



# CONTINUOUS AUTOMATION & TESTING SERVICES (CATS)

Testing Transformation Accelerator



## Ensuring Excellence: A Journey in Software Testing

In the fast-paced realm of software development, where innovation and reliability intersect, IVS distinguishes itself through its steadfast dedication to quality. With extensive industry knowledge and a relentless pursuit of mastering cutting-edge testing tools and techniques, IVS has established itself as a reliable ally in guaranteeing impeccable software performance.



# OUR KEY CLIENTS



Top automotive devices and components companies in Japan, Korea, America



Billion dollars revenue oil & gas company in Malaysia



The world's leading enterprises about financial, retailers, restaurants, small business in America



The leading digital healthcare company in Europe



Vietnamese leading retail company



Top 5 bank, insurance companies in Vietnam, Japan



# OUR OFFERING – DIGITAL ASSURANCE & TESTING SERVICES



## 01 End to End Digital Assurance Services

Offer End-to-End services from advisory to operation with AI-Augmented solution to help client achieve certain business goal. Ensure digital transformation projects attain the business objective.

### ► Managed Testing Services

- Industries Expertise Quality Engineer (Airline, Automotive, Banking, Insurance, Retail, Healthcare, Oil & Gas, Smart Devices)

### ► Consultation & Transformation Services

- DevTestOps (CoTS)
- Test Center Of Excellence (CoTS)
- Test Tools (CoTS)

## 02 DevTestOps & Automation Test Services

Deliver Shift-Left testing trending service through DevTestOps experience where effective use of Automation Testing is the focus

- Agile DevTestOps Transformation
- Automation Test Implementation & Maintenance
- Automated Performance Test
- Automated Regression Test
- Quality First Development Service

## 03 Quality Engineering & Next-Gen Services

Providing testing services for special products needs its own methods and criteria, as well as requires deep knowledge of standards, high skills and specificities

- Gen-AI & AI Product Testing
- Legacy Modernization Testing
- Data Quality / Data Migration / ETL Testing
- Chipset Design For Testability (DFT)
- Microservice Testing
- Remote Testing

