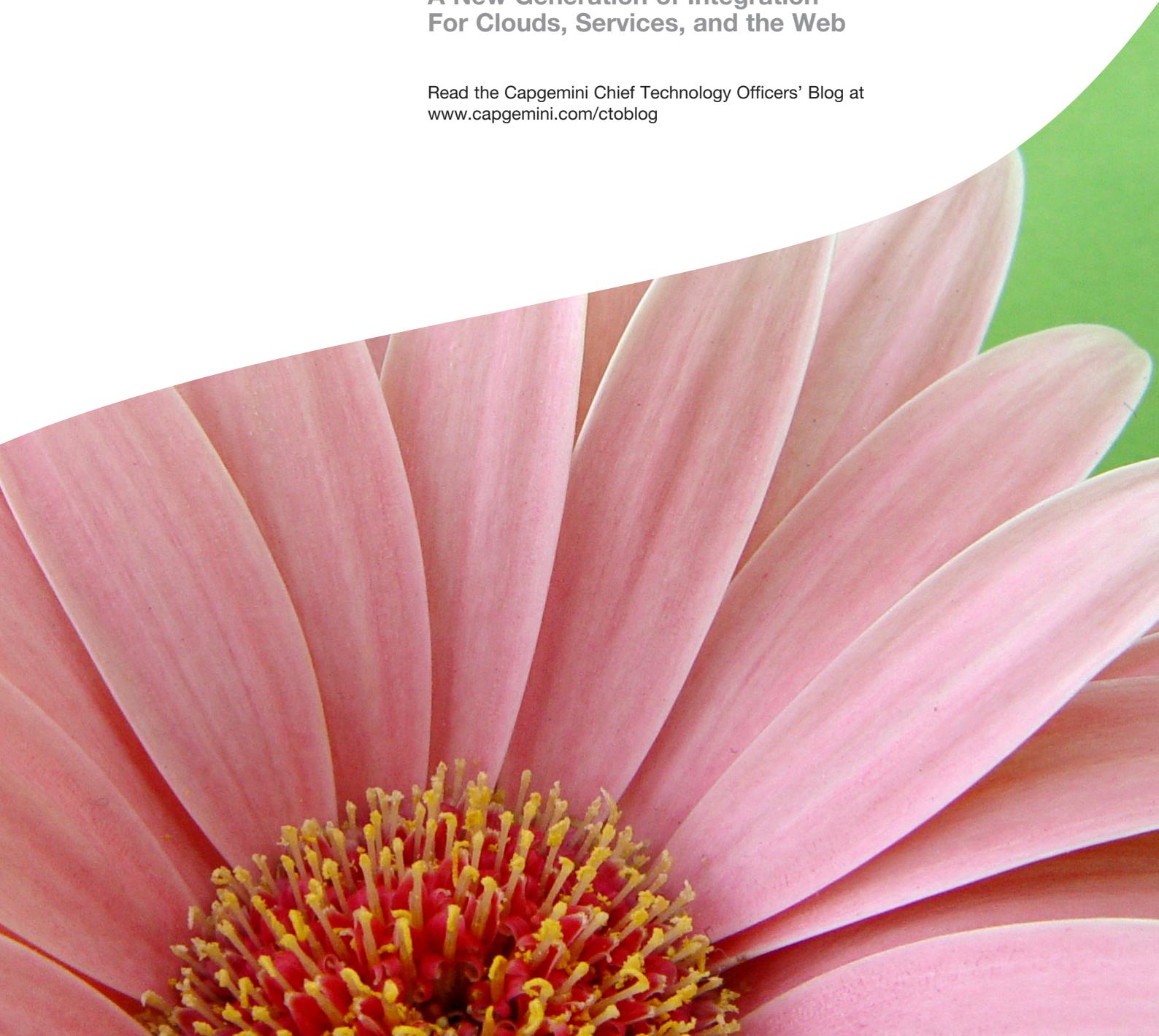


Changing The Game: Monthly Technology Briefs

September 2010

A New Generation of Integration
For Clouds, Services, and the Web

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www.capgemini.com/ctoblog



Complex Systems: A New Generation of Integration Requirements

The integration of IT applications, either as part of an Enterprise Resource Planning (ERP) suite or through using Enterprise Application Integration (EAI) tools has been a critical success factor for enterprises. Enterprises function with greater efficiency and at lower costs through integrating their processes around common, shared core data. Underlying this has been the principle of data centricity, the known relationships between each and every component, and the sheer control of the predictability in use by operating within a controlled and contained enterprise environment. Enterprise Systems Integration is therefore said to be based on 'close-coupled, state-full, and deterministic' principles.

