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COMPLEX CONTRACT ISSUES IN THE ACQUISITION OF HARDWARE AND SOFTWARE

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INTRODUCTION

As the practice of computer law has matured, attention has increasingly turned toward the more complex challenges facing lawyers for the vendor and user alike.[1] This article focuses on three difficult contractual issues involved in the acquisition of hardware and software: structuring a multi-vendor acquisition; designing and documenting performance specifications; and utilizing multi-level acceptance testing. Although other complex issues exist in many hardware and software agreements, these three areas are representative of the problems and opportunities involved in dealing with cutting-edge provisions in data processing contracts. These areas also share one other common denominator: they are all critically important to the vendor and the user in any transaction where they are applicable.

Although much has been written[2] about the need for users to be more aggressive in dealing with computer vendors (and the importance of that advice cannot be denied), in the three subjects covered

1. In this article, the term "vendor" refers to the firm that is providing the hardware or software to the "user," regardless of the acquisition method or form of contract that may be involved; the term "user" refers to the firm that is acquiring that hardware or software from the "vendor." Consequently, the term "user" refers to the "vendee" in the transaction and not necessarily to the "end-user" of the hardware or software that is being acquired.

2. *See, e.g.*, J. AUER & C. HARRIS, COMPUTER CONTRACT NEGOTIATIONS (1981); J. AUER & C. HARRIS, MAJOR EQUIPMENT PROCUREMENT (1983); Computer Negotiations Report (CNReport) (C. Harris ed.).

by this Article the true need is for vendor-user *cooperation*—rather than aggressive negotiations or overreaching by either side. While a user may be required to engage in strong negotiations to convince the vendor to agree to the *concept* of carefully dealing with these areas in a mutually-fair agreement, the user and the vendor should thereafter work together to solve the drafting challenges posed by these complex issues.[3]

One caveat should be noted at the outset. The solutions available in these complex areas are still evolving. Although this Article focuses on many of the problems and underlying issues associated with the negotiation and drafting of provisions in these areas, the recommended solutions are not intended to be all-encompassing or permanent answers to the difficult problems that are involved. For some years to come, the practical solutions to these problems can only be crafted at the negotiating table, on a transaction-by-transaction basis, through the creativity, skill, and cooperation of vendor and user negotiators.[4]

I. STRUCTURING A MULTI-VENDOR ACQUISITION

A. Relevant Considerations in Selecting the Multi-Vendor Route

Multi-vendor data processing acquisitions offer a number of advantages to the user. On the other hand, they also create a variety of risks and problems. Among the relevant considerations that should be assessed by the user in selecting or rejecting the multi-vendor route are the following.

1. Finger Pointing

Children learn even before grade school that famous phrase, "I didn't do it; Johnny did!" Unfortunately, things are often no better in multi-vendor data processing acquisition. Even where all of the vendors involved are legitimate corporate citizens attempting to do their best for the user, when problems arise there is likely to be a substantial amount of finger pointing. This problem is most likely to

3. Despite this admonition, the focus in this article is from the viewpoint of the user rather than the vendor. For a description of the "professional negotiating philosophy" that is most conducive to the mutual resolution of difficult contractual issues, see J. Auer & C. Harris, Computer Contract Negotiations, *supra* note 2, at 156-59.

4. Many of the issues explored in this article and other emerging solutions to these complex problems are considered in *Computer Negotiations Report* (C. Harris ed.). A number of example provisions involving multiple level acceptance tests appear in that newsletter and its companion *Computer Contract Resource Service* (C. Harris ed.).

arise in two situations: (1) problems resulting from interconnected products whether hardware or software; and (2) problems resulting from communication and responsibility interfaces. Although the user can take a number steps to reduce these problems, as discussed below, they can seldom be eliminated in any multi-vendor acquisition.

2. Interface Risks

As suggested above, most multi-vendor projects carry substantial interface risks. These problems generally arise from inadequate or erroneous communications or from failures in "handoff" execution. Thus, one vendor fails to perform its responsibilities due to the fact that it was not provided necessary information by another vendor or by the user. Alternatively, the vendor fails to achieve its specified objectives because it was not provided with equipment, software, completed tasks or data by another vendor. Two of the more frequent problems in this area involve site preparation and date or equipment interfaces. In the site preparation example, the user finds much to its dismay that the vendor responsibile for preparing the site or validating the specifications failed to perform as required. In the data or equipment interface example, the user realizes that it failed to make a single vendor responsible for the compatibility of the entire system. Thus, although each vendor was responsible for supplying its own hardware or software, no vendor was responsible for assuring that all components would work together as a compatible system, capable of all necessary interconnections and communications links.

3. Project Management Problems

Almost by definition, where a number of vendors are serving a single user, the transaction will involve greater project management[5] problems than a situation where the user is being served by a single vendor. Many users are simply unable to cope with the project management effort that is required to administer a multi-vendor acquisition. Ironically, some users actually have the staff support and talent required for good project management, but the company's executives are unwilling to approve a budget that will permit effective implementation of the necessary role. At the same time, these firms are also unwilling to hire an outside management team to do the job. Where multi-vendor acquisitions are involved, one rule is very simple: the user must either be willing to make the nec-

5. For a comprehensive discussion of project management, see Davidson, *Project Control*, 6 CNReport, Issues 6 & 7 (1982).

essary project management commitment to be implemented inside or outside, or it should seek a single vendor transaction.

