Payoff

For many companies, managing and supporting increasingly diversified computing and networking environments has become a business in itself—a business companies do not necessarily want to be in. Shifting responsibility for network management and other information systems operations to outside experts is widely viewed as a feasible solution for companies under pressure to cut costs, improve support, and maintain competitive position. This article examines typical outsourcing arrangements, outsourcing trends, and common outsourcing services, and offers guidelines for determining what to outsource and for choosing a vendor.

Introduction

With computing and networking environments getting ever more powerful, complex, and expansive, an increasing percentage of the corporate budget is being used for their support. Much of this money is spent on such brick-and-mortar aspects of computer operations as hardware and software and lines and circuits. In addition, many companies can no longer afford the salaries of qualified technical people to run computer systems and networks or skilled programmers to develop the sophisticated applications needed to run the core business.

Instead of hiring, training, and retaining internal staff to perform cabling, hardware maintenance, systems integration, and network management functions, companies can become far more competitive by focusing internal resources on strategic or business-specific applications that can add measurable value to the enterprise in the form of new products and services. Overhead functions that support these efforts can be offloaded to outside organizations for a monthly fee.

With the current competitive environment and the trend toward downsizing, many companies are experiencing hiring freezes and staff reductions, coupled with increased pressure from senior management to get more work done in less time. All of this is occurring at the same time the enterprise is becoming more and more dependent on an information systems network that must be operational 24 hours a day, seven days a week. Consequently, many companies are turning to service firms that specialize in managing networks, integrating diverse computer systems, or developing business applications. Outsourcing involves the transfer of network assets or staff to a vendor, who then assumes profit and loss responsibility for some or all of the client's network and data processing operations.

Approaches to Outsourcing

There are two basic approaches to outsourcing—each of which can benefit organizations facing tough financial times. First, the outsourcing firm can buy a company’s existing information systems and network assets and lease them back to the company for a fixed monthly fee. In such an arrangement, the outsourcer can also take over the network management payroll. This relieves the client of a cash outlay, which can be applied in turn to its financial recovery.
The outsourcer maintains the data communications equipment, upgrading to state-of-the-art systems within the budgetary parameters and performance guidelines in the agreement. In some cases, equipment leasing is part of the arrangement. Aside from its tax advantages, leasing can protect against premature equipment obsolescence and rid the company of the hassles of dealing with used equipment once it has been fully depreciated.

With the second type of arrangement, the company sells off its equipment and migrates the applications to the outsourcer's systems. Often, these are managed by the company's key personnel, who have been reassigned to the outsourcer's payroll and receive a comparable benefits package. Because the outsourcing firm may provide a wide array of services to a broad base of clients worldwide, employees can even find new career opportunities with this type of outsourcing arrangement.

**Outsourcing Trends**

The trend toward outsourcing is not new in the information systems arena. Service bureau activity, in which in-house data centers are turned into remote job-entry operations to support such applications as payroll, claims processing, credit card invoicing, and mailing lists, has traditionally been associated with data center outsourcing. Under this arrangement, mainframes are owned and operated off site by the computer service company.

As applied to networks, however, the outsourcing trend is quite recent. An organization's LAN may be thought of as a computer system bus, providing an extension of the data center's resources to individual users' desktops. Through WAN facilities, data center resources may be extended further to remote locations. Given the increasing complexity of current data networks, it is not surprising that companies are seeking ways to offload management responsibility to those with more knowledge, experience, and hands-on expertise than they alone can afford.

In this context, outsourcing firms typically analyze the user's business objectives, assess current and future computing and networking needs, and determine performance parameters to support specific data transfer requirements. The resulting system design may incorporate equipment from alternative vendors as well as the exchange facilities of any carrier. Acting as the client's agent, the outsourcing firm coordinates the activities of equipment vendors and carriers to ensure efficient and timely installation and service.

In a typical outsourcing arrangement involving WAN facilities management, an integrated control center—located at the outsourcing firm's premises or that of its client—serves as a single point of service support at which technicians are available 24 hours a day, 365 days a year, to monitor network performance, contact the appropriate carrier, or dispatch field service as needed, perform network reconfigurations, and perform any necessary administrative chores.

