

Eliminating vending variances & Postponing the STS TID Rollover

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PART 1

NO Dispute!

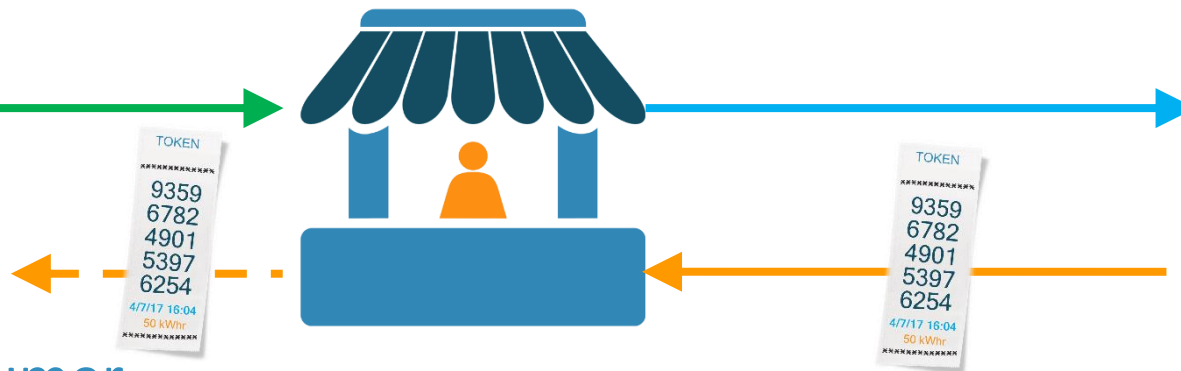
Irrefutable Token Refunds



Consumer dispute (variances)

But if the consumer
can't\won't pay?

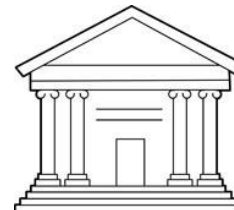
A consumer requests to
purchase a token



Why would the consumer
not pay for the token?

- Wrong Consumer
- Wrong Meter
- Incorrect amount
- Wrong Tariff
- Not enough money
- Card declined

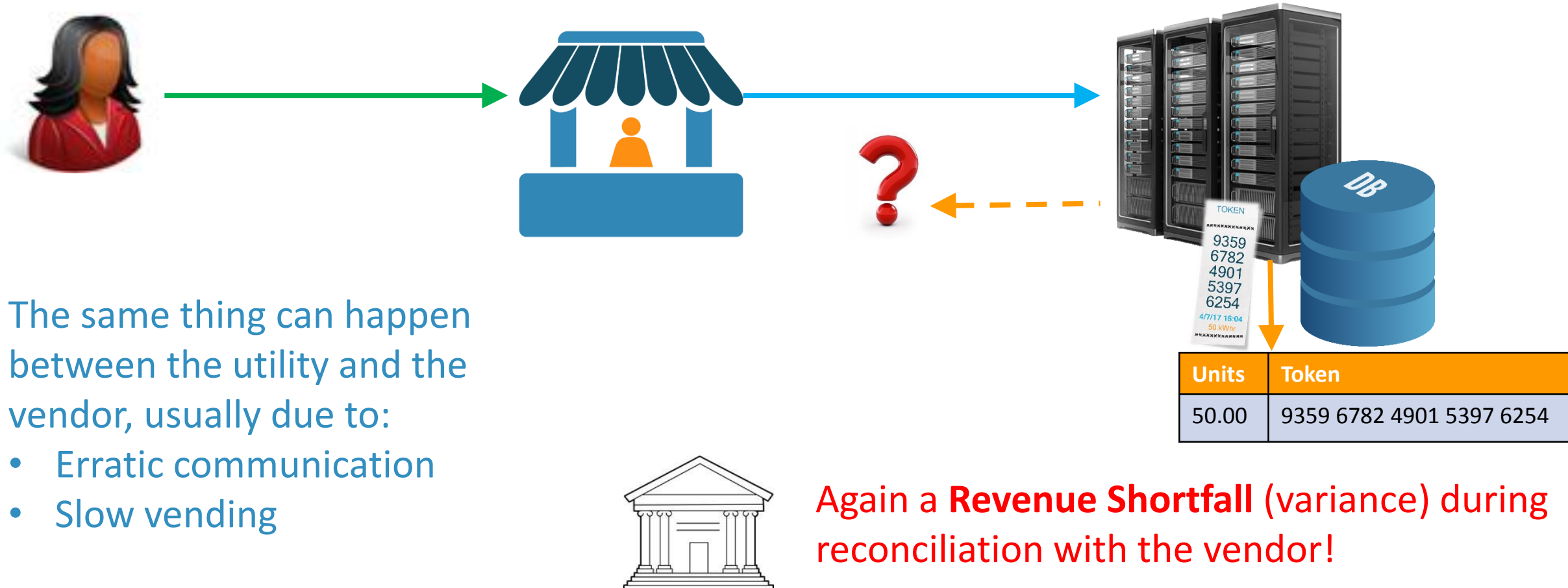
PROBLEM:
The vendor didn't get
paid but the utility still
expects payment.



