunications satellite. The first trans-Atlantic TV broadcast took place in July of that year, between the US and France. By 1975, HBO was using satellites to beat traditional broadcast stations to the punch; the cable channel delivered "The Thrilla in Manila" (Muhammad Ali vs. Joe Frazier) live from the Philippines, while broadcast networks had to wait until tapes of the fight arrived State-side by plane. In 1976, Sony introduced the Betamax video recorder to consumers, followed a year later by Matsushita's ultimately successful VHS format. "Time-shifting" had arrived.

By the 1980s, geosynchronous satellites were being lobbed skyward to deliver programming to individual consumers, first in Asia and then in Europe and the US, presenting cable television with a host of new competitors.

Television was slightly more than three decades old when in 1961 FCC chairman Newton Minow upbraided a gathering of the National Association of Broadcasters for neglecting their responsibilities to educate and inform viewers, instead flooding the public airwaves with entertainment programming. "When television is bad, nothing is worse," Minow told them. "I invite you to sit down in front of your television set when your station goes on the air and stay there without a book, magazine, newspaper, profit-and-loss sheet or rating book to distract you – and keep your eyes glued to that set until the station signs off. I can assure you that you will observe a vast wasteland.

"You will see a procession of game shows, violence, audience-participation shows, formula comedies about totally unbelievable families, blood and thunder, mayhem, violence, sadism, murder, western badmen, western good men, private eyes, gangsters, more violence and cartoons. And, endlessly, commercials — many screaming, cajoling and offending. And most of all, boredom. True, you will see a few things you will enjoy. But they will be very, very few. And if you think I exaggerate, try it."

Minow's cajoling didn't change much. The two biggest differences between TV then and TV now is that there are more channels, and most of them, instead of signing off, show late-night infomercials. The new channels that sprang up on cable and satellite systems didn't lead to a profusion of new voices and perspectives. The four major networks (NBC, CBS, ABC and Fox), along with 46 of the top 50 cable stations, are owned by just nine media conglomerates.

Thirty years after Minow's speech, in 1992, a book called "Life After Television" appeared. Written by former **Release 1.0** contributor George Gilder, it predicted a merger between the television and the networked computer. (Gilder dubbed this chimera the "teleputer," and his description of it isn't too different from today's first-generation IP TV devices.) Like Farnsworth and Minow before him, Gilder understood America's ineluctable attraction to

THE BIRTH OF "VISUAL BROADCASTING" *(CONT.)*

television – and hoped that something better would come of it. "TV defies the most obvious fact about its customers – their prodigal and efflorescent diversity," Gilder wrote. "People have little in common except their prurient interests and morbid fears and anxieties." Elsewhere in the book, he wrote, "Television is a tool of tyrants. Its overthrow will be a major force for freedom and individuality, culture and morality. That overthrow is at hand."

As it turns out, Gilder jumped the gun a bit. True, once the Web gained wide adoption later in the 1990s, it did begin to steal time from television. (By 2004, a study from USC's Annenberg School found that Internet users watch about 4.6 fewer hours of television per week than non-users.) But while the Internet made textual information more easily accessible than ever and emerged quickly as an alternative (or companion) to traditional print publications, audio and video content was still largely the province of big media concerns. Even in 2005, only 27 percent of US Internet users report that they download music *or* video files, according to the Pew Internet & American Life Project.

Only a tiny fraction of that number create their own audio or video for distribution over the Net. That's starting to change for audio, with the creation of easy-to-use podcasting tools from companies such as Blogmatrix and Odeo. (SEE **RELEASE 1.0**, DECEMBER 2004.) Video's next, and that could bring the hopeful visions of Farnsworth, Minow and Gilder much closer to reality.

uation ceremony and "publish" it so that distant relatives (your own and those of other graduates) could watch; similarly, synagogues, amateur sports leagues, and adult education centers could distribute their own live or recorded video content – and get paid for it, if they choose.

Just as desktop publishing software and the Internet gave everyone the means to publish text and photos and distribute them widely, networked TV will make it possible for non-moguls to create, publish and distribute their own high-quality video programming to the best device for watching it: the TV. Of course, this profusion of video content will include some of the worst material ever seen on TV – shows that are boring, offensive and stupid enough to make "Wayne's World" resemble "Masterpiece Theatre." But despite that, there *will* be stuff worth watching, just as today there are excellent websites and blogs such as The Smoking Gun, Gizmodo, and Ain't It Cool News, that might never have existed as print magazines or newsletters.

When Allaire uses the phrase "the Internet of video," he's envisioning a medium as different from television today as the Web was from CD-ROMs. (Yes, 600 megabytes on a silver disc was a lot of data, and yes, those hyperlinks were wonderful.) The amount of video available on the network will expand exponentially. Lots of people who have never produced video before will produce lots of unexpected content. (Have you seen the Numa Numa dance clip yet?) Viewers will be able to find things that they would never have thought to seek out. And, as with the shift from CD-ROMs to the Web, it will take a few years to sort out how content creators get paid and how marketers get their messages heard.

The medium of television is about to enter an era of experimentation and transformation unlike any period since the two decades after Farnsworth invented it in 1927. It will emerge as an even more pervasive medium than it is today, colonizing cell phones and handheld devices and laptops and PCs at work while retaining its stronghold on TV screens throughout the home.

Networked TV may not achieve Farnsworth's dream of eradicating illiteracy and war. But it will make available a range of programming, on request, that would have been unfathomable to the farm boy from Idaho who invented television. And that could very well wind up enhancing TV's positive value as a medium for self-expression, community-building and even education.

Market Forces and Business Models

IP TV is already here, in a small way. There are videoblogs on the Web. There's a burgeoning illicit trade in popular TV shows over BitTorrent, a peer-to-peer file-sharing protocol. There are short films and instructional videos that can be downloaded in a variety of file formats. But IP TV won't have a major impact on content producers and advertisers until it arrives in living rooms, in an easy-to-use package. It's spreading now and gaining impact as more people adopt broadband and become comfortable with the tools. . .and enjoy the results.

IP TV is being nudged forward today by three forces. First is telcos who must compete with cable operators that now offer data, video and calling services. Regional Bell Operating Companies such as SBC Communications and Verizon have made IP television a top priority. Over the next three years, SBC will invest $4 billion to build a fiber optic network capable of carrying video, and another $1 billion to acquire customers. Second is Microsoft, which sees a new generation of media-management hardware – set-top boxes, video-friendly PCs and the like – on the horizon and wants its operating system to be essential to them. Third are start-ups such as Akimbo Systems, 2Wire, ICTV and Brightcove, and public companies such as TiVo, who have a clear sense of how they would like television to evolve and the venture capital and business motivation to get there.

Thus far, the missing force is the consumer, many of whom don't realize they want a television experience different from the one they get today. (A recent *Washington Post* column bore the apt headline, "Internet TV Age is Dawning, But Who Will

Watch?") Their appetite for narrowly targeted and niche-oriented video content has yet to be whetted. They have never heard of the "long tail," the term coined by *Wired* magazine editor Chris Anderson to describe the enormous but fragmented market for niche products and services (the term derives from the "long tail" at the left of a power-law graph). But as evidenced by the rapid adoption of digital video recorders such as TiVo, consumers do want to exert more control over their viewing experience. Online, some do seek out short films and video snippets from companies such as ifilm and RealNetworks, and they share video clips with friends through services such as BitTorrent and Kazaa. But one of the biggest tasks facing the proponents of IP TV will to entice consumers into a new television experience.

At the moment, that's a fairly complicated task. First, consumers need some sort of Internet-ready device (or worse, a combination of devices!) to get high-quality video onto a TV set. The hardware may be a PC running Microsoft Media Center, or a more specialized, less expensive piece of gear such as a TiVo PVR, the Akimbo Player, XTV box or the 2Wire MediaPortal. These devices have on-board hard-drives for stashing content. Traditional cable and satellite boxes might also eventually be linked to the IP network, but without hard drives, they will have to rely on content that is stored and streamed from servers. None of these devices is designed to facilitate burning IP TV content onto DVDs easily.

Next, consumers need to find the available video content. Again, there are parallels to the early Internet, including experimentation with a wide variety of models. Content marketplaces (similar to early portals) aggregate video content from various sources, either by generating it themselves, licensing it from partners, or by offering up (or selling) storage space and content-serving capacity to grassroots content producers. Some early marketplaces are "walled gardens," available only on a particular device and associated service. Others plan to be device-agnostic and more open, with "featured content" plus an open gateway to the long-tail content that will be available around the Net. Some may be designed to appeal to broad audiences, while others may be geared to extremely narrow interests.

In parallel, producers of content need to develop new expertise around identifying and understanding these micro-audiences and producing high-quality video on low budgets. Some members of the micro-audience *themselves* will produce content as well. . .though not every viewer of IP TV content will also be a producer, just as today not every Web user has a blog or site. Traditional media can be expected to try to retain its grip on mass audiences, producing the big-budget shows, movies and mini-series with the hottest actors, and then throwing millions behind market-

ing. They'll want content marketplaces and services to offer adequate digital rights management technology to protect their content from piracy and over-generous sharing as well.

