



Which of the following current topics will significantly change the market in the next year? And what is the impact? (Business Intelligence/Analytics, Customer Engagement, Mobile, Security, or Social)

Big Data, Software and Cloud Computing 2.0 – A Key Theme For 2013

Ever since the timeshares of mainframes and the arrival of PCs – the power of massive computing remains in the hands of the few. However, the world is different now.

The vast amount of data tracking everything (transactions, sensors, etc.) each of us does has exploded. For example, credit card purchases, business loyalty cards, frequent traveler accounts, websites, mobile apps, electronic toll transponders (E-ZPass Network, Fastrak, etc) – all offer brief snapshots of information about each of us. When combined with a company's CRM data, the picture becomes much more vivid, offering predictive intelligence.

Data sources, like those mentioned above, are available today on a single-use or subscription basis and can be easily integrated with your organization's data stores with API calls to learn more about your customer. As recently as a few years ago, it would have been necessary to work with a project manager in your company's IT department, purchase large amounts of IT equipment, get it installed, and wait for the sys admins to get around to running the job.

The “consumerization of IT” – where employees are bringing not only their own mobile devices, but they are bringing their own laptops and, in some cases, software to work, is a big part of today’s data revolution. The IT teams built the data warehouses of the 80’s and 90’s and then leveraged the easy to use Business Intelligence tools of the first part of this century. Employees in many departments are now curious. Very curious, and no IT department or budget is going to get in their way.

Data is flowing within their organization at an ever increasing rate. They want to apply their “consumerization” of IT to the data at their fingertips.

What’s different now? Cloud computing? No, not first generation difficult-to-use, costly, slow and limiting – but second generation Infrastructure as a Service (IaaS). We now live in a world where instances can be connected at 80Gb/s, and instances can have 196GB of RAM and 48 cores. The real clouds are arriving. And despite what some might think, they are priced and packaged for the masses.

Competition in every industry is stronger and growing faster now too. It’s fueled by data. The early adopters of cloud computing had a competitive edge.

“Now, it’s time to democratize compute power.”

Data is all around us and should be available when and where we need it. Used efficiently and effectively, data can greatly improve how business is done. It improves product development and increases the bottom line.

EDI Streams. Retail Transaction Data. Flickr. Amazon. WorkDay. Salesforce.com. Citibank. YouTube. Data is constantly moving into the cloud and being absorbed at a record rate.

How is this possible?

Instead of running on a physical machine, today's modern applications work with data run on the cloud in giant compute and storage clusters of virtual machines, created by software and controlled by APIs.

At some point, cloud computing becomes physical. For anything to happen, a CPU will have to load instructions and process the data. To initiate the processing, the data has to arrive at the server containing the CPU and will then be sent somewhere, often to another server. This is where the physical network connecting the computers comes into play. It is in the switching layer that data flow challenges will appear as the computing world becomes "virtualized."

However, for all of the great strides in virtualization and decreasing hardware costs, for many organizations High Performance Computing environments have not been an option. CPUs, Memory, Storage and Network interconnects were simply too costly to acquire and maintain.

The promise of cloud computing in its first generation did not improve the performance, cost or ease of use to the HPC market. The biggest stumbling block to date has been the cost in both performance and I/O for networks in the cloud.

The main impact to the increased usage of cloud computing is reduced dependency on in-house IT infrastructures. Offering the ability to implement services in a matter of minutes using a self-service web-based platform, cloud computing allows companies, both large and small, to move away from capital-intensive IT expenditures to an operating expenditure/pay-as-you-go business model. The business advantages of cloud computing include the standardization and streamlining of operations, and since all parties have access to the cloud, stronger collaboration among external entities and the organizational ecosystem.

Cloud Computing 2.0

HPC in the cloud is a more cost-effective and efficient way to improve computing performance is available now. It was the vision of ProfitBricks' founders to offer the second generation of cloud to every organization. And now that it's here, there's no stopping it

Cloud computing has clearly emerged as an alternative computing platform that bridges the gap between engineers' growing computational demands and their computing capabilities. The cloud allows engineers, scientists, researchers, and other big data crunchers to obtain massive computing resources within minutes, compared to a number of days or even weeks it normally takes under traditional business processes.

A cloud with moderately better network (vs. EC2) will deliver a significant performance improvement. Newer HPC-friendly "engineering cloud" platforms will be equipped with much better processing and networking capabilities such as InfiniBand, the platform behind the US Department of Energy's Magellan and cloud computing IaaS providers like ProfitBricks.

HPC in the cloud is a proven advantage for many industries like research, engineering, BioPharm, and others, but it won't stop there. This more cost-effective and efficient way to improve computing performance is available now. It was the vision of ProfitBricks' founders to offer the second generation of cloud to every organization. And now that it's here, there's no stopping it.

This interview was published in [SIIA's Vision from the Top](#) , a Software Division publication released at [All About the Cloud 2013](#)