4. Countervailing Benefits

Despite the problems outlined above, multi-vendor acquisitions can offer a number of benefits to the user. As the data processing industry has continued to specialize, perhaps the greatest benefit in a multi-vendor acquisition flows from the user's ability to optimize every phase of the transaction. In effect, the multi-vendor alternative permits the user to obtain the "best of everything"—technology, price, service, and protection—by procuring individual products from separate vendors.

In other situations, the multi-vendor approach may simply be "the only way to do it." In this situation, the user has no other method of implementing its desired business plan because no single vendor can meet its needs.

5. Cost-Benefit Analysis

Although the benefits outlined in the previous section can indeed be substantial, far too many users plunge into multi-vendor acquisitions without performing an intelligent cost-benefit analysis. Although this approach admittedly requires a number of assumptions that may or may not be perfectly validated, no user should accept the risks of a multi-vendor transaction without at least attempting to weigh the benefits and potential expenses that may be involved. This approach can often be simplified by an exercise in which the user attempts to quantify certain of the benefits, on one hand, and risks, on the other. Benefits are generally more easily quantified than the offsetting risks. However, it may be possible for the user to make certain assumptions as to how much it should be willing to pay in order to minimize the risks. These assumptions can be helpful in performing the cost-benefit analysis and can also be useful in judging whether the user is being realistic in assessing the budgetary requirements of any recommended project management program.

B. The Search for Solutions

At the present time, the data processing industry is still searching for solutions to the problem of multi-vendor transactions. While improvements have been made in planning, documenting, and implementing multi-vendor acquisitions on a number of fronts, the book of procedures is still being written. As is usual in such instances, much of the book is being written on the basis of unfortu-

nate failure rather than brilliant success stories. The following portion of this Article, however, highlights several of the areas in which useful solutions have been created.

1. The Construction Industry Experience

Interestingly, many of the problems faced in multi-vendor data processing acquisitions have plagued the construction industry for many years. Ironically, few vendors or users have taken advantage of the construction industry experience. User attorneys with little or no experience in multi-vendor computer transactions would do well to study the contracting practices and risk allocations used in complex construction cases. Indeed, a good continuing legal education course on complex construction litigation can be particularly helpful to the attorney faced with drafting the agreements for a multi-vendor computer acquisition.

2. Sole Source Accountability

The accountability issue can arise at several levels. At the most general level, the user should strive to have a single vendor responsible for all "people, products, and services" being provided to the user in the transaction. Several approaches can be used to achieve this goal: (a) selecting one vendor to serve as the "prime contractor," with overall responsibility for all of the other vendors participating in the transaction, which then become subcontractors of the prime vendor; (b) bringing in a new firm as the prime contractor and making all of the bidding vendors subcontractors of the new firm (a facilities management or projects management firm will often fulfill this role); (c) drafting a master multi-party contract in which all of the participating vendors are signees, but one vendor has clear responsibility for overall performance; and (d) drafting a multi-party agreement in which the user assumes the role of general contractor and agrees to accept sole source responsibility for much of the project. Obviously, this approach is not for the faint-hearted; to be effective, the user must be capable of serving as its own general contractor and negotiating contracts for specific responsibilities with various participating vendors.

On a more narrow level, sole source accountability can also be applied to specific assignments or tasks. Many vendor agreements attempt to provide that the vendor will merely "assist the user" in various tasks. Alternatively, the agreement provides that the user and the vendor will jointly undertake a particular assignment. In general, this approach creates unacceptable risks for the user and, in most instances, is little more than an unenforceable "best efforts"

provision. Even at the most basic level of the transaction, responsibility for each performance item must be clearly assigned to a single party.

Where two or more parties, which generally include the user, have responsibility for developing a particular function or performing a designated task, sole source responsibility can still be attained in many instances. The key is to provide for joint or mutual development of the responsibilities or specifications, with ultimate assignment of responsibility for implementation either before or after the responsibilities or specifications have been developed or defined. In some large procurements, users have successfully employed joint user-vendor-vendor implementation committees, which have both the power and the obligation to assign clear-cut responsibility for such matters as the transaction unfolds.

3. Contract/Subcontract Consistency

Where subcontracts are involved from one vendor to another, the user must ensure that the subcontracts contain terms and conditions consistent with the terms and conditions contained in the contract between the user and the prime vendor. If this approach is not followed, the user may find that the prime vendor consistently claims that it cannot agree to certain matters because of the fact that it did not obtain such terms and conditions in its contract with the subcontractors. Indeed, in many instances, the user may wish to negotiate and approve all such subcontracts. Alternatively, the user may require all participating vendors to sign a multi-party agreement, in which the user is also a party, but in which the prime vendor is clearly given its responsibility as such.