As for the marketplaces, they may charge viewers on a pay-per-view or a subscription basis, and then share some of that revenue with the content creator. Alternatively, a marketplace may choose offer the content for free, generating revenues by inserting ads into the content (and perhaps sharing some of that revenue with the creator), or perhaps charging content producers a hosting fee. Finally, content marketplaces may sell DVD versions of content that consumers wish to have in their library.

While the aggregators try to garner the largest potential *customer base* by collecting as much exclusive content as possible, the creator – a large media concern, a professional niche publisher or a university recording an annual symposium on Kant – is looking for the largest potential *audience*. Therefore, most profit-driven creators likely will place their content on several competing content marketplaces, while a mother publishing a video of her daughter's first steps may place it on just one convenient marketplace, the way she'd use Ofoto.com today.

The videos are then delivered to the end-user, often relying on content distribution networks such as Akamai, Kontiki, VitalStream and Limelight Networks to speed the delivery of video files to viewers. Depending on the hardware the viewer is using, the content may be streamed to a set-top box for immediate viewing or stored for later.

Video overkill

For their part, viewers can actively seek out content from marketplaces or subscribe to feeds that automatically deliver content to their set-top box, i.e., "Send me all videos posted by my daughter and son-in-law," or "Send me all shows about snowboarding." To help viewers filter through the dreck and find IP TV's gems, recommendation engines will be crucial, as will "semi-pro" critics (some might be friends, colleagues or family members) who publish lists of the programming worth seeing, some of it in specific topical areas.

To sort through all this content, users will need as-yet unavailable tagging and video-indexing technology. Juan will want to click instantly to the part of a video where little Alice smashes a piece of birthday cake onto her own face, or where the neighborhood restaurant critic talks about the desserts at the new bistro around the corner, or where the Home Depot handyman (sponsored by – who else?) explains how to

remove an old garbage disposal. Aggregation tools may even assemble custom shows (a half-hour of news from parts of the world you care about, or an hour-long travelogue focusing on the best barbecue joints in Kansas City) based on your interests.

But we're getting ahead of ourselves. IP TV is still in its very early stages, and the all the players are experimenting with various models and approaches. As the market develops, new schemes and opportunities will emerge for advertising and commerce to support all this new content, which will threaten established channels by soaking up people's time. Will ABC be smart enough to sign up all the most promising new content creators, or will a new entrant play that role, a la Amazon, eBay and NetFlix? The content marketplaces will exist alongside today's model of linear channels, but they'll also destabilize them in unpredictable ways.

In the meantime, measurement firms will need to innovate ways to gauge who's viewing a video, how much of it they're viewing, and what device they're viewing it on. More importantly, they will track those individuals' behavior afterwards, to know the effect of the video. Is a video worth more to an advertiser viewed full-screen on a living room TV versus a PDA? How about on a cell phone? Advertisers and media buyers are today accustomed to lobbing out a small number of ads in a small number of shows that reach a large audience. They'll need to readjust to a world where ads must be crafted on the fly, by software that understands the context of the show in which they're airing (and perhaps even some of the characteristics of the viewer), and media buys can be done in an intelligent, automated way.

In short, in the world of IP TV advertising becomes more and more like direct marketing, something that marketers (mostly) know how to do. But traditional content producers don't really know how to do the equivalent – call it direct content. That may be the province of little guys.

Devices and Services

Until television sets learn to speak fluent IP, they'll need companion devices to store and organize content from the Internet of video, and feed it to the set in a language it understands. Microsoft imagines that the device will be – of course – a PC; others think it'll be a stripped-down set-top box on loan from a cable, telephone or satellite company that requests content from a server elsewhere; still others envision a specialized device with its own on-board hard-drive, made by a company such as TiVo

(PAGE 13), Akimbo Systems (PAGE 16) or DAVE Networks. Content owners worried about copyright and DRM might be most comfortable with the middle option, as the stripped-down set-top box would receive content as a stream and would not be capable of storing much content.

Inevitably, one of the fastest growing IP TV platforms is XTV, a dedicated set-top box/service package for adult entertainment. "The adult entertainment industry has always been the earliest adopter of every new medium, from nickelodeons to VCR's to the present," says Gary Lauder, managing director of Lauder Partners, a VC firm that specializes in television-related technology.

As they do today, the majority of consumers will rely on the device doled out by the cable or satellite company for bringing video content into their homes. Those devices will be the slowest to deliver the full range of networked TV offerings – why offer customers a service that threatens your core business? But a smaller population of true content hounds who want to find or publish or share obscure stuff will gravitate to the specialized devices, which for reasons of competitive differentiation will be quicker to make available the exploding universe of video content.

Telcos such as Verizon and SBC, the green-field entrants in the world of video, will initially launch their IP TV services by trying to ape the line-ups of cable and satellite. But they're already aware of the merits of niche content, and they'll move quickly in that direction. As Jeff Weber, VP of product and strategy for IP at SBC, puts it, "You may not spend 50 percent of your time watching curling competitions or Polish-language programming, but it will have a disproportionate effect on your [communications services] buying decision. If you can get that at SBC and not anywhere else, that will be a differentiator."

Some IP TV service providers won't give viewers access, initially, to the entire universe of video content – just as early online services from eWorld to AOL to AT&T Interchange were slow to provide access to the whole wide Web. But eventually consumers will demand openness, and the operators will have no choice but to comply.

Microsoft: Placing two bets

Not surprisingly, in Redmond, networked TV is seen as creating a new opportunity to shoehorn an additional copy of the Windows operating system into the home.

Microsoft is placing two different bets on how networked TV will evolve; but unlike laying down $100 on black and $100 on red, here both could pay off.

Bet number one is on software for PCs: Microsoft Windows XP Media Center Edition, an extraordinarily long name for a version of Windows XP that turns a high-end PC into a media trove. Media Center aims to organize not just television and video content, but photos and music, too. The PC running Media Center can be connected directly to a television and operated via remote control – the on-screen interface is one of the simplest Microsoft has ever designed. (Users can also wirelessly link the Media Center PC to other television sets in the home using an add-on device named the Media Center Extender; there's an Extender built into the recently-unveiled Xbox 360 gaming console.)

MICROSOFT INFO

Headquarters: Redmond, WA
Founded: 1975
Employees: 57,000
Funding: public (MSFT); market cap of $275 billion
Key metric: more than two million copies of Microsoft Windows XP Media Center Edition shipped as of April
URL: www.microsoft.com/windowsxp/mediacenter

Bet number two is on software for set-top boxes: Microsoft TV (not to be confused with MSN TV, a device designed for simplified Web surfing on a TV screen, and originally known as WebTV). Microsoft TV is an operating system for set-top boxes made by companies such as Motorola and Thomson/RCA and deployed by cable operators or telcos now rolling out IP television offerings. (Verizon, launching its fiber optic service (FiOS) IP television service later this year, is a key Microsoft TV customer.) Unlike Microsoft Media Center, which requires a PC, Microsoft TV is designed to run on set-top boxes that are less expensive than PCs but lack a hard drive for storage.

For Microsoft, the more interesting strategic opportunity is Microsoft TV, colonizing the set-top box and developing tight bonds with telcos and cable operators, though selling more copies of the full Windows XP Media Center operating system undoubtedly carries better margins.

Joe Belfiore is the general manager of Microsoft's Windows eHome division, and as such he oversees bet number one – Windows XP Media Center Edition. "We want to create a totally open platform," he says. "We want it to be the world's best platform for creating remote control-driven applications." Media Center has its own software development kit to encourage coders to create applications that make it more useful. An enthusiast site, TheGreenButton.com, has already sprung up as a place to download third-party tools for everything from managing a NetFlix queue on the Media Center, to transferring recorded shows to a PocketPC handheld, to using the Media Center for home automation.

Media Center offers an elegant way of navigating standard TV content, giving users access to metadata from All Media Guide, a Michigan-based company, to filter through and sort two weeks of program data. For instance, say "The Hunt for Red October" is playing in a few days. If the viewer clicks Sean Connery's name she can see other movies he has appeared in and record them if they're showing sometime in the next two weeks. If not, the viewer can buy the movie as a download from a firm such as Movielink or CinemaNow, or eventually as a DVD from Amazon.com. The viewer can also instruct Media Center to "record in future," and the PC will record that movie if it ever airs.

Any video from the Web, however, is ghetto-ized in a separate area from broadcast content called "Online Spotlight." Online Spotlight consists of content from Microsoft partners: movies from CinemaNow or Movielink, tunes from the new Napster, sports video from ESPN and music videos from AOL Music on Demand. It may sound like a walled garden, but of the three IP TV services tied to devices, so far Microsoft is the most open. Small content providers can sneak into the Spotlight by publishing their videos as enclosures to RSS feeds, since the NewsGator RSS reader is part of the Spotlight area.

Belfiore says that he personally uses Media Center mostly to record "Lost" and "The West Wing," and he believes that popular shows like those will still make up the bulk of what viewers want to see. "A huge chunk of people will get a lot of their content from the front end of the long tail, not the back end of it," Belfiore says.

That may be true for now, but it will change when the two types of content are blended – tagged and indexed in the same way, and searchable with a single query. Consumers looking for long-tail content that matters to them don't care that it's not popular – but they need to be able to find it.

