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Teaching Case

The Piranha Solution: Monitoring and Protection of Proprietary System Intangible Assets

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Abstract

The *Piranha Solution*® is a complex and valuable integrated chemical supply inventory management system protected as a trade secret by its asset holder, the Confluence Corporation. The *Piranha* program is the lifeblood of the corporation's growth and success in the chemical supply industry. A common definition of *trade secret* is "any information you don't want your competitors to have," and this statement couldn't be truer for the much sought after *Piranha Solution*®. The advantage of a trade secret is the potential to keep unique details of an invention a secret forever, as opposed to alternative protections such as a patent, which require public disclosure. But in order to retain assets as trade secrets, the holding company must take "reasonable steps" to insure the security and secrecy of undisclosed, unique details. These steps for Intellectual property security inevitably include a computer and information system component, especially when the asset is digital, as is the case with the *Piranha Solution*®. In this case, while Confluence Corporation appropriately focuses on, and continuously monitors for, external threats to the *Piranha Solution*®, internal threats that may compromise the system are largely ignored. Failure to take proper precautions to protect their assets, a not uncommon business scenario, will ultimately be disastrous for the company. How to identify and avoid missing these important issues, and what reasonable steps may be taken to protect corporate intangible assets, is the focus of this case study based on actual events known to the authors.

Keywords: IS Strategy and Management, IS Security, Intangible Assets, Trade Secrets, IS Policy & Protections.

1. GOOD EVENING CONFLUENCE CORPORATION

The late-night summer celebration at Confluence Corporation headquarters in Saint Louis, Missouri, was a spectacular affair. Tables set up in the 14th floor conference hall were covered with linens in the company's trademark indigo blue, and laden with heaping plates of gourmet cheeses, smoked salmon, and bite-sized filet mignon. There were cobalt crystal glasses to dip into the champagne fountain, and even some appetizers with a Trinidadian influence to honor the company's co-founders: curried shrimp, aloo

pies, and raw oysters bathed in a sweet-hot cilantro sauce. The party marked the opening of the newest corporate branch of Confluence (in Hawaii) and concurrently the hiring of the corporation's 100th sales staff employee. Business was booming, and the Confluence family was growing and celebrating amid the glow of what seemed to be unstoppable success.

Although adding a new office is an important milestone, the summer evening had an even stronger basis for celebration; Confluence Corporation was quickly rising to become a national leader in the chemical supply industry. Growing at a rate of over 15% per year, the burgeoning company was divided among two dozen U.S. branch sales offices and distribution sites, each with its own sales staff of a manager and an average of 4-6 trained personnel. Confluence employees all knew the key to the corporation's exponential success was a complex and highly coveted trade secret inventory system known as the Piranha Solution®. The program, dubbed after the strongly oxidizing chemical mixture of Hydrogen peroxide and Sulfuric acid used to clean organic residues (as well as the tiny Amazonian razor-toothed fish), was a marvel of ingenuity. Its multi-layered secure design tracked hundreds of thousands of compounds, hazard classifications, and compliance data. The system also had the capacity to interface with the over 60,000 chemical classifications in the OSHA/EPA (Occupational Safety and Health Administration / Environmental Protection Agency) Toxic Substances Control Act inventory, as well as track signature verification for regulatory compliance. Competitors of Confluence begged for licensing of the system, but co-founder and CEO Dr. Devlin Khan knew his valuable inventory program was the best in the country, maybe even the world. Dr. Khan had considered the potentially lucrative licensing route at one time in the early stage launch of Piranha, even providing access in the form of a "sneak peek" to a staunch competitor. He quickly retracted his flirtation with licensing, however, upon the realization that the Piranha system possessed a once-in-a-lifetime uniqueness that was unlikely to ever be duplicated. Born in Trinidad, Dr. Khan had cut his teeth on the chemical exports of ammonia and methanol for which his home country was well known. The company's Piranha Solution® was the "confluence" of CEO Devlin's chemical knowledge and the computer programming expertise of his wife Dr. Tamika Sunil-Khan, also a Trinidad native. Together the Drs. Khan built a powerful chemical supply domain around the tremendously intricate Piranha—no system came even remotely close to mimicking its efficiency, safety and pure elegance.

