FOURTEENTH ANNUAL NORTHEAST SURETY AND FIDELITY CLAIMS CONFERENCE

SEPTEMBER 18-19, 2003

SURETY, TECHNOLOGY, AND INTELLECTUAL PROPERTY

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Introduction

Technology has invaded nearly every aspect of our lives. In particular, computers and the Internet have come to play a major role. It comes then as no surprise that bonds are being written for projects where a majority of the value of the bonded project is in intellectual property such as computer software, computer programs and/or automated processes.

This writing is a brief overview of some of the intellectual properties that can be found in a high technology project. Emphasis is placed on computers and computer systems and their attendant programs, and, how the related intellectual properties can impact bond claims. This writing is presented from the viewpoint of the engineer. The finer points of law will be left to those with expertise in that field.

Several examples from the writer's experience are set out as brief case studies.

Intellectual Property in a High Technology Project

A typical high technology or computer-based project may include many types of computer programs, and/or process. These programs or processes are potentially subject to various state, federal, and international laws and rules governing intellectual property, including laws which provide for **patents**, **trade secrets**, **copyrights**, and **trademarks**. There are also criminal laws dealing with the misuse of, or interference with the use of, intellectual property. Computer programs or processes may also be subject to contractual obligations such as licenses, nondisclosure agreements, or noncompete agreements.

> The uniqueness of many computers and related programs often allows that only a particular solution can be used in a particular project. This uniqueness can creates a defacto 'sole source' situation.
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> The use, reuse, or recreation of these intellectual properties to complete a project can be vital. At the same time, identifying and complying with the various legal obligations, can be a nightmare.

Computers are everywhere.

> The various computers in a high tech project may be obvious, or they may not be so easily identifiable. Computers, including microcomputers, can take many forms and can be as small as the one in your cell phone or Palm Pilot. They can be as hard to find as the ones in your automobile. They can be as obvious as your laptop or desktop computer.
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> Computer programs are necessary for the proper operation of each computer, as computers do not operate by themselves. Each of the various computers in a high technology project requires one or more computer programs to operate. Each of these

programs might be intellectual property. For the typical computer, these computer programs are collectively called the operating system. Examples of operating systems are Windows XP, Unix, Linux, and OS2. Each of these operating systems is licensed for use by its respective owner. Even the use of the 'free' operating system, Linux, is still governed by a license.

Operating systems can contain massive numbers of individual programs. A modern laptop computer, with the Windows XP operating system, will include thousands of programs.

Application programs are required before the computer can 'do anything' usefully. Word, Wordperfect, Internet Explorer, and Lotus123 are all examples of application packages. There can be one or several hundred programs in any one application package. All of these programs are covered by licenses. Even 'free' application packages, such as Staroffice, are covered by licenses.

Web pages can be intellectual property. Many web designers include a copyright statement in every web page they generate.

Trademarks can appear on your computer's video display at any time. The Microsoft 'Window' appears almost every time you boot a computer using the Microsoft Windows operating system.

Individual screen views or graphical user interfaces (GUIs) may be intellectual property. Programmers can add a copyright statement to each screen view. One major online Internet sales company has a patent on how you purchase their product with the 'push' of a 'button' (click of a mouse) on your computer screen.

Parts of programs may be the intellectual property of owners other than the author. Code segments can be patented. Modern computer programs often contain numerous 'code segments' that may be intellectual property.

What Intellectual Property Might a Typical Claim Include?

Ownership of the system design or architecture.

The overall design of a unique computer system may be considered the intellectual property of its designer. This is similar to the architectural design of a building being considered the intellectual property of its designer. Does the Principal own the design, or is he just licensing the use of it.

Ownership of computers or computer firmware

Computer hardware by its nature requires computer software or programs to be useful. Even tiny computers which might be included as part of another piece of equipment will have some potential intellectual property. Computers embedded in other pieces of equipment still require computer programs. These programs are often stored on

computer chips and installed directly in the equipment.

License for computer operating systems or operating system software

Computer hardware or systems which are purchased from a well-known vendor such as Dell or HP will likely come with a licensed operating system. The operating system is usually pre installed on the computer's hard disk drive but may also be supplied on disks. If so, the computers come complete with licenses and the costs are included in the purchase price.

The same operating system requirements exist if the Principal builds and supplies his own computers. Licenses still may be necessary for each computer's operating system. The Principal will have to purchase the licenses separately for each instance of a computer with an installed operating system. Proof of the license should remain with the computer system.

'Canned' or commercial computer application programs

Most commercial computer application packages are licensed to the end user. Each instance of use of a commercial package requires a license. Again, computers purchased from a major manufacturer will typically provide the licenses and include the cost in the purchase price.

Custom computer programs

High technology projects often include the creation of unique computer programs for a specific purpose. It can be difficult to determine who owns the rights to such programs.

The Principal's own employees may have written the programs. The employment contract may determine who owns the rights, the employer or the employee.