4. Responsibility Handoffs

One of the more effective methods of dealing with multi-vendor transactions is to utilize the concept of responsibility windows. In this approach, the user attempts to narrow the specific responsibilities of all of the participating vendors to the greatest degree possible. By narrowing these responsibilities, the user is generally better able to obtain a firm commitment from each vendor for its respective obligations. Having so narrowed and clarified the responsibilities of each vendor, the user then attempts to design "handoff windows" that form the links between the responsibilities of the various vendors. In effect, the user clearly defines the obligations of vendor A. In doing so, the user specifies the precise end result to be achieved by vendor A either in total or at a given stage of the agreement. The user then turns to vendor B and explains that vendor B

will have responsibility for a related task. When vendor B balks because it fears that its ability to perform may be hindered by the failure of performance by vendor A, the user proposes a simple solution: the contract will provide that vendor B's performance will be conditioned upon the receipt by vendor B of the specified end result of vendor A's performance at a time and place, and with a quantity or quality, clearly defined in both the agreement with vendor A and the agreement with vendor B.

Interesting variations of this theme can also be used, in order to increase protection for the user. One rather unusual approach is to provide that, if any vendor fails to meet its "handoff window" (other than due to the failure of a "condition"—generally, the failure of another vendor to meet its window), the nonperforming vendor will be obligated to take over the user's entire obligation to all of the other vendors participating in the multi-vendor acquisition. Although this approach would seldom be effective in releasing the user from any contractual liability to the other vendors, the imposition of this burden could be a substantial incentive to assure timely performance by each participating vendor. This assumes it could be effectively implemented without bankruptcy or a successful legal claim that the provision amounted to a "penalty."

5. Project Management

As suggested above, comprehensive project management is critical in any multi-vendor transaction. Many of the emerging solutions to the multi-vendor phenomenon simply amount to good project management procedures. Many of these procedures can be grouped into three general categories: (a) deadlines; (b) communications; and (c) notification obligations. Properly implemented, each of these items should be backed by meaningful "special remedies" that can be utilized by the user when required to assure timely performance.

Clear deadlines are absolutely essential in any multi-vendor acquisition. The contract involved should include a project timetable which describes major tasks to be completed by each vendor and the dates by which they must be completed. One effective approach is to create a separate timetable for each vendor and an overall timetable which clearly shows the interrelationship of the various vendor obligations, including the "handoff windows" referred to above.

Staged performance obligations should be employed wherever possible, with proven "deliverables" being required at the conclusion of each stage. While firm dates should be employed and time

should almost always be made "of the essence," consideration must also be given to the issue of what happens to the schedule of the various vendors if one vendor fails to perform in a timely manner. This dilemma is one of the most difficult issues to handle successfully in a multi-vendor acquisition. One emerging approach is for the various performance schedules to be phrased in terms of elapsed time from the "handoff window" for the applicable vendor. For example, in this approach vendor B's performance deadlines are phrased in terms of a specified number of days after the date that vendor A performs its obligations through the "handoff window" from vendor A to vendor B. While this approach can be effective in moderating the responsibilities of the various vendors, and avoiding the recalculation of all relevant dates when a single vendor fails to perform in a timely manner, the user must ensure that this approach does not permit small individual delays to build into an interminable total delay toward the end of the project. Achieving fairness in this area is a thankless task due to the difficulty of balancing the user's interests against those of the various vendors.

Communications are also critical in project management of multi-vendor transactions. Again, the user can gain substantial advantage by simply employing sound contract administration procedures. In their most simple form, these procedures require all vendors and the user to be responsible for communicating throughout the project through the use of pre-agreed forms, notices, and certificates. For example, each vendor should be responsible for notifying the user within a specified and short number of days in the event that the vendor fails to timely perform an obligation or becomes aware of the fact that it will be unable to do so. The the communications process must work both ways, however, and the user must be responsible for providing various types of notices to all participating vendors. In order to avoid any doubt about the communication obligations of the various parties, the multi-vendor agreement should provide a framework for project meetings and task forces or committees of various kinds. In addition, the agreement should contain a detailed notification and communication section, which either specifies the manner in which working notices should be provided or establishes a required procedure under which the various parties will notify the other parties of the communications network that should be followed in implementing the project.

II. DESIGNING AND DOCUMENTING PERFORMANCE SPECIFICATIONS

A. THE PRELIMINARY ISSUE: CHOOSING "RESULTS" OR "RESOURCES"

Before the members of a user's negotiating team can develop, approve, and prioritize performance specifications, they must understand the difference between "contracting for resources" and "contracting for results."[6] The difference can be critical, and the selection of the approach to be followed must be made early.

When a user is contracting for resources, it is generally agreeing to procure specified people, products, or services. Consequently, the documentation in such a transaction is designed to ensure that the user receives the agreed upon resources, such as people, products, or services, but little or nothing is said about results—that is, about whether or not those resources will meet the user's needs. To be sure, the user contracting for resources may go to great lengths to ensure that the agreement contains warranties that the equipment will perform according to the manufacturer's specifications or that the equipment will achieve certain initial "uptime" percentages. But this type of engineering specification is seldom directly related to the user's needs or desired results.

On the other hand, when a user is contracting for results, it is generally agreeing to have the vendor provide specified resources that will achieve stated results at the end-user or customer level. In effect, the vendor is representing that the equipment will not only meet technical specifications but will also perform certain defined user functions.

From a conceptual standpoint, if a user is contracting for resources and the given people, products, or services fail to meet the vendor's generic specifications for them, it is the vendor rather than the user that faces the liability for nonperformance. This assumes, of course, that the user has extracted reasonable warranties from the vendor. If, on the other hand, the user is contracting for resources and the resources meet all relevant vendor specifications but fail to provide the desired level of end-user or customer service, it is the user rather than the vendor that has the problem. This latter result does not occur, of course, if the user is contracting for specified results rather than resources.