**What to Outsource**

Networks are growing rapidly in size, complexity, and cost; technical experts are expensive and difficult to find and keep; new technologies and new vendors appear at an accelerating rate; and users clamor for more and better service while their bosses demand lower costs and increased work performance. Consequently, the question may no longer be whether to outsource but what to outsource.

The prevailing view among users is that outsourcing commodity-like operational functions, sometimes called tactical functions, is a low-risk proposition. It is possible to save both money and headaches by letting someone else pull wires, set up circuits, and
move equipment. Outsourcing mission-critical or strategic functions, however, involves more of a risk to the company. If the outsourcing firm performs these functions poorly, for whatever reason, the client company’s competitive position could become irreparably damaged.

One way for a company to take a partial step toward outsourcing is to outsource network management for the second and third shifts and weekends, while keeping control over the more critical prime time. As confidence in the vendor grows, more can be outsourced.

**Typical Outsourcing Services**
The specific activities performed by the outsourcing firm may include:

- Routine equipment moves, adds, and changes.
- Integration.
- Project management.
- Trouble ticket administration.
- Management of vendor-carrier relations.
- Maintenance, repair, and replacement.
- Disaster recovery.
- Long-term planning support.
- Training.
- Equipment leasing.

Each of these is discussed in detail in the following sections.

**Moves, Adds, and Changes**
Moves, adds, and changes constitute a daily process that can consume enormous corporate resources if handled by in-house staff. This process typically includes such activities as:

- Processing move, add, and change orders.
- Assigning due dates.
- Providing information required by technicians.
- Monitoring move, add, and change service requests, scheduling, and completions.
- Updating the directory data base.
- Handling such data base modifications as feature, port, and password assignments.
• Creating equipment orders upon direction.
• Maintaining order and receiving logs.
• Preparing monthly move, add, and change summary reports.

In assigning these activities to an outside firm, the company can realize cost savings in staff and overhead, without sacrificing efficiency and timely order processing.

**Integration**

Current information systems and communications networks consist of a number of different intelligent elements: host systems, LANs and servers, cable hubs, and WAN facilities, to name a few. The selection, installation, integration, and maintenance of these elements requires a broad range of expertise that is not usually found within a single organization. Many companies are therefore turning to outsourcing firms for integration services.

The integration function involves unifying disparate computer systems and transport facilities into a coherent, manageable utility, a major part of which is reconciling different physical connections and protocols. The outsourcing firm also ties in additional features and services offered through a public switched network. The objective is to provide compatibility and interoperability among different products and services so that they are transparent to the users.

**Project Management**

Project management entails the coordination of many discrete activities, starting with the development of a customized project plan based on the client's organizational needs. For each ongoing task, critical requirements are identified, lines of responsibility are drawn, and problem escalation procedures are defined.

Line and equipment ordering is also included in project management. Acting as the client's agent, the outsourcing firm negotiates with multiple suppliers and carriers to economically upgrade or expand the network without sacrificing predefined performance requirements. Before new systems are installed at client locations, the outsourcing firm performs site survey coordination and preparation, ensuring that all power requirements, air conditioning, ventilation, and fire protection systems are properly installed and in working order.

When an entire node must be added to the network or a new host must be brought into the data center, the outsourcing firm performs acceptance testing of all equipment before bringing it online, thus minimizing potential disruption to daily business operations. When new lines are ordered from various carriers, the outsourcing firm conducts the necessary performance testing before cutting them over to user traffic.

**Trouble Ticket Administration**

In assuming responsibility for daily network operations, a key service performed by the outsourcing firm is trouble ticket processing, which is typically automated. The sequence of events is as follows:

• An alarm indication is received at the network control center operated by the outsourcing firm.
The outsourcing firm uses various diagnostic tools to isolate and identify the cause of the problem.

Restoral mechanisms are initiated (manually or automatically) to bypass the affected equipment, network node, or transmission line until the faulty component can be brought back into service.

