



## Proposal for TenjinPay Simulator for Swift CBPR+

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## TenjinPay Simulator for validation testing for CBPR+ ISO 20022 Migration

Partnered for success



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## Accelerate your CBPR+ ISO 20022 Migration Validation & Testing

Financial institutions must comply with ISO 20022 standards by November 2025 as mandated by Swift.

The TenjinPay Simulator for CBPR+ empowers financial institutions with a seamless migration pathway to ISO 20022.

TenjinPay Simulator for CBPR+ for Validation & Testing delivers comprehensive testing capabilities that ensure regulatory compliance by validating data mapping rules and detecting potential issues prior to full implementation, all aligned with SWIFT Guidelines.

TenjinPay Simulator for CBPR+ Validation & Testing creates significant value. The platform functions as a sophisticated service virtualization environment that accurately replicates CBPR+ functionalities and behaviours, enabling financial institutions and fintech's to thoroughly evaluate their applications before proceeding to formal scheme testing and implementation to meet regulatory deadlines.

The Tenjin Pay Simulator is a configuration-driven solution designed to facilitate end-to-end message testing for financial institutions. This product simulates complex clearing system/ scheme flows and supports thorough certification processes by orchestrating message-based test cases within a controlled test environment. It enables seamless validation of message formats, routing behaviors, and system interactions mimicking the Schemes/ Market Infrastructures (MIs).