However Web Services, and therefore the real focus of Cloud Computing, is based on a very different set of principles; namely 'loose-coupled, stateless, and non-deterministic' using orchestrations of 'services' rather than monolithic 'applications'. Accordingly, the basis for integration has changed, as has the environment and the way that business wishes to use the capabilities. The interactions between a group of enterprises working externally in managing a series of dynamic and interactive processes - think of a supply network - based on collections of services sharing cloud-based resources are very different to the internal transactional recording of application-based IT.

The development of clouds as external tools to support business from the front office, as opposed to using clouds to lower the cost of provisioning of existing IT, has started to address this issue under the name 'Complex Systems'. Just as much of the technology of clouds has been based on the development over the last decade of Web-based services, so has been the case with Complex Systems. Initially, Grid Computing, the connecting together of many computers, often at different locations, to handle complex computational tasks was the catalyst for what was described as 'Systems of Systems'.

As per the Wikipedia definition: Systems of Systems is a collection of task-oriented, or dedicated systems, that pool their resources and capabilities to obtain a new, more complex meta-system which offers more functionality and performance than the sum of the constituent parts. A description that could equally apply to virtualization and clouds! More importantly though, the funding was made available both in the defense and financial industries to develop a new approach to integration to solve what Wikipedia describes as 'a collection of trans-domain networks of heterogeneous systems that are likely to exhibit operational and managerial independence, geographical distribution, and emergent and evolutionary behaviors that would not be apparent if the systems and their interactions were modeled separately'.

The challenge might be easier to recognize by thinking of the interactions and changes in different production schedules in various manufacturing enterprises. This results in a cloud network of suppliers working for an automotive manufacturer who wishes to constantly optimize their individual builds of each car in terms of the specification variances and the cost of using different suppliers with available supplies. In fact, the business side of defining these complex processes and interactions over the technology capability has developed under the name of 'Value Networks'. Complex Systems are a combination of both Systems of Systems and Value Networks delivered through the emerging capabilities and adoption of cloud services.

The funding for Systems of Systems by the US Department of Defense (DoD) has led to the establishment of a multi-layer model known as Systems of Systems Inter-Operability (SOSI) to define what is required. The SOSI model draws on and incorporates existing models starting with the relatively broadly used Levels

of Information System Inter-Operability (LISI) model which defines Enterprise Integration (as practiced today) as level 3 – shared databases, sophisticated collaboration around separate applications. Level 4, as the next generation of integration is called, is cross-domain information and apps (services) sharing with advanced collaboration and interactive manipulations. Other models such as NC3TA or the NATO Reference Model for Interoperability provide a wider approach that starts to address more than just the technical inter-operability, but a more sophisticated set of definitions that come in the form of the Organizational Inter-Operability Maturity Model (OIM), which builds on the LISI model.

However, this whole topic is contained within the work to develop 'Value Networks' which are defined as 'complex sets of roles, interactions, and relationships that generate economic, social, or environmental value'. Key to this is the recognition that intangible assets comprise a large part of any enterprises' value and that much of this is driven by human or personal competence, therefore supporting advanced collaborations and interactions will produce recognizable value. The approach was first defined in the early '90s, with the expectation that internal networks being created by PCs and IT management would lead to significant re-organizational change, and was an embedded part of Business Process Re-Organization (BPR).

Today, the approach is being applied with wider methodology to look at external Value Chains based on three distinct elements; Process to Network; People to Network, and Network to Value. There are many references of applying its capabilities to specific (and contained) communities. The challenge is to scale up and out to build definable core process models that can be used to create orchestrations of services that flow across a number of enterprises in response to events.

The next generation of integration is built around shared processes with transactional integrity at different points along the process as a separate element rather than current integration built around common transactional integrity. This explains why an increasing number of industry experts refer to Business Process as the operating system for clouds, but at the same time do not acknowledge it to be built on the BPO models of today. Complex Systems integration will call for a whole new set of skills to capture, define, model, and implement process rules that can be shared and used across multiple domains and enterprises made up of unknown numbers of users and systems. It will be complex, but for an enterprise, it will lead to the next generation of competitive capabilities with recognizable results on their revenues.

The impact of this and other technologies is discussed in the [Capgemini CTO Blog](#).