A trouble ticket is opened:

- If the problem is with hardware, a technician is dispatched to swap out the appropriate board.
- If the problem is with software, analysis may be performed remotely.

If the problem is with a particular line, the appropriate carrier is notified. The client's help desk is kept informed of the problem's status so that the help desk operator can assist local users. Before the trouble ticket is closed out, the repair is verified with an end-to-end test by the outsourcing firm. Upon successful end-to-end testing, the primary Customer Premises Equipment or facility is turned back over to user traffic and the trouble ticket is closed.

**Management of Vendor-Carrier Relations**

Another benefit of the outsourcing arrangement comes in the form of improved vendor-carrier relations. Instead of having to manage multiple relationships, the client needs to manage only one: the outsourcing firm. Dealing with only one firm has several advantages in that it:

- Improves the response time to trouble calls and alarms.
- Eliminates delays caused by fingerpointing between vendor and carrier.
- Expedites order processing.
- Reduces the amount of time spent in invoice reconciliation.
- Frees staff time for planning.
- Reduces the cost of network ownership.

**Maintenance, Repair, and Replacement**

Some outsourcing arrangements include maintenance, repair, and replacement services. Relying on the outsourcing firm for maintenance services minimizes a company's dependence on in-house personnel for specific knowledge about system design, troubleshooting procedures, and the proper use of test equipment. Not only does this arrangement eliminate the need for ongoing technical training, the company is also buffered from the effects of technical staff turnover, which is usually a persistent problem. Repair and replacement services can increase the availability of systems and networks while eliminating the cost of maintaining inventory.
Disaster Recovery

Disaster recovery includes numerous services that may be customized to ensure the maximum availability and performance of computer systems and data networks:

- Disaster impact assessment.
- Network recovery objectives.
- Evaluation of equipment redundancy and dial backup.
- Network inventory and design, including circuit allocation.
- Vital records recovery.
- Procedure for initiating the recovery process.
- Location of a hot site, if necessary.
- Installation responsibilities.
- Test run guidelines.
- Escalation procedures.
- Recommendations to prevent network loss.

Long-Term Planning Support

A qualified outsourcing firm can provide numerous services that can assist the client with strategic planning. Specifically, the outsourcing firm can assist the client in determining the impact of:

- Emerging services and products.
- Industry and tariff trends.
- International developments in technology and services.

With experience drawn from a broad customer base, as well as its daily interactions with hardware vendors and carriers, the outsourcing firm has much to contribute to clients in the way of assisting in strategic planning.

Training

Outsourcing firms can fulfill the varied training requirements of users, including:

- Basic communications concepts.
- Product-specific training.
- Resource management.
Help desk operator training.

The last type of training is particularly important because 80% of reported problems are applications oriented and can be solved without the outsourcing firm's involvement. This can speed up problem resolution and reduce the cost of outsourcing. For this to be effective, however, the help desk operator must know how to differentiate among applications problems, system problems, and network problems. Basic knowledge may be gained by training and improved with experience.

**Equipment Leasing**

Many times, an outsourcing arrangement will include equipment leasing. There are a number of financial reasons for including leasing in the outsourcing agreement, depending on the financial situation. Because costs are spread over a period of years, leasing can improve a company's cash position by freeing up capital for other uses. It also makes it easier to cost-justify technology acquisitions that would have been otherwise too expensive to purchase.

Leasing makes it possible to procure equipment that has not been planned or budgeted for. Leasing, rather than buying equipment, can also reduce balance sheet debt, because the lease or rental obligation is not reported as a liability. At the least, leasing represents an additional source of capital and preserves credit lines.

With new technology becoming available every 12 to 18 months, leasing can prevent the user from becoming saddled with obsolete equipment. This means that the potential for losses associated with replacing equipment that has not been fully depreciated can be minimized. With rapid advances in technology and consequent shortened product life cycles, it is becoming more difficult to sell used equipment. Leasing eliminates such problems.

