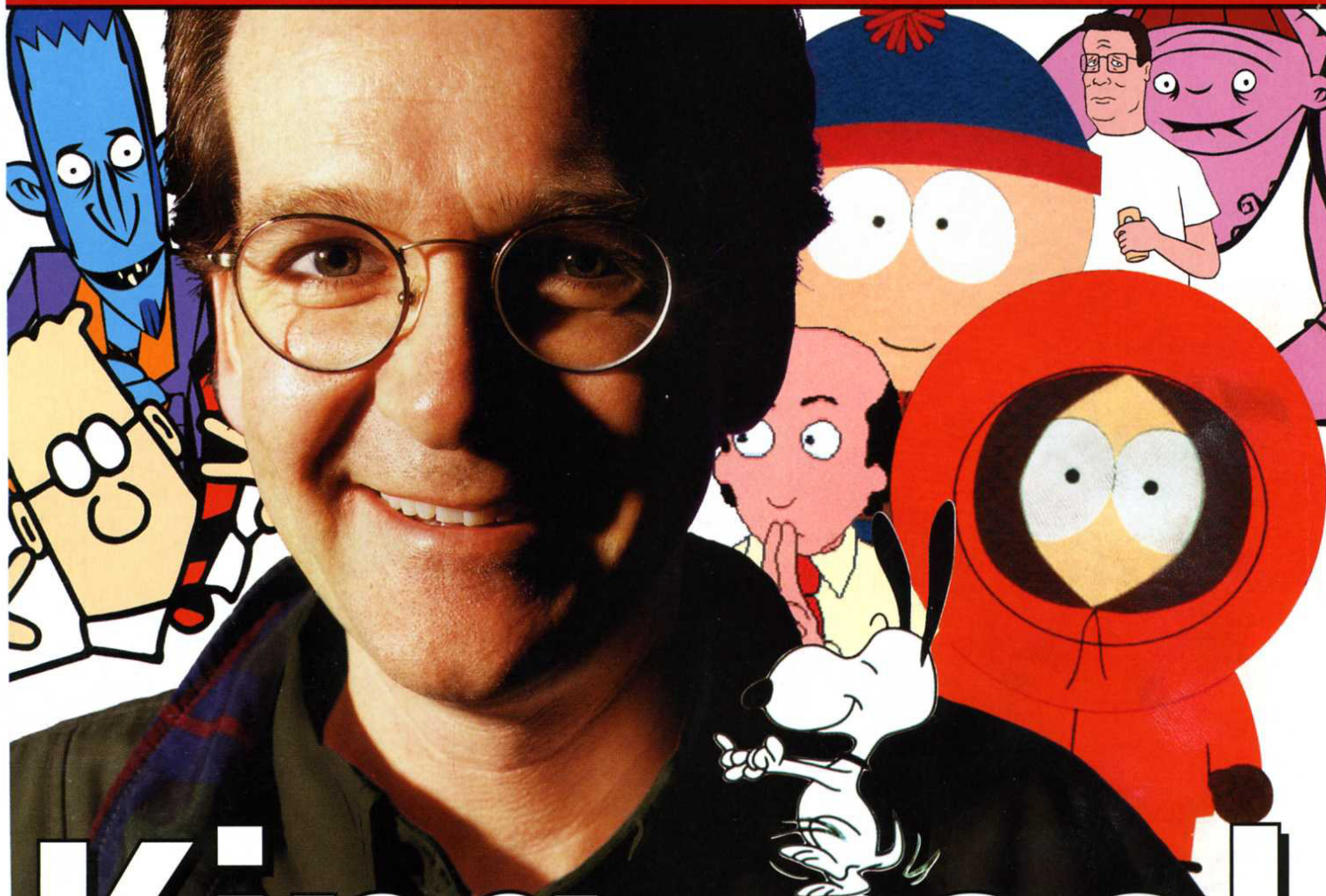


INTRINSYC: the Web wizards who are connecting everything



Canadian Business



King of cool

The zany, zillionaire life of Shockwave's Rob Burgess

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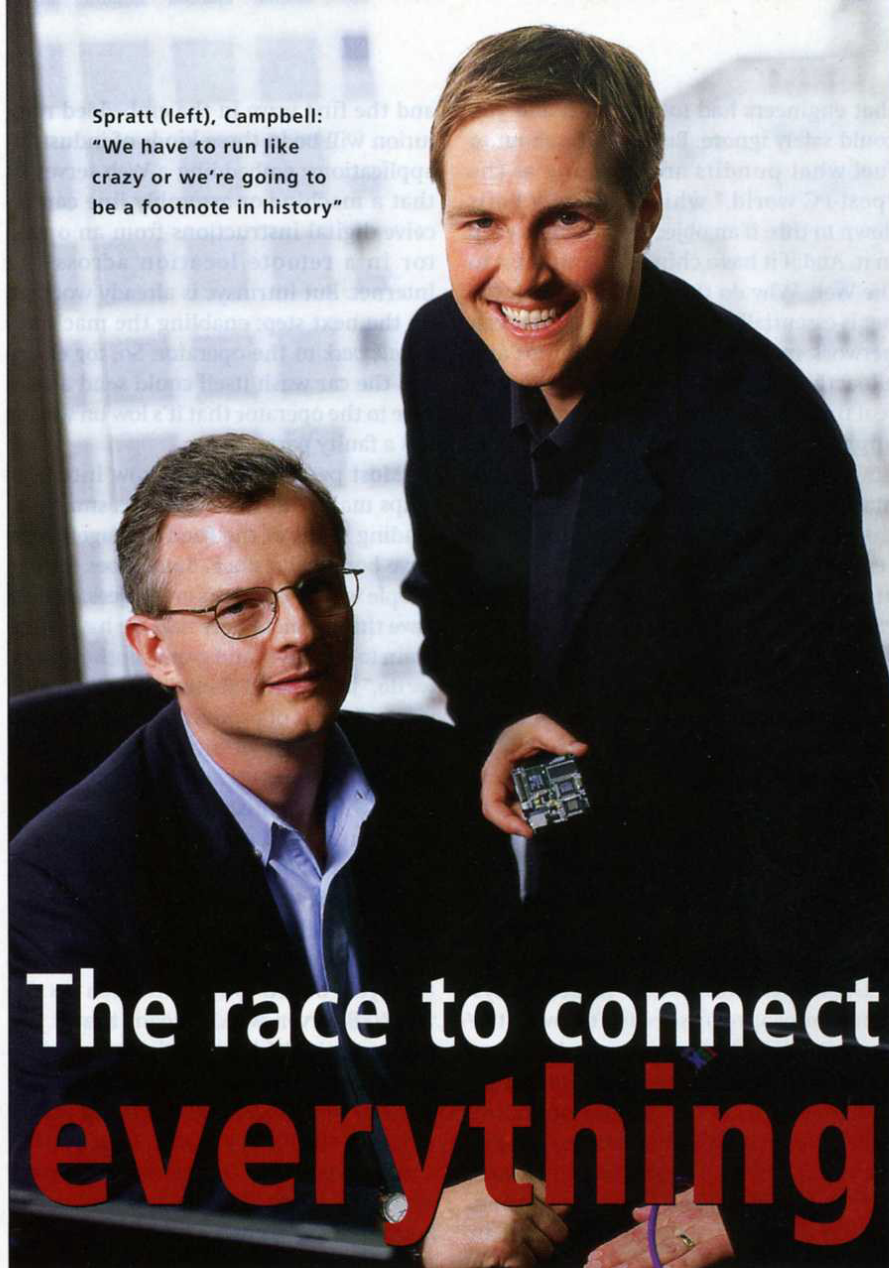
- How lawyers are taking over the Net
- The hiring spree at discount brokers

Derek Spratt and Rod Campbell are jabbering away like a pair of giddy computer geeks who've just discovered speed. Spratt is 38. He's the guy in the denim shirt that's embossed with the logo of the company he presides over as president and CEO. Campbell, 34, is the chief financial officer. Their Vancouver outfit is called Intrinsyc Software Inc. (CDNX: ICS), but more on that later. Right now, these guys have a plane to catch. And juggle calls, which is why Spratt has a Startac digital cell phone to his ear, with a bigwig at Microsoft on the other end.