The key difference between contracting for resources and contracting for results is whether the vendor or the user will have responsibility if the equipment functions according to certain generic

6. J. AUER & C. HARRIS, COMPUTER CONTRACT NEGOTIATIONS, *supra* note 2, at 112-14.

engineering specifications but fails to "do the job" anticipated and required at the end-user or customer level. A user can validly determine to accept this responsibility by contracting for resources or force the vendor to accept it by contracting for results. The user should make this decision knowingly, however, with full appreciation of the consequences involved. This type of knowledgeable decision can be made only if the user fully understands the results required by its end users or customers and the potential risks associated with achieving those results through the use of the vendor's equipment or other resources. In most instances, the vendor is in a far better position to warrant that its resources can achieve the desired results. The vendor has a right, however, to expect a reasonably detailed, written description of the desired results and at least some protection against failure caused by the user. In some situations, the user may be in a better position to ensure that the vendor's resources will be able to achieve the results desired by the user. In the latter case, the vendor has a valid argument that the agreement should cover resources rather than results, unless the user can point to narrow areas where the vendor can reasonably expect to have responsibility for ensuring that the equipment will in fact provide the results desired at the end-user or customer level.

Because of the substantially increased liability, risk of nonperformance, and problems associated with distinguishing the vendor's duties from those of the user, most vendors prefer to contract for resources rather than results. For similar reasons, sophisticated users prefer to contract for results wherever the vendor will agree to do so. This is particularly true where, as in the majority of cases, the user has effectively contracted with its own end-users or customers to provide results rather than resources.

To contract for results, a user must be capable of saying, "I'll accept the system when it works" at the end-user or customer level. Although this requirement may seem abundantly simple at first glance, for the approach to be successful the user must also be capable of defining two key words in detail: "system" and "works." Defining these two words is 90% of the job.

As this statement suggests, the user's decision to contract for resources or results has a substantial effect on the type of preparation required before entering the negotiating arena. If the user elects to contract for resources, it accepts a much heavier burden that the selected resources will in fact meet its specific processing requirements. Consequently, the user must devote additional effort toward analyzing its technical processing requirements and the operating specifications for the equipment being considered. On the other hand, if the user determines to contract for results, it attempts

to shift to the vendor much of the burden of ensuring that the people, products, and services supplied under the contract will actually meet the processing requirements involved. Consequently, the user must spend considerable time determining defining, and documenting the processing results desired by its various customers or departments. Although equipment and other product specifications remain important, particularly as methods of assessing and verifying vendor representations concerning the results that they supposedly can and will provide, the main concern becomes how to define and describe the desired results in a binding legal agreement.

Because these two methods—results and resources—require substantially different emphasis during the preparation phase of the negotiating process, the user's team must face the results-versus-resources question at an early stage of preparing for a particular acquisition. In most instances, this consideration should occur prior to, in connection with, or immediately after the data collection phase of the process. The decision can be postponed beyond this point, particularly if both alternatives are considered simultaneously, but formal external steps, such as RFP preparation or contract bargaining, should not be instituted until the team has reached agreement on this issue. As suggested above, of course, "agreement" on this issue may include a decision to use the resources approach for some items and the results approach for certain other items. The critical point is that the team should formally determine which approach will be used and proceed accordingly in preparing to negotiate and acquire the respective items involved.

B. The Difficult Task: Designing Measurable Standards

Once the user has made a decision as to whether it wishes to contract for "results" or "resources," or a combination of the two, it must face the difficult task of actually designing and drafting the performance specifications that will be included in the acquistion agreement. Although a thorough explanation of all possible methods of drafting performance specifications is well beyond the scope of this discussion,[7] the following pages highlight several areas in which creative user efforts at drafting performance specifications have provided substantial benefits in various complex transactions.

7. For a discussion of software performance specifications, see J. Auer & C. Harris, Computer Contract Negotiations, *supra* note 2, at 292-93. For a discussion of the important role that user requests for proposal can play in defining performance specifications, see J. Auer & C. Harris, Major Equipment Procurement, *supra* note 2, at 126-85.

1. Installation Specifications and Expenses

Increasingly, users are beginning to include detailed installation specifications in the user-vendor contract. One of the more effective methods of implementing this approach is to include a table of "one-time charges" in the user's request for proposal (RFP). When the contract is executed with the winning vendor, the vendor's response to this form table is included in the contract as a type of performance specification that must be met or improved upon. Among the one-time charges that might be considered by a user interested in pursuing this approach are the following:

a. Equipment transportation costs;
b. Equipment installation costs;
c. Equipment return transportation costs;
d. Vendor support costs (paid by user);
e. Programming costs;
f. Training costs;
g. Additional construction costs for hearing and cooling, power, or UPS (note that water plumbing may be involved for cooling); and
h. Other one-time constructions costs (for example, new or different built-up computer flooring).

