

# Industrial-strength quackery – Make 52% in two months when MedCo meets St. Peter

by Christian DeHaemer

Gene splicing, laser scalpels, virtual robotic microsurgery, rabbits that glow with the phosphorescence of a jellyfish, bitters, elixirs, vermifuges – the healing arsenal of today’s medical science verges on science fiction or alchemy. There are now, or soon will be, miracle cures for cancer, HIV, Hepatitis C, piles, rickets and warts.

Over the past few years, modern medicine has finished sequencing the human genome, Pfizer put out a cure from erectile dysfunction and Pepcid AC cured heartburn.

Medical and scientific revolutions have happened before. In the golden age of discovery, Edison, Bell, Marconi, Curie, Becquerel, and Tesla created new wonders never before thought possible.

From the turn of the century until about 1920, radium was supposed to be the answer to all our aches. Dubious cures were unleashed on a hayseed public unaware that Madame Curie’s fingers had fallen off from radiation poisoning before she died. Steel magnate Eben MacBurney Byers, who boasted that he had drunk 1,400 bottles of “curative” radium water in two years, died when his jaw dropped to the floor – literally.

## *You need that like a hole in the head*

Don’t get me wrong. I’m not shredding the amazing benefits of mapping the genome, or the wonders of bionic limbs. I’m simply reminding you of the basic elements of human nature. Where science goes, pseudo-science is not far behind. After all, this is the world that has brought you [www.trepan.com](http://www.trepan.com).

And given today’s networked world of global pharma voodoo, bureaucrats, politicians and Wall Street-spawned hype, it’s a wonder that any truth can be found amongst the spin.

It is at this crossroads of money, greed, and fame that we have found ourselves, dear

reader. Let me present to you a shell of a company. An amalgamation of analysts, doctors and obfuscation. A brain trust set up to sell shock stocks to the unwary.

## *The medicines company*

If the name of **The Medicines Company (MDCO:NASDAQ)** itself wasn’t enough to clue you in – the drug pipeline would be. But let me step back a bit.

This is the goal of MDCO, as stated by the company’s president and taken from the minutes of an FDA presentation ([www.fda.gov](http://www.fda.gov)) in October of 1998: “The Medicines Company is a young company with the mission of

bringing drugs to patients which might not otherwise get there, particularly drugs which are not considered sufficiently large to warrant the attention of larger pharmaceutical companies.”

“We acquired the drug bivalirudin from Biogen in March of 1997 after Biogen decided to discontinue their investment in this pro-

*(over, please)*

**High Valuations and a miserable product — make profits galore on MDCO’s inevitable plunge,”**

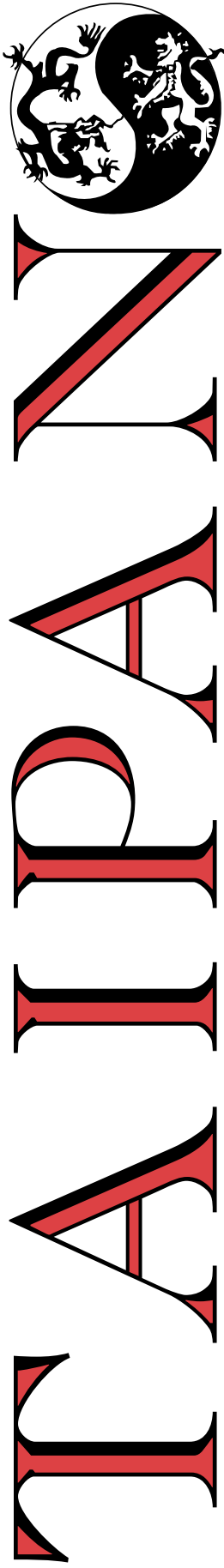
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gram for business reasons.”

### *Bad business plan*

In plain English, MDCO’s business plan is to buy late-stage drugs from large pharmaceutical companies. And take them public. This makes me wonder why big pharma would sell a perfectly good drug – unless it thought that said drug didn’t work or was economically unsustainable.

In the traditional pharma business, a company spends tons of money on a number of new drugs. Some percentage of these makes it through the expensive clinical and FDA trials. A smaller number have enough proven benefit that they are accepted by doctors and HMOs. These enjoy long patents and high margins, and become cash cows for the companies that developed them.

MDCO has neither the R&D to produce a blockbuster drug, nor the marketing infrastructure in place to sell marginal drugs, nor the chance of purchasing a blockbuster at an affordable price.

### *Drug salvage*

MDCO’s stated goal is to take three drugs to market. They hope that these drugs take no more than four years and cost less than US\$60 million. The company’s CEO has admitted that if they only have the capital resources for three drugs, then the first drug must be a success. The other drugs in the pipeline are a number of years away from entering the market.

The Medicines Company purchased their first drug, called Hirulog, from Biogen (BGEN:NASDAQ) for US\$30 million in 1997 – after Biogen stated that it wasn’t worth bringing to market (“not economically feasible”). Biogen is a large, successful drug company with an US\$8 billion market cap and almost a billion in annual sales. They know what they’re doing.

As of 9/30/00, The Medicines Company had not yet realized any revenues. Net loss totaled US\$79.5 million. They did receive US\$100 million from their IPO in August 2000. Given the current investment environment, I doubt they will receive further financing without a secondary. And without a viable revenue stream, a secondary offering on the open market could prove elusive.

### *Angiomax – the make-or-break drug*

MDCO bought Hirulog in 1997. This is a

blood thinner based on leech saliva that directly blocks thrombin, a substance in the body that creates blood clots. It is to be used in angioplasty surgery – where the doctors stick a balloon in your heart to prevent future “cardiac events.” The drug Hirulog aims to replace is called Heparin, which in the U.S. alone is used in more than 5 million patients a year.

Heparin is generic and manufactured by a number of different companies, has been used reliably in the vast majority of patients, and has the added benefit of being cheap. Biogen had hoped that the new drug would stop the more serious effects of hemorrhaging. After studies weren’t as strong as anticipated, the drug was sold to MDCO. Analysts following Biogen at the time said that they didn’t think it was going to be a huge drug and that the problem is price.

### *Point of sale*

On October 23, 1998, MDCO failed to win the backing of a Food and Drug Administration (FDA) recommendation panel for Hirulog. They neglected to disclose this in their IPO prospectus (granted, I may have missed it in between all the begats). The FDA said it was not sufficient for approval but came close.

In May 2000, MDCO put out a press release stating that they had received an “approvable” letter from the FDA for the drug now named “Angiomax.” I’m not exactly sure why they did this except to obfuscate the truth and launch a successful IPO.

In all fairness, let it be noted that the drug was approved in New Zealand in July. Furthermore, it would seem there is a chance that it will be approved in this country. And after the failure of Hirulog it would appear that MDCO successfully isolated a specific desired bioactive fragment.

To judge by studies published on the New Zealand website

(<http://www.medsafe.govt.nz>), the drug looks pretty good. I’m not a doctor, and I don’t play one on TV, but there is the possibility that the earlier problems with Hirulog resulted from the size and instability of the molecule, as well as toxicities resulting from fragmentation. MDCO seems to have solved those problems. What they haven’t answered is the question of economic viability.

I’m not saying that MDCO is an abject failure. Nothing is black and white. I am saying that The Medicines Company looks like a stock-selling, money-burning risky scheme



with a lot of downside in the share price.

## High valuation

As I write this, MDCO is trading at US\$26 with a market cap of US\$800 million. They have no sales and few prospects of sales anytime soon. MDCO has US\$100 million in cash from their IPO, minus their burn rate (guesstimate: US\$65 million remaining). The underwriter put revenue estimates at US\$91 million in 2003 and profitability sometime thereafter. That seems a long way away given a burn rate of over US\$100 million a year.

By way of comparison, Aviron has a market cap of US\$1.4 billion with current sales of US\$10 million and

EARNINGS PER SHARE		
Quarters	1999	2000
MAR	-21.090	-32.910
JUN	-25.610	-68.650
SEP	-19.210	-0.670
DEC	-13.890	n.a.
Totals	-79.800	-102.230

cash of US\$121 million. Aviron is also near approval of FluMist, which is expected to be a US\$500 million drug in its second year.

Regeneron Pharmaceuticals (REGN:NASDAQ) is a US\$1.3 billion company in terms of market cap, had US\$59 million in sales last year and has US\$117 million in cash. Both REGN and AVIR have a significant number of drugs in the R&D pipeline. They don't buy failed drugs from other companies that create them; they aim to create blockbuster drugs of their own.

By the way, these two companies are favorites of Brian Hicks, who sits next to me and crows all day long about how he got into AVIR at US\$13 and REGN at US\$7. (You can find out about his latest pick at [www.cuttingedgeonline.com](http://www.cuttingedgeonline.com).)

## Leech saliva and yeast infections

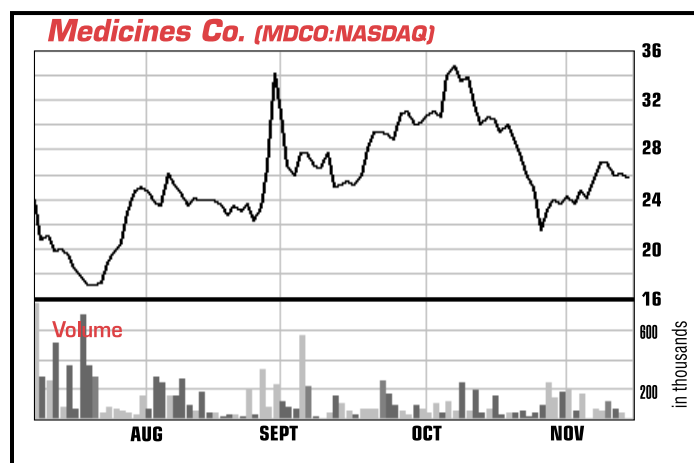
MDCO's plan was to purchase three drugs, and according to its CEO the first drug *must* be successful. At this point Angiomax is an open question. The second drug was a nasal spray for treatment of migraine headaches. It ran into problems and its development was halted. The third product is a naturally occurring lactobacillus in late-stage clinical testing for the treatment of a common gynecological infection known as bacterial vaginosis – yuck!

In the end, the bullish argument is that this company can ramp up sales of Angiomax – assuming it is approved before it runs out of cash. It's possible, but not worth a risk premium. In this case, the price to book ratio is almost 9. It has no price to earnings, nor a price to sales. It is trading at 12 times 2003 sales – so MDCO has that going for it.