As for Microsoft TV, so far Microsoft has had the best luck with telcos such as BellSouth, Bell Canada and Telecom Italia, including a $400-million, 10-year partnership with SBC Communications announced last November. Commercial roll-out of SBC's IP TV service begins later this year. Customizable channel line-ups – rather than pre-fab bundles set by a cable operator – are one feature that could help SBC differentiate its IP TV from cable and satellite, but SBC won't immediately take advantage of that feature because of the complexities of negotiating contracts with large media prociders. (Rigid contracts with media companies have long made it difficult for cable operators and others to offer customizable line-ups.)

Once Microsoft TV is rolled out, though, it will be up to the operators – the SBCs and BellSouths – to determine how much long-tail content they want to store on their servers. (Unlike today's cable video-on-demand services, most of which are housed on expensive proprietary servers, Microsoft TV relies on commodity boxes running Windows.) "In order for operators to be able to monetize content, and for content to be worth keeping on a server, there's an audience sweet spot," says Chris Wimmer, a product marketing manager at Microsoft TV. "A hundred viewers for a piece of content might make sense – but not five [viewers]." Those economics will change as storage costs continue to decline or as new business models take hold. And there will undoubtedly be ways for IP TV operators to build gateways from their services to smaller content marketplaces, which may be willing to host videos that are of interest to an extremely tiny audience, perhaps for a fee.

Microsoft has been persistently trying to edge into the TV business since the 1990s, when it started working on set-top boxes for General Instrument (now part Motorola) and TCI, the cable operator eventually swallowed (and later spit out) by AT&T. That deal disintegrated, but Microsoft's persistence – rooted in the company's insatiable hunger for revenue growth – may yield results down the road with its two new TV bets. However, whether Microsoft understands the attractiveness of long-tail content remains to be seen.

TiVo: Opening the PVR to IP TV

The atmosphere at TiVo in 2005 feels a bit like the inside of the locker-room of a team that hasn't won the championship for a few years. There's a willingness to try anything to climb to the top of the league again. Threatened by cable and satellite providers who now offer non-TiVo brand digital recorders, the company is adding features and introducing new strategies on what seems to be a monthly basis, scrambling to regain its lead. There's the digital media hub strategy, persuading consumers to use their TiVo to store music and digital pics; TiVoToGo, which allows shows to be transferred to a laptop; "fast forward tags" that try to call attention to ads that are being skipped by the viewer; a software development kit published in January; and now, a tentative tilt toward IP TV.

Wisk says that about 300,000 of the one million TiVo standalone devices sold (i.e., those sold by the company, rather than by a cable or satellite partner) are connected to a broadband network. "There aren't many companies with a broadband-enabled box in the living room today," Wisk points out. Others include Windows Media

Center PCs and set-top boxes from Akimbo (below), neither of which have been adopted in great numbers (so far!).

TiVo's IP TV plan, dubbed "Tahiti," is to give viewers access to traditional television and long-tail content in one box, says chief marketing officer Matt Wisk. "Do you really want to toggle back and forth between cable and Akimbo or another networked set-top box?" Wisk he asks. "Part of our success is carving a path of least resistance for consumers to their favorite entertainment."

"Tahiti frees the consumer from the constraints of limited shelf space and distribution," TiVo CEO Mike Ramsay told an audience at the Consumer Electronics Show in January. The company has broad ambitions, hoping to offer everything from live feeds from a Ukranian newscast to content distributed from niche content marketplaces to Web-based video archives to content it licenses on its own. "If customers are intrigued by this paradigm, I believe Internet television will replace broadcast TV," predicts Ramsay.

TIVO INFO

Headquarters: Alviso, CA
Founded: August 1997
Employees: 343
Funding: Publicly-held
Key metric: 3 million TiVo devices sold, as of February 2005 (an 80-hour TiVo costs about $269, and the monthly TiVo service charge is $12.95, or $299 for the lifetime of the product)
URL: www.tivo.com

As an early indicator of what is possible, there have been rumors of talks between TiVo and both Yahoo! and Google to implement a system in which a user could to search for a video using a Web browser on a PC, have it delivered over the Internet to a TiVo device at home, and then watch it on TV. Internet TV indeed!

So far, TiVo has official partnerships with NetFlix (announced last year but not yet launched) and the more interesting Open Media Network (announced in April), a non-profit content marketplace built atop a grid-based content delivery system from Kontiki and founded by Kontiki CEO Mike Homer, a former senior VP of marketing at Netscape. Netscape founder Marc Andreessen is also involved with the project.

The central goal of OMN is give nonprofit public broadcasters a mechanism to distribute their content over IP in order to reach a wider audience. "Our purpose was essentially to bring public television into the digital age," Homer says. A secondary goal is to show off Kontiki's grid delivery technology, which Homer describes as "a legal version of BitTorrent, but more advanced."

In addition to public broadcasters, other producers of videos will be allowed publish video content to OMN servers for free – as long as they attest that they have distribution rights to the videos they upload. (We imagine that OMN eventually will have

to start charging at least a nominal fee for hosting.) Producers can give their content away for free or charge for it (a future version of OMN will include an e-commerce engine). The site also fully supports Creative Commons licensing. (Obscene or violent content will be nixed, however.)

When content creators submit videos to OMN, they'll be able to include descriptions and tags. OMN will then ensure that the videos can be found when users conduct searches on Yahoo!, Google and Singingfish, a search site for audio and video.

Open Media Network will use the TiVo software development kit to build a system in which users can send individual videos or video series from the OMN website to their TiVo box automatically. "That builds a dialogue between the viewer and the producer," Homer says. Whereas today the relationship between the viewer and the producer is mitigated by a broadcast or cable network, OMN users would have a more direct line to their favorite content creators, who in turn would be able to maintain a relationship over time with viewers. Imagine subscribing to every new show produced by your favorite PBS documentarians or the show "Hawaii Cooks," produced by the PBS member station in Honolulu. In the future, feedback from loyal audiences could drive the direction of a show, or the creation of spin-offs.

And because TiVo has already developed a relationship with each end-user and has a rich profile of the shows a viewer enjoys watching, the company is in an ideal position to provider content-recommendation, ad-targeting and other personal services around IP TV. This is the sort of activity-monitoring and profiling that causes such an uproar from privacy advocates on the Web. (SEE **RELEASE 1.0**, APRIL 2004.)

Content published on Open Media Network will be viewable on a variety of devices, from the PC to the cell phone to the PDA, Homer says. But the connection to TiVo is important – not because of the still-small number of broadband-linked TiVo boxes, but because TiVo is one of the first IP-fluent set-top boxes that can take content from the Net and display it on Farnsworth's invention.

New services such as Open Media Network could help TiVo grab hold of the long tail, giving consumers a new reason to purchase a TiVo-branded box and subscription service instead of accepting the generic PVR offered by their cable provider. "If we can help other people be successful and build services on the TiVo platform, we think we can be successful," Wisk says.

In other words, perhaps Kontiki can help transport TiVo to Tahiti.

Akimbo Systems: A high-wire act

Josh Goldman joined Akimbo Systems as CEO in 2002, when the company raised its third round of venture capital.

Goldman says that so far, the most important decision he has made as chief executive was to position the company as an ally of content owners, rather than as a rebel. Goldman took a similar approach with his last company, the comparison shopping service mySimon, and found an eager market of online merchants looking for an e-commerce aggregator that treated them as partners, not competitors.

Akimbo's founder, Steve Shannon, had previously helped to start ReplayTV, an early DVR company that antagonized producers of TV and cable shows by enabling easy ad-skipping and show-swapping over the Net. "Silicon Valley is littered with the remains of companies that were going to be rebels and change the world," Goldman says. Instead, Akimbo is building an early IP TV content marketplace, lining up alongside content owners to help them wring revenue from their video archives. Already, Akimbo's partners include A&E, the Food Network, Biography, National Geographic, Turner Classic Movies and the BBC.

Akimbo is also the first IP TV content marketplace to dive head-first into the sort of niche content that isn't readily available on today's cable or satellite systems, offering a dizzying variety of content for $9.99 per month. Goldman has dubbed what the Akimbo service delivers IP video-on-demand, or IPVOD. It licenses and distributes shows from small content producers and aggregators (including TotalVid, page 19) in Turkish and Korean, flamenco dance lessons, educational shows for parents who home-school their children, golf clinics, Wine TV, the Baby Channel, yoga courses, and adult videos from six different providers. While there isn't yet content from individuals and non-traditional media producers, Goldman believes that will happen eventually – though at the moment there is no way for Akimbo users to get access to content outside the Akimbo menu of content choices.

Videos are downloaded from Akimbo's servers to the viewer's Akimbo player. Short segments begin playing just a few seconds after they've been requested; others may take a few minutes. Episodic content can be downloaded automatically to the Akimbo Player on a daily or weekly basis and stored for later viewing. Some of the content on Akimbo is supported by advertising, though none of it is especially targeted at this point. For instance, before a CNN segment featuring Lou Dobbs discussing Social Security reform, there's a traditional 30-second spot for the Cadillac

STS. (Cadillac has a relationship with Turner Broadcasting, the owner of CNN, and Turner retains the advertising revenue.)

