

doors & hardware

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WOOD DOORS



THIS MONTH

D&H looks at the wood door industry and the impact of NFPA 80 code changes, FSC COC updates, and Buy American requirements.



INDUSTRY **In the Know**

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Software in an INTEGRATED WORLD

by PAUL
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IF EVER THERE WAS AN OVERUSED WORD

in the ever-evolving computer software industry, "integration" must be it. It is simple enough in concept but rife with varying interpretations and applications, as integration seems to mean different things to different people. As a software designer and systems architect for more than 25 years, allow me to offer my perspective on this increasingly elusive concept.

The dictionary defines integration as "an act or instance of combining into an integral whole." Essentially, this definition applies to integration's role in the coordination of computer software: multiple components or software packages combining to form a complete system—an "integral whole." At least, that's the theory.

The reality can be much more complicated, with people's definitions varying depending on what they're trying to sell you. Any discussion of systems integration should begin with an understanding of its origin.

A Brief History of Integration

In the 1970s and '80s, before Windows, Internet, email and all those cool cell phones, there was DOS. In that world, business owners

selected software designed for their industry, and this software took the form of an "all in one" solution, from invoices to accounting. This was the norm. You bought one "integrated" system that took care of your entire business from top to bottom. The truth of the matter, however, was that the only thing it integrated with was itself, but the individual components can be said to have integrated in the same way a person's mouth is integrated with his stomach. They're simply two parts of a whole.

Sure, it sounds wonderful: one-stop shopping, a single vendor, none of those annoying choices to have to make. But like all antiquated concepts, there were problems—and they were significant.

Another shining example of '70s-era "integration" was found in the home electronics industry. Back then, people bought stereo systems (often called "hifi" units) as completely self-contained "integrated" units. Usually they were constructed in an ornate wooden box that effectively became a piece of living room furniture. They looked beautiful, and they were convenient—until you had to go without TV for a week because your radio had to go in for repair. The shortcomings of this approach were obvious. All of the choices were made for you. You

got the radio-turntable-eight track combination that the manufacturer wanted to sell you in one big shiny, wood-grained package. True, everything did work well together—until somebody had the nerve to invent CDs or color television. Suddenly, this all-in-one-box form of “integration” didn’t look so appealing.

The same could be said for the software of the time. Although apparently convenient during the shopping process, the shortcomings of the all-in-one software solution quickly became obvious. Just as no one sells “hifi” units anymore, contemporary software developers have abandoned the idea of “built-in” accounting solutions as an answer to “integration.”

Integration in the Modern Era

The single most prominent defining feature of system integration in a contemporary context is one of choice. Gone are the “hifi” units of the ’70s, in favor of modular components. People construct their home theaters today using the specific mix of television, Blu-Ray player and audio system of their choice. In the case of home audio, this was done through an industry-wide adoption of common cables and connectors.

Once again, the software industry followed suit. Businesses today construct their own “everything package” using the pieces that make the most sense for them. Although this may seem like more work in the beginning, it’s well worth the effort.

In the software world, developers have created their equivalents to the common connectors that make component integration possible in the home electronics industry. The “common connectors” of the soft-

ware world can be generally broken down into three categories.

1. Standardized File Formats

Most software packages today can read, write, import or export data into some form of conventional file format. These range from simple text to complex xml schemata and vary between software packages. When selecting software components, it is essential to ensure that they share some common file format which they can use to share data between them.

2. Standardized Data Transfer Platforms

Built in the same principle as shared file formats, data transfer platforms take this premise one step further. These integration tools usually come into play when sharing data between separate companies or organizations.

A great example of this is EDI. EDI has become the Aspirin of the software world. People use it to refer to any system that involves electronic order entry between vendor and clients. EDI in fact refers to a specific industry-standard file format for transmitting electronic orders.

Perhaps the most common users of EDI-type platforms are “big box” retailers. Generally, they insist on having their vendors be capable of receiving their orders from their EDI system. Vendors who cannot comply with this requirement simply do not get the business.

PDF (Portable Document Format) files are a standardized file format created by Adobe Systems. Though it is a widely accepted data platform, it is not really an integration tool.

PDFs serve only to “integrate” a software product with a human reader.

3. File and Database Support Contained in Computer Operating Systems

This final integration tool is both the most commonly overlooked and ironically the most widely employed. Many file formats are so common and widely used that operating system developers such as Microsoft and Apple actually provide support for them right in the operating system itself. PDF files, for example, are now supported directly by Windows and no longer require an additional “reader” program to access them.

In terms of system integration, the most significant advancement from an operating system perspective was the adoption of a platform called ODBC (Open Data Base Connectivity) by Microsoft. This was essentially a set of tools (or “drivers”) that allowed software packages to directly access each others’ data files, provided that they were created in accordance with an ODBC-compliant standard.

It’s not important to understand the specifics of how these technologies work. These “dark arts” are best left to the computer programmers. One should, however, be aware of what to look for when selecting software. It is important to be sure that the package you are contemplating supports as many of these common file formats and standards as possible. This will ensure the greatest number of options and greatest life span for your software purchase moving forward.

Putting It All Together

Though it may not always seem like it, things have gotten much easier in recent times with respect to selecting and acquiring software. Like many other software developers, I've assisted countless companies gain access to and become able to make use of data that was "locked" inside an outdated application. The old "all-in-one" applications rarely had useful export tools or open data standards; they simply had no reason to. They only had to communicate with themselves. The tragic side effect of this is that once any part of that solution becomes obsolete, the entire package has to be replaced. This is not unlike the old "hifi" units of the same era.

When selecting new software to encompass the needs of an entire

business, there are only a few things to keep in mind:

- 1. Select the very best application for each individual job. Select the best front-end app, the best and most appropriate accounting app, and so on.** Remember, one does not necessarily hinge on the other. So long as both offer standardized mechanisms to import and export data, you will never find yourself in a "dead end."
- 2. Ensure that all of your applications individually provide access to your data, even if you should stop using that application itself.** If you decide to switch to different software, you should not have to leave your data behind.
- 3. Ensure that each vendor you select is able to support you effectively with their product.** They should be experts in the

fields they are designing for. You never want to depend on an accounting system that was created as an "afterthought" to supplement another system, or vice-versa.

- 4. Solve your biggest problems first.** Typically, the most challenging part of selecting software for any business is finding the industry-specific components of it. There are hundreds of accounting programs, email clients, word processors, etc. Finding one that is suitable is inevitable. Begin your selection process by shopping for the most narrowly supported component first, the industry-specific ones. Once you've found the best tools for your particular job, it's a simple matter of finding packages that complement it. In fact, the first software vendor can probably offer a great deal of assistance in finding packages that complement theirs well.

These are obviously some very general guidelines, and it's always a good idea to get the advice of experts for your particular application. The most important point to take away from all of this is that integration is no longer a "feature" or an "option"; it is an essential part of your software infrastructure. Selecting software packages that offer the widest possible range of integration options guarantees the longest possible lifespan for those products. In addition, it leaves the door open to changing and expanding your software platform as the needs of your business change and hopefully grow. 

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