**Outsourcing LAN Management**

As the size, complexity, and expense of local area network management get to be too big to handle, companies consider outsourcing the job. Certain routine LAN functions (e.g., moves, adds, and changes) are regularly outsourced. Such functions as planning, design, implementation, operation, management, and remedial maintenance are increasingly outsourced, and LAN operation and management are the services most needed by many current companies.

Providers of this type of service can be categorized into two groups with a third rapidly emerging. First, computer makers such as IBM, Digital Equipment Corp., Unisys Corp., and Hewlett-Packard Co. have introduced comprehensive LAN operation and management services packages. Second, management and systems integration firms (e.g., Electronic Data Systems Corp., Andersen Consulting, and Network Management, Inc.) have become less rigid in terms of the services they provide.

The strengths of the computer firms include a sound service and support infrastructure, knowledge of technology, and a diverse installed base. Their weaknesses include an orientation toward their own products and skills that are limited to certain technologies or platforms.

Systems integration and facilities management firms approach LAN outsourcing from the time sharing, data center, and mainframe environments. Their strengths include experience in data applications, familiarity with multivendor environments, and a professional service delivery infrastructure. Their weakness is that they often lack international networking capabilities, though this is changing.
The emerging category of outsourcing firms includes telecommunications companies, including interexchange carrier, regional Bell operating companies (RBOCs), and value-added network providers. Although AT&T has the service infrastructure to become a major player in LAN outsourcing, it must combine the support infrastructure of its telecommunications and computer divisions to ensure success in this area. Although US Sprint Communications Co. and MCI Communications Corp. have developed LAN connectivity and integration services, they have limited operation and management capabilities relative to AT&T.

Among the strengths of these firms is that they typically have a large service and support infrastructure, significant experience in physical cabling and communications, network integration expertise, and remote management capabilities. In addition, they have considerable investment capital available as well as strategic partnerships and alliances worldwide.

The Regional Bell operating company have strong regional service presence but limited data communications and applications experience. They are also limited by law to providing only a narrow range of services, limited domestically to operating within designated serving areas, and are subject to close state and federal regulation.

The strength of the value-added network providers is their ability to manage an internetwork of LANs as part of their packet network and frame relay services. Their chief weakness is that they do not have extensive service infrastructures and staff.

The custom nature of LAN outsourcing makes discussion of price difficult. Vendors change users per event, hour, or year for certain service elements; however, LAN outsourcing service packaging and pricing is still determined by the custom bid.

**Reasons for Outsourcing**

The reasons a company may want to outsource are varied. They include:

- Difficulty in using technical personnel efficiently.
- Insulating management from day-to-day system problems and decisions.
- Concern about buying expensive technology that could become obsolete shortly after purchase.
- Greater flexibility to deal with fast-changing worldwide markets.

Beyond these considerations, outsourcing arrangements may encompass several strategic objectives. First, to free capital tied up in buildings and equipment; second, to save money in absolute terms on an annual basis in the form of operating expenses; third, to move to more advanced information systems and network architectures; and fourth, to bring in—through the outsourcing firm—the necessary personnel and technical knowledge to consolidate operations that had not been available in-house.

Despite the many reasons to outsource, there are still many concerns associated with putting such critical resources in the hands of outsiders. Many of these concerns can be overcome with experience and knowledge of typical outsourcing arrangements.

Many corporate executives are concerned about giving up control when considering the move to outsource. However, control can increase when corporate management is better able to concentrate on issues that have potentially greater returns. Instead of consuming valuable resources in the nuts-and-bolts aspects of setting up an automated teller machine (ATM) network, for example, bank executives can focus on developing the
services customers will demand from such a network and devise test marketing strategies for potential new financial services.

A common complaint among corporate executives is that outsource firms do not know their companies’ business. In any outsourcing arrangement, however, users continue to run their own applications as before; the service provider just keeps the data center or network running smoothly. In addition, outsourcing firms typically hire at least some members of the client staff who would have been let go upon the decision to outsource and who are familiar with the business.