2. End-User "Hot Buttons"

One of the more unusual approaches to performance specifications is to cause a combined user-vendor survey to be made of the "deliverables" desired by the "end users" that will actually receive the benefits of the equipment or software being procured. Some users go so far as to have formal interview or meeting sessions with each end-user department. These sessions are attended by both user and vendor representatives and are appropriately documented through some formal means such as video tape, court reporter, or minutes agreed upon by both the user and the vendor. From these sessions, the vendor and the user attempt to develop clear-cut performance specifications that cover the "hot buttons" expressed by the end-user departments. Among the items that are most likely to come out of this approach are specifications relating to run times, response times, and the format capabilities of various computer output reports.

3. Benchmark Tests

For many years, benchmark tests have provided the basic performance standard in many user-vendor agreements. Unfortunately, for an equal number of years vendor sales representatives have

taken advantage of the fact that few users have the ability or the patience to design and implement a valid benchmark test. As a result, many sales representatives have essentially designed the test on the user's behalf. Far too frequently, the resulting test has been little more than a sales ploy on behalf of the vendor, rather than a true evaluation of the product's ability to meet the user's specific needs.

For a benchmark test to be anything other than misleading, it must be designed to thoroughly evaluate the ability of the equipment or software to meet the user's needs in the user's actual operating environment. Thus, the test must be comparable. Tests that provide reasonably good results with equipment that is "almost" the same as the equipment being acquired by the user can be disastrous unless the user has the ability to discern whether the differences in the equipment involved make the test valid for the user's evaluation purposes.

The required level of comparability in a benchmark test can be obtained only if the user's technical staff clearly specifies the exact equipment that will be involved and the tests that will be performed. Again, volumes, run times, and response times are likely to be all important.

4. Performance Algorithms

Increasingly, many sophisticated users are turning to performance formulae and algorithms in order to design specifications that adequately measure reliability in the user's desired operating environment. These formulae and algorithms can also be effectively employed in the RFP evaluation process by using these methods to calculate "liquidated bid adjustments" which are utilized to adjust each vendor's actual bid price up or down in order to quantify variances in each vendor's relative ability to meet the user's RFP performance specifications.

5. System Availability and Reliability

To be effective, most performance specifications must deal with system availability and reliability. These and related matters dealing with the drafting and implementation of effective standards of performance are discussed in the following section on multi-level acceptance tests.

III. UTILIZING MULTI-LEVEL ACCEPTANCE TESTING

A. Background: The Need for Acceptance Provisions

One of the most important provisions in any computer acquisi-

tion agreement is the section governing acceptance.[8] In the words of one experienced negotiator, "If you can only get one decent concession from your vendor, make it a solid acceptance test." Nevertheless, in certain agreements on-going performance criteria may be of equal or greater importance.

1. Uses of Acceptance Provisions

In any well-organized agreement, the acceptance provision will have a number of important uses. First, the provision will describe the performance specifications or tests that must be met for the equipment or other products to be accepted by the user. Acceptance in this context will generally have (or should have) considerable legal significance in that the user will be liable for the payment of the purchase or rental price only if the product(s) successfully complete the specified acceptance standards. Second, the acceptance date will also affect other contractual matters, such as passage of title, risk of loss, insurance, and initiation of maintenance or license fees. Third, standards established for acceptance purposes may also be employed in related provisions governing on-going system performance such as rental credits, maintenance credits, mandatory equipment replacements, and liquidated damages of various types.

2. Provisions Offered by Vendors

Unfortunately, few vendor standard form agreements include an acceptance test that is adequate from the standpoint of the user. Some vendors still exclude any acceptance provision or require that the user agree in its original contract, in advance of delivery and installation, that it has accepted the equipment. The latter practice is particularly popular among smaller and less sophisticated third-party leasing firms, brokers, and dealers. Today, most vendor agreements at least include some form of acceptance provision. For example, one frequently utilized acceptance provision specifies that the equipment will be deemed accepted or, alternatively, that payments will begin, when the system "is installed and ready for use." A somewhat more generous variation of this approach provides that the equipment will be deemed to be accepted when the system "is installed and ready for use in accordance with the vendor's published specifications therefor." In both examples, some vendors

8. J. AUER & C. HARRIS, COMPUTER CONTRACT NEGOTIATIONS, *supra* note 2, at 170-77, 295-96, 347-56; R. BERNACCHI & G. LARSEN, DATA PROCESSING CONTRACTS AND THE LAW 129-31 (1974); D. BRANDON & S. SEGELSTEIN, DATA PROCESSING CONTRACTS 91-95 (1976); B. BRICKMAN, SOLVING THE COMPUTER CONTRACT DILEMMA 25 (1981).

strengthen their position by stating that acceptance will occur when, in the opinion of the vendor's field engineering personnel, the equipment meets the specified standards. For example, "the rental period shall begin when the vendor's field engineering representative certifies that the equipment is installed and ready for use."

Many vendors will readily offer an alternative acceptance provision that is more favorable to the user. For example, some vendors will agree to include the standard acceptance section used in the General Services Administration (GSA) procurement documents for data processing equipment. Other vendors will suggest the basic GSA approach, but will offer an acceptance addendum that modifies the GSA language in several important respects. Generally, the modifications attempt to reduce the required uptime percentage of the length of the acceptance testing period. Although some of these vendor alternatives are reasonable for small and medium acquisitions, they may require significant modification for more complex or critical transactions.