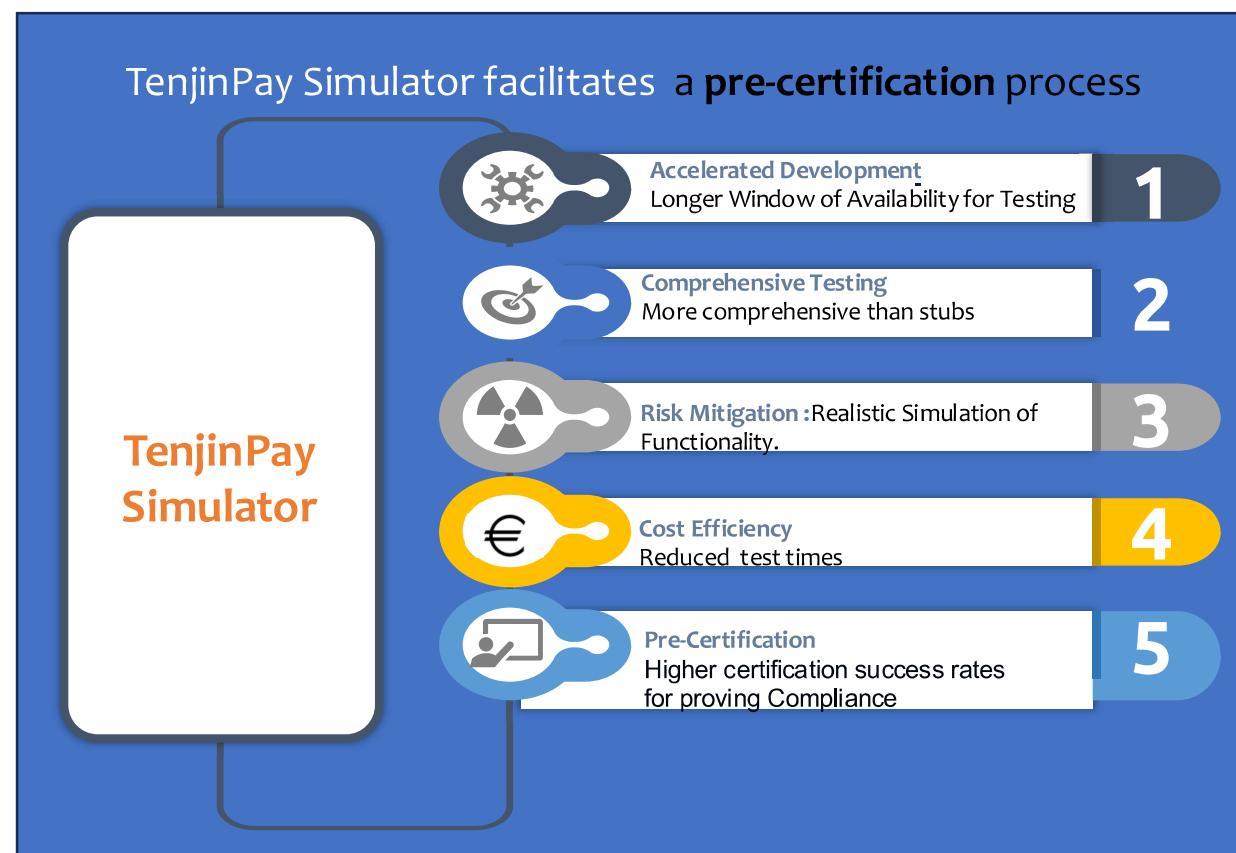


# TenjinPay Simulator Solution for CBPR+ ISO 20022 Migration validation testing

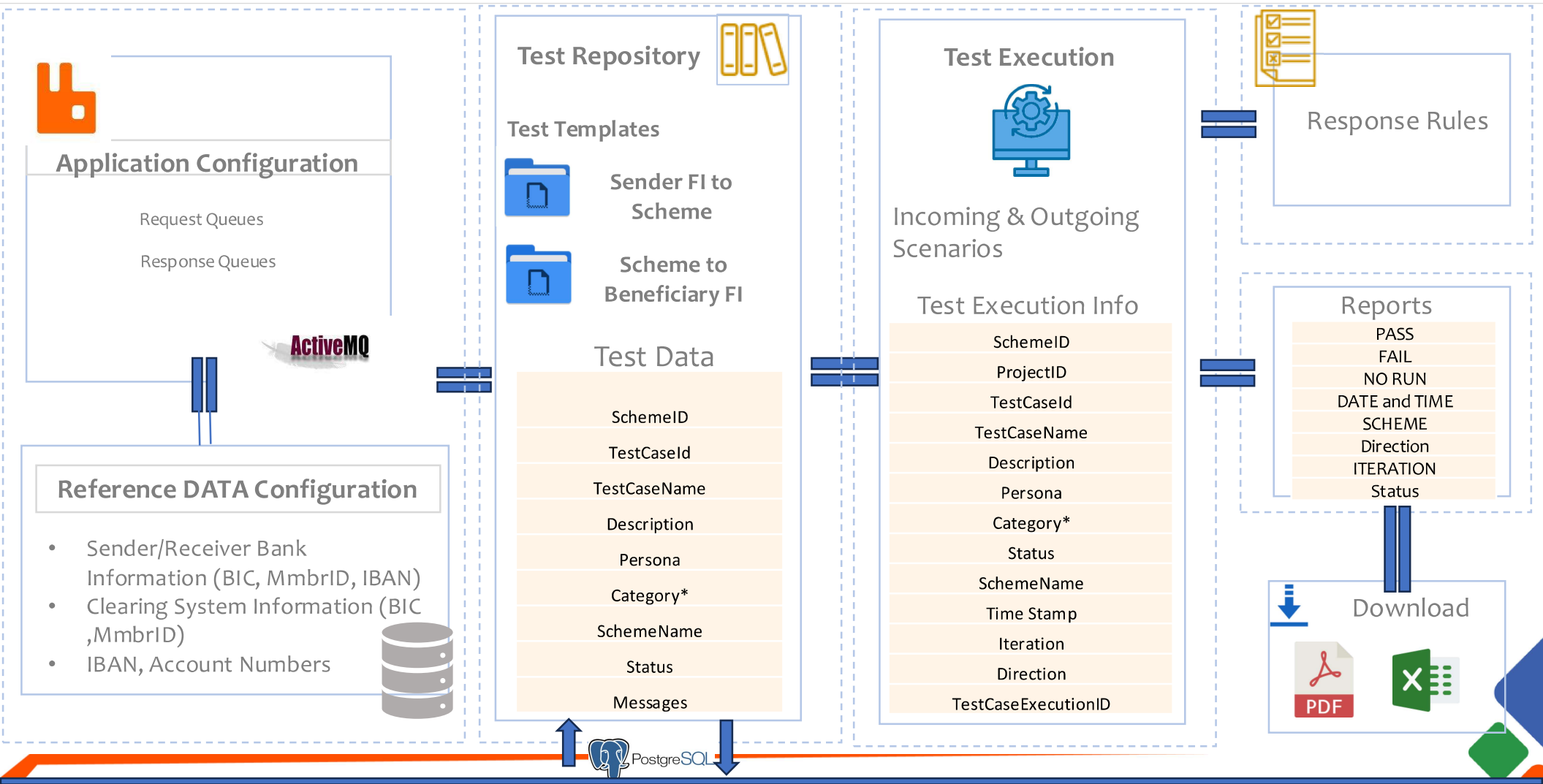


## TenjinPay Simulator Solution

- **TenjinPay CBPR+ Simulator:** Validates ISO 20022 payment messages
- **Dual-Role Testing:** Both Sending and Beneficiary bank testing capabilities
- **Automated End-to-End Flow testing**
- **Functional Testing:** Simulates complete payment processes
- **Service Virtualization:** Replicates production like environment
- **Seamless Integration:** Works with existing payment infrastructure
- **Response Rules:** Validates messaging according to scheme requirements