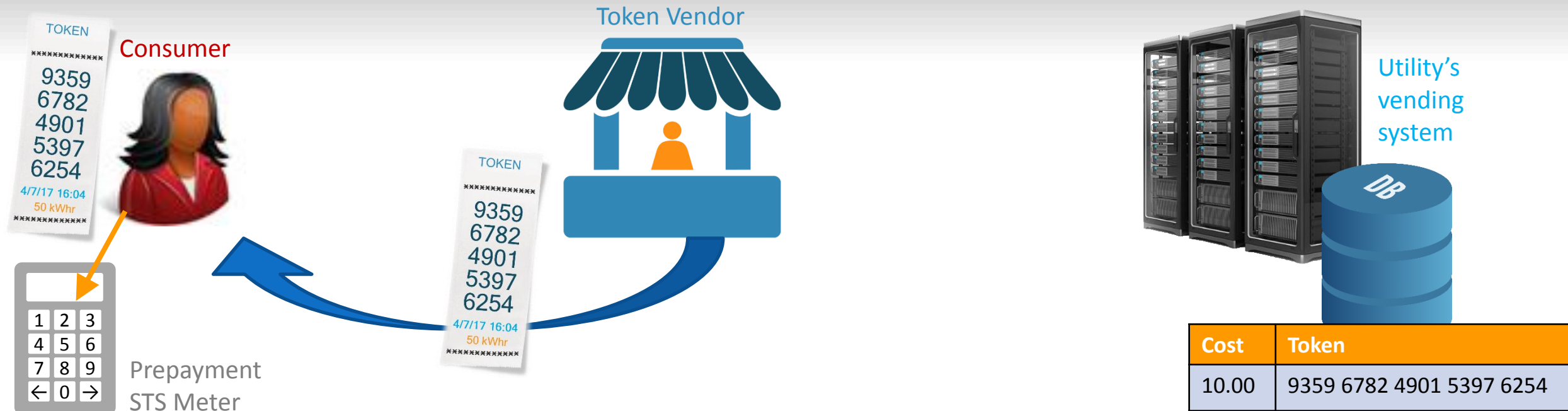
There will be a **Revenue
Shortfall** (variance) during
reconciliation with the vendor!



