TOTAL ASSET MANAGEMENT

PHASE II (PERPETUAL INVENTORY) IMPLEMENTATION GUIDE

A Management White Paper by:

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ABSTRACT

This paper discusses the implementation of Phase II – the perpetual inventory phase – of asset management. It is by far the most difficult phase of asset management to implement, however its successful implementation is required to reap the ultimate benefits of total asset management. The paper discusses the ultimate benefit of asset management as being a minimization of TCO (total cost of ownership), or stated in reverse, an optimization of the return on technology investment. This paper addresses both the CEO as the audience (in the initial sections) as well as the Information Technology (IT) professional attempting to solicit the internal senior level "buy-in" necessary to implement the Phase II solution.

The necessary ingredients to implementing a successful Phase II solution are discussed, and the shortcomings of implementing a "software only" solution are addressed. This paper describes the three distinct classes of data to be maintained in an asset data repository and the specific tools and/or methodologies used to address the needs of each.

ASSET MANAGEMENT – WHAT YOU REALLY WANT

The benefits of implementing and maintaining an IT asset management program have been repeatedly quantified and documented for the past several years. Few dispute the magnitude of the problem and most are seeking some solution. The common phrase which circulates the industry today is "Total Cost of Ownership", or TCO. The theory is that an active IT asset management program, applied correctly, can and should be used to reduce the total cost of IT asset ownership. Such costs include both direct and indirect costs, the latter being where most of the costs are expected to lie. Such hidden costs include end users supporting themselves, inefficiencies due to improper or non-uniform application of technology, and sub-optimal use of technology due to insufficient training or general distrust or frustration with the installed infrastructure. Stated another way, the goal of lowering total cost of ownership is actually the same as the goal of optimizing your investment in technology. The reason you invested in technology was to increase the efficiency of your organization – applied asset management is thought to be the means by which you can ensure the efficiency increase you paid for will actually be realized.

So what does all this mean? Simply speaking, you are looking for a way to objectively and repeatedly ***measure*** the impact and effectiveness of your technology investment. You would like to see understandable reports which translate the technical investment into simple, understandable

metrics. Such things as a believable measure in productivity increase as directly influenced by applied technology, a measure of how technology application has lowered operating costs, and a measure of how your technology investment has influenced your ability to capture increasing market share. Furthermore, you would like these measurements to be trendable, so you can see how past decisions and initiatives are progressing. Finally, you would like these measurements to be standard throughout the industry, so you can compare your company and its technology investment to other companies in your industry and/or of your size. Ultimately you are looking for a measurement system not unlike your current accounting system. To achieve this, however, requires thought, conviction, and commitment.

ASSET MANAGEMENT – THE THREE PHASES

There are three distinct phases of implementing a corporate asset management program. They must be implemented in order to reach the real value of asset management – the metrics phase. The three phases are:

a. Baseline inventory
b. Perpetual inventory
c. Metrics

Keep asset management in perspective and remember what you are ultimately seeking – a way of optimizing the return on your technology investment. TCO and other industry buzzwords are just different ways of stating the same objective. Before you can optimize anything, you must first be able to measure it.

There are many competing definitions of asset management. IT (Information Technology) may seek a package that auto-discovers intelligent assets and allows automated distribution of software. The industry calls such a solution an "asset management" solution. But is it? Does it really measure and determine if you have optimized the return on your technology investment? No doubt such a solution will improve the supportability of your environment – but how does it measure the technology ROI (Return on Investment)? Also, have you ever wondered if there is a point of diminishing returns with investment in technology? A point where the investment actually *reduces* your efficiency and causes not only IS/IT (Information Services/Information Technology) support costs but overall operating costs to *increase*? How do you determine that point? If you knew and could measure that point, it might suggest an entirely different strategy to pursuing software and hardware upgrading than the marketing efforts of the combined manufacturers and vendors are currently recommending.

Stay focused on your goal – implementing an objective measurement system capable of providing feedback on your technology investment. Believe in the benefits to maintain that focus and motivation.

Phase I – Baseline Inventory

Baseline inventory is the process of discovering all of your assets, generally with a focused approach to ensure change is minimized during the project. A baseline inventory is performed to discover all assets, not just intelligent assets that are network connected. Assets

which are, and are not, in service; printers, monitors, and networking equipment are all targets of a baseline inventory effort. During the baseline inventory effort, bar coded asset tags are applied to all target assets. The result of the baseline inventory is a complete database which includes complete static data, demographic data, and, in most cases, component data. A baseline inventory is performed to initialize your data repository in support of the corporate asset management program. Baseline inventories are also conducted to support a near term tactical need, such as providing information to support a corporate-wide upgrade plan. Without a means of keeping the database up to date, the value of the baseline inventory decays rapidly, and is usually out-dated to the point of being compromised within 90 days.

