

Comparison, by example of Counter-Fight technology vs. Randomization of packages marking

The Counter-Fight technology provides tools for the implementation of meaningful data in a 2D-Barcode, utilizing powerful encryption technique.

The encryption enables keeping the relevant data, printed on the product packaging. The system owner can, at any desired time, access a WEB-Application which decrypts the data and returns its meaningful content to the authorized user.

An "Authorized user" may be the system owner himself, his official dealers, retailers – or even the public.

Data distribution is under the authority of the system owner, who may share any part of the meaningful data with the system users. Every user may get a different share of the data.

As the Counter-Fight data is encrypted, the products may be marked with serial numbers. For the sake of demonstrating the "Counter-Fight NO DATABASE" approach, the following example is used.

Three medicine manufacturing companies are considered:

1. The 'NAIVE' company
2. The 'RESPONSIBLE' company
3. The 'COUNTER-FIGHT' user

The NAIVE company assumes that:

- a. Its products will never be counterfeited.
- b. Its customers have no problem with the printed expiration date.
- c. Its dealers will never create a grey market and the products will be sold only in the official dealer's territory.
- d. Its products will never be subject to criminal activity. If, eventually, a truckload will be stolen – the thieves will not return the products to the market.
- e. There is no need to get customers feedback and the product serves its targets by being sold and consumed.
- f. There is no requirement to trace a single package in the distribution chain and naturally tracing is not necessary to trace a product after its being sold to the end-user.

Cryptocodex Ltd. regrets that it has no commercial solution for the NAIVE company.

The RESPONSIBLE company:

Considers ALL the above to be relevant and important, therefore:

Each and every product (forever) is marked with a random code.

The random code should never be repeated (forever).

The RESPONSIBLE company sets a database, using the random code as its guiding key.

Whenever product data is required, its IT system refer to the database, locate the record containing the random code, and all required data is retrieved and used.

To make the service widely available, for all users (company members, official dealers, retailers and the public) the RESPONSIBLE company develops a WEB application and publicizes that the service is available, accessible worldwide, free of charge.

The COUNTER-FIGHT user:

Follows the steps of the RESPONSIBLE company.