But beyond its content aggregation service, the company is attempting a risky high-wire act. The company is selling the Akimbo Player, an Internet-ready media recording device with an 80-gigabyte hard drive. Note that the Akimbo Player is not a PVR – it can't record TV content; you need a separate PVR to do that. And if the PVR isn't built into a cable or satellite tuner, that's three separate boxes hooked together with a rat's nest of cables. Goldman acknowledges that "ultimately, all those things belong in one box," but for now, consumers will have to invest in and wrangle with multiple devices, each of which may be accompanied by its own monthly service fee (cable subscription, PVR service, Akimbo service). With TiVo already struggling to keep a competitive edge with its hardware that *does* include a PVR, Akimbo will have a tough time making its hardware play work.

AKIMBO SYSTEMS INFO

Headquarters: San Mateo, CA
Founded: August 2002
Employees: 46
Funding: $16 million from Draper Fisher Jurvetson, Sprout Group, Kleiner Perkins Caufield & Byers and Zone Group
Key metric: Akimbo Player costs $229; service costs $9.99 per month or $169 for a lifetime subscription
URL: www.akimbo.com

Today, the company is selling a Player-plus-content package directly to its own customer base. But the company is also trying to bring its licensed content (unhitched from the Akimbo Player) to other devices, such as Windows Media Center-enabled PCs. (Akimbo programs will begin appearing in Online Spotlight later this year.) Goldman says he has also been having conversations with telcos and makers of Internet-ready game consoles and DVD players about integrating the Akimbo service.

(An Atlanta-based company, DAVE Networks, has a similar plan to Akimbo, but founder Ken Lipscomb hasn't yet announced financing, content partners, or the availability date for DAVE's set-top box.)

The company hasn't disclosed how many Akimbo Players have been sold, but Goldman says that Christmas 2005 will be the company's first sustained marketing push. "TiVo has the advantage of an installed base – which obviously I covet – but we had the advantage of the clean sheet of paper," Goldman says. He points out that the Akimbo Player can store 200 hours of video (an 80-gigabyte TiVo can store only about 80 hours at the lowest video quality) since Akimbo uses a more advanced compression format.

Like early cable companies, Akimbo will have to aggregate enough interesting long-tail content to persuade consumers to invest in the Akimbo Player. So far, the com-

pany has dedicated more energy and resources to signing content partners than marketing its device and service. Unlike TiVo, whose brand is regularly used as a verb ("What shows do you TiVo?"), Akimbo hasn't gained the attention of consumers yet, save for the early-adopters. Unless the Akimbo Player catches fire in the marketplace this holiday season, we expect the company to adopt a simpler strategy, abandon its plan to sell low-margin boxes, and become a pure content marketplace.

That wouldn't be a disaster, as far as Goldman is concerned. "We've found that we need to be in the box business at least for now, to show this works and to attract partners and consumers," he says. "Ultimately, we may well be out of the box business, as partners start building what we do into their platforms and devices."

New Content Marketplaces

As we outline above, some IP TV content marketplaces will be narrowly-focused specialty stores – a well-selected trove of videos of interest to avid birders, for example. Others will be sprawling bazaars (a la eBay) that welcome corporate producers of content alongside individuals. Content marketplaces will host videos, develop easy ways for users to find videos of interest, and be responsible for revenue-collection, whether it involves placing ads in a video or charging some sort of usage fee. Apple's iTunes Music Store is the model most frequently referred to among the developers of content marketplaces: keep the user's credit card on file and make it easy to purchase content on a whim.

(Plenty of video content – much of it free - will live outside of content marketplaces. An individual who wants to publish a video feed will be able to connect directly with his audience using RSS. But being part of a content marketplace would afford greater exposure – like the Yellow Pages of IP TV – and perhaps allow him to generate revenue.)

Some already well-established companies are trying to create marketplaces for video content. Yahoo! and Google intend to be significant players, and Apple recently upgraded its iTunes Music Store to allow it to handle QuickTime videos, but without explicitly announcing its strategy. RealNetworks since 2000 has offered SuperPass, a content service that includes video; subscribers pay $12.99 a month to watch CNN, the Weather Channel and ABC News on their PCs.

But today's nascent video content marketplaces are focused primarily on users who will watch short video clips on their desktop. That's where the audience is, explains Karim Meghji, VP of media properties and video services at Seattle-based Real. "How and when to get onto the television set is a discussion and a debate that echoes through the hallways here," he says. But right now, the content available on SuperPass can't be seen on the living room tube or on a mobile device. "Younger kids seem to find the computer a comfortable place to be, but we know we have to get this content to big screens," he says.

The coming generation of content marketplaces will deliver video to screens large and small, fixed and portable, and will offer content beyond just repackaged broadcast or cable television shows.

TotalVid: Video for aficionados, a la carte

Karl Quist is an avid windsurfer. His TiVo is programmed so that any show that has the word "windsurfing" in the description will be recorded automatically. "Every week, I hope that something will show up," says Quist, general manager of TotalVid, a start-up within the Norfolk, VA-based media company, Landmark Communications, which is best known for The Weather Channel. "The best I get is something from the Travel Channel on Aruba, with a two-minute bit on learning to windsurf. Obviously, it's not something I care about as an advanced windsurfer."

TotalVid is one of several companies that are beginning to compile the sort of video library that may be a big part of future television viewing habits. Quist began by licensing content that isn't readily available at video rental shops, or even on specialized cable channels – films about skateboarding, BMX bike racing, snowboarding and windsurfing. "The only way to get most of these videos," Quist explains, "is to buy them at your local bike or surf shop, or buy them online. But these videos retail for between $20 and $40. A lot of times, they sell for more than your typical Hollywood release."

TotalVid rents videos for fees ranging from $1.99 to $3.99. Customers can watch the videos, stored in the Windows Media Video format, an unlimited number of times on a PC, or on a television connected to a PC using technology such as Windows Media Center. (TotalVid also has a distribution arrangement with Akimbo, but Quist says that "the amount of revenue we generate is quite small on Akimbo, compared to what we sell directly.") While Landmark doesn't break out revenues for TotalVid, Quist says that the service's revenues recently have been growing 50 per-

cent month-to-month since its launch on New Year's Eve 2003, and that 25 percent of his customers are repeat users. There's also an Amazon-style affiliate program, offering kickbacks to sites that direct new customers to TotalVid.

Quist believes that viewers will always find a package of bundled content offered for a fixed subscription fee convenient. In fact, a TotalVid subscription service in the $5-to-$7 per month range is in the works. But he thinks that in addition to bundles, viewers will also "gravitate toward the content that explicitly matches what they're interested in" and that they might be willing to pay for a la carte. A windsurfing enthusiast like Quist could conceivably buy a few videos a month (which would affect traditional TV viewing, business at the neighborhood rental shop, and possibly NetFlix subscriptions). "We find that our customers are happy to pay, because they can't get this stuff anywhere else," Quist says. "Over 95 percent of them have never paid for video online before they came to TotalVid."

Since the cost of delivering video is equal to the cost of producing the video itself plus the cost of bandwidth (an hour of video encoded at about 700 kbps, Quist reckons, costs in the neighborhood of 15 to 25 cents to deliver), marketers might one day offer sponsored content for free: a collection of home-improvement workshops conducted by Home Depot employees, or a Gucci fashion show filmed in Paris last week. Sponsors might pay a content marketplace such as TotalVid (or a video-on-demand provider such as Comcast or Time Warner) for "shelf space" in order to get access to a large audience.

TOTALVID INFO

Headquarters: Norfolk, VA
Founded: July 2003
Employees: 10
Funding: subsidiary of Landmark Communications, a broadcasting and publishing conglomerate
Key metric: over 95 percent of customers had never paid for video online before
URL: www.totalvid.com

Quist thinks cable companies could be slow to provide their subscribers with access to these smaller, niche-oriented content aggregators such as TotalVid, instead offering a limited amount of "walled-garden" video-on-demand content. But as happened with PVRs, if consumers start buying services to get access to outside content, the cable operators will eventually capitulate. Recent evidence shows he may be right. TotalVid recently finalized a deal with Comcast in which the cable operator's broadband Internet subscribers can download one free video per month from the TotalVid library, beginning this summer. That deal allows TotalVid to reach a larger audience, but it's still unclear whether Comcast intends to build a walled garden or a truly open IP TV environment.

Because the cost of carrying a given video title is relatively low, the company welcomes all publishers – even those beyond niche sports: "If you're a producer, and

you've got video, you're welcome to come into our marketplace," Quist says. If other content marketplaces follow suit, those lower barriers to distribution (versus trying to get a video aired on a cable or network channel), and lower costs of distribution (versus creating a DVD or videotape), will encourage an explosion of video content available, from professionals and amateurs alike. "You can imagine people carving up content they already have, or producing stuff especially for this – especially instructional and how-to content," Quist says. In other words, the Swiss chef who teaches a great hour-long course on making raclette at the cooking school around the corner is no longer a local treasure. Her video may be for sale on TotalVid.

TV as a more enriching, educational medium? It would have warmed Philo Farnsworth's heart.

Brightcove: Content producer, meet your audience

Jeremy Allaire is an entrepreneur who believes in frugality. Before showing a prototype of Brightcove's content marketplace, he mentions that he purchased the company's 50-inch plasma screen for a song from Craigslist, driving out to a suburb of Boston to pick it up himself. Allaire also boasts about the company's cheap office space in Kendall Square, next to MIT.