2. ONE BIG CONFLUENT FAMILY

As Confluence Corporation continued to accelerate its expansion, employees were added to the sales force at a phenomenal rate. Other chemical supply companies were hemorrhaging from the loss of their best salesmen and women to the Khan Empire. Because the company was growing so quickly, it was imperative to have the sales force "hit the ground running" with a clear understanding of both the inventory and its management via *Piranha*. All members of the Confluence sales force were therefore trained on *Piranha Solution*® and each had open access to the system. Although Tamika and her team had established elaborate security from external threats for the inventory program (spurred by the intense interest of previously mentioned competitors, both honest and not-so-much-so), the Confluence in-house family of employees and founders didn't see a need for internal security. Insider activity against the company was viewed as unthinkable.

As a result of this culture of confidence, Confluence didn't require its sales personnel to sign non-competition agreements, which could potentially limit employees from leaving the company for a direct competitor (and possibly taking *Piranha* secrets with them). The Khans knew that there was nothing like the *Piranha Solution*® at any other chemical supply company, and it was this precise asset that was driving unprecedented sales and profits. Salespersons were "beating down the door" to secure a position at Confluence, and knew they would be foolish to go anywhere else once they were on board.

The corporation also didn't see a need to have employees sign agreements to keep details of the *Piranha Solution*® a secret. It was an unspoken rule that everyone protected the system that the Khans had so carefully constructed; it would have been offensive to require Confluence "family" members to sign a document that, by its nature, called into question their loyalty and dedication to the company.

Therefore because of this unprecedented culture of trust, the usual safeguards for a trade secret like the Piranha software, such as restricted access and confidentiality agreements, were completely absent. Yet the Khans were confident that their prized system was impervious to any threat, either internal or external.

3. THE PARTY'S OVER

It was on a sultry, warm Tuesday night in June that a breach of the Confluence comfort zone would first materialize. Tamika Khan was working late that evening at company headquarters in St. Louis. Devlin had already left the office for their brownstone townhouse in Soulard, and was expecting his wife to follow him home shortly. As Tamika was preparing to shut down systems at around 2AM, out of curiosity she checked the branch access logs to see if anyone else was working late. It was midnight at the company shop farthest continental west in Happy Valley, Oregon, and all was quiet. The same was true of branches in Montana and Iowa. In Confluence sub-headquarters Austin, Texas, not a creature was stirring either. All was also tucked away in Florida, West Virginia and Illinois. Feeling tired, Tamika had just decided to head home when something in the Indiana branch logs caught her eye. Multiple logons beginning just after midnight central time were scrolling on the screen—12:21AM, 12:24AM, 12:31AM—and on and on well past 1AM. Tamika smiled to herself when she saw the access times. *"Our employees are so dedicated," she thought.* She put the system to bed and headed home.

Just before 8AM the next day, Devlin Khan's mobile phone rang. On the line was Confluence's Midwest regional branch manager Evelyn Connors, who was just leaving the Iowa office. Evelyn checked in with each branch on a weekly basis, sometimes even flying to a location to look in on operations, the sales manager, and staff. "Dr. Khan I haven't been able to raise the Indiana shop yesterday or today," she said, sounding a bit concerned. "I was going to fly out there Monday, but Kevin said they were in training this week. No one is answering the office phone, and I'm not receiving a response on anyone's cell phone either." Kevin Roth was the Evansville, Indiana branch manager who had come on board about six months earlier. He had a stellar record in chemical sales and more than 10 years of management experience. Kevin's last position was working for the mid-sized chemical supplier Cold River Chemicals, located in northern Indiana. Aside from a good bit of complaining about his lack of bonus this past quarter (During his short tenure with the company, Kevin had driven the Evansville office to its highest sales numbers to date. However, he had missed the six-month corporate residency requirement to receive a much anticipated $25,000 quarterly bonus by two weeks. Kevin felt that he had more than made up for those missing ten days through late night shifts and weekend hours.) Kevin was overall an excellent manager, and well-liked by his administrative and sales staff. He had a natural charm and ways of motivating his Indiana group to aspire to greatness. And, in keeping with the Confluence culture of loyalty, the Evansville employees would follow Kevin's every command without question.

Devlin hung up with Evelyn and tried himself to contact the Evansville office, then Kevin, and finally the assistant sales manager, Matthew Langenstein. He, like Evelyn, did not receive a single response. After speaking to Tamika, who was down the hallway in her office, Devlin called Evelyn back. "Instead of returning to Missouri today, please head to Indiana. We just need to be sure everything is okay over there."

