

# PenguinRadio in the News

"One day every radio will work this way"™



PenguinRadio Inc.

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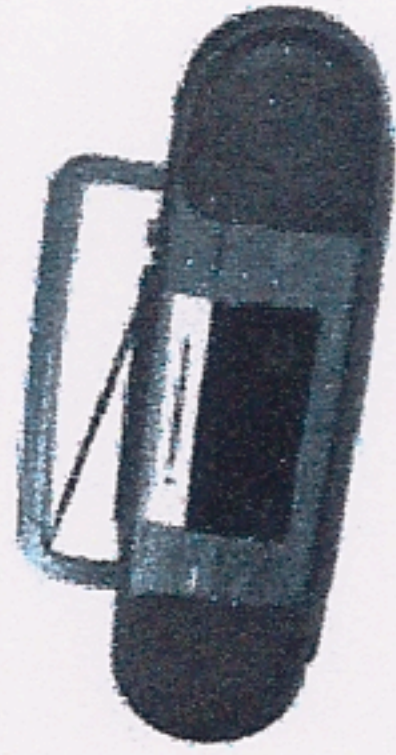
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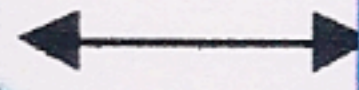
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Phones



# penquinaradio



## The INTERNET

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WABC  
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#### [Orbital Is "Altogether"](#)

July 17 - It may sound like an unlikely pairing but Orbital's trance beats are matched up with the vocal talents of heavy metal band Tool on a new album.



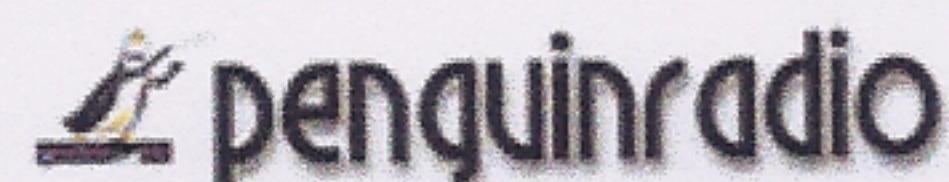
#### [They're Big, And They're Angry](#)

Those DNA dinos are back, and they're out for blood. "Jurassic Park III" opens July 18, but you can see web-only, expanded clips right here.



#### [Electra To Star in Vegas Show](#)

July 13 - Carmen Electra, the former "Baywatch" star and one-time wife of Dennis Rodman, has signed a two-year deal to star in a show at Las Vegas' Aladdin Hotel.



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# BUSINESS

THURSDAY, JULY 6, 2000

## Tech Thursday

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### IN PROFILE

**Name:** PenguinRadio Inc.

**Big idea:** To create a simple, easy-to-use device, plus associated services, for receiving audio content—music, talk shows, sporting events play-by-play, etc.—over the Internet, analogous to radios that receive audio broadcasts. The first PenguinRadio device is designed to be a component in a home stereo system that would be connected to the Internet and be able to receive audio from thousands of radio stations and other digital audio sources, rather than just the few dozen local broadcast signals that a conventional radio can pickup. The company also maintains an audio portal on the Web that will simplify finding and accessing sources of streaming audio content for users of wireless

devices, like Web-enabled mobile phones and hand-held computers, as well as the PenguinRadio appliance.

**Launch date:** The company hopes to release PenguinRadio by late summer or early fall, though in time for the holiday selling season is its ultimate deadline. The design has yet to be completed, as the company continues to revise it to make the device simpler and easier to use. "The easier it is for my mom to use, the harder it is for me to build," Leyden said.

**Company headquarters:** The back porch of Leyden's Georgetown home, though the company will move to bona fide office space in Foggy Bottom later this month.

**Who's in charge:** Chief executive Andrew Leyden, 34, and Chief Financial Officer Duncan Wood, 36.

**Previous jobs:** Both were counsels to the House Commerce Committee—not coincidentally, the committee with jurisdiction over telecommunications and Internet-related legislation.

**Funding:** Leyden raised less than \$250,000 in seed funding after quitting his congressional job in May 1999. The company is in the process of closing its first round of venture capital financing, led by the newly established Washington office of London-based Internet Partners Group. Leyden declined to disclose the amount of the investment, pending agreements with additional investors.

**What the company name means:** Refers to the penguin mascot of the Linux operating system, which controls the basic functions of the PenguinRadio device. In the early stages of designing their Internet appliance, the company founders got tired of calling it "the device" and started informally referring to it as the penguin radio. Eventually the name stuck. And because of the growing popularity of Linux had created so valuable "brand awareness" among Internet users who would be potential customers, Leyden said, they decided to name the company after the device.

*Know a company that belongs in this feature? Tell us why in e-mail to [techthursday@washpost.com](mailto:techthursday@washpost.com)*



## START-UP

A Periodic Look at the Region's Newest Companies

# Internet Radio Company Nears 'Gooooaalll!'

By ROB GARRETSON

Washington Post Staff Writer

Andrew Leyden is a rabid soccer fan who brings a drum with him to every D.C. United game and bangs it incessantly from his midfield seat among the hard-core fans. And he knows exactly where he was during one of the most exciting matches of all time, Manchester United's 2-1 victory over Arsenal, won in overtime after Manchester missed a penalty shot in the last minute of the game.

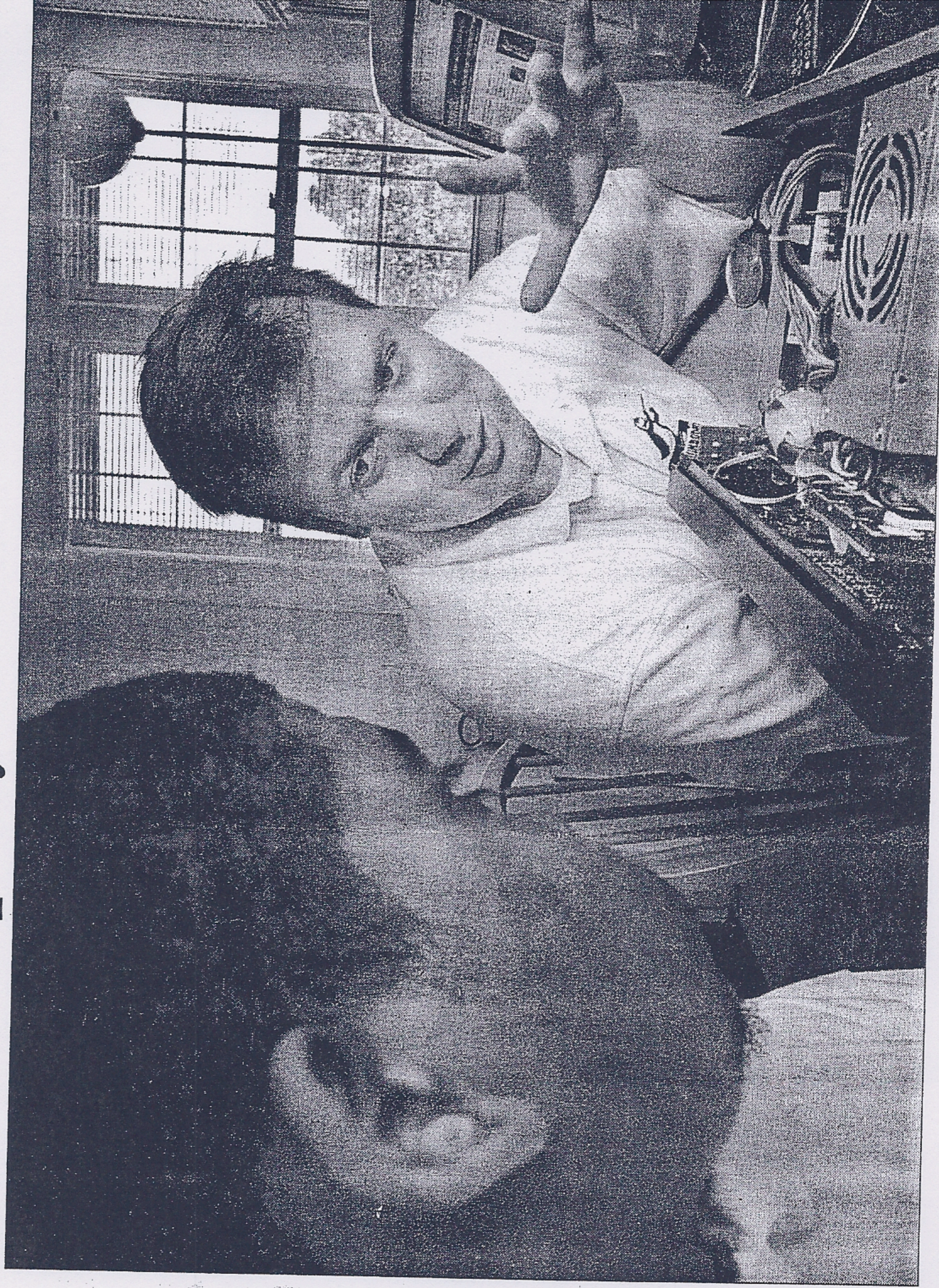
On April 14, 1999, Leyden was listening to a radio broadcast of the English soccer match over the Internet from his office at the House Commerce Committee, where he served as a counsel. A colleague in his office also was listening to the game and burst into Leyden's office exclaiming about the missed penalty kick 30 seconds before Leyden's download of the same broadcast had reached that climactic point. That was the moment that convinced Leyden that he should give up his life on Capitol Hill and launch an Internet start-up, with the goal of bringing high-quality streaming audio to the masses, regardless of whether they own a PC or know how to navigate the Web.