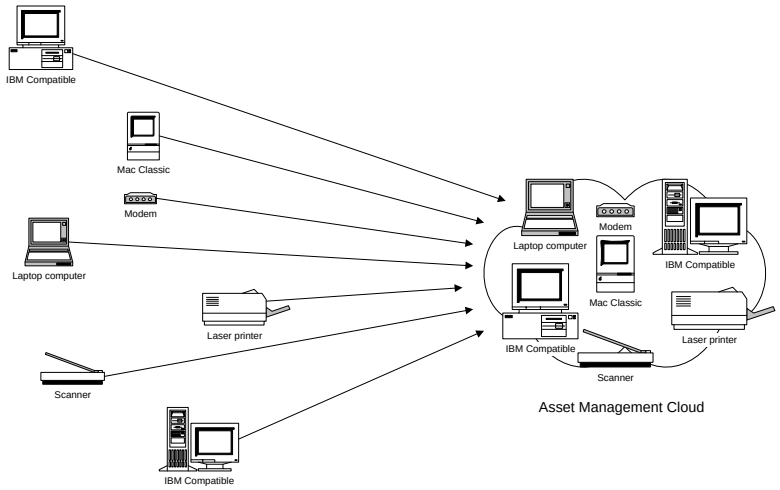

Figure 1. Phase I of Asset Management – Baseline Inventory

The rate of change of the typical environment is so great that if you do not have methodologies defined for keeping up with the change, you should not proceed with Phase I, unless you have a near term tactical need for the data. Expect to repeat the baseline discovery process once you have defined the methodologies for capturing and recording changes. To do that, you must first define the level of information detail that is required to support your end goal, then you must identify all catch points in your current business model, then you must establish procedures for each of the catch points.

Phase II – Perpetual Inventory

Once you have established a baseline inventory, and you have established the catch points and procedures necessary to keep it current, you enter Phase II of asset management – perpetual inventory. This is by far the most difficult phase. Different ownership groups, non-uniform practices in acquiring and managing technology, and a lack of senior level commitment all work to compromise the solution to this problem. The solution is not merely a technical solution, as many would like to believe. It is first and foremost a new corporate discipline. ***The solution cannot be realized without accepting this basic definition***. A corporate discipline requires commitment at senior levels (which requires an understanding of the expected benefits). Once this commitment is realized, a corporate cultural change will ensue that will allow the solution to be tractable. Without this commitment, all solutions will ultimately fall short of providing the expected benefits. This does not mean that those solutions will yield no benefit – it just means those solutions will not yield the measurement system necessary for determining the optimum return on technology investment – which is the ultimate goal of asset management.

It is important to keep in mind that a measurement system, especially one that measures using trending, cannot be realized without successfully implementing Phase II. Without a means of ensuring a relative constant accuracy of the data in the data repository, as well as a highly uniform way of representing each asset (highly uniform spelling standards, for instance), any trending differences cannot be solely attributed to real-world changes. Instead, such trending differences may be due, in some part, to differences in how asset data is represented from time period to time period. Stated differently, your measurement system trending reports will be trending on the inaccuracy of your data depository as that inaccuracy varies over time. This will mask the real-world changes you are trying to observe.

To maintain an effective perpetual inventory and tracking system, you must bring to bear many different components, both procedural (discipline) and tools (software/hardware). You must, ***absolutely must***, have the support of senior management to place sufficient emphasis on adherence to the procedures and discipline. The best way to do that is to gain a solid understanding of the potential benefits so that you may relay that understanding and secure top-level buy-in. If you find that problem intractable, then bring in a vendor with a strong asset management or TCO offering who has sufficient relationships and credibility at that level of your organization to help you. The impact to your business is significant.