Companies that are considering outsourcing should examine their current information system and network activities in competitive terms. Activities that are performed about the same way by everyone within a particular industry can be more safely farmed out than those that are unique or based on company-specific skills. Most important, the company must take precautions to remain in a position to recommend and champion strategic systems and new technologies, which may involve high initial payout and possible cross-functional applications.

As the company opts for external solutions, standards that were internally developed do not suddenly lose their relevance. Oversight of standards that address hardware, communications, and software should remain an internal responsibility to ensure compatibility of information systems and networks across the entire corporation.

**In-House Commitment to Outsourcing**

Outsourcing can increase service quality and decrease costs, but management control cannot just be handed over to a third party. The fact that work has been contracted out does not mean that company staff can or should stop thinking about it. Typically, there is still a significant amount of supervisory overhead that consumes resources.

Someone within the company must ensure that contractual obligations are met, that the outsourcing firm is acting in the company's best interests, and that problems are not being covered up. Just as important, considerable effort is usually required to establish and maintain a trusting relationship. To oversee such a relationship requires staff who are highly skilled in interpersonal communications and negotiation and who are knowledgeable about business and finance.

**The Decision to Outsource**

Strategic, business-oriented issues play a significant role in the decision to outsource. It is essential that potential users take stock of their operations before making this decision. Arriving at the correct solution requires an examination of the company’s unique characteristics, including its human resources and technological infrastructure.

For example, it is advisable to compare the costs of in-house operations with the services that will be performed by the outside firm. This entails performing an audit of internal computing and networking operations to determine all current and planned costs for hardware, software, services, and overhead. These costs should cover a minimum of three years and a maximum of seven years and should include specifics on major expenses that may be incurred within that time frame. This establishes a baseline figure from which to evaluate more effectively the bids of potential outsourcing firms and monitor performance after the contract is signed.

A detailed description of the operating environment should be prepared, starting with computer and network resources. This description should include:
• Hardware configuration.
• Direct-access storage device requirements.
• Backup media and devices.
• Systems software.
• Applications software.
• Communications facilities and services.
• Locations of spare bandwidth and redundant subsystems.
• Restoral methods.
• Applications at remote locations.
• Critical processing periods.
• Peak traffic loads.

The next step is to identify potential outsourcing firms. These vendors can then be invited to visit corporate locations to view the various internal operations, thereby obtaining an opportunity to understand the company’s requirements so that these can properly be addressed in a formal proposal.

A company that turns to outsourcing to alleviate problems in managing information systems or networks should realize that transferring management to a third party may not turn out to be the hoped-for panacea. Although outsourcing represents an opportunity for companies to lower costs and enhance core business activities, before such an arrangement is considered, it should be determined how well internal staff, vendors, consultants, and contract programmers are managed. If there are difficulties in this area already, chances are that the situation will not improve under an outsourcing arrangement. In this case, perhaps some changes in staff responsibilities or organizational structure are warranted.

**Vendor Evaluation Criteria**

Most vendors are flexible and will negotiate contract issues. Each outsourcing arrangement is different and requires essentially a custom contract. It is important to identify all the issues that should be written into the contract. This can be a long list, depending on the particular situation. The following criteria, however, should be included in any rating scheme applied to outsourcing firms:

• Financial strength and stability over a long period of time.
• Demonstrated ability to manage domestic and multinational computer systems and data networks.
• Number of employees, their skills, and their years of experience.
• Ability to tailor computer and network management tools.
History of implementing the most advanced technology.

An outstanding business reputation.

Fair employee transfer policies and benefits packages.

The weights of these criteria should be set by the company in keeping with its unique short- and long-term requirements.

Software suppliers may impose inhibitive transfer fees on licensed software if an outsourcing vendor takes over internal operations. This is often a hidden and potentially costly surprise. The common assumption among software users is that they can just move software around as they please. For the most part, software firms do not allow third parties to provide use to customers without a new license or significant transfer fees. They see this as necessary to safeguard their intellectual property rights. Outsourcing firms hit by these fees must pass them on to their clients if they expect to continue in the outsourcing business. If these fees are sizable, it could sway the decision on whether to outsource.