The high valuation is due to our old friends and stock manipulators – the underwriters, otherwise known as the 7.5% club. Two months ago, CIBC World Markets put out a **Strong Buy**, JP Morgan rated it a **Buy**, and Roberston Stephens gave it a **Buy** as well. I love it when these guys pump up my shorts.

## Can't fight the tape

And as if a high valuation and a miserable product lineup wasn't enough reason for you to short this company, know this: There is a frightful new supply of stock coming down the pipes for this company. On February 3rd, 2001, 23 million shares of MDCO currently held by insiders will become eligible for sale. That represents 77 percent of the shares outstanding, and a 388 percent increase in supply over the 4 million shares currently on the market. Given recent daily volumes, it will take more than 250 days to soak up the excess shares – ouch!



**Short The Medicines Company above US\$26.** It might jump above US\$30 on a reiteration of buys and the January effect. If it does, short it again. Plan to cover on or about February 8, 2000. The short position is relatively small (currently only 2% of the shares), so you should be able to borrow some.

**Contact: One Cambridge Center, Cambridge, MA 02142, phone: (617) 225-9099, fax: (617) 225-232.**

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## Position your portfolio for the Year of the Snake

by James Passin

Our risk-adverse strategy has paid off for *Taipan* subscribers. As I write this, **my stock recommendations are up an average 31% in 2000**, despite the bloodbath in NASDAQ. Of course, it hasn't paid to be a shareholder in *anything* over the last few months; most of the gains were achieved during the first quarter.

But the Russian bubble is more than a lesson in humility for true believers and egomaniacs. The 1998-2000 boom/bust cycle in Internet stocks is hauntingly similar to the 1996-1998 boom/bust cycle in Russian stocks. Contrarian speculators should base their Year of the Snake strategy on a realistic technical outlook for NASDAQ.

### It's déjà vu all over again

From late 1995 to late 1997, Russian stocks surged by a factor of more than seven. The RTS Index of Russian stocks rose from a base of 65 to a peak of 575. This bull market consisted of three massive waves. Despite the strong performance of Russian stocks during the first two waves, most Western investors regarded the market with extreme skepticism. The fastest gains were achieved during the third wave of Q2-Q3 1997. During this third and final wave, U.S. retail investors became hysterical buyers of Russian ADRs, while Russian brokers pushed insanely overvalued "fourth tier" garbage stocks into the hands of eager Western institutions.

From early 1998 to early 2000, Internet stocks surged by a factor of more than seven. The GIN Index of Internet stocks rose from a base of 105 to a peak of 790. The bull market consisted of three massive waves. Despite the strong performance of Internet stocks during the first two waves, most institutional investors and market watchers regarded Internet stocks with extreme skepticism. The fastest gains were achieved during the third wave of Q4 1999-Q1 2000. During this third and final wave, U.S. retail investors became hysterical buyers of dot-com stocks, while Wall Street investment banks floated insanely overvalued garbage IPOs into the hand of eager mutual funds.

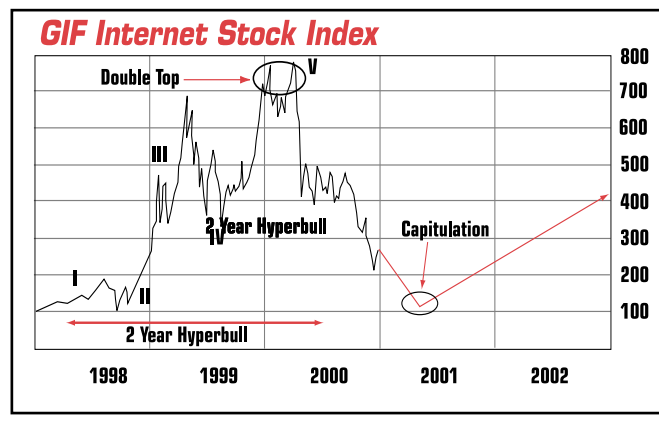
During the third wave, the RTS Index formed a "double top" formation as insiders aggressively distributed shares into weak hands. *When it became clear that not only were equity prices ridiculously overvalued, but that the equity bubble itself had introduced fundamental distortions into the real economy*, Russian stocks crashed. From the late 1997 peak to the late 1998 low, the RTS declined to 43 (93%), erasing the entire preceding bull market.

During the third wave, the GIN Index formed a "double top" formation as insiders aggressively distributed shares into weak hands. *When it became clear that not only were equity prices ridiculously overvalued, but that the equity bubble itself had introduced fundamental distortions into*

*the real economy*, Internet stocks crashed. Over the last 9 months, the GIN Index declined to 240 (70%).

The parallels are eerie. If this technical scenario continues to play out, the GIN index will decline another 60%, to 100 or lower, over the next three months. Such a decline would erase the entire preceding bull market. It is

### Eerily Familiar: The Late Internet Bubble vs. The Late Russian Bubble



my view that this decline is inevitable. After the decline, surviving Internet stocks could rise 5x to 10x from their absolute 2001 lows.

During the terminal shakeout, Internet stocks will become a joke. The vast majority of dot-coms will go bankrupt. Investors will swear off dot-coms forever. In fact, this entire process may already be occurring.

### Ursa Minor

While there's further pain ahead for Internet stocks, don't worry about Götterdämmerung. Thanks to the Internet bubble and everything it infected, NASDAQ is in

*(over, please)*



a bear market. However, it is improbable that the bear market in Internets will trigger a U.S. dollar crisis or a bear market in the Dow.

*If the dollar is not going to collapse after a 50% crash in NASDAQ, when crude oil is over US\$30 per barrel, during a political crisis in the Middle East, while there is no president-elect, when will it?* While the dollar has softened marginally against the Euro, and gold has made a modest rally, the dollar is still in pretty good shape. In my view, moderate dollar depreciation would be unequivocally bullish for the Dow, since it would boost earnings, improve the trade imbalance, and neutralize the deflationary pressures emanating from tech stocks.

While a number of Internet stocks are outright frauds, the Internet itself is very real. I use the Internet every day at work and every day at home. I use the Internet when I am on the road, via my WAP-enabled cell phone. I don't know about you, but the Internet continues to revolutionize every aspect of both my business and my personal life.

Contrary to the rantings of the perma-bears, the capital invested in e-commerce, telecom networks, fiber optics, et al., was not wasted. The original equity owners might get wiped out. But we all benefit. The capital spent on Internet infrastructure, branding, and software was the greatest *charitable public works project* in the history of the world.

While there may be overcapacity in the telecom sector today, there will be a shortage within a few years, *as the convergence of voice, data, and media eventually consumes available bandwidth.* The bondholders who take ownership of bankrupt new-age telecoms (possibly PSIX, GTS, etc.) will make fortunes. In the interim, the painful, deflationary commoditization of bandwidth will radically lower the cost of communicating.

Market sentiment is pessimistic enough to market a possible bottom in specific technology sectors. *The "market maven" page in Barron's is now 100% bearish.* This is a complete reversal of the 100% bullishness in Q1. Every market professional I talk to is bearish on U.S. tech stocks. While earnings are unlikely to grow in a slowing economy, my colleague Christian DeHaemer points out that managers may be stuffing every charge into earnings, setting the scene for favorable earnings comparisons next year.

## BEER goggles

Whatever happens to Internets, *the S&P 500 is cheap relative to treasury bonds.* If you invert the market's P/E ratio, you get the earnings/price ratio, or "earnings yield." This is a good measure of the return you get for tying up capital in stocks (or course, earnings are generally overstated through accounting tricks). By comparing stock yields to government bond yields (Bond yield/equity yield ratio or BEER), you can determine the fair value of the market.

Since stocks are riskier than bonds, stock yields should theoretically be higher than bond yields. In reality, inflation will erode fixed income streams over time, so the relative riskiness of stocks can be somewhat discounted. As

a rule of thumb, I believe that stocks are undervalued when stock yields = bond yields.

The trailing BEER ratio on the S&P 500 is 1.4. After the 35% drop in BEER, it is technically oversold. Based on historic technical action, BEER is likely to bounce materially from current levels.

Given my view on interest rates (economy slowing, Washington gridlock, Fed cuts, falling rates) and earnings (zero growth), the forward BEER on the S&P 500 is 1.1—cheap enough for me.

## IRS terrorism

A little-known change in IRS regulations may be having a catastrophic effect on U.S. stocks. Starting on January 1, 2001, a 30% withholding tax will be imposed on all payments to offshore funds with foreign partners. To avoid the 30% withholding tax, the ultimate beneficiary will have to reside in a country with which the U.S. has a tax treaty and the fund will have to submit certain forms to the IRS. As this is putting a tremendous regulatory burden on offshore hedge funds, and possibly scaring away a number of offshore limited partners, a significant number of funds may make a strategic decision to eliminate their investments in the U.S. This could exacerbate tax-related selling. By January, any one-time pressure resulting from these new regulations should end; but any permanent damage to U.S. portfolio inflows will reveal itself in the currency market. As a hedge against IRS insanity, it would be prudent to maintain a diversified global portfolio.

## Who cares?

A bull market needs leaders. New speculative themes will emerge. My chips are on **agricultural biotechnology** (the digital revolution has yet to extend to agriculture!), **adult education** (rising unemployment = growing need for résumé polishing), and **leveraged manufacturers** (falling rates, falling dollar, B2B benefits). Globally, I like **Caspian region oil** (pipelines coming!), **Israeli tech** (blood-on-the-streets!), and **Korea** (short-term liquidity crisis!). I am sniffing around in some other markets and sectors, with the objective of finding maximum inefficiencies.

My publisher asked me to identify losing recommendations that are clear tax-loss selling candidates. Given my views, it makes sense to sell the following positions for tax-loss purposes: **Uproar** (convert to NASDAQ shares before selling or you will immediately lose the spread on restricted EASDAQ shares), **TIGA** (spun off from ORCT), **RBD-NZSE**, **FAP-NZSE** (New Zealanders foolishly rejecting agbio!), **ASL**, and **SASOY** (failed to participate in oil rally!).

James Passin manages the Firebird Global Small Caps Fund for Firebird Management. Passin's fund is currently a shareholder in ORCT and TIGA. A fund managed by Firebird is currently a shareholder in Uproar. Passin's views are strictly his own and not necessarily those of Firebird or Taipan.