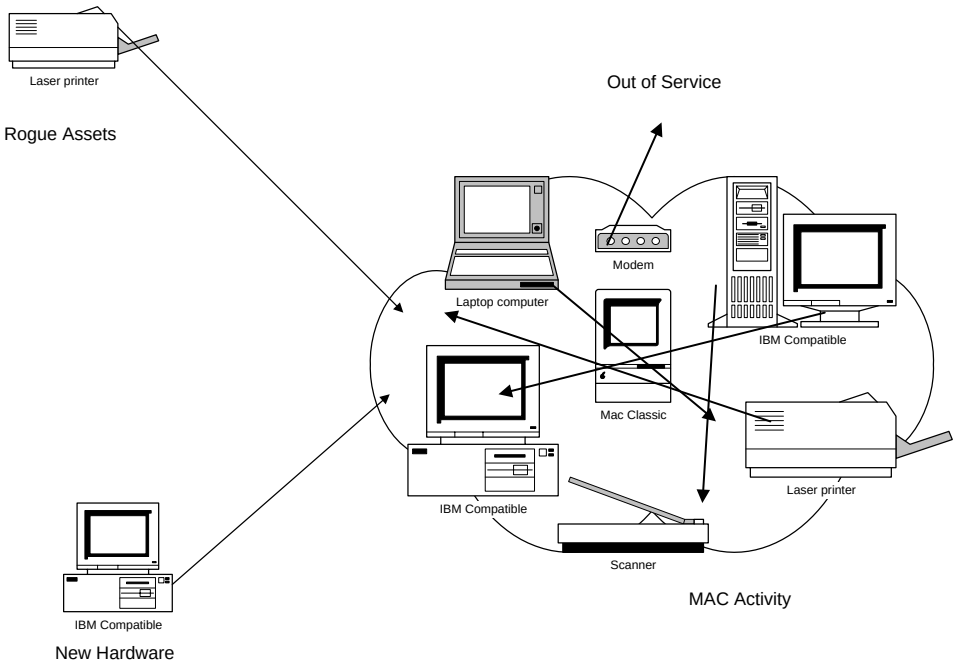

Figure 2. Phase II of Asset Management – Perpetual Inventory

Phase III – Metrics

If you succeed at implementing Phase II – perpetual inventory, you can then begin to reap the strategic benefits of asset management. With a stable data repository that has a high degree of accuracy, and where the areas of inaccuracy remain consistent over time, you can begin to measure trends. This is the best feedback mechanism for determining how effective IT initiatives have been. Over time, with a stable measurement platform, you can begin to tie the objective measures to operating costs, end user efficiencies, and even contribution to market share. With such ties, you can then begin to effectively measure, then optimize, your technology ROI. The problem of implementing the foundation for metrics is tractable, but it requires senior level commitment and a well thought-out suite of procedures, methodologies, and tools.

How much is such a measurement system worth to you? How much are you spending, unnecessarily, each year on IT procurement, support, and general operating inefficiencies? How much ground does your competition gain, each year, because they have a better handle on applied technology?

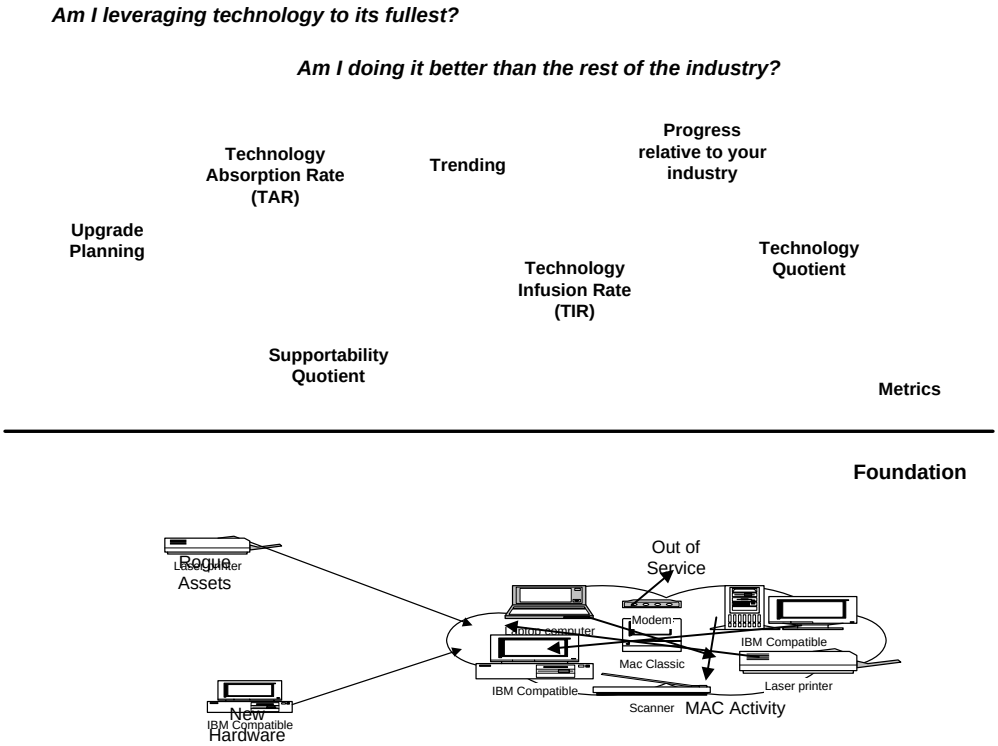

Figure 3. Phase III of Asset Management - Metrics

BAR CODING

The theory of TCO is to maintain an accurate depository of technology asset information so that all IT business practices, from acquisition to implementation to use and support to retirement, can be optimally managed for highest return on investment and minimized life cycle cost. Indeed that is the ultimate goal of asset management.