# TenjinPay Simulator – Functional components



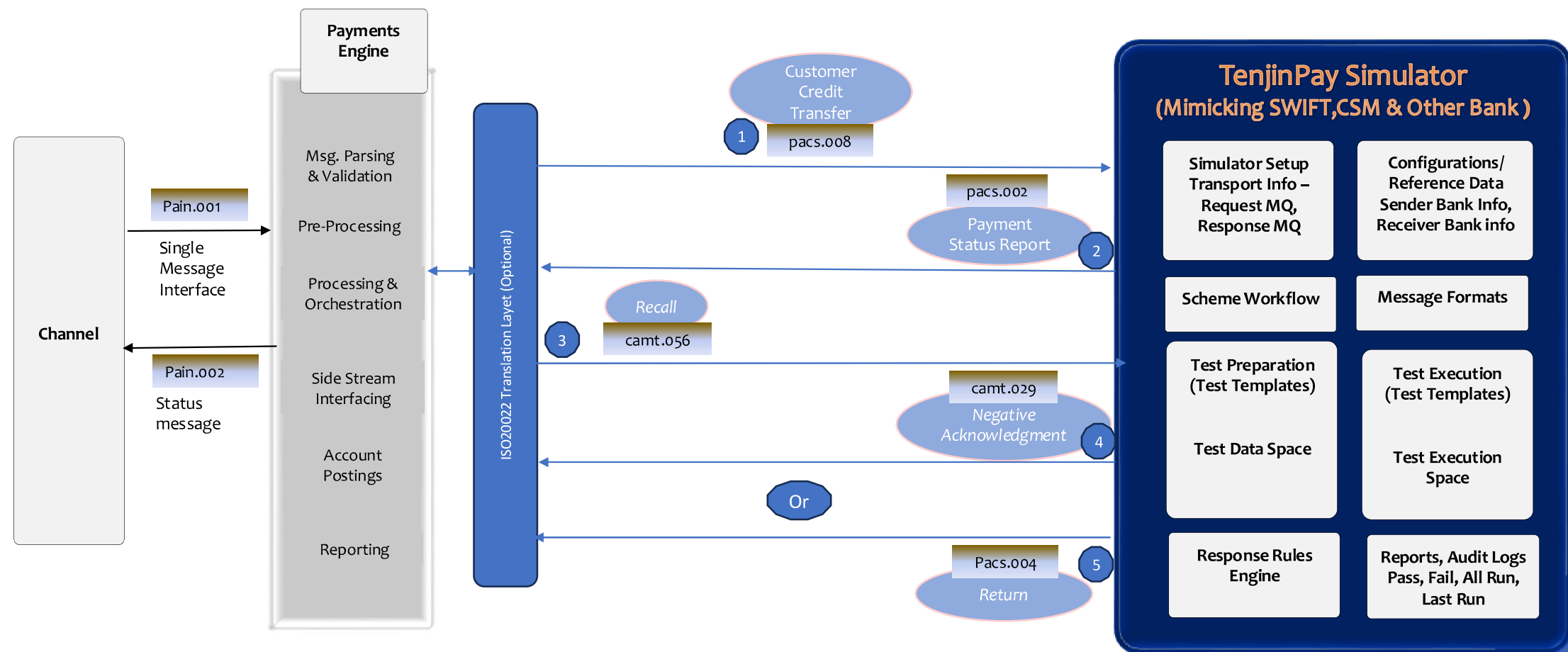
# TenjinPay Simulator – Functional components



|                 |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference Data  | To effectively carry out testing, the simulator must be equipped with essential reference data. This includes details such as Connection ID number, Participant ID, BIC, IBAN, Financial Institution (FI) name, Sender/Receiver Bank Information, Clearing System Information, SchemeID. These data points are crucial for executing both standard and exception test cases, ensuring accuracy & higher test coverage. |
| Response Rules  | The system determines the appropriate response message type and content for each request received from the Clearing. Each test case has a corresponding response rule that dictates the message and information to be sent, ensuring accurate and consistent communication.                                                                                                                                            |
| Test Repository | The repository contains all test cases as per the Scheme guidelines for the validation. It includes essential details such as SchemeID, TestCaseID, TestCaseName, Description, Persona, SchemeName, and Status. This structured approach ensures comprehensive tracking and management of test cases, facilitating efficient certification processes.                                                                  |
| Test Execution  | This profile consolidates all test cases selected for execution by the user at any given time. The test cases are sourced from the test repository, either according to predefined conformance configurations or based on the user's specific preferences                                                                                                                                                              |
| Reports         | All the information pertaining to the test execution is being captured and provided as a report in PDF and XL format. The options provided in this Profile are View and Download.                                                                                                                                                                                                                                      |