Campbell is sitting right beside him in Toronto's Pearson airport, yakking on his own mobile to an analyst at Bay Street brokerage Loewen, Ondaatje, McCutcheon Ltd (LOM). In a hyperactive display of multitasking, the high-tech executives are simultaneously using their free hands to furiously work their matching IBM ThinkPad 570s, which are networked together right here in the departure lounge with a red Ethernet cable. And when they actually get on the plane to Vancouver in five minutes, they'll ditch the phones—only because aviation laws force them to—and use the satellite data link in business class to connect their laptops to one of five servers in their 10th-floor office in Vancouver's downtown financial district. "This is a velocity game right now," chirps Campbell. "We're chasing scarce resources, and the scarcest one is time."

Yup, no doubt about it, Spratt and Campbell are definitely high on speed—but not the methamphetamine kind. It's the speed of their "space," embedded systems, which is the stuff that operates everything from factory machinery to everyday appliances—and will soon be on a Web site near you. It's the speed of needing to maintain a 12-month lead in technology—the only proprietary value in software—over other competitors in a potential \$10-billion market. It's the speed of a company that built that lead over the past four years, and whose stock has multiplied eightfold when the market finally caught up with it earlier this year. And it's the speed of having to hire 30 engineers over the next few months to handle ballooning sales, as well as constantly priming relationships on the Street because each week a new institution goes long on Intrinsyc's stock. "We want to grow this thing monumentally through the next 10 years," Spratt announces in his high-octane cadence. "We want to have \$100 million in revenue, then \$500 million. The market has acknowledged that this is going to be huge. Now that we're out

Spratt (left), Campbell:
"We have to run like
crazy or we're going to
be a footnote in history"



The race to connect everything

Want to run your assembly line in Singapore via the Internet from Saskatoon? No problem. The guys at Intrinsyc Software have a plan to link just about everything on the Web

BY PAUL KAIHLA

front, we have to run like crazy or we're going to be a footnote in history."

Intrinsyc is the classic case of a high-tech start-up with a lead in a sector recently anointed as the Next Big Thing, just at the moment of liftoff. Here's why. The vast majority of the silicon chips that are making ours the Information Age are actually not inside the computers you use at work or home. More than 90% of the seven billion chips produced each year are hidden in devices we take for granted: the car you drive, the robotic arms that assembled the

vehicle in the factory, the elevator you ride up to the office, the controllers that regulate your building's heat and the VCR you use to play the newest release when you get home. All of them contain embedded systems: a microprocessor with a chip that functions as the computer's brain, and software that makes all the parts work. Every major company in the world with any electronics in their products, from General Motors and Honeywell to Sony and Nokia, deploys embedded systems.

That used to be the kind of boring stuff

VENUE PHOTOGRAPHICS

that engineers had to deal with and you could safely ignore. But now it's about to fuel what pundits are spinning as the "post-PC world," which basically boils down to this: if an object exists, put a chip in it. And if it has a chip in it, connect it to the Web. Why do that? Because the Internet is essentially a mass medium that can network machines containing chips and allow them to interact with each other in real time. The ramifications for industrial applications are mind-boggling. Right now, almost all of those interconnected machines are personal computers. But by the end of the decade, most Internet access will not be via a PC but through devices with embedded systems. That's called making machines "smart." And in the future, anything with a switch will be made smart. Everything from pop machines to your home entertainment centre will not only have a smart chip but an Internet address. And Intrinsyc's products allow those embedded systems to talk to each other on a Web-enabled network.

