Client Information Systems

Agency Support Applications

Analysis & Recommendations

Authored by:

Thomas J. Kadela

Note:

Published on the Web with permission of the Author. As with all Web documents, this is copyrighted information and reproduction in total or in part is unlawful without the expressed permission of the author.

This paper has been de-identified.

• The “Agency” is the social service agency that this analysis was conducted for. I have included basic agency demographic and programmatic data for your use as a guideline only.

• The name of the national software company that developed the agency’s previous client information system has also been de-identified.

Enjoy
Option Three - Explore Using an Application Service Provider

What is an ASP? ......................................................................................................................... 21
Does the Option of an ASP meet the Agency’s needs? .............................................................. 21
Advantages Using an ASP ........................................................................................................... 23
Disadvantages of Using An ASP .................................................................................................. 23
Specific Hardware, Software, Networking, Development & Maintenance Costs .................. 24
How Using an ASP Builds on the Agency’s Identified Strengths ............................................... 24

How to proceed ............................................................................................................................. 25

Option One.................................................................................................................................. 25

Option Two or Three .................................................................................................................... 26

Decision to Use an ASP ................................................................................................................ 26
  Data Centers and Operations ...................................................................................................... 26
  Service Level Agreement .......................................................................................................... 28
  Software and Hardware ............................................................................................................ 28
  Cost/Pricing .............................................................................................................................. 28

Conclusion .................................................................................................................................... 30

Conclusion Notes .......................................................................................................................... 30

Appendix – Problem Indicators in Developing & Implementing Applications ......................... 31

Inadequate Overall Planning ....................................................................................................... 31
Inadequate Communication, Involvement, and User Preparation ............................................. 31
Lack of Top-Level Commitment and Involvement .................................................................... 31
Inability to Determine the Cost Benefit of an Application .......................................................... 32
Inability to Support the Practitioner-Client Interaction .............................................................. 32
Rapid Changes in IT .................................................................................................................... 32
Difficulty in Obtaining Unbiased Information .......................................................................... 33
Inadequate Documentation ......................................................................................................... 33

Appendix – APS Glossary ............................................................................................................ 34

Appendix – Request for Proposal .............................................................................................. 39

Introduction .................................................................................................................................. 39
Information about the RFT and how it will be used ................................................................. 39
Requirements of the application to be developed ..................................................................... 39
Contract conditions to be met ...................................................................................................... 39
Attachments to the RFP or vendor use ...................................................................................... 40

References .................................................................................................................................... 41
Support Application Solution Paper

Executive Summary

Summary of Problem

The “Agency” has been in operation since 1992 and is the largest, private, child placing agency in the state of Texas. It includes four state foster care programs in the state of Texas, The “Agency” Center for HIV and AIDS, and The “Agency” Retreat Center and Ropes Course. The “Agency” also operates programs in the state of Maryland with one foster care program, two Jr. High and High Schools, and a residential center in Maryland. It has an estimated annual operating budget of fifteen million dollars and has about 200 staff.

Currently, the “Agency” has 11 programs with only 9 programs entering client data into individual Microsoft Access databases. The other 2 programs do not enter data into a computerized database at all. Because each database is unique to the specific program and location, aggregation of data is not available. Additionally, the Accounting and Human Resources departments are not tied to any of the Microsoft Access databases and must keep separate computerized records of their own.

Direct Care staff that work from home have no way to enter, or access client data unless they come to the physical office. Program managers have no way to automate client data or service delivery and Administration has no way to track outcome measures or aggregate data.

External stakeholders have no way to access the “Agency’s” data unless the agency gives it to them in paper format. Therefore, the need for a comprehensive information technology analysis was indicated.

Introduction

The current population of children in out-of-home care is estimated at more than 500,000 (Tatara, 1998) and nationally, an estimated 144,000 child victims were placed into foster care. An estimated additional 33,000 children who were not victims but placed in either protective supervision or for a time during an investigation were placed also in the care and supervision of child welfare agencies (U.S. Department of Health and Human Services, 2000).

Nationally, of these estimated half-million children in out of home care more than 360,000 are foster children (Barden, 1991). Records indicate that from 1980 to 1995 the number of children living in
out-of-home care increased 59.9%, from approximately 302,000 to approximately 483,000 (Curtis, 1999; American Public Welfare Administration, 1997).

The almost half of a million children living in out-of-home care reside in four basic types of alternative care: (1) family or non-relative foster care, (2) kinship or relative foster care, (3) therapeutic foster care, and (4) residential or congregate group care.

Therapeutic foster care is also referred to as treatment foster care or specialized foster care. In some jurisdictions, terms such as therapeutic as opposed to treatment foster have special meanings, but there is much overlap in meaning from place to place. Family foster care typically includes 24-hour supervision by non-relative laypersons in private homes that are licensed or approved and then monitored by either private or public child welfare agencies. Although many foster parents are recruited as potential adoptive parents, most children are placed temporarily (Curtis, 1999).

The Child Welfare League of America reports that out of a total of approximately 483,000 children in out-of-home care at the end of 1995, 49% were living in family foster care, 23% in kinship care, 15% in residential group care, 1.7% in therapeutic foster care, and 11.3% in other facilities such as emergency shelters and psychiatric hospitals (Curtis, 1999; Petit and Curtis, 1997). This national increase is also reflected locally in the state of Texas. 1996 data indicates that more than 11,700 children were in care representing a 29% increase since 1991 when there were only 8,302 children in care (Barbell, 1996).

The almost 2% of children placed in therapeutic foster care, otherwise known as specialized or treatment foster care present a range of behavioral, social, developmental and emotional problems, the nature of which makes it difficult for the regular foster care system to effectively meet their needs (Rosen, 1998). Data from almost 20 years show that a large percentage of these children are minorities that come from family systems that are impoverished or homeless, single parent households, and have families that abuse alcohol and/or drugs (Curtis 1999; Fein, 1991).

In Texas, therapeutic foster care is not provided by the state child welfare agency, but outsourced to a variety of private agencies that recruit, train, and monitor foster parents with specialized training to care for children who have been identified as requiring therapeutic foster care services. Additionally, these private agencies employee professional staff to provide clinical case management and therapy services to the children in care as well as to the foster families.

Coordination of communication between the agency’s direct care staff, management, and administration with the state’s child welfare workers and supervisors, state and federal finance departments, local and state judicial systems, and agency funding sources require a client information and data collection system that can be aggregated state-wide while also allowing for individual analysis of unique divisions, and client demographics.

This paper will examine one such private agency’s needs and offer suggestions for implementation of a comprehensive way to track client data, ensure communication between departments, and produce outcome measurements for a variety of stakeholders.

The “Agency” is historically the largest, private Child Placing Agency in the state of Texas. Additional programs in multiple states include the “Agency” Center for HIV & AIDS, the “Agency” Retreat Center & Ropes Course, and the “Agency” Educational Centers, the “Agency” Diagnostic Center, and the “Agency” Outreach Center with corporate headquarters located in Porter, Texas.

This author has worked with the “Agency” to analyze the current information environment and has held numerous meetings and interviewed members of all levels of hierarchy to establish data for the analysis and solution presentations. Based on the findings outlined herein, this document will
offer specific information technology solutions and recommendations for the “Agency’s” review with primary emphasis on the therapeutic foster care program component. However, such recommendations have also taken into consideration the breadth of service delivery offered and have factored in limitless growth opportunity for all programs.
Support Application Solution Paper

Information Technology Analysis

This section will give a definition of the problem, offer an analysis of the current information technology systems, and identify major stakeholders information needs, communication practices, and begin to identify future needs for the agency.