# Scheme Testing For ISO20022 Messages



# TenjinPay Simulator - Dashboard



# CBPR+ TenjinPay Simulator – validation of messages by applying XSD

 TenjinPay Simulator

 DASHBOARD

Dashboard

 TEST REPOSITORY

Clearing To FI

FI To Clearing

 PROJECT

Project

 TEST EXECUTION

Execute Project

Active Incoming Testcase

Test Report

Log Config

Failed Messages

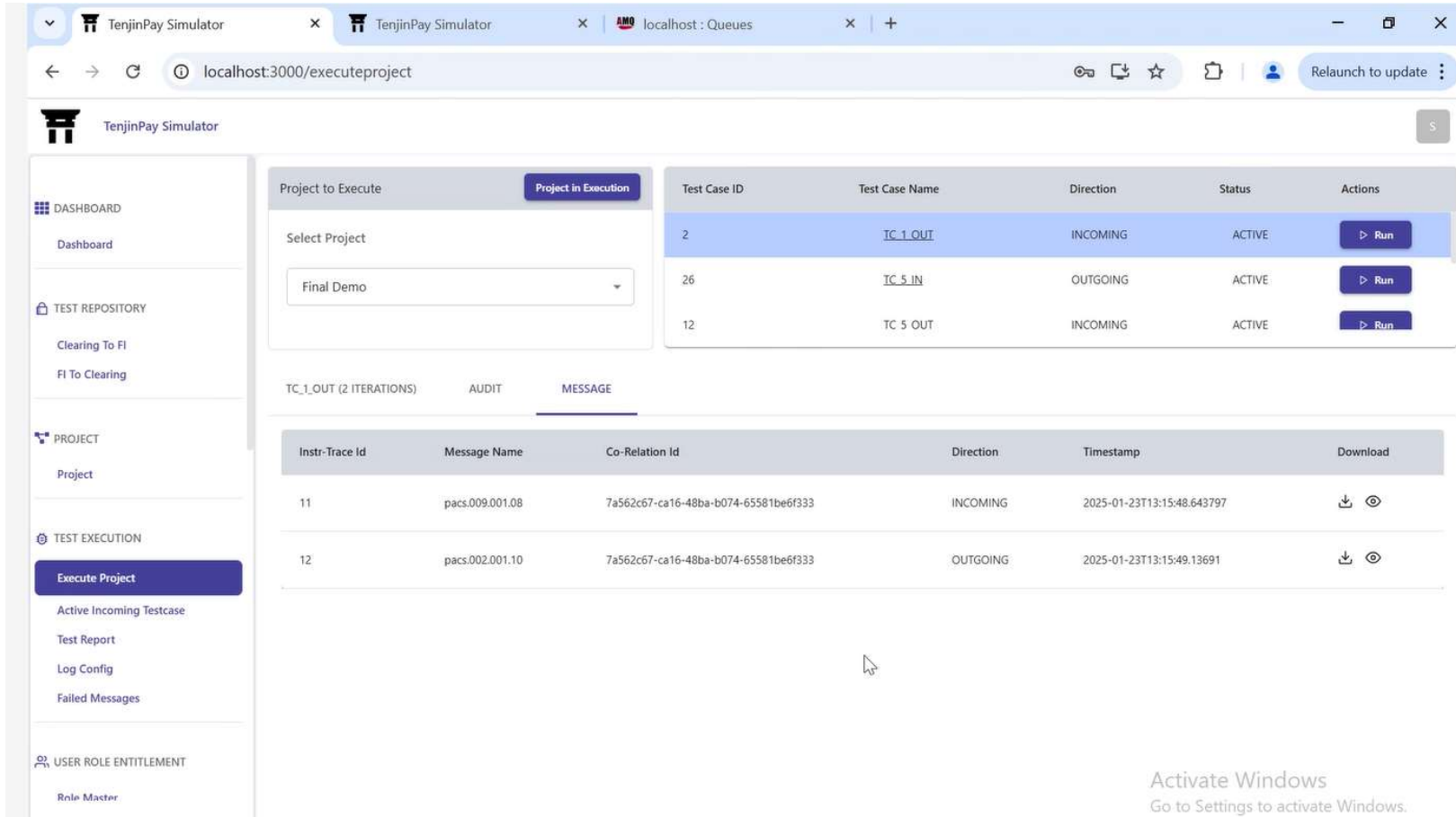
 USER ROLE ENTITLEMENT

Role Master

| Test Case Name   | Persona                                                | Description                                                                                                                              | Direction                                       | Status       | Actions                                                                                                                                                                                                                                                     |               |                          |
|------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------|
| TC_5_OUT         | SEND                                                   | TC_5_Incoming                                                                                                                            | INCOMING                                        | ACTIVE       |    |               |                          |
| Task Association |                                                        |                                                                                                                                          |                                                 |              |                                                                                                                                                                                                                                                             |               |                          |
| Step No.         | Audit                                                  | Headers                                                                                                                                  | Task                                            | Asynchronous | Response                                                                                                                                                                                                                                                    | Audit Enabled | Status                   |
| 1                | Validation of incoming PACS009                         | [{"name": "xsdPath", "value": "classpath:cbpr-plus/v1.0/xsd/Envelope_pacs009.xsd"}, {"name": "messageName", "value": "pacs.009.001.08"}] | Validating Message Data                         | False        | True                                                                                                                                                                                                                                                        | True          | VALIDATE PACS004         |
| 2                | Mapping of PACS009 to PACS002                          | [{"name": "mappingConfigId", "value": "4"}]                                                                                              | Mapping Data from Source Message To Destination | False        | True                                                                                                                                                                                                                                                        | True          | MAPPING                  |
| 3                | Validation of outgoing PACS002                         | [{"name": "xsdPath", "value": "classpath:cbpr-plus/v1.0/xsd/Envelope_pacs002.xsd"}, {"name": "messageName", "value": "pacs.002.001.10"}] | Validating Message Data                         | False        | True                                                                                                                                                                                                                                                        | True          | VALIDATE pacs.002.001.10 |
| 4                | Storing outgoing pacs.002 message in Instruction trace | [{"name": "ruleId", "value": "3"}, {"name": "stsCd", "value": "REQ-SENT"}]                                                               | Storing Message in Instruction Trace            | False        | True                                                                                                                                                                                                                                                        | True          | INSTR TRACE              |
| 5                | Sending pacs.002 request out                           | []                                                                                                                                       | Sending Message Data Out                        | True         | True                                                                                                                                                                                                                                                        | True          | REQUEST OUT              |
| 6                | Mapping of CAMT056 to CAMT029                          | [{"name": "mappingConfigId", "value": "11"}]                                                                                             | Mapping Data from Source Message To Destination | False        | True                                                                                                                                                                                                                                                        | True          | MAPPING                  |
| 7                | Validation of outgoing CAMT029                         | [{"name": "xsdPath", "value": "classpath:cbpr-plus/v1.0/xsd/Envelope_camt029.xsd"}, {"name": "messageName", "value": "camt.029.001.09"}] | Validating Message Data                         | False        | True                                                                                                                                                                                                                                                        | True          | VALIDATE CAMT029         |
| 8                | Storing outgoing CAMT029 message in Instruction trace  | [{"name": "ruleId", "value": "0"}, {"name": "stsCd", "value": "NO RESPONSE EXPECTED"}]                                                   | Storing Message in Instruction Trace            | False        | True                                                                                                                                                                                                                                                        | True          | INSTR TRACE              |
| 9                | Sending CAMT029 request out                            | []                                                                                                                                       | Sending Message Data Out                        | False        | True                                                                                                                                                                                                                                                        | True          | REQUEST OUT              |
| 10               | Test case                                              | []                                                                                                                                       | Test Case Move To Passed                        | False        | True                                                                                                                                                                                                                                                        | True          | COMPLETED                |