"I couldn't raise money while I was on the committee, so I just had to take the leap of faith that what I was doing was right," Leyden said. "And so I jumped. . . . It's amazing what you can sell on eBay to pay the rent."

After raising a modest sum from investors—less than \$250,000—Leyden then recruited a fellow Commerce Committee counsel, Duncan Wood, an Oxford PhD and former rugby player in Europe. Duncan understood the demand for overseas broadcasts from expatriates, and, having had a role in drafting the Telecommunications Act of 1996, he was more than familiar with the debate over licenses for digital radio broadcasting—essentially the same technology as today's radio broadcasting, only using higher-quality digital signals that will require new digital radios to receive.

Soon PenguinRadio Inc. was born.

— Rob Garretson



Penguin Radio CEO Andrew Leyden talks to employee Langston Sessoms about an early prototype of Penguin's Internet radio device at Leyden's Georgetown apartment.

BY YONI BROOK FOR THE WASHINGTON





Two ex-House Commerce Committee staffers are trying their hand in high-tech world. Duncan Wood and Andrew Leyden started company, Penguin Radio, to come up with way for computer users to hear streaming audio while doing other tasks. Wood said 3-month-old company already has attracted venture capital from Gleacher & Co., which invested in Level 3, WebMD, other firms. Wood said they also want to invent device to allow users to listen to streaming audio away from computer.

#### TELEPHONY

Rep. Oxley (R-O.) introduced legislation (HR-3487) to provide competitive telecom carriers with access to apartment and office buildings. Bill would require nondiscriminatory access to rooftops, including some safeguards for rights of building owners. Oxley said owners are entitled to "reasonable compensation" for access and bill would protect them against disruption of business and damage to property. Other co-sponsors are Rep. Davis (R-Va.) and Democrats Boucher (Va.), Eshoo (Cal.), Stupak (Mich.).

FCC lifted stay of geographic deaveraging rules effective May 1. At that time, states have to allow different rates for interconnection and unbundled network elements in at least 3 different geographic areas. FCC had agreed to stay requirement





## PenguinRadio's founders want to bring Web tunes out of the PC and into your hands.

Some things are just so obvious. Case in point: If you wanted to chill a couple of sandwiches and soda during a picnic, you wouldn't schlep a whole refrigerator along for the ride. Then why shackle yourself to a clunky computer when you simply crave some online tunes? Why, indeed. PenguinRadio, a young company based in Foggy Bottom, is banking on the fact that you shouldn't have to and that their innovation is a better, more efficient way to tap into the Internet's aural gold mine.

"What we've developed is a sleek first-generation appliance that looks like any other stereo component," says Duncan Wood, who, along with CEO Andrew Leyden, co-founded

PenguinRadio. Unlike run-of-the-mill hi-fi knickknacks, Penguin's technology - used by a cell phone or a personal digital assistant, like a Palm - allows listeners to access radio stations from around the world via the Internet, sans computer. Soundwise, think stereo surround, rather than tinny PC speakers.

Wood says that his company's product will appeal to anyone who loves the radio: sports fanatics, talk show junkies, music mavens and zealots in between. They'll have a galaxy of stations to choose from, including over 10,000 stations currently accessible via [penguinradio.com](http://penguinradio.com). Given the ability of streaming audio to make distant airwaves instantly local, as well as the fact that the average household owns five radios, Wood says this is the perfect time to marry the two concepts. Besides, the price is right.

"Our aim is to sell it at what we call the 'one spouse' price point, between 200 and 250 bucks," he says, "the price at which one spouse can go out and buy without making big waves."

With a projected spring launch date (a cellphone-access product is also in the works), the initial hard-wired appliance will be followed by a mobile unit that will enable drivers to channel airwaves from Asia to Arlington while cruising the Beltway, Wood says. To that end, Ellipso, a Washington, D.C.-based satellite company, is on board to provide wireless access. "From what we know of Penguin and their vision, we think it's pretty exciting and highly entrepreneurial," says Gerald Helman, Ellipso's vice president for international and governmental affairs.

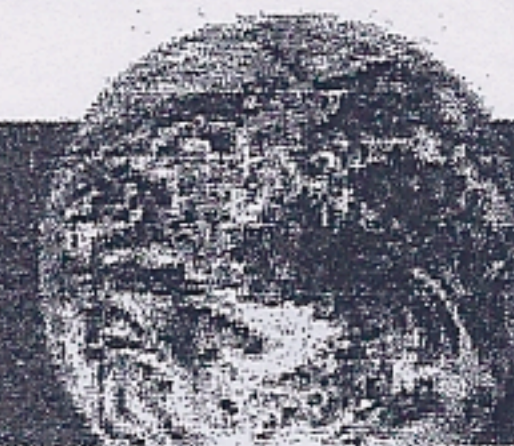
Wood believes consumers also will find PenguinRadio exciting. He believes that his company's appliance eventually will grace nightstands, kitchen counters and minivans the world over. In time, he hopes Internet radio will be less synonymous with keyboards and monitors and more associated with everyday accessibility. "What we're saying," Wood explains, is let's untether the vast possibilities of audio from the PC so that you can listen to it anywhere." - HOLLY SMITH







# International



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## Stand-alone Internet radio device will 'localize the world'

By Joan Mower  
World Center

11.23.99

- What do you think? Have your say in [The Forum](#).

ARLINGTON, Va. — Imagine tuning into pirate radio from England, news broadcasts from Tanzania, rugby games from Australia — without needing a personal computer or short-wave radio.

"This device is going to localize the world," vows Andrew Leyden, founder of [Penguin Radio](#), a company working to develop and produce a stand-alone device that will attach to a stereo system. "The walls are about to crumble."

The device, expected to be available early next year for less than \$200, uses streaming media. It will be programmed to include programming available through the Internet from about 5,000 radio stations.

Leyden, whose start-up company is based in Washington, D.C., said in a telephone interview that the device would enable far-flung listeners to follow their favorite football team or hear weather reports from the other side of the world.

Europe is an important potential market, said Leyden, a former Capitol Hill staffer. "The frequencies are all tied up over there," he added. "There is congestion, but Penguin will give you the ability to hear the Manchester team, even if you live in Liverpool."

A boon for buyers is they need no technical know-how to operate Penguin radio. Listeners can find their stations simply by punching in a number.

Leyden says the number of radio stations available through the Internet is likely to skyrocket. There are about 12,000 radio stations in the United States and thousands more around the world.

Penguin Radio is not the only game in town. Kerbango, another Internet startup, is also developing a stand-alone Internet radio appliance.

According to an [article on CNET](#), "analysts expect the market for information appliances will mushroom in volume by 2002, surpassing the PC market in size."

Internet radio devices are vying to be part of that trend.

