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Information Technology

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Request for Comments

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JTC 1 Environmental Scanning Process 2010 – Request for Comments from JTC 1 SCs and WGs directly under JTC 1

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JTC 1 Special Working Group on Planning

STATUS:
This document is circulated to JTC 1/SCs and WGs under the direct responsibilty of JTC 1 in order to obtain their input for the 2010 Environmental Scanning Process which is described in JTC 1 N 9688.

JTC 1/SCs and WGs under the direct responsibility of JTC 1 are kindly invited to submit their comments and input by 2010-04-15.

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At its Plenary meeting in 2009, JTC 1 identified the following areas of standardization to explore for possible future action by JTC 1 by forming study groups in the following areas (see JTC 1 N 9856):

1) Digital Content Management and Protection (resolution 11)
2) Energy Efficiency of Data Centers (resolution 24)
3) Green ICT with a special focus on “green by ICT” (resolution 56)
4) Cloud computing under SC38 (resolution 36)

In addition, the JTC 1 SWG-Planning has identified the following areas for further study within the SWG, again for possible future action by JTC 1 (see JTC 1 1N 9690):

1) Web Collaboration and Social Networking
2) Green ICT with a special focus on “green of ICT”

As part of the JTC 1 planning process as described in the standing document JTC 1 N 9688, SC chairs and Convenors of WGs under the direct responsibility of JTC 1 are requested to provide a report to the SWG-Planning with the following content:

• Describe areas of new work that have been initiated in the SC or its WG in the last year or which are being considered for potential future action by the SC or its WG
• Identify and describe key technology trends which are relevant to the work of the SC or to the work of JTC 1 overall
• Describe challenges and opportunities faced by the SC and by JTC 1 overall, and suggest how JTC 1 should respond to them
• Describe any recommendations for SWG-Planning to consider in the planning process and any feedback on SWG-Planning identified areas of exploration
• If there is any new information about the SC’s planning process, the report should briefly describe updates to the planning process and an assessment of the efficacy of the process.

Industry analysts and other sources have identified the following technology trends for 2010 and beyond. As JTC 1 considers its future program of work, it would be helpful to have feedback on the following questions:

1) Which of these trends are most relevant to your SC and to JTC 1?
2) Do these trends impact the planning for your SC and if so how?
3) If there are any opportunities for JTC 1 to initiate new areas of study, what specific areas would you recommend?
4) Would you like to add to or to modify the descriptions of any of the technology trends described here?
5) What is missing from this list? What other technology trends should JTC 1 and its SCs consider?

A response is requested from JTC 1 SCs and from WGs directly under JTC1 **by 2010 April 15**.

Key technology trends for 2010 and beyond (from industry analysts and other sources):

- **Cloud Computing.** Cloud computing is a style of computing that characterizes a model in which providers deliver a variety of IT-enabled capabilities to consumers. Cloud-based services can be exploited in a variety of ways to develop an application or a solution. Using cloud resources does not eliminate the costs of IT solutions, but does re-arrange some and reduce others. In addition, consuming cloud services enterprises will increasingly act as cloud providers and deliver application, information or business process services to customers and business partners.
- **Advanced Analytics.** Optimization and simulation is using analytical tools and models to maximize business process and decision effectiveness by examining alternative outcomes and scenarios, before, during and after process implementation and execution. This can be viewed as a third step in supporting operational business decisions. Fixed rules and prepared policies gave way to more informed decisions powered by the right information delivered at the right time, whether through customer relationship management (CRM) or enterprise resource planning (ERP) or other applications. The new step is to provide simulation, prediction, optimization and other analytics, not simply information, to empower even more decision flexibility at the time and place of every business process action. The new step looks into the future, predicting what can or will happen.
- **Client Computing.** Virtualization is bringing new ways of packaging client computing applications and capabilities. As a result, the choice of a particular PC hardware platform, and eventually the OS platform, becomes less critical. Enterprises should proactively build a five to eight year strategic client computing roadmap outlining an approach to device standards, ownership and support; operating system and application selection, deployment and update; and management and security plans to manage diversity.
- **IT for Green.** As a result of rising energy prices and pressure to combat climate change, efforts to improve the environment with technology will be a source of opportunity for the ICT industry in 2010. IT can enable many green initiatives. The use of IT, particularly among the white collar staff, can greatly enhance an enterprise's green credentials. Common green initiatives include the use of e-documents, reducing travel and teleworking. IT can also provide the analytic tools that others in the enterprise may use to reduce energy consumption in the transportation of goods or other carbon management activities.
- **Reshaping the Data Center.** In the past, design principles for data centers were simple: Figure out what you have, estimate growth for 15 to 20 years, then build to suit. Newly-built data centers often opened with huge areas of white floor space, fully powered and backed by a uninterruptible power supply (UPS), water- and air-cooled and mostly empty. However, costs are actually lower if enterprises adopt a pod-based approach to data center construction and expansion. If 9,000 square feet is expected to be needed during the life of a data center, then design the site to support it, but only build what's needed for five to seven years. Cutting operating expenses, which are a nontrivial part of the overall IT spend for most clients, frees up money to apply to other projects or investments either in IT or in the business itself. Other factors impacting data center design include efforts to