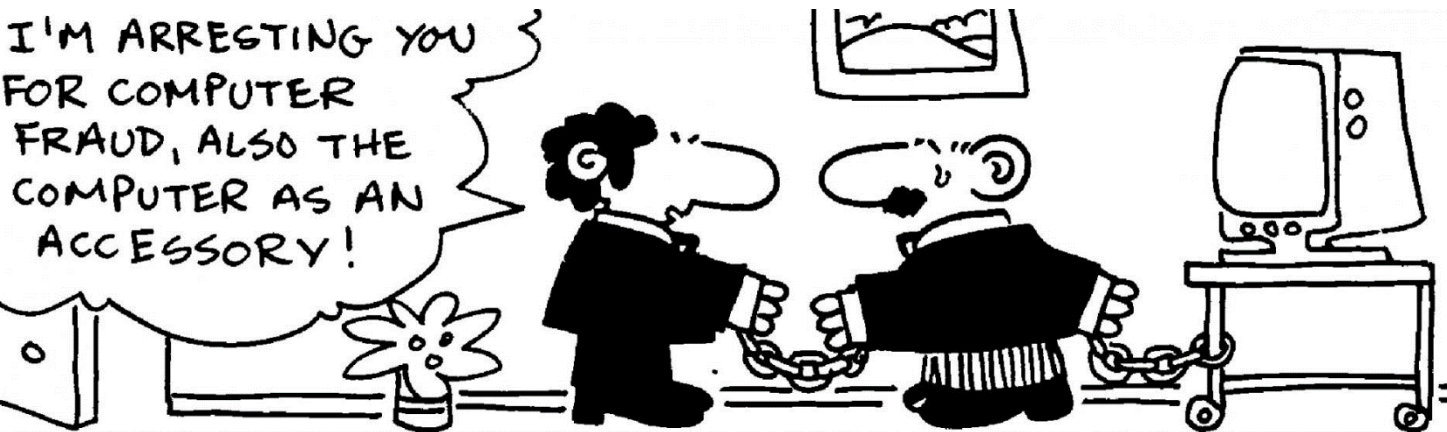
Vendor dispute (variances)



Why is this a problem?



Unwanted and unpaid tokens might be fraudulently sold/used at some time in the future.



No Reversals \ no refunds policy



This is why most Utilities have a
“**no reversals \ no refunds**” policy:
Once the token is issued by a vendor,
it must be paid for.



Does it matter?

- **VENDORS** care because they have to absorb the cost.
- **UTILITIES** care because the unwanted tokens generated create an **unrealistic** perspective on sales and revenue / consumption reconciliation.
- **CONSUMERS** and **UTILITIES** care because unwanted tokens can unfairly prejudice consumers by **skewing the tariff application**:

Consumers with **step tariffs** pay more for the next valid purchases in the same month.

Vendors may try to sell on the unwanted token to the consumer at a future date.



**“What if we don’t change at all ...
and something magical just happens.”**



Let's examine why refunds are an issue?

UNWANTED TOKENS HAVE INHERENT VALUE



METERS ARE OFF-LINE



TOKEN DISTRIBUTION IS OUTSIDE THE UTILITY'S CONTROL



To allow refunds we would need to...