Activate Windows  
Go to Settings to activate Windows.

# CBPR+ TenjinPay Simulator – migration and end to end flow testing



The screenshot shows the TenjinPay Simulator web application. The browser address bar indicates the URL is localhost:3000/executeproject. The application has a sidebar menu on the left with sections: DASHBOARD (Dashboard), TEST REPOSITORY (Clearing To FI, FI To Clearing), PROJECT (Project), TEST EXECUTION (Execute Project, Active Incoming Testcase, Test Report, Log Config, Failed Messages), and USER ROLE ENTITLEMENT (Role Master). The main content area is titled 'Project to Execute' and 'Project in Execution'. It features a 'Select Project' dropdown menu with 'Final Demo' selected. Below this, there are tabs for 'TC\_1\_OUT (2 ITERATIONS)', 'AUDIT', and 'MESSAGE'. The 'MESSAGE' tab is active, displaying a table of message details. The table has columns: Instr-Trace Id, Message Name, Co-Relation Id, Direction, Timestamp, and Download. Two rows of data are visible. Additionally, there is a table at the top right showing test case details with columns: Test Case ID, Test Case Name, Direction, Status, and Actions. The 'Run' button is visible for each test case.

| Test Case ID | Test Case Name | Direction | Status | Actions             |
|--------------|----------------|-----------|--------|---------------------|
| 2            | TC 1 OUT       | INCOMING  | ACTIVE | <a href="#">Run</a> |
| 26           | TC 5 IN        | OUTGOING  | ACTIVE | <a href="#">Run</a> |
| 12           | TC 5 OUT       | INCOMING  | ACTIVE | <a href="#">Run</a> |

| Instr-Trace Id | Message Name    | Co-Relation Id                       | Direction | Timestamp                  | Download                 |
|----------------|-----------------|--------------------------------------|-----------|----------------------------|--------------------------|
| 11             | pacs.009.001.08 | 7a562c67-ca16-48ba-b074-65581be6f333 | INCOMING  | 2025-01-23T13:15:48.643797 | <a href="#">Download</a> |
| 12             | pacs.002.001.10 | 7a562c67-ca16-48ba-b074-65581be6f333 | OUTGOING  | 2025-01-23T13:15:49.13691  | <a href="#">Download</a> |

Activate Windows  
Go to Settings to activate Windows.

