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Google 2.0 as 'Calculating Predator'

by PAULA J. HANE

If you think of Google as a company that just does web search and advertising, think again. Your future prospects in business could depend on it. That was Google version 1.0.

Google version 2.0 is a new type of company, according to search industry expert Stephen Arnold in his new study, *Google Version 2.0: The Calculating Predator*. Google 2.0 combines hardware and software engineering in a "network-centric application platform." Since the company's inception, Google has discovered that its solutions to search problems were applicable to other "interesting problems." The result is a construct that supports the advertising business model,

a wide range of applications for individuals and organizations, and incursions into markets far removed from search, including telecommunications, retail, publishing, and more.

Arnold says the term "calculating predator" was carefully chosen to illustrate Google's solid mathematical underpinnings (its founders are mathematicians) and its insatiable predatory instincts (the company watches and waits for business opportunities). He uses the term "Googzilla" to describe the current incarnation of Google. The idea is that Googzilla is big, powerful,



Stephen Arnold

and indifferent to the insects and ants crushed by its massive paws. Arnold says, "Companies choosing

to underestimate, ignore, or assume that Google is a one-trick pony are likely to find themselves surprised by Google's 'calculative' and predatory actions."

Arnold is a sought-after consultant, popular lecturer, and established author on technology. With his team of seven research analysts, he has spent the last 4 years tracking and monitoring Google's technical innovations. Most impressively, he has done this by using a combination of people, search, text-mining technologies, and close reading and analysis of hundreds of patent applications filed by Google employees. Arnold calls *Google Version 2.0* an open source intell book,

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anchored in applications. I interviewed Arnold in late November 2007 to talk about the book and about his thoughts on what has happened since its publication.

Building the Framework

In 2006, Arnold's groundbreaking first study on Google, *The Google Legacy*, focused on how Google developed its search solutions and its infrastructure "plumbing." He clearly delineated Google's rather amazing technical advantages—a network computing platform that is faster, cheaper, and simpler to operate. At the time, he described Google as having "a pretty good NASCAR, while Microsoft has a nice Chevy Impala—it's comfy to ride in but it just doesn't go as fast." (See the feature article in the January 2006 issue of *Information Today*.)

The new study is remarkable in reinforcing the notion of the technological head start the company has. The comparison of Google to any potential competitors is much more striking than 2 years ago. "The reality is that Google's fundamental invention gives [it] the platform to do new things without any time delay," says Arnold. Google's advanced math-based infrastructure now allows the team to just "turn on" something new—without a lot of new development. "When you download a new software program you don't have to buy new memory—you just run the program."

And what does this mean for Yahoo!, Microsoft, Ask.com, or any other rival? According to Arnold, "The other companies all share three problems. First is time—an 8-year lead. There's both the lag time and the learning time. Second is money—Google has been spending in the billions for the last several years. It's

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both the amount of money and doing something meaningful with it. The third problem is the people. The engineers at the other places want to work at Google. There's a brain drain issue." And, he doesn't mince words assessing Google's chances: "When you put these [three] problems together with the problem of not really understanding what Google is doing, it's silly to ask when the other companies will catch up—they can't."

Arnold stresses that Google has been systematically building and innovating for 8 years, and founder Sergey Brin's fingerprints—"scale, huge data sets, algorithms, efficiency, speed, massively parallel operation, and cleverness"—persist throughout Google's patents. Google is a company built on mathematics. The company may be venturing into apparently new areas, but the development work has actually been ongoing for years. Arnold says, "I'm the first guy ever to analyze the patents, the first to track the areas those inventions allow them to go into, the first to put timelines on their work. For example, they started working on telecom in 1999—now, 8 years later, people say '[H]ow can they do this?' But I see it as just one thing."

A key component in Google's success has been in solving the problem of scale. Asking how far it can scale is moot, according to Arnold, who explains in the book that Google has a self-replicating database structure that is infinitely scalable. "There's evidence in the technical literature," he says. "And, you can verify it in Google Maps: Get the satellite view, hit your right arrow key, and fly around the circumference of the Earth and experience no latency. Scaling is part of their competitive weapon."

Google's Strategy of Gradualism

It's difficult to actually track what Google is up to, of course, unless you track its patents like Arnold (or read his books).

Google issues press releases sparingly (frustrating for the press) and doesn't do aggressive marketing as some other companies do. It adds bits of functionality one piece at a time without fanfare.

Arnold says, "I don't think they ever turn anything on 100%. Every time you go back, there's some little thing that's different. They constantly tweak and adjust—it's like time-lapse photography ... many small changes continuously, but if you compare from 1 year to the prior, you'll see [there've] been radical modifications. It's a strategy of gradualism. If they did something overt and made a big change, it would allow others to combat it. They do a lot of things in a small way, simultaneously. One day you'll find you can search for the best airline fares on your mobile phone—it's built on all this advanced technology that they only implement a piece at a time."