## 04 Quality Assurance Accelerator & Solution



**TestVista**

Generative AI-Augmented  
Testing Accelerator



**TestMan**  
Platform

End to End Testing  
Management System



**akaAT**  
Platform

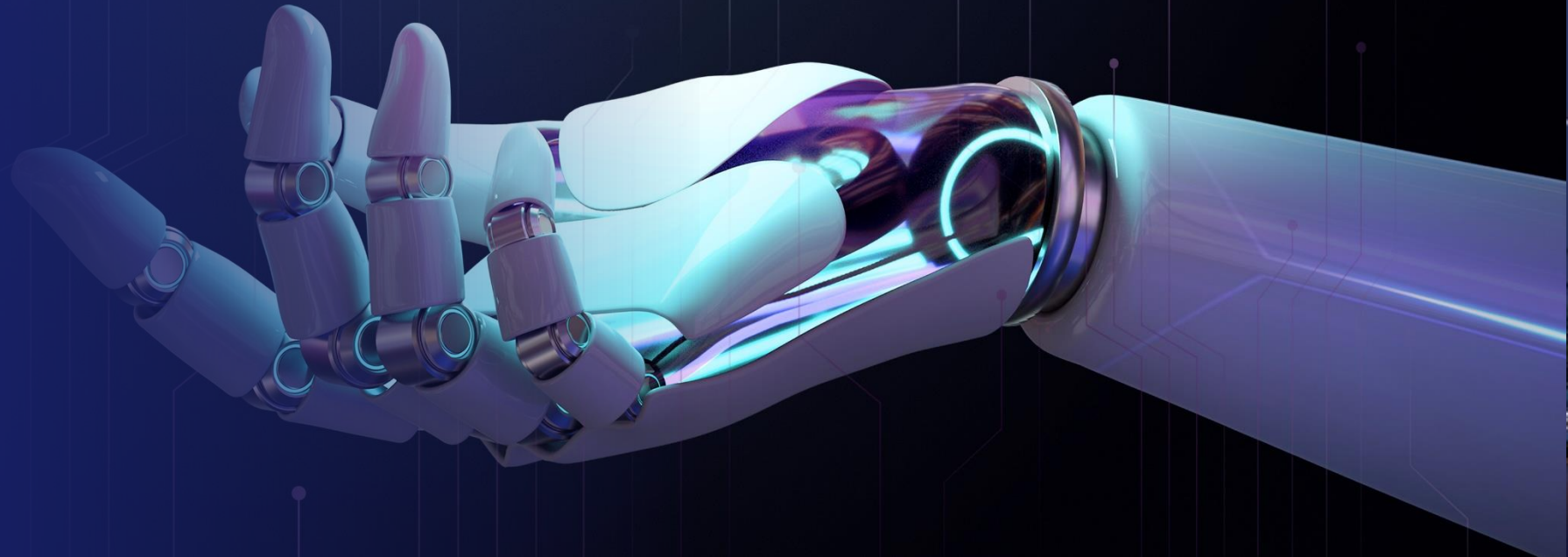
Code-less  
Automation Product



Flexible First  
Automation Framework



# DEVTESTOPS AUTOMATION SERVICES



**A.** DevTesOps Deployment Services



**D.** Performance Testing Services



**B.** Agile & Continuous Testing Services



**E.** Code Quality Services



**C.** Automation Test Implementation Services

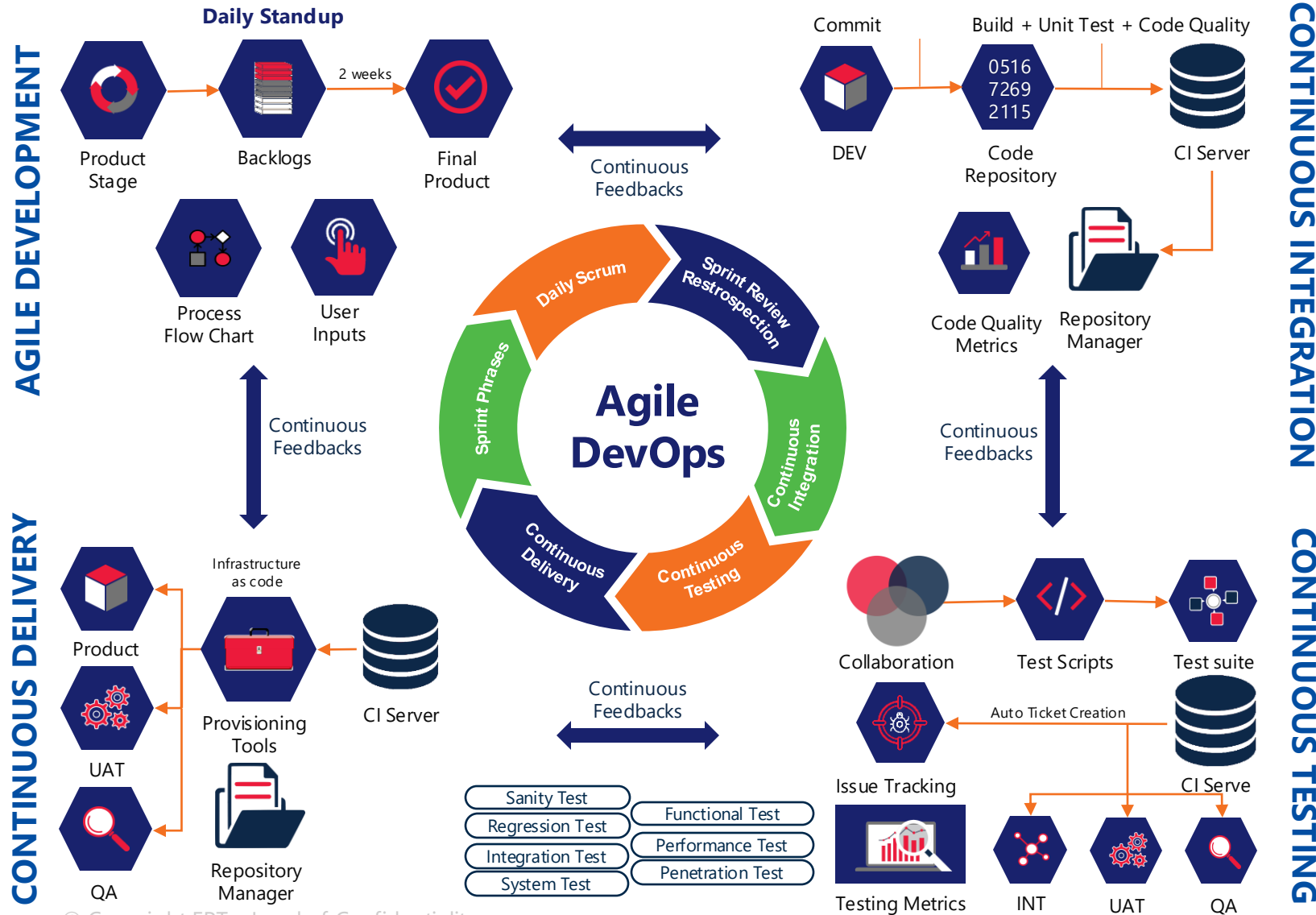


**F.** Security Test / Penetration Test



# A.1 DEVTESTOPS TRANSFORMATION

Accelerate Product Development With End-to-End DevOps Transformation Services



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CONTINUOUS INTEGRATION

CONTINUOUS TESTING

## Automation Test



## Test Management



## Non-Functional Test



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# A.2 DEVTESTOPS TRANSFORMATION

## Accelerate Product Development With End-to-End DevOps Transformation Services



Home / Reporting / Common Reports

Common Reports

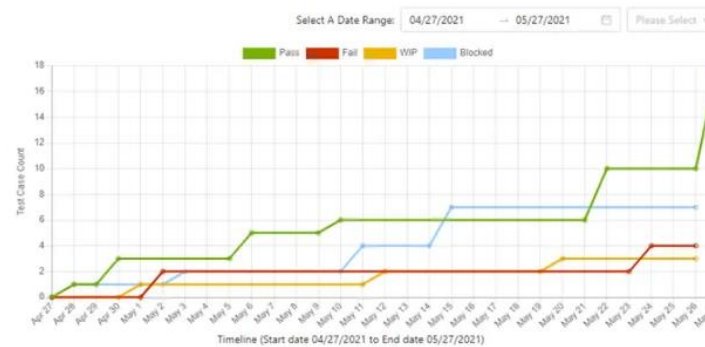
My Reports



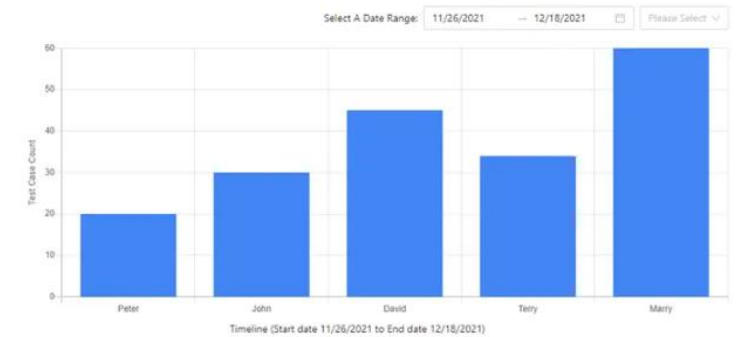
### Test Case Execution Progress



### Trend Chart by Status



### Trend Chart by User



### Most Executed Test Cases



### Most Failed Test Cases



### Planned vs Executed





# B.1 Agile & Continuous Testing



## Tasks

Daily Meeting



Planning Meeting



Sizing Meeting



Regression Test  
(Update to Customer)



Test Case Design



Test Case Review



Test Execution



Defect Verification



Test Status (Coverage,  
Defect Status)



Regression Test  
Manual / Automation



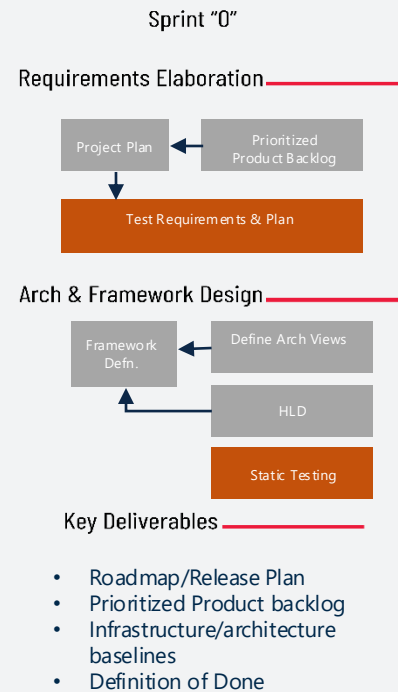
## B.1 Agile & Continuous Testing

Test Only

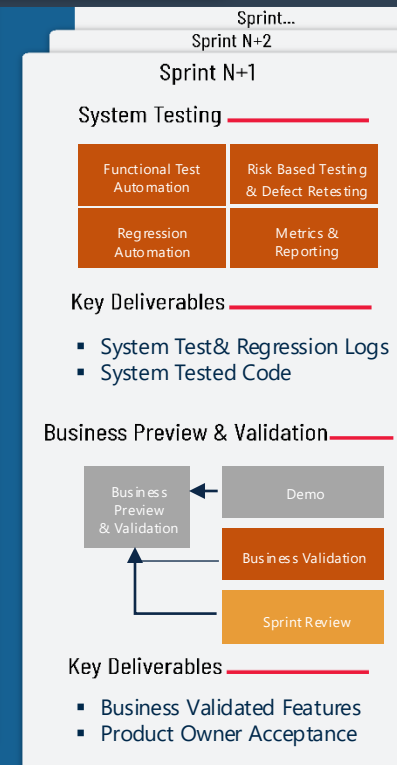
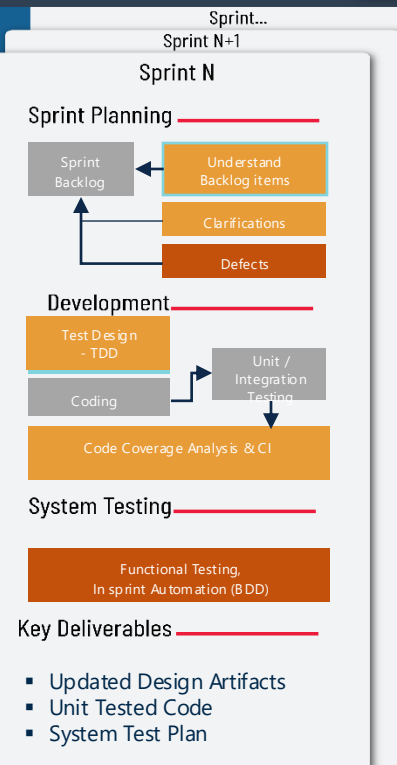
Dev & Ops

