First Data Corp.

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# How Do You Devalue Cardholder Data?

<table>
<thead>
<tr>
<th>Merchant Environment</th>
<th>First Data Datacenter</th>
<th>Bank</th>
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<tbody>
<tr>
<td>1. Consumer presents card to merchant</td>
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<td>2. Card Data is encrypted and transmitted to First Data front-end</td>
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<td>3. First Data front-end decrypts the data payload</td>
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<td>4. Card data is sent to issuing bank for authorization and, in parallel, tokenized</td>
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<td>5. Token is paired with authorization response and sent back to the merchant</td>
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<td>6. Merchant stores token instead of card data in their environment and uses token for all subsequent business processes</td>
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Encryption

Protecting Data in Motion

• Encryption conceals data through the application of an algorithm and a secret key

• Encryption is reversible, repeatable or both

• There are two types of encryption:
  • Asymmetric or Software-based (public key)
  • Symmetric or Hardware-based (shared key)

• Each type encrypts different data
Tokenization Technology

*Protects data at rest and in use*

- Tokenization is a form of data substitution that replaces sensitive payment card values with non-sensitive token, or random-number, values post-authorization

- **Differs from encryption:**
  - Tokens have no direct relationship with the data they replace
  - Can be stored in the card data environment in lieu of the PAN
  - Non-reversible
  - Can be used more than once to support recurring transactions

- **Support for two distinct types of tokens**
  1. Single Use Tokens
  2. Multi-Pay Tokens