

# “It’s the Application, Stupid”



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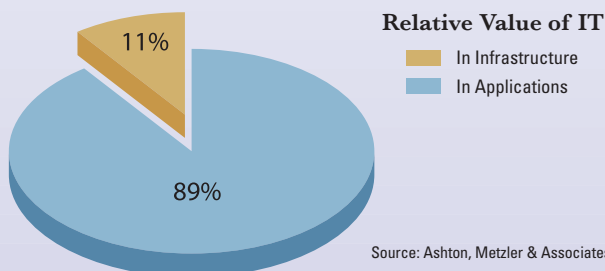
Roughly two years ago, Nicholas Carr wrote an article entitled “IT Doesn’t Matter”. Carr later followed up that article with a book entitled “Does IT Matter?”

The title of the Carr article is terribly misleading. In the article, Carr is quite clear that just like any other utility, IT is critical to the operations of every organization. Carr’s principal argument is that just as companies do not differentiate themselves in the marketplace based on their use of traditional utilities (i.e., heat, water, electricity), they soon will not be able to differentiate themselves in the marketplace based on their use of IT.

To put Carr’s argument into perspective, it is instructive to examine how business and functional managers view the value of IT. The view of these managers is important because these people often control the IT budget through their participation on IT steering committees and other forms of IT governance.

To understand the value that business and functional managers get from IT, Ashton, Metzler & Associates recently surveyed roughly 200 IT professionals. These IT professionals were asked to identify where their company’s business and functional managers saw value from the IT function. Was it in the infrastructure? Or was it in the applications?

The answers to that question are summarized in the chart below.



The survey results depicted in Figure 1 shows clearly that it is extremely difficult to demonstrate value to a company’s business and functional managers based on implementing and managing infrastructure technologies such as Gigabit Ethernet, IPSec, or MPLS. What these managers value is the applications that they use on a daily basis. To further reinforce this application-centric view of the value of IT, it is helpful to realize that if a company’s CIO has a technical background, it is far more likely to be in applications than in infrastructure.

**Conclusion #1: Today the value of IT lies primarily in the key applications that a company uses to run its business and achieve its strategic objectives.**

**Conclusion #2: Infrastructure professionals need to continually demonstrate the value that the infrastructure brings to a company’s key applications.**

It is instructive to view the preceding conclusions in the context of the theme of the last IT Impact Brief (Identifying Network Misuse). That brief discussed the impact that unauthorized applications such as Internet radio and streaming music can have on a corporate network. In particular, the brief identified a number of instances in which unauthorized applications have consumed the majority of a company’s WAN bandwidth.

**Conclusion #3: IT Professionals need to be able to identify the applications that are running on their company’s network.**

Relative to application performance, there are some situations in which adding network bandwidth will not improve application performance. One of the factors that could cause poor applica-

tion performance in spite of added bandwidth is the TCP congestion control algorithms. The TCP congestion control algorithms were designed to be sensitive to packet loss. In particular, if there is a lost packet, the TCP congestion control algorithms assume that the transmitting device is sending more data than the network can handle. To avoid this situation, the algorithms significantly reduce the rate at which the transmitting device can send data.

Another factor that could cause poor application performance in spite of added bandwidth are the idiosyncrasies of some higher-level protocols. A good example of such protocols can be found in Microsoft Exchange prior to Exchange 2003. The Exchange Server uses the Messaging Application Programming Interface (MAPI) to communicate with Outlook clients. One of the many issues that are associated with MAPI is that MAPI takes an attachment and breaks it up into a number of small data blocks. For each small data block that it sends, MAPI requires an acknowledgement before it sends the next data block. The performance of this application is impacted far more significantly by network latency than it is by bandwidth.

**Conclusion #4: There are times when the network is running perfectly fine, but the applications still perform badly.**

**Conclusion #5: The network organization has the burden of understanding how the performance of the application is or is not impacted by the network. In general, this burden is not shared by the application organization.**

In addition to helping with troubleshooting, understanding the applications that are currently running on the network can help an IT organization in the planning process. For example, a company that is intending to add voice traffic to its IP network needs to identify what other applications are running on the network, as well as the key characteristics of those applications. By doing this, the company can develop a plan for how to add voice traffic without unduly impacting the existing applications.

There are a variety of techniques that IT professionals can use to better understand application performance. For example, it is often possible to find white papers that discuss the performance of key applications, such as SAP or Exchange. These white

papers can provide some high level insight into the factors that impact application behavior. However, given the number of factors that can influence application performance (i.e., the choice of server, operating system, and database), the best way to understand how an application will perform in a company's particular environment is to benchmark that application in a lab that is set up to mimic that environment.

Given the time and cost associated with benchmarking applications, few companies will be able to benchmark all of their applications. However, benchmarking is a technique that companies can use on a selected set of key applications. These applications may be selected because they directly impact revenue, or because they are critical to one or more highly visible business processes.

One of the important side effects of benchmarking applications is that it will help the infrastructure organization to better understand how an application needs to be designed in order to run effectively over the type of distributed infrastructures that most companies deploy. This knowledge is helpful in troubleshooting poor application performance. It is also helpful in assuring that applications get written in ways that enable optimal application performance.

**Conclusion #6: Network organizations need to be included in the phase review process of a company's key new applications.**

The conclusions in this paper serve to answer the question raised by Nicholas Carr. IT DOES matter - but only if you focus on the company's key applications and business processes. IT organizations that continue with the traditional approach of having a stove piped organizational structure and a bottoms up approach to planning and managing are relegating IT to where it does not matter.

**Conclusion #7: IT organizations need to plan and manage the IT function in a holistic, top-down fashion.**

The next IT Impact Brief will explore the IT organizational structure in general. That brief will also explore the degree to which IT organizations are set up to plan and manage the IT function in a holistic fashion.



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