Definition of the Problem

The “Agency” currently operates five therapeutic foster care programs in different cities in two states, Texas and Maryland with Corporate Headquarters located in a sixth city in Texas. Additionally, the “Agency” operates The “Agency” Center for HIV and AIDS, and the “Agency” Retreat Center in Texas and two “Agency” Project Education Centers for the Special Education districts as well as The “Agency” Diagnostic Center, a residential diagnostic and assessment center for children in Maryland.

The “Agency” has an estimated annual operating budget of fifteen million dollars. This large agency has multiple divisions including client direct care, facility operations, accounting and finance, fund development, human resources, and marketing & communications.

In meetings held with departments of the “Agency” it is noted that there is a lack of data coordination between programs and divisions causing an inability to quickly aggregate or analyze multiple program data including finances. Staff participating in these discussions have stated that this lack of coordination has caused communication errors between the “Agency” programs, stakeholders, and funding entities as well as a complicated and repetitive collection process for outcome measures and reporting.

This paper presents the “Agency” assessment to see what specific gaps exist in the current system of client data. An overall goal was to see what barriers are leading to a lack of comprehensive client information access and analysis that incorporates all programs and divisions within the agency.

Agency Communication

An agency steering committee has been formed with representatives from management, information technology (MIS), and staff from each division program. Additionally, each division
program has established a sub-committee to identify specific desires for increased efficiency of the client data.

Resources

As with most non-profit human services agencies, monetary resources are limited. However, the “Agency” has a great deal of resource strength in other areas. The following is an overview of the “Agency’s” system and environmental resources including financial and personnel as well as limitations of each.

Overview of the IT Systems & Environment Resources

The agency currently uses both a local area network (LAN) within each physical location and connects between all locations via a wide area network (WAN) for email and Internet access. The backbone for each location’s connections consist of either a T-1 or DSL connection for improved speed and the main server has an adequately sized pipe for multiple user communication. The “Agency” has a large number of computers at each location compared to other human services agencies and most computers operate at a Pentium level. Members of management and administration all have their own computers. However, direct care staff is required to share computers (and many times offices) to complete work assignments.

Currently, staff in each location enter data into a non-networked, program/location specific Microsoft Access database as well as keep a paper copy of all data. Staff have been using these databases for several years and are comfortable with system navigation as well as the ability to query and execute a variety of canned and customized reports.

Overview of Financial Resources

The “Agency” currently has a Chief Financial Officer, four accountants, and bookkeepers. Four of the five staff office out of the corporate office in Texas, and one offices out of a personal home office in Texas. These five people are responsible for all financial matters for both Texas and Maryland operations.

The “Agency” recently spent approximately $120,000 on a computerized client information system that was never implemented due to massive problems with the software company that developed the application. Due to this, there are limited financial resources available for new products or development. The “old” Microsoft Access based system of data collection and program communication was being concurrently utilized and has now been reestablished as the primary client data and communication system.

The large majority of revenue is obtained from contracts with the states of Texas and Maryland. Grants, private donations, and corporate sponsorship make up the rest of the agency’s operations budget. The “Agency” has been in operation since 1992 and has no agency foundation or trust to offset operating costs.

Furthermore, due to the increased number of agencies participating in the therapeutic service delivery of foster children in the state of Texas, that program’s overall agencies daily census has been lower than in recent past, which has impacted overall operating revenue.
Overview of the IT Personnel Resources

Although the “Agency” has a limited MIS staff, there is a good deal of talent and functional expertise within the organization. It is reported by several people that most staff feel comfortable working with their computers; however, in order to verify this it is recommended that the “Agency” have all staff complete a self-administered survey to determine their level of comfort with computer use. Also of note, one member of administration has served in the role of Database Administrator for the clinical component of the previous computerized client information system and has some functional experience working with SQL systems and window design for Microsoft Windows based applications.

The “Agency” has a large operating budget with locations in multiple states, however the MIS staff consists of only one person, who, at times, uses per diem contract help. Also, due to complications with the communication infrastructure in the small town where the Corporate Office resides, the agency’s servers were moved to one of the larger physical locations in Dallas and are remotely administered by the MIS Director from her home. This arrangement can be seen as a potential weakness to the successful implementation and maintenance of any information system.

Furthermore, due to a previous implementation failure of a computerized client information system, there is a fear of any new computerized client information system by the staff. The “Agency” had piloted two of its Texas’ offices on a previous system with disastrous results. In job satisfaction focus groups and paper surveys the direct care staff from all offices have expressed open resistance and fear to any future computerized client information system implementation.

Definition of the Stakeholders

The “Agency” believes that every entity and person that comes in contact with the service delivery system is a stakeholder. Therefore, stakeholders are defined as direct care (including foster and adoptive parents), management, and administration, clients, and funding sources such as public child welfare agencies and the Maryland City and County School districts, as well as credentialing and regulatory bodies.

Clients

Clients consist of those persons who receive services from the “Agency”.

During this project, interviews with clients revealed that they want to be able to “tell their story” only once. If new staff are assigned to work the client, the staff member should be able to access the client’s information from the agency without the client having to “re-hash” their social history, treatment offered/delivered previously, and presenting problem.

Direct Care

Direct Care staff consists of those staff involved in the daily care of the clients. It may include staff such as Case Managers, Therapists, Program Assistants, Residential Child Care Worker, and Teachers. Potentially the foster or adoptive parents can be viewed as direct care staff as well.

During this project, communication with the direct care staff in the form of interviews and surveys revealed that they want to increase productivity of paperwork by reducing repetitive tasks, allow for remote access from home to complete progress notes, incident reports etc., and to allow for better communication between treatment team members. In addition, several direct care staff members,
as well as foster and adoptive parents, work directly from their homes. These staff will need to be able to incorporate those team members since they are not connected to the LAN.

**Management**

Management primarily consists of supervisory staff of the direct care workers. This may include staff such as Clinical Directors, Shift Supervisors, Assistant Principals or Cottage Managers.

During this project, communication with members of management in the form of interviews and surveys revealed that they would like to increase accountability of workers by having an automated tracking and reporting system for job tasks, and for monitoring the quality of the staff's work product. In addition, the management wants to be able to monitor and track a client from initial referral to discharge.

**Administration**

The Administration primarily consists of senior and junior members of the agency team. Senior administration consists of the Board of Directors, President/CEO, Vice-Presidents and Chief Finance Officer. Junior members of administration consist of Program Directors, and Principals.

During this project, communication with the administration revealed that they want to have a single system for all programs and locations in order to query individual data, aggregate multiple data from differential programs, and be able to produce agency wide reporting capabilities for a variety of regulatory commissions and credentialing bodies as well as for funding sources. Additionally, there is a hope that at the very least this system will also be able to integrate with the current accounting software in use, or, most preferable, that this system will have a financial component that will allow for seamless data streams between a data management system and the general ledger, accounts payable, and accounts receivable.

**Credentialing and Regulatory Bodies**

Credentialing and Regulatory Bodies consist of external entities that monitor, financially support, and accredit the services of the “Agency”. These bodies may include both state and federal entities, national and international organizations such as the Council on Accreditation (COA), and monetary foundations.

During this project, interviews and/or a review of literature provided by credentialing and regulatory bodies revealed a need to assess the type, scope, quantity, and quality of services in a measurable format for both program and financial data. In addition, client demographics based on populations served, denied, or referred was also required.

**External Environment**

The external environment consists of the Texas Department of Protective and Regulatory Services-Child Protective Services Division, Maryland School Districts, and Maryland Department of Children and Family Services.

