



The Realtime Project

Idea Paper 1: Welcome to realtime.

By Steven Overman, June 2009, London

Leaps of technology connect us in new ways, and transform life as we know it. For example, the telegraph. The automobile. The internet. Now the next big change is coming: the connection of everyone to everything and everywhere.

It's more than the web. It's more than the mobile. It's more than social media. It's all of these things, plus linked data, location-awareness, our behavior patterns, our purchasing habits, the spaces we enter and vehicles we drive, and even the monitoring of our physical selves: our heart rate, temperature, and mood. The physical and digital worlds are becoming one.

This is what we call realtime.
It's the fusion of live information with real space and real life.

The ultimate convergence.

To understand how we got here, let's hit the rewind button.

The smoke signal was the first, albeit near-field, form of realtime communication. Using fuel and fire, we could send live messages to those in the vicinity. Over the centuries, the use of symbols, written language, written music, and pictorial storytelling whether drawings, paintings sculpture or stained glass, allowed for time-shifted communication between people, cultures, and generations.

Each new form of communication created new human capabilities, while eliminating the need for old ones. The printing press, for example, led to widespread literacy. Literacy transformed our minds forever. Reading and writing as aspects of daily life enabled us to perform such banal but fundamental tasks as making lists for ourselves and others, and providing written instruction. We became able to pass along knowledge, memories, skills and facts – without the need for physical presence and long periods of apprenticeship.

Literacy literally empowered us to forget stuff, because the written word could now be our “memory.” And it simultaneously broadened our abilities, opened up new human possibilities as it freed us from the here and now. Put simply: we no longer required in-person, in-place contact with the provider of information in order to absorb it.

This is important to consider. Realtime heralds a new literacy which is transforming human capability, our sense of ourselves, as profoundly as the birth of the written word.



Technologies that connect

From the 19th century onward, the introduction of new ways to connect accelerated exponentially. Parallel streams of innovation, from photography to the invention of recorded sound, laid the groundwork for new forms of art, industry, and information-sharing.

The development of the telegraph and then the telephone eliminated the barrier of distance in realtime communication. But these technologies had and still have their limitations. They merely linked fixed places: Point A to Point B. You could dial halfway around the world, or down the street, but you didn't know who would pick up on the other end of the line. "Hello, is so-and-so there?"

The radio brought about a different kind of revolution. It enabled live communication on the go, between two parties or many. (In time, the mobile phone made that person-to-person connectivity affordable and accessible for literally billions of people, but that comes later in our story.) It's hard to remember a time, just a couple of decades ago, before we could connect directly with each other, regardless of place.

Soon, broadcast media like cinema, television, and recorded music drove a few-to-many, top-down communication paradigm that dominated the 20th century. Mass media created a new class of titans as they defined culture: entertainment, news, politics, advertising.

This few-to-many, top-down communication paradigm is at the end of its life-span. Its death-knell: the internet.

From the internet to the mobile

The internet linked mainframe computers, for the benefit of academia, government, and the military. Information resources could be connected and made accessible to experts. It existed for decades before any of us realized it was there.

The web added a new layer of accessibility and usefulness to the internet by linking documents on those interconnected servers. Hence the terms "web page" and "browse." The browser brought it to our eyes and fingertips. Text-based information held together by hypertext. We were introduced to a new way of navigating knowledge, the fluidity of jumping from one idea to another in a seamless journey.

Then the web soon became a multimedia phenomenon as the spread of personal computers brought it into the mainstream. Beyond the proliferation of PC's, the advent of high-speed connectivity through fatter pipes and faster modems for free in the workplace, and finally through accessible pricing at home made rich media content consumption viable. Digital capture of audio, video and still imagery improved in quality while becoming ever more affordable. Online images, videos and music flourished, even as intellectual property rights blurred, theft ran rampant, and content business models were challenged.

Meanwhile, the rapid spread of affordable mobile handsets connected more and more of us to one another, and not only by voice. SMS messaging created a new form of communication – abbreviated and immediate. As handsets have become multimedia and web-enabled, the very nature of media has begun to change. Cameraphones, for example, empower a new kind of social journalism, a flourishing of perspectives on our world. Media, whether informative and educational or purely entertaining, becomes participatory and social. Empowered by easy-to-use multimedia applications, the passive, faceless audience becomes an activated community of fans, amateurs and experts.



Context, sensors, and data

Let's pause in our mini history review, just for a moment, and imagine the story of convergence as a river – a network of tributaries merging into a flowing stream of communication progress.

Photography and recorded audio are tributaries that joined the great flow of communication further upstream, broadening the possibilities for communication. The internet and the mobile joined it more recently, exponentially increasing the river's breadth and speed. Suddenly, another powerful wellspring bubbles forth and joins the system. The river is again transformed and enlarged by the addition. This new wellspring of possibility is the simultaneous introduction of contextual sensors, artificial intelligence and linked data into the stream of communication.

The integration of context, sensors and data is the moment our world enters the epoch of realtime.

Location-aware systems like GPS find their first application in mobile maps and navigation guides. But location sensors offer infinite applications: they make it possible to access live information that's relevant to a particular place – for example, whether friends (or enemies) are in the vicinity.

