SECURING THE SUPPLY CHAIN WITH SERIAL NUMBERS

How secure mass serialization can help fight counterfeiting, diversion and theft

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EXECUTIVE SUMMARY

Brand protection and supply chain security are of critical importance to most corporations, yet only a few have begun to fully understand how traditional security measures are enhanced by software services and IT solutions. Software solutions for secure mass serialization, product authentication and item-level traceability are powerful tools that brands can leverage to protect their profitability in the face of counterfeiting, gray-market diversion and other common brand protection challenges. Each of those software tools can drive profitability through a number of use cases, which depend on a brand's unique products, supply chain and operational processes. A clear understanding of secure mass serialization, product authentication and traceability can help brand owners create the best strategies to promote and protect their brand. This white paper outlines a basic definition of these three software tools and provides a brief overview of their application to some common brand protection challenges.

SOFTWARE TOOLS FOR BRAND PROTECTION AND SUPPLY CHAIN SECURITY

Software solutions such as serialization, digital authentication and traceability offer some of the most effective and efficient tools for brand protection. These tools create value by leveraging new information for business intelligence and analytics. A basic definition of each of these tools is provided below to help explain how they can be applied.

- **Mass serialization** refers to uniquely identifying items, commonly using barcodes, data matrix codes or alphanumeric codes. This becomes secure mass serialization when the items are uniquely identified with codes that are unpredictable and when access to those codes and the code schema is restricted.

- **Digital product authentication** is enabled when the unique serial numbers on items are checked against a database of valid serial numbers. Tools that support additional product information—including visual attributes, manufacturing information or item status—give brand owners additional insights into authenticity.

- Capturing and recording a history of when serial numbers are applied to items and where the items with those numbers travel within a supply chain creates item-level **traceability**. Tools that support additional information about the history of events—including business transactions, logistics or operational information—give brand owners even more insights into their supply chains.

Many of the common challenges facing brand owners require one or more of these tools to create a cost-effective solution for brand protection. The scenarios below give a brief overview of some of the most common challenges and a simple explanation of how these tools help brand owners recover profitability.

COUNTERFEITING

Counterfeiters misrepresent their products as being authentic, genuine or authorized items bearing a brand's identity. Common examples of counterfeit products include "knock-off" designer clothing, fake jewelry or accessories and illegally reproduced movies. Counterfeiting also extends to pharmaceuticals, defense electronics, medical supplies and much more. Although most organizations are intimately familiar with their products and manufacturing, it can still be challenging to differentiate a genuine product from a counterfeit product manufactured without authorization.

Mass serialization assigns a unique identity to individual items, giving brand owners a quick and easy way to screen items for authenticity. Checking the code on an item against a database of valid codes is only the simplest form of this authentication. Sophisticated systems will associate individual codes with a particular product line or even an individual item. Some also provide additional product information, ranging from a product image to technical statistics or even explanations of physical security. Leveraging traceability information to deduce the current state of an item (as being sold to a consumer at Retailer A, in Warehouse B or returned to Recall Center C) further helps to confirm an item as being genuine and from the legitimate supply chain. This can be especially true in the case of manufacturing overruns.

MANUFACTURING OVERRUNS

Counterfeit products are often made in substandard manufacturing locations, even in a residential basement, though some are made in the very same facility that produces the genuine items. This usually happens when workers at a factory run the machines to create additional products during hours when the facility is meant to be closed. These items are called manufacturing overruns and present equally great financial challenges to brand owners compared to other types of counterfeits.

Secure mass serialization helps stop manufacturing overruns by individually identifying each item with an unpredictable code and issuing those codes in a controlled and documented manner. Individuals creating items during a manufacturing overrun have no access to the unique codes needed to be applied to these items. This helps to deter overruns from ever happening by creating a system of recording what happens within a facility, much like a video camera deters unauthorized activity by documenting events. Similarly, tools for traceability require a serial number to be checked at each step in a supply chain, creating visibility beyond a brand's four walls.

Many traceability tools create alerts for repeat numbers, invalid codes or unusual events. One unusual event would be a product with a valid code running on a manufacturing line, when the item status associated with that code is marked as shipped to a reseller. Having an item status and history helps to track overrun items back to an individual or facility. When brands follow up with those individuals and facilities, it helps to spread the message that the brand has visibility into manufacturing overruns, thus discouraging it from happening again. Much of the same process can be used with similar success in stopping gray-market diversion.

GRAY-MARKET DIVERSION

Many products may be worth more money in one geography or market than another. This can lead to a situation where products are diverted from their authorized and intended market to a more lucrative but unauthorized market. Gray-market diversion happens when a legal product is diverted from its intended recipient to be sold in a way that is inconsistent with agreements with the brand owner. This could include selling in an unauthorized geography, to an unauthorized party or at an unauthorized price. Traceability software can be a key tool for brand owners to protect themselves against this type of diversion.

Traceability software can go beyond where an item is today and where it has been in the past by applying business transactions and intended distribution routes. These kinds of tools allow brand owners to see where an item was made, shipped to and sold while confirming that all the data matches the expected path. Unusual events can be flagged within a traceability system to create an alert, or even directly notify brand owners. This allows brand owners to identify key trends associated with suspicious events, recall an audit trail for applicable items and approach individuals or organizations with those findings. This helps brand owners identify and successfully recover damages from those accountable while preventing future incidents. Just as with manufacturing overruns, these techniques can be successfully applied to challenges related to theft.

THEFT

Theft is one of the oldest supply chain security challenges. New tools like mass serialization and traceability help brand owners prevent theft from happening and identify those accountable when it does. Although many stolen products drift off to the black market, never to be seen by the brand owner again, some turn up in open, visible marketplaces. In these cases, serialization, authentication and traceability tools help to identify which products were stolen. Brands that leverage serialization and traceability tools can match serial numbers from visible products against those known to be in the stolen shipment. Product authentication and traceability information can also be used to block the sale of stolen items, to help recover stolen items and even to identify key trends in theft. Those trends could include facilities, locations, products or routes with significant correlation to thefts. Like many other brand protection challenges, theft can be best addressed by leveraging serialization, authentication and traceability tools together over an extended period.

CONCLUSION

Secure mass serialization, digital product authentication and item-level traceability give brand owners the tools to harness the power of big data, ultimately driving profitability gains. These tools can be key advantages in the fight against counterfeiting, manufacturing overruns, gray-market diversion and theft. These tools are best used in data-rich environments, which brands can create through broad implementations across product lines that continue to capture data over time. Although many of these tools create significant value individually, they create the greatest value when used in conjunction with each other.

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