During this project, communication with members of the external environment revealed that they feel it would be beneficial to access real time data on clients that are shared between the “Agency” and themselves directly from the “Agency” database. This would lead to fewer copies of paperwork, mail cost and time, and oversight.
Current Information Needs

Systems theory suggests that the solution to a systems problem is influenced by the system’s environment. There is a hope that there be an ideal overlap between information needed for policy, management, and direct care whereas both qualitative and quantitative data can be amassed by all parties. As mentioned earlier, an information technology steering committee has been established and programmatic sub-groups have been meeting to help with the development process. Much of the information presented below has root in those sub-groups.

Direct Care Information Needs Defined

From the initial client referral, the direct care staff will need to enter in client demographics, times and dates of contacts, and basic referral information. The client will then either be admitted to or rejected from the program with data entry to explain rationales in both cases.

If a client is admitted, additional demographic and historical information is gathered and a unit or specific program assignment is made. Tracking of appointments such as medical, dental, psychiatric and psychological must be continuously tracked throughout the client’s admission.

In addition to demographic and historical data, ongoing data such as treatment plans, progress notes, incidents, and educational progress need to be tracked. Direct care staff will also need outcome data to aide in clinical care.

Management Information Needs Defined

Management too, is interested in the same data as the direct care staff, however, for different reasons. Management needs to be able to track the frequency of certain job tasks such as home-visits, phone contacts, therapy sessions, or that academic grades have been posted. Management is also not only interested that the data is in the system, but that the quality of the data is good. For example, a manager might want to know that a child with a diagnosis of Attention Deficit/Hyperactivity Disorder has treatment plan goals that correlate; or perhaps the Vice-Principal would like to know how many of her total students have a reading disorder so that she can adequately staff a special classroom.

Management has stated that they would like to be able to make case assignments via a computerized communication system, give feedback directly on the electronic version of the chart, or be able run queries that group clients with assigned staff to aide in designing staffing patterns. Management will also want to be able to examine both qualitative and quantitative data in the client’s record to ensure accuracy, accountability, and frequency. Outcome data will be needed to evaluate staff performance and to give clinical guidance to direct care staff as needed.

Administration Information Needs Defined

True too, is that a member of administration could want to examine any of the above data for similar reasons, however administration has unique need for a variety of data. Administration is going to be most concerned with the ability to aggregate both real time and historical data by client variable, program component, unit assignment, and by total agency.

For example, Fund Development staff will need to be able to pull a variety of demographic and outcome data to meet the demands of grants and foundation requests while the Communications Department will need to access similar data for public relations and marketing strategies.
The Finance Department will need to be able to gather client demographics needed for billing a variety of entities; such data might include the cost center or unit assignment of the client, admission date, days of care, level of care, and discharge date as well as responsible party for payment.

The CEO/President will need to access data for presentation to the Board of Directors and for forecasting future trends based on both current and historical patterns in the data.

**Credentialing and Regulatory Bodies Information Needs Defined**

Credentialing & Regulatory Bodies currently request data such as treatment outcomes, cost-ratio analysis and cost-benefit analysis. There are some entities that would perform a “paperless” audit if available by reading the client’s file electronically. There are other entities that require that we submit data on a Microsoft Excel spreadsheet to be analyzed specifically for our programs, but also aggregated with other human service data for meta-analysis. Lastly, some entities require face-to-face interviews with clients and service providers, as well as review the client’s chart.

**External Environment**

Members of the external environment currently require a variety of data from client demographics, treatment or educational progress and goals, to financial data such as days of care or billable services provided. In addition, many constituents from the external environment also serve as members of the treatment team and real time access would benefit client services by making communication more seamless.
Identified Needs

During the analysis, the “Agency” has identified multiple needs of the stakeholders. The following is a descending listing of needs based on priority order that incorporates all stakeholders’ desires (number 1 is the most desired, followed by number 2 etc.).

1. Low cost, comprehensive client database that will allow for individual programs and locations to enter, retrieve, and analyze client demographic and treatment data with the ability to have all programs data aggregated by the corporate office.

2. Ability for the remote home office direct-care staff to enter client data into the assigned program/location database.

3. Increased communication by having the ability for management to track the client data from intake to discharge to ensure staff accountability and appropriate client care.

4. Increased communication by having the ability for treatment team members to have access to needed client data and treatment outcomes.

5. Ability to have client data used for outcome measurement and to aid in service delivery and grant/foundation applications.

1. Ability for client demographic and treatment data to be merged with client financial data (accounts payable, accounts receivable, general ledger, etc.) for a seamless data loop.

2. Reduction of paper documentation and computerized audit capability.

3. Ability to reduce the fear of MIS by front line staff.

Identified Technology/Information Strengths

During the analysis, the “Agency” has identified multiple strengths of the current technology and information systems. The following is a descending listing of strengths based on priority order (number 1 is the most desired, followed by number 2 etc.).
1. Each program has paper documentation on clients that is comprehensive and well received by multiple accreditation and monitoring entities.

2. The “Agency” has a well-established computerized accounting system that currently meets the basic accounting needs in all areas.

3. The “Agency” has a comprehensive, three tier, quality-assurance program for client records.

4. Each program/location of the “Agency” currently has its individual basic client demographic data entered into a Microsoft Access database.

5. The “Agency” has a large number of Pentium based processor computers in every office with both local area networks (LAN) and wide area networks (WAN).

6. The “Agency” has multiple servers for all the agency programs across all states providing services including a SQL server, Internet server, and an Exchange (email) server.

1. The majority of all professional employees have a working knowledge of how to use Windows based applications.
Support Application Solution Paper

Options Overview

It was evident in the analysis that the “Agency” needs some way to capture not only basic client demographics but also clinical and/or educational outcomes to aid in grant writing and foundation requests in addition to accrediting and regulatory bodies. Additionally, there is reported a lack of communication between direct care program staff and management/administration and external stakeholders. Therefore, an agency of this size and scope needs a more advanced system to track client data. There are three main options for the “Agency” to choose from; (1) attempt to continue using the previous software applications, (2) purchase another stand-alone client information system software package, or (3) allow a Application Service Provider to implement, manage, and maintain the data and CIS environment.

There is one other option that might be explored in detail at a later date, but is not included in this paper. A Multi-Agency, Community Based ASP to provide system access and data collection for a variety of different and separate agencies using one main database. However, a review of companies providing this type of service showed that the application is very basic and very new. Multi-agency access providers, to this date, do not yet have the advanced client information tracking capabilities that the “Agency” needs.

Each option has both strengths and weaknesses and is offered below for consideration.
Support Application Solution Paper

Option One - Attempt to Revive the Current Stand-Alone SQL, Client Information System

Upon discussion with the “Agency”, it was generally felt that no matter how “good” the current applications may be, there is a distrust of software developer as a whole. Poor customer service has been identified and technical help has been inadequate. The “Agency” has met with two members of software development company’s administration to determine if the system was going to meet the needs after the initial implementation failure and to see if software developer was willing to work aggressively to solve the “Agency’s” IT problems with the purchased applications. It is reported that at the conclusion of the meeting an agreement was reached between both parties.

However, the “Agency” reports that telephone calls are not being returned, and that software management company has not followed through with the promises made in the meeting. Therefore, the “Agency” is hesitant to continue pursuing any working relationship with software company.

However, with over $120,000 invested in hardware, software, and staff resources for the current management system, an analysis to forecast of costs & benefits is recommended for the application continuation. This system may or may not ultimately meet the needs for the agency but a systematic approach to making that determination is warranted. The software company is submitting a new proposal to aid the “Agency” in a successful implementation with their products.