3. The Importance of Tailoring

Indeed, the acceptance provision—like other portions of an acquisition agreement—must be tailored to meet the specific needs of a specific transaction. In some acquisitions, the size, importance, and immediate reliability of the system permit use of relatively simple acceptance language. Perhaps the vendor's alternative provision or the standard form language with minor additions and changes will suffice. In other transactions, elaborate acceptance language is mandated by the complexity of the system (including hardware, systems software, and custom or converted applications programs), the importance of system reliability, and the cost exposure involved in the user's processing.

B. The Value of the Multi-Level Approach

As the transaction becomes more complex, the only effective method of developing an acceptance test is to employ the "multi-level" approach. In a complicated transaction—particularly where multiple components of hardware and software are involved—no single acceptance test can effectively provide the detailed evaluation required by the user. Moreover, no single test can offer the "early warning" and "project management" benefits available through a multi-stage test.

The value of the multi-level approach is perhaps best demonstrated by an assessment of the basic goals expected to be achieved by the test. Conceptually, any sound acceptance test should deter-

mine or evaluate two factors: (1) performance; and (2) reliability. An acceptance test which covers one of these factors, but not the other, will leave the user exposed to inappropriate risks. In addition, a solid acceptance provision must consider all "people, products, and services" involved in the transaction. Thus, the acceptance provision must test both performance and reliability for: (a) hardware; (b) operating software; (c) applications software; (d) special software; (e) hardware maintenance; and (f) software maintenance. Because any acceptance test is only as good as its weakest link, if the test fails to cover any one of these items assuming it is involved in the transaction, the entire test may be invalidated and the user exposed to unreasonable financial and operating risks.

C. The Performance Test

The performance section of a multi-level acceptance test should be designed to determine whether the products being tested will perform in accordance with standards specified in the acquisition agreement. The key to the validity and value of the performance portion of any acceptance test is the definition of standards. If the user is unable to specify meaningful standards, the performance test is unlikely to be of any serious value. Indeed, any acceptance test with incomplete or erroneous standards may create a false sense of security for the user and result in even greater problems after the equipment has been installed and "accepted."

1. Categories of Performance Standards

A wide variety of performance standards can be specified in the acceptance test. Despite this fact, most can be categorized into one of two groups: (1) performance standards based upon published specifications; and (2) performance standards based upon agreed upon specifications. The first category generally includes manufacturer's published specifications, while the second frequently includes benchmark tests and RFP standards of varying descriptions.

2. The Two-Stage Performance Standard

These categories can often be utilized in designing a two-stage performance standard. In this approach, the initial stage of the performance portion of the acceptance test requires that, following product installation, the vendor successfully complete all standard published tests and installation procedures for the system, as set forth in certain vendor documents referenced in the contract. These procedures most often include the minimum or standard operating

specifications published for the system by the vendor. Assuming that this test is met, the second performance stage requires that the vendor successfully repeat, on the installed products at the user's site, one or more benchmark tests that were previously conducted at another installation (perhaps to induce the user to enter into the acquisition agreement in the first place) or otherwise specified in the contract.

Whether a repetition of a previously conducted benchmark test or the initial performance of some other test or agreed upon specifications, this stage of the performance standard must be designed with particular care to ensure that it is meaningful to the user. Far from being deterred by benchmark tests, many computer vendors consider them to be exceptional marketing opportunities. The reason for this vendor reaction is that few users have the time or expertise necessary to design a detailed benchmark test that is uniquely applicable to the user's own processing requirements. Because of this fact, many vendor sales representatives are capable of creating and suggesting a benchmark test that the vendor knows it can achieve, even if the test has little relevance to the user as a true evaluation of the system performance desired or required by the user. Because of this risk, any benchmark test or other agreed upon specification standard should be carefully reviewed by the user's technical staff before it is included in the acquisition agreement. The legal and other nontechnical members of the user's negotiating team should also carefully consider the standard, applying a reasonableness review procedure, in order to guard against the possibility that the written standard included in the contract will omit key practical details necessary to preserve the integrity of the test or enforce the user's rights or remedies in the event deficiencies develop during the acceptance test phase.

3. The Three-Stage Performance Standard

Depending upon the products being acquired, and the complexity of the system or systems involved, the performance section of the acceptance test can also be expanded to include three stages. In this approach, the initial stage requires that the vendor successfully perform all standard published tests and installation procedures for the system—in effect, standard installation diagnostics. The second stage of the performance test then requires that the vendor successfully demonstrate that the system performs in accordance with certain written specifications such as given run or response times included in the user's RFP. These tests may be run over a period of several days, using test or actual business data. The use of equipment or software during the acceptance phase for productive or

business purposes—including the processing of actual business data for profit—should never be deemed to be "acceptance" as some vendors attempt to provide in their form agreements. Where this approach is followed, the third phase of the performance standard requires that the vendor successfully duplicate a specified benchmark test that was performed on the same or similar equipment prior to the date that the user executed its agreement with the vendor.

D. The Reliability Test

The reliability section of an acceptance test should be designed to determine whether the products being tested will meet the specified performance standards over a stated period fo time with an acceptable failure to downtime rate. In effect, the performance section of the acceptance test indicates what specifications the products must meet when they are installed. The reliability section indicates how long the products must meet these or similar specifications without failure, or without some level of failure that is deemed to be unacceptable.