The Principal may have used subcontractors to write his software. The Principal then can license the use of the custom programs from his subcontractor or the subcontractor can transfer the ownership of the programs to the Principal. The details are in the subcontract.

The Principal, or his subcontractors, may have used other licensed 'helper' programs to aid in his programming effort. If so, the resulting programs may require licenses from the owners of the helper programs to use the software.

The presence of an operating system or other computer programs on a hard disk drive or other media does not imply a license for use.

What Factors Should The Surety Give Special Attention If It Receives a Claim Involving Intellectual Property in a High Technology Project? (What Can Go Wrong?)

The age of the project - Is the project more than a few years old?

Computer hardware and software technology advances rapidly. Computer hardware and/or programs (software) can become obsolete or unavailable.

Delays or extensions during the course of the bonded project or subsequent to the termination of the Principal may also obsolete the software programs. The necessary programs may not be available to complete the project.

Licenses or support for delivered software programs may have expired.

Changes in Federal, State, or local requirements may require performance or features beyond the capability of the delivered computer hardware or programs.

Did the Principal or a subcontractor use third party licensed software or programs?

Unintentionally or intentionally, the Principal may not have purchased the licenses to create and/or deliver the contracted project. Many software packages require a different license to author programs (a developer's license) than to run them (a run-time license.) Calls to the owner of the software may go unanswered or participation by an 'authorized representative' may be required.

There are numerous counterfeit copies of most major computer programs. Even the largest companies are sometimes fooled.

Is the Principal or a subcontractor out of business?

This can result in the loss of access to the source code of the intellectual property necessary to complete the project.

It is entirely possible that the necessary intellectual property to complete a project exists only in the heads of one or two people.

Former employees or subcontractors of the Principal may not be available.

Current or former employees of the Principal or its subcontractors may not provide essential information because of nondisclosure or noncompete agreements.

The program licenses may be in the estate of the Principal or a subcontractor and permission of the Court must be sought to use it.

If lost, the source code or other intellectual property can be reverse engineered. But, who owns the intellectual property. Are there patents, licenses or trademarks on the source code. The ultimate question is, 'Can any reverse engineered software be legally used?'

Other operating systems or other third party licensed software might have been used

such as middleware, emulators, and application packages. Numerous problems can exist with such licenses. The licenses must be paid. The licenses must be transferable. The expiration date of any licenses must be verified and possibly extended. Any licensing issues must be cleared up with the owner of the software before it can be used. Often, an 'authorized dealer' or 'certified installer' must be located and engaged.

Software keys, codes, etc. are often used to protect licensed software. These keys are required to enable and use the software. They can be highly complex and require significant effort to break or duplicate.

Has the Owner/Obligee found something newer/cheaper/better/faster?

The bonded project may be old technology that the Owner no longer wants.

Technology is advancing quickly. A project that takes a year or two to design; then another to specify, and contract; then another two or three years to build and debug; can become an expensive mistake for the Owner or Obligee. A change in management or the will of the public may bring pressure to escape a contract.

Summary

When high technology projects are in trouble, get in quick. Time is particularly critical as vital intellectual property can be lost and employees or subcontractors can disperse. Computer hardware, operating systems and other licensed software as well as hardware can become obsolete, unsupported, and impossible to obtain.

Talk to the Obligee. Moore's Law applies and the Obligee may have something better/faster/cheaper in mind. Find out what it is and see if it won't be a more cost effective solution.

Case Study 1 - County government sewage system telemetry system

The Project - A municipal utility wanted to upgrade the computer system which provided their ability to monitor sewage flows at multiple remote points in their county wide collector system. They also wanted to monitor and potentially control several remote lift stations and the processing plant's tide gate. Included in the solicitation were requirements for the capability of using GPS to track the location of the utility's mobile equipment, the automated logging of all service requests and dispatches, and the creation and maintenance of a historical database for meeting Federal reporting requirements.

The Principal - A relatively small high technology firm.

The Owner/Obligee - A countywide utility district.

The project was seriously past its contract completion date when we became involved. It was more than 90% complete and down to the shakedown and punch list when a hard disk crash occurred. The system was lost. When the Obligee's operators restored the backup, the system would not resume operation. The Principal had not yet uninstalled the older system that it was replacing. This allowed the Obligee some breathing room to work with the Principal and the Surety.

The Principal was having financial difficulties and its employees had moved on to other employment. A former employee attempted to repair the system over the telephone and by making site visits on weekends and Holidays. Another employee was prevented from assisting Surety because his new employer was in direct competition with the Principal.

Upon investigation, it was found that the Principal had used third-party software packages but was unable to produce the licenses or the enabling software keys. Further, one of the Principal's former employees alleged that a major software component was licensed not to the Principal but to himself and that he, and not the Principal, was the owner. The manufacturer of licensed development software confirmed that the Principal did not have, and never had, the necessary development licenses for the project.

