

Reduction in the Know Your Customer Pass Rate

Background: In the recent period: May–October 2017, the Know Your Customer (KYC) process for Revolut customers has been undertaken by Veritas. For a customer to successfully get aboard, they must pass both the Document Check and Facial Similarity Check. A customer that gets aboard within two attempts is deemed to have passed.

MLR 2017 came into force during this period in June—it restricts the circumstances in which simplified due diligence can be applied. Another development was Veritas adding a new token authentication scheme for the web SDK in July, each new token is obtained from the Veritas API and is needed to create each applicant.

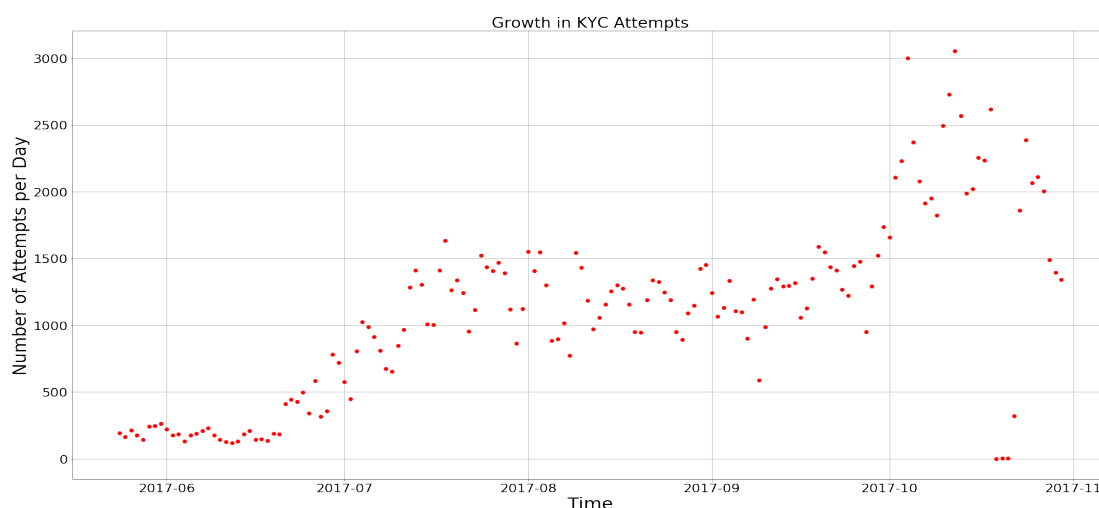


fig. 1.— Growth in the number of attempts per day to get aboard in the recent period

As a product of Revolut’s rapid growth, there has been marked growth in customer attempts to get aboard in the recent period; however, the pass rate has fallen significantly in that time—a 27% drop. To attempt to find out the cause of this drop, data pertaining to the two constituent Checks was parsed. The Document Check success rate declined in-line with the pass rate, specifically due to a decline in the clearance of the Document Check Image Integrity Report (IIR).

For each Check performed by Veritas on an applicant there are breakdown reports (which in themselves can have sub-breakdowns), that contribute to determining the overall result of the Check, sometimes these reports fail to provide any result. The Document Check comprises ‘data integrity’, ‘visual authenticity’ and ‘police record checks’. The majority of documents are processed instantly; although, there can be a delay when the document is of insufficient quality, then analysis falls back to expert review.

When a Document Check is unsuccessful, the value of the sub-result report will provide further categorization: ‘rejected’, ‘suspected’ and ‘caution’. A large increase in Document Check Failures, beginning in September, were attributable to ‘caution’.

Data Analysis

Figure 2 shows that the cause for the reduction in the pass rate is wholly due to the rate of applicants passing Veritas’ Document Check. The Document Check verifies the internal and external consistency of the most recent identity Government issued document. A key juncture was in early September (5th-10th) where the Document Check success rate starts to markedly decrease.

Analysing the Document Check Breakdown reports revealed that the reduction in the success rate of the Document Check was due to the rate of clearance for the subsidiary IIR Check: Figure 3. The IIR asserts whether the document was of a sufficient quality to verify.

The IIR, itself, comprises the Supported Document Result, Image Quality Result, Colour Picture Result and Conclusive Document Quality Result (CDQR). The CDQR asserts whether the document was of enough quality to be able to perform a fraud inspection. Interestingly, the Veritas API only started registering results for the Colour Picture Result and CDQR in August, a month before the Document Pass Rate begins to decline markedly in-line with the CDQR.

