

Fulfillment/Printing for INPUT

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Title: Little Differentiation Between
Y2K Solution Vendors

- Report
- Research Bulletin
- Profiles
- Newsletter
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- Other _____

Fulfillment - Please print list to order covers >>

Reports	Executive OV
Fulfillment _____	Fulfill. _____
Stock _____	Stock _____
	TU Pkg. _____
Total _____	Total _____

Research Bulletin	Newsletter
Fulfillment <u>159</u>	Fulfill. _____
US Stock <u>101</u>	
UK Stock <u>200</u>	

total 460

TO: GBC
Covers Order
 Date _____
 Quantity _____
 Color _____
 Size _____
 P. O. Number _____
 GBC Control Number _____

Date/FedX GBC _____
 Date Due INPUT _____
 Date Rec. INPUT _____

Date _____
 PLEASE PRINT labels packing slips
 To: BAC _____

TO BRADFORD ADAMS

- Folder
- Disk
- Hard Copy
- Blue Form
- Dates
- GBC Cover

For Set Up/Proof _____
 Proof rtn to INPUT _____
 Final proof rtn to BA _____
 Scheduled to Ship _____

Instructions:

- Window Cover
- Hot Strip
- 3-Hole Drill
- Staple
- Shrink Wrap
- Other _____

Return to INPUT Ship Date _____

- Originals/Disk in folder
- For Stock: _____ RP _____ OV _____ RE _____ PR
- Internals for Distribution
- International for mailing/DHL
- Other _____
- INPUT add stock quantity to inventory report

Other Information/Notes

Please print on new
teal-colored Endling
Technology Practice
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Little Differentiation Between Y2K Solution Vendors

Choose Me!

For a company considering its own Y2000 (Y2K) conversion issues, selecting from the overabundance of solution providers is no simple task. In a quest for a piece of the \$300-\$350 billion worldwide market estimated by INPUT, Y2K conversion vendors have seemingly sprung from the woodwork hoping to cash in.

Attending a conference in San Francisco which addressed the Y2000 issue specifically, one couldn't help but be overwhelmed by the dizzying array of service and product vendors offering their own unique solution - at least in name.

A close look at the literature reveals that many of the differences are indiscernible and much of the user community isn't familiar enough with the issues to readily differentiate between vendor offerings. Virtually all vendors of Y2000 services offer full-service contracts - from initial diagnosis of present systems to the implementation and testing of formal solutions.

The estimated costs of performing a conversion, from \$1 - \$2 per line of code, has

alone set solution-seekers back a few paces. Even for smaller companies, this expense can run into the millions. Coupled with the imperceptible differences between the hundreds if not thousands of conversion vendors, the decision regarding which solution provider to choose is not one with which many IS executives want their name associated.

The Problem of The Century

By now, most of us have looked at our calendars and are at least dimly aware of the fact that the arrival of the new millennium is less than three years away. Likewise, the fact that the passing of this landmark could spell significant trouble for organizations whose current systems rely on two-digit date fields is nothing new.

The looming danger may be summarized in a sentence: programs utilizing conventional date formatting may perform calculation errors or cease functioning altogether. This can have dire consequences for businesses and may cause the failure of an enterprise altogether. The Y2000 is an *absolute* deadline for all companies; no firm is exempt.

Once an organization has faced up to the situation and its potentially devastating consequences, the task then becomes to find a solution. As with any other business issue, the question of whether to use internal resources or to outsource (partially or entirely) must be answered.

Each vendor or Y2000 conversion expert has their own opinions regarding the steps a firm should take to ensure that they are Y2000 compliant, but generally they incorporate the same elements of any systems-related project:

- Planning—how to address the issue
- Analysis/diagnostics - delineating the problem
- Assessment—sizing up the problem
- Solution design
- Resource allocation—time/money/expertise
- Solution development
- Testing
- Implementation
- Maintenance

This is certainly not a comprehensive recipe for project management and there are undoubtedly innumerable subsets of each category, but most of the Y2K solution vendors provide services which fall into at least one or a combination of several of these generic elements.

Addressing the Problem

There are several types of Y2K solution vendor, each capable of providing one or more of the following products and/or services:

- Consulting
- Tool(s)—one or a few
- Clock simulation—date library or clock simulation support
- Full conversion service—possibly with other options, ie. tools

- Integrated toolset—many possibly integrated tools covering stages of the project cycle in various combinations

Vendors of Y2K conversion products and services are reluctant to restrict themselves to one particular slice of the proverbial pie. For example, the vendor of a particular software diagnostic tool may not want to just sell the software, but has partnered with a consulting firm and now wishes to bundle the tool with a comprehensive solution package.

This pervasive development makes it difficult to obtain Y2000 conversion elements *'a la carte*. While this may appear to make the decision simpler since any one vendor can seemingly provide everything, the question of what one is truly getting and how a particular vendor's competencies measure up becomes difficult to answer accurately.