## Technology stack - TenjinPay Simulator

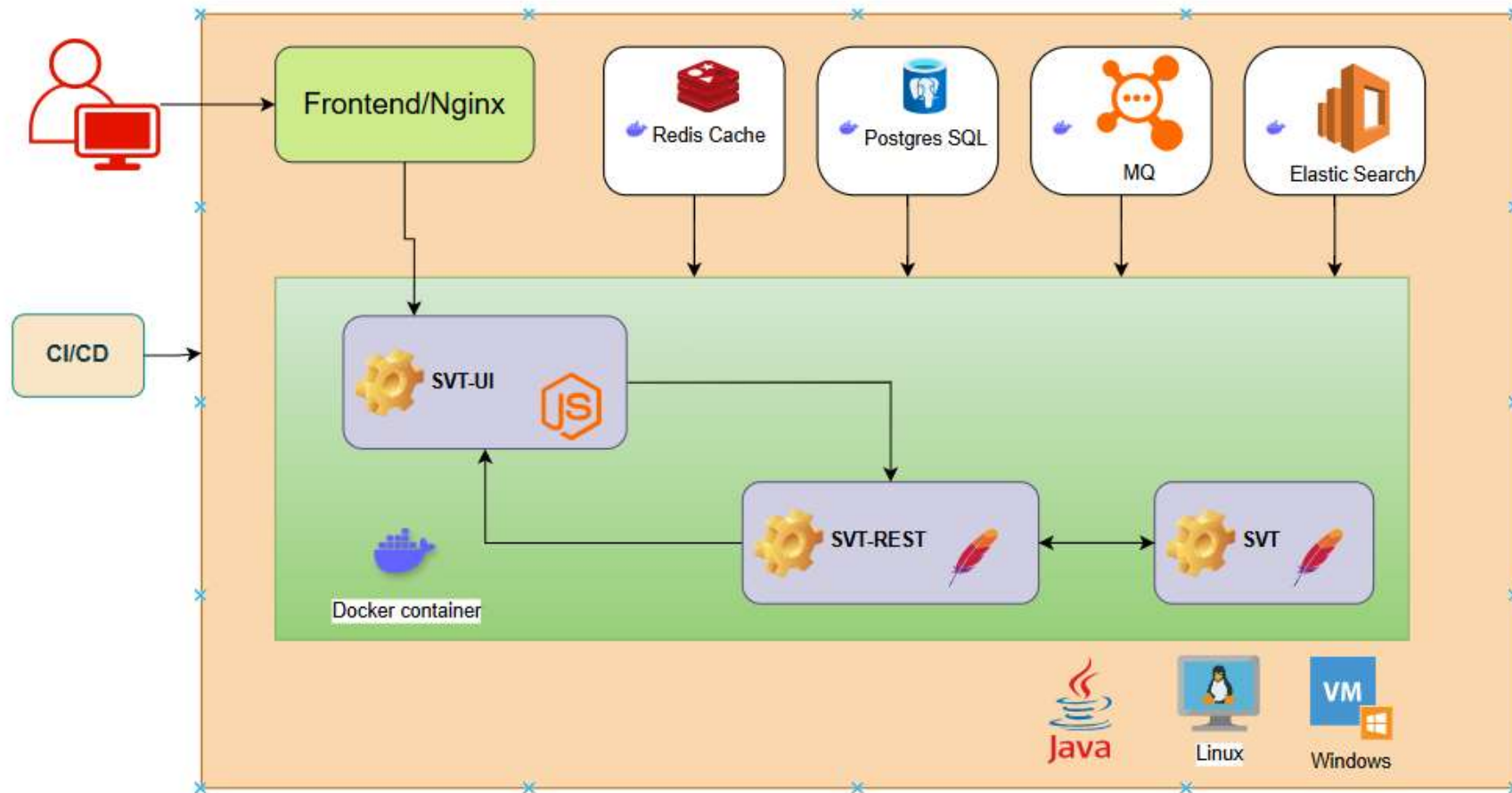
### Technology Stack – Application

|                       |                                |
|-----------------------|--------------------------------|
| Application Framework | Java, Spring boot              |
| GUI                   | ReactJS, Redux                 |
| Build Tool            | Maven, npm                     |
| Distributed Cache     | Redis                          |
| Database              | PostgreSQL                     |
| Integration Framework | Apache Camel                   |
| Configuration Data    | Git Remote Repository (GitLab) |
| Observability         | EFK                            |
| Logging               | SLF4J                          |
| Log Exporter          | FileBeat                       |
| Metrics               | Prometheus, Grafana            |
| Messaging Server      | Active MQ/Rabbit MQ            |

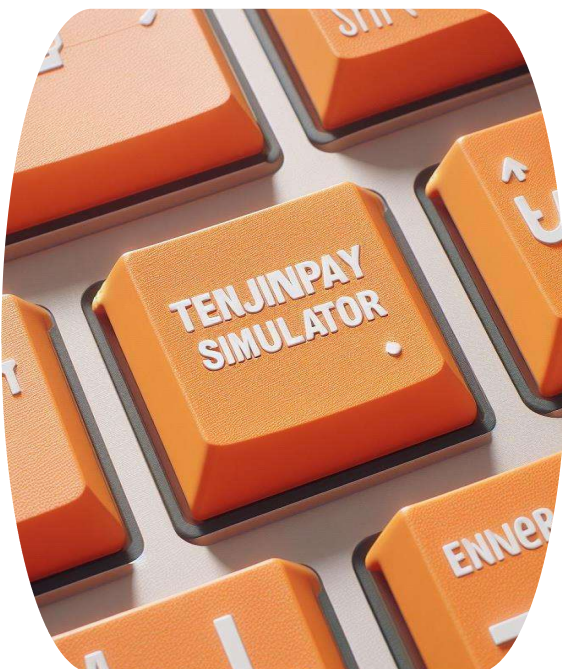
### Technology Stack – Infrastructure & DevOps

|                            |                    |
|----------------------------|--------------------|
| Version Control System     | Git, Gitlab        |
| CI Tool                    | Jenkins            |
| Docker Image Repository    | Docker Hub         |
| Maven                      | Maven              |
| Container                  | Docker, containerd |
| Container Orchestration    | Kubernetes         |
| IaC                        | Ansible            |
| Deployment                 | Kubernetes, AKS    |
| Deployment OS (On Premise) | Linux, Centos      |
| Kubernetes Dashboard       | Lens               |
| Nginx                      | Reverse Proxy      |
| Packaging Tool             | Helm               |

## TenjinPay Simulator – Deployment Architecture – On Prem



## TenjinPay Salient Features



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**Autonomous Test Case Execution:** Member banks can execute test cases independently within a controlled environment, eliminating the need for Federal reserve support during the pre-certification phase.

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**Comprehensive Transaction Testing:** Banks can perform both SEND and Receive test cases.

