

Top strategic technologies for 2005

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CIOs and other IT executives are faced with a broad array of technologies that could have a material impact on competitiveness and the bottom line. Determining which new or existing technologies align with the business goals and are ripe for exploitation can be a difficult undertaking. As a starting point, Gartner has selected ten top strategic technologies for 2005.

Instant messaging

Gartner predicts that by 2005, 60 percent of interpersonal data messaging by enterprise and consumers will be real-time, exploiting location and other presence indicators. Instant messaging has already inundated enterprises and a variety of handheld devices. According to Carl Claunch, a research vice president at Gartner, inhibitors include security concerns, lack of an audit trail, quality of service limitations, integration issues and lack of support for non-text media.

"IM is not sufficiently secure because the underlying IM framework wasn't design for security," Claunch said. "You don't want to electronically send a billion dollars to a bank in Barbados using IM to confirm the transaction."

However, several companies now offer instant message software that addresses security, auditing and integration issues. AOL, IBM, Microsoft, Sun and Yahoo have begun selling corporate IM services that include security and regulatory compliance features. IBM is experimenting with an application called NotesBuddy, which integrates IM functionality with e-mail. IM conversations are stored in e-mail in-boxes, and are searchable.

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Within its own user base, Gartner achieved positive results due to the internal use of instant messaging; e-mail went down by 40 percent and voice calls by 70 percent, Claunch said.

"Some IM provides security and auditing, but you still don't have the tools required to deal with identity, authentication and authorization when communicating with people outside of an enterprise," Claunch said.

Given the popularity of instant messaging, enterprises who want to keep employees happy and more productive will need to set policies for the use of instant messaging. In the future, Claunch said, IM will be more integrated into applications, rather than an island of online dialog that vaporizes when the window is closed.

Wider use of WLANs

With the Wi-Fi Protected Access (WPA) protocol gaining converts, the security concerns associated with wireless deployments are becoming less prevalent. According to Claunch, WPA



will provide sufficient security to allow WLAN to be applied more generally as an alternative to wired connectivity. "People have been reticent and have considered it an unwarranted risk to deploy wireless LANs," Claunch said. But "WPA meets a threshold for wireless security, making the idea of wired-only networks more ludicrous over time."

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WPA is derived from and will be forward compatible with the upcoming IEEE 802.11i standard. The 802.11i standard (also called WPA2) will incorporate the Advanced Encryption Standard (AES) algorithm, which provides better encryption than previous Wi-Fi security. Products certified for WPA2 are expected later this year.

Taxonomies

Gartner predicts that through 2005 building taxonomies to improve productivity will continue to perplex users and developers. [Taxonomies](#) are a means of hierarchically categorizing information. Time and attention are in short supply, and decreasing the time required to search for information can lead to increased productivity and customer satisfaction. For example, e-mail content can be filtered by various preset criteria to improve on the text search currently provided. Customers looking for data about products will have a better experience if the data is properly tagged according to a well conceived taxonomy.

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According to Claunch, the big challenge in both consumer and internal-facing applications is making sure that the categories and vocabulary make

sense to the person searching for information. Typically, a disconnect exists between classification done by humans and machines and the terminology users employ to search for information.

By mid-2005, Gartner expects that enterprise-level solutions that use taxonomies and profiling will become available for navigating content. For managing taxonomies across an extended enterprise, such as a e-commerce site, Gartner recommends adapting in-house or commercial taxonomies with a mix of human and machine classification. In addition, enterprises need to budget for ongoing maintenance of the business vocabularies, dictionaries, glossaries and indexes necessary for useful taxonomies.

IP Telephony

IP telephony, including Voice-over-Internet-Protocol, is moving toward mainstream users, but not until 2006, according to Gartner analysts. "By 2006, most enterprises will have sufficiently implemented an IP telephony infrastructure to start deriving dramatic new business value from their applications," Claunch said. The applications include IP-based conferencing, call centers, and integrated collaboration suites.

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Cost savings is an important component of in adopting IP telephony systems, and most enterprises are waiting for replacement cycles to remove older digital and analog phone systems. In a [ZDNet survey](#) of over 400 IT professionals, we found that one third of the

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respondents said that their organizations have paved the way for VoIP by converging a significant part of their voice and data networks. In addition to cost savings,

integrated collaboration features, such as videoconferencing, and the benefits of increased productivity were mentioned as key factors in adopting IP telephony.