A necessary consideration for tracking your assets, which is a requirement for managing them, is that you must select a unique identifier for each asset. To manage the asset you must keep track of its history, so you will have to choose a way of permanently and uniquely identifying the asset. Obvious candidates are the asset's serial number or a corporate asset tag of some sort, for externally visible solutions, or an electronic ID assigned automatically by many of the automated PC scanning solutions.

Of the three, the electronic ID has the lowest probability of remaining with the asset through its life cycle. Most often, the ID is written to a file on the hard drive. Reformatting or replacing the hard drive causes the ID to be compromised, thereby causing a new ID to be assigned. This ultimately causes two or more records for the same asset in the tracking database. Alternate means, such as serial number, must then be used to correlate the former ID to the newly assigned ID. The history must then be transferred to the new record and the old record deleted. This is not an optimum choice.

Using the asset's serial number is highly limiting and conducive to error. It is limiting in that not all assets have serial numbers. You may decide, in the future, to track a class of asset that is generally not serialized by the manufacturer. You will be forced to use some other unique identifier or to make your own. Also, there is a risk of duplication across manufacturers, since there is no guarantee of uniqueness. The use of serial numbers is prone to error because serial numbers are often very long, some manufacturers use alpha and numeric characters which can cause confusion, and serial numbers will generally look different for different manufacturers. Finally, if TCO is to be implemented, end users must be able to aid in the identification of their assets, when calling the help desk for instance. They will be less inclined to search the back side or bottom of their asset for the serial number.

The recommended approach is to affix an external asset tag on each asset to be tracked. The numbering system should be simple and uniform. Fixed length, six digit numeric tags work well for many companies. Furthermore, the number should be represented via bar code, which greatly facilitates future perpetual to physical reconciliation. The asset tag should be printed with both bar code and human readable representations of the fixed length number. It should be affixed in a standard, easily accessible and visible location on each asset. That way, end users' attention can be directed to the appropriate identifier when calling for support.

THREE DISTINCT DATA CLASSES

In any perpetual inventory environment there are three distinct classes of data to maintain. Each class of data has its own challenges in acquiring and keeping current. The three classes of data are: Static Data, Demographic Data, and Component Data.

Static Data

Static data is data which needs only to be collected once over the life of the asset. It is data that is likely never to change, therefore there is theoretically no need to address it in any perpetual maintenance of the data. It needs only to be collected once via the baseline effort. Some static data may be collected by automated scan for a few manufacturers and products, but by and large it must be manually collected and entered. Such data includes, but is not limited to, the following:

a. Manufacturer
b. Product Description
c. Model Number
d. Serial Number
e. Purchase Order Number
f. Lease Number
g. Purchase Price
h. Asset number
i. Date installed

Demographic Data

Demographic data is generally very important and is subject to a high rate of change. Demographic data is necessary to anchor the asset within the framework of the business. Different business needs have varying degrees of dependency on accurate and complete demographic information. For example, any type of billing, costing, budgeting or internal charge-back requires complete and accurate cost center information. A software upgrade plan, however, may not depend so strongly on demographic data. Another unique challenge to demographic data is that it most often must be supplied by the end user. No amount of automated scan technology can establish a unit's cost center, for example, without interaction with an end user. Demographic data experiences a very high rate of change and must be considered in any perpetual inventory maintenance plan. Demographic data generally includes, but is not limited to, the following:

a. Name of assigned user
b. Department of assigned user
c. Cost Center
d. Site where asset is installed
e. Building #
f. Cube #
g. Column #
h. Phone # of assigned user
i. Business unit
j. Name of company or subsidiary

Component Data

Component data includes all information about installed components and software, generally as it pertains to intelligent assets such as PCs. Component level data changes at a high rate as well. Component level data is best addressed by an automated scanning system as it does not depend on any input from an end user. Component level data includes, but is not limited to, the following:

a. All installed software by publisher, title, and version
b. Processor and speed
c. Quantity of random access memory installed
d. Disk drive information
e. Network adapter
f. Important network addresses
g. Port level information
h. Bus level information

PERPETUAL INVENTORY

Perpetual inventory is an accounting term generally used to refer to an electronic representation of any inventory which is kept up to date through various means. It typically refers to raw materials or sellable goods inventories.

