

Blind Leading the Blind

Why Software License Management is So Hard

When businesses and governments direct their IT organizations to establish and practice Software License Management in order to maintain compliance and minimize the risk from external audit, IT leaders seek out solutions in the form of software technology; products designed by commercial vendors. The expectations are seemingly straightforward - deliver Software License Management functionality that supports:

- identification of installed software products
- matching of installed software products to software licenses
- reporting on the status of compliance

It sounds simple. And, products offering these Software License Management capabilities have been available for many years. So, why then are so many organizations unable to achieve any reasonable level of compliance?

The “Dark Art” of Software Inventory

The ugly truth is that despite nearly two decades of development, the results from any of the available commercial software inventory tools are at best “educated guesses”. Clearly, this has not resulted from a lack of effort. The root of the problem lies with the competitive nature of the software industry itself. Contrary to common wisdom, no standards exist for how software products are to be internally or externally documented or manufactured for sale and installation.

Even though the Windows Operating Systems offer file attributes and the Windows Registry since Windows 95, not all software publishers take advantage of these features. And, even when they do, consistency and quality control are abysmal. Even industry leaders Microsoft and IBM have their software products reported with misspellings of their own company names. My favorite example remains a software product reported during an audit with both publisher and product names of

“TODO”...obviously a “To Do” placeholder by the programmer to be filled in prior manufacture and distribution to customers that went unnoticed during QA!

The considerable variations represented by the available Unix and Linux Operating Systems, not to mention the less structured philosophy touted by their community and therefore exercised by the technicians tasked with their management, represents an even more daunting challenge when it comes to data collection, reporting accuracy and completeness.

Aside from the inconsistent and incomplete publisher and product names, version data is without a common format and, along with edition and language data, is often simply missing. Further complicating software inventory are two more industry practices: evaluations and bundling.

There once was a time when “try before you buy” was generally limited to shareware vendors – a means of inexpensive marketing leveraging the capabilities of the newly-found Internet. Today, with the exception of enterprise and specialized vertical solutions, nearly every major software publisher offers most, if not all, of their product portfolio for download and timed restricted evaluation. Unfortunately, these publishers rarely change anything in the Registry entries and file attributes that indicate the software is an evaluation copy. Bundling refers to software developed by one publisher being included together with the software product of a second publisher. This is most commonly practiced by publishers to support non-core or “commoditized” functionality, like reporting, database, and web services. Again, during productization and installation packaging, publishers rarely change anything in the Registry entries and file attributes that indicate the bundled software is, in fact, bundled.

Due to the lack of forethought related to these two practices, software inventory tools typically cannot distinguish software installed for evaluation or as a

result of bundling as anything different than a full product requiring an associated license. As a result, the reported software inventory is artificially inflated to contain items for which customers can rarely prove entitlement...much to the delight of organizations such as the BSA or self-auditing publishers.

The Blind Leading the Blind?

Beyond the vagaries of software product data, it would seem that in such a mature product market all of the automated inventory tools would deliver essentially the same results. Unfortunately, that is definitely not the case. The differences lie in two specific areas: data collection and product recognition.

Data collection can be approached in several ways, depending on the overall product design and the client platform being inventoried. The traditional approach requires installation of client software, often called an agent, although network-based interrogation and other “agent-less” methods are approaching equivalency. I’ve already stated that software product data can be stored and retrieved from multiple sources; primarily file attributes and Registry entries (Package Managers in Unix/Linux). In addition, the executable files themselves can include product identification data embedded in the code.

Once collected, most software inventory tools use some form of content to cleanse, normalize and organize the collected data for subsequent reporting. Further, and most importantly, product recognition must make sense of the software product data in terms of identification. The prevailing method of product recognition involves the use of what is commonly referred to as “signatures”. These signatures are essentially content created for the sole purpose of accurately identifying software products using multiple data points. Additionally, the signatures typically contain the content used cleansing and normalization, with some tools including even more content that serves to categorize the software inventory in various ways, such as by functional use, licensable/non-licensable, freeware, open source, etc.

Done well, comprehensive signature-based product recognition can deliver a software inventory with a high degree of confidence in terms of accuracy of what is reported.