(1) ALLOW UNWANTED TOKENS TO BE **CANCELLED**

+

(2) MAKE METERS *On-line* 

+

(3) FACILITATE **DIRECT** TOKEN DISTRIBUTION TO THE METER

=



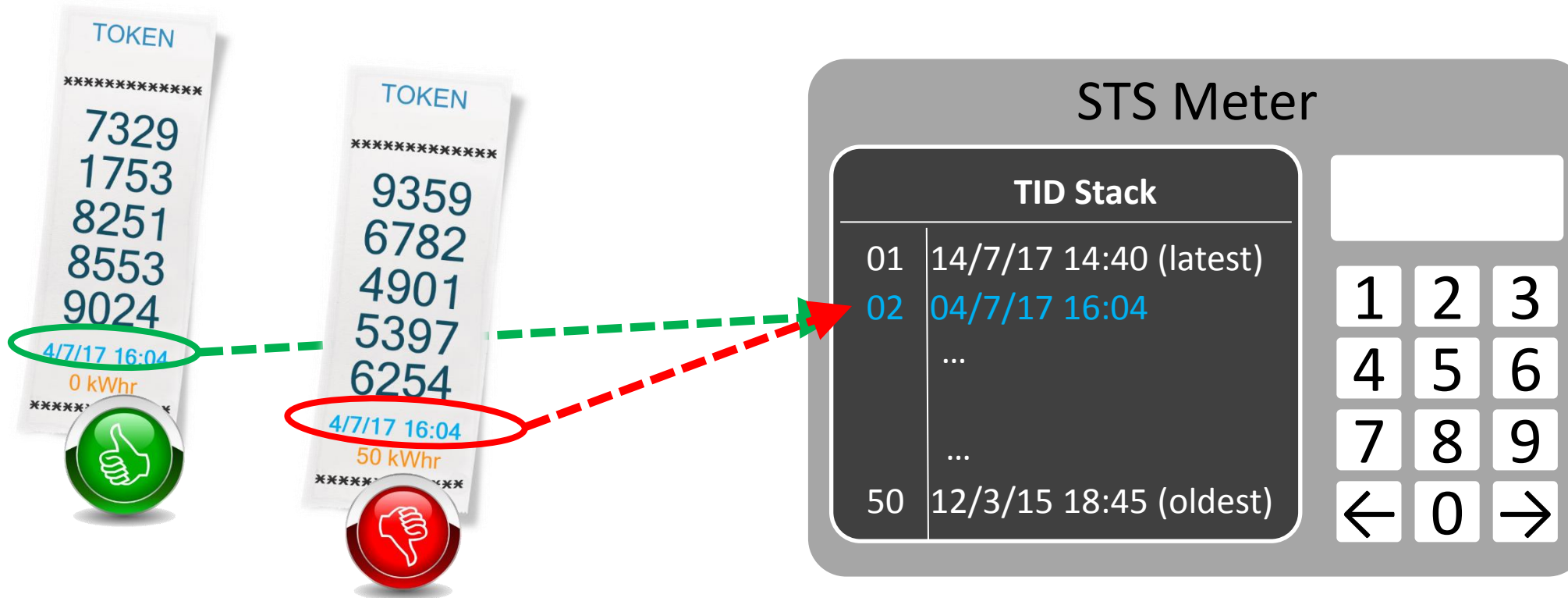
Finding a way to cancel a token...

(1) UNWANTED TOKENS HAVE NO VALUE



A Meter will never accept “duplicate” tokens

This is because, amongst other things each token has a unique time identifier. A meter rejects tokens with the same time identifier (which is of course how FBE tokens work).



NULL tokens

To cancel an unwanted token we can generate and enter another token into the meter with the same time identifier and for zero units (a null token).



If in the future the consumer tries to fraudulently enter the unwanted token into their meter, it will be rejected as a duplicate.



In effect the unwanted token would no longer have inherent value (cancelled).

How does the null token get into the meter?



We need on-line communication with the meter.
Newer STS meters have on-line capability via a concentrator.
Many legacy off-line STS meters can utilize new technology to become **on-line** (semi-smart).



No more variances!
No more disputes!



Can I get half my money back on this bikini?
I don't really need the top part.