Does this option meet the Agency’s needs?

1. Low cost, comprehensive client database that will allow for individual programs and locations to enter, retrieve, and analyze client demographic and treatment data with the ability to have all programs data aggregated by the corporate office.

NO. At this point cost is a considerable factor. To date $120,000 has been spent for a system that is still not working. The software company has informed the “Agency” that an SQL upgrade is now needed for the new software platform to function. In addition, the original technical support service agreement has expired and the software company wants the “Agency” to purchase another one. In addition, due to the stand-alone application platforms, additional MIS staff are required. This is an additional annual salary cost to the agency.
In addition, setting up multiple locations for access was difficult and common work components such as printer file sharing was difficult to maintain. Almost daily support was needed from either a member of the MIS staff or from an office employee who had specialized training in using the client information system. Reports had a “canned” look and customization required a person with MIS expertise.

Lastly, all application upgrades required a member MIS staff to install, delete, or edit software. The software application alone also required a good deal of customization if multiple programs were entered; for example, foster care program and then a school program.

2. Ability for the remote home office direct-care staff to enter client data into the assigned program/location database.

TENTATIVE. At this point we were able to get one staff member remote access from home. However the process required a great deal of time and training the user had to access the software’s server via a Virtual Private Network (VPN) to tap into the Terminal Server Client (TSC) and to then tap into the client information server. Connection time was adequate, but somewhat slow. It is anticipated that Foster/Adoptive Parents would not be able to go on-line due to the installation of special software and training required to use and access the client information server.

3. Increased communication by having the ability for management to track the client data from intake to discharge to ensure staff accountability and appropriate client care.

TENTATIVE. The system appears to have the capability to do this. However, at this point reports generated from the client information system have been of little use to members of management. Reports are “canned” and do not meet the identified needs of management. Customization of reports is time consuming and requires specialized training on behalf of a member of the MIS staff.

4. Increased communication by having the ability for treatment team members to have access to needed client data and treatment outcomes.

NO. At this point, the “canned” treatment plan does not meet the “Agency’s” accreditation and licensing requirements. Therefore, it is not being utilized. Treatment team members do not report any communications benefit from the use of the current applications.

5. Ability to have client data used for outcome measurement and to aid in service delivery; ability to aid in grant & foundation applications.

TENTATIVE. At this time the “Agency” has not been able to pull reports off of the system due to the need for intense customization. Therefore, the “Agency” has not been able to do this.

6. Ability for client demographic and treatment data to be merged with client financial data (accounts payable, accounts receivable, general ledger, etc.) for a seamless data loop.

TENTATIVE. The “Agency” purchased all of the client information financial software applications however they have not brought any on-line. The software company has been unable to show the “Agency” how financial data could be integrated.

7. Reduction of paper documentation and computerized audit capability.

NO. The use of this system has not reduced the amount of paper documentation and there is no way the system can be used at this point for computerized audit capability.
Advantages of Reviving the Stand-Alone SQL Client Information System

Staff has been trained on the software and currently all hardware and software needed for basic implementation is available.

Disadvantages of Reviving the Stand-Alone SQL Client Information System

There is little trust between the “Agency” and the software company to deliver a quality product with helpful technical support. In addition, employee listening sessions revealed that most staff did not have a favorable opinion of the application software and stated that it was effecting their overall job satisfaction negatively. Reintroducing the system will lead to a decrease in employee morale.

Specific Hardware, Software, Networking, Development & Maintenance Costs

A purchase and upgrade to SQL 7.0 is required for the new application platform to work. In addition it is now time to renew the technical support maintenance agreement. Remote staff will need to install TSC and VPN on their home computers and training in such programs will need to occur. The current MIS staff is unable to complete their current MIS duties as well as maintain the client information system software; therefore an expansion of the MIS staff will need to occur.

How continuing to use the stand-alone SQL system builds on the Agency’s Identified Strengths

1. Each program has paper documentation on clients that is comprehensive and well received by multiple accreditations and monitoring entities thus, customization of the software would be based on a data system in place that is currently respected by both internal and external stakeholders.

2. The “Agency” has a well-established computerized accounting system that currently meets the basic accounting needs in all areas. This accounting system could be integrated with the software company’s accounting package for a seamless service and financial delivery system.

3. The “Agency” has a comprehensive, three tier, quality-assurance program for client records that could be incorporated into a computerized environment; limiting the need for travel to other offices and helping to ensure the standard of quality currently set.

4. Each program/location of the “Agency” currently has its individual basic client demographic data entered into a Microsoft Access database. Therefore, there is at a minimum, one staff member in each location who is familiar with the concept of data entry into a Windows based, form field environment.

5. The “Agency” has a large number of Pentium based processor computers in every office with both local area networks (LAN) and wide area networks (WAN). These computers have been loaded with all relevant client information software and are ready to be interfaced with the main SQL server.
6. The “Agency” has multiple servers for all the agency programs across all states providing services including a SQL server, Internet server, and an Exchange (email) server. Currently the SQL server still has all of the client information application software and client data on it.

7. The majority of all professional employees have a working knowledge of how to use Windows based applications. Therefore, training can be conducted in each office with moderate speed.

---

Support Application Solution Paper

Option Two - Explore Purchase of another Stand Alone Client Information Application

If the “Agency” feels that the current implementation failure was due primarily to the application software being designed poorly by the software company, thus causing a system failure then a realistic option is to explore other stand-alone client information applications on the market.

To aid in this analysis, an overview of some common problems that arise in developing or implementing any application is listed in Appendix - Problem Indicators in Developing & Implementing Applications.

It is strongly recommended that the “Agency’s” IT Steering Committee review this list to identify if the implementation failure was due partly or in whole because of the “Agency”, or if the application programming and support was the main issue. If the “Agency” is determined to not have been the primary catalyst in the implementation failure of client information failure, then another internal, stand-alone application might be a viable option. If, however, the “Agency” is determined to have been the primary catalyst, then any other application implementation will fail until all issues are addressed appropriately.

It was discovered in this analysis that the “Agency” caused many of, however, by not means most, of the problems with this implementation failure. The “Agency” did not complete feasibility and preparedness studies, a systems analysis, nor develop a conceptual design of what they wanted in a client information system.
Therefore, the option of purchasing another stand-alone client information system is a mirror image to the current system. Problems that were outlined in Option One have the same relevance in Option Two. Please reference Option One’s documentation to supplement the sections below.

**Does this option meet the Agency’s needs?**

There are other stand-alone client information systems on the market that purport the ability to meet the agency’s identified needs.

**Advantages of purchasing another stand alone client information Application**

The “Agency” currently has the hardware purchased and available for immediate use and has gained some “expertise” in customization and implementation from the previous implementation attempt. This formal training offered by previous software company and the informal “on-the-job” training might coincide with a new stand-alone application package.

**Disadvantages of Purchasing Another Stand Alone Client Information Application**

As with all stand-alone software applications, an initial upfront cost is required since the agency must purchase the software and any customization needed. In addition, there is usually an associated “maintenance agreement” for technical support that is recommended. Also, since the agency will “own” the application, MIS staff will need to be dedicated to the maintenance of the system; this is another overhead cost to the agency.

The agency will need to be prepared to budget appropriately and spend the money needed for a turnkey solution either in-house or via the CIS company. At this time it is reported that The Agency does not have the funds available for another system similar to the previous one. Therefore, delay in obtaining a system will occur until funds are available.