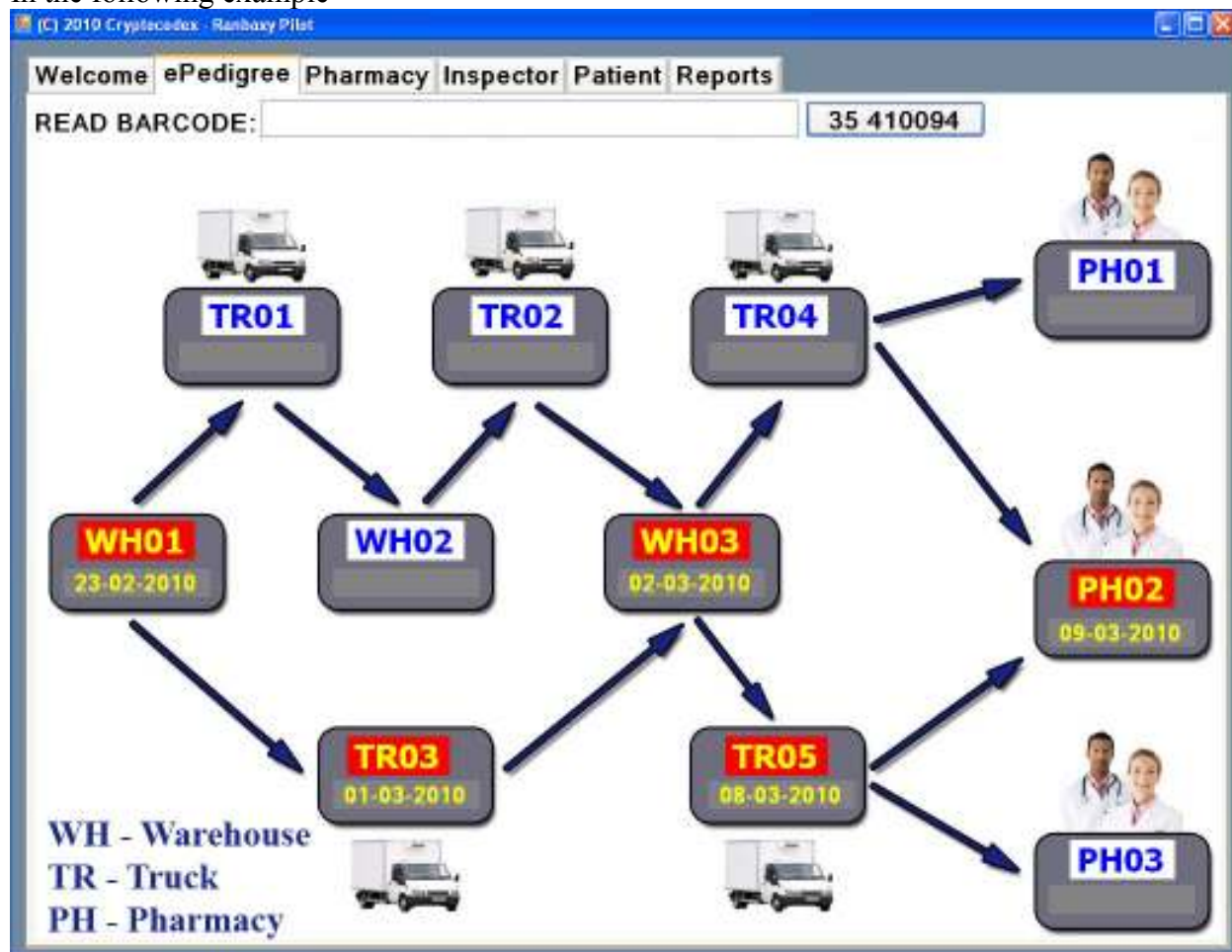
Is aware of the fact that a database, at the required size, will provide poor service even when used off-line (due to database size).

Is aware that installing the huge (and ever growing) database on the WEB is impractical.

Is aware that hackers will interfere with the WEB database (steal the database, or change its content – which is even worse).

Cutting the edges, the COUNTER-FIGHT user is willing (and able) to maintain a very small database off-line and NO-WEB-DATABASE.

In the following example



Day #1

100,000 packets of medicine are being produced.

The RESPONSIBLE company marks each packet with a RANDOM CODE

The COUNTER-FIGHT user assigns a serial numbers to each packet: 000001 to 100000

In the production plant, a database (OFF-LINE) is being created:

<i>RESPONSIBLE</i>		<i>COUNTER-FIGHT</i>	
<i>OFF-LINE</i>	<i>WEB-SITE</i>	<i>OFF-LINE</i>	<i>WEB-SITE</i>
<i>100,000</i>	<i>100,000</i>	<i>1</i>	<i>0</i>
<i>Total: 100,000</i>	Total: 100,000	Total: 1	Total: 0

Day #2

From the manufacturing plant: All 100,000 packages are stored in Warehouse WH01.

The following records are being added:

<i>RESPONSIBLE</i>		<i>COUNTER-FIGHT</i>	
<i>OFF-LINE</i>	<i>WEB-SITE</i>	<i>OFF-LINE</i>	<i>WEB-SITE</i>
<i>100,000</i>	<i>100,000</i>	<i>1</i>	<i>0</i>
<i>Total: 200,000</i>	Total: 200,000	Total: 2	Total: 0

Day #3

In WH01: 40,000 packets are loaded on truck TR01 and shipped to warehouse WH02
The RESPONSIBLE company database must be updated with each and every packet.
The COUNTER-FIGHT database adds one single record, containing the relevant shipping particulars (date, time of WH01 departure, time of WH02 entry...) and the first and last packet contained in the shipment:

000001 to 040000 – in ONE record

The following records are being added:

