

Enterprise Computing Insights

What is Enterprise Computing?



#1 IN A SERIES

Enterprise Computing is a term used to distinguish data processing in primarily large organizations (banks, manufacturers, utilities, insurers, governments, etc.) from data processing carried out on a smaller scale by typically smaller organizations (small and mid-sized businesses) or even individuals (personal computing).

One of the key characteristics of Enterprise Computing is scale – the magnitude of the data processing involved. Scale can be measured in various ways. For example, you may consider the number of end users serviced by an enterprise or the number of units of work (transactions for example) managed or processed. Another measure of scale is the raw computing power needed to run the business. This is sometimes measured using the aggregate capacity of the computers in the enterprise (e.g. 500 million instructions per second (MIPs)). For each of these measures, there is no single agreed upon number that defines “large scale”. But using these measures we can give numerous examples of businesses that serve tens of thousands of customers (e.g. Amazon.com) or process millions of transactions per day (e.g. VISA credit card). In general, the Fortune 1000 companies and other companies of similar size can be thought of as using Enterprise Computing.

Because of the scale involved in Enterprise Computing, the businesses that use it are very dependent on it. That is, there is no manual or other alternative to the use of computers that is readily available should the business’ computers fail or become unavailable for some reason. Consequently, the availability of computers to run key applications and access key data is

essential to run the business. Similarly, the security of the data stored and managed by the business’ computers is essential. You can probably recall newspaper headlines or TV newscasts that highlight the loss or exposure of personal information like credit card account numbers, medical data, or other personal information for a large number of individuals.

Besides negative publicity, there may also be regulatory implications and penalties for such security breaches. Consequently, the security of data is a key business requirement and may result in the use of cryptography or other advanced security techniques to prevent unauthorized access to or disclosure of data. So, besides scale, security and high levels of availability are two other hallmarks of Enterprise Computing.

The hardware that supports Enterprise Computing may be physically contained in one or more secure data centers. If more than one data center is involved, they are usually geographically distributed in accordance with the disaster recovery objectives of the enterprise. The Enterprise Computing hardware within a data center is usually a combination of one (or more) enterprise servers¹ used in conjunction with multiple distributed servers and of course their storage devices and other peripherals. Here an “enterprise server” refers to a large scale computing system almost always housed in a secure data center while “distributed servers” refer to smaller computing systems that traditionally might be found distributed throughout a business or organization. While some distributed servers

¹ See ECI No. 5

may indeed remain geographically distributed throughout organization, it is quite common to find the majority of them in a data center environment surrounding an enterprise server(s).

At one time, when computers were first being used to do commercial data processing, a data center contained only an enterprise server. And because there was only one computer to service the needs of the business, that one computer ran all aspects of (and all applications for) the business – payroll, accounting, reporting, inventory, order entry, etc. As computer technology evolved, it was natural that the enterprise server evolved to be able to effectively manage and run a mix of workloads. That is still the case for enterprise servers today.

As other computer technologies became available (minicomputers, work stations, personal computers, mid-range servers, etc.), they were integrated into the enterprise and eventually took on a role that complements the enterprise server. The software used on these “distributed” servers customizes them so that they tend to serve one purpose. So in the Enterprise Computing data center, you may find distributed servers dedicated to providing a single function like an application server, web server, file server, print server, security server, decision support server, LAN server, or directory server. All of the enterprise’s servers are interconnected among themselves and across the geography of the enterprise using networking technologies (LANs, WANs, etc.). By doing so, the distributed and enterprise servers can cooperate and interact with each other. The Enterprise Server itself is sometimes viewed as a specialized server, a data server, since it “owns” (stores and has direct access to) most of the business critical data.

So there you have it – Enterprise Computing - a large scale, highly available, highly secure computing environment that serves the needs of a relatively large enterprise. The environment consists of an enterprise server(s) running multiple workloads surrounded by functional distributed servers all acting in concert to support the data processing needs of the business. The computing environment is complex and heterogeneous in nature (no one vendor (hardware or software) is used exclusively). In fact, you may often hear the person in charge of an Enterprise Computing environment claim that they have “one of everything”.

We will explore other aspects of Enterprise Computing in subsequent articles.