1. Critical Evaluation Factors

In designing the reliability standard, two factors are paramount: (1) duration; and (2) frequency. The duration factor should specify how long the test will be conducted and how long the products being tested must be "up" or "down." The frequency factor should indicate how often the products will be permitted to fail, regardless of the duration of the failure or the time required to return the equipment to proper service.

Phrased somewhat differently, virtually all users would be willing to accept a reliability standard that required the equipment or other products to be "up" 100% of the time throughout the installation period and not merely the acceptance period. The problems arise when the vendor and the user attempt to negotiate a more realistic version of this obviously unattainable standard. For the reliability section of any acceptance test to be meaningful, it must be performed over a reasonable period of time, generally three to six weeks, and under conditions that duplicate the user's business processing conditions. For example, if the user has acquired a new system that must meet its month-end, quarter-end, or year-end processing requirements, the reliability test must be designed to overlap and encompass at least one of these peak load periods. Similarly, if the user requires consistent operation, twenty-four hours

per day, seven days per week, the reliability test must approximate the same schedule.

2. Evaluating Uptime

To be effective, the reliability standard must include a reasonable uptime factor. Many acceptance tests include a minimum system "effectiveness level" that is specified as a percentage in the applicable provision. This is the approach generally followed in the GSA procurement document provisions which specify a given "standard of performance." Where the GSA model is used, the effectiveness level is often computed by dividing "operational use time" during the relevant period by the sum of that time plus "system failure downtime." Of course, as in all portions of any acceptance test, definitions are critical.

In complex installations, a single effectiveness percentage is unlikely to test all user requirements adequately. For example, the user may only need a 90% overall uptime percentage, but may also require minimum response and access times on various communications, edit, and response functions. For the reliability test to be meaningful, minimum standards of performance must be stated for each of these separate requirements.

In addition, by specifying separate reliability percentages for different categories of equipment, the user may be able to negotiate a higher standard in each area from the vendor. Gaining mutual agreement on the effectiveness level to be employed for any equipment is seldom an easy task. While the user will ordinarily benefit from more precisely defining the acceptance standard required for particular types of equipment, the vendor may also be more willing to agree to a higher acceptance percentage in narrow areas where the vendor believes that such performance is assured. The suggestion of employing different acceptance reliability percentages can also be utilized as an effective user negotiating strategy. If the vendor readily agrees to a high percentage on certain types of equipment, but holds out for a lower percentage on other types of equipment, the user may wish to seriously consider whether the latter category of equipment has potential performance problems.

Of course, the reliability percentage itself must be carefully considered, regardless of the category of equipment involved. Although effectiveness levels of 90% or 95% may sound rather impressive initially, they may or may not be adequate to meet the user's minimum processing expectations. Unfortunately, some users readily accept a 90% effectiveness level even though their business operations demand an uptime of 98%. The difference between the two percent-

ages can be critical in determining the operational or financial success of the system installation. Consequently, the user should ensure that its technical personnel and, in most instances, its end-user personnel carefully determine whether the minimum effectiveness level proposed by the vendor for a given category of equipment will provide an adequate test of performance for acceptance purposes.

Where split or multiple reliability percentages are employed, the user may find it effective to require a given product to pass a reliability percentage assigned to the applicable product category and also pass a reliability percentage assigned to the system of which the produce is a part. Where this approach is employed and the user has a strong technical staff, the reliability percentage for the system as a whole may be specified, in whole or in part, in the form of a test program, formula, or algorithm.

The formula or algorithm approach can be particularly advantageous because it also facilitates the user's ability to specify "mean time between failures." Although most users recognize the importance of applying an "effectiveness level" performance standard, they often fail to appreciate the equal importance of including a standard that limits the number of failures that can occur within a specified period. While excessive system downtime is generally more of a practical problem and risk than frequent intermittent failure—given current technology levels—the latter problem can still wreak havoc where it occurs, particularly if it requires reruns or manual starts. Consequently, a sound multi-level acceptance test should include some method of specifying and measuring the acceptance frequency of failure.

3. The Product Environment

Regardless of the tests employed, if the reliability standard is to be valid the system or products being tested must be operated in a realistic hardware and software environment. This approach requires that all peripherals and communications devices that will form a part of the relevant processing network be interconnected and operational. For example, if the new system is designed to be part of a comunications or distributed processing system, the reliability standard will serve little purpose if it is tested in a sterile operating environment, separate from the equipment and software with which it will be connected and for which it was acquired.

Most vendors argue that reliability tests should not involve any equipment supplied by another source (or even previously installed equipment provided by the primary vendor). This argument may be

reasonable in certain circumstances where it would not be meaningful or necessary for the new equipment to be tested in a complex system or network environment. The key question in this consideration should generally be whether the user's needs dictate that the new equipment "prove itself" in a particular operating environment. Where the products will be operated in an environment that practically necessitates use of an acceptance test which includes products other than those supplied under the user-vendor agreement, both parties must take a realistic, problem-solving approach toward drafting the acceptance provision.

For example, the user must appreciate that the broad but realistic approach desired by it may create substantial additional risks for the vendor. Even if the vendor agrees with the user's reasons for preferring a comprehensive equipment base for the test, the user must recognize that the vendor is in business to make a profit. In most instances, the vendor cannot and will not accept the possibility that it will be exposed to serious contractual or financial liability for reasons that are beyond its control and due to equipment and software supplied by other vendors.