Arnold says that Google often "hides in plain sight" its innovations in test form. "They put these examples up for the salespeople in plain sight, and as soon as someone talks about it—like me—they make it disappear. And then I have to find the examples again. It's a game of cat and mouse."

For example, see the sample search for "skin cancer." It may not look like this when you search for it. It's an example of Google's new "dataspaces" approach that Arnold recently discovered. It will be discussed in detail in his next book. (See also Barbara Quint's column in the De-

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ember 2007 issue of *IT*.) Dataspaces basically provide access to diverse content collections and can score the reliability of the results.

The Coming Disruptions

For a company of its size, Google remains remarkably nimble and surprising. "Google can deliver a great many products and services from its malleable framework. Telecommunications, motion pictures and entertainment, financial services, and publishing are just a few of [the] traditional market sectors that Google can enter and disrupt without too many technical gyrations. Most of these market sectors are blissfully ignorant of Google's capabilities."

The best way to work with Google is to push data to it and provide instructions, so the information can be useful to your users.



In fact, Arnold says that with little additional effort, Google could become a full-fledged publisher. He notes that the company's activity in publishing-related research has been underway continually since 2001. See Table 1 for Arnold's list of potential target markets and the timing—it's quite revealing. Note how many of the six areas are already underway and expanding.

Arnold says that Google disrupts in order to create opportunities. "Just the threat of disruption can put a company out

Read More

The new 266-page study by Stephen E. Arnold—*Google Version 2.0: The Calculating Predator*—became available worldwide as an electronic book in October 2007, from Infonortics, Ltd., a specialist publisher based near Oxford, England (www.infonortics.com). The study is priced at \$640 for a single copy. Enterprise site licenses are available.

Arnold (www.arnoldit.com), who has spent more than 30 years in accessing and developing online technologies, is the author of seven books about information technology as well as more than 60 journal articles. Arnold is the original author of *The Enterprise Search Report*, a 660-page encyclopedia of search technology, currently in its fourth edition from www.cmswatch.com.

of business. Imagine if you're Verizon and Google has its gun sights trained on you—imagine the pressure. Google is essentially a disruptor. That's actually my third book that will come out in late 2008. I'm calling it *Google: A Strategy of Disruption*."

Of course, Arnold acknowledges that Google faces some challenges (privacy and copyright issues, confrontations with China and India over access to markets, etc.). He also says there are considerable vulnerabilities, such as management infighting, legal actions, click fraud, etc. "Google is the product of Sergey, Larry, and Eric—if they fall out, it's over. Those things in our world can kill a company—and it could happen fast. These guys are smart mathematicians but not highly trained management types."

Working With Google

So, what can a company do with a Googzilla present? Arnold definitely does not recommend ignoring Google or attempting to fight it directly. Sites that actively resist Google's indexing might find that Google will just re-create the content itself. The best way to work with Google is to push data to it and provide instructions, so the information can be useful to your users. Arnold calls it a "surf on Google" approach.

Here's an example. "Go to the Google search box and type in 'air schedule lga sfo'—now click on HotWire. HotWire is clearly working cooperatively with Google to be one of the six companies listed there. You're going to get the lowest fare shown to you as a search that is run and displayed before you browse the results." (Of course, there's a chance this example won't be there.)

Another esteemed industry expert, Martin White, reviewed *Google Version 2.0* on his blog and wrote: "By the time you have finished reading it I am sure you will be astounded by the vision, scale, and focus of the R&D effort at Google, and also by the level of insight that Steve Arnold provides. I can recommend Steve's book without reservation to anyone with an interest in how Google not only works but thinks."

I concur with White. I stand in awe of Arnold's work in this area. Companies in any of these potential markets would ignore the intelligence in this study at their peril.

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Google: Potential Target Market With High Revenue Potential

Market	Positive Effect	Incumbent Options	Timing
Banking	Google can provide worldwide credit and financial services from the Googleplex	Limited; most are unaware of Google's growing capabilities in this sector	Underway and expanding rapidly
Enterprise	Lower costs for Google licensees	Deep pockets required to counter Google's assault on the enterprise market; acquirers and increased technology investments are needed	Underway and expanding rapidly
Entertainment	The audio and video strategy is in test	Legal actions and tighter contracts with producers, directors, and script writers	Google's morphing into a publisher is dependent on actions content owners take
Publishing	More content from more authors at lower prices than traditional print books, journals, and magazines	Legal actions; niche plays may be sustainable; national and international thrusts are not	Ramp up in publishing is under way
Retail	Google may trigger change to permit it to purchase Amazon or eBay	Focus on cost controls, technology, and acquisitions to counter Google	Ramp up throughout 2007
Telecommunications	More options for consumers	Legal actions; degrees of freedom are limited due to capital constraints and technology	Google has its telecom initiative underway; most telcos are ignorant of these efforts