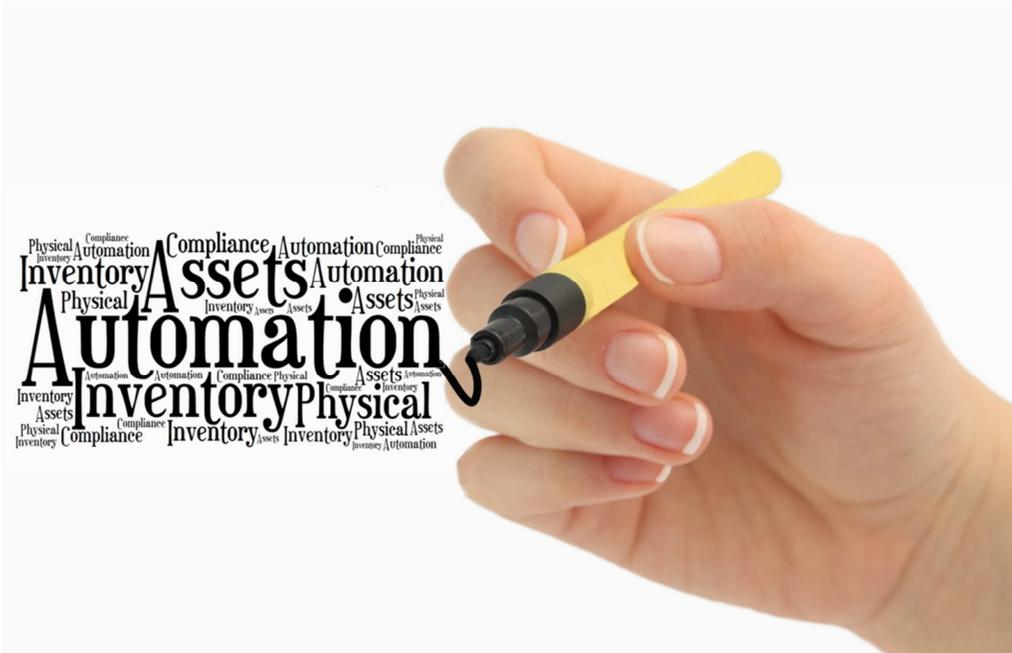# Can 100% Data Accuracy Be Achieved? – A New Generation Of Asset Tracking

Bob Cartwright, Vizualiiz Inc., August 2014

In my previous article, Betting the Farm on DCIM, I talked about the important role DCIM solutions play but identified a corresponding hazard, **The Threat Lurking in the Shadows**. That there are issues surrounding DCIM solutions that are often misunderstood. Also highlighted was the criticality of having accurate, raw data about physical assets and that DCIM systems are totally dependent on this information to function correctly. That without data integrity at the physical assets layer many of the major investments in software solutions, across the enterprise, become a house of cards.

In this article, I'd now like to address why DCIM systems and indeed every other application that requires accurate asset information must rely on what I term a "Foundation Layer (0)" and how this overcomes inherent challenges seen today and moves toward 100% accuracy from a single solution.

What is the Foundation Layer (0)?

It is an application that contains and maintains physical asset data and tracking information. For large sophisticated data center, it is analogous to middleware designed to seamlessly integrate with and feed data to all other internal systems including DCIM, IT Service Management and those "owned" by different responsible departments such as finance. For those smaller facilities or companies that can't afford or don't want to pay the price for these applications, the Foundation Layer (0) acts as a complete asset management and tracking solution.

The Need For A System Of Truth

Data center assets are constantly moving, whether swapping old equipment for new, re-organizing data center facilities due to expansion or contraction or completely moving the data center to a new more energy efficient

location. Whether a large or small data center, IT asset managers are required to track and manage large volumes of inventory adds, moves and changes (IMACS). They do so while having to also ensure the business continues to function which mean the planning and execution has to be prioritized and precise. Attempting to do all these things simultaneously is often a daunting challenge.

DCIM systems and their implementation however, work on a pre-determined assumption that information about physical asset inventories already exists in a system of truth. Yet the management of data center assets manually is still the prevailing norm in many organizations. As a result, in the vast majority of data centers the number assets that exist, their location, attributes and disposition is at best inaccurately record and in many instances management has no idea what assets they have at any point in time. The cause, even the most sophisticated enterprise data centers with hundreds of millions of dollars worth of assets still use clipboards and spreadsheets to try to keep some semblance of order. This practice is inevitably prone to error and the implications and consequential risks to the integrity of the data center and the business as a whole are huge, from every imaginable perspective.