On the other hand, the vendor must recognize that the user really has no interest in acquiring the products if they cannot be utilized effectively within the system and in the manner intended by the user. Despite the tendency of some vendor marketeers to think otherwise, computers are not dime store items that can or should be discarded and written off by a user if the system fails to meet the user's needs. The user has a right and, indeed, an obligation to specify how and where the user expects to utilize a data processing product and to refuse to accept it if it fails to serve the purpose intended by the parties.

When considered together, the user and vendor concerns outlined above suggest several practical conclusions. First, the user has every right to specify that the equipment or other products being acquired must perform within an existing or other system environment. Second, having specified that fact, the user has the corresponding right to expect that the acceptance test, either the performance standard or the reliability standard or both, will meaningfully measure this specification in the user's total system environment. Third, the vendor has the right to bid or not bid under these circumstances. Fourth, the vendor has the right to impose reasonable safeguards in this environment to ensure that it is not penalized inappropriately for matters or products beyond its control such as downtime on components supplied by another vendor. Finally, both parties must determine and allocate the risks and costs of nonperformance in this environment. For example, if the ven-

dor's products fail to meet the comprehensive tests, a number of alternatives could be specified in the agreement. Most directly, the vendor could be held liable for damages. Alternatively, the user could be permitted to cancel the contract without liability to the vendor or to cancel the contract after reimbursing the vendor for certain out-of-pocket expenses. In yet another variation, the user could be permitted to cancel the contract, with the requirement that the vendor reimburse the user for certain out-of-pocket expenses. Various combinations of these alternatives may be appropriate in a given transaction, depending upon such factors as the uniqueness of the user's system and the risks accepted by each party during the sales or RFP stage of the transaction. The important point is this: the alternative or alternatives selected will have a substantial effect on the vendor's willingness to employ acceptance testing that includes products not covered by the acquisition agreement.

Again, the user's negotiating position may be enhanced by suggesting the utilization of multi-level acceptance procedures. For example, the user may require that certain products be tested in connection with hardware or software already installed at the user's site whether supplied by the present vendor or otherwise. At the same time, the user may permit other products to be tested on a stand-alone basis or with interconnection only to products being supplied by the vendor under the present user-vendor agreement. As in the case of establishing reliability percentages, the user may be able to gain greater vendor agreement by narrowing its focus.

E. Implementing the Multi-Level Approach

One of the hazards of employing the multi-level acceptance test procedure is the sheer complexity of designing, drafting, and implementing the acceptance provision.[9] Particularly where multi-level acceptance test provisions are involved, the user must involve all members of its negotiating team in the drafting process. To be effective, an acceptance provision must be capable of both being drafted and interpreted in legal language and being implemented in technical terms. Consequently, the acceptance provision, or a relevant addendum or schedule, must specify the exact details and procedures to be followed in each phase of acceptance testing. This goal can often be achieved by having the user's technical staff explain to the

9. For an example of a multiple stage acceptance provision, see J. Auer & C. Harris, Computer Contract Negotiations, *supra* note 2, at 349. Several alternative contracts using multi-level acceptance provisions are also included in the *Computer Negotiations Report* (C. Harris ed.) and the *Computer Contract Resource Service* (C. Harris ed.).

user's attorney, in layman's terms, precisely how they propose to accomplish the test procedures, step by step. The lawyer can then draft these steps into appropriate legal language that can be reviewed and approved by the technical personnel and the full negotiating team. Where algorithms or other complex formulae are employed, they should be thoroughly tested in practice before being finalized in the agreement.

After the standards for each phase of the acceptance test have been drafted, the user's team should devote particular care to ensure that all stages are consistent and, to the extent desired, sequential or overlapping. In addition, the team must also ensure that the acceptance provisions mesh properly with other sections of the acquisition agreement. For example, either the acceptance test section or another provision must detail the remedies or penalties that will be imposed if the vendor fails to meet one or more stages of the test within the times and conditions specified in the agreement. Where the multi-level approach is employed, "special remedies"[10] are more likely to be valuable to the user than default declarations—at least during early phases of the relevant test procedures. In most instances, these special remedies will grant the vendor a reasonable time to cure initial nonperformance, while at the same time reserving the user's right to terminate the agreement and/or pursue other remedies if the nonperformance reaches levels that are unacceptable to the user. Special remedies of this nature are ordinarily more effective for the user if the remedy provision contains specific steps that must be followed by the vendor in order to avoid the declaration of a default. As in other provisions where vendor deadlines are involved, the acceptance test provision should also be coordinated with any force majeure language to preclude undue harm to the user or the vendor in the event unforseen "acts of God" preclude satisfactory completion of the established test. Finally, the user's negotiating team must consider whether the acceptance test provision, or another contract section, should include a continuing performance standard that goes beyond the acceptance period. Where a continuing performance standard, such as a rental or maintenance credit or "lemon" replacement provision, is employed, it should be consistent with the initial acceptance test, even if different percentage requirements are imposed.

10. J. AUER & C. HARRIS, COMPUTER CONTRACT NEGOTIATIONS, *supra* note 2, at 179-81; J. AUER & C. HARRIS, MAJOR EQUIPMENT PROCUREMENT, *supra* note 2, at 252-55.