Gartner

Research

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# IT Infrastructure: The Basis of the Real-Time Enterprise

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Processes are running in real time. Organizations that lead the way will gain competitive advantage. A reliable, flexible IT infrastructure and business processes designed for speed are key to success.

## ANALYSIS

There are already many applications for which at least some, if not most, of the transactions involved are performed in real time — that is, nearly instantly. For example, retrieving money from an automated teller machine, booking an airline ticket over the Internet or checking the status of a parcel sent by FedEx. Such real-time transactions are only possible because of the underlying technologies that support the business processes. As the underlying technologies improve, more and more transactions will be achievable in real time.

The theoretical limit to this development would be the real-time enterprise (RTE), in which all processes were achieved instantly. Is the RTE either realistic, or desirable?

Probably not, but competitive forces and customer demand will force organizations toward the RTE. Benefits will include enhanced customer satisfaction, improved efficiency and lower costs, all of which drive profitability.

### Enterprise Architecture Fundamentals

Hardware "clients" play a key role as we move toward the RTE. The PC is here to stay, but it will be just one of many RTE access devices. Although most of these devices will still be deskbound, many will be mobile devices including laptops, personal digital assistants (PDAs), smart phones and hybrid developments of these devices.

Some RTE client access devices will not even be "computers" — domestic appliances, electronic gadgets, cars and even toys may be linked to an RTE. As we approach the real-time world, all these will be connected to what Gartner has called the "Supranet."

The critical factor for enterprises will be to match the client device to the requirements of business processes and the intended user. The performance and reliability of the client device must be aligned with the required response time, be it instant or a specified, acceptable delay (see "Client Devices: The RTE's First Line of Success"). RTE access devices must be fit for the purpose. The purpose must be clear and the business objectives behind the purpose well-defined.

Although changes in the desktop world will be gradual, rather than radical, changes in the mobile world will be far more extensive. The mobile worker will be at the forefront of the RTE. As we move toward the real-time world, workers will increasingly be mobile. They will need to be able to work anywhere, without having problems with access, speed or reliability.

Voice and data networking technologies must improve significantly to provide the right environment for the RTE to flourish. Mobile workers and organizations will have to understand these issues and develop solutions that will deliver real-time transactions. Organizations must invest in appropriate applications, wireless-enabled client devices and wireless networks. Phil Redman looks at this issue in detail in "Mobility: Vanguard of the Real-Time Enterprise."

Client devices are the access tools, but reliable, high-performance servers are the foundations of the successful RTE. Enterprises must balance the need for reliability, availability and performance against cost. The "opportunity cost" of planned or unplanned downtime or low performance in an RTE will be high.

In future, server reliability and availability will be improved significantly through self-healing technologies. Ultimately, server capacity will be provided by external service providers, as a utility. Gartner calls this concept "policy-based computing services" (PBCS).

PBCS servers will be self-correcting — able to respond to events such as component failures and resolve or by-pass them. They will recognize bottlenecks and reallocate capacity, and prioritize

transactions based on priority codes. These developments will be vital to get us closer to the RTE (see "Policy-Based Computing Services: The Vision, The Reality").

Real-time network and system management (NSM) is required for a real-time world. This is not simply network management. Many business processes will be automated and conducted across the network. Tools are needed to manage and measure the various elements of each process to ensure they are working effectively and efficiently. There are two ways to achieve this — application instrumentation or interception (see "Why the Real-Time Enterprise Needs Real-Time Management").

The technologies and standards required are not yet mature, and costs are high. Real progress requires processes to be designed with real-time measurement and management in mind. Retrofitting such NSM tools is costly and difficult. If processes are designed from the outset to be measured and managed in real time, the benefits will be substantial, not only for assessing, but also for driving capacity planning in business terms.

**Services**

Moving toward the RTE means enterprises accepting that fewer processes will be owned, run and managed in-house. To achieve the desired levels of flexibility and cost, more and more elements will be accessed via services provided by third parties. However, this is not easy, as is clear from the number of outsourcing contracts that have gone wrong. Gartner has created a framework to help organizations control and manage service provision (see "The Business Services Value Chain: An Enabler for the RTE").

Enterprises will have to change their attitudes to both processes and services. Organizations will have to let go of the idea that processes have to be specifically tailored to the business. The needs of business and the clients may be best served by trading customization for flexibility and cost. This means accepting a service that is "good enough" to obtain the benefits of lower cost and greater flexibility because, without a high level of flexibility, the RTE (and its competitive advantages) will remain a distant goal. "The RTE Must Challenge the 'Custom IT' Belief System" will help enterprises decide where to make the trade-offs.

**Security**

The more automated, real-time processes an organization uses, the more damage will be done by systems failure. This could sound like an argument against the RTE, but it is not. Customer demand for better services and business demand for lower costs are taking us down the RTE route. Those enterprises that choose not to follow will likely not survive, but those that embrace the RTE concept will also fail if they do not address the risks.

Business continuity planning (BCP) is vital and the nearer we get to the RTE, the earlier BCP must be factored into the development of any processes. Donna Scott's "Real-Time Enterprise: Business Continuity and Availability" outlines a framework based on the need for service-level agreements throughout an organization designed to help clients construct a business continuity plan.

**Bottom Line:** Customer demand and competitive pressures will push organizations toward the RTE. Leading the RTE movement will keep organizations ahead of their competitors. To do this, they must take advantage of the stagnation in market demand to invest in the IT infrastructure technologies that will enhance reliability, availability and performance when the next wave of demand comes, which it will surely do. More and more, applications and processes will need to be designed from the outset to operate in a real-time world: automated and linked to the network. In future, more underlying elements will be provided through services. The challenge will be to

select and manage those services to ensure they continue to meet real-time business requirements.

**Features**

"Mobility: Vanguard of the Real-Time Enterprise" — Mobile devices and technology must improve to enable the RTE. **By Phil Redman**

"Client Devices: The RTE's First Line of Success" — Appropriate devices for employees are key to the success of the RTE. **By Brian Gammage and Leslie Fiering**

"Why the Real-Time Enterprise Needs Real-Time Management" — RTE applications should include measurement tools to access transaction-level information. **By Milind Govekar**

"Real-Time Enterprise: Business Continuity and Availability" — Systems must be designed to minimize downtime as enterprises cut latency. **By Donna Scott and Josh Krischer**

"The Business Services Value Chain: An Enabler for the RTE" — Streamline processes by standards-based outsourcing, lowering the need for infrastructure. **By Lorrie Scardino, Allie Young and Ben Pring**

"The RTE Must Challenge the 'Custom IT' Belief System" — Customization can be expensive, slow and inflexible. **By Lorrie Scardino, Ben Pring and Allie Young**

This research is part of a set of related research pieces. See "It's Time for the Real-Time Enterprise" for an overview.

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