Before starting Brightcove (SEE **RELEASE 1.0**, MARCH 2005), Allaire spent just over a year as the entrepreneur-in-residence at General Catalyst, a Cambridge, MA-based venture capital firm. He had landed there directly from Macromedia, the company that purchased Allaire Corporation, the pioneering Web development tools company that Jeremy founded with his brother JJ, and later took public.

The opportunity Allaire fixated on during his tenure at General Catalyst was to allow "any publisher to offer monetized video products," he says. "There was nothing out there that was designed purely to be a marketplace for commercial video on the Internet. I saw the need for something that would offer the selling infrastructure, the marketing infrastructure, and a good user experience." Brightcove, as Allaire envisioned it, would allow content producers and video rights holders to have a direct relationship with the viewer, rather than dealing with intermediaries such as cable stations, distributors, or retail stores (in the case of DVD sales.) The video producers are out there – Brightcove is working with over a dozen now in its beta period. The company's biggest challenge will be to build an audience to watch all those videos.

On his second-hand plasma TV, Allaire demonstrates how the Brightcove service would operate for the owner of a PC running Windows Media Center. The Brightcove service pops up in the Online Spotlight section. Allaire orders up some snowboarding videos, and then a travelogue. "The content owners can decide how much each video costs and how a subscription package would work," he explains. Brightcove takes a cut of every transaction. Allaire says that storage and bandwidth costs are low enough that a content owner might profitably charge 99 cents for a 30-minute program – the magical iTunes price point. Like Akimbo and TotalVid, Brightcove will offer viewers a choice of monthly subscriptions and pay-by-the-drink programming.

BRIGHTCOVE INFO

Headquarters: Cambridge, MA
Founded: Spring 2004
Employees: 22
Funding: $5.5 million from General Catalyst, Accel Partners and angels
Key metric: Currently conducting a closed beta with "over a dozen" content owners and a small number of users
URL: www.brightcove.com

Allaire gets most excited when he talks about the ways that publishers can market their video content, putting links to it on their own websites and using Brightcove as a back-end storage and payment mechanism. Users will also be able to recommend particular videos by sending friends a link via e-mail, in a blog or even in an instant message. For instance, a member of an investment club might send an e-mail to her fellow members, notifying them that a new video profile about GE, a stock they were evaluating, was available.

"That kind of federated model is one that TV has never supported before," Allaire says. "You're letting people find out about your video through other sites and blogs." Offering many different paths to a particular piece of content (or to a monthly subscription package) will be key to building audiences around niche content. While the company hasn't revealed its content partners, Allaire has a sense that recognizable, high-quality content that isn't readily available on TV is the right place to start.

Brightcove's video is encoded as Windows Media 9 files – which includes the digital rights management (DRM) technology that publishers are currently most comfortable with, according to Allaire. "Right now, that's the one DRM scheme that has wide distribution and acceptance," he says. "Although DivX does have some appeal, too."

Allaire is bullish on the Microsoft Media Center platform, but he isn't building Brightcove's entire strategy upon it. The Brightcove video library will also be available on the Web, and Allaire thinks the bulk of Brightcove content, at least in the near-term, will be viewed on a PC. "We think first about content seen through a browser at work, then about synching it to a portable device, and then about content seen at home on a TV," Allaire says. PCs and portable devices are compelling for new

content marketplaces precisely because there is so little video content available for them today (relative to television), yet they're plentiful and already connected to high-speed networks.

Allaire hasn't yet set a specific date when Brightcove will emerge from beta – though he says it will be sometime "later this year."

Discovery, Indexing and Navigation

As networked TV evolves, the sea of video content gets wider and deeper. Today, the average US home receives 100 channels of television, theoretically giving that average viewer access to 876,000 hours of programming over the course of a year (though still only 8760 hours in which to watch it all!).

That sum could quickly grow tenfold or a thousandfold once a television is plugged into the Net. Suddenly, a printed *TV Guide* or the on-screen program list doesn't seem so useful anymore. Viewers will demand intuitive, Google-like tools for finding what they're looking for.

Text search may be one answer: hunt for a piece of video using your PC (based on a program description, or the closed caption information associated with it), then earmark it for delivery to your TiVo or another smart device linked to your TV. Dividing video into on-screen categories that are navigable with a remote control may work for a while, but eventually those categories will get weedy and difficult to maintain – much as Yahoo!'s directory did once the Web started growing like kudzu.

Recommendations from friends and colleagues will grow in importance. You might belong to a cluster of old college friends who recommend romantic comedies to one another, and even hold live chats together while watching the movies simultaneously, at a time of its choosing. In another scenario, you might designate a friend who's knowledgeable about ballet to create a list of great ballets for you to watch at your leisure. In that way, anyone can become a programmer on networked TV.

Personalization software similar to that deployed by NetFlix.com, ChoiceStream or TiVo to suggest movies you might enjoy will eventually be able to get a feel for your viewing preferences and make intelligent recommendations. Links from one piece of content to another (perhaps wrought by official editors or created by users) might

lead you from one show to a related one. As we outlined last year (SEE **RELEASE 1.0**, DECEMBER 2004), the "attention economy" no longer means only marketers' search for consumers' attention, but also the attention individuals pay to one another and the market for information about other individuals' choices. And certainly the rise of blogs has proved the demand for (and supply of) content generated by individuals (primarily) for other individuals.

Users will also demand tools and appropriate metadata for moving around *within* an individual piece of content. Think how useless a non-fiction book is without a table of contents and an index, or how frustrating it is to attend a conference that lacks an accurate agenda with topic descriptions and speaker bios. How will you know which sessions to go to, and which ones you'll spend schmoozing in the hallway?

Today, viewers have only the crudest tools for navigating television content. And the content itself isn't as rich as it could be – there's little or no metadata. If the content is being broadcast live, viewers have only once choice: switch channels. If the content is recorded on a videotape or DVR, fast-forwarding and rewinding is possible. But even then, there are no landmarks within a show (aside from commercial interruptions); in watching a given episode of "Antiques Roadshow," for instance, it's hard to get directly to the assessment of the late 18th-century sea chest you really care about. Television shows aren't indexed or tagged or structured, and it certainly isn't possible to search within an hour-long show. Aside from knowing that this episode of "Roadshow" was shot in Baltimore, you're on your own.

Television has always demanded that its users experience it linearly. (That goes for radio, too.) One thing happens, then another, and then another. Your job is to simply sit back and make sense of the narrative that's unspooling, as humans have done from the days of Gilgamesh, Beowulf, and Odysseus onward.

Instead, imagine watching a newscast about a meeting between Presidents Bush and Putin, and then being able to click to a documentary about the evolution of democracy in Russia, a National Geographic travelogue or a half-hour profile of Putin.

Gotuit Media: A T.O.C. for TV

Sitting back and putting oneself in the hands of a skilled story-teller can be enjoyable. But sometimes we want to cut to the chase, to locate a specific piece of information and waste no time doing it. Gotuit Media, a start-up based in Andover, MA, has developed video-indexing technology to enable just that.

Some of the company's early funding came from a private equity firm, the Topol Group, which was started by Sidney Topol, the retired founder of Scientific-Atlanta, a pioneer of the set-top box market. Earlier this year, Dan O'Brien, a veteran cable industry executive who helped Time-Warner start its first pay-per-view movie service, joined Gotuit as CEO, replacing company founder Jim Logan. Mark Pascarella, the company's president, joined Gotuit from the Topol Group in 2001.

Gotuit has dubbed what it does "intelligent navigation." Essentially, it supplies a television show (or any other sort of video) with a table of contents. The company's focus today is on cable and satellite systems. The interface offered is the familiar video-on-demand menu screen, with added options to take advantage of the index created by Gotuit. (The indexing is done by humans; more on that later.)

To demonstrate its capabilities, Gotuit created a demo using content around the annual NFL draft. First, the company indexed a massive trove of video highlights from the college careers of the players in this year's draft. Rather than watching a ten-minute profile of Alex Smith, a quarterback from the University of Utah, a Gotuit user can choose which part of the profile to watch by clicking on a list of links on the screen. Among the options: "arm strength," "quick release," "flea flicker" and "bursting speed," each highlighting a different aspect of Smith's talent. A viewer can also choose to see a list of all of the wide receivers in the draft, or all of the players from a particular school. (Eventually, O'Brien would like to add another layer of interactivity, allowing viewers to guess which players will be drafted by which teams, in which rounds. Viewers would compete against one another on the accuracy of their guesses. It's easy to imagine this sort of contest being sponsored by Nike or Budweiser.)

Another demo involves a news show that Gotuit produces every weekday evening at 5 pm Eastern. But this news show lacks an august anchor and the customarily pompous theme song; it's more of an archive of stories. (Pascarella refers to it as "a video buffet.") The viewer becomes the managing editor of Gotuit's newscast, selecting which stories he'd like to view, in which order. To create the video archive, Gotuit receives video feeds from Reuters and the Associated Press in its indexing center (which is located at a separate site in the Boston area), where the videos are manually tagged with topics. So rather than watching a 30-minute linear newscast, the viewer can use the onscreen navigation to click over to World News, Business, Sports, etc. Within each category, there are several story packages to choose from. (Within Business, the choices might include "Apple Takes Dive," 'Southwest Up" and "US Markets.")