Dev & Test  
Shared Activities

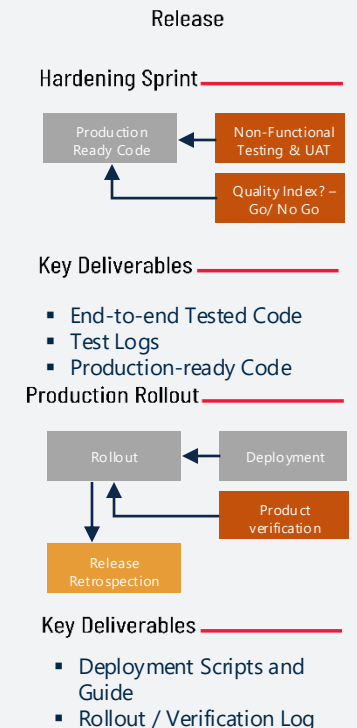
### STEP 01 Preparation



### STEP 02 Implementation



### STEP 03 Release

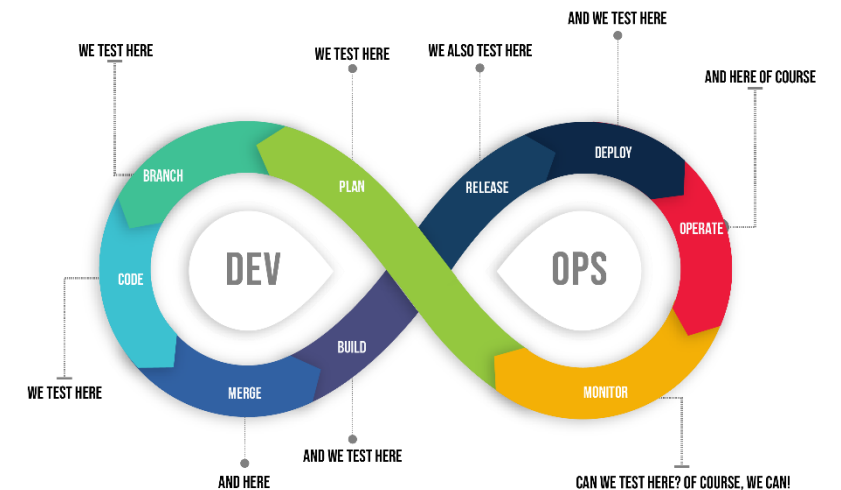
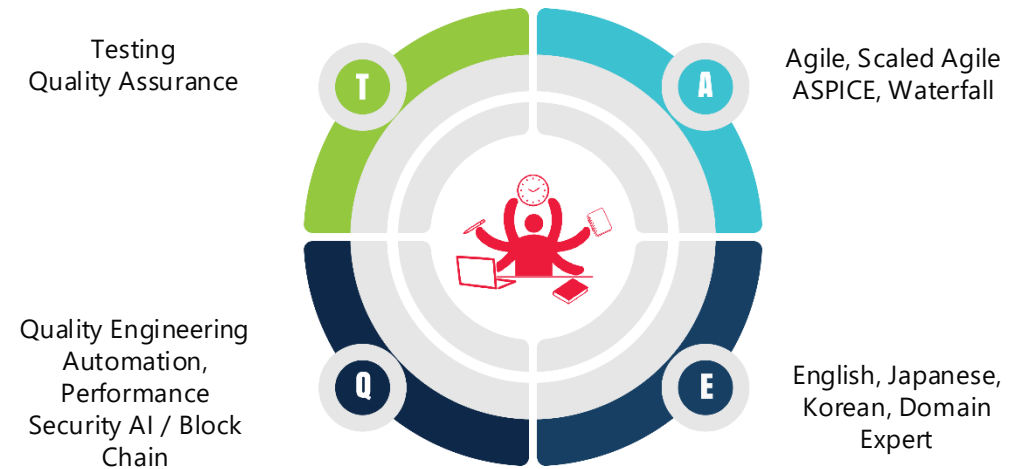
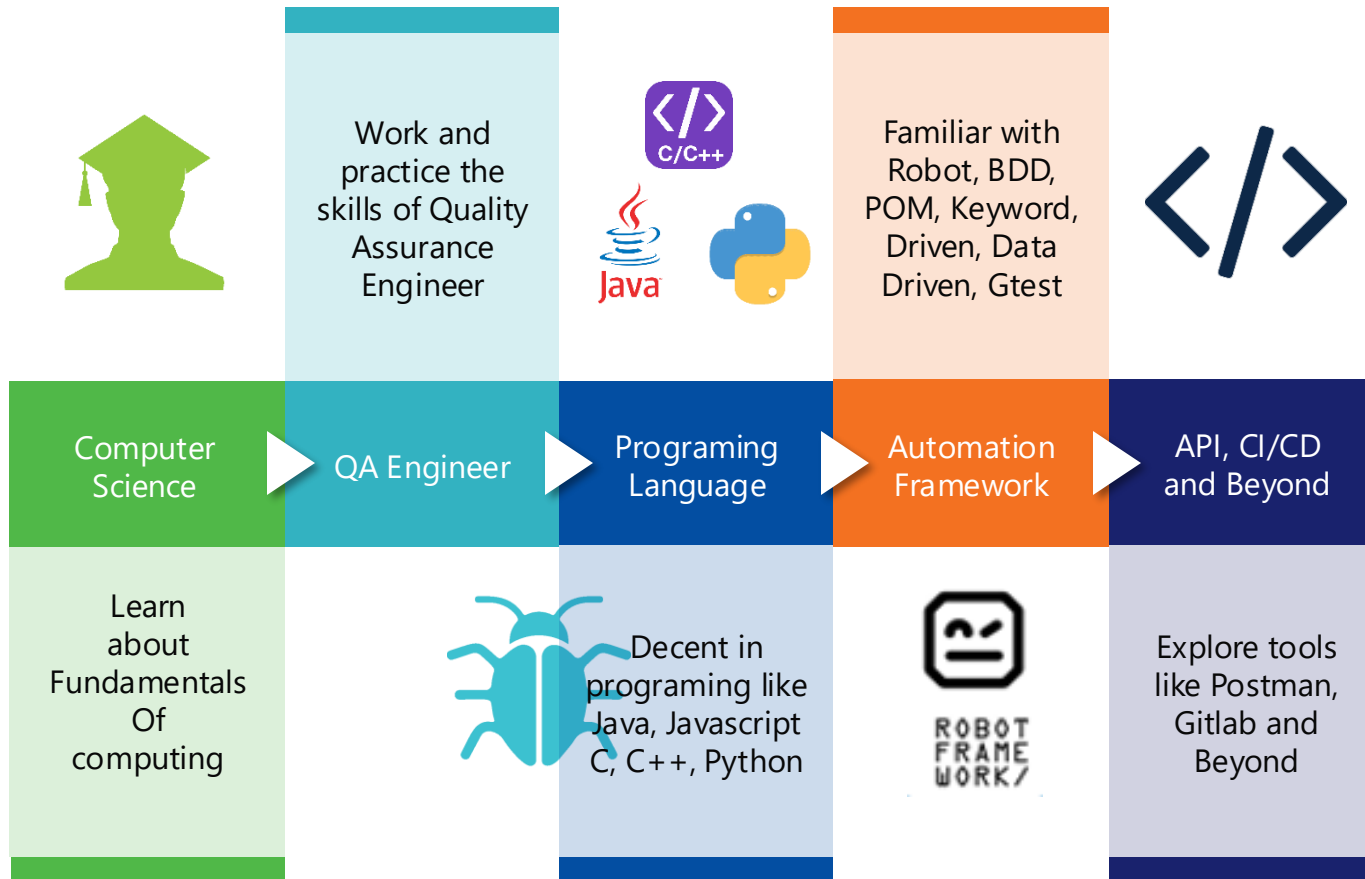