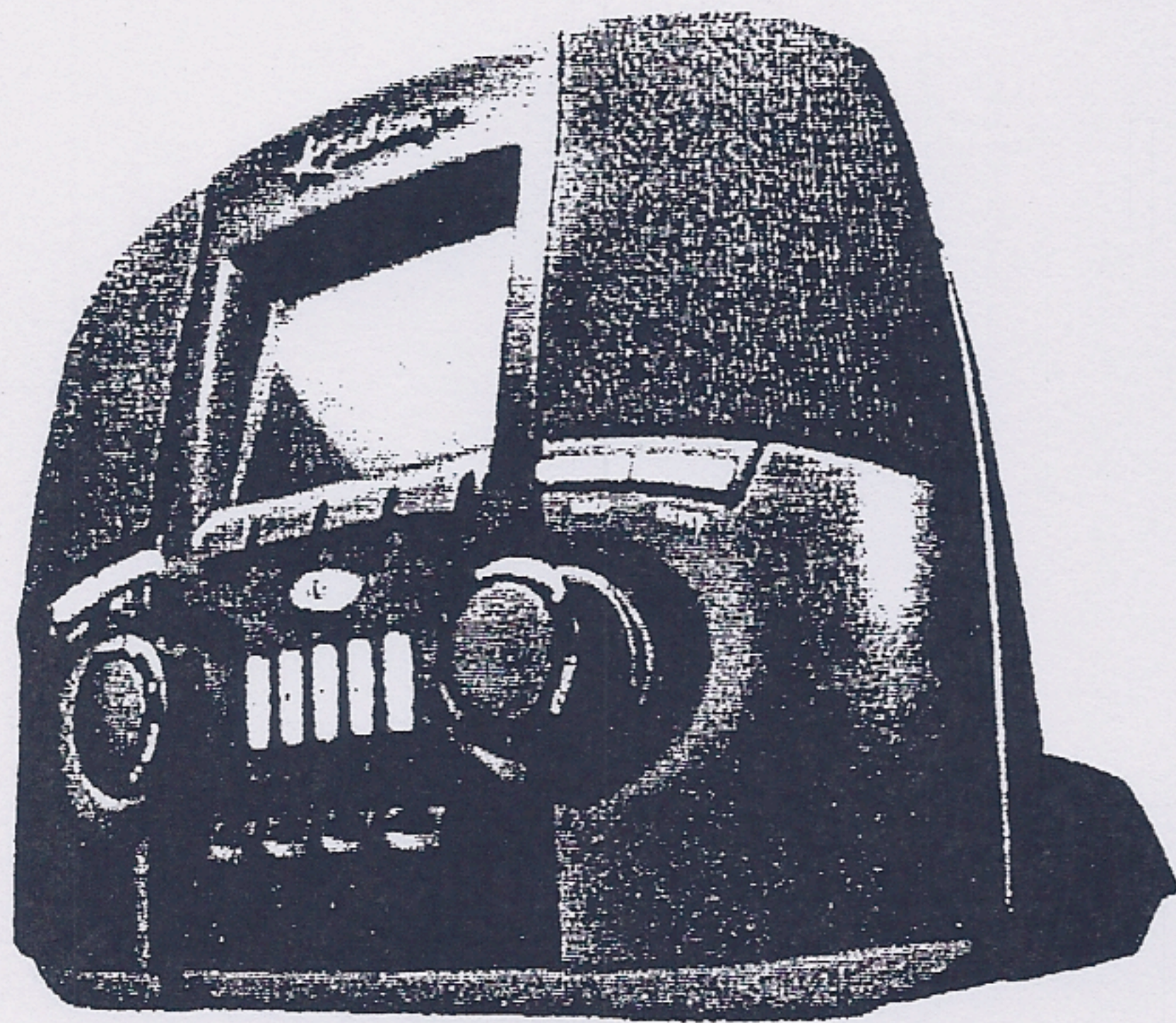
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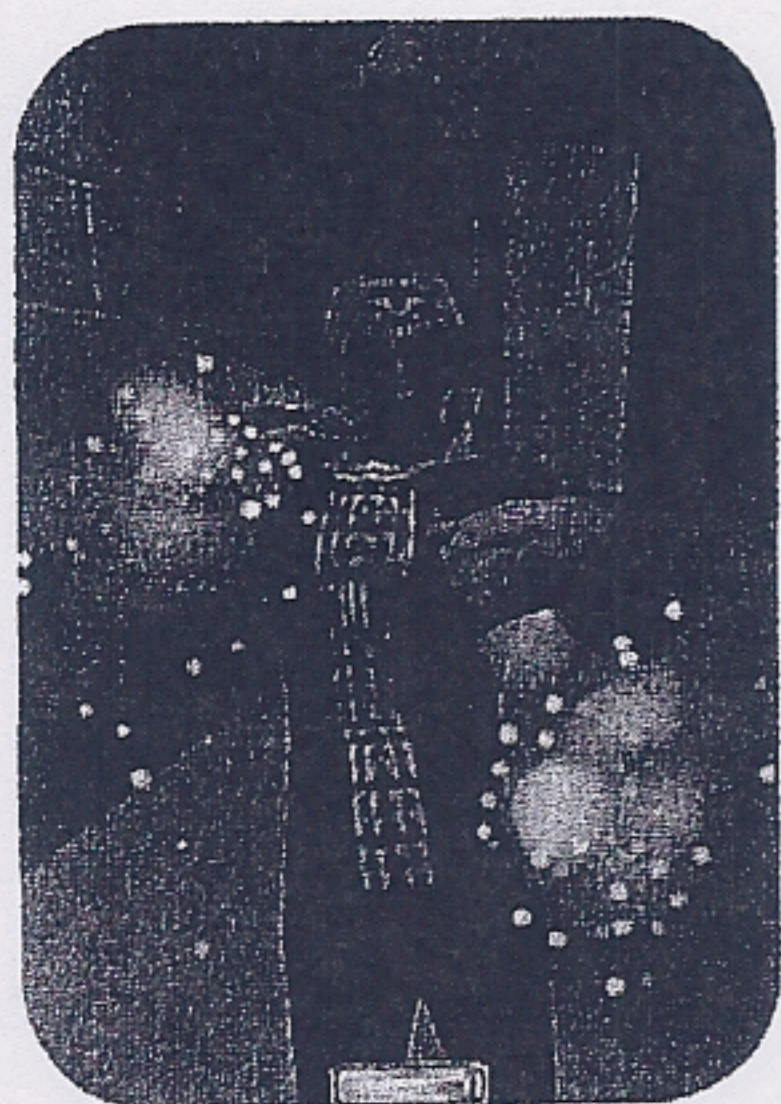


RELEASE: SPRING

## Big Kerbang Boom

Even those who aren't into patching USB cords and tweaking bit rates have heard about the download-able-music revolution – secondhand. Now Kerbango, like its chief rival, PenguinRadio, makes Internet listening PC-free.





GAME

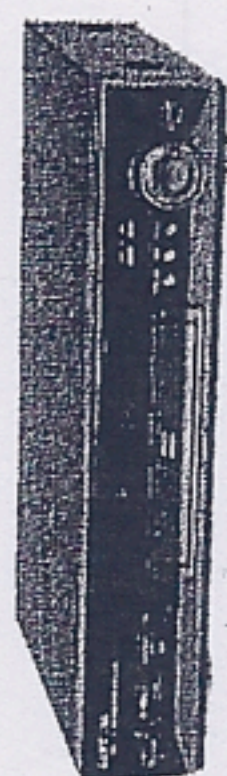
## Thief of Arts

In *Thief's* worthy sequel, subtitled *The Metal Age*, you again play Garrett, a cat burglar who plies his trade in a nameless fantasy city. You venture out armed with only a sword, a blackjack, and a bow. Unlike most of its first-person peers, *Thief II* is defined not by mindless firefights but by a cunning dance of stealth, observation, and bursts of well-timed action.

The suspense is keen as you inch unnoticed past a cadre of guards, so close you can see their bloodshot eyes. The game's interface merges you with the Garrett persona so seamlessly it will feel unprofessional to noisily hack a guard to death. Instead, creeping up behind, you'll hear the guard muttering and singing to himself – and feel a touch of pity before you lower the silent knockout blow.

Like its predecessor, *Thief II* wisely emphasizes the heists – Garrett leaps along city rooftops to invade a medieval skyscraper, or crawls into the bowels of a ship. Visually, *Metal Age* is richer in texture and architectural detail, evoking an eerie world where the culture, religion, and technology of disparate epochs meld together. Its somber, literary tone still allows for flashes of Pythonesque humor, and goals change as characters develop. While delivering incomparable thrills, *Thief II* provides something rarer than one of Garrett's conquests: a PC game that is also a work of art. – *Wagner James Au*

*Thief II: The Metal Age*: \$49.95. Eidos Interactive: [www.eidosinteractive.com](http://www.eidosinteractive.com).



RELEASE: APRIL

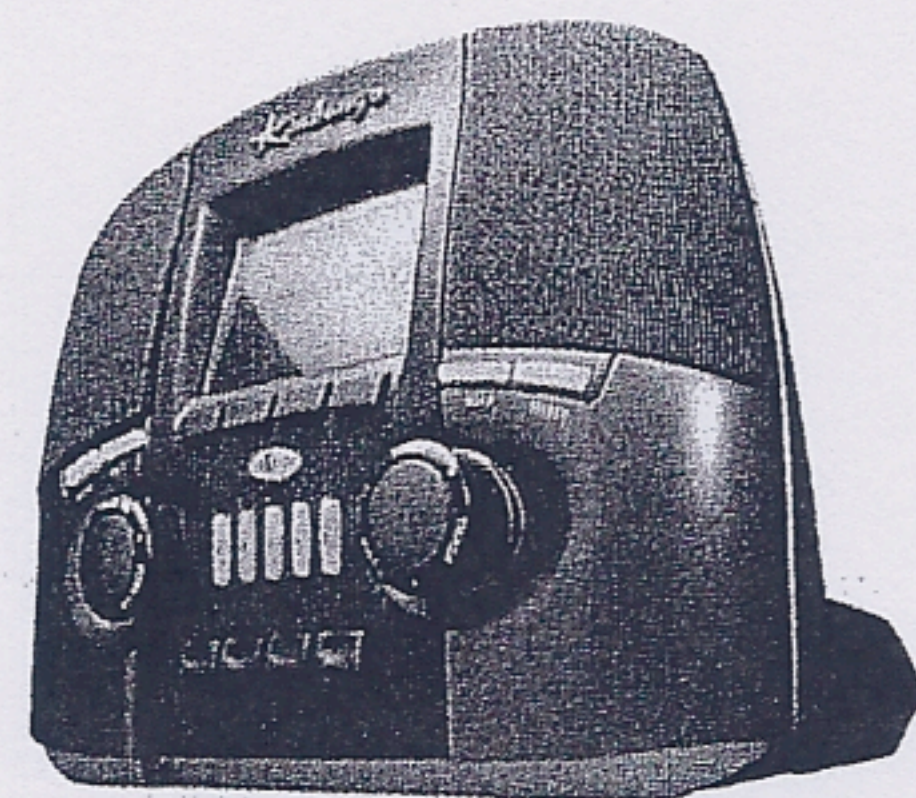
## Movie Toaster

Samsung tramples the line between *The Godfather, Part II* and *Quake III* to bridge the living-room generation gap. Using the long-anticipated NUON chip from VM Labs, Samsung's DVD-N2000 crunches movies as if they were videogames.

The \$499 player lets you zoom in anywhere on the screen; its multiple-picture strobe shows 16 small consecutive frames to help locate stills. And with Multiple Angle Discs – most popular for porno titles and New Age music videos – you can switch shots midscene, choosing from thumbnails along the bottom of the screen.