Later this year, Gotuit plans to introduce an initial set of personalization features to allow viewers to specify topics, companies, teams and people they're interested in – a la MyYahoo! or Google News e-mail alerts. One especially cool part of Gotuit's news feeds is that they include a heaping portion of raw video of events such as Presidential news conferences as well as the original video shot by correspondents, giving viewers the ability to drill down into unedited interview footage. "The idea is that we'd take a one-size-fits-all newscast, which is usually edited for the lowest common denominator, and turn it into something very different," says Pascarella. "If you want your evening news to lead with four or five stories from France, that's what we'll give you."

Gotuit's methodology for tagging video content – a team of human indexers – seems like a labor-intensive throwback to the early days of Yahoo!, when every new website would be described and categorized by a person who had clicked through it. But until voice and image analysis can improve in accuracy, automatically discerning what a given video clip is about – or unless tools are developed for original content creators to tag their own content, a possibility Gotuit's model allows for – O'Brien says Gotuit will rely on 16 taggers who he says can churn out 2000 hours of video a month.

After it is tagged, the video is uploaded to a cable system's video-on-demand servers, and the metadata files that Gotuit's taggers have produced are sent to a special Gotuit application server. When a viewer decides to watch a tagged baseball game, for instance, the metadata file for that game is downloaded to her digital set-top box. When she asks to see all the stolen bases from the game, the metadata file knows exactly which segments to ask for from the cable system's video servers.

So far, Gotuit has deals with Time Warner Cable to provide indexing for its own content (such as the aforementioned evening news show) on its video-on-demand systems, and also with content owners such as Scripps Networks. "The utilization of video-on-demand is significantly higher when you're offering Gotuit-enabled content," O'Brien asserts. For example, Scripps content, including Food Network On Demand, saw 50 percent more usage once it had been indexed. Higher utilization means more revenue for the content providers; the cable operators hope it will engender more loyalty among their subscribers, making them less likely to switch to satellite or downgrade their subscriptions to basic cable.

Right now, the bulk of video-on-demand content from suppliers such as Gotuit and Scripps is supplied free to cable subscribers, and much of it comes without advertising. "The big question going forward," O'Brien says, "is how is all this content going

to be supported?" O'Brien believes that advertisers will want their logos, and perhaps short, soundless video clips, to play on the Gotuit navigation screen in a clickable area he calls a "brand slate." Users that click on the ad would be taken to a long-form ad, which itself might be indexed: Which exciting new features of the new Volvo do you want to learn about: performance? safety? in-car navigation? Each click would be registered, allowing Volvo to get aggregate data on how deeply viewers dove into its ad.

GOTUIT MEDIA INFO

Headquarters: Andover, MA
Founded: August 2000
Employees: 26
Funding: $20 million from Atlas Venture, Highland Capital Partners, Motorola and angels
Key metric: 100,000 households participating in trial with Time Warner
URL: www.gotuit.com

With Gotuit-indexed content available to only about 100,000 Time-Warner Cable households in the US – in Hawaii and New England, mostly – advertisers aren't exactly chomping at the bit to buy up these brand slates. "We met with [advertising conglomerate] Publicis recently," O'Brien says. "Of course, we realize that the more distribution we have, the more interested they'll be." And while advertisers have done some experimentation with TiVo's "Showcases," similar in concept to Gotuit's idea of "brand slates," the notion of drilling down into long-form ads isn't yet widely accepted on Madison Avenue.

Another challenge for the company is that its human-centered tagging model is incredibly hard to scale. At the moment, Gotuit is limited to tagging the content it expects to be the most popular – thereby avoiding niche video content. At the moment, no standalone tagging tools exist, though we believe they will emerge and video-editing software from companies such as Avid Technology and Apple will add features to label content. Finally, as we mention above, Open Media Network will give content creators tools to tag and index their own content as they publish it. All those things will rival Gotuit. Finally, standards for video metadata will be important – standards that today are younger than nascent.

Pascarella has a name for the behavior that Gotuit users exhibit when they click from one snippet to another. He calls it "video snacking." "You still have the option to watch a half-hour show, or a two hour movie," Pascarella says, "but you also have the power to watch pieces and parts of content that's interesting to you." Video tagging and indexing will make widespread video snacking possible – and that, in turn, will help awaken viewers' appetite for all sorts of new content. Quite simply, video content that's elegantly indexed will attract a larger audience.

The Future of Advertising and Pay-Per-View

The central debate around the economics of supporting IP TV content is how consumers will want to pay for it. Will they habitually stick with the sort of monthly subscriptions they pay today to cable and satellite companies, buying a few "extras" such as a pay-per-view movie here or a sporting event there? Will they want to cobble together individual programming packages (the word "channel" may soon seem outmoded) and chunks of content – with the risk that an IP TV bill would fluctuate from month to month as a cell phone bill sometimes does? Will they tolerate endemic product placement in every show, with characters constantly brandishing branded goods on screen? Or will they want to return to the pre-cable TV days, when every show beamed into the house was supported by ads and sponsors?

Today's avid DVR users boast about the agility of their thumbs: They can skip through a "pod" of 30-second ads in a single bound, without accidentally fast-forwarding through part of the show they're watching. If they had their druthers, commercial interruptions would cease to exist, and all TV would be delivered ad-free. It'd seem they're voting with their thumbs.

But high-quality, high-production-value content will need financial models to support it – even though IP TV will offer a smorgasboard of free content as well. It will be rented to viewers, sold and bundled into subscription packages. It'll be brought to you by benevolent sponsors, like the old Texaco Star Theater or Hallmark Hall of Fame. It will be interrupted by ads.

But those ads must be better targeted to the individual viewer, given how quick she is on the draw with the fast-forward button. And they may be shorter, offering "brand glances" instead of full-on 30-second "brand impressions," in a nod to today's shorter attention spans.

This process will be messy, but it will create opportunities for new types of creative agencies, for ad placement start-ups that can do for IP TV what DoubleClick did for Internet advertising, and for firms that analyze the reach and effectiveness of IP TV ads. Television advertising today is a surprisingly labor-intensive process, from shooting a single spot to buying time to gauging its effectiveness. Software automation will render the business unrecognizable, assembling chunks of video into coherent and highly-targeted ads, inserting them into the right pieces of content, and collecting data about how the viewer responded. (For the content marketplaces that rent and sell shows, dynamic pricing algorithms will be important, to ensure

that popular content generates appropriate revenue, and encourage viewers to discover less popular content.)

The technology is likely to evolve more rapidly than advertisers are willing to experiment with it. But sudden shifts happen, as when Overture (then GoTo.com) started selling the first ads linked to a user's specific search. Suddenly, ads were far more closely related to the user's (presumed) intention, and once-undifferentiated search pages were able to command fees according to the "value" of the consumer's search. And from the consumer's point of view, suddenly there were "commercially relevant" search results as well as the more traditional ones that took no hints from what advertisers might be willing to sponsor.

Advertising isn't necessarily on an irreversible slide to irrelevance.

Visible World: The dynamic 30-second spot

Seth Haberman often rides his bike from his apartment on the Upper West Side of Manhattan to his office on 34th Street near the Hudson River and, unlike most bicyclists, he listens to the traffic report to help plan his route. "There are really two intersections I care about," Haberman says. "I want to know whether it's a day to avoid them." But the typical traffic report on New York television tries to cover the entire metro area – not just Haberman's route to work. "They talk about stuff like the Kosciuszko Bridge. I only have a vague notion of where it is, and it's certainly not part of my commute."

The notion of making television more relevant to each viewer led Haberman to start Visible World. Initially, he thought about a news program that would focus on the sports, weather, traffic and news stories that the viewer most wanted to see, rather than a show edited for an imaginary average viewer. "In my heart, I haven't left that idea behind," Haberman says. But as the business took shape, Visible World wound up concentrating on trying to make television ads more relevant.

Instead of thinking about television commercials as pre-fabricated pieces of video written once, directed once and then repeated endlessly in shows to reach a particular demographic, Visible World asks marketers and their agencies to create an archive of video fragments that can be mixed and matched. "We try to make the message more relevant to the person we're trying to reach, more relevant to the context it's in and the time it's being shown," says Haberman, Visible World's CEO. An ad for the Bermuda Tourism Bureau that's geared to seniors shows silver-haired vacationers

frolicking, and plugs the island's "Senior Discount Packages." The same ad targeted to singles makes it seem as though every corner of the island is teeming with romantic possibilities. Voice-overs, video segments, and on-screen graphics are all malleable.

The company stores these video fragments on a special server (which it terms an "Ad Router") at a cable operator's facility. (In the IP TV future, the company could easily work with content marketplaces or telco providers to insert ads in their videofeeds.) A marketer uses a Web interface to determine what sorts of ads and special offers to serve up to different types of viewers. For instance, the Bermuda ad running on the History Channel might emphasize the island's colorful past; the same ad on the Food Network would push the restaurant options.