Perpetual inventory, applied to IT desktop asset management, is necessary to achieve the ongoing measurements necessary to assess TCO. Perpetual inventory requires several components, held together by corporate procedures and applied manpower. The required components of perpetual inventory include:

a. Catch point procedures
b. Component level scanning software
c. Data repository with management and reporting software
d. Audit procedures and tools
e. Reconciliation procedures and methodologies
f. Applied resources

The important point to keep in mind is that asset management is a corporate discipline. There is no software tool that alone will yield the desired results and hence the benefit. It is not unlike standard corporate accounting, in that procedures must be established, followed, and audited; and resources must be applied to be able to accurately report the financial condition of the company at any given instant.

Catch Point Procedures

A catch point is defined as any function or activity that causes a change to the demographic or component information of the asset. Catch points are generally different for each company. In preparing for perpetual inventory, all catch points must be defined, their ownership determined, and a procedure drafted and approved for ensuring the change is faithfully captured and recorded in the asset depository. Additionally, audit procedures must be determined to ensure ongoing compliance to the catch point procedures.

Typical catch points include the PC configuration center, where the initial baseline scan is performed and the bar code tags are applied. Information that can generally be captured at that point includes not only the asset and component information, but purchasing information, leasing information, and warranty information. Another catch point is the Help Desk, where calls can be logged against an individual asset, ultimately yielding an important piece of the TCO equation. That is a quantification of support costs by hardware manufacturer or for a given model of laptop, for instance. Yet another catch point is a means to determine when assets are taken out of service. One idea is to set up and internally market a “disposition desk”, whereby end users can call and state that an asset is to be taken out of service. The end user needs only to forward the asset number(s) involved, the reason each will be taken out of service, and the proposed final disposition of each asset. The disposition desk can then check the asset depository, determine if each asset has any termination requirements (such as requires return to the leasing company). If not, the out of service action can be approved, then recorded.

As catch point procedures are identified, you will often find that not all catch points are politically owned or controlled by the group responsible for or implementing the perpetual inventory. This means an expected low compliance level with any procedures drafted for those

catch points. Also keep in mind that no set of procedures, no matter how well written and how high the expected compliance level, will yield 100 percent compliance or accuracy. Therefore, there must be a methodology in place that allows the reconciliation of the perpetual inventory to the physical inventory.

Component Level Scanning Software

One very important piece to maintaining a perpetual inventory is automated scanning software. Such scanning software is quite useful in determining the current component level configuration of each target machine. It is generally connected to the logon procedure for the LAN, causing a periodic scan to complete upon selected LAN logons. The results of the scan are then forwarded to the asset repository and the asset's record is updated accordingly.

Component level information is useful for upgrade planning as well as better support at the help desk. Software information is also useful in determining optimum license purchasing strategies as well as license compliance. Furthermore, some component level information, such as installed memory and hard drive size, can be used to detect unauthorized tampering and/or theft. Memory theft is a problem at most corporations today. An automated component level scanning solution can be used to automatically detect and report missing memory.

It is quite important to keep in mind that component level scanning software is only part of the perpetual inventory solution.

Data Repository with Management and Reporting Software

The data repository is where all managed asset data resides. It is typically implemented as a SQL database, using an open architecture allowing various query tools to be used. Additionally, the data needs to feed and be fed from other corporate systems. A central management tool should be implemented to allow edits to be applied. It is also important that, in the case of automated scanning tools, those edits feed back to the individual workstations. That is, some automated scanning tools keep a record of the demographics and components on the workstation itself. If subsequent changes are made to the information via the central management tool without any means of feeding those changes back to the target workstations, then the next automated scan will cause the edits to be replaced with the old information.

The most important function the data repository and its management tool need to provide is reporting. The value of the entire perpetual inventory system will be measured by the reporting capability. Value will be measured by perceived accuracy, ability to accommodate a myriad of reporting scenarios, and the ease and timeliness with which reports can be produced. You can have the most comprehensive and accurate data imaginable and it will look to the rest of the company like a waste of time and money if you cannot produce meaningful and timely reports. Therefore, when designing or selecting a central repository tool, strongly evaluate its reporting capabilities. Do not underestimate the need for strong and meaningful reporting.

Another very important, yet hard to understand, requirement of the central data repository is how it is organized. It should be predicated on the physical world. Most importantly, its primary key (or primary way of identifying assets within) should be the bar coded asset number

you assign to each asset. Many tools allow a field to carry an external asset number, but they are predicated or keyed on an invisible electronic ID. This requires a correlation to exist for each and every asset, to correlate its electronic ID to its physical ID. This also causes a lack of enforcement of important rules such as the exclusion of duplicates. Finally, predicating on an electronic ID requires a different system of identifying non-intelligent assets – which is a compromise. Some electronic systems allow the electronic ID to be manually over-ridden with a user-supplied number. You should opt to use this feature, substituting the assigned bar code for the identification number.