PART 2

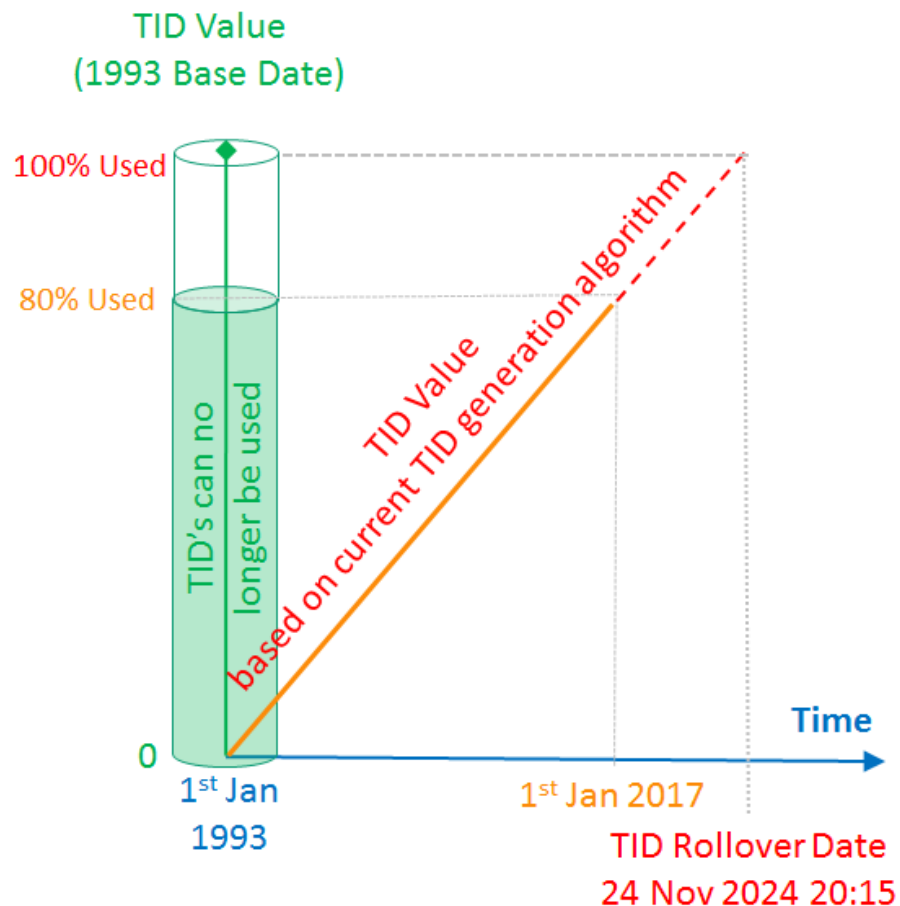


and

TID Conservation

The problem...

All STS meters use a timestamp (**TID**) as part of the encryption technology.



The TID value used increases with time as shown, (once every minute).

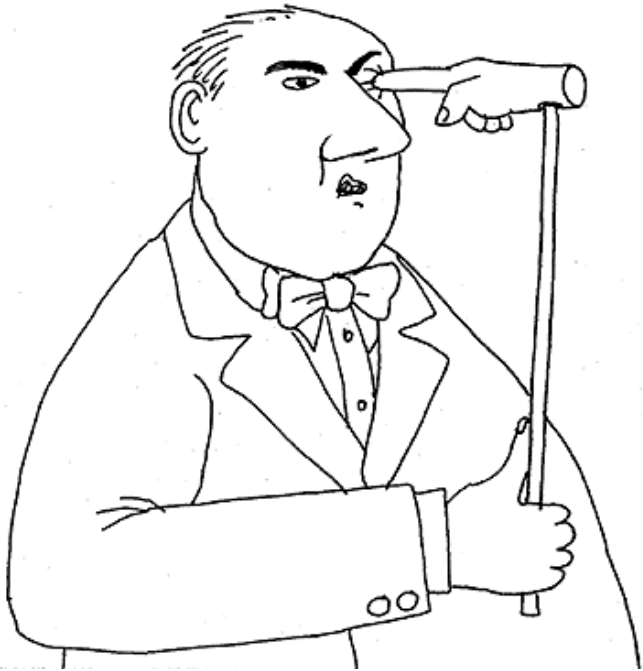
The **TID** value reaches a maximum on 24th Nov 2024 after which meters will stop accepting tokens.

This event is known as a **TID rollover**. More than 80% of TID values have been used up as shown.

STS 6

- The STS Association has defined a major upgrade process (“STS 6”), more details of which will be presented in the subsequent presentation by the STS Association.
- There are many advantages provided by STS6.