**Specific Hardware, Software, Networking, Development & Maintenance Costs**

Generally, most stand-alone client information systems require similar components to the previous applications. The most needed information is the platform that the CIS operates on (Windows NT, 98, or Unix, etc.), and what type of database it uses (SQL, Access, etc).

**How Purchasing Another Stand-Alone Application Builds on the Agency’s Identified Strengths**

In essence, this is a mirror image of the strengths associated with the previous system.
Support Application Solution Paper

Option Three - Explore Using an Application Service Provider

What is an ASP?

An Application Service Provider (ASP) is an independent, third party service bureau that delivers information to customers across a wide-area network, typically the Internet. Unlike a traditional client/server software vendor, an ASP typically installs and hosts applications exclusively within its own data center. Customers lease the ability to use the application over a network, rather than pay an up-front fee to own the software and install it on their internal networks. The lease fees are typically structured as a monthly subscription to the ASP.

To aid in the understanding of key terms with the ASP technology, please reference APPENDIX – APS GLOSSARY.

Does the Option of an ASP meet the Agency’s needs?

1. **Low cost, comprehensive client database that will allow for individual programs and locations to enter, retrieve, and analyze client demographic and treatment data with the ability to have all programs data aggregated by the corporate office.**

**YES.** For many human service-related agencies, software systems have required large initial capital expenses and ongoing support costs that have made them unattainable. However, through an ASP, the provider manages all the servers, development, security, and support, so there is no local need for IT personnel. This makes an ASP an effective yet affordable software solution that can be leased on a monthly basis over the Internet (One Care Place, 2000).

These benefits add up to a significant cost savings directly affecting your business’s bottom line. Requiring no new equipment, no support, no training, and minimal startup costs, Application Service Providers are delivering a new paradigm in software and service - all at a lower cost than traditional software while also allowing you to control more precisely the total cost of technology ownership through scheduled payment schemes. And with data processing performed off-site by a third party, organizations can focus on their areas of core expertise (CC Kids, 2000).
1. **Ability for the remote home office with direct-care staff to enter client data into the assigned program and or location database.**

2. **Increased communication by having the ability for management to track the client data from intake to discharge to ensure staff accountability and appropriate client care.**

3. **Increased communication by having the ability for treatment team members to have access to needed client data and treatment outcomes.**

**YES.** Using the Internet means that geographic limitations once present are completely irrelevant. You can login to your service from any Internet connected computer anywhere. Do your work from home or in a hotel - even at 3 in the morning. This results in efficiencies never before achieved in workflow processes and time management (CC Kids, 2000).

Specifically, the ASP facilitates the ability for “peer-to-peer” interagency communications. The ASP becomes the central repository for critical information related to case management. Rather than having “islands” of data residing among dozens of different, disparate systems, providers from different agencies can now collect and analyze data within one central, consistent data source. This would even allow for treatment team members in the community such as community therapists or foster and adoptive parents to access the client’s data. This is an important consideration for large and medium-sized organizations that have multiple subsidiaries or affiliates (One Care Place, 2000).

4. **Ability to have client data used for outcome measurement and to aid in service delivery; ability to aid in grant & foundation applications.**

**YES.** Since the underlying framework of an ASP application is a database, generating reports, aggregating data, and compiling client specific information is no different than if you were using a stand-alone database. All ASP applications that I reviewed had both “canned” reports as well as the ability for the agency to customize reports.

5. **Ability for client demographic and treatment data to be merged with client financial data (accounts payable, accounts receivable, general ledger, etc.) for a seamless data loop.**

**TENTATIVE.** There are some ASP applications that have “add-on” components for financial data. All ASP providers I spoke with either have or in the process of developing a financial package that allows for import/export of data or has direct data entry access for analysis.

6. **Reduction of paper documentation and computerized audit capability.**

**YES.** Because an ASP uses the Internet, not only could internal agency staff such as management and administration from different offices audit files, local, state, and federal government, bodies of accreditation, licensing entities, and foundations could have access given to them to audit records.

For the “Agency” this could reduce the need not only for paper copies of charts, but also for travel expenses related to the current Quality Assurance program in place.
Advantages Using an ASP

Since the ASP already has the equipment, applications, and expertise ready to provide rapid access to the stakeholders, there is little implementation needed by the agency. Because the agency would be outsourcing the application management, the agency can focus its critical resources on the core business functions, thus allowing for operational freedom. And the ASP can apply their vast experience to implement best IT practices for superior levels of availability, security, backup, disaster recovery, and help desk (shadowing) without having to have agency MIS staff dedicated to the project. In addition, an ASP model reduces fixed costs and lowers overall expenditures for hardware, applications and management. Lastly, the agency has reduced risk since no capital expenditure on software, hardware, or IT personnel. This allows for the agency to "test" a new technology with minimal impact to their existing environment and bottom line (ASP Industry Consortium, 2000).

Since the agency is fairly large with some employees needing to use the applications from home, and with the some external environmental stakeholders wanting to access real time data, an ASP arrangement saves time and money, and simplifies ongoing system reliability and support. An ASP delivers and manages applications and computer services—generally on a rental basis—from remote data centers to multiple users via the Internet or a private network. With the help of an ASP, small and mid-sized organizations can deploy enterprise applications that without an ASP would involve massive investments in software, deployment time and IT personnel. These businesses can then benefit from the efficiencies of integrated, enterprise applications that were previously not cost-effective to develop and use (ASP Industry Consortium, 2000).

Lastly, since cost is a major factor in this decision it should be noted that some studies have indicated that by leasing an application from an ASP, customers save between 33% and 53% over purchasing and managing the hardware and software for the application themselves (ASP Industry Consortium, 2000).

Disadvantages of Using An ASP

One of the biggest disadvantages of using an ASP is the feeling that your data are not really at the agency since in fact it is being stored remotely. This is a valid point. If the agency chooses to use an ASP, specific outlines regarding data collection, backup, and ownership need to be established. Additionally, since ASP is considered a newer technology, an ASP company might not be ready to handle the volume of clients, or keep the infrastructure of the server environment maintained.

Another disadvantage to consider when using an ASP regards client confidentiality. When data is “carried” through the Internet, security issues surface. The ASP provider must be able to address these security issues to the agency’s satisfaction with regard to data transmission and physical location.

Yet another disadvantage is that while the low “subscription” cost of an ASP may seem very attractive to agencies, long-term analysis should be conducted. Using an ASP is similar to renting an apartment – every month you pay; yet you never own it.

Lastly, the use of an ASP does not necessarily negate the need for some form of MIS staff on site. Key discussions regarding the MIS personnel resources needed must be part of the initial discussion. **While an ASP reduces 50% of the costs initially, the other 50% for training and set up**
is going to be there and needs to be budgeted. Some agencies think that an ASP will not require this 50% cost.

Specific Hardware, Software, Networking, Development & Maintenance Costs

As noted earlier, the ASP already has the equipment, applications and expertise ready to provide rapid access. The agency would be responsible for meeting the minimum requirements for the ASP application. A review of several ASP providers reveled that most agencies will need, at a minimum, a Pentium level computer, with access to the internet, a browsing software such as Microsoft Internet Explorer or Netscape, and about 16 MG of RAM.

Currently all of the “Agency’s” computers meet these minimum requirements.

How Using an ASP Builds on the Agency’s Identified Strengths

1. Each program has paper documentation on clients that is comprehensive and well received by multiple accreditations and monitoring entities thus, customization of any ASP would be based on a data system in place that is currently respected by both internal and external stakeholders.