Audit Procedures and Tools

Procedures are meaningless without a defined periodic means of auditing. Auditing is the act of following yet another procedure in determining the level of compliance against the procedure being audited. Many larger corporations, especially regulated companies, have audit departments whose charter is to perform audits for the company against the published procedures. Since the upkeep of a perpetual IT asset inventory depends on standard corporate procedures, some means of auditing must be established. The goals of the audit should be to 1.) ensure compliance with the published procedures; and 2.) measure the accuracy of the current data.

Reconciliation Procedures and Methodologies

When an audit yields a measure of data accuracy that suggests an unacceptable level of inaccuracy, then a means must exist for quickly re-establishing the accuracy. One method is to repeat the baseline inventory effort – an expensive and time consuming proposition in that it is an "overkill" for the purposes of reconciliation. Most companies would rather not have to perform another physical baseline inventory.

If the asset inventory is bar coded, then bar code technology can be leveraged for efficiently and accurately reconciling the data accuracy – predominately the demographic information (component information as discerned by auto-scanning software can be assumed to be fairly accurate.)

Applied Resources

A perpetual inventory cannot be implemented without some level of applied resources. Those resources must be dedicated and focused in order to ensure the ongoing compliance to procedures, and the overall accuracy of the data. If resources are not in the IT budget, then the perpetual inventory upkeep must be outsourced to a competent vendor.

SOFTWARE ALONE DOESN'T WORK

There is a school of thought that perpetual IT asset inventory can be maintained via an automated software tool. "Adds" can be automatically discovered via the tool along with moves and

certainly component level changes. Furthermore, demographic changes can be solicited from the end user on a periodic basis when the scanning software runs.

The question becomes "Why can't we just install auto-discovery software that simply automatically discovers the asset, assigns it an electronic ID, then forwards the scan to the asset repository." The answer is "you can", if your priorities do not include accurate or complete demographic information, or assets which are not connected to your network, or tying help desk calls to individual assets, or keeping track of out of service assets, or keeping track of all assets which are not intelligent and cannot respond to a network query. Most companies are interested in more. Measurements from a recent large inventory suggest that you would be covering in the neighborhood of 60-75% of your IT assets with less than 100% of the desired level of information. Even if this is okay, you still must keep in mind that any automated attempt at keeping your asset depository up to date will ultimately diverge from reality. You still must define an audit mechanism so that you can maintain a measurement of accuracy over time, and you must define a reconciliation mechanism so you can eliminate the divergence and bring the perpetual inventory back into agreement with current reality.

The following table summarizes some prime considerations of relying on a fully automated solution to perpetual inventory.

Consideration of Fully Automated Solution	Description
Compromised, incomplete, and inaccurate demographic information	Demographic information is essential for anchoring the asset within the framework of the business. Automated scanning solutions either do not address full demographic information or require involving the end user in soliciting demographic information.
Non-networked PCs are not included	An average of 30% of any large corporation's assets are not in service, and therefore not on the network. Yet maintenance and lease payments are being made on these very assets each month.
Non-intelligent assets are not included	The PCs in your organization only represent 30% to 45% of all important IT assets. The moves, changes in cost center, adds, deletes, and changes in service status of these assets are not addressed by automated scanning solutions. Yet you pay maintenance and lease payments on these assets.
Full TCO may be compromised.	An important factor in TCO is identifying support costs to individual products and/or manufacturers. The primary way of doing this is to solicit the asset number in logging each help desk call. The asset number, therefore, must be obvious and easily visible. This allows the user to be consistently queried for the asset number of the asset in question. Any other means is a compromise (think through it and you will agree).
May instill a false sense of security	The thought of a fully automated solution is quite inviting. It tends to lull you into ignoring the painful process of determining corporate procedures, gaining buy-in from necessary players, and performing audits. It will cost you time and money to implement, and you will end up concluding that you need procedures and corporate discipline. The time it

Consideration of Fully Automated Solution	Description
	takes to go through this learning process is time lost.
Still requires a methodology to measure and correct divergence.	How do you measure accuracy over time? When you find inaccuracies, how do you know how widespread they are? How do you determine the overall value of the data repository? How do you effectively and efficiently correct inaccuracies? These are independent and most often manual procedures. They still must be addressed.