After the CDQR started to register results, it became a direct predictor for the overall IIR clearance rate, The IIR rate, depicted in orange, and the CDQR, in green, directly mirror the Document Pass Rate when it begins to decline, diverging from the other reports. This restricts the causative element of the overall pass rate decline to the CDQR.

Conversely, Figure 4 shows the Document Check Failure Rate, in blue, which is the sum of the other plots—as they are subsets of Document Failure. Before September, the principal reason for Document Failure was ‘rejection’. Then the volume of Document Checks that fail and that are classed as ‘caution’ rises precipitously, exactly coincident with when the CDQR begins to trend downwards.

A ‘caution’ result is defined as: ‘if any other underlying verifications fail but they don’t necessarily point to a fraudulent document (such as the name provided by the applicant doesn’t match the one on the document)’

Information extracted through OCR was analysed, which provides information on each attempt such as the applicant’s gender, the document type and the nation issuing the document. No trends influencing the reduction in the Document Check Pass Rate were found.

Summary

- The pass rate decline is due to the Document Check
- The Document Check’s initial decline is due to a rise in ‘rejected’ documents
- The Document Check’s main decline in September (5th–10th) is directly correlated to Image Integrity Reports failing to clear; specifically, the CDQR which forms part of the Image Integrity Report
- The document checks that are failing due to the CDQR are categorized as ‘caution’, a categorization having low volumes before this event
- This decline does not appear to be due to changes in the nature of the applicants

Possible Causes

- The Veritas API indirectly being put under strain by growth in user attempts.
- Veritas updating the token authentication scheme, which caused problems downstream, manifesting itself in the CDQR checks.
- In light of MLR 2017, changes had to be made to make the KYC more robust to comply. This could be why the rate of ‘caution’ results increased, as the failed documents do not necessarily point to a fraudulent document, the documents simply face more robust checks.

Interpretation

No trends were found relating to the nature of the attempts, such as a rise in applicants from a specific nation coinciding with document failure. Neither was there an increase in fraudulent attempts. Therefore, it seems safe to assume that the nature of the attempts did not change.

Therefore, the problem seems to stem from Veritas and the API, which has clearly been undergoing changes: no properties for the Facial Similarity Checks were recorded in the latter period; the Compromised Document Result only started recording results in the latter period; and, colour picture and CDQR only started recording results in August. These could have been new metrics with the CDQR being changed early on leading to IIR failures and by virtue Document Check failures.

Assumptions

- The extracted information from the subset of attempts where this was possible was representative of other attempts.
- As access to previous data is not possible, it is difficult to discern if the initial increase in ‘rejected’ document check failures is significant. If it is significant it is assumed that this is an issue with Veritas API.

Solution

- Have clear communication and work closely with the engineer, technical and design teams at Veritas to investigate thoroughly why the CDQR clearing rate had reduced
- Highlight the document checks being classed as 'caution' and work with Veritas to improve the IIR
- Focus on reducing the 'rejected' documents by improving the onboarding workflow, and simplifying checks
- Improve the turnaround time for the onboarding process, so users that failed once would be more inclined to re-submit their document and photo
- Research competing providers of identity verification that will be able to keep pace with technology and regulation, explaining the current issues

Figures[†]

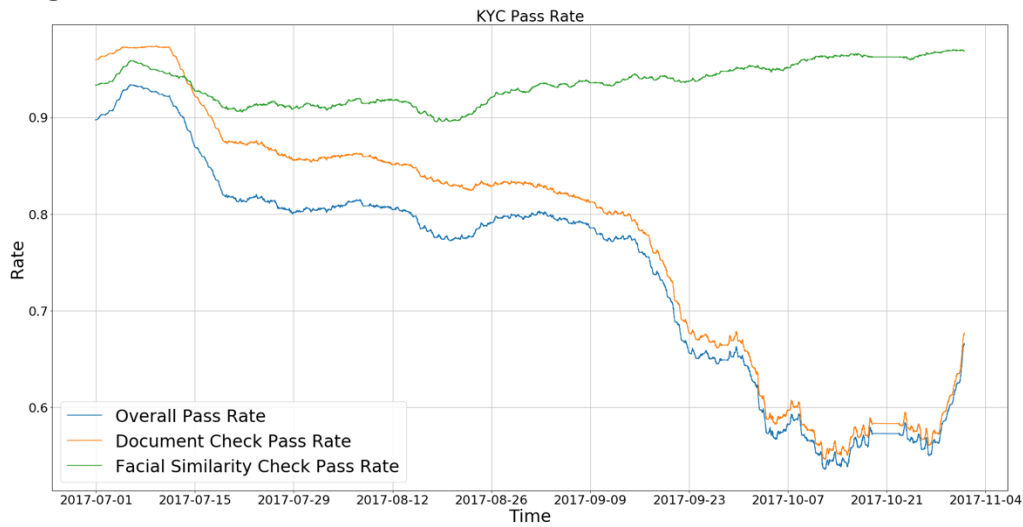


fig. 2.— KYC Pass Rate, illustrating how the reduction in the Pass Rate is wholly down to the Document Check