The device also plays NUON DVD games, including *Iron Soldier* and *Tempest 3000*, which take advantage of the format's big capacity and the chip's fast processing. And the DVD-N2000 even uses its video chip when playing regular audio CDs, generating a colorful, abstract light-show synchronized to the music. – *Paul Spinrad*

Samsung Electronics:  
[www.samsungdigital.com](http://www.samsungdigital.com).



RELEASE: SPRING

## Big Kerbang Boom

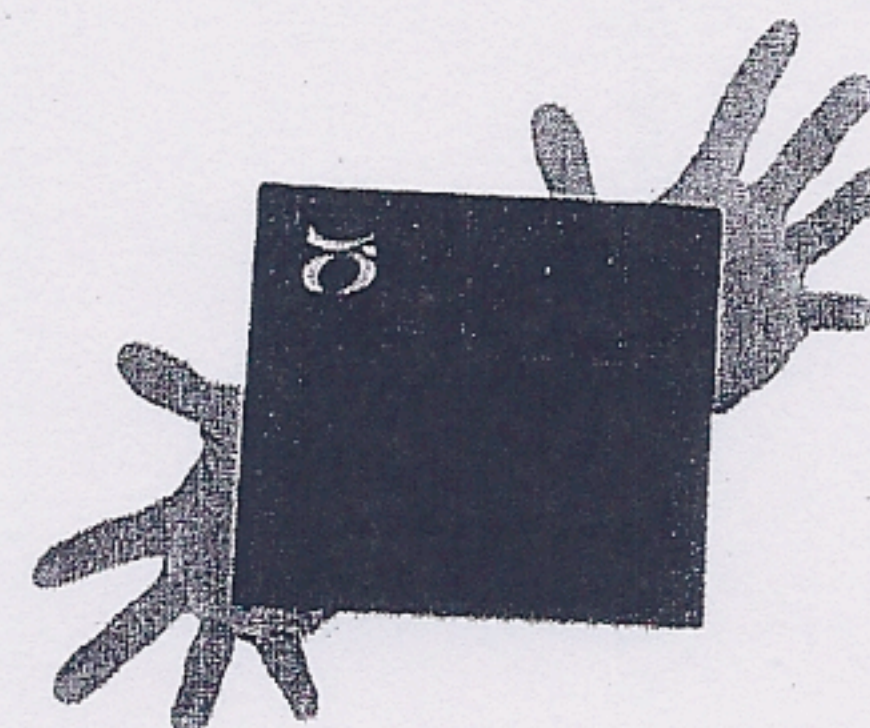
Even those who aren't into patching USB cords and tweaking bit rates have heard about the downloadable-music revolution – secondhand. Now Kerbango, like its chief rival, PenguinRadio, makes Internet listening PC-free.

If you've mastered FM, you can use the Kerbango – it even looks like a regular radio. The device uses a data line instead of an antenna, but the interface is pure RCA, complete with dials, buttons, and knobs. The first time you plug it into a power outlet and connect it to your phone modem, DSL, or high-speed cable line, the radio leads you through a onetime configuration procedure. After that, you use the LCD screen to look through listings of sites that serve audio content, whether live or recorded, streaming or otherwise, in RealAudio, Microsoft Media, and MP3. Sound quality depends on the original source, the format, the proximity of the server, and your connection, but people with broadband pipes will generally get near-CD quality.

Since this is the Net, you can kiss standard programming good-bye. While Kerbango can certainly play NPR, CBS, and Top 40 radio, it also receives remote international stations, "mature" comedy outlets, and even big-city police scanners.

The radio unit will find stations through Kerbango's database, which has been part of [www.kerbango.com](http://www.kerbango.com) for several months. The searchable database is a great resource, and the new gizmo helps Kerbango leverage the online property. Sales of hardware should provide another source of revenue, and the company also plans to make a little extra cash every time you buy music-related items like concert tickets through the radio's trusty Buy button. – *Eric Putter*

Kerbango: +1 (408) 257 1400, [www.kerbango.com](http://www.kerbango.com).



RELEASE: SPRING

## A Way for PCs to Feel

Tactex Controls' MTC Express looks like an ordinary mouse tablet, but it can tell the computer how hard you're pushing down as well as where. And unlike other peripherals, it registers multiple touches, all at once, over its whole surface. The pad can serve as a simple pointing device, or you can program it for more sensitive endeavors like gaming, art, or music.

MTC Express' Smart Fabric consists of a dense network of optical fibers embedded in cushy foam. It works by sending light from LEDs through the fibers; when pressure bends the passageways, light bounces backward instead of continuing through. An array of sensors measures the level of backscattering. The harder you push, the more light is lost, so the synthetic skin distinguishes between a tickle and a poke.

Product beta testers were mostly computer-music types – including Robert Moog – who used Opcode Systems' music-control language MAX to make the pad imitate musical instruments like keyboards, where position and pressure determine pitch and volume. Companies have already begun designing instruments based on the patented material.

Inventor Robert Inkster sees even more capabilities for Smart Fabric. As a result of a recent demo, one major auto manufacturer is considering it for bumpers and car seats. – *Paul Spinrad*

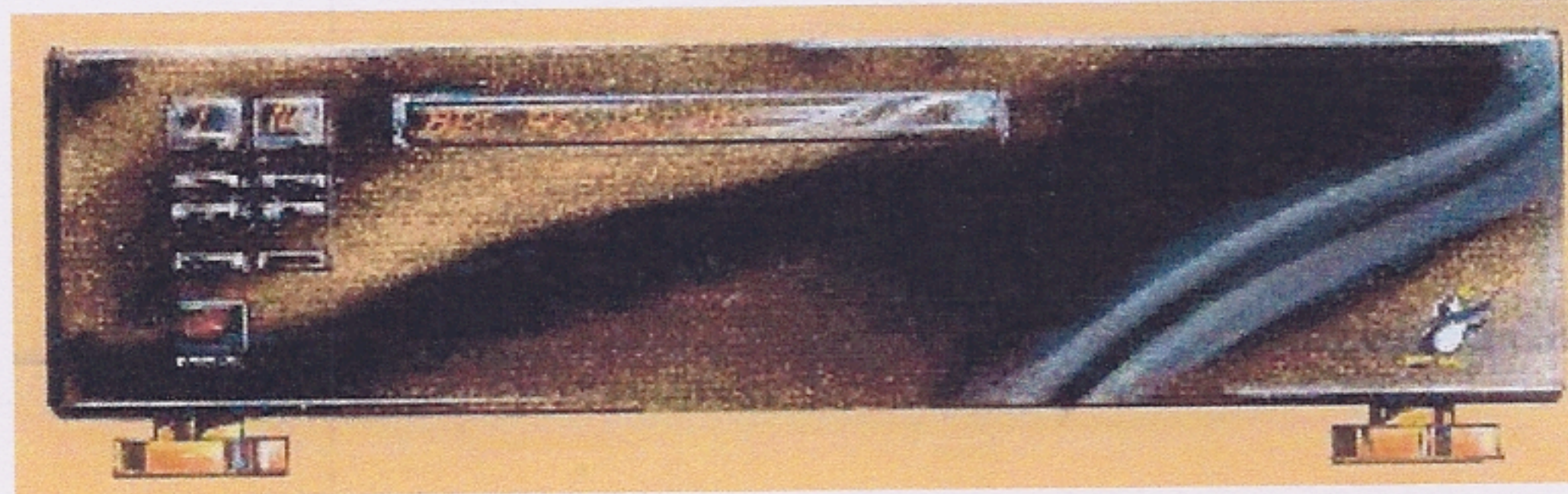
Tactex Controls: [www.tactex.com](http://www.tactex.com).



# empeg designers to develop mass-market PenguinRadio

Rick Lehrbaum | January 10, 2001 12:00 AM PST

Washington, DC -- (press release excerpt) -- PenguinRadio, Inc. has just announced that they have commissioned JB Design of Petworth, United Kingdom, the design team behind the highly successful empeg car player, to develop the PenguinRadio for mass production.



**PenguinRadio concept drawing**

The PenguinRadio is a Linux-based Internet audio appliance designed to deliver online audio content -- no PC needed. Working in close liaison with The Product Development Center (PDC) of Worthing, England, JB Design will streamline PenguinRadio's internally created prototypes to meet mass market production needs.

"The concept of Internet radio is already receiving much media attention. The ability for any one company to seize this initiative and become known as the 'hub' and 'household name' for this traffic represents a huge opportunity for PenguinRadio," said John Bull, Managing Partner of JB Design.

"JB Design is a leading and highly-creative product design company that has a remarkable track record with the empeg car MP3 player," PenguinRadio President Andrew Leyden said. "We're pleased to be working with them as they have put a lot of energy into thinking about the next generation of Internet audio devices."

"We have great respect for the work Hugo Fiennes and the Empeg team have done for Internet audio and are pleased we can work with those associated with that great product" said Andrew Leyden, founder, President and CEO of PenguinRadio. "JB Design and the PDC offer us great experience with Internet audio and an opportunity to develop a product that can meet the needs of both the US and European markets."

## **Related stories:**

Device profile: empeg car audio player

Coming soon, to a car near you: Linux-based Internet radios

Linux-based PenguinRadio to revolutionize radio?

PenguinRadio receives strong equity signal



## CES tunes in to Net radio

*Low-cost single-purpose devices could be the key to listening to audio streams*

By Carl Lindeman

Internet radio holds a lot of promise, and, at last week's CES, there was much discussion over what type of Internet appliances will be needed to make computer-based listening an attractive offering beyond the PC.