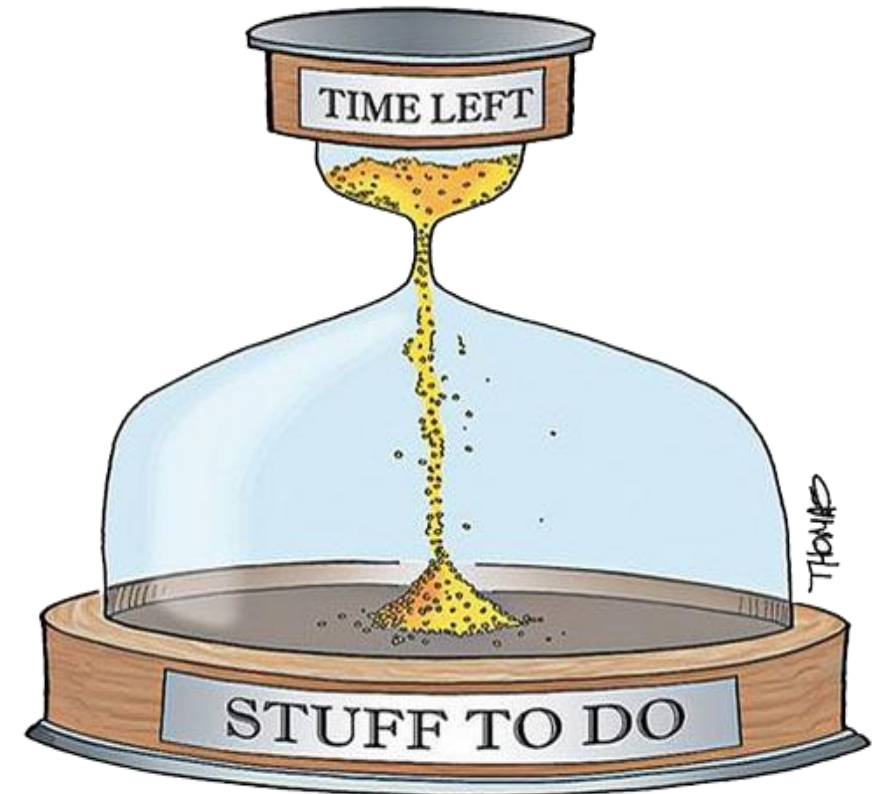
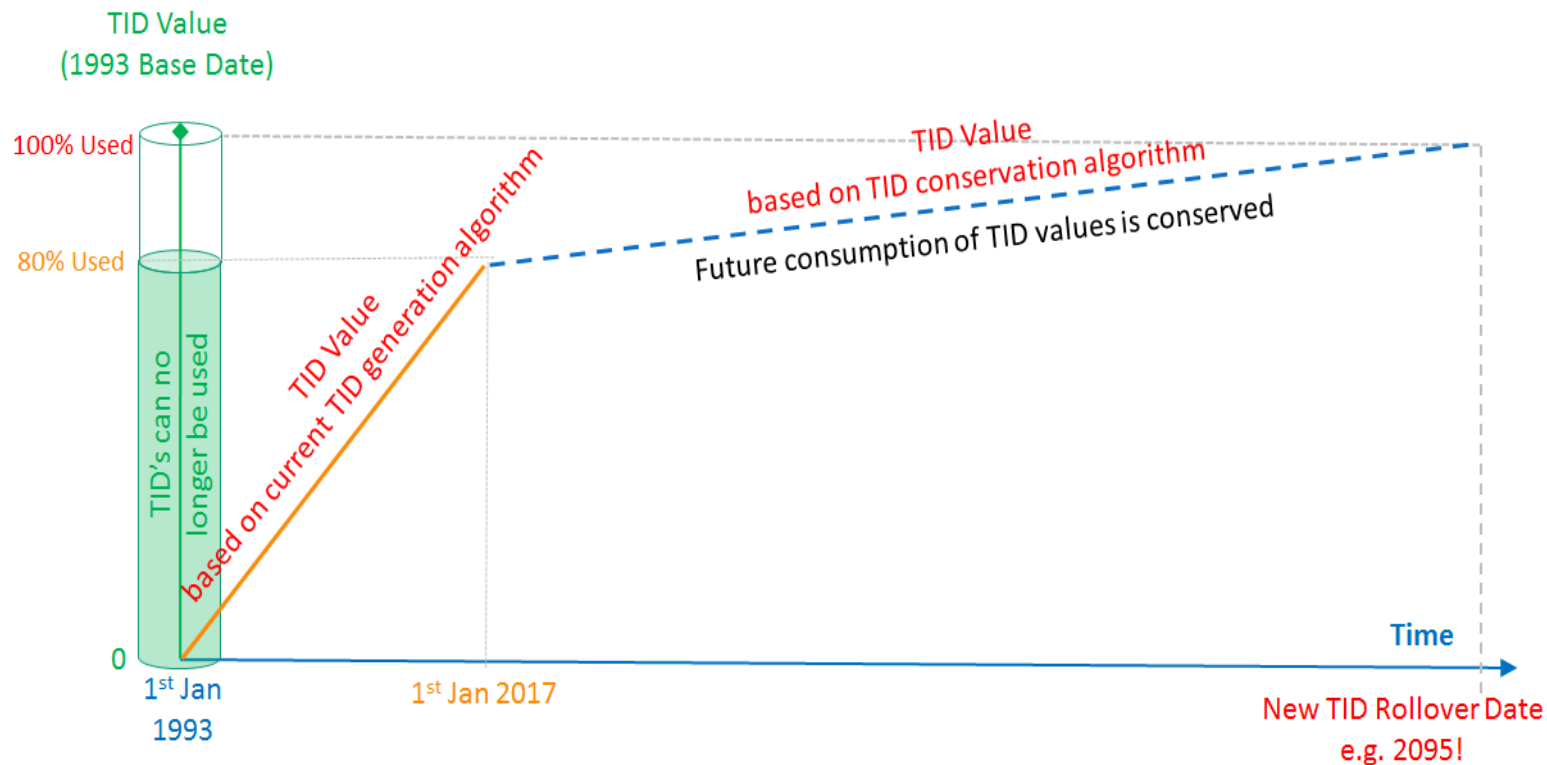
There are some unique challenges!



