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Gartner Says In-Memory Computing Is Racing Towards Mainstream Adoption

In-Memory Data Grid Market to Reach $1 Billion by 2016
Analysts to Examine the Opportunities and Challenges of IMC at the Gartner Application Architecture, Development & Integration Summit 2013, 16-17 May, in London

Egham, UK, 3 April 2013 —The rapid maturation of application infrastructure technologies and a continued dramatic decline in the cost of semiconductor technologies are paving the way for mainstream use of in-memory computing (IMC). Gartner, Inc. said that although the in-memory data grid (IMDG)* market, a key IMC segment, is small, it is likely to grow fast and to reach $1 billion by 2016.

"The relentless declines in DRAM and NAND flash memory prices, the advent of solid-state drive technology and the maturation of specific software platforms have enabled IMC to become more affordable and impactful for IT organisations," said Massimo Pezzini, vice president and Gartner Fellow.

Until recently, only the most technologically savvy organisations — for example, in vertical markets like financial trading, telecommunications, military and defence, online entertainment and logistics — could cope with the high cost and complexity of adopting IMC. But IMC technology is now more affordable and more proven. "Organisations that do not consider adopting in-memory application infrastructure technologies risk being out-innovated by competitors that are early mainstream users of these capabilities," said Mr Pezzini.

IMC is an emerging paradigm enabling user organisations to develop applications that run advanced queries or perform complex transactions on very large datasets at least one order of magnitude faster — and in a more scalable way — than when using conventional architectures. It achieves this by storing application data in a computer's main DRAM, rather than on electromagnetic disks, and without compromising the availability, consistency and integrity of that data.

In-memory-enabling application infrastructure technologies consist of in-memory database management systems, in-memory data grids, high-performance messaging infrastructures, complex-event processing platforms, in-memory analytics and in-memory application servers. These technologies are being used to address a wide variety of application scenarios requiring a combination of speed of execution, scalability and insightful analytics.

IMC provides opportunities to change the way in which organisations support business requirements. It completes batch processes that would otherwise take hours in minutes or even seconds, enabling processes to be delivered to clients, suppliers, citizens or patients as real-time cloud services. IMC can also be used to detect correlations and patterns to help pinpoint emerging opportunities and threats as things happen, across millions of events, in the blink of an eye.

The rapid penetration of IMC and its likely adoption by at least 35 per cent of midsize and large organisations through 2015 (up from less than 10 per cent in 2012) will be determined by factors such as

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expanding demand for real-time analytics for ever larger volumes of fast-changing data, growing requirements for 24/7 operations driven by globalisation, and the increasing availability of IMC-enabled packaged business applications. However, several issues, such as a lack of standards, the scarcity of skills, relative architectural complexity, security concerns, and monitoring and management challenges, will need to be addressed for IMC to achieve mainstream adoption.

Although the IMC application infrastructure market is in flux and fragmented, with more than 50 software vendors, growing adoption will continue to drive established vendors and startups to invest in IMC technologies. "Vendors that don't have an established presence in the IMC market, or those looking to expand their IMC offering, will acquire small players with advanced technology or an established presence in the market, which will lead to market consolidation," said Mr Pezzini.

"During the next two to three years, IMC will become a key element in the strategy of organisations focused on improving effectiveness and business growth. Organisations looking for cost containment and efficiency will also increasingly embrace IMC," said Mr Pezzini.

Gartner analysts will examine new opportunities in application and data integration at the Gartner Application Architecture, Development & Integration Summit 2013, 16-17 May, in London. For more information about the Summit, please visit www.gartner.com/eu/aadi. Members of the media can register for the Summit by contacting laurence.goasduff@gartner.com.

Information from the Gartner Application Architecture, Development & Integration Summit 2013 will be shared on Twitter at http://twitter.com/Gartner_inc using #GartnerAADI.

More detailed analysis is available in the report "Top Technology Trends, 2013: In-Memory Computing Aims at Mainstream Adoption", which is available on Gartner's web site at http://www.gartner.com/resId=2323016.

** Note for editors: Gartner defines an in-memory data grid as "a form of application platform middleware that implements a distributed, reliable, scalable and (strongly and/or eventually) consistent in-memory NoSQL data store — referred to as the 'data grid' — shareable across multiple and distributed applications."*

About Gartner Application Architecture, Development & Integration Summit 2013
In 2013, it will be critical to manage the disruptive forces in how applications are designed, managed and consumed, caused by the Nexus of Forces, the convergence of cloud, mobile, big data and social. The analysts will discuss how the Nexus of Forces is radically changing the development of applications, but they will also help organisations how best to create, validate or revitalise their application strategy, and review the real cost and business value of cloud, service-oriented architecture and agile methodologies.

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