2. The “Agency” has a well-established computerized accounting system that currently meets the basic accounting needs in all areas. If possible, this accounting system could be integrated (or replaced) with an ASP application for a seamless service and financial delivery system. If the ASP application could not integrate or replace the current accounting system, at a minimum, the Financial Department of the “Agency” could pull client and billing data from the ASP server to aid with accounts payable and receivable.

3. The “Agency” has a comprehensive, three tier, quality-assurance program for client records that could be incorporated into a computerized environment; eliminating the need for travel to other offices and helping to ensure the standard of quality currently set.

4. Each program/location of the “Agency” currently has its individual basic client demographic data entered into a Microsoft Access database. Therefore, there is at a minimum, one staff member in each location who is familiar with the concept of data entry into a Windows based, form field environment.

5. The “Agency” has a large number of Pentium based processor computers in every office with both local area networks (LAN) and wide area networks (WAN). The “Agency” has its own web server and every computer has Internet and email access installed and ready for use.

6. The “Agency” has multiple servers for all the agency programs across all states providing services including a SQL server, Internet server, and an Exchange (email) server. The “Agency” servers, and each location, are linked with T-1 communications technology with expansion ability easily available.

7. All professional employees have a working knowledge of how to use Windows based applications. Therefore, training to use the ASP environment can be conducted in each office with moderate speed and ease.
Section 8

Support Application Solution Paper

How to proceed

The “Agency” should explore all three options presented in this paper. Again, the first step for the “Agency” is to determine why the previous implementation failed. Upon completion of this analysis the “Agency” will be able to make a more informed and educated decision on how to proceed.

Option One

If the first option is chosen, the “Agency” will need to continue to resolve issues with the previous software developer until there is a committed, working agreement between both parties.

In addition, since there is such negativity regarding the previous software applications among staff, it is important to gain their input regarding the continued use of it, and, more specifically, what would need to occur for the to staff feel comfortable using it again.

Second, the agency MIS department is not adequately staffed should the use of the previous system or any other internal, stand-alone application system is used in the desired manner. Previously, one MIS employee and one member of management were working routinely on the project for the last two years, and for over five months, the member of management’s job was dedicated to the CIS implementation and management. Even with this allocation of staff resources, the system could still not be launched effectively.

Also of note, even with this intensive staff resource dedication, it is estimated that only 10% of the previous application’s software was being utilized. Therefore, a long-range operation plan for the MIS department, specifically for CIS application support, will need to be established.

Third, certain stakeholders will be excluded from accessing the previous system, specifically the foster and adoptive parents who chart in the child’s record and members of the external environment. A review of the current system and potential integration will need to take place to make sure that both internal and external members of the environment have both input into the systems as well as a way to get needs met.
Option Two or Three

First, the decision to purchase another stand-alone application or to partner with an ASP needs to be determined. If basic functionality for stakeholders is similar between the two options, the agency should then explore more advanced features such as remote accessibility and data reporting and analysis capabilities, as well as the desired needs of members from the external environment.

Regardless if Option One or Two is chosen, it is recommended that the “Agency” submit a request for proposals (RFP) to a variety of companies that specialize in client information system software. For a guideline on the RFP content, please refer to the Appendix – Request for Proposals.

Second, after the review of the Request for Proposals submitted, the agency should interview companies they are interested in. This interview should include one demonstration of the software in its basic shell framework (canned application), and an example of a customized system, perhaps in use at another agency. The company should give a listing of its customer base (within the same service environment) and allow the “Agency” to contact any of the current customers to determine level of satisfaction.

Decision to Use an ASP

In order to help the “Agency” determine what ASP company to explore partnering with, the following background questions should be asked (ASP Industry Consortium, 2000):

1. How long have you been operating as an ASP?
2. Did you operate in another area of the technology industry before becoming an ASP? Why did you decide to become an ASP?
3. What types of technology or business partnerships have your formed, if any?
4. What is the technology experience and expertise of your senior management team? What is the team’s business experience?
5. Are you a global provider? Can you support our applications in multiple languages?
6. What does your installed base look like (number of customers, extent of provided applications, duration of contracts, etc.)?

If the decision to use an ASP is made, the “Agency” should ask interested companies several questions based on recommendations from the ASP Industry Consortium (2000).

Data Centers and Operations

ASPs typically host applications at an off-site data center. It’s important to understand the degree to which you will have control over your data, as well as to assess issues such as data security. Consider asking the following questions:

1. Will the ASP allow us to import our key business data into the hosted application(s), so that we will have access to it from the moment we begin working with you?
2. How many data centers do you operate and which partners do you use?
3. Once our data is at your data center, do we still “own” it? What rights do we have to move or copy it?

4. How secure is your data center? What measures are in place to prevent your employees from viewing data they are not authorized to see, or to prevent outsiders from hacking into the system?

5. What happens in the event of a disaster that deletes or destroys data? Are there measures to protect against loss? Is data backed up regularly?
Service Level Agreement

A service level agreement (SLA) is a contract that commits an ASP to a specified level and/or quality of service. Here are some basic questions to ask an ASP about its SLA. It is recommended that the “Agency” read additional information about SLAs at the ASP Industry Consortium, 2000.

Does the SLA include:

1. a specified level of customer support?
2. provisions for system and data security?
3. a guaranteed level of system performance, such as sub-second response time?
4. continuous system availability – 24 hours a day, seven days a week?
5. Is your SLA a one-size-fits-all document, or are there different service tiers – such as gold, silver, or bronze – that will allow us to tailor the SLA to our needs?
6. If you fail to deliver on any service point converted in the SLA, do we have a designated contact person who can address the issue?
7. What kinds of enforcement provisions are in place in the event that you do not deliver on the SLA? Will we receive a refund? Can we terminate the relationship and choose another ASP without penalty?

Software and Hardware

1. When evaluating an ASP, make sure you understand its software and hardware capabilities. These questions will help you obtain information you need to know:
2. Will you support any applications we choose?
3. Do you have staff expertise in the applications you provide, or do you obtain this experience from an external source?
4. Do you have experience installing, managing, and supporting the application we are considering? Are you certified to do so? Does the software vendor offer certification?
5. Will we need to purchase additional software or hardware?
6. Will you integrate the application you provide with other software that you do not manage, such as our Access database or MIP for Windows?

Cost/Pricing

1. Since reduced IT costs should be a primary benefit of working with an ASP, make sure you understand all cost-related issues before signing a contract. Here are some questions to ask:
2. What is our total cost of having you host and deliver our applications?
3. Do you have information that compares the costs and benefits of the applications(s) we are considering when utilized through both ASP and non-ASP delivery models?

4. Do we have the option of either renting or buying software licenses and/or hardware?

5. Will we own the software and/or hardware at the end of the contract? Is this an option?
Support Application Solution Paper

Conclusion

Conclusion Notes

1. As stated previously, a review of why the previous system experienced an implementation failure should be conducted. The “Agency” is not alone, research shows that a high percentage of application systems experience implementation failure (Schoech, 2000). The key is learning why the failure occurred and turning that failure into success the next time.

2. Since the implementation failure of the previous client information system, after determining the cause, the next main issue to face will be again gaining the support of the stakeholders. Open and honest dialogue, along with participation from every level of stakeholders is imperative for any application system to work.

3. No matter what system is ultimately chosen, training should be given to major stakeholders on the theory of change management to help guide them in working with all stakeholders. As Schoech, (2000), writes “The impact of change can be minimized if users are well informed, if they are involved in the process, and if the change is gradual and aligned with user values. Being able to visualize the end result also helps reduce resistance”.