However, inventory completeness is wholly dependent upon the library of available signatures. When you consider the sheer magnitude of potential product titles to be inventoried across a useful life of 5+ years (NT is still deployed) including all of the versions, editions and languages, and, for the more complex server-based products that can be configured and installed many different ways – millions of signatures are required! Only a couple of the most aggressive and ambitious software inventory tool vendors claim signatures libraries approaching 1-2 hundred thousand.

To compound the problem, development of software recognition signatures typically requires access to the software product itself – which is extremely costly in terms of both licenses and resources. Since the leading software inventory tool vendors are themselves competitors with the rest of the software industry, little to no cooperation exists (just try to imagine Oracle “giving” their software to IBM so Tivoli Inventory can recognize Oracle Financials). And, as the complexity of software product increases the more challenging the recognition becomes: contrast recognizing a single executable desktop software product versus multiple modules of an ERP system installed across several servers.

I’m certain you can now understand why the inventory tool vendors have always been the ones deciding what software products they recognize...

Lastly, not all software inventory tools use signatures (of course!). Some instead simply report everything they collect; leaving it up to the customer to figure out what is important, to eliminate duplicates, etc. Some use partial or a combination of methods.

Don’t give up yet, it gets worse

Understanding software licensing and proving entitlement is equally troublesome due to the lack of standards and legal controls:

- Software inventory as reported often doesn't correspond to purchase records due to shortened or abbreviated product titles, the use of trade names, multiple “SKUs” representing a single software product sold in different ways, etc.

- Suites and promotional bundles whose individual components are indistinguishable from separately purchased products once installed
- Infinite license models exist; with new schemes continuing to emerge and evolve
- Many license models are based on logical rather than physical relationships, meaning they involve elements that do not physically exist and therefore cannot be inventoried, such as most Client Access Licenses (CALs).

The fact is most software publishers cannot consistently and successfully audit their own product line across their various license agreements.

Current state of the industry

While I've painted a bleak picture of software licensing and inventory capabilities, help *IS* on the way.

The vision for ISO/IEC 19770-2 is to standardize the way in which software publishers provide electronic information about their products once installed to support consistent and accurate identification and reporting by automated inventory tools. Further, the objective for ISO/IEC 19770-3 is to standardize the documentation of key elements of license agreements and, most importantly, to document the supporting auditing mechanisms in such a way as to enable accurate and consistent analysis, reconciliation and reporting of software license entitlement.

Currently under development, once ratified and published, together these new standards will have a major impact on the software industry, specifically software licensing and compliance. That is IF these obstacles can be overcome:

- Obtaining Sufficient industry interest and support – market pressure will be necessary through customer requirements (RFPs and buying habits), Title 17 (copyright law) lobbying to limit compliance audits to publishers and products adhering to with these standards, etc.
- Addressing co-existence with currently installed software – **no** customer will bear the cost of reinstalling all their

software simply to address license management (here is where a tool providing 19770-2 “retrofit” capabilities would be a big seller)

Given the overall requirements and these two considerable challenges, don't expect the pending ISO 19770 standards to be available for several years...and even then, it will take several more years for the changes to make their way into the marketplace.

The Bottom Line

Even the best, most innovative and thorough technology alone can't address the requirements. Content is, and will continue to be, the key to software license management success. Content whose creation is directed by empirical customer need, not “guesstimates” by tool vendors. Content with the requisite details germane to your specific IT environment about:

- Products
- License models
- Customer specific license agreements
- Customer specific purchase records
- Product-license specific auditing techniques
Publishers

Unfortunately this content isn't readily available today in a consumable form at a reasonable price. It can only be obtained through sheer brute force; either by staffing your own internal team, hiring domain experts, or contracting your inventory tool vendors' professional services organization – forever. What you do now to improve your future? Start by demanding that all your software vendors include documentation with all new software agreements on how their products can be self-audited – or, they must strike the verbiage providing for publisher or 3rd party audits. Next, educate yourself about software licensing and copyright law. Finally, get involved with ISO 19770.

Lastly, software industry standards must be actively pursued, established, ratified and implemented – tomorrow!

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