There's no denying that the potential is there. A Consumer Electronics Association study shows that, as of early 2000, 63% of consumers with multimedia PCs had listened to online radio at home, up from 33% in 1999. But the continued growth and development of Internet listening depends on reaching past the confines of the computer.

Repackaging online audio for everyday use involves numerous technical and design challenges. What should an Internet radio "tuner" look like? How can connecting such devices to the Internet be simplified?

Several manufacturers have set out to establish standards. The payoff could come by creating a booming new consumer-electronics category that reshapes radio listening.

"There are so many stations available online that a poor interface might be very difficult to use," says Kerbango Tuning Service Vice President Jim Gable. "We've made finding what you're looking for fairly simple. It looks like a traditional radio."

The Kerbango Internet Radio is a stand-alone device priced at \$300. What's hidden inside is a broadband-connected computer dedicated to playing streaming audio. The unit is scheduled to ship shortly, and an analog modem version will follow. Other appliances, such as Akoo.com's Kima, are computer add-ons costing about \$100.

"This points to a future where every home uses a PC as a server powering various tasks for various people," says Akoo CEO Niko Drakoulis. "We're developing wireless devices to take the music entertainment out of the PC." As yet, it's too early to tell whether either the stand-

alone or the peripheral design will prove a winner.

Despite these differences, there seems to be a consensus among designers that the best way to ease consumer anxiety is to have the new devices emulate what's familiar. For years, knobs and dials have given way to digital tuning buttons and other changes. The "tuner" metaphor popping up in the Internet radio interface harks back to the analog era. "Tuning" here really means searching through online databases of Webcasts collected by the companies to support their devices. The goal is to license the interface and database to

Several manufacturers are trying to establish standards. The payoff could be a booming new consumer-electronics category.

alone or the peripheral design will prove a winner.



brand-name-manufacturers. iM Networks (formerly Sonicbox, Inc.) scored a coup at CES by announcing that Philips Consumer Electronics will integrate iM tuning in an mini audio system coming to market in the third quarter.

More important to broadcasters is how the company controlling the database becomes the go-between to their online audience. Since there is no "frequency" defining dial position, how this is organized affects listenership.

"Placement is key," says Penguin Radio President Andrew Leyden. "Our No. 2 spot is the U.S. Naval Observatory time signal. Because of this, it always ranks in our top 10." According to Edward T. Hardy, CEO of Measurecast, an online metrics agency, this could create a battle between broadcasters for preferred placement. "My guess is that we're going to see people vying for position on the various appliances, perhaps even paying for premium dial position."

Eventually, such payola for positioning could become a line item in the online-audio promotion budget. "We are looking at but haven't decided whether to charge premium fees for location," says iM Networks CEO Scott Smith. Akoo.com's Drakoulis plans to make this a key differentiator for its product. "We don't want to let people buy their way to the top. We're going to make this interactive for listeners: Before we designate a 'featured' station, the users are going to have to vote it as such."

Another essential issue for widespread adoption of Internet radios is ease of installation. For Leyden, this explains why most mainstream manufacturers are still on the sidelines. "Their forte is

building boxes. Creating an Internet interface, becoming Internet service providers isn't really what they do," he notes. "If you buy a VCR, it snaps into almost any cable or TV connector. But with the Internet, there are various protocols—for example, DSL or ISDN."

Thus, 3Com's purchase of Kerbango last year makes sense given the technology giant's expertise in networking and broadband. A consumer craze for Internet radio would also help 3Com by driving broadband adoption. "3Com is a major broadband provider," says Kerbango's Gable. "When people try broadband, they love it. They can't go back. Broadband in the home is going to be a utility like cable and electricity".

Is the overall dotcom devaluation causing turmoil for these upstarts? Those competing in the Internet-radio-appliance space feel insulated from the imploding market. "When most dotcoms make a presentation to investors, all they have to offer is a Powerpoint presentation," says Leyden. "We put a box on the table. Also, unlike some dotcom concepts, venture capitalists find this easy to grasp. One of our 'angels' told us the acid test is explaining this at a cocktail party. When he says that he's funded a company that delivers Internet audio without a PC, people get it right away. The simplicity is very exciting."



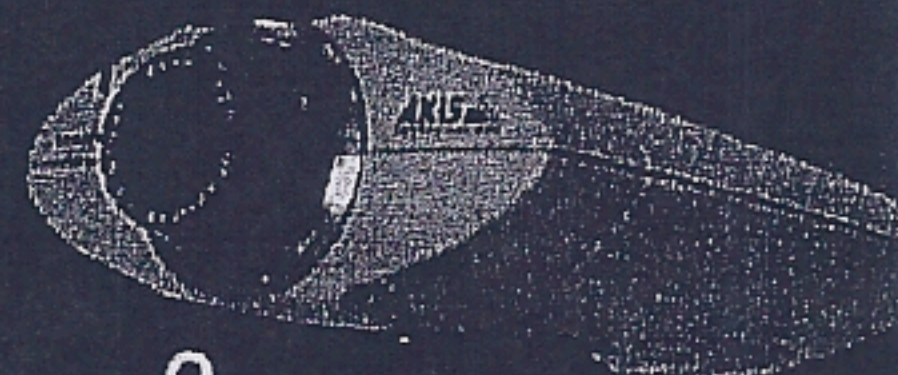
# LINUX JOURNAL

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## Embedded Future

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## Andrew Leyden— CEO of PenguinRadio

by Jason Schumaker

One of the coolest Internet appliances being developed comes from PenguinRadio. The company was founded by Andrew Leyden and is working toward providing the world with an Internet-based car radio that will allow access to thousands of stations—from anywhere in the world. Imagine listening to your favorite radio station (if you have one) from Madrid while driving away from the latest black-tie affair at the Gates mansion outside of Seattle. This will be possible, eventually, thanks to PenguinRadio.

While they are still in the development and venture capital-raising stages, the prospects are exciting. By partnering with wireless communications developer Ineva.com, PenguinRadio may be able to differentiate itself from Kerbango, its nearest competitor. Ellipso, Inc., called a “sister company” by Ineva, will provide the satellite technology that makes listening to any station, anywhere, possible. Ellipso, as mentioned on their web site, has three patents covering their “elliptical orbit and deployment characteristics”.

They have found a way to link satellites high above the earth in order to provide uninterrupted service nearly anywhere in the world.

I talked with PenguinRadio CEO Andrew Leyden about the latest developments at PenguinRadio.

*Jason: Why Linux?*

**Andrew:** There was never a debate as to the operating system for the PenguinRadio. Not only did Linux meet our needs technically (scalable, stable, inexpensive) but it also fit our ideals philosophically. We believe very strongly in working with others to develop new products that are going to bring the Internet (and Linux) to more people.

*Jason: How has Linux worked so far? What problems have you encountered?*

**Andrew:** When we first started developing our box, we were occasionally stumped by hardware conflicts and a lack of drivers for certain parts of the radio, but the Linux community has proven to be a great resource for us in helping us develop this product. We’ve e-mailed and chatted with people all over the world who have offered suggestions, given guidance and

pointed us to the right way to make a device like this become a reality.

One problem that has yet to be overcome is the view (in some quarters) that Linux is little better than shareware. We’ve demonstrated this not to be the case, but some of those with money and software necessary to make a box like this work are not totally committed to the idea of Linux. They’d like to see machines work on more established systems backed up by “professional” (i.e., paid) support.

*Jason: You said that when first developing with Linux, you “were occasionally stumped by hardware conflicts...” Could you provide an example?*

**Andrew:** Some of the less-expensive hardware we were experimenting with had poorly supported sound chips, making it difficult to produce glitch-free audio output at the \$200 price point.

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**Imagine listening to your favorite radio station from Madrid while driving away from the latest black-tie affair at the Gates mansion outside of Seattle. This will be possible, eventually, thanks to PenguinRadio.**

---

*Jason: What operating system do you use at work/home?*

**Andrew:** We’ve got a mishmash of machines around our offices and home. We use Macs for a lot of our web design work, Windows machines for some of our office functions, and Linux boxes to keep them all running straight. Our chief designer actually has a Linux box set up to maintain a webcam in his house so he can check up on his dogs while he’s at work.

*Jason: When is the product expected to be available to the public?*

**Andrew:** Our goal remains sometime this summer or fall, but in order to make the device easy enough for my mother to use (i.e., she knows how to dial the phone), I have to spend more time making it easier to use.

People expect a radio to work every time they turn it on. Computers can crash and have blue screens of death, but a radio is something that you turn on and it works. If it doesn’t, you



throw it out and get a new one. We need to meet this expectation of a 100% foolproof device, which is a bit difficult.

**Jason:** What is the projected price range?

**Andrew:** We feel we can get these devices out in the \$200-\$250 U.S. price range.

This is what we consider the "one spouse" price point, i.e., one spouse can purchase without the permission of the other. Your mileage may vary on this...

**Jason:** What station would you listen to from, say, Cairns, Australia?

**Andrew:** We currently have about 50 Australian radio stations in our database, including a few from around Queensland, and are working to improve this number on a daily basis.

There's actually a very strong interest in a product like this in island nations like New Zealand, Australia and the U.K., where traditional radio has very real geographic limitations.

**Jason:** Could you please provide a bit of background information about yourself and your company?

**Andrew:** Most recently I served as Counsel to the Commerce Committee of the House of Representatives in Washington, D.C. This is the committee of jurisdiction over the telecommunications network, the Internet and all commerce in the United States. I conducted a number of oversight matters into technology, and it was while working with the committee that I came up with the idea of the PenguinRadio.