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**24/7 System Availability:** The system is accessible round the clock.

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**Effective Transaction Validation:** Ensures thorough transaction message validation and provides clear error messaging for each type of error.

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**Dashboard:** View the status of testing activities through a dedicated dashboard.

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**Simultaneous Pre-certifications:** Supports simultaneous pre-certifications for Send, Receive and is channel agnostic.

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**Secure Access:** System access is controlled through unique login credentials.

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**Detailed Transaction Logs:** Option to view transaction logs from the UI with versatile search options.

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**Guided Transaction Validation:** Provides explicit messaging and guidance during transaction validation.

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# TenjinPay Simulator for CBPR+

## Commercials

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# Commercials

## Pricing

| Components                                           | Payment Terms |
|------------------------------------------------------|---------------|
| License cost for TenjinPay Simulator for Swift CBPR+ | USD 15,000    |
| AMC@ 20%                                             | USD 3000      |

## Payments Terms

| Components                                           | Payment Terms                  |
|------------------------------------------------------|--------------------------------|
| License cost for TenjinPay Simulator for SWFIT CBPR+ | 100% payable on issuance of PO |

## Terms & Conditions

- This commercials are valid for a period of 30 days from the date of submission.
- Any customization will be covered through professional services @USD 200/Man-day.
- All prices quoted are in USD and exclusive of applicable Taxes.



# Appendix About Yethi

# About Yethi



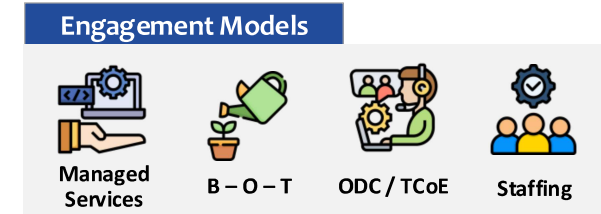
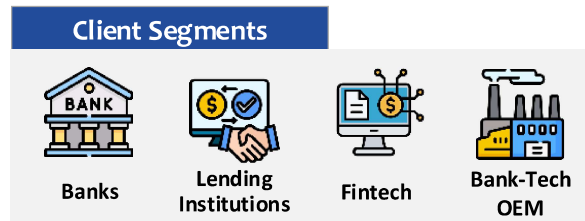
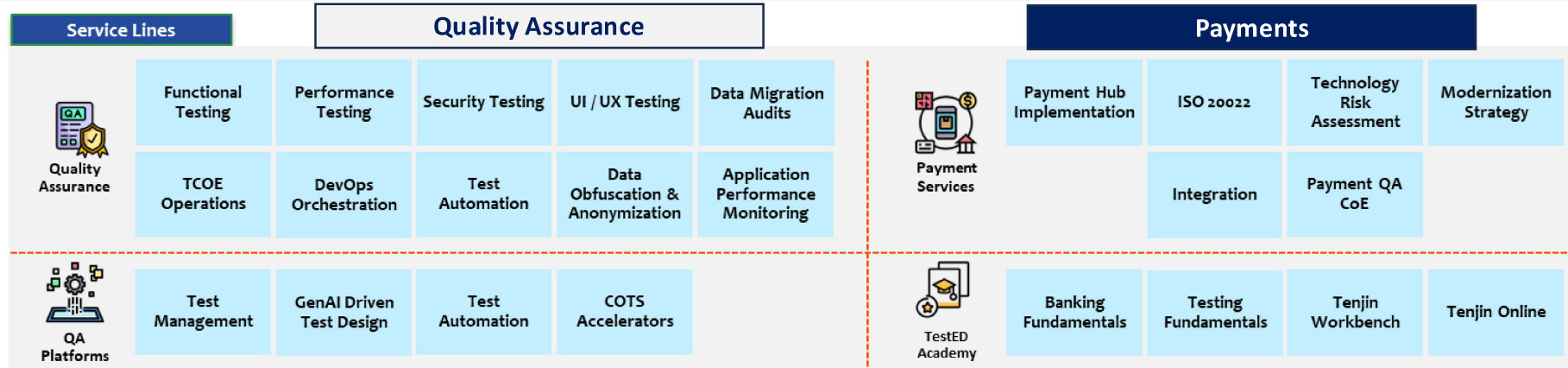
11 years of serving complex QA needs of BFS

Domain led service delivery with 1200+ team size.

Global presence with 130 customers

IP Led Innovation for value delivery.

Strong OEM partnership for offering Tech Modernization



## Core Value Proposition USP



**Deep domain focus**

Leveraging deep banking expertise to offer reliable assurance



**Process based testing**

Putting business processes as lynchpin for delivery



**Long term engagements**

Prioritizing long term engagements to offer our best



**Value by innovation**

Automating excellence for secure, compliant software that empowers flawless customer journeys.