# Exponential growth at distress level prices

by Briton Ryle

Looking around the world, it's pretty clear that emerging markets are priced for disaster. And rightfully so. Asian and Latin American markets haven't seen such distressed valuations since the currency crisis of 1998, sometimes known as "baht-ulism" (sure wish I could take credit for that one).

Because like it or not, the U.S. is the flagship of the global economy. That's what you get for spending money like drunken sailors on shore leave. Most of the world's emerging markets do a pretty good business catering to American consumption whims. At least until the money runs out.

## Then it gets ugly

High energy prices and a reversal of the wealth effect are all you need for an economic downturn. U.S. GDP growth could drop below 2% in the first half of the year. And the world will follow. The economists over at Morgan Stanley Dean Witter are calling for a 40% contraction in global GDP growth, to 2.3%, for 2001.

I believe the slowdown is a cyclical event, rather than fundamental. The trend for energy prices and interest rates is down. Global capacity utilization is down due to bloated inventories, which should be sufficiently thinned by 1H 2001. That sets the stage for a promising 2H 2001 and an excellent 2002. I think the time is right to go global bargain hunting again.

I say "again" because *Taipan* had great success with emerging market plays in early 1999. For instance, *Taipan* members scooped up shares of the largest crude steel manufacturer in the world, South Korea's **Pohang Iron and Steel (PKX:NYSE)**, at a dramatic discount to book value.

The key to investing in the midst of a global slowdown is picking dynamic countries that will rebound strongly. And South Korea is one of the best examples.

South Korea posted double-digit growth each year after its currency crisis. It's made solid progress on economic reforms. And it's one of the most technologically savvy countries in the world.

I believe the inherent risks of a global economic slowdown are largely priced into South Korean equities, because South Korea does a huge export business. We can mitigate the risk of export-sensitive tech stocks (like chips) by finding companies that are focused on domestic demand. That means telecom stocks, and I've found a beauty.

## Go where the growth is

South Korea's **Hanaro Telecom (HANA:NASDAQ)** is trading at a 50% discount to book value, 1.5x cash and about 2x sales. These are distressed valuations, and I estimate the company has 220% upside potential over the next 12 months. You'll understand why I make such a lofty price prediction when you see how fast this company is growing.

Hanaro is a competitive local exchange carrier (CLEC) that offers bundled services (local and long distance voice, high-speed and dial-up Internet access, data-hosting, call center) to the residential and small- and medium-sized business markets, with special emphasis on multi-tenant dwellings, of which there are thousands in Seoul alone.

## Asia online

Five of the ten largest Internet user markets are Asian. South Korea is the fourth largest, with 16 million users out of a population of 46 million. It's also the fastest growing Internet market in the world. South Korea is expected to have nearly 3 million broadband subscribers by the end of 2000, compared to 6 million in the U.S. and only 1.6 million in Europe.

Internet penetration is expected to hit 43%, or 21 million subscribers, by 2004. That implies a broadband subscriber base of around 6 million.

Hanaro is building the only significant last-mile access network other than the incumbent, Korea Telecom. Its fiber network will reach 2.6 million households at 3,844 apartment buildings and 1,341 office buildings by the end of 2000. Hanaro owns 44% (it leases the rest) of a cable TV network that hits another 4.5 million homes. And where neither fiber or cable is laid, Hanaro deploys wireless LMDS (local multi-point distribution system) for data. LMDS should be operational in 10 cities by year's end.

Network building is initially very expensive, but, over time, ownership will allow Hanaro to lower operating costs and increase margins.

## Fish in a barrel

85% of South Koreans live in cities, with 20% of the population crammed into Seoul alone. That means Hanaro can address a high concentration of potential customers for its network investment. In other words, signing up customers is akin to shooting fish in a barrel, as evidenced by the stunning growth numbers.

Hanaro is the only South Korean CLEC without a universal service order, which allows it to further concentrate on area with high population density. Hanaro's building to cover 80% of the population in 79 cities.

## Who's got the hookup

Hanaro's been signing up broadband customers at a rate of 100,000 a month for the past 5 months, which is 80% quarter over quarter growth, making it the second largest broadband supplier in South Korea by subscriber numbers, and the largest by revenue.

Incredibly, it met its year-end 2000 subscriber estimates of 700,000 in July, and seems on track to meet revised estimates of 1,100,000. The company expects subscriber



numbers to nearly double in 2001. You've got to go back to 1997 and 1998 to find growth like that in the U.S.

Total revenues grew 62% sequentially, from US\$20 million in 1999 to approximately US\$300 million in 2000. Operating costs grew only 5% from 3Q to 4Q. EBITDA loss dropped to around US\$25 million in 2000, and the company expects to post a positive EBITDA number in the next two quarters. Hanaro should be raking in US\$1 billion in revenues by 2002.

### *The last mile*

In its brief history (Hanaro began commercial operations in April of 1999), it's already taken between 25 and 30% of the broadband market. This is due to strong demand, competitive pricing, and flexible last-mile deployment.

Hanaro offers DSL, fiber connections to home or office, cable access or wireless (LMDS) broadband access. Deployment decisions are based on a mix of economics and quality of service.

Average revenue per subscriber (ARPU) was US\$25.34 for 2Q 00, slightly below its two main competitors Korea Telecom and Korea Thrunet. Gross margins hit 49% in Q3 and should top 55% in Q4.

### *Managing growth*

You might think that managing such explosive growth would be a concern for a start-up. But Hanaro has seasoned management with extensive telecom experience. The CEO, Shin Yun-Sik, was the CEO at DACOM, another Korean data services company, and a very minor competitor to Hanaro. He was also vice-minister of the Ministry of Information and Communication (MIC).

Division heads have been culled from the MIC and blue-chip KEPCO. Other management came from SK Telecom and DACOM.

### *The wild card*

Hanaro has a wild card up its sleeve – 3G wireless. South Korea will award three 3G wireless spectrum licenses in the near future. Korea Telecom, SK Telecom, the LG Group and a consortium headed by Hanaro have submitted proposals to the government. Someone's going to be left out, but this is where it gets interesting.

The South Korean government is demanding that one of the future licensees adopt CDMA2000 as its network standard. I can't prove anything, but I suspect Qualcomm had something to do with this.

My theory is that Qualcomm is losing its grip on the 3G wireless network and it's desperate to get commitments to its 3G technology. And since South Korea was the site of the first commercial CDMA network launch, it kind of makes sense that everyone's still a little chummy.

Hanaro will own 10% of the company, called Korea IMT-2000, but plans to fund 44% of the costs. I can't help but think Qualcomm's involved in funding, which leads me to believe Hanaro's risk is minimal in the venture.

There's some concern that Korea IMT-2000 won't be

granted a license since it isn't a wireless operator. Because of the uncertainty, I'm not including any potential revenues or costs associated with this wireless venture. But it could provide some upside surprise.

### *Bridge over troubled water*

I believe the vast majority of risk for Hanaro is macroeconomic. But the significant start-up costs for telecoms shouldn't be ignored. Just look at some CLECs in the States. Hanaro's done a good job managing costs so far. EBITDA losses have been steadily declining for the last year, and were trimmed significantly in Q3 and Q4.

Hanaro CAPEX peaked in 2000 at around US\$1.4 billion, and it should finish the year with over US\$300 million in cash. Hanaro should be adequately funded for the first half of 2001. The company prefers to raise money using bonds, but may use equity if the bond markets aren't receptive.

Hanaro currently has vendor financing agreements with Cisco, Hewlett-Packard, and Lucent (no surprise there), but that source may be less reliable in the near future. Macroeconomic conditions in South Korea could also impact Hanaro's ability to raise funds from foreign lenders.

Another financial crisis – which, however unlikely, can't be completely ruled out – would probably stop Hanaro's growth in its tracks, and might even cause a business contraction.

That's why Hanaro is already trading at distressed levels. Subscriber growth, improving margins, cost management and the likelihood of turning EBITDA positive in the near future should help offset further price decline.

### *The Macro picture*

The first half of 2001 will be pretty rough. I've seen estimates that corporate America will suffer a 2.8% profit contraction in 2001. And with all of the profit warnings, that doesn't seem far-fetched. Most of the risk surrounding Hanaro is macro.

An imminent global slowdown, high energy prices, an export-dependent economy, massive corporate debt, billions in non-performing loans and a volatile currency don't exactly make South Korea a retail investor's paradise (of course, foreign investment, mostly institutional, accounts for 30% of Korean stock markets). The perception of risk in South Korea, more than anything else, is responsible for Hanaro's current price.

Another source of instability concerns Hanaro's shareholders. As you may know, Korean corporations do a lot of cross-investing. That's how it's ended up with the inefficient structures known as chaebols. If the South Korean economy really gets creamed, large shareholders like Korea Thrunet and Hyundai may dump Hanaro stock.

On the plus side, Hanaro's debt/equity ratio is only around 64%, so there's room for a secondary offering – though that may not be the best solution considering the stock's current price.

*(over, please)*



## But it's not all bad

Foreign and Korean investors, economists, and analysts, along with the IMF, have been badgering the government to let nonviable businesses fail and get the bad loans off bank books. Reform has been slower than it should be, but evidence is mounting that the government is getting more serious about change.

Daewoo Motor just went bankrupt. And it looks as though the government is ready to let Hanyang Construction, with XXX employees, go down the tubes, too. In all, nearly half of the country's 41 conglomerates have been placed in the "Workout" program (court receivership, mediation or emergency loans from creditors). That's a good start, but there will need to be more bankruptcies.

It seems like every day I read something about workers protesting the government's forced merger plans, especially in the financial and banking sectors. Unions are strong in South Korea. But a proposed strike at KEPCO was recently called off, indicating that even the unions are starting to realize how necessary restructuring is to keep the economy from going into recession.

## Weathering the storm

It sounds incredible, but CEOs of government-owned businesses are just now being required to meet performance goals. Short-term debt has been reduced substantially. And corporate debt is concentrated among the largest companies, leaving the small- and medium-sized companies on a pretty good footing.

The government doesn't have any foreign ownership restrictions, and foreign investment accounts for 30% of Korean stock market. South Korea has a trade surplus of US\$10 billion, down sharply from the previous two years but still strong. Per capita income rose over 10% in 2000 and inflation is nearly nonexistent.

