Why Starcounter?

Technology comes before revolution. Always. And while not always obvious when first introduced, the importance of truly novel technology is not something reserved for tech geeks; in fact, it is and has always been vital for the evolution of the human race. Discoveries and inventions have literally brought us from the caves to where we are today. And while the first step of truly innovative new technology starts with modest initial use and intention, its impact forever changes the course of history.

Information technology is no different; technology comes before revolution. Here we are, at the end of 2010 and so much has changed in the last decades; yet, we are only in the beginning of the information revolution. I'm old enough to remember when Bill Gates dreamed out loud about "a computer on every desk and in every home." This was before the birth of the World Wide Web and, I'm embarrassed to admit, to me it sounded rather ludicrous (to my defense, as did it to many of my peers). I was a teenage tech geek at the time and since then, I have covered many miles. Today, I believe it is equally ludicrous to underestimate the future. We are nowhere near the end of the information revolution. If anything, it's clearer than ever that we have just begun.

The web and beyond

To understand the revolution, it is important to understand the evolution within the revolution. Each revolution needs its enablers. Without the computer, no computer network, without the computer network, no Internet and without the Internet, no Web. Each step lived happily on its own, not knowing the next.

The Web made the technology spread to large populations and is now opening up a race for applications and information services unheard of in the past. Static pages are coming alive into the first crude Web applications. In these applications, information is not only linked in a web of static pages, but is dynamically updated, shared and processed. Mirror worlds are being created. Both connected with our real world, in the shape of Google Earth and Facebook, and completely fictitious such as the world in World of Warcraft. There are even worlds where the lines are blurring. Are we really playing cards in the Poker room?

Beyond the web

The Web is built on the Internet. It is one application. There will be more. The story, fortunately, does not end here. We will look back on the current creations with the same nostalgia and smiles on our faces as we do on computers of the 50s, the first network of the 60s, the first games of the 70s, the first home computer of the 80s and the first web pages of the 90s. Little did the creators of the IBM electronic brain, Pong or Pac-Man, IBM PC or IP linked universities know what they started or where it would end. Just as they were first steps, the current Facebooks, Google Earths and WoWs are also first steps. They cannot see where the social networks or spatial worlds will end up. The business and personal applications of the post Web are in their infancy. The future social networks will not only provide us with billboards of what our friends are doing, they will interact with us in real time. Maybe our phone will vibrate in our pockets when something interesting is around the corner IRL. Maybe our existing friends are not enough as needs and wants can be matched with all people, all the time.

When you think about it from the perspective of the previous decades, the notion of mothers and fathers engaging in global wars with goblins and elves would sound remote and highly unlikely. Who thought millions of people would start playing cards with each other for money?
Rest assured, the Facebook generation will happily move to the next level. The only question is – what is the technology that will enable the next revolution?

What's next?

Technology comes first, and the revolution comes after. The networked computer came before the Internet. It was built, completed and put in use long before even the idea of the Internet was even born. In the next round, the story was the same: the Internet came before the Web. It was built, completed and used long before the idea of the Web was even born. They had one thing in common: at first, they were considered geeky and insignificant. Hypertext (the basis of HTML) made no headlines before the Web. The Internet made no headlines before the Web. The breakthroughs of today are no different. It takes a visionary to spot them and a really talented visionary to make money from them. Google and Blizzard know this.

So what is next? Well, first we need the enabling technology. Two kinds of super engines are emerging. One deals with the human side – the computer-human interface. It comprises the emerging capabilities of the device used by the user, both inside and outside the browser. The contours of the new super engine is emerging; we see the graphics, the GPS, the portable hardware, the real-time speed, the input and output sensors such as movement and vibration sensors. We see fragments of it in HTML5, Google Earth, the iPhone and WoW. We see hardware accelerated graphics moving from games into the browser. Our smartphones can see using video, listen using microphones, talk to us using speakers, they know where they are, how we move and even how they are tilted, they provide visuals that in the past were reserved for training space pilots in giant simulators. Even when we are not using them, they can talk to us by vibrating in our pockets. All making real-time and meaningful interaction with us humans possible and practical and taking us away from the limitations of the old static hypertext page. Let's dub the whole kaboom is the Human Side Super Engine. It won't be a single engine or come from a single supplier, but it will be part of the next revolution.