VISIBLE WORLD INFO

Headquarters: New York, NY
Founded: August 1999
Employees: 35
Funding: $28 million from Reuters, Grey Ventures, WPP and Waterview Partners
Key metric: 71 advertisers have used the technology to create an average of 22 different ad variations per campaign
URL: www.visibleworld.com

The ads can get surprisingly specific, addressing viewers in individual neighborhoods of a metro area. To promote flights from Chicago to Las Vegas for the discount airline Ted, Visible World ran narrowly-targeted ads in different Chicago suburbs. ("Viva Las Barrington. Doesn't have quite the same ring to it," was one such message.)

"We think that making ad content more live, more relevant is one of the best anodynes to ad-skipping," Haberman says. Already, Visible World can run such targeted ads in 46 of the 212 "designated market areas" in the US, with the potential to reach 25 million households. Thus far, automobile companies have been the marketers most eager to use Visible World's technology. In April, the company announced its first major partnership with a television network – News Corp.'s Fox network. Fox and Visible World will split a "production fee" that will be charged to advertisers, on top of normal rates.

Haberman believes that IP TV viewers will have a limited desire to pay for content "by the drink," and so they may be willing to offer up information about themselves to advertisers who want to reach them. As an example, he says, "How great would it be for Amazon to be able to run a TV ad that features items that its website is recommending for you?" Viewers realize that the content they want has to be funded somehow, Haberman argues, and they realize that that funding will either come in the form of money from their pockets, or watching ads. "Denying that is lying to ourselves," he says.

The biggest question about targeted ads is, how targeted can they get before they seem creepy and invasive? Some might be alarmed at seeing their Amazon.com rec-

ommendations on the living room screen – especially if their father-in-law happens to be visiting.

Haberman draws the line at behavioral modeling. "I don't think you should try and impute something about me based on what I'm watching," he says. Josh Goldman at Akimbo disagrees: "If someone watches four travel shows about the Caribbean on Akimbo, is it valuable when they watch the fifth one to show them a five second spot about Princess Cruise Lines, and let them know that there is a full-length video waiting for them on their hard drive to let them know more about Princess cruises to the Caribbean? I think so," he says. "That's advertising content that someone may not find intrusive. When I read *Time*, most ads are annoying. But when I read *Scuba Diver*, the ads are content. I wouldn't buy the magazine without them."

In the course of trying to develop new models for funding the creation of great content, advertisers and viewers will have to engage in a negotiation over the new ground rules: what's appropriate, and what's out-of-bounds? In short, the IP TV players face many of the same issues as purveyors of free software that includes adware. (SEE **RELEASE 1.0**, APRIL 2005.)

The Content Liberation Movement

Users of PVRs, for all their evangelizing about the benefits of time-shifting, are familiar with two new problems that the devices create in their lives.

The first is a sort of PVR-bred guilt. As shows stack up on the device, a viewer feels obligated to watch them, or at least watch enough of them to know whether she wants to save them for later viewing or erase them. (This isn't too different from leftover guilt, where one refuses to throw out the leftovers moldering in refrigerator until they become a science project.)

The second problem is content immobility. For the most part, content stored on PVRs or other set-top hard drives is stuck there, and must be viewed on that television. It's difficult to watch that content on another television in the house, let alone while traveling through Asia or riding home from work on the commuter train.

Several companies are working to solve those two problems – call it the Content Liberation Movement – by freeing video content from just one box and rendering it

accessible anywhere, anytime. These solutions will affect shows recorded on a PVR as well as also live broadcasts and content distributed over the Net.

Players leading the Content Liberation charge include MobiTV, Sling Media (BELOW), Orb Networks, TiVo, Sony (with its PlayStation Portable) and Microsoft (with its Portable Media Center device, manufactured by Samsung, Creative and iriver). Devices and software that support freeing video content will undoubtedly increase consumption, since the option now exists to watch a TV show rather than read the paper while waiting for the bus. Enterprise usage of video will also skyrocket as instruction and training – not to mention company news – can be delivered to PDAs and phones.

But there are intellectual property issues to deal with as well. Like record companies before them, many for-profit owners of video content will squawk about selling or renting content once and allowing it to be viewed on multiple devices, in formats and at quality levels that they may not be comfortable with.

Sling Media: Your team on TV, wherever you are

As product strategy consultants working in the digital media arena, brothers Jason and Blake Krikorian found themselves spending a lot of time in the Los Angeles area. Their business, id8 Group, was successful. The only hitch was that the pair had grown up in the San Francisco Bay area, and both were big baseball fans – of the San Francisco Giants, not the LA Dodgers.

"We were spending a lot of time in LA in 2002, and we only had access to Dodgers games," Jason Krikorian recalls. "Who wants to see that? We had all this great content that was available on our home TV sets. We'd tried using video capture cards for our PCs that could store television programming there, but there was no way to watch Giants games live."

That year, the brothers developed the initial prototype of what they called the Slingbox, a content-serving device that would plug in to their cable TV at home, digitize the video on the fly, and instantly "forward it" over the Internet to a laptop running special software. "The idea was to create something that took TV in, regardless of whether it came from TiVo, satellite, digital cable or whatever, and spit IP out," Krikorian says. Once the initial prototype was working, they decided to spend less time consulting and more on the Slingbox. (They also linked up with Bhupen Shah, an engineer who had previously developed devices for video capture at Dazzle.) The

brothers Krikorian coined the term "placeshifting" – a play on the PVR's ability to "timeshift" – for the behavior they were enabling. Jason Krikorian likes to say that with the Slingbox, your living room can roam with you around the world.

"We were worried about going to VCs with a story that involved hardware, and consumers, and selling the product through retail channels," Krikorian says. Not to mention the fact that the company planned to sell its box as a standalone product, with no monthly subscription fee accompanying it to supply recurring revenue. "We thought it would be hard, but we were pleasantly surprised." Sling raised $10.5 million in a Series A round late last year; The Hearst Corporation chipped in earlier this year as a strategic investor.

The Slingbox that will start showing up in stores this summer looks a bit like a foot-long chocolate bar. ("Some people see it as a gold brick, too," Krikorian says. "We've stopped trying to fight the comparisons.") The pair believes that the *design* of the hardware is as important as anything else, so they hired their friend Yves Behar, a noted industrial and clothing designer, to craft one of the nicest-looking set-top devices on the market.

The Slingbox system is like a personal TV tower, narrowcasting any content that can be viewed on a TV to a PC loaded with Sling Media software. (To avoid upsetting rights holders, the content can be streamed only to one PC at a time, preventing a Slingbox owner from beaming episodes of "Deadwood" to all his non-HBO-subscribing pals.) And unlike TiVo's TiVoToGo service, which enables users to transfer only recorded content from their TiVo to a PC, the Slingbox doesn't require advance planning – live video and recorded video are always accessible, whenever a user logs on.

SLING MEDIA INFO

Headquarters: San Mateo, CA
Founded: June 2004
Employees: 34
Funding: $10.5 from Mobius Venture Capital, Doll Capital Management, Hearst Corporation and other undisclosed strategic investors
Key metric: $249 retail price for Slingbox, no monthly subscription
URL: www.slingmedia.com

The Slingbox sits between any video source (TV set, DVD, DVR, cable box, etc.) and an Ethernet connection. Users can log on from any PC with the Slingbox software and view any recorded or live content on the connected video source. (Currently, the Slingbox software works only on Windows PCs, but Krikorian says that Macs, PDAs and cell phones will soon be supported.) The company's streaming optimization software, code-named "Lebowski," massages the stream of video based on the speed of the network connection so that the program doesn't freeze or get chunky.

Just to prove it could be done, Jason Krikorian brought his laptop to a Giants game, logged onto the stadium's WiFi network, and watched the live broadcast of the game from his seat. "A lot of times, they don't show the instant replay on the Jumbotron screen at the park," he says. "I was there watching Channel 2, with about 20 people clustered around me, asking how it was possible. Everyone who buys a Slingbox, we think, will become a public demonstrator of the technology."

One odd feature of the first-generation Slingbox – a sort of remote remote control problem – is that if one family member is at home watching television, the family member using the PC on the other side of the world can see what's being watched. The two can also battle for control over the station.

While the Slingbox solves problems with PVRs (PVR guilt and content immobility), it also creates new problems for advertisers and television measurement services such as ACNielsen. Does a local furniture store care about advertising a sale to a viewer posted in Germany? Sling Media is willing to cooperate with Nielsen, but that's yet another layer of complexity the measurement firm must wrangle with.

What's especially fascinating about the Slingbox as a personal TV tower is that it can narrowcast content that's generated by the user. Plug in a camcorder, and suddenly Dad can "sling" the kids' live (or taped) puppet show to Mom while she's on the road. IN theory, that sort of user-generated content need not be subject to the one Slingbox/one viewer restriction. If that exception could be made, the Slingbox would turn into a cheap and easy system for distributing live or taped IP TV content, at least to small audiences. Rupert Pupkin, the wanna-be talk show host played by Robert De Niro in "The King of Comedy," may be the ideal spokesperson for Sling Media – someday.

More Than "Wires and Lights in a Box"

Almost everyone involved in the development of IP TV shares a handful of assumptions about how it will develop:

- In the near-term, most videos downloaded by consumers will be viewed on a PC screen. But eventually, simple hardware and software will make it easy to view videos on the living room TV, cell phone or PDA. Attention

spans will be short for video viewed on any device but the living room TV, where viewers are accustomed to parking for long periods of time.