<i>RESPONSIBLE</i>		<i>COUNTER-FIGHT</i>	
<i>OFF-LINE</i>	<i>WEB-SITE</i>	<i>OFF-LINE</i>	<i>WEB-SITE</i>
40,000	40,000	1	0
Total: 240,000	Total: 240,000	Total: 3	Total: 0

Day #4

In WH01: 60,000 packets are loaded on truck TR03 and shipped to warehouse WH03
The RESPONSIBLE company database must be updated with each and every packet.
The COUNTER-FIGHT database adds one single record, containing the relevant shipping particulars (date, time of WH01 departure, time of WH03 entry...) and the first and last packet contained in the shipment:

030001 to 090000 – in ONE record

The following records are being added:

<i>RESPONSIBLE</i>		<i>COUNTER-FIGHT</i>	
<i>OFF-LINE</i>	<i>WEB-SITE</i>	<i>OFF-LINE</i>	<i>WEB-SITE</i>
60,000	60,000	1	0
Total: 300,000	Total: 300,000	Total: 4	Total: 0

Day #5

In WH03: 30,000 packets are loaded on truck TR05 and shipped to pharmacy PH02, being a main district pharmacy, from which medicines are distributed to the local private pharmacies.
The RESPONSIBLE company database must be updated with each and every packet.
The COUNTER-FIGHT database adds one single record, containing the relevant shipping particulars (date, time of WH03 departure, time of PH02 entry...) and the first and last packet contained in the shipment:

000001 to 030000 – in ONE record

The following records are being added:

<i>RESPONSIBLE</i>		<i>COUNTER-FIGHT</i>	
<i>OFF-LINE</i>	<i>WEB-SITE</i>	<i>OFF-LINE</i>	<i>WEB-SITE</i>
30,000	30,000	1	0
Total: 330,000	Total: 330,000	Total: 5	Total: 0

Intermediate conclusion

It is assumed that the reader of this document already understood that using random coding requires a database follow-up of each and every packet.

Moreover, each transaction, of any package, requires additional database records.

Counter-Fight technology requires only one record per transaction. This one record contains the range of serial numbers identifying all packets associated with this transaction.

Pharmaceutical manufacturers handle billions of packets per year.

Data should be kept for several years, until the product is completely consumed and expired. Only when the manufacturer is absolutely sure that the products disappeared from the market, they can take the records of data off the database.

Learning from past experience, RESPONSIBLE companies, who tried to maintain the enormously huge databases – FAILED. The databases collapsed, even without any 'external help'.

Needless to say that prior to their collapse, the system performance is very poor.

Only non-professional IT members will consider putting such a database on the WEB.

Summary

Counter-Fight, with its small off-line database and NO-WEB-DATABASE provides excellent tools for all the features outlined above (Refer to paragraphs a. to f. of the NAÏVE company).

These subjects are covered in additional documents, but two features, per customers' special request, should be mentioned here:

a. Meaningful Data

Although assigning the random code to each packet does help to distinguish one packet from the other, it **serves no further use**, while in the Counter-Fight solution, relevant and meaningful data is safely stored in the encrypted 2D-Barcode.

It is obvious that the primitive random number does not provide all the benefits of storing valuable marketing and tracing data in the encrypted 2D-Barcode.

The Counter-Fight 2D-Barcode is a **Micro-Database**, having one single record, travelling with the product wherever it goes – available at any moment to be decrypted for the benefit of the manufacturer and the customer alike.

b. Grey Market

Detecting GREY MARKET activities becomes a very simple task.

The meaningful (prior to encryption) data contains three digits, assigning the product to its country of destination (001 – United States of America, 041 – Germany, 039 – Italy, 972- Israel).

Should inspectors be the data collectors, the system owner knows where the data was collected. This information is crossed-checked with the data contained in the 2D-Barcodes (after decryption).

In the case of the public, getting into the WEB application for authentication or expiry information, their computers or cell-phones IPs expose their country (using the Internet IP address conversion country code) – thus, it is easy to flag massive existence of grey market products.