# B.2 Agile & Continuous Testing– Full-stack Quality Engineering

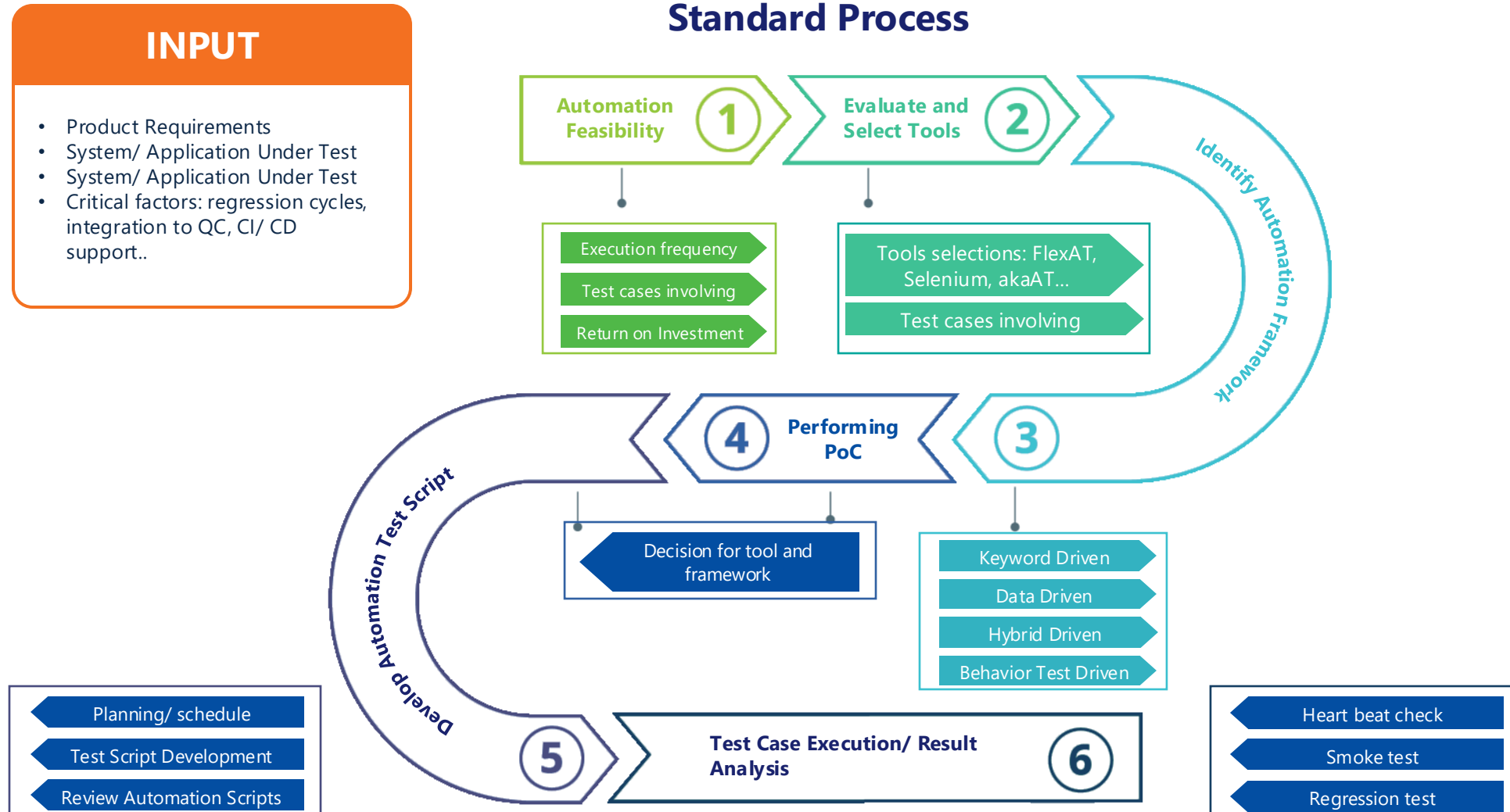


## ROADMAP TO QA AUTOMATION ENGINEER

One of many path



# C.1 AUTOMATION TEST IMPLEMENT SERVICES - PROCESS



## C.2 RETURN ON INVESTMENT



FPT follows a comprehensive checklist to identify the candidates for test automation. The test automation candidates are identified based on the following criteria:

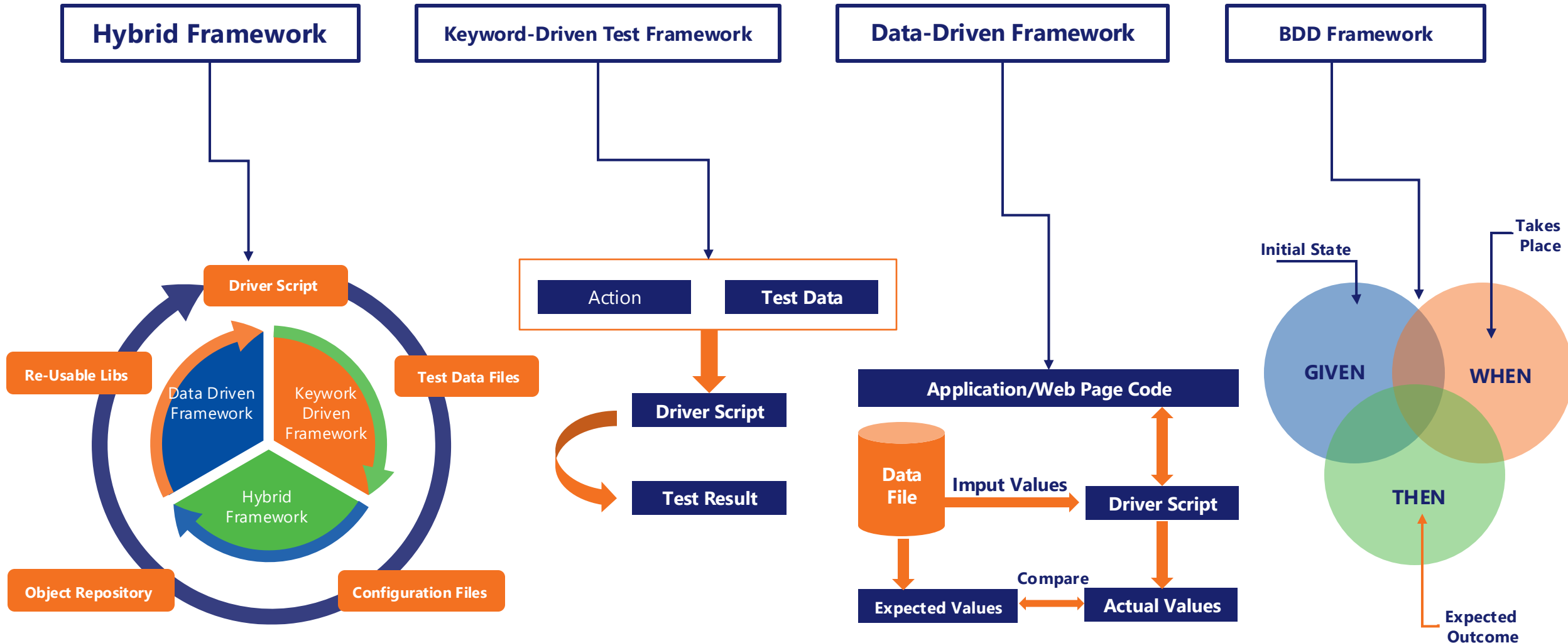
- 1 - Execution frequency
- 2 - Third party application dependency
- 3 - Execution requirement on different set of data, browsers and environments
- 4 - Test cases involving