- Viewers will continue to find "all-you-can-eat" subscriptions convenient, but they are also likely to purchase a la carte content.

- While the PVR has popularized the concept of pausing live television and storing shows for later viewing, not all future TV content will be seen on a time-shifted basis. Viewers will want to experience live sporting events, reality shows, awards ceremonies such as the Oscars and certain kinds of shows (think "Seinfeld" and "Lost") synchronously with their friends. Synchronous viewing is a social experience, and that may become the central franchise of today's four major networks.

- The advertising business is in for a rough ride. Prices for ad spots in synchronously-viewed shows (such as the Super Bowl) will rise into the stratosphere, as mass audiences become rarer, and advertisers covet those mass audiences for major product launches. Ads placed in asynchronously viewed shows will need to be more entertaining, more dynamic and more targeted than today's shotgun spots.

However, almost everyone in the IP TV business, whether they are building devices or content marketplaces or developing other services, tends to underestimate how many people will produce independent video content, and how many people will watch it. This, despite the lessons of the Web.

Where does that lead us? Today's networks and cable channels will struggle to hold the ship together and prove the value of 24 hours of linear programming. As they and the producers they work with make their content available over IP TV, they'll also wrestle with the same questions of cannibalization that newspapers face online. Among cable operators, satellite companies and telcos, a competitive advantage will accrue to those who start delivering long-tail content first, perhaps in partnership with content marketplaces, and make it easy for consumers to create, publish and distribute their own videos.

Over time, though, there will likely be a separation of content and conduit. The pipe that makes IP TV available to the home may come bundled with a subscription to some sort of content offering, but viewers may also choose to just buy connectivity, and forge their own relationship with a content marketplace (or two or three).

COMING SOON

- genetics, testing and health
- identity and life on the Web
- real-time markets - not just finance anymore

- And much more. . . (If you know of any good examples of the categories listed above, please let us know.)

For the device-makers, omnipotence will be key: PVR functionality plus access to any IP TV content marketplace plus the ability to watch broadcast/satellite/cable programming. No one likes the idea of a stack of boxes atop the TV, or a phalanx of remote controls on the coffee table. Eventually, IP TV connectivity (or the ability to network with a PC or other home server that stores video content) will be built directly into TV sets.

It was September 7, 1927, when Philo Farnsworth, working in his San Francisco lab, successfully transmitted an image of a simple line over the airwaves, then turned the line ninety degrees to prove that the broadcast was live. (A later test involved the image of a dollar sign.) "That's it, folks, we've done it," he announced in his low-key way. "There you have electronic television."

Ever since television was widely adopted by Americans, broadcasters, viewers, regulators and Farnsworth himself have despaired that it hasn't performed to its full potential. Occasionally, an optimist would chime in with a vision of what TV could become. "This instrument can teach, it can illuminate; yes, it can even inspire," the pioneering TV journalist Edward R. Murrow said. "But it can do so only to the extent that humans are determined to use it to those ends. Otherwise it is merely wires and lights in a box."

By opening the video network to anyone who wants to produce content for it, by enabling anyone to be a critic and a guide to that content and by creating useful links from one video item to other related items, TV will change. It won't suddenly morph into a high-fiber blend of PBS and the BBC. But the introduction of independent voices and visions, alongside the mainstream shows that have dominated television for 75 years, will result in real choice, real diversity – and a medium that can feel more home-made, personal, expansive, fragmented and relevant than the TV we've known thus far. That's reason enough to stay tuned to the evolution of IP TV. ■ R 1.0

Resources & Contact Information

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For further reading:

Open Media Network: http://www.omn.org

Brightcove corporate blog: http://blog.brightcove.com

From Chris Anderson's "The Long Tail" Blog: Only You Can Save Television: http://longtail.typepad.com/the_long_tail/2005/03/more_long_tail_.html

Matt Goyer's (Microsoft employee) Windows Media Center blog: http://blog.mattgoyer.com/categories/mediaCenter/

TiVo Blog (not run by the company): http://www.tivoblog.com

TVPredictions.com: http://www.tvpredictions.com

TV Technology: http://www.tvtechnology.com

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Calendar of High-Tech Events

JUNE 1-3 **Wireless Community Conference** - Monterey, CA. This Conference covers the latest information in wireless technology and its use in the classroom, field and research settings, offering attendees hands-on demonstrations with industry experts, workshop sessions on the latest 802.11 technologies, panels and forums with leaders in the world of mobility, and e-Learning on campus and in the community. Register on the website or contact Karen Letendre, 1 (831) 582-5384, karen_letendre@csumb.edu, with questions. wetec.csumb.edu/WeTEC_conference.htm

JUNE 9 **Consumer Reports WebWatch:** "Trust or Consequence" Conference - Berkeley, CA. "Trust or Consequence: How Failure to Disclose Ad Relationships Threatens to Burst the Search Bubble" is a one-day conference. Learn how search engines are making millions at the risk of losing customer trust, and join in the discussion about how to improve the way search results, including health information, are displayed - so that anyone can tell advertising from the real thing. Best part? The conference is free! Register via the website, or contact Jhan Snyder, jsnyder@eventandcompany.com, with questions. www.consumerwebwatch.org/conferences.cfm

JUNE 11 **PHP & Open Source Security Conference** - Vancouver, BC This will be the second conference that Open Source Events has held this year. The conference is specifically geared to address the many different areas of security in the PHP environment and with open source technologies, including site scripting, input validation, secure coding practices and various methods of authentication. For more information or to register, visit the website. Questions, contact Nathan Brown, 1 (604) 724-6624, fax - 1 (604) 444-9942, info@osevents.com. www.osevents.com/

JUNE 13-15 **Innovate! Europe 2005** - Zaragoza, Spain. Innovate!Europe is a deep look at the innovators and innovations that will impact Europe's technology economy. By turning the spotlight on innovation, European market leaders will see where the best promise is for global market leadership and demonstrate how Europe will gain stature in the global tech markets. The conference is expected to bring together hundreds of senior technology executives, entrepreneurs, investors and government officials from across Europe to transform technology innovation and entrepreneurship in Europe. Register on the website. Also, suggestions for speakers can be made online. www.innovate-events.com/

JUNE 13-16 **AeA & Santa Clara University Management Development Program** - Santa Clara, CA. This Program works with managers and directors of high tech companies, teaching core business disciplines and effective management techniques to lead innovation and high performance work teams. Register on the website, or contact Jeannine Seremi-Banayat, 1 (408) 987-4276, executivedevelopment@aeanet.org, for more information. www.aeanet.org/Education/HRST100_SCUStart.asp

Calendar of High-Tech Events

JUNE 29-30 **The Where 2.0 Conference** - San Francisco, CA. Location-based services and mapping are becoming mainstream technologies, and the first Where 2.0 will exlpore in detail where these services are headed in business. Speakers include Tim O'Reilly (O'Reilly Media), Udi Manber (A9.com), John Frank (MetaCarta), Jeremy Kreitler (Yahoo! Local and Maps) and Perry Evans (Aptas). Register on the website, or for more information contact Andrew Calvo, 1 (707) 827-7176, andrewc@oreilly.com. conferences.oreillynet.com/where/

JULY 19-21 **Innovation Summit @ Stanford University** - Stanford, CA. The Innovation Summit features executive speakers who are some of the most powerful players in technology, government, and the social sector. Previous speakers included Sergey Brin (Google), Rob Glaser (RealNetworks), Michael Powell (FCC Chairman), Ronnie Lott (Baseball Hall of Famer) and Mark Benioff (Salesforce.com). Register on the website. Contact Kathy Osweiler with any questions at 1 (415) 751-0170, kathy@alwayson-network.com. www.alwayson-network.com/events

AUGUST 1-5 **OSCON 2005** - Portland, OR. OSCON, or the O'Reilly Open Source Convention, will be held at the Oregon Convention Center, where participants will enjoy tutorials, sessions, parties, BOFs, and a huge exhibit hall. The Call for Proposals is now open, and registration and hotel information will be available soon. Get the details as soon as they have them by signing up for the OSCON newsletter, or register, on the website. Contact Andrew Calvo, 1 (707) 827-7176, andrewc@oreilly.com, for more information. conferences.oreillynet.com/os2005

AUGUST 7-18 **AeA & Stanford Executive Institute** - Stanford, CA. This conference is designed for technology executives with a minimum of 10 years of management experience. Eleven nationally distinguished facultyteach advanced business and leadership disciplines and lead discussions on today's top industry challenges. Register on the website or contact Jeannine Seremi-Banayat, 1 (408) 987-4276, executivedevelopment@aeanet.org, for more information. www.aeanet.org/Education/HRAP100_StanfordIntro.asp?bhcp=1

SEPTMEBER 13-14 **World Business Forum** - New York, NY. The World Business Forum is a symposium featuring nine leaders and thinkers speaking on topics of the utmost importance to the business community. Attendees gain critical insights into the United States' position in the world, global financial markets, strategy, management and leadership. Speakers include Colin Powell, Rudy Giuliani, Andrea Jung and Terry Semel. Register on the website before April 29 to take advantage of the early registration fee. Or contact 1 (866) 711-4476, info@wbfny.com, with questions. www.wbfny.com

E Events Esther plans to attend.

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