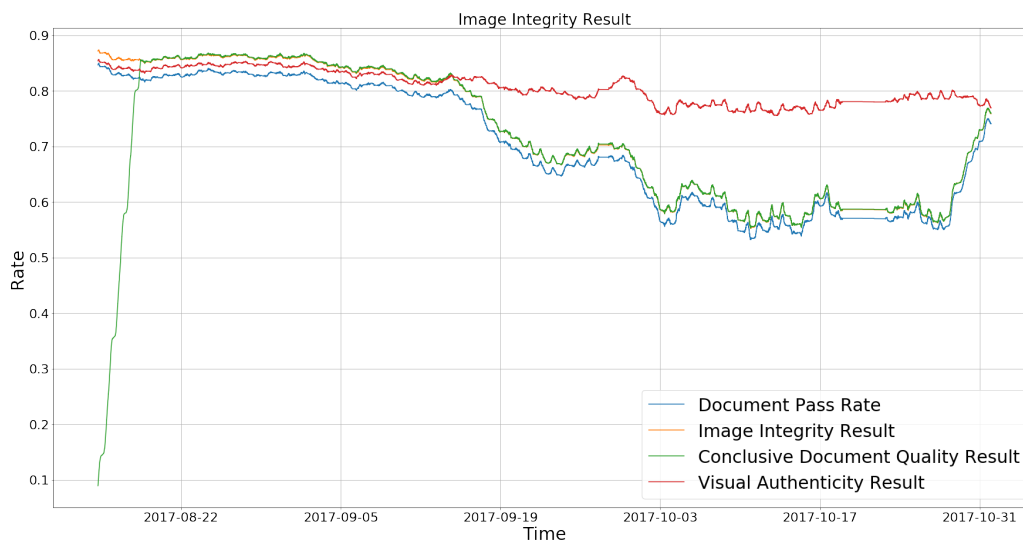


fig. 3.— Result of the Image Integrity Report compared to the Document Pass Rate. Conclusive Document Quality is a sub-breakdown of Image Integrity whilst Image Integrity is a breakdown report of the Document Check. The result of the Visual Authenticity report is shown for reference

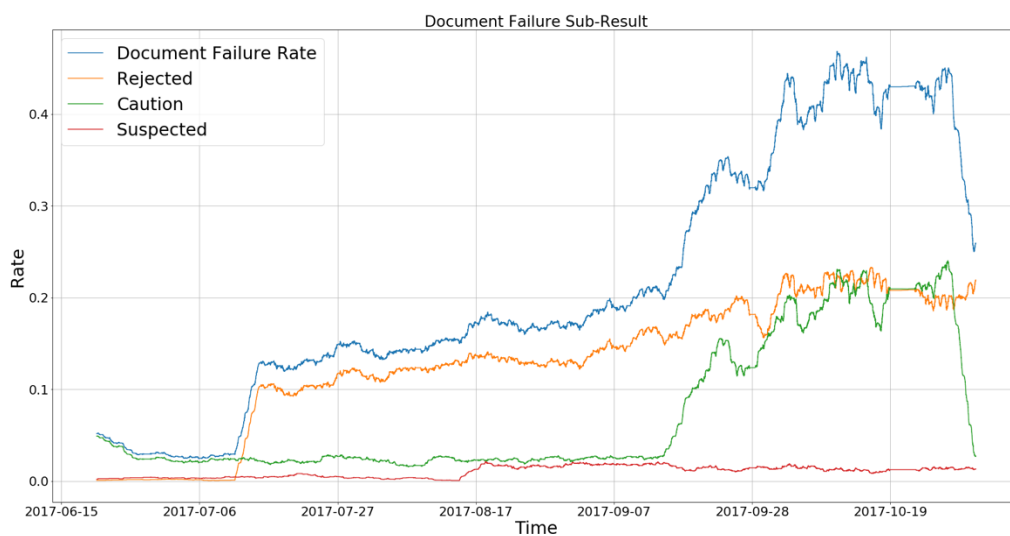


fig. 4.— Document Failure Rate during the time period compared to the rate of the different failure categorizations

[†] All rates calculated as moving averages to illustrate the trends and any correlations during the period (May–October 2017)