Test Case / Test Scenarios	Manual Effort Minutes (A)	Automation Effort Minutes (B)	Evaluation ROI (B/A)	Automated Selection (Yes/No)
Feature 1 – Input Entry	30	300	10	
Feature 2 – Update Reconciliation	30	960	32	
Feature 3 – Multi Repair Maintenance	30	150	5	Yes – Benefits for 1st, 2nd, 3 years
Feature 4 – Multi Repair Receiving	30	90	3	Yes – Benefits for 1st, 2nd, 3 years
Feature 5 – Part Inventory	30	3000	100	

Activity	Manual Testing	Automated Testing
Cost to design test cases	\$6000	\$6000
Cost of tools		\$5000
Cost to implement automation of test cases		\$11000
Tool costs of automation		\$16000
Cost to execute a full cycle of test cases (tester effort)	\$5000	\$1000
Number of cycles per release	3	6
Cost of testing per release	\$21000	\$12000
Saving per release		\$9000
Release per year	12	12
Benefit per year		\$108000
Saving per year (benefit – investment in automation)		\$92000
ROI (benefit/investment)		5.75 times (575%)



# C.3 IDENTIFY AUTOMATION FRAMEWORK & SYSTEM UNDER TEST ORIENTED



# C.4 AUTOMATION TEST TOOL CHAINS

## FPT Software In-house Products

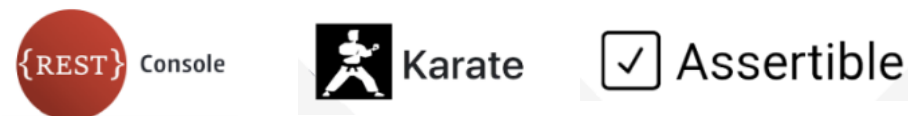


**Script-less AT  
Strategy Product**



**Easy To Customize  
AT Framework**

## Partner & External Tools



# C.5 AKAAT TEST SUITE – TEST SMART GROW FAST



## What is akaAT?

The all-in-one **Automation Test Solution** developed by Vietnam's largest IT firm FPT Software.



### IT World Awards 2022

Gold Globee® Winner - Software Test Automation



### International Business Awards 2022

Silver Stevie® Winner - DevOps Solution



### Asia-Pacific Stevie® Awards 2022

Bronze Stevie® Winner - Award for the Innovation in Technology Development - Computer Industries

## akaAT Ecosystem Solution



## Why choose us?

### Codeless

Tester can create/run test script with limited coding experience

### End-to-End Testing

Able to cover all application's function, all stage of the user's journey and business process.

### High scalability

The unlimited number of agents allows testers to perform multiple tests on multiple devices simultaneously.

### Strong global support

A diversified working model including onsite, offshore, nearshore combined with over 400+ specialists allows support and service to be easily and readily delivered

## Automation Testing Benefits

- ★ Cost-Saving
- ★ Improved Accuracy
- ★ Increased Productivity
- ★ High App Quality and Performance
- ★ Better Insights
- ★ Reusability of Test Suite
- ★ Fast Development and Delivery
- ★ Faster Feedback Cycle



# C.6 AUTOMATION TEST REPORT & HEART BEAT TESTING



**Customer need:** Perform production heartbeat testing every 15 minutes to make sure 4 core functions work properly

## INPUT

Automation script  
Automation Scenarios



## PROCESS



akaAT Agent



Google Cloud



GitLab CI



## OUTPUT

Send report to below channel  
automatically



Channels

Tribes

Find channel

CHANNELS

- Testing
- Town Square
- Service Disruptions FPT

DIRECT MESSAGES

- Eldrige de Melo
- Eldrige de Melo, Heikki P...
- Eldrige de Melo, Kaisa M...
- Kaisa Mäntysaari
- Toni Järviuoto
- Invite Members

Service Disruptions FPT

7 7 Service Disruptions FPT

FAILED

Dear User,

Please be informed the heartbeat testing automation report on Production Environment

Result test is **FAIL**.

REPORT SUMMARY:

- Environment: <https://videovisit.io>

STT	Function Name	Result
1	Login	Pass
2	Check contact	Pass
3	Chat	Fail
4	Call	Pass

- Cause: fail at function 3 Chat: 'Verify message about conversation start is displayed on user A's screen'
- Test start: 05:05:19 Jun 19.22 (Finnish Time Zone)
- Test Duration: 2m -5s

Please see attachment in details

Thanks,  
QA Team

Production\_Heartbeat\_T...  
7Z 1.6MB

Write to Service Disruptions FPT

Channels

Tribes

Find channel

CHANNELS

- Testing
- Town Square
- Service Disruptions FPT

DIRECT MESSAGES

- Eldrige de Melo
- Eldrige de Melo, Heikki P...
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- Kaisa Mäntysaari
- Toni Järviuoto
- Invite Members

Service Disruptions FPT

7 7 Service Disruptions FPT

FAILED

Dear User,

Please be informed the heartbeat testing automation report on Production Environment

Result test is **FAIL**.