improve energy efficiency by reducing energy consumed by equipment as well as efficiency of cooling techniques.

- **Social Computing.** Workers do not want two distinct environments to support their work – one for their own work products (whether personal or group) and another for accessing "external" information. Enterprises must focus both on use of social software and social media in the enterprise and participation and integration with externally facing enterprise-sponsored and public communities. Do not ignore the role of the social profile to bring communities together. With more works embracing mobile tools and with the increasing bandwidth offered by mobile and fixed networks, web based collaboration tools will continue to grow in importance.
- **Security – Activity Monitoring.** Traditionally, security has focused on putting up a perimeter fence to keep others out, but it has evolved to monitoring activities and identifying patterns that would have been missed before. Information security professionals face the challenge of detecting malicious activity in a constant stream of discrete events that are usually associated with an authorized user and are generated from multiple network, system and application sources. At the same time, security departments are facing increasing demands for ever-greater log analysis and reporting to support audit requirements. A variety of complimentary (and sometimes overlapping) monitoring and analysis tools help enterprises better detect and investigate suspicious activity – often with real-time alerting or transaction intervention. By understanding the strengths and weaknesses of these tools, enterprises can better understand how to use them to defend the enterprise and meet audit requirements.
- **Flash Memory.** Flash memory is not new, but it is moving up to a new tier in the storage echelon. Flash memory is a semiconductor memory device, familiar from its use in USB memory sticks and digital camera cards. It is much faster than rotating disk, but considerably more expensive, however this differential is shrinking. At the rate of price declines, the technology will enjoy more than a 100 percent compound annual growth rate during the new few years and become strategic in many IT areas including consumer devices, entertainment equipment and other embedded IT systems. In addition, it offers a new layer of the storage hierarchy in servers and client computers that has key advantages including space, heat, performance and ruggedness.
- **Virtualization for Availability.** Virtualization has been on the list of top strategic technologies in previous years. It is on the list this year because Gartner emphases new elements such as live migration for availability that have longer term implications. Live migration is the movement of a running virtual machine (VM), while its operating system and other software continue to execute as if they remained on the original physical server. This takes place by replicating the state of physical memory between the source and destination VMs, then, at some instant in time, one instruction finishes execution on the source machine and the next instruction begins on the destination machine.
    - However, if replication of memory continues indefinitely, but execution of instructions remains on the source VM, and then the source VM fails the next instruction would now place on the destination machine. If the destination VM were to fail, just pick a new destination to start the indefinite migration, thus making very high availability possible.
    - The key value proposition is to displace a variety of separate mechanisms with a single "dial" that can be set to any level of availability from baseline to fault tolerance, all using a common mechanism and permitting the

settings to be changed rapidly as needed. Expensive high-reliability hardware, with fail-over cluster software and perhaps even fault-tolerant hardware could be dispensed with, but still meet availability needs. This is key to cutting costs, lowering complexity, as well as increasing agility as needs shift.

- **Mobile Applications.** By year-end 2010, 1.2 billion people will carry handsets capable of rich, mobile commerce providing a rich environment for the convergence of mobility and the Web. There are already many thousands of applications for platforms such as the Apple iPhone, in spite of the limited market and need for unique coding. It may take a newer version that is designed to flexibly operate on both full PC and miniature systems, but if the operating system interface and processor architecture were identical, that enabling factor would create a huge turn upwards in mobile application availability – for both business and consumer segments.
- **Application of IT will increase.** As other sectors come out of the recession, in some cases driven by substantial government stimulus spending, increased application of IT will be part of their investment plan. Sectors to watch include health care, which will increase adoption of electronic medical records, and the electrical utility industry, which will increase deployment of smart metering technology as part of a move to modernize the electrical grid.

Sources: Gartner, IDC, Ziff Davis