On the global front, energy prices are probably headed down as production increases take effect, though I've been hearing that one for a while. A drop in interest rates in the U.S. and Europe also looks increasingly likely. And preliminary global growth estimates for 2002 promise much improvement.

If South Korea continues to restructure in the face of a global slowdown, it's going to be fine. And Hanaro will be an example that South Korea can manage explosive growth without subsequent imbalances.

## The final word

Hanaro is a strong company with dynamic management, a focused business plan and huge market potential. It reminds me of the days when America Online was signing up customers at breakneck speeds and growing exponentially every quarter. Hanaro's current valuation is mainly the result of local and macroeconomic risks, but a negative perception of CLECs is also a factor. I consider Hanaro Telecom a strong buy under US\$3, with a one-year price target of US\$10. My price target is based on 3x estimated 2001 revenues and 1.5x estimated 2001 book value.

## • Time to take some losses

Overall, there's only a few stocks that I regret owning in my 2000 *Taipan* portfolio. And the reason for this regret is because they didn't fulfill their promise. They failed to execute. I'm sure most of you have some nominations, but I'm pulling the plug on **Fastcomm Communications (FSCX:OTC BB)** and **Pliant Systems (PLNS:OTC-BB)**. These two had a fairly small window of opportunity and needed to move quickly to take full advantage. I believe that window's closing.

Look for a decent rally and dump these dogs.

## Special Investment Tax Alert: New Capital Gains Rates

As of the first day of 2001, we have new capital gains tax rules to deal with.

Before we go into the new rules, let's review current law. If you hold a stock for 12 months or less, any gain is considered short-term and taxed at your ordinary tax rate (the same rate at which your other income – salary, for example – is taxed).

Gains on investments you sell after holding them for more than one year are generally taxed at a more favorable capital gains rate.

Starting in 2001, however, a third tier is added to the capital gains rates – namely, investments held for longer than five years. But, as you would expect, the rules get complicated. So bear with us...

If you are in the 15% income tax bracket, capital gains rates drop to 8% from 10% for assets held at least five years and sold after December 31, 2000.

If you're in a higher tax bracket, the rates drop to 18% from 20%, but only for assets held at least five years and purchased after December 31, 2000.

If you're in the lowest bracket, starting this year you can immediately take advantage of the new rates for any stock you've already held more than five years. But other taxpayers will have to wait five years before seeing any benefits.

Look at the stocks you already have. Those you didn't purchase on or after January 1, 2001, won't be eligible for the lower rate even if you hold them for more than five years.

If you sold and repurchased the stock by the cut-off date, you could then treat it as potential five-year property. But then you'd run into the problems of market risk and extra commissions.

The new law, however, allows you to treat stock you currently hold as having been sold on January 1, 2001, and then repurchased, without actually having sold a thing. You just have to recognize any gain (you don't get to recognize loss).

Remember, though, that all you stand to gain is a 2 percent capital gains advantage five years down the road – and you will have to pay tax on current gain now. So such a maneuver only makes sense if the current gain is relatively low and you anticipate holding the stock for a long time, with a potentially large gain.

If you're in the 15% bracket, look closely at the holding periods on your stocks. When they're closing in on the five-year mark, take the lower capital gains rate into consideration before selling. As time goes on, this decision will become more relevant for higher-bracket taxpayers.



## Master these three cash-wise techniques for thriving in ugly markets

by Charles R. Wolpoff

The NASDAQ's down 31% in 6 months. The Dow had its worst year since 1990. WorldCom, for cryin' out loud, lost 70% in 2000.

Ho hum... What's the big deal?

Well, at least that's what you would be saying if you positioned yourself properly – by investing wisely, diversifying sufficiently... and using cash as your protective shield.

If you have not already joined the select group of cash-wise investors, now's the time.

You see, cash not only allows you to defend yourself, but also enables you to make better and more profitable decisions about your stocks.

### *This market swoon is nothing more than a [painful] tap on the shoulder*

Investors have known all along that they couldn't count on 75% gains in the market every year. They just needed to be reminded of that.

The problem is, too many investors got burned more than they should have. They were spoiled by easy returns, lulled to sleep by overly optimistic stock indices and ill prepared for a rainy day.

Investors have been acting like children who forget that a hot stove will burn their hands. Well, entering the market without thought, without planning, with little direction, always burns you sooner or later.

Now, there's another potential problem on the horizon. Too many investors will never go near the stove again. They'd prefer to starve than to risk the pain.

But that's as unwise as it was to put all your money into a technology index fund six months ago.

The truth is, we all know that what goes down... must come up. The market will return, maybe not to the easy 20%-a-year gains of the long bull market (at least not every year).

But, as always, some investors in the coming days, weeks, months and years will find ways to make plenty of money, huge returns that will fund their kids' college tuition, their families' fancy homes, and their own retirement.

Others will flounder, continue to lose money, and, frustrated and poorer, will get out of the market completely.

### *The three sure signs of a bear-proof investor*

What makes the difference between the guy who, after all we've been through this year, can still afford the US\$600,000 home and the Caribbean time-share... and the investor who must now put off retirement and try to convince his disappointed daughter that the local commu-

nity college is just as nice as an Ivy League school?

First, the fat and happy investor makes the smart investment choices, listens to his wisest advisers and follows the shrewdest advice. Second, the bear-proof investor takes the time not only to choose his investments carefully, but also to address all his financial issues, including expenses and liabilities.

Finally, the rich and successful investor properly uses one of the most overlooked tools in investing... cash.

In other words, he practices cash-wise investing.

### *Why "cash" is not a dirty word*

Most brokers and money managers talk as if "cash" is one of those four letter no-no's George Carlin used to joke about.

A typical conversation with a broker on your investment portfolio might go something like this: "OK, you should keep about 10% of your assets in cash. The rest in stocks. Now as far as your stocks are concerned, you should buy a bunch of biotechs, diversify with international stocks, and if the market drops 80% stay with it, and my commissions aren't that much higher than other folks"...

And on and on. But no more is said about what you do with your "cash."

Sure, you get lip service about how important it is to "diversify your assets." And you hear that you should put a certain amount in cash, a certain amount in fixed income, and a certain amount in equities.

And sometimes you even go so far as to sit down and actually decide what percentage to place in each category.

But, at this point in the process, too many investors execute their plan by... devoting practically all of their attention to stocks, a tiny bit to fixed income, and none at all to cash.

And that's a huge mistake. Because a little more focus on cash could boost your earnings – and even your stock profits – by a substantial amount.

How do you do this?

We'll get to a step-by-step plan in a moment. But first, let's talk about what we're talking about when we talk about "cash."

### *"It depends on what the meaning of 'cash' is..."*

Clearly, what we need first is a definition of cash as used for investment-boosting purposes.

And right here, we'll make our first Clintonian qualification.

By "cash" we don't merely mean "cash."

*(over, please)*



After all, looked at narrowly, cash is just dollar bills, greenbacks, phony-looking twenty dollar bills that remind you of Monopoly money, and fancy new quarters with all sorts of state propaganda on the back.

What we really mean by cash is “cash equivalents.”

That’s a cool term, “cash equivalents.” When you use it, it makes it sound like you know what you’re talking about.

“Cash equivalent,” as used here, is a financial product that passes the following two tests.

**\* It must be relatively liquid.**

“Cash equivalents” refers to vehicles in which you can park cash, earn some interest, but still get your grubby little hands on that loot whenever you need to spend it. That is, when you need the dough to buy a custom-made suit, there must not be too much hassle in getting it.

They’re like money garages, where you park your cash and can get it washed and waxed, but obtain your keys at any time.

Obviously, the most liquid of all cash equivalents is the cash you have stuffed under your mattress. But, for obvious reasons (it’s not making any money, and anyone, including the tooth fairy, may make off with it) you shouldn’t have too much there.

But not all cash equivalents need to be as liquid as water, or the Scotch you slug back when the Dow takes another 212 point hit. There might be minor obstacles, like early withdrawal fees. But, for our purposes, the product still qualifies as a cash equivalent if the obstacles disappear in a relatively short time.

Take certificates of deposit. You usually pay a penalty if you cash them in early. But as long as they mature before you need them, they’re liquid enough.

If these products are short-term, they’re sufficiently liquid for our purposes. “Short-term” is a relatively flexible concept. As long as you have enough cash available for your needs at any given time, you can afford to tie up your cash equivalents for, say, up to two years.

**\* Second, a cash equivalent is relatively free from market risk.** That is, the value of a cash equivalent doesn’t drop just because some dot-com company changes its projected earnings from negative to extremely negative.

In other words, with a cash equivalent, you’re not going to lose your principal. It will be there when you need it. It won’t be subject to market forces or the fate of a particular corporation.

Of course, in another sense, pure cash can be quite insecure – that is, *vulnerable to robbery*.

And, as brokers will remind you all the time, cash equivalents are subject to inflation risk. That’s one big reason you need money in the stock market. Earnings on cash supposedly won’t keep you that far ahead of inflation.

**7+% return with no risk at all? You’ve got to be kidding.**

Ah... but there’s so much these cash equivalents can do for you.

Substantial income at little risk. And you can get your hands on the ready money when you need it.

That’s a pretty solid combination.

Remember, this isn’t in place of your stock investments. It’s in addition to them.

Your cash equivalents are there to help you enjoy life to the fullest, and sleep well at night when the market’s in the tank – as well as those times when your stocks are shooting up like an eagle on a caffeine high.

You see, proper use of cash equivalents can produce dependable and predictable income that can help offset any temporary losses in the market. Not only can

that income be used to spend on things today, it can also give you enough confidence to make bolder stock market decisions.

Also, cash can serve as your investment cavalry. The percentage of your assets that you keep in the market should be within a certain range. So when you’re at the low point in that range and an excellent investment opportunity comes up, cash can run in and buy it up.

When we talk about cash equivalents, we’re not talking about certain longer-term income producing assets, such as long-term Treasuries, other types of bonds, preferred stocks, dividend producing stocks, municipals, REITs, etc.

Now, don’t misunderstand. All of these investments can play a crucial role in your portfolio.

But they’re generally less liquid than cash, and somewhat more subject to the vagaries of the market. In effect, they serve as an intermediate category between stocks and cash equivalents.

Rest assured, in future issues we’ll talk about how you can best profit from them, too.