REPORT SUMMARY:

- Environment: <https://videovisit.io>

STT	Function Name	Result
1	Login	Pass
2	Check contact	Pass
3	Chat	Pass
4	Call	Fail

- Cause: fail at function 4 Call: 'Verify small video of User A is displayed'
- Test start: 23:39:44 May 19.22 (Finnish Time Zone)
- Test Duration: 6m 15s

Please see attachment in details

Thanks,  
QA Team

Production\_Heartbeat\_T...  
7Z 1.6MB

Write to Service Disruptions FPT



# D.1 PERFORMANCE TEST

## Common Performance Problems

01

Long  
Load time

02

Poor  
response time

03

Poor  
scalability

04

Bottlenecking

## Tool



LOADERO



## Types of Performance Testing

01

Load

02

Stress

03

Endurance

04

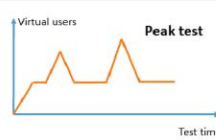
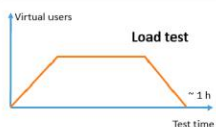
Spike

05

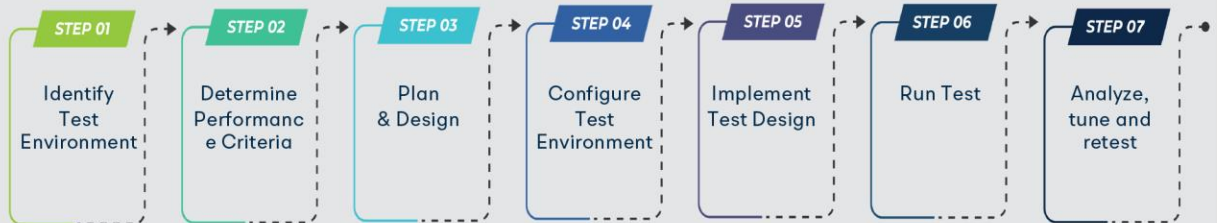
Volume

06

Scalability



## Performance Testing Process



## D.2 PERFORMANCE TEST LIFE CYCLE



### Performance Testing Life Cycle Phases

#### PLAN

#### ANALYZE

- Performance Test Strategy
- Performance Test Plan
- Performance Test Project Plan
- Performance Tools Selection

PLAN -  
WORKPACKETS

#### DESIGN

#### BUILD

- Test Designs & Automates Test Scenarios
- Test Emulators (as needs)
- Test Data
- Performance Test Environment
- Performance Test Project Plan
- Performance Test Execution Plan

DESIGN & DEVELOP -  
WORKPACKETS

#### TEST

#### DEPLOY

- Performance Test Results
- Performance Tools Results
- Performance/Defect Log
- Routine Dashboard Updates
- Final Performance Report, Including Ricks

EXECUTION & DEVELOP -  
WORKPACKETS

# D.3 PERFORMANCE TEST WORKFLOW

## 1 Manage Requirements

Performance Requirements

Test Requirements

Load Model Profile

Test data



Performance Test Requirement Gathering Template

## 2 Plan & Design

Test Design

Test Plan



Test Plan Template

## 3 Develop

Test Scenario Development

Test Script Development

Test Script Enhancement



Scripting Check List

## 4 Execute & Analyze

Test Execution

Result Analyze

Redeploy

Tunning



- Scripting Check List  
- Report Template

1. Business Team
2. Architecture Team
3. Development Team
4. Infrastructure Team
5. Relevant team



1. Business Team
2. Architecture Team
3. Development Team
4. Infrastructure Team
5. Relevant team

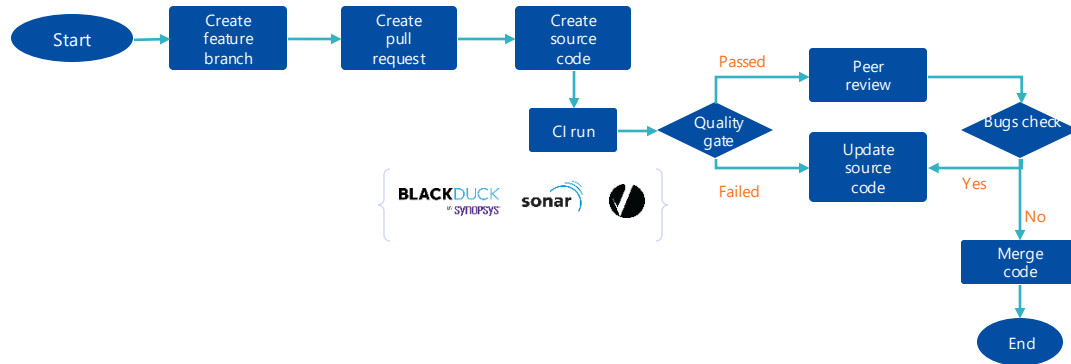
**Performance Test Team**  
(Test Manager, Tool Special List, Test Engineers, SME's)

# E. CODE QUALITY AKAWORK

Quality Gate is the set of conditions the project must meet before it can be released into production



## Pipeline



In CI flow, we use these BlackDuck, SonarQube and Coverity to scan source code quality. Each tool has separated rules that need to scan and pass the FSOFT quality gate.

## Benefit

- Decrease **80%** effort reviewing source code
- **75%** basic issues & **90%** blocker and critical issues found
- **100%** OSS applied in projects
- Reduce **100%** project's effort in building & scanning code

- **98%** FSoft projects apply CI/CD
- **542.524** critical & blocker issues were found and scanned
- **68%** of projects use SonarQube, **37%** use Coverity, **21%** use BlackDuck

- **569** projects use akaWORK as a management platform
- **98%** uptime increase product quality
- Saved up to **25.500** hours (~**160 MM** effort) over Q1/2021

## Standard

Quality Properties	Quality Gates
<b>Standard for Default</b>	
1. SonarQube Issues	Blocker = 0 and Critical = 0
2. Coverity Issues	High = 0 and Medium = 5
<b>Option</b>	
3. Unit Tests Coverage	≥ 80%
4. Complexity	Func. Complexity ≤ 12
5. Duplications	0%
6. Comment	30% -> 50%
7. Documentation	100%
8. BlackDuck Risk	(define by project team)

## Pipeline



SonarQube analyzes the given source code along with the binaries and calculates a set of metrics which is called "Developers' Seven Deadly Sins".

Seven axes of quality:

- Bugs and Potential Bugs
- Coding Standards Breach
- Duplications
- Lack of Unit Tests
- Bad Distribution of Complexity
- Spaghetti Design
- Not Enough or Too Many Comments



Some examples of defects and vulnerabilities found by Coverity include:

- Resources leaks / Dereferences of NULL pointers
- Incorrect usage of APIs / Use of uninitialized data
- Memory corruptions / Buffer overruns
- Control flow issues / Error handling issues
- Incorrect expressions / Concurrency issues
- Insecure data handling / Unsafe use of signed values
- Use of resources that have been freed



BlackDuck is a software that supports source code scanning, which provides analysis, provides comprehensive Software Component Analysis (SCA) solutions to manage security risk, copyright license risk from use Open Source Software (OSS) and Third-party code in the software development process.



## Application Security

- DevSecOps
- Security Testing & Assessment
- Penetration Testing
- Secure SDLC Consulting



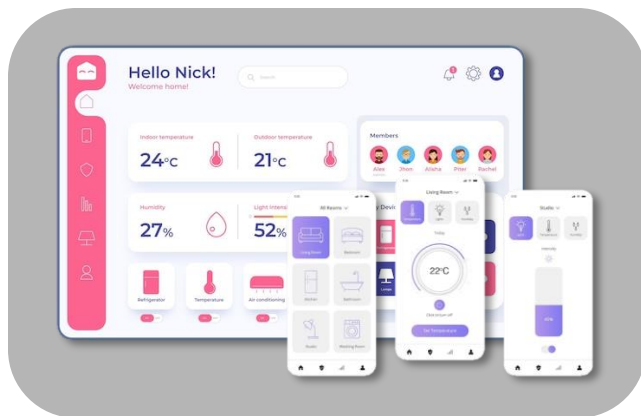
## Cloud Security

- Security Consulting
- Modernization Services
- Security Engineering
- Microsoft Security Service