- A pair of special Key Change Tokens will need to be entered into each meter, most likely by the consumers.
 - Some older meters may not accept these tokens or may implement only part of the change required. These meters will have to be replaced.
 - While a large majority of meters are expected to accept the special key change tokens, it may vary considerably from utility to utility and even suburb to suburb.
- The XML Vend specification does not inherently support delivering key change tokens with a credit token purchase.
- Most credit tokens are distributed by third parties using a variety of protocols. Each third party will have to comply with the delivery of key change tokens to the customer.

But what if we don't upgrade in time?

One option is to **postpone the TID rollover date** by reducing the rate at which TID values are used by **conserving TID values**.



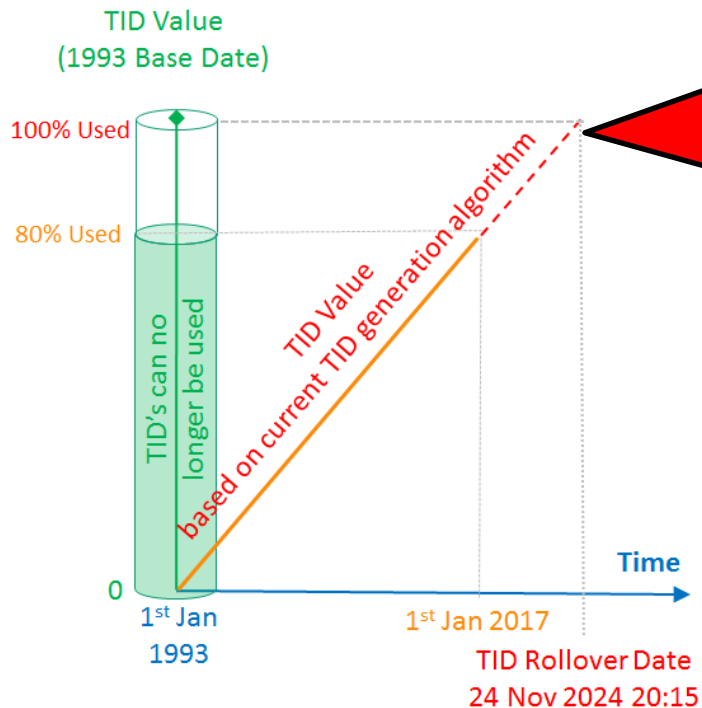
TID conservation is like taking out
insurance for the TID rollover event



It significantly extends the TID rollover date, giving Utilities the freedom to adopt STS 6 without the 2024 time limit pressure.

But don't delay...

As every day goes past between now and Nov 2024, less and less TID values are available for conservation.



Don't wait until here because there will be no TID values left to conserve!



Thank You

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