Requirements of the Outsourcing Firm

The outsourcing firm should be required to submit a detailed plan—with time frames—describing the transition of management responsibilities. Although time frames can and often do change, setting them gives the company a better idea of how well the outsourcing firm understands the company's unique requirements.

Performance guarantees that mirror current internal performance commitments should be agreed upon—along with appropriate financial penalties for substandard performance. The requirements should not exceed what is currently provided, unless that performance is insufficient, in which case the company should review its motives for outsourcing in the first place.

Satisfactory contractual performance guarantees for network operations can be developed if sufficient information on current performance exists. It is more difficult to develop such guarantees in the applications development arena, and this is why some companies avoid outsourcing this function.

A detailed plan for migrating management responsibilities back to the company at a future date should also be required. Despite the widely held belief that outsourcing is a one-way street, proper planning and management of the outsourcing firm can keep open the option of bringing the management function back into the corporate mainstream. Despite this option, the company may decide that, after the 5 or 10 years of the contract are up, the outsourcing arrangement should be made permanent.

Structuring the Relationship

Companies that outsource face a number of critical decisions about how to structure the relationship. Entering into a long-term partnership with the outsourcing firm can be risky without proper safeguards. As previously noted, poor performance on the part of the service provider could jeopardize the client company's competitive position.

It must be determined at the outset which party will respond to computer system and network failures, and the degree to which each party is responsible for restoral. This includes spelling out what measures the outside firm must take to ensure the security and integrity of the data, financial penalties for inadequate performance, and what amount of insurance must be maintained to provide adequate protection against losses.
The outsourcing relationship must make explicit provisions for maintaining the integrity of critical business operations and the confidentiality of proprietary information. The firm must ensure that the outside firm will not compromise any aspect of the relationship.

The typical outsourcing contract covers a lengthy period of time—perhaps 5 to 10 years. Outsourcing firms justify this by citing their need to spread the initial costs of consolidating the client's data processing or network operations over a long period of time. This also allows them to offer clients reasonable rates.

The relationship must provide for the possibility that the client's needs will grow substantially. The outsourcing firm's ability to meet changing needs (e.g., from the addition of a new division or the acquisition of a small company) should be evaluated and covered under the existing contract.

Companies entering outsourcing relationships must also establish what rights they have to bring some or all of the management responsibilities back in-house without terminating the contract or paying an exorbitant penalty. However, this should not be done lightly, because it can take a long time to hire appropriate staff and bring them up to an acceptable level of performance.

To avoid getting locked into the outsourcing arrangement, organizations should stay away from sharing data centers, networks, and applications software and from relying on customized software, applications, and networks. It can be difficult for a company to extricate itself from outsourcing arrangements when its operations are tightly woven into those of other companies operating under similar arrangements. The contract should be structured so that it can be put up for bidding by other parties.

Contracts should provide an escape clause that allows the user to migrate operations to an alternative service provider should the original firm fail to meet performance objectives or other contract stipulations. Because it is difficult to rebuild in-house systems or network staff from scratch, it is imperative that users do not outsource anything that cannot be immediately taken over by another firm. In fact, having another firm on standby should be an essential element of the company's disaster recovery plan.

Conclusion

The pressures for third-party outsourcing are considerable and on the increase. Requirements to service large amounts of debt have made every corporate department the target of close budgetary scrutiny, the corporate network and data center included. In addition, competition from around the world is forcing businesses to scale back the ranks of middle management and streamline operations. Outsourcing allows businesses to meet these objectives.

Although outsourcing promises bottom-line benefits, deciding whether such an arrangement makes sense is a difficult process that requires considerable analysis of a range of factors. In addition to calculating the baseline cost of managing the in-house information system and data network and determining their strategic value, the decision to outsource often hinges on the company's business direction, the state of its current data center and network architecture, the internal political situation, and the company's readiness to deal with the culture shock that inevitably occurs when two firms must work closely together on a daily basis.

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