I was spending some time writing a memo, playing a streaming media feed in the background when I ran into a problem many people have confronted: the computer could not handle the decoding and the other task at the same time. There were blips and beeps and delays. Initially I said, "buy a new computer that is more powerful", but then it hit me, "no, go the other way. Make a streaming media device." I did a bit of research into the sector and decided this would be a great device to have in my own house, regardless of whether or not I sold a million units. I left the committee about a year ago, raised an angel round from some interesting investors and recently closed on my first VC round from the Internet Partnership Group.

**Jason:** Will you be releasing any of your work to the Open Source community?

**Andrew:** We haven't figured out what is going to be released and what is to stay with us, but I'm pushing hard to be generous to the Open Source community, as they have been so helpful with us. We already allow other web pages access to our portal of thousands of radio stations and plan to work with other device manufacturers to allow them access to the work we've been conducting.

**Jason:** What sort of help do you need from the Open Source community, in terms of development work and so on?

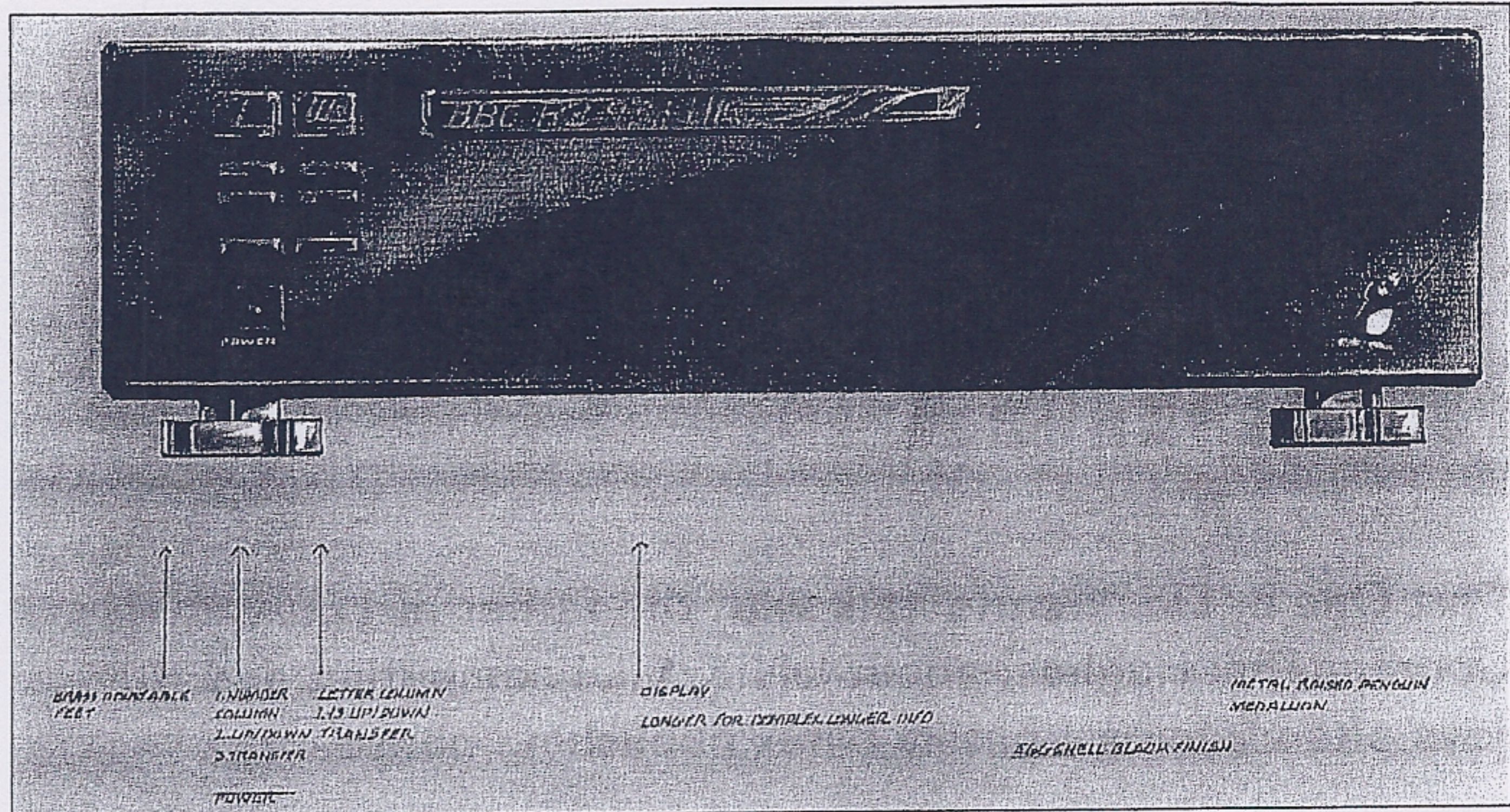


Figure 1. Prototype of PenguinRadio

**Andrew:** Comments, suggestions, rants, raves. Whatever they feel might be helpful, or any problems they've encountered in working on embedded systems are greatly appreciated.

**Jason:** Which Linux kernel are you using?

**Andrew:** We've been experimenting mostly with the 2.2 series. At this stage, we want to use a fairly modern kernel and we're not as concerned about the kernel size, since memory is cheap and getting cheaper all the time.

**Jason:** Have you released the source code to your Linux port?

**Andrew:** We don't mean to sound evasive, but the streaming audio landscape is evolving and changing so quickly that we're not ready to release anything at this point. Our work is mostly in writing customized applications, so there's nothing really tricky or unusual with the distribution that we'll use.

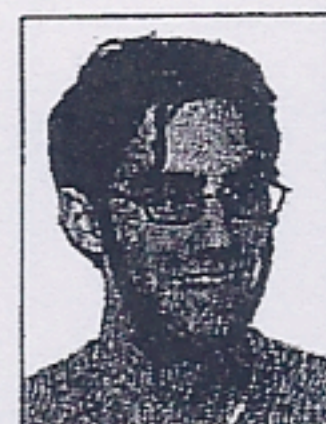
**Jason:** Is there a demo of the radio available, or are you still in the development stage?

**Andrew:** We have built some prototypes, but there's not an official demo unit.

**Jason:** Who would you identify as your main competition?

**Andrew:** As far as the hardware arena is concerned, the company formerly known as Kerbango comes to mind. But that's just one dimension of PenguinRadio. We've partnered with Ineva.com to deliver Internet radio just about anywhere a satellite signal can be received. PenguinRadio is also geared towards the wireless community, as we deliver the sounds of the Internet via our stripped-down portal, phoneradio.com.

**Jason:** Thank you for your time, and best of luck. ☺



Jason Schumaker (jason@ssc.com) has worked for *Linux Journal* for nearly two years. He is Assistant Editor and a staff writer and spends much of his time outside work injuring himself while playing various sports. He's a jock.



# The Hong Kong Apple Daily



B7 二〇〇〇年九月六日 星期三 農曆庚辰年八月初九日



# 上網收音機 全球電台任聽



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The PenguinRadio is the future of audio delivery on the internet.

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We also wish to hear from those in the open source community who wish to help in our efforts. Drop us a line if you've got experience with streaming media or LINUX.

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Shopping

### 網上生意經

互聯網雖然無遠弗屆，並提供無數有用資訊，可是全球仍有不少人對電腦操作感到陌生，想到要用電腦上網才可瀏覽資訊便覺麻煩，因此目前市場大趨勢是把互聯網結合其他媒體和媒介應用；如中華煤氣的名氣佳 (www.icare.com.hk) 便利用機頂盒提供電視上網服務；盈科的NOW網絡除了在網上提供寬頻廣播外，所有節目亦透過衛星向亞洲1.3億戶家庭作廣播。而美國最近亦有一間網上電台企鵝電台 (PenguinRadio.com)，正在籌備把數千個網上電台，透過人造衛星作全球廣播。

這間名為企鵝電台 (網址為 www.penguinradio.com) 的網上電台公司，宣布將推出一部專門收聽網上電台廣播的網上收音機，用戶只需把收音機接上電話線或寬頻網絡上網，便可收聽全球數千個網上電台。這設備有點像用電視上網的機頂盒，但只用來上網收聽電台廣播，而且操作簡易，沒有使用電腦上網的麻煩。

### 工作習慣啟發概念

該公司行政總裁萊登 (Andrew Leyden) 指出，上網收音機這個構思，是來自他利用電腦工作時，喜歡先上網接上網電台，一邊聽收音機，一邊工作，但他發現電腦要一面接收及播放電台訊號，一面處理其他工作時，會十分吃力，令播放的音樂斷斷續續，有時甚至會「死機」。

起初他以為自己的電腦不夠強勁才會這樣，但後來他換了

部更強的電腦，發覺情況仍沒有改善，每當電腦執行一些較大的應用程式時，便會影響收音的運作，於是他想到了不如設計一部專聽網上電台的收音機，令他可以一邊工作一邊收聽不受干擾的網上電台，即使這樣的一部只用來聽網上電台的收音機未必為市場受落，但設計來自解決自己的問題，也是一個不錯的主意，於是企鵝電台因此而成立。

萊登於1年前離開其商貿專員的本行，籌措了一筆資金成立企鵝電台，並着手研製網上收音機，預計這收音機可在今年年底前推出。該公司最近亦獲創投資基金 Internet Partnership Group 入股注資，並成為最大股東，主要是看好其新一代網上收音機的發展。