One of the company's customers is PDQ Manufacturing Inc., a subsidiary of New York-based Dover Corp. and the largest car wash manufacturer in North America. Sophisticated car washes have embedded systems—microprocessors that power the control units that monitor and operate the pumps, jets, heaters and hydraulics. Until recently, PDQ car-wash operators have had to call a technician to come to their premises and debug or adjust their machinery when something goes wrong. That is, until the company purchased an Intrinsyc product called deviceWEB. It's a Web server that PDQ installed on its car wash controllers, which are assigned an IP, or Internet protocol, address. It also serves pages to a Web site that are fed to it by the car wash's embedded system, or microprocessors. What it means is that a technician, using an off-the-shelf Web browser, can log on to the Web site without having to travel to the car wash, and run diagnostics or debug the equipment online. If it's a company that owns a lot of car washes, the maintenance person can take care of several facilities in a single day, even if they are spread across hundreds of miles. That saves the car wash operator money. But it also enhances revenue potential. "Say they want to offer a quick-wash special on a Tuesday because there was a freak snowstorm on the weekend," explains Campbell. "A technician can shorten the run time of the washing process over the Web without having to physically visit the car wash to adjust its controller."

That's called "leveraging automation,"

and the first wave in the embedded revolution will be in these kinds of industrial applications: embedding a Web server so that a machine or assembly line can receive digital instructions from an operator in a remote location across the Internet. But Intrinsyc is already working on the next step: enabling the machines to talk back to the operator. So, for example, the car wash itself could send a message to the operator that it's low on wax or has a faulty part.

Most people don't get how Intrinsyc helps make embedded systems smart, including many of the fund managers who have bought its stock. Same goes for the people who live with its employees. "We all have this problem here that we have to explain to our wives and grandmothers what we do," jokes David Manuel, the company's vice-president of product development. So Manuel and one of Intrinsyc's engineers decided to come up with a "proof of concept." They invented a smarter toaster. The two men sunk a microCERfBoard—a two-inch-square, 206 MHz microprocessor that Intrinsyc developed with Intel—into the side of a Philips toaster and wired it into the appliance's electronic controller. Intrinsyc's board is loaded with its deviceWEB server, which means that if you log on to the Web site address toaster.intrinsyc.com from anywhere in the world, you can read pages that are being served to you by the Philips toaster, which sits in a windowless room in Intrinsyc's Vancouver office. If you click on "toaster" at the bottom of the home page, you can actually pop the toast from your desktop, whether you're in India or Indiana.

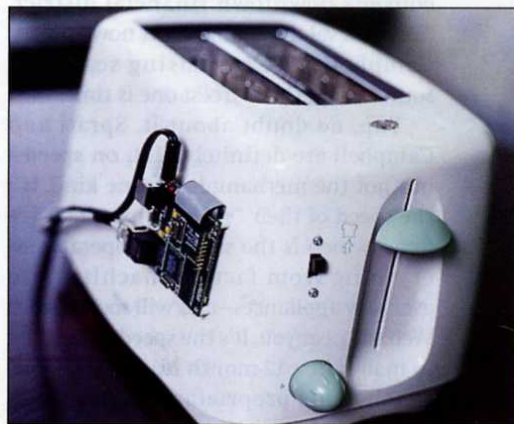
It's a great demo gimmick, but one that has ignited intense debate among Intrinsyc's rather precious engineers.

"No, not the toaster," moans principal engineer Bill Gordon, as a colleague prepares to give a demonstration. "Don't show the toaster." Later, he adds in private: "I hate the toaster because it's a waste of the application. It's a useless appliance. We should do it with a vending machine for pop, instead, where the server feeds pages to the Web site showing the number of pops left and allows you to dispense one online." Manuel counters, "It's not about a toaster. It's about a machine on a factory floor and being able to monitor it from anywhere in the world."

