Score Tickets
Crash and Risk Report

Authors

Implemica CTO: Boris Kryzhanovskyi
Implemica Chief Scientist: Viacheslav Shatillo, PhD

Document revision: 11
Document updated date: Nov 27, 2023

ScoreTickets - Crash and Risk Assessment Report

Introduction

This document addresses critical functionality and reliability aspects of ScoreTickets automation project.

Objective

The document is designed to achieve three primary goals, derived from the analysis of the *Crash and Risk Assessment Form* provided by Mark on Nov 20, 2023:

1. Outline
   - **major functionality and operations** of the business automation,
   - **critical settings and aspects;**
2. Evaluate
   - Identify **risks** associated with the outlined functionality and operations,
   - relative **severity** of the risks,
3. Suggest
   - Propose **solutions** to ensure reliable operation, and mitigate/minimize the identified risks,
   - evaluate the relative **cost** (development efforts) of implementing the solutions,
   - **priority** for the implementation of those solutions.

Key Criteria for Quality and Reliable Service

Business value of the service:
- Delivery of the ticket to the specified address at the required time, or at a time that still allows the ticket to be used.

Ticket features:
- Time constraints for meaningful use.
- Time limits for returns.
- Periods associated with return losses.
- (optional) Consideration of possible urgent cases.

Service criteria:
- Verification of the provided address.
- Understanding of delivery deadlines: Availability of ticket's usage date and time, or desired delivery date.
- Prompt actions for timely delivery or advance notification.
- Regular recalculation of delivery time compared to the "usage deadline"

Note

Due to tight deadlines, the document might be incomplete and might require deeper analysis.

Major functionality and operations

After analyzing the Crash and Risk Assessment Form, the following business functionality will be considered in the document, along with estimated severity:

#	Business functionality	Severity
1	Validation of shipment addresses	Critical
2	Creation of shipments	Critical
3	Tracking shipments	Important

Critical settings and aspects

After analyzing the business domain, and other requirements provided, the following critical settings and aspects of the automation will be considered in the document:

#	Point of operation
1	Dependency on third-party (UPS API)
2	Ticket shipping deadline
3	Automation availability and timing

Approach to Crash and Risk Analysis

The Crash and Risk Analysis will be broken in three sections:

1. Two sections, each corresponding to components:
   I. major functionality and operations
   II. critical settings and aspects,
each outlining:
   2) Risks that were identified when analyzing the components,
   3) Estimated risk severity, associated with this risk;
   4) Proposed possible solutions for ensuring reliable operation, and mitigating/minimizing the risks
   5) Estimated relative cost of implementing the solution.

2. A unified section, suggesting **priority** / sequence of implementation of proposed solutions, based on estimated:
   1) risk severity
   2) relative cost of each proposed solution.

Evaluate Risks and Solutions - Major Functionality and Operations

Validation of Shipment Addresses

The following risks were identified, along with proposed solutions and their relative implementation cost, with regards to *Validation of shipment addresses* functionality:

#	Risk	Severity	Proposed solution	Relative solution cost
1	UPS Down (> 1 min)	Critical	Use alternative address validation provider (e.g. FedEx)	Medium
2	UPS temporarily Down (< 1 min)	Critical	Retry within minute, user waits	Low

Creation of Shipments

The following risks were identified, along with proposed solutions and their relative implementation cost, with regards to *Creation of shipments* functionality:

#	Risk	Severity	Proposed solution	Relative solution cost
3	UPS Down (> 1 min)	Critical	Use alternative shipping provider (e.g. FedEx, Taxi/Bike courier etc.)	High
4	UPS temporarily Down (< 1 min)	Critical	Retry within minute, user waits	Low
5	Shipment expected late (e.g. delivered after the ticket date)	Critical	1. Inform the client	Low
			2. Use alternative shipping provider (e.g. FedEx, Taxi/Bike courier etc.)	High

Tracking Shipments

The following risks were identified, along with estimated severity, proposed solutions and their relative implementation cost, with regards to *Tracking shipments* functionality:

#	Risk	Severity	Proposed solution	Relative solution cost
6	UPS Down (> 1 min)	Important	TBD	??
7	UPS temporarily Down (< 1 min)	Important	1. Retry within minute, user waits	Low
			2. Return latest tracking info (if applicable, see Solution #8.1)	Low

Evaluate Risks and Solutions - Critical Settings and Aspects

Critical Settings and Aspects

The following risks were identified, along with estimated severity, proposed solutions and their relative implementation cost, with regards to *Tracking shipments* functionality:

#	Risk/Aspect	Severity	Proposed solution	Relative solution cost
8	Shipment Delayed	Critical	1. Constant tracking of existing shipments / inform the client	Medium
			2. Other (TBD)	??
9	API Availability	Critical	Use managed service for Proxy (e.g. AWS API Gateway)	Low
10	Database Availability	Critical	Use managed service for DB (e.g. AWS RDS)	Medium
11	Electricity Availability (e.g. for on-premise setup)	Critical	Use managed services (e.g. AWS)	Low
12	Internet Availability (e.g. for on-premise setup)	Critical	1. Use managed services (e.g. AWS)	Low
			2. Set up two AWS Account payment methods	Low
13	Backend/Server availability	Important	User managed service for server (e.g. AWS ElasticBeanstalk)	Low
14	Backend/Server Stability	Important	1. Server duplication / redundancy	Medium
			2. Third-party uptime monitoring	Low

Suggested Priority of Reliable Solutions

Approach to Choosing Priority

While choosing the priority / order of implementation for the reliable solutions, the following were taken into consideration with regards to the solution:

1. A number of associated risks, that is associated/mitigated/minimized by the solution, *(higher number of associated risks means higher priority/order),*
2. Each associated risk's estimated severity *(higher severity means higher priority/order),*
3. proposed solution's estimated cost *(lower cost means higher priority/order).*

Note

As some of the proposed solutions are not defined or confirmed:
- *Solution 6: Tracking Shipment - UPS Down (> 1 min)*
- *Solution 8.1: Other aspects - Shipment Delayed – Solution 2,*

they are not aligned with the other priorities listed.

Implementation Priorities

Based on the analysis, below is the proposed priority / order of implementation of the reliable solutions in ScoreTickets automation, with regards to its associated risks and affected aspects.

Priority	Proposed solution	Associated Risks/Aspects
1	Use managed services (e.g. AWS)	Availability of API, Database, Backend server.
2	Set up two payment methods on AWS	Internet, Electricity Availability
3	Set up third-party uptime monitoring	Backend server stability
4	Retry UPS API within minute, if down	UPS Down (< 1 min)
5	Inform user if shipment is delivered too late	Shipment expected late
6	Constant tracking of existing shipments	Backend/Server availability
7	Implement alternative shipping provider (e.g. FedEx, Taxi/Bike courier etc.)	• Validation of Shipment Addresses, Creation of Shipments: UPS Down (> 1 min) • Shipment expected late
8	Backend server duplication / redundancy	Backend server stability
?	TBD, Solution 6	Tracking shipments: UPS Down (> 1 min)
?	TBD, Solution 8.1	Other aspects: Shipment delayed

Additional comments

Mark, your and your team's input, comments and feedback on
- the approach to analysis
- proposed solutions and their priorities,
- anything else

is greatly appreciated.

....

(End of Document)