Leading Company Results (Revenues)

Leading Company Results (Revenues)		
Full Year	Cisco ↑ 11% @ \$40bn	
Q4	Cisco ↑ 27% @ \$11bn	
Q3	HP ↑ 11% @ \$30.7bn	Novell ↓ 8% @ \$199m
Q2	Dell ↑ 22% @ \$15.5bn	
Q1	CSC ↑ 1% @ \$3.94bn	

Movements by Industry Leaders

Cisco NetApp partnership has added a standards certified fibre channel over Ethernet-connected storage environment for VMware environments.

www.cisco.com

Oracle Sun StorageTek SL8500 adds increased capacity and new LTO-5 formats to store up to 1.5TB. **Plans for the next cycle of Sun development** were released and include a new Solaris OS 11 release at the center together with a focus on storage systems. **Oracle Virtual Desktop Infrastructure 3.2** brings new tools and scalability to the data center hosted support for virtual desktops. **Oracle Enterprise Pack for Eclipse 11g** is a free set of Eclipse Plug-Ins for building solutions on Fusion Middleware. www.oracle.com

HP have confirmed their new Smart Phones will run on Palm OS following their acquisition of the company but that Microsoft Windows 7 will be used for the yet-to-be-launched HP Slate PC. **Mark Hurd HP CEO** suddenly announced his resignation in connection with an internal and external investigation into an unproven charge of sexual harassment that revealed some other issues around his expenses; meanwhile, CFO Cathie Lesiak takes over as interim CEO. HP is to acquire **Fortify Software**, a provider of identity and fraud management software. www.hp.com

Intel Atom is now part of a bundled-storage solution added to the existing Intel Network-based Storage Platform to provide a complete system. Intel believes it has another **breakthrough in capability with triple bit storage per cell** instead of the current one or two bits per cell making the next generation of Flash Memory able to store even more. **Intel is to acquire McAfee**, the well-known protector against threats onto PCs. www.intel.com

IBM is acquiring Unica, a provider of marketing services to add services to its software solutions around Business Process. **IBM Power 7 Unix server** range has new models with increased power and ship with the latest version AIX 7 software. www.ibm.com

Microsoft Enhanced Migration Experience Toolkit is available to support older apps and code that is not covered by the latest patches. **SQL Server Migration Assistant V4.2 (SSMA)** updates the existing Oracle, Sybase, and Access products and adds the capability for MySQL. www.microsoft.com

SAP has introduced changes to its customer support methodology claiming a new 'engagement management' that ensures better service. **SAP Labs Latin America** in Brazil is to be enlarged to 400 people actively working on software solutions that are unique to suit the regional requirements. **SAP Business ByDesign Feature Pack 2.5** adds new easy start implementation tools and templates with other updates. SAP presented its plans to **provide all of its products on mobile platforms** within nine months following its acquisition of Sybase. www.sap.com

Google Apps for Government offers a separate and secure set of office services and has the support of the Federal Information Security Management Certificate. Google Apps appeared with a **multiple sign-on capability** without any formal announcement on August 4, causing speculation that this was a beta test. **Google Wave collaboration environment** is to be dropped due to failure to gain widespread public acceptance. Google, together with Verizon, has approached the **US Government** with a recommendation for a set of standards to allow service providers to safely operate with fewer restrictions. **Gmail has been updated** with a new service on indexing and searching for contacts. The current beta for the **Chrome browser** has been updated with new Flash capabilities and the **Android Operating System** has gained a new sync package for Chrome as well as Voice Action, a capability for vocal control. **Windows Live Essentials beta** has been updated to cover bus and to add new capabilities. Google **Chrome Web Store is now open** to developers to add their apps. Google has **acquired Like.com**, a image search engine that matches shoppers requirements to a picture. www.google.com

Apple has launched an across-the-range update of desktop PCs with changes across the whole range from bigger processors, to solid state drives and bigger 'cinema display' units. **Apple Safari 5.0.1**, in addition to usual fixes, adds an 'Extension Gallery' that enables HTML 5, JavaScript, and similar browser functionality extensions from Microsoft, Amazon, and Twitter. www.apple.com

Open Source Update

Oracle has decided to end the OpenSolaris development stating that open source code will only become available after commercial releases so that Oracle can gain the benefits of 'technology innovation'. www.oracle.com

Dell is removing Ubuntu preloads from consumer PCs though it will remain available for business users on the grounds that it is a complex OS for advanced users and not suitable for the consumer market. www.dell.com

Microsoft Linux Integration Services 2.1 provides Linux support for the Windows Server 2008 R2 HyperV virtual machine. www.microsoft.com

The Linux Foundation Open Compliance Program is supported across-the-board by almost all companies providing Open Source software and provides a tool to check that an enterprise is using open source within the various rules. www.linuxfoundation.org

Firefox 4 beta 2 is now available for trials with a wide range of changes covered, moving towards a wider and more interactive use of Apps in addition to traditional content and a multi-touch capability for **Windows 7** devices. www.mozilla.com/firefox

Standards Watch

OpenGL 4.1 update to the recent major release 4.0 improves performance in compilation and to improve compatibility with the OpenCL parallel processing standard. www.khronos.com

Cloud Security Alliance (CSA) certification for security professionals is supported by a Certificate of Cloud Security Knowledge and proves the holders have awareness of the various security issues that Cloud Services can introduce. www.cloudsecurityalliance.org