That's exactly why Sweden's Siemens Building Technologies Ltd., the world's largest maker of building controllers, did a deal with Intrinsyc last summer that could bring the Vancouver start-up millions of dollars in licensing fees for its mi-

croCERfBoard, deviceWEB and a connectivity software package called deviceCOM. Siemens' controllers automate things like the lights and heat in commercial buildings. But it never thought they'd become networked devices, let alone be accessed over the Web. The Siemens and the Honeywells of the world all have proprietary systems for their embedded products. As a result, the embedded-systems universe is fragmented between about 250 different operating systems. Compare that to the desktop world, which is dominated by Microsoft's Windows, with small shares held by Apple and Linux.

The Internet is decimating those proprietary systems, however, because industrial customers want an open standard. Right now, a leader in embedded systems is a Silicon Valley company called Wind River Systems Inc. (Nasdaq: WIND). Its operating system is called Vx Works, which has 11% of the market. Against that, experts predict that Linux will go from zero to 20% market share in a year. And then there's Microsoft and its Windows CE operating system, which has about the same market share as Vx Works. The software giant has led a quiet campaign for an open standard, banking that such an evolution would accelerate the growth of the



embedded market the way that Windows' desktop monopoly revolutionized personal computing. Of course, Microsoft wants its product to be the standard. And this month, it is expected to issue a direct challenge to Linux and Wind River by releasing Windows CE for free.

Up until now, Intrinsyc's products have worked only on the Windows CE platform. In fact, Intrinsyc was the first company in the world to devise a technology that enables embedded systems to work on CE, which most of its customers have adopted. (Microsoft refers customers to Spratt's team because the software giant still hasn't come up with a solution of its own.) But Intrinsyc is about to pub-

licly announce that it has also adapted all of its products to work with Linux. It wants to demonstrate its independence, but also to serve customers who decide to go with that operating system. That is bound to create tensions with Microsoft, which is Intrinsyc's largest corporate ally. But the Intrinsyc boys aren't that worried. That's because they have entrenched relationships independent of Microsoft with dozens of Fortune 500 companies and Bill Gates needs them to hold on to CE's market share. Having said that, any discussion of the Microsoft relationship draws out twisted emotions. "Microsoft hates, hates Vx Works," says Manuel. "They hate, hate Linux. They hate anything that isn't Microsoft. It's only in the last six months that they'll get up in front of their customers and say, 'Hey, we use Intrinsyc—their stuff is better than ours.' Whether they're just saying that to impress the [US] Department of Justice, we don't know."

While Intrinsyc's CEO praises Microsoft for standardizing the desktop world and views Gates as a hero, he also exhibits ambivalent feelings about Microsoft. "We are going to announce the Linux products, but we don't want to piss off Microsoft," says Spratt. "It's all going to be in the word-ing. Microsoft used to critique every press

PCS Wireless Inc., a developer of technology for digital cell phones and wireless data markets that has since merged with Markham, Ont.-based Unique Broadband Systems Inc. (CDNX: UBS). Spratt was the company's vice-president of business development and its chief recruiter of engineering talent. But by 1995, he was restless. He quit and sold a third of his shares—for \$2 million. "If your values are built on creating new things, that kind of money gives you the opportunity to pursue your goals," says Spratt.

He used some of the proceeds to buy Intrinsyc, a company founded four years earlier by a University of Alberta researcher. Spratt knew that embedded systems would be big, really big. By 1996, the world was making about four billion central processing units each year. The Internet had just been born as a mass medium and it was being accessed by PCs. But it was inevitable that the more than 90% of computers that weren't desktops—but were embedded systems—would also go online. "I realized that anything that *could* be connected, *would* be connected," says Spratt.

