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Integration Tip

WHITE PAPER

A Simple Test for the Benefit of EAI

Few IT managers considering Enterprise Application Integration (EAI) are starting with a clean slate. They already have systems in place. The implementations might not be sophisticated but applications that need to be integrated are integrated. The structure that has evolved over the years might not be perfect but it is getting the job done.

With the dictum "if it isn't broke, don't fix it" in mind and perhaps daunted by the sweeping changes implied by EAI, sometimes it is difficult to take even the first steps to consider EAI as a possibility.

Ideally every upgrade or architectural change has a sound business case foundation motivating it -- a quantitative calculation of the return on investment (ROI) that will accrue if the changes indeed are made. But to get meaningful results even the effort to calculate the ROI requires a commitment of time and resources. How does one even know if the authorization to conduct the study is justified?

This tip discusses a simple calculation that will give you an indication if it is worthwhile to investigate EAI further. It does not address the common situation of integrating a single new application with legacy systems -- choosing between an EAI and not EAI approach. Nevertheless, it is fast and easy to evaluate and gives a rough quantitative estimate of the benefit of converting your architecture to EAI

The Evolution of IT Architectures

In the beginning, everything ran on a single mainframe computer. Integration consisted of getting one software application to read the output of another. Then as technology lowered the cost of computing hardware, islands of automation began to spring up in corporations -- separate machines for different departments or for dedication to particular tasks.

Just as there was a need for applications to interact on the mainframe, applications on different machines had to communicate. IT organizations began to build and maintain network-enabled connections between them as shown in Figure 1. These connections were point to point and application specific, and as long as there were only a few of them, they easily could be maintained.

But over time the number of computers and the number of applications tend to grow. More connections are added in ad hoc response to new business requirements. In the limit, the architecture evolves to the one shown in Figure 2 -- a web of custom point to point connections.

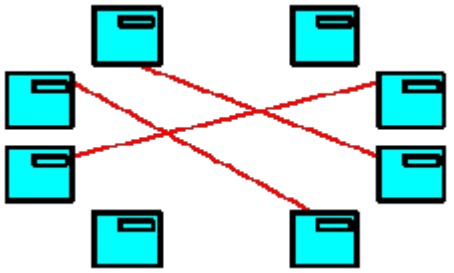

Figure 1 Few Application Interfaces

Maintenance now becomes a nightmare. An upgrade of a single application could easily break the connections to many others. The number of programs to maintain can become staggering.

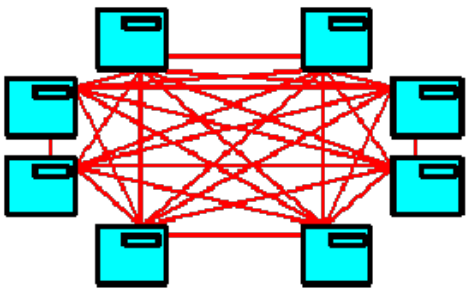

Figure 2 Many Application Interfaces

Although not every possible connection will be necessary, the number of interfacing programs grows quadratically with the number of applications. For example, with five applications there are ten possible interfaces; for fifty there are 1225!

It has been estimated that around 30% of an annual IT budget is spent is maintaining these interfaces.

EAI Architectures

EAI Architectures are based on the principle that the input and output for each

application is converted to a common structure. The result is a hub and spoke architecture like that shown in Figure 3.

Maintenance is much simpler. Regardless of the number of other applications that a particular application is connected to, there is only one interface to maintain. The number of interfacing programs grows linearly with the number of applications. For example, with five applications there are five interfaces; for fifty there are fifty -- a far cry from 1225. And the fewer the interfaces, the less expense to maintain them.

Do Some Simple Counting

As can be seen from the examples, the benefit of EAI depends on the number of applications and interfaces you have in your IT architecture. Call these numbers A and I. Then, if I is greater than A, your annual IT budget is N dollars, and using the 30% expense figure, the annual savings of an EAI architecture is given by

Savings =" "; 0.3 * N * (I - A/I)

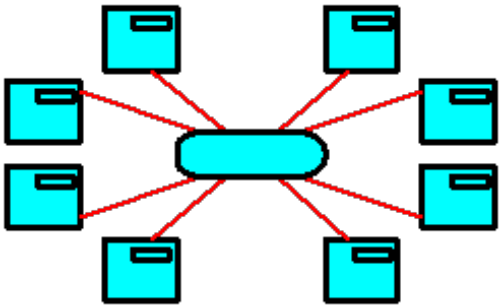

Figure 3 EAI Interfaces

One Step at a Time

If the estimated annual savings are sufficiently large then you probably should delve further. Authorize the study that looks at your present architecture and identifies those integrations that benefit most from an EAI approach. Select the one with the best ROI and implement it as a pilot. Then proceeding one step at a time and as budget constraints permit, replace additional interfaces in an orderly fashion, minimizing disruption to ongoing operations.

Identifying and then reducing the number of your interfaces -- important steps for IT cost savings.