## Cyber Operation

- Managed Security Solution
- Managed Detection & Response
- Security Operation Center as a Service

# H. AUTOMATION TEST BY PLATFORMS



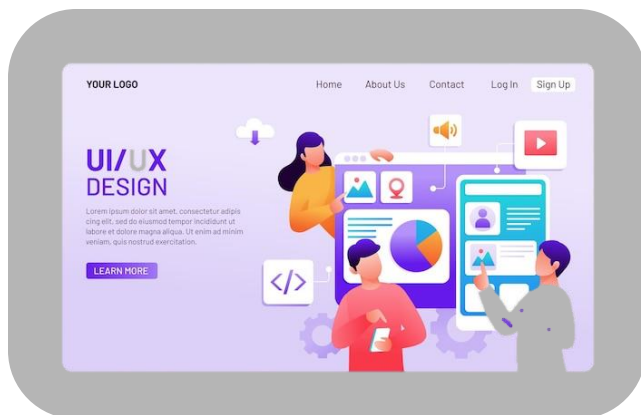
**Mobile Application**  
Flutter/React Native/Native/Xamarin



**Car Head Unit**  
Infotainment System



**SAP Automation**



**Web Application**  
On PC/Mac/Mobile



**Roku Devices**



**Windows**  
Application Automation

# H.1 SPECIAL PRODUCT – MEDIA, ROKU AUTOMATION



**Roku** provides the simplest way to stream entertainment to your TV. On your terms. Access more than 500000+ movies and TV episodes across free and paid.

## FPT's Solution:

- Automation tests are written using the Codecept framework
- Codecept helper / wrapper will need to be created around the Roku automated test driver.

- **85%** time saved per one execution
- **80%** reduction of effort needed from manual testers
- **45% saving of costs**
- Early detect bug found during Sprint
- 99% human mistake reduction



# H.2 SPECIAL PRODUCT – SAP AUTOMATION



**SAP** stands for Systems Applications and Products in Data Processing

## FPT's Solution:

- The test automation framework develop by FPT to support Win GUI and Web/Fiori
- Individual tests were executed with newly selected test data that were defined using test variables
- Large business processes were divided into test agents/ parallelly, which leads to a stabilization of automated tests
- Implementation of a custom environment and specific execution

- **75% time saved per one execution**
- **70% reduction of effort needed from manual testers**
- **30% saving of costs**
- **Eliminate HYPER CARE Phase**
- **99% human mistake reduction**

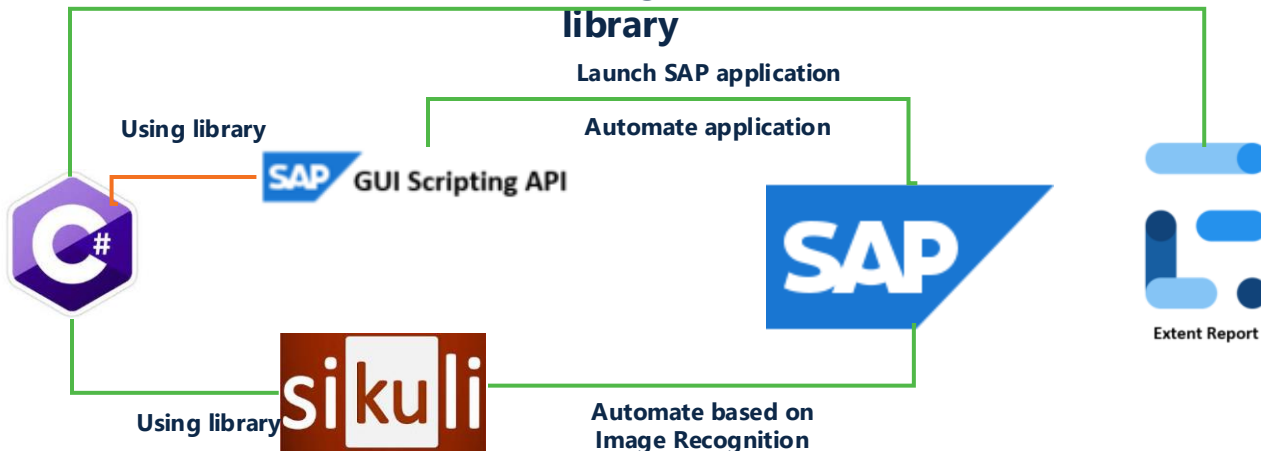
## Using library

Launch SAP application

Automate application

Generate HTML Report

Extent Report



Test Case ID	Status	Execution Time	Timestamp
C65843_OpenAmortizationReportTest	Fail	0h:0m:19s+224ms	15:55:27 PM
C65875_CalculatedTotalPaidTest	Pass	0h:0m:21s+373ms	15:55:46 PM
C70551_VerifySearchFunctionTest	Pass	0h:0m:37s+399ms	15:56:07 PM
C70552_VerifyClearFunctionTest	Pass	0h:0m:35s+349ms	15:56:45 PM
C70553_VerifyPrintFunctionTest	Pass	0h:0m:50s+918ms	15:57:20 PM
C70554_VerifySelectFunctionTest	Pass	0h:0m:34s+721ms	15:58:11 PM
C70555_VerifyExportFunctionTest	Pass	1h:0m:0s+0ms	15:58:11 PM

Step	Timestamp	Description
5	15:55:55	Enter Number Amount Value: 10000
6	15:55:57	Verify Number Amount field displays correctly
+ Verify Number Amount field displays correctly		
	15:55:59	Amount: \$10,000.00
7	15:55:59	Enter Number Annual Interest Rate Value: 50
8	15:56:01	Verify Number in Annual Interest Rate displays correctly
+ Verify Number in Annual Interest Rate displays correctly		
	15:56:03	Annual Interest Rate: 50.000%
9	15:56:03	Verify Number Payment Per Year displays correctly
+ Verify Number Payment Per Year displays correctly		
	15:56:04	Payments Per Year: 12
10	15:56:04	Verify Calculated Payment displays correctly