For right now, though, let’s focus on the “Magnificent Seven Cash Equivalents” listed here.

Let’s look at them one by one.

**Cold hard cash.** The biggest problem with cold hard cash is that it’s not making any money for you. Plus, it’s vulnerable to pickpockets. So keep the minimum amount you will need to buy candy bars at the 7-Eleven and pay tolls on the highway. Otherwise, use your credit card. Speaking of which...

**Retiring debt.** Yes, it’s kind of strange to treat this as a cash equivalent. But there’s no better return than paying off a loan, particularly credit card debt. It’s one of the best uses for your cash. Sure, you’re ending up with less cash

(over, please)

**Put most of the money you’ll need in the next two to six months in a money market fund. These pay much higher interest rates than savings and checking accounts.**



– for the moment. But you're ridding yourself of an 18% annual interest liability. 18%! Think about it.

Where else can you get a guaranteed immediate return of 18%? In fact, if you don't have the cash, then take out a bank loan. If you can get a home equity loan, you can lower your rate and make it tax deductible. This will reduce your present cash in hand, but help your future cash flow.

**Checking accounts and savings accounts.** Use these sparingly. They are quite liquid, and very safe. Bank accounts are insured by the FDIC up to US\$100,000. But they pay such a miserly amount of interest that it's almost insulting.

There are two advantages to a checking account with common savings account. First, you have easy access to cash through ATM machines. Second, you can write small checks, a convenience that most of us wouldn't want to do without. And then there are debit cards, a good way to have all the benefits of a credit card without the risk of getting in over your head. Basically, a debit card is just a faster way of writing a check against your checking account. But if the money's not there, you can't spend it. (On the other hand, you don't get the month or so free loan that you get when you use a credit card.)

**Money market funds.** You certainly won't be alone when you park your money in a money market fund. There are currently about 1.801 trillion bucks invested in these things.

Your better money market funds are offered by mutual fund companies. Banks are now offering money market funds as well, but often produce lower yields because of higher overhead expenses.

Money market funds are useful for several reasons. First, they're very liquid. You can usually write checks against these funds, although there's often a minimum check size, usually around US\$500. That's why you need a regular checking account for the little checks.

Second, they're as safe as just about anything. Sure, they're not FDIC insured. But if you stick with institutions that are well known and strong, you have nothing to worry about. The extra cautious among you may want to spread your money out over two or three funds.

Let's face it. If T. Rowe Price starts defaulting on its money market obligations, we're all in trouble.

Third, you can get awfully good rates relative to bank accounts. We're talking 5, 6, 7%, as opposed to 2 or 3%. On a US\$50,000 account, that could be a difference of more than US\$2,500.

We say "more than" because interest is compounded! So you make interest on interest. Each extra percentage point you receive means more than a one percent increase in your income.

In addition, money market funds are as ubiquitous as crab grass. Thus, you will very likely find one that gives you the convenience, yield, and safety you want.

Now... what are money market funds?

They are collections of short-term, safe debt instru-

ments. The instruments may be issued by governments and/or corporations. They mature in less than one year.

The short-term nature of these instruments, as well as their reliability, provides a great deal of safety. No one ever lost any money in a money market fund. They're not FDIC insured like bank accounts, but they're practically as safe. The price of the fund is normally US\$1 per share, and rarely if ever shows significant fluctuation.

The only thing that changes is the yield. And the yields far surpass run-of-the-mill bank and savings accounts.

What are the downsides? Well, for one thing, if the stock market goes way up, like some of the returns we've been seeing in recent years, you miss out – but only for the portion you've put in a money market fund. That's why you need to allocate the proper amount to cash.

Also, in contrast to long-term bonds, you're not locking in the interest rate. Say, for example, that money market funds hit 7%. Wow, that's great. And say there's a 10-year bond out there also offering 7%.

If you put it in the bond, you are virtually assured of that 7% for ten years. But if you need the money before then, you may lose some of your principal if you sell before maturity.

In your money market account you can grab that money without losing any principal at any time. But if interest rates fall, so will the rate you're getting on the fund. You may be enjoying 7% now, but in no time at all that yield might drop to 5%.

When you search for a money market fund (or two or three), focus on these factors:

- **Yield.** There is a difference between the money market deposit accounts offered by banks and money market funds.
- **Safety.** Choose an institution you know and trust. If you want absolute safety, choose a bank money market that's FDIC insured. But you probably sacrifice a little bit of yield in exchange for what is likely to be a negligible increase in safety. Money market funds have been around since 1972. And not one investor has lost a penny in any of those funds.
- **Taxable vs. tax-exempt.** Some money markets invest in tax-exempt government securities. If you're in a high tax bracket, this may be worth considering. Of course, don't consider a tax-exempt fund for a tax deferred retirement plan.
- **Look at management fees.** Expect to pay an average of 0.5% of assets. Generally speaking, the more you pay in fees, the smaller the amount you will get in yield.
- **Convenience.** Check on how easy it is to transfer funds from or to a bank account. Also evaluate the check-writing privileges.

You may want to make it part of a fund family so you can transfer in and out of stock and bond funds at times of your choosing.

*(over, please)*



Also, how easy is it to redeem? With larger institutions, you can usually redeem your money over the phone, have it deposited directly into a bank account, or get a check sent to you.

- Minimum initial investment. This normally ranges from US\$500 to US\$5,000. Some have no minimum. Some are aimed at institutions, and have huge minimums like US\$50,000 or more.
- Taxable or tax-exempt. Obviously, all other things being equal, tax-exempt is better.

**Certificates of deposit.** These are instruments offered at banks that guarantee you a certain amount of interest for a specified period of time. The advantage is that they lock in the interest rate for that period. But they also lock your money up for that period, too.

**U.S. Treasury bills.** U.S. Treasuries are debt instruments issued by the U.S. government.

Bills are Treasuries of one year or less. For the portion of your portfolio devoted to cash equivalents, stick with bills. Notes, which is what Treasuries of longer than one year are called, should be part of your "income producing assets," that is, the intermediate part of your portfolio.

A Treasury bill is sold at a discount to face value. A US\$100 bill with a term to maturity of one year, if sold for US\$94, has a return of around 6%.

Treasuries are free of state income tax, although they are subject to federal income tax.

### *Three steps to peace of mind*

With all these choices out there, what do you do to execute your cash-wise plan?

First, determine how much you should place in cash equivalents so that you are financially and emotionally secure and your immediate needs are met.

What percentage of assets do you want in cash?

You can answer this question by looking at necessary expenses for the next three to six months (in case you get canned, for instance).

What needs are coming up and when? This will not only tell you how much money you need to keep in cash equivalents, but also how liquid they should be.

How much cold hard cash are you going to need in the next three months? Six months? Two years? Look at upcoming expenses, such as your child's tuition, the down payment for a new house, a new car, or that Sony Play Station 2 your kid's been bugging you about.

You see, if you can meet those needs with your cash equivalents, you won't have to cash out of the stock market at exactly the wrong time. Which means you can afford to sit out the bad times, hold fast, and avoid the ulcers.

Don't get me wrong. If you're in a stock that's going nowhere but down, get out. But you don't want to be forced to sell a promising company that's been dragged down by the panicking mob at exactly the wrong time.

If you have enough "cash," you won't need to.

Second, decide which cash equivalents to buy.

In choosing cash equivalents, look at the following factors: when the cash becomes available (without penalty), the income you'll earn, and safety.

All of the cash equivalents we've discussed in this article are as safe as can be. Certainly, you shouldn't put your entire wealth into any one; but if you lose principal with any of these, we're all in trouble.

Here's a suggestion: Put most of the money you'll need in the next two to six months in a money market fund. These pay much higher interest rates than savings and checking accounts.

For cash you won't need for three months to two years, consider certificates of deposit and Treasury bills.

And third, at least four times a year, reevaluate your portfolio diversification. Your needs may have changed. You're a bit older. Your kids are closer to college age. So you may want to increase your cash equivalent portion.

On the other hand, if your kids are now out of college and you have greater stomach for long-term and speculative investing, then you may decide to keep less cash around.

Regardless, it's important to monitor your funds on a continual basis.

Plan to do this four times every year.

Yes, you should keep an eye on all your stock investments. But don't lose track of what your cash is doing, either!

## Premier Investment and Lifestyle Expedition to Chile

March 21 to 31, 2001!

Real estate along Chile's 2650-mile coastline is still some of the cheapest in the world. Wages are low compared to industrialized countries, with average annual income levels in the mid US\$3000 range. One half of the 14 million population is under the age of 24, providing for a strong, well-educated labor pool. The roads, telecommunications and public utilities offer one of the best infrastructures in Central and South America, with reasonable prices driven by a privatized economy.

The outlook for copper prices, market liberalization and increased shareholder protections, the economic forecast and the proactive government of President Ricardo Lagos makes Chile an ideal place for investment and retirement opportunities.

We'll be in Chile for nine days visiting a copper mine, the free trade zone, vinerias and much more! Not only that, but you'll make some great business contacts like I did while on this tour. You can take this as a separate tour, or join us after Chile on our trips to Argentina and Uruguay as well.

We sold out this tour in 2000! So call early to reserve your space. Call Agora Travel at (800) 926-6575



# Riverstone helps the network flow...

by *Siu-Yee Ng*

The Internet has developed into a mass medium for both communication and commerce. According to International Data Corporation, the number of World Wide Web users is expected to increase from 240 million in 1999 to approximately 602 million by the end of 2003.

Remember, the Internet is still in its infancy, and is still evolving. Historically, Internet content and services were centralized, forcing the vast majority of traffic to traverse the Internet backbone. This meant significant delays for the end-user. Today, Internet applications and services are being distributed to sites closer and faster to the end-user. Not surprisingly, these sites are typically located in metropolitan areas where there is a high concentration of businesses and consumers.

But there is a problem with this improved technology. The amount of data that can be transmitted between the network and the end-user – commonly known as the last mile – is limited. In effect, there is an increased use of the metropolitan area network (MAN), which extends from the end-user to the Internet backbone. The increased prominence of the MAN is transforming the Internet into a mesh of interconnected metro networks linked together by the Internet backbone.

The growth in Internet usage and the emergence of the MAN have led to a new generation of sophisticated and data-intensive applications and services. The delivery of these applications and services is evolving due to end-user demands and the need for service providers to develop new sources of revenue. These service providers include traditional telecommunications carriers, Internet service providers (ISPs), content hosting and application service providers (ASPs), building local exchange carriers (BLECs), and metro service providers (MSPs).