Table I. Considerations of Fully Automated Scanning Solutions

Don't read this the wrong way. Automated scanning software is an essential and necessary part of the perpetual inventory solution. It is the best solution for keeping up to date with the current component information of all network-connected intelligent assets. It's just not the whole solution.

RETAIL INDUSTRY ANALOGY

If you have trouble accepting the need for audit and reconciliation procedures, and you are not yet convinced that a completely automated solution will *not* yield the desired results and benefits, consider the retail industry analogy.

The retail industry has been perfecting perpetual inventory for years. There is strong motivation to maintain accurate inventories, to trend the turn rates and other metrics of those inventories, and to optimize the size of those inventories. There are only two major catch points to consider – receiving of sellable goods and the point of sale. Both are owned and tightly controlled by the same organization, and bar code technology is generally used throughout. Furthermore, there is an intense understanding of the need for and importance of adhering to strict disciplines when measuring or dealing with the sellable inventories.

Despite all the experience, technology, and desire, a normal retail store must still perform a physical count of its inventory on a periodic basis. This procedure is known as a "physical to perpetual reconciliation". It is used to make necessary adjustments to the perpetual inventory so that it once again agrees with reality. The largest limiting factor a retail operation must contend with is shrinkage (loss due to theft). There is no catch point for shrinkage so, over time, the tightly controlled perpetual inventory will necessarily diverge from reality.

In the corporate IT asset world, you will be fortunate to identify half of the probable catch points. When you do, you will be even more fortunate if you politically control 30% of those identified. Therefore, with so little control, it is not reasonable to expect any automated system to track reality without divergence over time.

AUDITS

Let's say you installed an enterprise-wide TCO program centered around a robust asset management tool. If you expected the software to automatically discover and manage your environment and have therefore not identified catch points or generated any formal procedures, how do you ever know how accurate the information is? What is your independent measure of that accuracy? You will undoubtedly find one or more anomalies in the data that will cause you to wonder how widespread the inaccuracy is. How do you measure it? If you did not bar code your assets, it will be time consuming and difficult.

Let's say you did introduce procedures and catch points. How do you make sure those procedures are being followed? How do you identify the need for changes at the catch points, or new catch points?

You must adopt an audit methodology to solve one, the other, or both.

Auditing for Accuracy

If you are using an auto-scan solution, you can assume a relatively high degree of accuracy for the component level information and some of the automatically collected static information. (Do not assume 100% accuracy, however, as the lack of standardization among manufacturers works against this target.) Even so, your accuracy measurements should center around the demographic information.

If you bar coded your assets, you will have a ready foundation for performing the accuracy audit. The most efficient and most accurate means for establishing a measure of accuracy is to do random sampling, on a periodic basis, using a hand held bar code scanner. Demographics are not only measured for accuracy, but those sampled can be updated, yielding a systematic means for auditing, measuring the inaccuracies, and reconciling the inventory using one process. By measuring the inaccuracies, you can decide where procedures are failing and determine the proper periodicity for performing full reconciliation. There are a number of means of capturing, with the bar code scanner, accurate demographics – without depending on input from each end user.

PHYSICAL TO PERPETUAL RECONCILIATION

You must adopt a methodology for performing a periodic physical to perpetual reconciliation to maintain the accuracy and integrity of your asset data repository.

Expect Divergence

Over time, the perpetual inventory will continue to diverge from reality. The amount of divergence is strongly dependent on the amount of organizational change and the existence of and adherence to change procedures.

An Example of Divergence

As an example, consider a department of a large bank which recently was reconciled using hand held bar code scanners against the perpetual inventory for cost center, installed site, and maintenance contract coverage.[1] The reconciliation showed only ***49% accuracy*** in the asset repository for demographic information six months after the initial baseline. The 51% degradation of accuracy over a six month period was in spite of published change procedures.

The same reconciliation process discovered ***15% rogue assets*** – assets for which an initial baseline inventory had never been conducted. Rogue rates, in spite of published procedures for tagging and scanning all incoming hardware, have been measured as high as 30%.

To manage the divergence and periodically re-establish the accuracy of the asset repository, you must have a methodology for reconciling.

What Causes Divergence?

One source is the re-distribution of hardware. Most corporations have policies on re-distribution which call for the formatting of the hard drive of any PCs to be re-distributed. After the hard drive is re-formatted, a standard software load is applied and the asset is re-distributed. When the hard drive is re-formatted, any electronic ID of that asset (which as stored on the hard drive) will be lost. This will cause your auto-discovery tool to create a new ID, which will end up creating another record in the asset depository for the same PC.

OK, so you solve that problem by having your PC technicians save and restore the file which carries the electronic ID (so, you do need procedures after all!). This eliminates some, but not all, of the problem as procedures will always be circumvented, or the new technician didn't know the procedure, etc.