### 衛星傳送造福司機

最新發展是除了家庭用上網收音機外，該公司亦打算透過衛星廣播把上網收音機帶到汽車上，令車主可以一面駕車，一面收聽全球數千個網上電台。

該公司跟無線通訊開發商 Ineva.com 及人造衛星公司 Ellipso 合作，研製一台接收衛星訊號的汽車上網收音機。Ellipso 擁有專利技術，可以透過多個人造衛星合作傳送訊號，令汽車無論駛到全球任何一個角落，也可以接收到不中斷的電台廣播；配合企鵝電台的上網收音機，令用戶無論身處世界任何地方，皆可在數千個網上電台中自由選擇節目收聽。

預計在年底推出的家用上網收音機每部定價約2000港元，而汽車用衛星上網收音機則仍在研製中，未有定價，預料可在2002年推出。

不少大機構也覬覦網上電台這個市場，例如在6月底，3Com集團就以8000萬

有得睇，圖為其對手 Kerbango 的出品，每部約售 2300 港幣。

美元的現金，入股企鵝電台的勁敵 Kerbango，Kerbango 出廠的上網收音機，據稱可接收逾4500個電台，售價約300美金 (2300港幣)。Kerbango 行政總裁菲奇 (Jon Fitch) 說，3Com 入股有助公司業務發展。

此外，企鵝電台亦在發展一個名為 PhoneRadio.com 的網站，準備為手機、Palm 等電子手帳提供上網電台服務，實行電台廣播這種幾十年前的舊技術帶到互聯網的新紀元之中。

鍾偉民 電郵 ray@openrice.co



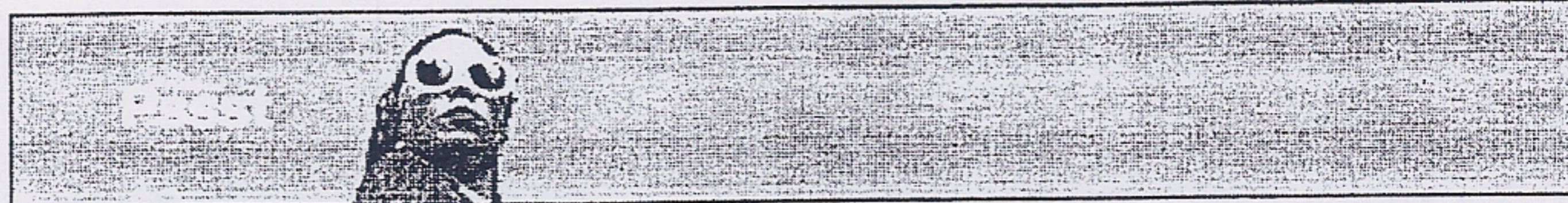
企鵝電台乃後起之秀，要於後居上陣容鼎盛，Kerbango 還需加倍努力。圖為菲奇 (Jon Fitch) 與 Kerbango 的老總菲奇。

Kerbango 另外與 Thomson 公司合作生產的上海收音機。





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### [Linux-based Internet radio firm gets backing](#)

Penguin Radio's chief executive says the company is receiving an investment that will build its staff and further its Linux-based Internet radio development.  
June 28, 11:50 a.m. PT in [Personal Technology](#)

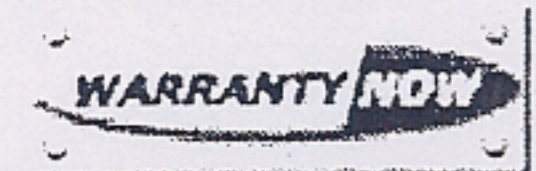
### [Microsoft's e-commerce software put to test](#)

The company releases the test version of Commerce Server 2000, its latest server software for building e-commerce Web sites.  
June 28, 11:45 a.m. PT in [Enterprise Computing](#)

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As expected, the Federal Reserve leaves interest rates unchanged, preferring to wait and see whether several previous rate hikes have tamed the economy and reduced the risk of inflation.  
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## Linux-based Internet radio firm gets backing

By [Stephen Shankland](#)  
 Staff Writer, CNET News.com  
 June 28, 2000, 11:50 a.m. PT

The interest in Linux-based Internet radios is picking up.

At the same time 3Com [acquired Kerbango](#) for \$81 million, another company, [Penguin Radio](#), received an equity investment from Internet Partnership Group, said Penguin Radio chief executive Andrew Leyden.



Andrew Leyden  
 Penguin Radio CEO

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Penguin Radio is building a device that will receive digital radio broadcasts over the Internet, then pipe the signal to a home stereo system. The company also is working on a portal site called [PhoneRadio.com](#) to provide links to Internet radio for people with cell phones, PDAs (personal digital assistants) and other portable gadgets.

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In addition, the company is working on an Internet car radio that will receive signals from the Ellipso satellite Internet service.

Leyden declined to say how much Internet Partnership Group invested. "It is enough to get us through the year and then some and allow us a massive buildout of staff, development of the Web portal, and further research and development on the device," Leyden said in an interview.

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The funding also will help the company expand into Europe and Latin America. Through the deal, Penguin Radio gets access to Internet Partnership Group's proprietary sports content.

Penguin Radio hopes to have its radio design finished by late summer or early fall, Leyden said. "The easier we try to make it, the

more time it takes," he said.

The price of the radio should be between \$200 and \$250, Leyden said.

It will play MP3 and Real Audio files, he said. Although Linux machines can't yet play Windows Media files, it's possible that Penguin Radio will use an additional chip that will give the device a way to play the Microsoft format, Leyden said.

The device will come with a modem or Ethernet port to tap into the Internet, he added.

Linux, a clone of Unix that's being developed by an army of programmers and enjoys a stronghold in servers, is moving after "embedded" devices that typically have specialized abilities and user interfaces.

Kerbango's radio uses MontaVista Software's version of embedded Linux. Kerbango, like Penguin Radio, also devotes time to cataloguing Internet radio sites.

Penguin Radio has some prototypes using Red Hat's version of Linux and others with its own. For the production model, Penguin Radio is "looking at approaching all the big Linux providers" or sticking with its own version, Leyden said.

Kerbango is based in Cupertino, Calif. Penguin Radio is based in Washington, D.C.

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# noise

The latest news  
in interactive technology  
by Tony Kilcollins



## PenguinRadio Partners with Live365

Live365, broadcaster of streaming MP3 content on the Internet, has partnered with PenguinRadio to offer Live365 stations through the PenguinRadio interface.

Under the agreement, all of Live365's 29,000-plus stations will be accessible on multiple devices via PenguinRadio. PenguinRadio has developed a stand-alone Internet radio appliance powered by the PenguinRadio database. It allows streaming media feeds directly to a home stereo system. Technology is also in place for the delivery of Internet radio to mobile phones.

"We are pleased to work with one of the innovators in Internet radio delivery, which will help move Internet listening off the desktop," said John Jeffrey, executive vice president of Live365.

PenguinRadio CEO Andrew Leyden said, "Our goal has always been to deliver any Internet radio station in the world to anyplace on Earth through a variety of network devices. PenguinRadio and Live365 are fundamentally reshaping the distribution of radio and audio content, and we are pleased to partner with Live365's vast library of personal Internet radio stations."

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A SPECIAL REPORT ON CHANGING TECHNOLOGY

# WIREFLESS

FINANCIAL POST, WEDNESDAY, MAY 24, 2000

Internet radio tunes in everywhere



## BUT WHO WILL USE IT?

BY JAMES CARELESS

If you are tired of hearing the same old AM/FM radio stations in your car, technology will bring relief. In a few years, you will be able to tune in the thousands of radio stations available on the Internet, and you will not need a PC to do this — thanks to the advent of Internet radio.

The idea is simple enough: Just build a radio that connects directly to the Web, so that it can play back all the broadcast and Internet-only sites available there.

To take it a step further, you can cut the wires and put it in a car.

Based on current estimates, there are close to 5,000 different Internet radio stations to tune to.

"There's a tremendous amount of variety out there," says Marc Auerbach, vice-president of marketing at Kerbango Inc., which is soon to launch an Internet radio.

Everything from the British Broadcasting Corporation ([www.bbc.co.uk](http://www.bbc.co.uk)) to KISS FM in Cyprus ([www.kissfm.com.cy](http://www.kissfm.com.cy)) is available online. Internet radio listeners can tune into a spectrum of music, news, sports and music.

They can also find a wealth of Canadian stations on the Web, from Ottawa on-air rocker KOOL-FM ([www.koolfm.com](http://www.koolfm.com)) to Internet-only stations such as theiceberg.com ([www.theiceberg.com](http://www.theiceberg.com)).

The latter was co-founded by

## THERE ARE CLOSE TO

5,000 INTERNET

RADIO STATIONS

Penguin Radio ([www.penguinradio.com](http://www.penguinradio.com)) is currently developing an Internet radio and has plans for a version for the car. "We've made an arrangement with the Ellipso satellite company of Washington to basically take our stand-alone home box and scale it down to a car version," says Andrew Leyden, Penguin Radio's founder and CEO. "So the innards of the box will be extremely similar to the home version."

"The Internet connection, however, will be a [car-mounted] antenna that works with their satellite system."

The Penguin Radio price will be about US\$200 to \$US250, he adds.

Receiving the Internet by satellite is one thing. Receiving it from ground-based terrestrial transmitters — as listeners do AM and FM signals — is another. To provide nearly 5,000 streamed stations to car radios would require major bandwidth capacity. This is not something that a single radio station — or even a group of radio stations — could do on their assigned frequencies.

