

AVISO CASE STUDY #1

Themes: Clojure, Docker/Devops

AVISO CASE STUDY - ECOMMERCE SIMULATION TEST

Meet Aviso

Aviso is an Irish financial services company that provides flexible EFT switching with its "Novate" product. Aviso and its parent company FEXCO provide their services to partners like Barclaycard, First Data and Global Payments.

Novate is a large financial switch with nearly 100k lines of code. It is built in Clojure, uses Postgres, and runs on the JVM.

The Project

Timeline: Apr. 2016 - Nov. 2016

During Q4 of 2015 and Q1 of 2016, Aviso was developing a new eCommerce gateway. Aviso saw this as an opportunity to implement simulation testing on this new development. Aviso reached out to Homegrown Labs to design and implement a *simulation test* to further validate their work.

The primary goal of a *simulation test* is to validate & battle-test a system **before** it reaches production use. A suite accomplishes this by *generating randomized, realistic user behavior*, then running it against a copy of the system and recording the results.

From this recording, we can report on the relative health of the system and whether the responses we received line up with what we expected.

The Work

With Aviso's eCommerce gateway being a financial system, the primary concern was testing the very strong assertions the API and team had made regarding performance agreements, response handling and errors.

Throughout the course of our engagement, Homegrown Labs designed and implemented a simulation test for the eCommerce gateway that stressed a number of key pathways through the system:

- Simulated users acted independently, authenticating first, then submitting a stream of payment requests.
- Actions randomly cycle between expected success and failure cases
- All possible purchase failure cases are run through the system system top-to-bottom.

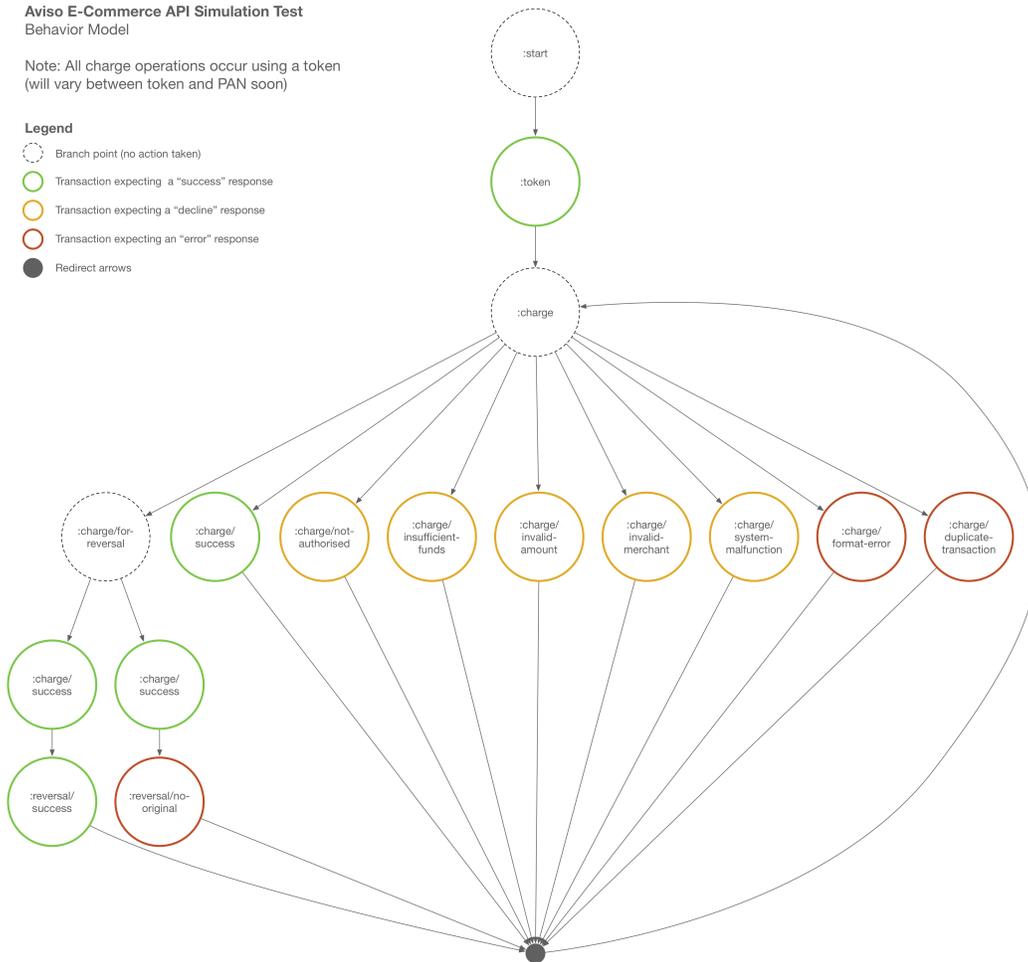
What follows is the probabilistic model developed for the suite:

Aviso E-Commerce API Simulation Test Behavior Model

Note: All charge operations occur using a token (will vary between token and PAN soon)

Legend

- Branch point (no action taken)
- Transaction expecting a "success" response
- Transaction expecting a "decline" response
- Transaction expecting an "error" response
- Redirect arrows



After the suite was complete, Homegrown Labs integrated it as a stage in Aviso's delivery pipeline management software (Bamboo). Here, the suite acts as one of the final "last-mile" stages before a release can be certified for release.

Results

In the months since its inception, the suite has helped discover and resolve over 10 independent issues in core system and delivery pipelines.

Since the initial engagement, Homegrown Labs has contracted with Aviso for

further follow-up work, integrating the suite into its core build. Developers are now expected to get *at least one green build* of the suite before their work can be released.