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With broad capabilities and experiences to be a Strategic Partner for our customers



### Payments Services

- ✓ Consulting and Maturity Assessment Services
- ✓ Payments Platform Implementation
- ✓ Bespoke Development and Support
- ✓ Payments Testing
- ✓ System Integration Services



|                                   |                                       |                                           |                                       |
|-----------------------------------|---------------------------------------|-------------------------------------------|---------------------------------------|
| Payments Modernisation assessment | Payments Functional Assessment        | Payments Technical Assessment             | Program planning and management       |
| Pre-implementation Workshop       | Integration and Interface Development | SIT, UAT & Industry certification support | bespoke customisations on OEM product |
| Performance testing               | End to End Testing for Payments       | Product upgrade support                   | Test planning and test data design    |



### Quality Assurance Services

- ✓ Deep Domain Experience
- ✓ Long Term Contracts
- ✓ Improved margins
- ✓ Greater customer retention
- ✓ Process Based Testing



|                            |                                   |                         |                              |
|----------------------------|-----------------------------------|-------------------------|------------------------------|
| TCOE Setup                 | Test Support and Advisory         | Maturity Assessment     | Process Audit                |
| Factory Acceptance Testing | Integration Testing               | User Acceptance Testing | Regression Testing           |
| UI/UX & Usability Testing  | Digital Lab                       | Data Migration Audit    | Performance Testing          |
| Security Testing           | Compliance and Regulatory Testing | Post Go Live Support    | Functional Support Help Desk |



### 5<sup>th</sup> generation robotic test automation

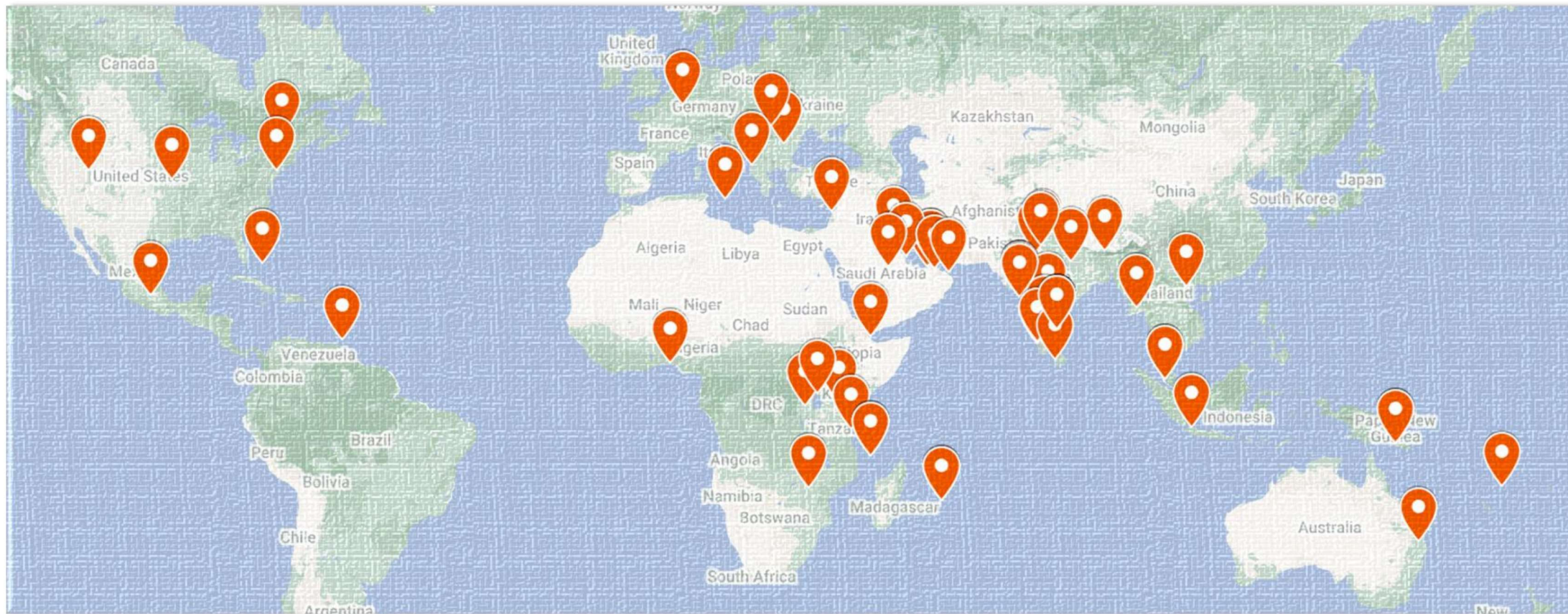
- ✓ Codeless Automation for Business Analysts
- ✓ Built for the Banking Industry
- ✓ Supports Entire Test Lifecycle
- ✓ Proven with all major Banking Systems
- ✓ Continuous Enhancements



|                                                                        |                                |                                                                  |
|------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------|
| <b>Tenjin.ai</b><br>TEST PREDICTION<br>Test Prediction<br>Auto Healing | <b>TTM</b><br>TEST MANAGEMENT  | <b>TENJIN</b><br>Intelligent Testing Engine<br><b>Enterprise</b> |
| <b>T-Vault</b><br>TEST REPOSITORY                                      | <b>Tenjin</b><br><b>ONLINE</b> |                                                                  |

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We have worked with diverse clients globally..



**Bangalore | Chennai | Mumbai | Jaipur | Dubai | Pune | USA**

# Yethi's Recognition & Certifications



Featured in Market Guide for  
QA Services 2023



# *Thank You*