4. It is also recommended that the client information system be pilot tested in perhaps one program or one location prior to a full “roll-out”. This will aid in reducing the number of user errors when training the system to other agency systems and help provide a seamless IT environment.

5. Lastly, no matter what IT process is implemented it will be important to systematically review the performance of the application. This system can incorporate a post-implementation audit, periodic monitoring, and an IT audit. For more information on this concept it is recommended that the “Agency” consult Schoech (2000).
Support Application Solution Paper

Appendix – Problem Indicators in Developing & Implementing Applications

Inadequate Overall Planning
- Lack of long-range IT goals and objectives or an IT strategic plan
- Lack of a specific application and implementation plans
- Over-reliance on nonintegrated applications
- Outgrowing the agency IT applications in one to two years

Inadequate Communication, Involvement, and User Preparation
- Lack of well-established communication channels
- Missing a well-functioning, representative steering committee
- An active rumor mill exists about the IT application
- Isolation of developers and designers from users
- Fear that information collected will be misused
- Lack of training for all potential users
- Thinking the IT development process will be easy
- Developers think the applications are great, but users hate them

Lack of Top-Level Commitment and Involvement
- IT function housed in financial department rather than in a separate high-level department
No management control over application developers
Top management unwilling to make tough IT decisions
Unstable funding and lack of needed resources
Lack of quality personnel to develop and manage the application
Blaming IT for management problems
Budgeting for hardware, software, and communications, but not for training and implementation
Over-infatuation with IT while ignoring use of application outputs
Power politics played by withholding access to IT information
IT not integrated in agency policies and procedures, e.g. use not part of performance evaluation criteria

**Inability to Determine the Cost Benefit of an Application**
Lack of rules of thumb on when to use IT
Lack of model to determine IT cost-benefit
Lack of national norms on IT expenditures
Lack of definitions of IT success

**Inability to Support the Practitioner-Client Interaction**
Inadequate measures of client outcome and “good practice”
Little consistency in terms and in the content of clinical records
Social work practice not seen as information based
Practitioners supply information, yet rarely receive useful outputs

**Rapid Changes in IT**
Hardware and communications will be less expensive if one waits
Lack of hardware or software standards
Frequent acquisitions, mergers, and bankruptcies of IT companies
Frequent job changes among IT personnel
Difficulty in Obtaining Unbiased Information

- Abundance of testimonials, lack of research
- Research is outdated before it is disseminated
- Most reliable information comes from vendors
- Professional associations offer little guidance

Inadequate Documentation

- Lack of written information on the design, use, repair, etc., of IT
- Postponing organizational changes because no one knows how to change the IT involved
- Inability to function when the “system” crashes
- Panic when the application developer or programmer quits

*Taken from Schoech, 2000*
Appendix – APS Glossary

Application Logic - The computational aspects of an application, including a list of instructions that tells a software application how to operate.

Application Service Provider (ASP) - An ASP deploys, hosts and manages access to a packaged application to multiple parties from a centrally managed facility. The applications are delivered over networks on a subscription basis. This delivery model speeds implementation, minimizes the expenses and risks incurred across the application life cycle, and overcomes the chronic shortage of qualified technical personnel available in-house.

Application Maintenance Outsourcing Provider - These providers manage a proprietary or packaged application from either the customer's or the provider's site.

ATM - An information transfer standard for routing high-speed, high-bandwidth traffic such as real-time voice and video, as well as general data bits.

Availability - The portion of time that a system can be used for productive work, expressed as a percentage.

Backbone - A centralized high-speed network that interconnects smaller, independent networks.

Bandwidth - The number of bits of information that can move through a communications medium in a given amount of time; the capacity of a telecommunications circuit/network to carry voice, data, and video information. Typically measured in Kbps and Mbps. Bandwidth from public networks is typically available to business and residential end-users in increments from 56Kbps to T-3.

Bit Error Rate - The number of transmitted bits expected to be corrupted when two computers have been communicating for a given length of time.

Burst Information Rate - The Burst Information Rate (BIR) is the speed or rate of information that the customer may need over and above the CIR. A burst is typically a short duration transmission that can relieve momentary congestion in the LAN or provide additional throughput for interactive data applications.

Business-Critical Applications - The vital software needed to run a business, whether custom-written or commercially packaged, such as accounting/finance, ERP, manufacturing, human resources and sales databases.

Competitive Access Provider (CAP) - A telecommunications company that provides an alternative to a LEC for local transport and special access telecommunications services.

Capacity - the ability for a network to provide sufficient transmitting capabilities among its available transmission media, and respond to customer demand for communications transport, especially at peak times.

Client/Device - Hardware that retrieves information from a server.

Clustering - Group of independent systems working together as a single system. Clustering technology allows groups of servers to access a single disk array containing applications and data.

CSU/DSU - Channel Server Unit/Digital Server Unit. A device used to terminate telephone company equipment and prepare data for router interface.

Data mart - A subset of a data warehouse, for use by a single department or function.
Data warehouse - A database containing copious amounts of information, organized to aid decision-making in an organization. Data warehouses receive batch updates, and are configured for fast online queries to produce succinct summaries of data.

Dedicated Line - A point-to-point, hard wire connection between two service locations.

Demarcation Line - The point at which the local operating company’s responsibility for the local loop ends. Beyond the demarcation point (also known as the network interface), the customer is responsible for installing and maintaining all equipment and wiring.

Discard Eligibility (DE) Bit - The bit that is relevant in situations of high congestion, and indicates that the frame should be discarded in preference to other frames without the DE bit set. The DE may be set by the network or by the user; and once set can never be reset by the network.

DS-1 or T-1 - A data communication circuit capable of transmitting data at 1.5Mbps. Currently in widespread use by medium and large businesses for video, voice, and data applications.

DS-3 or T-3 - A data communications circuit capable of transmitting data at 45Mbps. The equivalent data capacity of 28 T-1’s. Currently used only by businesses/institutions and carriers for high-end applications.

Electronic Data Interchange (EDI) - The electronic communication of the business transactions (orders, confirmations, invoices etc.) of organizations with differing platforms. Third parties provide EDI services that enable the connection of organizations with incompatible equipment.

Enterprise Relationship Management (ERM) - Solutions that enable the enterprise to share comprehensive, up-to-date customer, product, competitor and market information; for the end goals of long-term customer satisfaction, increased revenues, and higher profitability.

Enterprise Resource Planning (ERP) - An information system or process integrating all manufacturing and related applications for an entire enterprise. ERP systems permit organizations to manage resources across the enterprise and completely integrate manufacturing systems.

Ethernet - A local area network used to connect computers, printers, workstations, and other devices within the same building. Ethernet operates over twisted wire and coaxial cable.

Extended Superframe Format - A T1 format that provides a method for easily retrieving diagnostics information.

Fat Client - A computer that includes an operating system, RAM, ROM, a powerful processor and a wide range of installed applications that can execute either on the desktop or on the server to which it is connected. Fat clients can operate in a Server-based Computing environment or in a stand-alone fashion.

Fault Tolerance - A design method that incorporates redundant system elements to ensure continued systems operation in the event of the failure of any individual element.

FDDI - Fiber Distributed Data Interface. A standard for transmitting data on optical-fiber cables at a rate of about 100 Mbps.

Frame - The basic logical unit in which bit-oriented data is transmitted. The frame consists of the data bits surrounded by a flag at each end that indicates the beginning and end of the frame. A primary rate can be thought of as an endless sequence of frames.

Frame Relay - A high-speed packet switching protocol popular in networks, including WANs, LANs, and LAN-to-LAN connections across vast distances.