Software treated as services

Through 2006, Gartner predicts that service-oriented development will change the way software is built, packaged and sold by more than 80 percent of independent software vendors. Web services create a blacker black box, Claunch noted. "Web services provide a way to create applications as set of services. The true power comes when standard business applications are built with this paradigm. Web services can be reused across applications and tuned to your specific business processes, extending and exploiting what you have already paid for," Claunch said.

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While identity, authorization and other security issues are still evolving for Web services, the leading enterprising are developing plans for moving toward a service orientation. By 2005, Gartner predicts, enterprises sharing information across process boundaries will favor service interfaces over data interfaces.

However, more broad deployment of Web services will be dependent on the evolution of the UDDI standard and other resource locaters.

Static and unshared island, real-time enterprise (RTE) infrastructure

Today's computing environments are not built for gaining the most utility and efficiency from IT investments. According to Claunch, application services are built on their own infrastructures, islands of functionality that cannot be easily shared in a distributed environment. In addition, server, storage and network utilization is underused. Without the right technology and application design, scaling, provisioning and sharing server resources or meeting the demands for service levels is difficult. "In our CIO survey this year, [the respondents] chose as the number one issue the need to develop and operate more efficient IT infrastructure," Claunch said. "We want to move to real-time infrastructure, with a more integrated view of all resources, which can act as pool for all workload requirements."

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More optimal resource utilization, agility and lower total cost of ownership requires that the building blocks of computing services be virtualized, automated and enabled for control at a higher level of abstraction, Claunch said. A more

flexible and real-time infrastructure paves the way for accessing real-time information to improve decision-making. Gartner predicts that real-time infrastructure, with policy-based management for distributed environments, won't become mainstream until the second half of this decade.

Utility computing

Related to real-time infrastructure and sharing IT resources is utility computing. According to Claunch, utility computing is a model for delivering IT services that shifts risk from local IT to the

vendor. "It's a more flexible and predictable model. Instead of choosing, owning and operating IT equipment, customers can buy the results of a system from a utility computing provider," Claunch said.

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Typically, the pricing model is based on usage, a pay-as-you-go licensing model that allows enterprises to meet peak usage needs without huge capital investments. Various hosting services today offer some form of utility computing pricing, with access provided through browsers, Web

services, proprietary interfaces or client code, Claunch noted. Gartner predicts that 30 percent of enterprises will adopt the utility computing model by 2007, up from 15 percent today.

Grid

Grid computing goes several steps beyond real-time infrastructure and utility computing. It's a concept, and term, that major vendors and startups have adopted as a key future initiative. Claunch cautions that grid computing as marketed by some companies may be more hype than reality.

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Grid computing has grown out of scientific and technical computing applications, which require massive amounts of horsepower to solve problems, such as life sciences research and weather simulations. A grid environment breaks applications in multiple parts that can be run on separate

computers, rather than a single cluster, in parallel. Businesses are now looking to apply grid computing for commercial applications and utility computing. Gartner predicts that grid computing use within commercial enterprises will mostly be used for computationally intensive workloads, such as complex business and financial analytics, through 2006, however. The research firm doesn't expect utility computing services to use grids until 2008. The standards for grid computing are still evolving and customizing applications for parallelism will take time to evolve, according to Claunch.

Network security convergence

Gartner predicts that 60 percent of firewall and intrusion detection functionality will be delivered via network security platforms by 2006. The major security vendors will create integrated suites of functionality, with unified management schemes, that address all aspects of securing an enterprise.

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Gartner also expects that that content scanning and anti-spam efforts will remain separate from the integrated security platforms, but that two new product categories will emerge: high-end, wire-speed devices for use by managed security

services and lower-end appliances for smaller-scale environments.

RFID tags

According to Gartner, radio frequency identification (RFID) and similar wireless chips will evolve from a supply-chain technology into enablers of value-added consumer applications, such as item location and status reporting by 2012. The expectation is that the costs for RFID tags will decline to the point that it's a no-brainer to deploy the technology.

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The use of RFID will allow life-of-the-product tracking, more in depth data histories and more market efficiencies. Sensors could be embedded in perishable product shipments, monitoring temperature, vibration, spoilage and other factors as the goods move from transport to warehouse to store shelves.

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