The other kind of super engine is on the other side of the cloud: the side feeding and integrating all these devices into a connected super flow of information in real time. This is the information processing super engine. As with the human side super engine, the information processing super engine will not be a single engine from a single supplier, but it too will play a key part in the next revolution.

This engine will need to process signals and information changes at the speed of light across the globe. It will need to process, extract and match information. It will need to listen to changes and notify connected devices in a phase that will make Facebook and Twitter look like they were using smoke signals. We can already see simple proprietary super engines at play in games such as Blizzards WoW where actions between many are shared in real time. As with the Internet itself, the military is a source of things to come; in the fight against terrorism the world is mapped in real time and actions at one node in the network affects other nodes on a global scale.

The super engines of the cloud need to be super powerful yet super available and preferably, super easy. Even if companies such as Facebook can force-feed old technology scale to host acceptable

levels (as far as billboards go), companies like Blizzard and Google have been forced to reinvent totally new information engines on the server side. They cannot rely on engines such as Oracle or MySQL to host the performance-hungry applications. More importantly, squeezing the next generation of massive real time Internet applications into the old technology comes at a great cost. To the programmer, the basic functionality of Facebook is not very complex. But to make it work while serving millions of users makes even a trivial task rather complex. The code needs to describe how to work around performance bottlenecks instead of describing the end user functionality. Not a good sign if the next social network is to Facebook what WoW is to Pac-Man. Without proper information super engines, the broad revolution will have to wait.

The information super engine

To feed the creative minds of the future Googles and Blizzards, the information engines need to feed the hungry devices connected to us humans. The future Google Earth will need to show us the taxi around the corner when we take our phone out of our pockets. Our future social networks and E-Bays need to help us by constantly matching our "needs and wants" with the rest of the world, not just communicate with our friends through primitive status updates. Our GPS and phone vibrator can do things for us when the real world offers something exciting nearby.
If you are a tech Geek, like me, such enablers do not look small and insignificant. After all, it was a small piece of code that transformed the phones, modems and computers of the time into the Internet and the World Wide Web.

The information engines born in the early ages of information technology are showing their limits; they were once designed to serve a few hundred people. By advances in hardware, their lifespan has been prolonged and with complex scaling methods they can barely serve primitive apps such as Facebook and have been abandoned by applications from companies such as Google and Blizzard.

Both super engines are possible because of advances in hardware. Powered by what can be done with modern hardware when given a blank sheet of paper, the needs of the next revolution can be served. This is not to diminish the inventions of yesteryear. In my opinion the engineers of yesterday need not be embarrassed. It is the advances in hardware such as 64-bit addressing and cheap RAM that make the new engines possible. (RAM went from \$160,000 per MB when SQL Server was born to about one cent today.) And the iOS platform powering the iPhone could never be done on your old Nokia 8110. First comes the power; then we find out what to do with it.

The Starcounter super engine

Starcounter (and to be fair, potentially other so called NoSQL databases) is the information super engine for massive online transaction processing (OLTP). It is designed to enable this revolution. And Starcounter overcomes current limits by a vast margin, being many thousands of times faster than popular solutions such as Hibernate. Starcounter processes millions of requests per second per server instead of hundreds. It can provide what future visionaries and innovators need. And don't be fooled by the "NoSQL" label: the Starcounter super engine processes a high-level SQL query at the same speed as a Blizzard Goblin swings its axe on the battlefield or the anti-terrorist agency senses a movement in a faraway country. That's how radically different and powerful it is. And more importantly, Starcounter combines this high-tech engine with a Superpower For Dummies attitude.

STARCOUNTER

The Darwinian natural selection of the next generation of applications will be merciless for those who can't deal with new levels of sophistication. Time-to-market will rule and power is nothing without ease of use. To do more, complexity needs to be addressed. Simply reinventing the simple functionality of the Web 2.0 applications of yesterday will not do the trick.

Just as the human side super engine will do well without the information processor super engine and vice versa, they are partners made in heaven. Starcounter will solve problems in environments other than the internet, and the human side super engine will use unconnected or static information providers, but together, we cannot begin to guess what will happen.

The time is now. The people of our planet are holding the new devices in their hands and sitting in front of them at their desktops. Who will be first? What will become of the old dinosaurs of business software? What path will games take? What will the next new wave of social applications bring to our lives? How will our existing mirror worlds evolve? The future is as hard to predict as ever; however the only thing history tells us is that there is no such thing as too many capabilities. The more we have, the more we use.

Now your imagination is the only limit.