Gbps - Gigabits per second, a measurement of data transmission speed expressed in billions of bits per second.
Hosted Outsourcing - Complete outsourcing of a company’s information technology applications and associated hardware systems to an ASP.

Integrated Services Digital Network (ISDN) - An information transfer standard for transmitting digital voice and data over telephone lines at speeds up to 128Kbps.

Inter-exchange Carrier (IXC) - A telecommunications company that provides telecommunication services between local exchanges on an interstate or intrastate basis.

Internet Service Provider (ISP) - Company that provides access for users and businesses to the Internet.

Independent Software Vendor (ISV) - generally a firm that develops software applications that is not a part of a computer systems manufacturer.

Internetworking - Sharing data and resources from one network to another.

Kilobits Per Second (Kbps) - A data transmission rate of 1,000 bits per second.

Leased Line - A telecommunications line dedicated to a particular customer along predetermined routers.

Local Access Transport Area (LATA) - One of approximately 164 geographical areas within which local operating companies connect all local calls and route all long-distance calls to the customer's inter-exchange carrier.

Local Exchange Carrier (LEC) - A telecommunications company that provides telecommunication services in a defined geographic area.

Local Loop - The wires that connect an individual subscriber’s telephone or data connection to the telephone company central office or other local terminating point.

Megabits Per Second (Mbps) - A transmission rate where one megabit equals 1,024 kilobits.

MetaFrame - The world’s first Server-based Computing software for Microsoft Windows NT 4.0 Server, Terminal Server Edition multi-user software (co-developed by Citrix).

Modem - A device for converting digital (data) signals to analog and vice versa, for data transmission over an analog telephone line.

Multiplexing - The combining of multiple data channels onto a single transmission medium. Sharing a circuit - normally dedicated to a single user - between multiple users.

Multi-User - The ability for multiple concurrent users to log on and run applications from a single server.

Network Access Point (NAP) - A location where ISP's exchange each other's traffic.

Network Computer (NC) - A "thin" client hardware device that executes applications locally by downloading them from the network. NCs adhere to a specification jointly developed by Sun, IBM, Oracle, Apple and Netscape. They typically run Java applets within a Java browser, or Java applications within the Java Virtual Machine.

Network Computing Architecture - A computing architecture in which components are dynamically downloaded from the network onto the client device for execution by the client. The Java programming language is at the core of network computing.

Online Analytical Processing (OLAP) - Software that enables decision support via rapid queries to large databases that store corporate data in multidimensional hierarchies and views.
Outsourcing - The transfer of components or large segments of an organization’s internal IT infrastructure, staff, processes or applications to an external resource such as an Application Service Provider.

Packaged Software Application - A computer program developed for sale to consumers or businesses, generally designed to appeal to more than a single customer. While some tailoring of the program may be possible, it is not intended to be custom designed for each user or organization.

Packet - A bundle of data organized for transmission, containing control information (destination, length, origin, etc.) the data itself and error detection and correction bits.

Packet Switching - A network in which messages are transmitted as packets over any available route rather than as sequential messages over switched or dedicated facilities.

Peering - The commercial practice under which nationwide ISPs exchange each other's traffic without the payment of settlement charges.

Performance - A major factor in determining the overall productivity of a system, performance is primarily tied to availability, throughput and response time.

Permanent Virtual Circuit (PVC) - A PVC is what connects the customer's port connections, nodes, locations, and branches to each other. All customer ports can be connected to each other, resembling a mesh, but PVCs usually run between the host and branch locations.

Point of Presence (POP) - A telecommunications facility through which the company provides local connectivity to its customers.

Remote Access - The hookup of a remote computing device via communications lines such as ordinary phone lines or wide area networks to access distant network applications and information.

Remote Presentation Services Protocol - A set of rules and procedures for exchanging data between computers on a network, enabling the user interface, keystrokes, and mouse movements to be transferred between a server and client.

Reseller/VAR - An intermediary between software and hardware producers and end users. Resellers frequently "add value" (thus Value-Added Reseller) by performing consulting, system integration and product enhancement.

Router - A communications device between networks that determines the best path between them for optimal performance. Routers are used in complex networks of networks such as enterprise-wide networks and the Internet.

Scalability - The ability to expand the number of users or increase the capabilities of a computing solution users without making major changes to the systems or application software.

Server - The computer on a local area network that often acts as a data and application repository and that controls an application's access to workstations, printers and other parts of the network.

Server-based Computing - A server-based approach to delivering business-critical applications to end-user devices, whereby an application's logic executes on the server and only the user interface is transmitted across a network to the client. Its benefits include single-point management, universal application access, bandwidth-independent performance, and improved security for business applications.

Single-Point Control - One of the benefits of the ASP model, single-point control helps reduce the total cost of application ownership by enabling widely used applications and data to be deployed, managed and supported at one location. Single-point control enables application installations, updates and additions to be made once, on the server, which are then instantly available to users anywhere.
**Thin Client** - A low-cost computing device that accesses applications and and/or data from a central server over a network. Categories of thin clients include Windows-Based Terminals (WBT, which comprise the largest segment), X-Terminals, and Network Computers (NC).

**Total Cost of Ownership (TCO)** - Model that helps IT professionals understand and manage the budgeted (direct) and unbudgeted (indirect) costs incurred for acquiring, maintaining and using an application or a computing system. TCO normally includes training, upgrades, and administration as well as the purchase price. Lowering TCO through single-point control is a key benefit of server-based computing.

**Total Security Architecture (TSA)** - A comprehensive, end-to-end architecture that protects the network.

**Transmission Control Protocol/Internet Protocol (TCP/IP)** - A suite of network protocols that allow computers with different architectures and operating system software to communicate with other computers on the Internet.

**User Interface** - The part of an application that the end user sees on the screen and works with to operate the application, such as menus, forms and “buttons.”

**Virtual Private Network (VPN)** - A secure, encrypted private Internet connection.

**Web Hosting** - Placing a consumer's or organization's Web page of Web site on a server that can be accessed via the Internet.

**Wide Area Network** - Local area networks linked together across a large geographic area.

**Windows-Based Terminal** - Thin clients with the lowest cost of ownership, as there are no local applications running on the device. Standards are based on Microsoft's WBT specification developed in conjunction with Wyse Technology, NCD, and other thin client companies.

Taken from [http://www.allaboutasp.org/glossary.cfm](http://www.allaboutasp.org/glossary.cfm)
Appendix – Request for Proposal

Introduction
General information
Overview of the agency
Goals and objectives of the application

Information about the RFT and how it will be used
Desired format of any submitted proposal
Submission criteria, e.g., date of acceptance, maximum cost
Vendor identification information required, e.g., evidence of experience, stability, and insurance, along with a list of previous similar customers
Selection criteria and procedures

Requirements of the application to be developed
Features desired
Data/information/knowledge that the application should contain
Processing that should occur on the data/information/knowledge
Input forms, working screens and menus, and output reports desired
Performance standards, e.g., processing speed, networking standards
Compatibility with existing applications
Training, documentation, maintenance, and support requirements
Anticipated and maximum expected application growth/change

Contract conditions to be met
Source code availability
Delivery and installation deadlines
Tests that will determine whether application is acceptable
Ownership conditions or conditions of use and enhancements
Payment terms and timetables

Warranties

Support services and special modifications

**Attachments to the RFP or vendor use**

- Descriptions, goals, objectives, specifications of existing applications
- Description of present hardware, software, and networking
- Forms, reports, and fields of existing databases

*Taken from Schoech, 2000*
Support Application Solution Paper

References