Multisensory scanners convert personal environment, context and biometrics – it is raining, I am on Wanchai Road, my heart rate is up – into connected information, a live personal profile. Data, such as numerical values, statistics, timetables and so on, are becoming linked, regardless of their source. Meanwhile, artificial intelligence and pattern recognition systems can connect our behaviors to our personal context. Already we can geotag and time-stamp our photographs; why not everything else we do?

Our actions, transactions and current status can be tracked and linked with their location and time. What we are doing is linked with where we are doing it and even *why* we are doing it.

The rise of personal relevance.

Our flowing river becomes more like a sea of information. In realtime, we don't feel overloaded, because we are only exposed to the data and capability that's relevant to our immediate need. Whatever is ported to our personal screen finds us when we need it most. Our usage patterns are as recognizable as our fingerprint. Our behavior is as predictable as our spending habits. In realtime, daily life – basic transactions, transportation, information-sharing – is effortlessly convenient, economical, and personalized.

Everyone, everything, everywhere: interconnected. In realtime.

Realtime begins now.

An array of technologies make realtime possible.

The multifunctional mobile device marks the beginning of this next epoch of human connectivity. Multimedia internet handsets like the iPhone, Palm, Blackberry, and Nokia Nseries herald a new era of personalized connectivity. We customize the functionality of our devices by selecting from a continually growing set of applications and information sources. It is today our key interface with realtime information, and a significant proof point of the potential for realtime connectivity.



Personalized connectivity is set to become even more ubiquitous. We swipe a chip-enabled card through a bank machine, we log in to our email through a remote terminal, we speak with a customer service representative in a retail shop – these are all realtime points of engagement.

On the hardware side, realtime enablers include GPS and WiFi sensors, biometric scanners, accelerometers, RFID chips, in-car computers, bank machines, cash registers, digitally-enabled transit turnstiles, self-service checkout kiosks, radar, microphones, micro-thin touchscreens, interactive surfaces, smart antennae, nanotechnology and more.

On the software side, realtime is powered by developments like cloud computing, geotagging, open source protocols, CRM systems, linked data, SRTP encryption, near-field communications solutions, mobile applications and widgets, profile management, translation engines, intelligent search, image recognition, micropayment solutions, and predictive intelligence.

This is not a far-off future vision.

The mobile handset is already the primary internet interface for much of the world. Future mobile devices will be increasingly intelligent, context-aware, and adaptive to our needs and use patterns.

As our handsets become more sophisticated, yet more user-friendly, this new miniaturized mode of computing becomes ubiquitous. Contextual awareness and information intelligence are integrated into everyday experiences. Metadata about each step we take and decision we make becomes available to augment everything we do.

The mobile and its offspring is becoming our wallet, our navigator, our news agent, our house key, our transport ticket, our health scanner. Being equipped with this technology will soon be like having a sixth sense. If this sounds overwhelming, rest assured, it won't be. It will seem as normal as taking cash from a slot in the wall, as convenient as swiping a transit card through the subway turnstile.

Realtime affects us all.

A global phenomenon.

Aspects of realtime are rooted in cultures around the world. Estonians have been paying for parking with their handsets for years. South Korea is perhaps the most realtime culture on the planet, with connected multimedia technology pervading most aspects of daily life.

Meanwhile, some developing nations are apt to embrace realtime even more intuitively than those that have been connected to the internet for decades. So-called “leapfrog” markets in which people first experience the internet on their mobile phone won't be burdened by decades of focus on the desktop or laptop screen functionality. Realtime will permeate their communities and enable a better life for many.

For them, simple utilities on the handset, largely driven by SMS, that enable basic transactions, shape their assumptions about how the internet works for them. Already there are realtime solutions for rural farmers in Africa, giving them realtime access to comparative local market prices for their goods. Microfinance solutions build business relationships between entrepreneurs in the developing world and investors everywhere. Real needs are met just in time. Villagers trade pre-paid mobile minutes as a kind of digital currency. They have no bias toward ATMs or bricks-and-mortar banking.



Beyond the handset.

Realtime is not limited to a particular device, channel, or touchpoint. Intelligent connectivity is being built into nearly everything. The RFID chip, QR codes and GPS sensors are only the beginning. Soon, our cars, our bikes, our roads, our kitchen appliances, even basic consumer goods will be interconnectable.

Realtime is the state of continuous connection. To each other, to an infinite array of services and databases, and to a live stream of socially-generated information that's constantly crowdsourced from a multitude of people and points of view.

Whether we welcome it or not

Realtime is infiltrating our lives. Individual data trails are tracked and soon will be connected. The price of mobile connectivity continues falling, making the internet accessible to more and more people around the world. We become more reliant on constant connectivity every day. There is not one sector, role, industry or person who is not being affected by realtime.

Realtime is a triple-entendre.

Realtime because this technological and cultural breakthrough heralds a world of continuous live interaction. *Realtime* because total interconnectedness encourages authentic and transparent communications. *Realtime* because the more flexible and mobile we can be, the more empowered we are to choose where and how and with whom we spend our time – in real places, doing things that really matter, with the people who are most important to us.

Technological and cultural transformations are reciprocal and happen hand-in-hand. Realtime is no exception; the impact of information and technology convergence is vast, deep, and permanent. There will be no turning back.