Another source of divergence is the myriad of demographic changes. A demographic change can take place without any change in the installed hardware environment. A management decision can split a single cost center into two, causing a number of data repository inaccuracies with no detectable change to the installed asset base.

And what about the two thirds of your assets which are not intelligent and cannot be included in auto-scanning (monitors and printers)? Or the one third of your PCs which are not even in service, but for which you are monthly paying lease and/or maintenance fees? Would you take action simply because those assets did not report on their appointed times for auto-scan, or would you like to know for sure? For example, would you take an asset off maintenance simply because it failed to report on multiple occasions? Most likely the owner found a way to circumvent the scan, or the scan no longer completes and the problem hasn't been logged. So, before you take that action, you will spend significant research time investigating the cause, because you do want to be sure before taking that kind of action.

[1] Reconciliation of one department of a large bank located in Manhattan, NY. Total reconciled asset count of 227 assets. Average time to reconcile of 12 seconds per asset.

Performing the Physical to Perpetual Reconciliation

If your asset inventory is bar coded, then physical to perpetual reconciliation (again, considering primarily demographic information) becomes a highly efficient, effective, and accurate endeavor. Reconciliation can proceed at rates as high as 30 times faster than a standard physical inventory, with accuracy rates very high due to the bar code technology. Information that can be reconciled includes:

a. Status of the asset (in service, not in service)
b. Presence of the asset
c. Name of individual to which asset is assigned
d. Site installed
e. Phone number
f. Building
g. Column
h. Cube
i. Cost center
j. Floor where asset is installed
k. Type of asset
l. Role asset is playing (PCs now serving as network servers, for instance)

The need for accuracy of this level of information is generally obvious. Reconciling maintenance contract billing, for example, generally requires knowledge of the asset's in-service status as well as accurate cost center. Returning an asset after its lease expires requires accurate knowledge of not only what components were in the asset when it was originally leased, but where it is currently (when the lease expires). The key point of using bar code technology is that reconciliation can be performed with no or minimum participation, and therefore dependence on, the end users. Another key point is that it can be delivered extremely fast and accurately, using summer-hires or interns, for example. Bar code technology is the fastest and most accurate means of reconciling the demographic and limited static data information in your data repository. Bar code technology makes the problem tractable from a cost and resource standpoint.

CONCLUSION

The benefits of asset management cannot be realized without the successful implementation of Phase II – perpetual inventory. While many are hoping this problem can be solved with automated software, the underlying principle of asset management – that it is a *business discipline* – suggests that more is required. Indeed a successful perpetual inventory requires not only some form of automated software tool(s), but a number of procedures (both primary and audit procedures), and an absolute "buy-in" from top management. Finally, a successful perpetual inventory requires an efficient and accurate means for reconciling the physical world with the data repository – a means for removing divergence that will creep into the data over time. Bar code technology offers the fastest and most accurate means for performing this physical to perpetual reconciliation. When Phase II is realized, however, it provides the foundation for Phase III – the Metrics phase of asset management. It is at this point that true measurements, and the ultimate goal of asset management, can be realized. The ability to truly

measure technology ROI, or stated another way, to minimize TCO (total cost of ownership) is the ultimate goal of asset management.

About the Author

Brett Husselbaugh has over 20 years of experience primarily in the IT industry. He has consulted with over 25 of the leading Fortune 500 companies on strategies for optimizing the IT investment. With experience as both a CIO and a CEO, Brett brings a unique and practical perspective to IT management, promoting the concept of operating as a "business within a business" to deliver measurable value. Brett is a proven business leader, an innovative thinker, a highly effective writer, and an enthusiastic and motivational public speaker.

Brett has experience as founder and CEO of TOBEK Technical Services, an IT Asset Management firm which he started with no outside investment and grew to 80 people in three years. He then positioned the firm and sold it to Inacom, a Fortune 500 company. He then founded eTelligent Solutions, a highly regarded ITAM consulting firm. In 2007, he co-founded Veriam to deliver Value-Focused Asset Management to clients as a managed service. Brett also has experience as a CIO, Managing Partner for Managed Services, VP of Strategic Development, VP of Services R&D, Principal Consultant, Industry Analyst, and Program Manager.

Brett has published several magazine articles as well as over 50 industry white and position papers. He has spoken on numerous occasions to audiences of senior and executive management teams on optimizing IT investment, developing strategy, and effective IT management.

Brett holds a Masters of Science in Electrical Engineering from the University of Texas at Arlington and a Bachelors of Science in Electrical Engineering from the University of Maryland at College Park. He is currently a member of American Mensa.

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