Tamika asked her administrative assistant Renee to keep trying to contact the Indiana branch. Tamika then quickly remembered the logon access from the previous evening. Turning to her system, she looked back over access logs from the prior few days for the Evansville branch. The record there also showed multiple odd hours logons—times such as 2:32AM or 3:40AM—highly unusual even for a motivated and diligent workforce. Tamika called Devlin—"We may have a problem in Indiana." She then consulted with her top technical programmer Martin Salaam. Martin had designed the impenetrable external protections for the *Piranha Solution*® and had extensive experience with computer forensics. Tamika charged Martin with finding out what was going on in Indiana. "Please tell me it is nothing," she pleaded silently.

4. SAINT LOUIS, WE HAVE A PROBLEM

Evelyn was able to book a 9AM flight from Cedar Rapids to Evansville, but the flight would take 3 hours. "I can drive there faster," Devlin thought aloud. Tamika was now in his office, pacing the room and looking out the east windows at the arch and city skyline. "We should wait for Evelyn, it is likely nothing important," she said nervously. As the minutes ticked away, Martin was discovering more and more alarming signs indicating that there was far from "nothing" going on in Indiana. But, because the company periodically deleted its system back-ups, he could only investigate so far. He did see, however, that the odd hours access was coming from two specific locations—one inside the Evansville branch, and the other in northern Indiana.

At half past noon, Devlin, Tamika and Martin were all eyes glued to Martin's computer screen when the call from Evelyn came. "The outer door was locked when I arrived. I'm inside the office now,

and it is empty—no people, all the desks cleared out, nothing." She stumbled over a moving box while she talked and roamed around the silent space. "Everyone, and everything associated with them, is gone." Tamika and Devlin looked at each other incredulously. *How could this happen? Why? What do we do now?*

A few days after the police incident report was filed, branch surveillance video showed Confluence employees loading a U-Haul truck with boxes and materials from the Evansville office. While the furniture, computers and desks remained in the building, a few files and written materials—including a proprietary print *Piranha Solution*® training manual—were missing. Even though a copyright instantly attaches to written materials when they are created, the Khans didn't have time to register the copyright for *Piranha Solution*® support materials, a requirement to bringing legal action for violations. With open access to the inventory program, many employees also had *Piranha* materials, including the training manual, on their mobile phones and laptops; none of these personal devices belonged to Confluence. Martin and Tamika surmised—from the little activity data they could recover—that in the days before the move, Evansville employees were downloading files pertaining to *Piranha*. Additionally, there was increased email traffic between Evansville employees in the two weeks before their departure, which was also unusual for their independent, highly trained sales force. An issue slowing the investigation was the fact that, for simplification of access, all employees at a branch used the same user name and password. Therefore due to the lack of unique identifiers, it was impossible to tell from the logs which employee was in the system at any given time.

The Khans were devastated; all indications suggested that the highly prized and sought after *Piranha Solution*® trade secret had been compromised in the most egregious fashion—by members of the Confluence family. Further investigation revealed that sales manager Kevin Roth was more than nominally upset about his lack of bonus, especially as he knew that the Illinois branch manager had received a $10k award for the first quarter for sales numbers inferior to those his office had attained. Without an employment contract, internal system safeguards, or a non-competition agreement from Confluence to modulate his behavior, Kevin had taken his sales skills, sales staff, and sales system to greener pastures in northern Indiana. Mr. Roth and his group were found a few months later to be operating a chemical supply company under the name "Roth Chemical" just north of Indianapolis. As a final insult, the hallmark of the new company was an incredible inventory system called the *Caiman Solution*™, named for a voracious Amazonian predator of the piranha fish.

5. QUESTIONS

1. What are some internal threats to the *Piranha Solution*®?
   b. List some protective measures that can be taken to address those threats.
   c. Was Confluence Corporation doing enough to protect against these potential threats?
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   c. Was Confluence Corporation doing enough to protect against these potential threats?
3. What network monitoring and security tools could have been used to protect the system? What are some open source options?
4. Imagine you are a co-founder of Confluence Corporation when it was just a start-up. What policies would you establish to protect the company and *Piranha Solution*®?
   a. A "trade secret" like the *Piranha Solution*® may be defined as "a formula, practice, process, design, instrument, pattern, or compilation of information that has independent economic value in being not generally known or reasonably ascertainable (that is, the secret gives the owner some actual or potential competitive advantage)." In order to maintain trade secret protection, a company must take reasonable steps to keep undisclosed details a secret. Research and list five reasonable steps that a corporation can take to protect a trade secret (Lin, 2012).
   b. Did Confluence Corporation take any of the steps you've listed?
   c. What could the corporation have done to better protect *Piranha Solution*®?

6. REFERENCES

Lin, T. C. (2012). Executive Trade Secrets. Notre Dame Law Review, 87(3), 911-971.