More Noteworthy News

IDC claim that \$7bn in software licenses will disappear in 2010 due to the shift to Software as a Service, which they state will grow by 25 percent a year for

the next four years to become the method for delivering one-third of all business software by 2014. www.idc.com

NPC research say Android was the top smart phone in USA Q2 10 with 33 percent, followed by BlackBerry with 28 percent, then Apple with 22 percent. www.npcresearch.com

GfK Research say Android smart phone sales are up 350 percent in Q2 giving a 13.2 percent overall share of the smart phone market that now accounts for 67 percent of all mobile phone sales, up 55 percent in the same period. www.gfkrt.com

VMware have certified Cisco Data Center Switches and NetApp Storage as a complete solution on Fiber Channel over Ethernet (FCoE) to support virtualized environments. www.vmware.com

AMD will start shipment of Fusion Processors with the Ontario chip for lower performance portable and desktop devices by the end of 2010 with the high performance Llano chip that was planned to be first shipment being rescheduled due to production challenges. AMD announced **two new Chip designs for 2011** named Bulldozer as a general purpose powerful processor and Bobcat as a low-energy processor. www.amd.com

Amazon Kindle becomes an even fuller range and introduces new low-cost versions that connect only through WiFi. www.amazon.com

Adobe will change to using the Microsoft Active Protections Program to send out security alerts as part of a focus on improving the security of its products. **Day Software, a Web Content Management software provider** is being acquired to add to their online business solutions portfolio. www.adobe.com

Capgemini has acquired Skvader Systems, a Swedish provider of Smart Energy services to add to its existing focus on Smart Energy solutions.

www.capgemini.com

Wolfram Alpha computational engine is adding support for a range of Widgets that can make use of its power starting with scientific and financial areas.

www.wolframalpha.com

SAS claims enterprises can boost innovation by solving complex problems in new ways using three new products; SAS Econometrics & Time Series Analysis, SAS Operations Research, and SAS Statistical Research. www.sas.com

Lenovo ThinkCenter A70 and M70e Desktop PCs extend the range of business units offering a low-cost machine with up-to-date features and a higher-priced machine with a more extensive set of capabilities. www.lenovo.com

RIM BlackBerry Torch 9800 provides both a touchscreen and a slide-out keypad as well as the new BlackBerry OS6 operating system with a new browser, improved user interaction, and controls. **BlackBerry Curve 3G** includes an optical tracker pad amongst other upgrades of this popular existing model. www.blackberry.com

Skype has filed an intention to make an Initial Public Offering in its shares but there are no further details of when and for how much. www.skype.com

Verisign is offering a Domain Name System (DNS) management service that takes over and hosts an enterprise's DNS server as a fully-managed service.
www.verisign.com

Fujitsu Lifebook T730 high-end business traveler PC with tablet capabilities comes with all forms of wireless connectivity, a focus on securing data and access, and Advanced Theft Protection service to track a stolen or missing unit.
www.fujitsu.com

Facebook has been working on improving its note-taking capability so that it's easier to quickly note and share remarks with others as part of its move to enable more social capabilities (this has nothing to do with Lotus Notes). **Facebook Places, its location-based app**, now allows users to instantly mark their location via GPS and display this on their page. www.facebook.com

Dell announced its intention to acquire 3Par, a provider of virtualized storage solutions expertise to become part of the solution capabilities' provided by Dell's existing storage products but **HP followed it by launching a counter bid**. Dell have **been successful** after 3Par turned down the HP counter bid. **Dell and Aruba** have signed an agreement to incorporate full Aruba WiFi management into Dell's end-to-end network management tool suite. Dell has introduced the **Aero Smart Phone** running on Android 1.5 operating system to the US market.
www.dell.com

Novell Cloud Security Service (NCSS) brings together Novell identification and access products to provide a managed service that both enables and controls users accessing and using services from different sources. www.novell.com

CA is acquiring 4BaseTechnology, a cloud consultancy to add service capabilities to its existing product ranges. www.ca.com

Yahoo Search Monkey is to be closed in a move expected since Yahoo signed the deal with Microsoft that would see them move their search services to the Microsoft Bing service. www.yahoo.com

OpenText Semantic Navigation introduces a new level of search capability by using an analytical engine to compare context to the user requirement thus improving accuracy. www.opentext.com

Nokia is acquiring Motally, a provider of software for analyzing mobility usage.
www.nokia.com



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model called Rightshore®, which aims to get the right balance of the best talent from multiple locations, working as one team to create and deliver the optimum solution for clients. Present in more than 30 countries, Capgemini reported 2009 global revenues of EUR 8.4 billion and employs 95,000 people worldwide.

More information is available at
www.capgemini.com

Andy Mulholland

Global Chief Technology Officer, Capgemini
Tel. +44 (0)207 434 2171
andy.mulholland@capgemini.com