Staring Down The Barrel

There a too many negative ramifications that stem from the lack of a Foundation Layer (0), to properly address them here. It goes without saying that if inaccurate data is feeding your DCIM, ITIL, Service Management and Financial systems, these too are presenting inaccurate data on which erroneous decisions are being taken. While this is damaging enough, here's another specific example to ponder on:

The Audit Peril

Whether driven by corporate governance, software vendors or regulatory compliance such as SOX, HIPPA, GLBA and PCI DSS, rigorous demands are put in place to mandate accuracy in the data center to protect vulnerable data that is unaltered, secured and available. From an IT perspective, regulatory compliance is often seen as a spoke in the works, requirements that merely interfere with normal business operations, create no value while costing a lot to achieve. And regulatory compliance demands that you data center is prepared to face an audit at any time. Equally, those responsible internally are not helped by the fact that none of these regulations tell you exactly how to comply. That said there are stiff penalties if their requirements are not met.

When it comes to software audits, Victoria Barber of Gartner correctly re-stated the obvious:

"Software cannot exist without hardware. So if you don't know what hardware you have, where it is, what it is used for, and by whom, then how can you be sure that you can accurately account for your software?"

So it begs the question for any company still doing manual inventories, as to how can they be prepared for any of these audits? This is of course is greatly magnified in multi-tenanted scenarios.

In compliance terms, the inability to locate an asset points to potential data loss, even possible theft. And it is the inevitable outcome of manual inventory management. Those who test for compliance only when something goes wrong is like closing the stable door after the horse has bolted. It's a ticking time bomb capable of crippling, even causing businesses to permanently shut their stable doors.

How To Tackle Data Accuracy To The Ground

First, let's look at how companies attempt to address this right now.

Method A - Firms use internal audit functions to do full inventory audits quarterly or at worst annually. Then spot audits are randomly carried out to test data integrity.

> **Benefits** – It's better than doing nothing

> **Challenges** – Internal audits are time consuming and costly. For the same reasons as described earlier, this is still a manual process that at best achieves 80% accuracy based on standard industry metrics and often much worse. Whatever the level, there is a decay in accuracy every day until the next audit.

Method B – External specialist firms are used or mandated for full inventory audit and simulations.

> **Benefits** – Frees up internal resources. The results and findings are impartial. Also their processes and expertize likely generates better accuracy.

> **Challenges** – 3rd party audits are costly, minimally running at between $13 - $15 per asset (but can cost much more). In addition, the use of 3rd parties is a never ending operating expense. You pay every time. Most of these audits deliver comma separated or Excel worksheets containing a minimum subset of asset details and disposition. But the process used is still manual and again there is a decay in accuracy until the next audit.

The Road To Achieving 100% Data Accuracy

Building the Foundation Layer (0) and automating the inventory management processes is the key to success. When we at Vizualiiz, started to figure out what would be required to solve this problem once and for all we realized that a totally new software approach was needed based on smart mobile technologies.

The solution comes in four steps:

1. Tag all data center assets and racks with passive RFID tags as part of the next inventory audit.

   OK I can hear you say this is expensive and time consuming. But it really isn't. We have found the cost to be equivalent to current audit fees with the minor addition of the tags, about $2 each.

2. Use pre-built workflows based on portable tablet devices that mirror and automate best practices in initial inventory tagging, audits both full and spot and IMACS processes. Link these tablets via Bluetooth to RFID and barcode readers to capture tag and serial number data.

   Initial inventories using these workflows capture asset location (rack and Ù), make, model, hostname. And subsequent audits use this data for asset identification along with the RFID tag and serial numbers.

3. Once a full inventory has been completed, the next step depends on your circumstances. You need to populate this data into a Foundation Layer (0) repository so that you can use, maintain and update the information in future audits.

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This application needs to be built if you don't have this capability in-house. Recognizing the requirement, we chose to develop LightsOn for this purpose, which seamlessly integrates using bi-directional wireless communications with the tablet applications.

4. Undertake a validation audit by downloading the entire asset and rack data from the Foundation Layer (0) to the tablet device and re-do a full audit.

   This second audit is now fully automated. Walking through the data center with the RFID reader re-identifies and validates the presence and location of assets. The automated inventory audit typically takes **15 minutes per 1,500 assets**. The system also identifies and flags any errors that are then corrected through a specific workflow.

While there is still a human factor, you can never guaranteed 100% accuracy. But you can get near prefect results using these tools and capabilities. Furthermore, the same automated, portable tools and workflows, integrated with the Foundation Layer (0) eliminates manual audit for good. No more spreadsheets and clipboards. And because audits are now so fast you can do more of then, simply and quickly. Data integrity becomes the norm and confidence in reporting grows quickly.

The Foundation Layer (0) is now a living, breathing system of truth. It complete mitigates the risks previously describe and can now accurate feed data into your DCIM and other mission critical systems.

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