The vendor of another major hardware/software component used in the project had also gone out of business. The specialized computer systems supplied by that vendor were locked by an expired license and unuseable. One of the former employees of that vendor was located and admitted that software keys were necessary to unlock the computers and that he could generate them. However, he was bound by a nondisclosure and noncompete agreement with his former employer and could not obtain permission to aid Surety.

At this point the decision was made to abandon everything done to date and consider other options. The most obvious, but least palatable, was recommending the writing of a check for the full amount of the bond.

We worked with the Owner/Obligee and located some vendors that were not able to be responsive at the time of the original solicitation. We were then able to tender a replacement contractor that was acceptable to the Owner/Obligee with a savings to the Surety of about 40% as compared to the full amount of the bond. The Owner was delighted with the replacement system, since, over the several years taken up by the design, solicitation, construction, and termination of the original project, better and less expensive telemetry systems had been developed.

Case Study 2 - State DOT variable message sign system

The Project - The state desired a number of variable message signs on a major interchange and its approach roads, with two separate controlling computers in separate buildings some miles away from the project.

The Principal - A relatively small high technology company.

The Owner - State DOT

The Obligee - A regional general contracting firm.

At the time I became involved in this claim, the Obligee and the Owner had already terminated the Principal and had begun the removal of the Principal's equipment. Our role was to investigate and report on the failure and to support the resulting litigation.

In our investigation, we found that the Owner had retained a consulting engineering firm to draw a very detailed set of requirements for this project and to supervise its bidding and construction.

In our review of the requirements, we found that the project very close to being impossible. We also found some assumptions that were made concerning the state of technology available at the time of the design that proved to be unworkable.

> Due to the amount of time involved in the concept, design, solicitation, construction, and termination of the original project, not to mention time extensions granted by the Owner, the technology supporting the original design had become obsolescent if not obsolete.

I was able to determine, during the course of our investigation, that the replacement contractor had very similar problems to those encountered by the Principal. The replacement contractor also failed to meet many of the same requirements that caused the Principal to be terminated. This is significant because the replacement contractor, forewarned by the Principal's failure, was able to construct a system that 'worked' as far as the human observer could determine, but never met the design or contract requirements. The case was settled.

Case Study 3 - Municipal fire and police computer-aided dispatch system

The Project - A municipal Police and Fire Department wanted to implement a computer-aided dispatch system (CAD) with the ability, through GPS, to provide the real time location of all of its mobile units. It also wanted to provide the mobile units with the real time capability of accessing local and national law enforcement databases.

The Principal - A national high technology firm

The Owner/Obligee - A City Government

The Principal was well behind schedule but had not been terminated at the time FORCON became involved. The goal of FORCON's involvement was to assist the Surety and contribute to the effort to move the project to completion.

During the meeting of all of the concerned parties in this matter, it became obvious that the Principal was having some financial and technical difficulties and would not easily be able to complete the project. An issue with this project that is significant involves the speed of change of technology.

> The contract required laptop computers in the mobile units. Due to the timing of the

design of the system, and the solicitation, Windows 95 was the dominant PC operating system. The Principal had provided acceptable laptops, at a cost in the low six figures, capable of running the Windows 95 operating system. Unfortunately, delays in completing the contract caused Windows 95 to be replaced by Windows 98 as the dominant operating system. The programs necessary to access the various law enforcement databases had been updated to Windows 98 . . . and only Windows 98. The laptops, on the other hand, could not be updated to run Windows 98 because of hardware insufficiencies. An impasse had developed.

At the end, an agreement was negotiated between the Principal, one of its major subcontractors, and the Owner/Obligee to allow the major subcontractor to take over, and complete the contract with a new Bond. The Principal was released from the contract and the Bond was returned to Surety.

A few definitions from a search of the Internet:

Cyberspace - The space where computers connect and exchange information. In popular usage, cyberspace is often used interchangeably with World Wide Web and with The Internet.

Firmware re: Computers - Programs contained entirely in a hardware device such as a read-only memory (computer chip).

GPS - Global positioning system

Intellectual Property - Property that can be protected under federal law, including copyrightable works, ideas, discoveries, and inventions. For the purposes of this writing, Intellectual Property includes computer programs and other processes which can be implemented by computers or automated machines.

Moore's Law - Gordon Moore observed that the number of transistors per square inch of silicon doubles about every 18 months. This increase translates in the observation that computer performance increases such that a typical computer product is obsolete in 12 to 18 months.

Murphy's Law - Whatever can go wrong, will go wrong.

Operating System - The low level software which handles the interface to peripheral hardware, schedules tasks, allocates storage, and presents a default interface to the user and other (application) programs.

Processes - A series of actions that accomplish a task or conduces to an end.

Software re: Computers - Contrasts with hardware. The entire set of programs, procedures, and related documentation associated with a computer system.

Source Code re: Computers - the form in which the computer program or computer software was originally written. Alternately, the form in which a human can read the software.