## *Changing times*

ISPs have traditionally provided basic Internet connections. But to stay competitive, they will need to expand their services to retain existing customers and take advantage of higher-margin revenue opportunities in new markets.

Content and web hosting service providers offer secure, reliable and managed access to web pages, email services and data storage. ASPs supply their customers with outsourced software applications, ranging from business automation to tools for enhancing productivity. Both content hosters and ASPs house their operations in hosting centers that are typically located in the MAN.

BLECs provide small- and medium-sized businesses with local area network (LAN) services and Internet connections. To increase efficiency, BLECs typically aggregate network traffic from multiple buildings. Commercial real estate owners often give access rights to multiple

BLECs, which must then compete based on the price and competitiveness of their service offerings.

MSPs provide metropolitan communication backbones and access over fiber optic cables to connect BLECs, content hosts, ASPs and businesses using high bandwidth connections. To do this, MSPs build their own networks or lease fiber optic cables, where available, allowing them to bypass the local telephone company's last-mile connection to end-users. This allows MSPs to provide end-users with high-capacity, low-cost bandwidth more rapidly than previously possible.

In today's competitive market, service providers must build networks with increasing levels of availability, reliability and security. They need to differentiate their service offerings from their competitors. And they must be able to employ innovative pricing and billing models while maintaining a cost-effective operation.

## *You've been assimilated*

End-users expect mission-critical business services delivered over the Internet to have the same level of availability and reliability as the traditional telephone network. Service providers are demanding that equipment installed in the network meet carrier-class requirements for reliability and interoperability.

New equipment should be easy to integrate into the existing network and should not increase the complexity of the service providers' operational support systems (OSS). Service providers also need to enforce network security measures to prevent unauthorized use of their services or access to their customers' data. To meet this need, the network equipment used by service providers should support industry standards for network and electronic commerce security and provide mechanisms for controlling network access.

**Riverstone Networks, Inc.** has a solution. Its routers and switches enable service providers to convert optical and electrical bandwidth into differentiated services for their customers. The products contain advanced features such as bandwidth management and provisioning, accounting and billing, quality of service and content delivery capabilities.

Riverstone's combination of custom application-specific integrated circuits (ASICs) with its RapidOS software provides high levels of network availability and reliability, even under heavy network traffic conditions. Its routers and switches are interoperable with a variety of products from other vendors. Its products meet numerous regulatory requirements and its most advanced products are designed to be NEBS compliant. They also incorporate numerous security protocols for supporting virtual private

*(over, please)*



networks and secure network access.

### **Ante up**

Riverstone's switch routers offer many advantages. They feature advanced capabilities to manage bandwidth in real time, without sacrificing network performance. As customer and application bandwidth needs change, commands sent remotely to its products can instantly and inexpensively set up, modify or terminate connections.

Its switch routers support hardware-based accounting, allowing service providers to collect real-time customer billing information. This allows them to create and offer advanced pricing structures tailored to their customers' needs by usage, time-of-day and location.

To increase the speed of content delivery, Riverstone's products offer network-wide capabilities for creating the shortest and most reliable path between the end-user and the content.

Its products easily integrate with customers' bandwidth management, provisioning, accounting and billing, quality of service, and content delivery tools. Its "Intelligent Service Router Architecture" scales with the needs of service providers. Additional line cards can be inserted into its modular chassis to increase bandwidth capacity. If bandwidth is exhausted in one chassis, service providers can link multiple chassis together to obtain additional capacity.

Riverstone's RapidOS operating system can scale in the face of increasing Internet traffic while continuing to manage bandwidth, deliver routing throughput, and provide differentiated services. New technology interfaces and RapidOS upgrades can be added to in-service chassis without disrupting existing operations. The modular design of Riverstone's products enables the rapid and easy addition of new services without requiring redesign of network architecture or replacement of existing infrastructure equipment.

Riverstone's products also support optical and electrical interfaces to ensure that services can be quickly provisioned across a broad range of media types. In other words, service providers using its switch routers can rapidly offer services across almost any infrastructure. This broad range of support is delivered in a single chassis, eliminating the need to purchase multiple solutions or consume limited space.

### **Ka-Ching!**

Riverstone's North American direct sales force is divided into Western and Eastern regional operations. The sales team maintains contact with key individuals who have service planning and infrastructure build-out responsibility within its customers' organizations.

Riverstone's international sales are made through a combination of direct and indirect sales efforts. Its European operation is headquartered in London, with sales offices in Spain, Italy and the Netherlands. Its Asia Pacific operation is headquartered in Singapore with

offices in Japan and China. Riverstone also partners with a select group of distributors and resellers both in Europe and Asia.

Riverstone has also established a strategic distribution relationship with Terayon. The agreement allows Terayon to distribute Riverstone's products on a worldwide, nonexclusive basis with discounts tied to contractual minimum volume purchases.

Riverstone recently announced a strategic alliance with Tellabs (TLAB:NASDAQ). This alliance combines Tellabs' flexible broadband access systems, CABLESPAN 2300 and MartisDXX, with Riverstone's RS family of high-speed edge routers.

Customers include BLECs, content hosts, ASPs and MSPs, along with traditional ISPs. Riverstone's top ten customers by revenue for the period March 1, 1999, to September 2, 2000, were British Telecom, CAIS Internet, Earthlink, Intellispace, Metricom, Telecom Italia, Telia, Telseon, Terayon and Vits Networks.

Up until now, a limited number of customers have accounted for a significant portion of Riverstone's revenue. For fiscal year 1999, Adelphia Communications accounted for 46% of net revenues and Earthlink accounted for 20%. So if any one of them decides to delay, cancel or decrease orders, it would greatly affect Riverstone's bottom line.

But Riverstone has been able to build its customer base in fiscal year 2000. British Telecom accounted for 15% of its net revenues, Earthlink for 14%, Metricom for 12% and Vits Networks for 11%. It's positive to see a company expand.

Riverstone was created by the combination of two businesses previously acquired by Cabletron. These businesses are Zeitnet, which Cabletron acquired in 1996, and Yago Systems, acquired in 1998.

Riverstone began shipping products outside the United States in fiscal year 2000. These shipments accounted for 23% of net revenues during fiscal year 2000 and 26% for the six months ended September 2, 2000.

### **Money talks**

Riverstone reported record revenues for the first six months of fiscal year 2001. Revenues increased 583%. The cost of revenues for the first six months of fiscal year 2001 increased 375% compared to the first six months of fiscal year 2000. But as a percentage of net revenues, the cost of revenues actually decreased to 45% from 65% for the same periods.

Riverstone is a wholly-owned subsidiary of Cabletron. Cabletron will own approximately 86% of the outstanding shares of its common stock after the IPO. This means that Cabletron will control many aspects of Riverstone's business. Cabletron plans to distribute all of the shares of Riverstone's common stock owned by Cabletron to the

*(over, please)*



holders of Cabletron's common stock.

Why not invest directly in Cabletron (CS:NYSE)? It's quite simple.

Cabletron split into four companies focused on target markets: Riverstone Networks (service provider/broadband), Enterasys Networks (corporate networks), Global Network Technology Services (professional services) and Aprisma Management Technologies (network software). Cabletron is a holding company, so it depends on all four companies for revenues. Whereas Riverstone is independent of the other three companies. If Global Network Technology Services has a bad year, it will not affect Riverstone's bottom line, but it will affect Cabletron's numbers.

Riverstone is competing with some big dogs. This market has historically been dominated by Cisco Systems (CSCO:NASDAQ). Other competitors include Extreme Networks (EXTR:NASDAQ), Foundry Networks (FDRY:NASDAQ), Juniper Networks (JNPR:NASDAQ), Lucent (LU:NYSE) and Nortel Networks (NT:NYSE).

Cisco's market cap is US\$368.8 billion, Extreme's is US\$8.82 billion, Foundry's is US\$6.22 billion, Juniper's is US\$52.8 billion, Lucent's is US\$51.6 million and Nortel's is US\$131.2.

Even after the recent market bloodbath, these companies are still trading at fairly high valuations. After the IPO, if Riverstone prices in the low range at US\$12, then the market cap will be US\$1.22 billion; if it prices in the high range of US\$14, the market cap will be US\$1.43 billion. True, its peers have a longer operating history, but don't underestimate Riverstone's market potential.

Morgan Stanley Dean Witter, Chase H&Q, Lehman Brothers and Salomon Smith Barney are the underwriters. Riverstone Networks plans to price 10 million shares between US\$12-14 under the symbol RSTN. I don't expect a huge pop, but Riverstone has a lot of room to grow. For more information, contact Riverstone Networks, 5200 Great America Parkway, Santa Clara, CA 95054, phone: 408-878-6500, fax: 408-878-6501.

## Living on the Edge

by J.K. Riffin

For the 300 million of us throughout the world who use the Internet, everything we view on the Web has to get squeezed through one final point of presence (POP) before it is delivered to our personal computers. Regardless of whether your connection is by dedicated T-1, DSL, cable modem or dial-up analog modem, the files that constitute every Web site you view must be transmitted through that POP.

And despite the expanded capacity of fiber optic lines, ever-improving bandwidth management and growing global network backbones, even the Internet cannot escape the realities of geography. If you're in Backwoods, Maine it still takes longer for files to be transmitted from San Francisco than from Boston.

With more business than ever being done over the Web, download delays mean lost revenue and frustration. They mean orders not getting placed and banner ads not being viewed. And this is every day, meat-and-potatoes Web usage.

If you're looking for streaming video, multi-player games, or enhanced multimedia like Flash and Shockwave, then you're talking about a consumer experience that is almost guaranteed to be unsatisfactory over mainstream connections. To have anything near a positive experience with these more immersive technologies, you simply have to get a more sophisticated Internet connection.

Of course we all need a faster Internet, but there's more than one way of getting there. On the one hand, DSL and cable companies are racing neck and neck to bring broadband services to the home.

They're making progress, but the ramp-up is taking longer than anyone would like. More telling is the fact

that from an end-user perspective, the question of broadband is kind of annoying. Millions of new users are coming to the Web via 56k modems (with AOL, Earthlink, MSN, etc.), *waiting*, and then wondering what the fuss is all about.