As the dawn draws nigh, organizations are realizing that the number of conversion options available to them is quickly dwindling. Considerations of proactively reengineering application systems, replacing third-party application packages, or converting systems to client/server platforms are being abandoned in favor of more immediate, programmatic changes. These changes can generally be classified into two categories:

- Date-field expansion—expanding the existing two-digit date fields to accommodate four-digit year fields
- Date field interpretation—incorporate work-around logic into programs to convert two-digit date fields into four digit date fields

Synopsis of Conversion Strategies

There are six general conversion methods which incorporate these two approaches:

- Date field expansion (ie. from *mmddyy* format to *mmddecyy*)
- Smart century digit date field
- Century window
- Datastore duplexing
- Standard date routine
- Bridging

Date Field Expansion

From a pure programming perspective, this is the simplest means of converting a system and the easiest to test. The caveat is the fact that all dependent application components related to a specific date field must be changed simultaneously to accommodate the expanded definition.

Accordingly, the required massive synchronization of changes makes the date field expansion strategy extremely difficult to implement.

Smart Century Digit Date

The smart century digit approach, also known as "date value encoding", uses an encoding scheme to represent the century value. The smart century digit approach requires that the physical data and all logic-based components that access the date fields be converted in a single effort.

This strategy is best implemented as a temporary or short-solution due to the increased overhead in processing and date access.

Century Window

This strategy involves the implementation of a floating century window which allows years from two consecutive centuries to be represented by their last two digits and be protected against replication. Dates are associated with a century based on their reference to a base year. Two digit dates which are less than the base year are

considered to be in the next century. For a base year of 1950, a value of 51 would be interpreted as '1951' whereas 49 would represent '2049'.

Most organizations can use the century window technique to avoid or postpone physical field expansion by supporting multi-century date processing, however the strategy is invalid for firms whose applications span more than one hundred years (ie. birth dates and insurance policy start/end dates).

Datastore Duplexing

Datastore duplexing involves the creation of a "duplicate" file/database so that one datastore can be used to contain unexpanded records (two-digit date fields) and the second to house expanded records (four-digit date fields). This technique uses an external process to copy an existing file and creates a Y2000 compliant format of the same data. Both Y2K compliant and non-compliant programs can then process the data without any code modifications.

Datastore duplexing is most applicable to batch processing as it is not easily deployed for files or databases which are maintained by on-line transaction processing. Typically, this is a temporary solution and is coupled with a field expansion or century window strategy. Data duplexing is not recommended for large files/databases as their replication may require an inordinate amount of disk and CPU resources.

Standard Date Routines

In conjunction with other Y2000 conversion strategies, one or more standard date routines may be used as well. The standard (common) date routines can be developed in house or commercially purchased.

If an existing in-house date routine is not Y2000 compliant, the conversion effort involves the modification or replacement of

the current program logic (ie. call logic) to call a new date routine at the appropriate points within the program logic flow. The degree of code change depends on the structure of the program logic and date routine call parameters.

Bridging

The bridging strategy is a combination of date field expansion and century window techniques that enables date field definitions within programs to be expanded without requiring the simultaneous expansion of their related files/databases.

The key advantages of this dynamic bridging strategy is that individual programs can be upgraded to support expanded date fields, validated, and then put back into the production environment "ready" for the future conversion of the physical datastores.


This approach is best suited for critical on-line transaction processing environments as it enables large numbers of programs to be upgraded over a period of time in preparation for the conversion of the master file/database over a weekend window.

Conclusion - What to know

It is essential to understand the important differences between conversion strategies and the unique situation to which each is ideally suited. From this, a company may begin to ascertain which methodologies and tools are most suitable to address their own specific Y2K issues.

This exercise is not the last word in choosing a vendor. On the contrary, it may be necessary

to enlist external services simply to determine which strategy is best!

Perhaps the most critical lesson in all of this is to address the problem promptly and seriously. Only by thoroughly investigating and assessing the impact of the century date change ^{on your} organization can one determine the optimum balance of internal/external resources and the necessary tools. 

Some organizations, already stretched to the limits of IS personnel capacity, simply don't want to be bothered and have outsourced the entire issue. Others simply do not have the financial resources for this to be an option and have opted to handle matters internally. A more probable situation is the firm having neither enough internal IS resources *or* cash!

In this case, a plausible scenario could involve a compromise between the use of internal personnel and a commercial software conversion tool.

To say nothing of *time*, the decision to select a particular vendor will be highly influenced by financial considerations as well as competency and capability concerns. Indeed, as firms are overwhelmed with a common vendor chorus chanting "We can do everything!", cost may become the overriding issue.

However, it is important to perform diagnostics (either insourced or outsourced) to determine just how big an organization's problem is and what tools/services are required. From this basis, which vendor to approach for what will become an easier question to address.

This Research Bulletin is issued as part of INPUT's Enabling Technology Practice. If you have any questions or comments, please contact your local INPUT organization or Gary Lundberg (glundberg@input.com) at: INPUT, 1881 Landings Drive, Mountain View, CA 94043-0848, Ph. (415) 961-3300. 