Internet Financial EXchange (IFEX)

Robustness Considerations

As per [ROBUST] and to avoid situation such as [ISO20022CR103], IFEX encourages a "be liberal in what you accept, but conservative in what you believe" philosophy. This philosophy is manifest in decisions to:

* Require only definitively essential fields.
* Build extensibility in to the base protocol.
* Mandate the avoidance of transaction failure where unrecognized information is supplied by one of the communicating parties.
* Delegate mandated field specification to communicating parties.

Value Conceptual Simplicity
The majority of financial messaging requirements identified through the extensive research made during the design of IFEX were relegated to the domain of implementation through extensions; this includes market and jurisdiction-based requirements in addition to financial transaction metadata that may only be relevant between a small number of parties ("bespoke integrations" in UK parlance).

Whilst it may be argued under this guideline that the extensibility notion facilitates the uncontrolled reduction of conceptual simplicity, it is felt that since the user communities in question are the only ones affected it is reasonable to offload to them the responsibilities of this situation.

Minimization of Dependencies
The notion of this guideline is not to blindly trust other nodes.

With regards to Pre State financial transactions, this is manifest in the recommendation to test input given by other nodes and, where possible, against additional nodes' reported status for the same financial transaction. In any case, IFEX is perceived as a 'light touch' protocol in that it does not mandate extensively local processing algorithms and thus delegates the responsibility of correct style to implementers: good luck, and publish your results.

With regards to subsequent state financial transactions and/or the transition to such, the agreement of a client to provide funds for settlement is in most cases a reasonable and potentially legally binding justification for the expense of computational resources.

Verification Where Possible
IFEX attempts to strip out all redundancy as superfluous; see Fee/Tax/Discount Support under Internationalization for an example.

With regards to the linear progression of transaction state class toward Final State (SUCCESS or FAILURE), this facilitates the reduction of impact with regards to the intermediate loss of state updates.

In addition, IFEX's communications paradigm neutral approach means that state-loss situation may result in queries to other parties to a transaction may reliably update state without nasty surprises, ie: whilst current remote state COULD be incorrect, a subset of possible

remote states MUST be known at all times. Such information SHOULD be sufficient for all parties to effect decisions regarding the financial transaction in question; in particular, the cancellation and transition to FAILURE of financial transactions in which financial transactions with status falling in to the Final State category (ie: SUCCESS or FAILURE).

Protection of Resources
IFEX's state transition model requires that connecting parties specify a relatively large amount of information regarding any given transaction. In return, responding systems provide a very brief response. From a network resource perspective, this achieves the desired affect of removing threats of traffic multiplication at the message (application) level, regardless of the elected transport-layer protocol.

The state transition model also requires a linear progression between financial transaction states and their classes; thus, incorrect behaviour is limited and MAY result in the cancellation of a transaction (ie: the reporting via a RPT message of a financial transaction's transition to FAILED state by the party detecting the error).

Limitation of Vulnerability Scope
TEMPORAL:
... individual system can alter their perception and trust for remote IFEX nodes based upon the state of a transaction.

PRACTICAL:
... settlement terms may be negotiated to very specific levels.

LEGAL:
... the option for signed messages enables non-repudiation.

Expose Errors
Provision has been made for error exposure at every stage of a transaction, ie. in any Transaction State or within any Message Type.

In addition, to provide implementers with adequate information for the provision of error processing .... local requirements, an hierarchical approach has been taken to error specification. Such an approach allowed implementers to provide varying levels of feedback and processing activity based upon the type of error encountered.

The relationship between [IP] and [ICMP] was reviewed to better inform the design process.

Comments