In effect, BigConsumerInternet is telling customers that, while the cheapest way to log in is via modem, you really need to upgrade if you want to have any fun.

Then you have the rash of optical networking companies that are delivering new devices for carrying and managing more data traffic more efficiently. Many of these new optical networking equipment manufacturers are being acquired by the major network equipment players, including Nortel Networks (NT:NYSE), Cisco Systems (CSCO:NASDAQ), Lucent (LU:NYSE), Tellabs (TLAB:NASDAQ), Redback Networks (RBAK:NASDAQ) and Ciena (CIEN:NASDAQ). The advances of optical networking and switching are real, and are being implemented rapidly within telecommunications networks around the globe.

But when it comes to getting Web sites to download quickly, you still have that problem at the POP, or the "edge" of the Internet proper. Which is the battleground for a new breed of companies in a niche called *content distribution*.

They're essentially about speeding up the delivery of content from a source Web site to the edge of the Internet. The net effect is better Web site performance *today*, for *all* Internet users.

Compared to the adoption of broadband, content distribution companies are moving like wildfire because their cus-

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tomers are the most popular Web sites, content aggregators and Web hosting companies, as opposed to end-users. A content distribution solution typically involves storing duplicate copies of a Web site on servers that are geographically dispersed. For example, let's say you live in Raleigh, North Carolina.

Three to four years ago, if you were visit Yahoo!'s Web site, your request would have gone from your local POP in Raleigh across the Internet to Yahoo!'s servers in northern California, and the Web page would have been sent all the way back across the country to your computer. On certain days, it might have taken Yahoo! 10 to 30 seconds to download. Now, Yahoo! has distributed its content around the world with Akamai (AKAM:NASDAQ). So if you're hitting Yahoo! from North Carolina, your request may be fulfilled from a computer in Atlanta instead of northern California. Bottom line: Yahoo! pays Akamai to be reasonably assured that its home page loads in one to five seconds for the majority of users.

Yes, this is a growing business. Jupiter Communications predicts global cumulative content delivery and distribution revenue will climb from less than US\$500 million in 2000 to over US\$6 billion in 2004. If you have a Web site and you're banking on millions of unique visitors, you have to look at a content distribution plan along with your Web hosting plan. And although there are a host of companies rushing to market with content distribution services, there's really only one solution at the moment.

**Akamai (AKAM:NASDAQ)** burst onto the scene last fall with one of the most successful IPOs ever. Less than two years old, Akamai is the culmination of the right technology, management and marketing coming together at exactly the right time.

A group of MIT graduate students took on the issue of helping Web sites load quicker as traffic increases. The company attracted premium industry intelligence in Paul Sagan and George Conrades. Sagan founded the Road Runner cable modem business, later acquired by Time Inc. New Media. Conrades is the former CEO of BBN, which was one of the original Internet backbone networks, later acquired by GTE. Akamai rapidly deployed its network solution around the world and built a who's who customer list overnight. Akamai's more than 1,000 client include Yahoo!, Microsoft, CNN Interactive, the NASDAQ Stock Market, Martha Stewart Living, and Barnes and Noble.

Though Akamai's stock was wildly overvalued in its initial months on the market (at one point it topped US\$345), the company has weathered the Internet selloff with its market cap whittled down to less than US\$4 billion.

Which isn't bad for a company with a net loss of over US\$580 million for the first nine months of 2000. Akamai is about growth, execution and dominance. For those first nine months of 2000, revenue grew to US\$52.5 million, up from US\$1.3 million for the same period a year earlier.

Akamai serves more than 60 percent of the top-tier Web sites seeking content distribution services.

Given the fact that Akamai was first to market with a workable content distribution offering, there will most likely not be another moon shot of Akamai's proportions in this niche anytime soon.

Akamai's big challenge will be competition from the likes of Inktomi (INKT:NASDAQ) and Cisco Systems (CSCO:NASDAQ), as both companies are assembling alliances to extend the market for their network software and hardware products. Akamai's two primary direct competitors, Digital Island (ISLD:NASDAQ) and Mirror Image Internet, have joined both the Inktomi and Cisco alliances.

Communications service provider Digital Island entered the content distribution space late last year by acquiring Sandpiper Networks, an early competitor to Akamai. Digital Island is not focused exclusively on content distribution, and has not been able to generate as steep a growth curve as Akamai.

As a result, Digital Island's stock has been pounded down to around US\$4 from a high of over US\$150 in December 1999. Mirror Image Internet was partially acquired by hosting giant Exodus Communications (EXDS:NASDAQ) in March 2000, and is principally owned by Xcelera.com (AMEX: XLA), a European Internet technology company.

Late last summer, two content distribution alliances were announced, both squarely aimed at chipping away Akamai's dominance. The first is "Content Bridge," a veiled effort by Inktomi to add a third rail to its network software business.

The deal includes content distribution startup Adero, America Online (AOL:NYSE), and the data networks of Digital Island, Exodus, Genuity (GENU:NASDAQ), Madge.web (MADGF:NASDAQ), and NetRail. The arrangement scratched a lot of backs. Adero got an infusion of cash from AOL. AOL got to be a big fish in the pond of performance-enhancing services for its customers. Digital Island and Exodus got to expand their reach within the content distribution space. Genuity (which is basically the old BBN backbone, sold off by GTE to satisfy regulators as a result of its merger with Bell Atlantic, now Verizon) got much-needed traffic. Ditto for Madge.web and NetRail. Everybody's got a reason to play except customers; it's still unclear why a gargantuan Web site like Yahoo! would choose the Content Bridge consortium over Akamai.

Instead of a string of new customer announcements, the biggest thing to come out of Content Bridge so far has been the addition of new vendor partnerships with Alteon, Intel and Sun. Although the jury is still out, this is one of those alliances that may make more sense to its members than its customers.

And then there's Cisco. The same week as the Content  
*(over, please)*



Bridge announcement, Cisco came out with its "Content Alliance." Players include Cable & Wireless (CWP:NYSE), GlobalCenter, NaviSite (NAVI:NASDAQ), PSINet (PSIX:NASDAQ), ServInt, and Network Appliance (NTAP:NASDAQ), as well as Inktomi/Content Bridge members Digital Island, Genuity, and Mirror Image Internet.

The song is the same as the Inktomi consortium, but the chorus adds a key element of "open standards." In other words, Cisco wants to make sure anyone can be a content distributor – as long as they use Cisco equipment. Cisco's dominance in the router business helped add another round of members to its "Content Alliance" in September, including AOL, Digex, Documentum, EMC, Entera, HelloNetwork.com, NetSat Express, OBCTV.com, Primedia Workplace Learning, SolidSpeed Networks, StorageNetworks, Streampipe.com, Sun Microsystems, Telefónica Data, US Data Authority, Vividon, and Walt Disney Internet Group.

Cisco's stronger market position will propel its alliance past that of Inktomi. But the real question is how competitive Cisco's "open" model of content distribution will be against Akamai.

With Akamai's content distribution service, the equipment is just the equipment. Akamai's magic is in the proprietary algorithms the company uses to monitor Internet traffic patterns and direct the delivery of its customers' Web site content in the most efficient way. Its service does not require customers or Web site visitors to make any hardware or software modifications.

Cisco's ISP relationships are too solid for it not to make a strong entry into the content distribution equipment space. But in the medium term, Akamai isn't going anywhere.

Most likely, they will coexist until Akamai finds a merger partner that makes strategic sense. In the meantime, there are a handful of exciting companies that have entered the content distribution niche, all of which may soon become decent investment opportunities.

Based in Laurel, Maryland, and founded by Digex co-founder Doug Humphrey, Cidera uses satellite technology to beam content to POPs around the world.

The technology is like a huge bypass highway, routing Internet traffic past crowded landlines. Customers include Verizon, Telocity and RoadRunner, among other high-end Web sites, content aggregators and ISPs. Perhaps most telling are Cidera's partnerships with both Akamai and Digital Island, as well as the fact that the company has been funded by New Enterprise Associates, Worldcom, Intel, Dell and GE Equity, among others. Cidera filed for a public offering this spring, but pulled its registration statement in hopes that the IPO market will rebound.

In the meantime, the company raised another US\$75 million from a group of investors including the Carlyle Group, GE Equity, MCI Worldcom Venture Fund, and New Enterprise Associates. Watch for IPO plans to resurface in 2001.

What if store operators could give loyal shoppers preferential treatment, allowing them to butt into the front of the line and force first-time browsers to the back? The Web equivalent of this scenario is what distinguishes Epic Realm, a content distribution startup out of Richardson, Texas.

Much like Akamai, Epic Realm has built a global network with sophisticated caching and prioritization software to help speed up Web site performance. The company hopes its focus on e-commerce Web sites will mean a profitable niche-within-a-niche.

Customers include Web sites such as Sportstalk.com, PrivacyCouncil.com, ICL, and WebCE.com. In the past month alone, Epic Realm has cut deals with hosting provider Aperia, Inc. (APRN:NASDAQ), streaming media company Media1st.com, and Scandinavian e-business service provider ISL Invia. The company has raised more than US\$90 million from Lehman Brothers, Vantagepoint Venture Partners, and TE Capital. Though it has not yet filed a registration statement, it would not be surprising to see the company try an IPO in 2001.

Despite NBC's Grinch-like veto over live Web broadcast of the recent Olympics games, a new company called Axient made a splash in providing content distribution services for the high-traffic NBC Olympics Web site.

Just as Epic Realm is focusing on e-commerce, Axient's sub-niche focus is full-screen, high-resolution video and stereo sound. Heading up Phoenix-based Axient is CEO Michael Gordon, a former Cyclone Software founder. Axient's executive suite includes talent from GlobalCenter, Level 3 Communications, Bell Atlantic and MCI Communications.

The company launched its content network in the spring of 2000, and it is now available in more than 60 U.S. cities. Partnerships include equipment manufacturers Sun Microsystems and Alteon WebSystems, network service provider Williams Communications, Computer Associates, Entera and EMC.

Finally, there's the well-funded Edgix. Like a typical New Yorker, the Silicon Alley company is trying to put forth a new acronym (ESP, for "edge service provider") to differentiate itself from Akamai and the other content distribution companies.