Spratt sunk \$250,000 of his own money into the company, and brought in so-called angel investors, including an old school chum, William Yu. Within months,

Street. Intrinsyc doesn't have a single analyst report on it, although LOM is releasing one this month, nor has it had any significant media coverage. But even Bay Street's heavy hitters want to throw money at it. *Canadian Business* has learned that Intrinsyc is set to do another equity financing that is expected to raise more than \$15 million. Insiders say it will use the proceeds to make an acquisition worth up to \$20 million in the embedded market.

With all this ambitious, high-speed stickhandling, does Intrinsyc need a reality check? Rory Holland doesn't think so. Last year he launched an Internet and e-commerce incubator and got rich when he later sold it to Vengold Inc. (TSE: VEN), the former junior mining firm that is now an incubator and venture capital firm called Itemus Inc. Another thing he did last year was buy about 50,000 shares of Intrinsyc for \$1 each. While that investment has already brought him a return in the neighborhood of 700%, he is not liquidating his position. "I'm holding on for a long time," says Holland. "Unlike a dot-com, these guys have a real product that provides a real benefit to an end user, and it can make money. This is not a \$7 or \$8 or \$9 stock. It could go a lot higher. People ask me where it could go. Well, it could go to zero—it *could*—or it could go \$20. Easily."

Synergy Mutual Funds' Peter Hodson says the potential is far higher than that. And he has an eye for value. His Canadian small cap fund's one-year return stood at 99.8% at the end of February. And he and his colleagues got into Intrinsyc between \$1.50 and \$3.25 starting in December because they think that embedded systems will develop into a colossal market, and that Spratt's early lead in technology could make his company a major player. "If the market takes them as the next great thing in that space, we'll see a multiple of that \$20 target," says Hodson.

Still, Hodson cautions that "the short-term easy money has already been made" in ICS shares. He also adds that Intrinsyc needs to cut a formal co-marketing deal with a global high-tech partner. "We don't want them to try and blanket the world themselves," he says. "We need to see a deal where they offload the distribution side and sales side on someone else. Long term, this is a very compelling story and we continue to buy the stock on dips." If Spratt, Campbell and their engineers can successfully navigate the fierce cross-currents that are building ahead of the next Big New Thing in software and the Internet, a lot of other investors will be doing the same.



To help explain what Intrinsyc does, an engineer wires a toaster with a Web server. Colleague Bill Gordon hates the toaster "because it's a waste of the application"

release we put out. We'd get a call from Redmond and...." He pauses, then switches into an officious-sounding voice. "Mr. Spratt, Microsoft partners do not use the term 'post-PC era.' We call it 'beyond the PC.' But I don't think they even read them anymore, even though we're supposed to be a partner. It's bullshit."

Derek Spratt is your classic oddball computer whiz, with a twist, and the engineering brain trust of Intrinsyc. If all the people in the world were embedded with devices that measured the number of words they spoke each day, Spratt would surely end up in the top percentile. His mind and mouth operate at about 10 times the speed of an average person's.

When Spratt headed back west after graduating with an engineering degree from Queen's University, he worked for a series of Vancouver high-tech start-ups. One made him a millionaire. It was called

the founder was gone, Spratt was president and CEO, and he recruited an ace team of engineers who remain the core of the company. They were years ahead of their time. While the rest of the high-tech world caught up, Intrinsyc languished as a penny stock on the Vancouver exchange until 1999. In the interim, Spratt and Yu, who currently hold slightly less than 20% of Intrinsyc's shares, pumped in almost \$1 million from their combined personal stashes to keep it going. Spratt calls the period "technology incubation." Yu calls it brutal. "I tip my hat to Derek," says Yu, who sits as an Intrinsyc director. "What vision and what balls to carry a company for three and a half years, on our knees, with no backers. It's fabulous to be vindicated."

Now about a dozen small Canadian institutions, led by LOM, have bought Intrinsyc—and have run its share price from a buck to a high of \$9.10 in February. Yet the company is still a relative secret on the