To make it possible, the Canadian government would have to allocate new bandwidth for Internet radio.

Could this happen? Well, there is a precedent for it: Digital radio, which is sweeping Canada. Already available in Toronto, Montreal, Vancouver and Windsor, digital radio delivers CD-quality sound to stationary and car-based receivers.

It does so over the L-band, which is located between 1452 MHz and 1492 MHz. The only catch: although most AM/FM stations in these cities are simulcasting their signals on digital radio, you need a special receiver to hear them.

The receivers are not cheap; an AM/FM/digital radio car receiver costs more than \$1,000 — although prices are expected to drop.

Even if the bandwidth could be found, the federal government would have to license Internet radio in Canada.

Digital radio only came about because Canada's private and public broadcasters supported it. Ottawa protected them by giving existing stations first claim on digital radio licenses. Internet radio would bring in a host of international competitors — none of them bound by Canadian content laws. It is hard to see Canadian broadcasters or the federal government supporting it.

One way Internet radio might win approval would be if Canadian stations sold this service for a fee.

Would people pay to tune in to Internet radio? Andrew Leyden of Penguin Radio believes so. He sees sports fanatics — who want to hear their team's games wherever they are — as natural Internet radio users.

Immigrants who want to tune in to broadcasts from their homelands, or Canadians away on trips would also find Internet radio useful.

It is not clear if mainstream listeners would want to tune in the world. Duff Roman, CHUM's vice president of digital radio operations, doesn't think so. He says most people want local programming from their radios.

Mr. Roman describes radio as a medium of "habit and familiarity." Once people find a station they like, they tend to stick with it.

It also remains to be seen if listeners would tolerate the crashes and glitches that can come with today's Internet traffic.

**Related Web sites:**  
[www.kerbango.com](http://www.kerbango.com)  
[www.penguinradio.com](http://www.penguinradio.com)  
[www.theiceberg.com](http://www.theiceberg.com)

Financial Post



====> NTNP SEARCH 1 - DOCUMENT 1 OF 1 - 2 DISPLAY PAGES

PAPER National Post  
DATE 010604  
PDATE Monday, June 4, 2001  
EDITION National  
SECTION Special Report: Financial Post: e-Xchange  
PAGE E3  
LENGTH 146 words  
STOTYPE Business  
COLUMN Penguin Radio  
HEADLINE Travellers will be able to hear the play-by-play of their  
favourite team -- by phone  
BYLINE James Careless  
SOURCE Financial Post

Out of Canada during a key game? Relax: In a few months' time, you could listen to the play-by-play from anywhere in the world -- by phone. The reason? U.S. Internet radio provider PenguinRadio ([www.penguinradio.com](http://www.penguinradio.com)) is beta-testing a new Internet radio-by-phone service. The idea came up when Andrew Layden, PenguinRadio's chief executive and founder, was out driving with some friends and wanted to hear a football game. But "it wasn't on the radio, so I had to call my father and say, 'Put the phone up to the TV.' " As planned, PenguinRadio's Phone Radio Analog Service will let users call up and choose from any one of PenguinRadio's 5,300 audio feeds. These range from the BBC and Iran's Radio 1, to police, fire and even pirate radio stations. The user will be able to select stations either by voice command or by using their telephone keypads.

\*\*\* END OF DOCUMENT \*\*\*



### III WHAT IS EDGAR?

#### A. Overview: EDGAR in 1995

EDGAR has developed into a \$111 million taxpayer-financed, stand-alone computer system which includes all the hardware, software, applications, maintenance and assistance needed to support electronic filing of financial documents from publicly traded companies.

The EDGAR system was originally designed and implemented under a 2-year pilot project contract with *Arthur Andersen* which ran from 1984 to 1986 and was extended until 1989, and from then on under an 8-year operational contract with *BDM* which was signed on January 4, 1989. Several subcontractors assist *BDM* including *Compuserve*, *Lexis-Nexis* and *General Electric*.

#### Technical specifications

**Hardware:** Receipt and Acceptance and Analysis and Review subsystems operate on linked *Stratus* host computers and a Unix server located at the SEC's Operations Center in Alexandria.

Database support for the Text Management Service is provided at *Mead Data Central* in Dayton using *IBM* and *Amdahl* mainframe computers.

**Software:** The *Stratus* computers use Virtual Operating System (VOS). The *Sun* server runs on *Solaris II*. EDGAR PCs use *OS/2* from *IBM* as their operating system and are loaded with *WordPerfect*, *EXCEL*, *cc:Mail*, and EDGAR database search software. The EDGAR software on the *Stratus* host performs data receipt, validation, and acceptance functions.

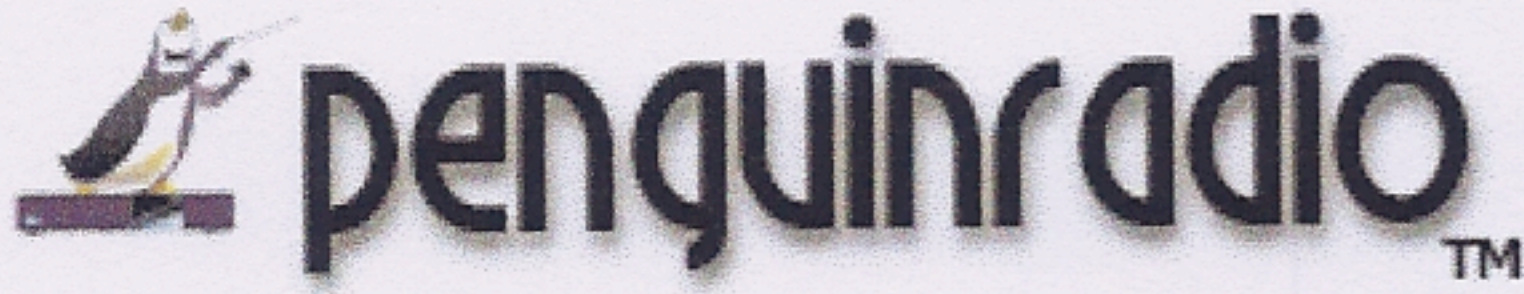
Both public and non-public EDGAR databases are supported in the Text Management Service run by *Lexis-Nexis*.



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## SATELLITE WEEK

### December 18, 2000

### PENGUINRADIO CONSOLIDATES INTERNET RADIO SERVICE -

PenguinRadio said deals with Activate and NTunes would provide turnkey streaming media solution for broadcasters that wanted radio station aggregation and digital media services. Streaming Plus service announced Wed. at Streaming Media West in San Jose will allow terrestrial and Internet-only radio stations to reach global audiences, Penguin said, using satellites to deliver service to customers.

Company also plans to market a set-top box or high-tech Internet-only radio that plugs into stereo without help of PC. It said prototype could be ready by first quarter next year. "We aren't concerned about being first because the first person usually builds up a lot of consumer anguish," spokesman said. "We want to be able to get the bugs out and learn from (others' ) mistakes." Penguin is also beta testing voice-enabled phone access to database of more than 5,300 stations.

CEO Andrew Leyden said combined service gave companies opportunities to "build a large international audience by aggregating and distributing traditional and Internet-only radio stations to next-generation devices" such as PCs, Internet home appliances, Internet car radios, mobile phones, Personal Digital Assistants. Companies will compete with satellite radio companies Sirius and XM, industry official said, but decision by U.S.

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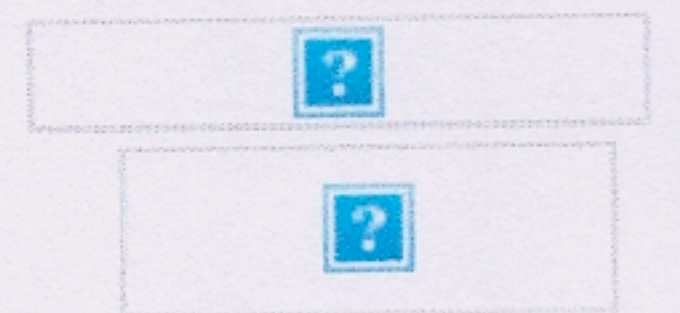
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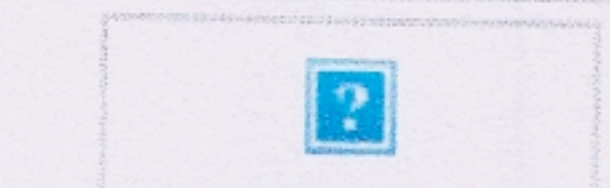
Copyright Office that backed rights holder on Internet simulcasting royalties could affect future service offerings. "It's not going to affect us as much as broadcasters," Penguin Vp Duncan Wood said: "The key is going to be how much Internet broadcasters are going to have to pay in royalty fees. It likely will make the cost of streaming on the Internet higher.

In joint venture with Penguin, Activate will provide Webcasting and digital media infrastructure and nTunes will handle e-commerce storefronts and distribution of PenguinRadio database of streaming audio through various channels.

Wood said company was streaming 5,300 stations globally, including 4,500 in U.S. "The problem with XM and Sirius is they are trying to create alternative programming," Wood said: "We're friends of traditional broadcasters. They know if they don't get online now, they are going to lose market share." Internet also offers new revenue opportunities, Wood said, through regional ads on Web pages and e-commerce. -- **Bruce Branch**

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