It might also be because, now that it has raised over US\$50 million from Chase Capital Partners, Battery Ventures, and Venrock Associates, among others, the company can afford to call itself whatever it wants. Last fall, Edgix announced a deal with Everest Broadband Networks, a player in the so-called Building Local Exchange Carrier (BLEC) communications market. The deal brings Edgix's network caching service to over 200 aggregation hubs in 25 North American cities. But Edgix's real "edge" might lie in how well the company seizes international content distribution opportunities.

The company signed Chello Broadband to deploy

*(continues on page 19)*



# Need a part for your car? Just hit the "Print" button...

By Michael Riska

I wish I had a magic box that would build things for me, like the ones they had on Star Trek. Captain Kirk used to stand across the room and bark "Computer! Make me a ham and cheese sandwich!" when he was getting pumped up to go punch some alien bad guys in the face. The "replicator" would make the sandwich, which Kirk would lay into like a rabid badger. Spock would raise an eyebrow, "Computer, please create a straitjacket for the Captain." Any object you could possibly want would be faithfully reproduced by the magic box.

Part of the fun of science fiction is the way it toes the line between possibility and pure fantasy. And while it may never be possible to fly from one planet to another in fifteen minutes the way they did in Star Trek, it is already possible to use a computer and a relatively small machine to custom-make certain objects. In fact, the technology has been around since 1986.

The machine is called a 3D printer, and the most common type works very much like a that standard inkjet job on your desk. But instead of putting down a layer of ink, the 3D printer puts down layer after layer of melted plastic, or another substance, until an actual physical object has been created. Related methods for custom fabrication, like stereolithography and laser sintering, use a laser to melt a powder or harden a resin layer by layer, according to the specific design of the object.

## Trashing the old drawing board

This technology has drastically improved the lives of designers and engineers. These poor people used to draw their product designs with paper and pencil. Computers were the first godsend. Instead of dreaming up the newest widget on the drafting table, they suddenly had access to CADD and 3D modeling software. Unfortunately, once the plan was drawn up, the process for creating a physical prototype remained the same: whittle it out of a piece of foam, or shape a prototype out of clay, or send the design to a manufacturer for a limited production run. The computer programs saved time, but you still had to sit on the side of the road eating dust, waiting for the Pony Express to bring back a model that you could show to your clients. Product development was expensive and moved at a glacial pace.

With 3D printing, a digital design can be turned into a physical model by hitting the "print" button and waiting a few hours. That gives the designers something to show their clients much faster than the old way. And that's an important consideration. The earlier you can create a working prototype, the sooner you can have a product in manufacturing and the faster you can start making money

off new products. The prototype is a crucial step in the process, because it gives the client a better understanding – a more intuitive grasp – of what they're getting than even the best "3D" model on a computer screen.

## This is your brain...

Beyond the prototyping application, 3D printing is showing itself to be useful in all sorts of ways. In combination with 3D scanning technology, 3D printing can be used to create models of objects that are not easily seen with the naked eye. Some Egyptologists already used the method to view a mummy's head without removing the bandages.

Better than that, since they did the scan in the field, they emailed the digital scan information to colleagues in the U.S., who then 3D-printed the model of the head and began studying it.

This kind of "3D email" has the potential to be a very powerful tool for sharing information. A country doctor could email a copy of his patient's diseased spleen to specialists at a foreign clinic. You could email a replica of your new baby to its grandparents so they can start spoiling it before they even see it.

Of course the U.S. Army is in on the action. They're trying to perfect a process for custom-making useable metal parts for their equipment in the field. With a 3D printer on the back of a truck, making replacements for broken or malfunctioning machinery would be a matter of downloading a digital file for the specific piece and "printing" one right there on the spot.

Several publicly traded companies are making good money off this technology – mostly for rapid prototyping applications. **3D Systems Corp. (TDSC:NASDAQ)** has high-profile clients like Chrysler, Ford and Mattel. **DTM Corp. (DTMC: NASDAQ-SC)** is developing a process for metal fabrication using stainless-steel alloys. **Strataysys, Inc. (SSYS:NASDAQ)** designed a working gunstock for a U.S. Navy carbine.

## I'll be Ken and you be Barbie

So far, the only company offering 3D printing services to the public is ToyBuilders.com. ToyBuilders creates custom toys from client designs. Send them a couple photos of yourself and they'll make an action figure in your image. Or design something with your 3D modeling software and they'll bring it to life.

The biggest drawback to 3D printing at the moment has to do with the materials that can be used. The melted plastic inkjet-style printing works very well, but once you start to use other materials, or a mix of materials, the



process develops some problems. For instance, if you use two different materials, their different cooling rates will cause the end product to be brittle. The solution to this dilemma may be the creation of a new class of substances that have the properties of conventional materials, but are better suited to the 3D printing process.

### Computer! Fetch me a Bud

Eventually, 3D printing technology could change manufacturing itself. This is what its fans really get excited about. As prices come down (the cheap version currently costs US\$50,000) and the materials problems are solved, 3D printers could become as common as the normal 2D version is now. Instead of buying an item online and waiting for it to come in the mail, you could buy the design, download it to your printer and have it fabricated for you on the spot. You could design your own wineglasses and have them ready in time for your party.

You could have, really, pretty much anything you could think of. And that's where the sci-fi angle comes in. For now, these machines are mostly sitting in stark, fluorescent-lighted designers' caves and toiling to build plastic car models. But it may not be long before you're sitting on your couch and commanding your magic box to create a cold beer for you. And when that happens, the future we have so eagerly awaited will finally have arrived.

## WEBHEAD

(continued from page 17)

Edgix caching services across its global network of 500 cable head-ends in Europe and Latin America. And most recently, the company entered the European market through a deal with IX Europe, a hosting and facilities management service provider. The deal enables IX Europe's ISP customers to deliver better Internet performance based on Edgix's content distribution services.

As the demand for improved performance continues to grow, the challenge facing Web site operators and content aggregators remains clear.

Internet service providers and complex Web site management facilities also face the additional challenge of delivering maximum bandwidth while managing rapid growth. In a dramatically short amount of time, Akamai has made an impressive name for itself by helping the biggest sites on the Web work better. Moving forward, watch for Cidera, Epic Realm, Axient and Edgix to extend the content distribution niche

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American Quantum	AMEX:AFV	open	hold (pending merger)
APA Optics	NASDAQ:APAT	open	buy
Aramex	NASDAQ:ARMX	open	buy
Ashanti Goldfields	ASL	open	buy
Avant immunotherapeutics	AVAN	open	buy
AVI Biopharma	NASDAQ:AVII	closed	sold
Aviron	NASDAQ:AVIR	open	hold
Ballistic Recovery System	OTC BB: BRSI	closed	sell
Baltimore Technology	NASDAQ:BALT	open	buy under US\$16
Barnes and Noble	NASDAQ:BNBN	open	hold
Barpoint.com	NASDAQ:BPNT	open	hold
Bionova	MAEX:BVA	open	buy
Capstone (SHORT)	NASDAQ:CPST	still	cover under US\$15
Cell Robotics	NASDAQ:CRII	open	buy under US\$2
CellPoint	NASDAQ:CLPT	open	buy under US\$30
CheckFree Holdings	NASDAQ:CKFR	open	hold
Clearworks.net	AMEX:CLW	open	buy under US\$2
Closure Medical	NASDAQ:CLSR	open	hold
Computer Learning Centers	CLCX	open	buy
Comtech Telecom	NASDAQ:CMTL	open	strong buy under US\$15
Elbit Ltd.	NASDAQ:ELBT	open	buy
Elron	NYSE:ELRNF	open	buy
Fastcomm Communications	OTC BB:FSCX	open	sell on strength
Fischer & Paykel	NZSE:FAP	open	buy
FreeMarkets	NASDAQ:FMKT	open	hold
Geoworks	NASDAQ:GWRX	open	buy
Hurricane Hydrocarbons	HHLF	open	hold
Hurricane Warrants	HUHY	open	hold
Illinois Superconductor	OTC BB:ISCO	open	buy under US\$3
Illumina	ILMN:NASDAQ	open	hold
Internet Capital Group	NASDAQ:ICGE	open	hold
Interwave Communications	NASDAQ:IWAV	open	buy under US\$15
Interwoven	NASDAQ:IWOV	open	sell over US\$100
Leap Wireless	NASDAQ:LWIN	open	strong buy under US\$37
Lukoil Preferred	LUKPY	open	buy
Media 100	NASDAQ:MDEA	open	open
MedImmune	NASDAQ:MEDI	open	open
Micros Systems	NASDAQ:MCRS	open	strong buy
Millennium Pharmaceuticals	NASDAQ:MLNM	open	open
Modtech	NASDAQ:MODT	open	open
Monsenergo ADR	AOMOY	open	open
MRV Communications	NASDAQ:MRVC	open	strong buy under US\$30
New Focus	NASDAQ:NUFO	open	open
Optimal Robotics	NASDAQ:OPMR	open	open
Orckit	NASDAQ:ORCT	open	open
Pharmaceutical Product Dev.	NASDAQ:PPDI	open	open
Pliant Systems	OTC BB:PLNS	open	sell on strength
Precision Optics	NASDAQ:POCI	open	open
"Red Hat, Inc "	NASDAQ:RHAT	open	sell over US\$10
"Resonate, Inc."	NASDAQ:RSNT	open	open
Restaurant Brands	NZSE:RBD	open	open
Safeguard Scientific	NASDAQ:SFE	open	open
Sangamo Biosciences	NASDAQ:SGMO	closed	sold
Sasol	SASOY	open	buy
Sensormatic Electronics	NYSE:SRM	open	open
Silicon Laboratory	NASDAQ:SLAB	open	open
Sprint PCS	NYSE:PCS	open	strong buy under US\$30
Suez Cement	SZCD	open	open
SunMicroSystems	NASDAQ:SUNW	open	open
Surgutneftegaz ADR	SGTZY	open	open
Talk.com	NASDAQ:TALK	open	open
TyumenAvia Trans	TVAVY	open	open
Unicharm	TOKYO:8113	open	open
Univision	NYSE:UVN	open	open
Uproar	EASDAQ:UPRO	open	open
Valance Technology	NASDAQ:VLNC	open	open
Ventspils Nafta	VNFT	open	open
VerticalNet	NASDAQ:VERT	open	open
Virologic	NASDAQ:VLGC	open	buy under US\$8
Web Methods	NASDAQ:WEBM	open	sell over US\$100
Williams Control	WMCO	open	open
Xoma	XOMA	open	open

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