# H.3 SPECIAL PRODUCT – AUTOMOTIVE HEAD UNIT AUTOMATION

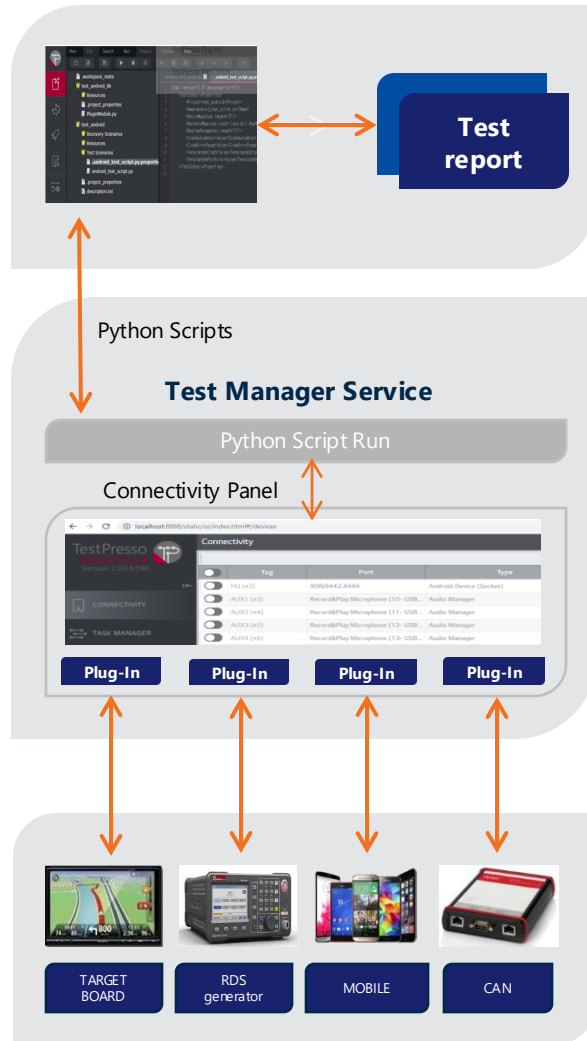


## Automation Test Solution

TestPresso tool

Test Node

Devices



## Automation Test on Target board

- OS: Window 10 64bit
- Framework: Android P & Q
- Testpresso: v2.0
- Python: v2.7.15
- Devices:
  - HU (target board)
  - RDS generator (AM, FM signal,...)
  - Mobile phone (BT, Wifi,...)
  - CAN (CANoe, CAN for automation,...)
  - USB flash
- Features:
  - Audio
  - Broadcast
  - Clock
  - Comfort
  - Configuration
  - Connectivity (BT)
  - Connectivity (WiFi)
  - Media
  - Power Management
  - VR/VPA
  - ...

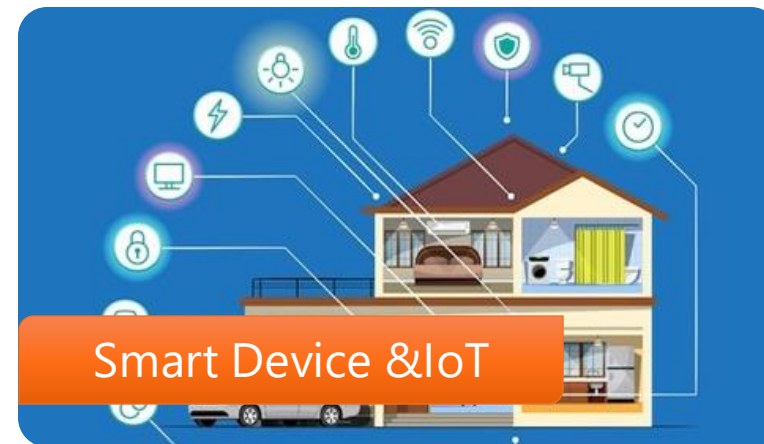




# DOMAIN INDUSTRIES



We specialize in providing quality engineering and software testing solutions for the following industries:





# Success Stories

Advisory is a journey, together every step  
is a new improvement





#	Project	Description
1	<a href="#"><u>F.1 Life Insurance Automation Testing</u></a>	
2	<a href="#"><u>F.2 MBBank Automation Test</u></a>	
3	<a href="#"><u>F.3 VPBank Automation Test</u></a>	
4	<a href="#"><u>F.4 Tele-health Automation Test</u></a>	
5	<a href="#"><u>F.5 Loyalty Automation Test</u></a>	
6	<a href="#"><u>F.6 TPB Automation Test</u></a>	
7	<a href="#"><u>F.7 Roku Automation Testing</u></a>	
8	<a href="#"><u>F.8 HSBC Mobile Automation Test</u></a>	
9	<a href="#"><u>F.9 Cyara Automation Test</u></a>	
10	<a href="#"><u>F.10 Metro Ticket System – Testing Transformation</u></a>	

# F.1 LIFE INSURANCE AUTOMATION TESTING



## Our Client

Customer "A", is a Hong Kong-based American multinational insurance and finance corporation. It is the largest public listed life insurance and securities group in Asia-Pacific.

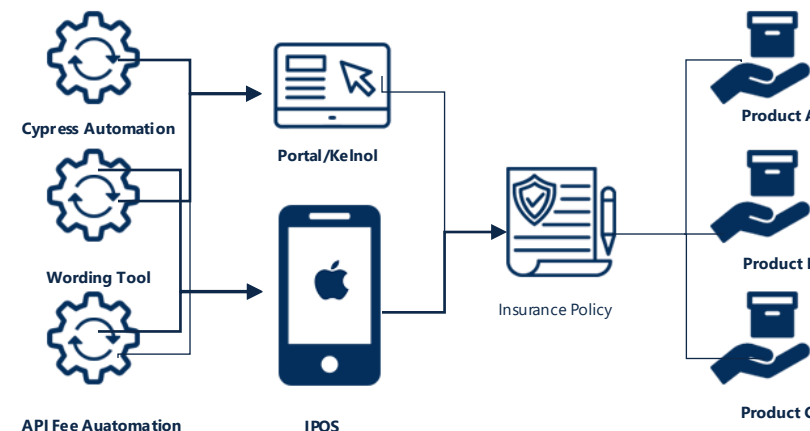
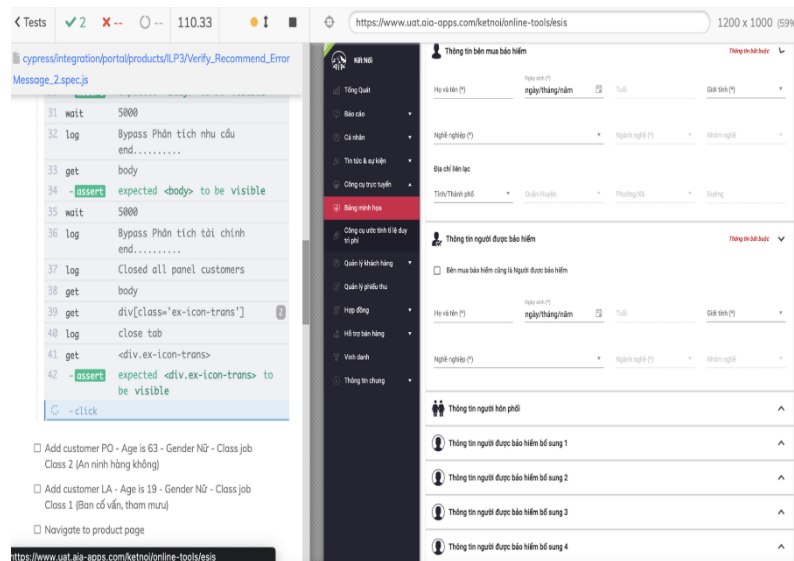
## Business Need

- The client needs a testing solution to verify all product rules & fee of the insurance policy for each new product
- Automation Test – Strong Technical solution to advise for thousand test cases/ scenarios for Sales Illustration as backbone for Life Insurance

## Project Challenges

The client faced a lot of challenges, some of which included:

- It took 2 months for 2 testers to run regression test for every change in Sales Illustration
- Required out come based solution for automating the application under test.
- Resource is lack of quality engineering skill



## FPT Resources

- 5 Senior Automation Engineers joined team.
- Recover all test case / test design are lacked
- Build CICD & Continuous Testing system
- Implement 14,000 Test Script Automation.

## Results

- FPT Automation Test framework handle a large of data test with different test cases to cover business rules as much as possible
- The manual effort **reduced from 90% to 10%** and automation effort **increased from 10% to 90%**

# F.2 MBBANK – AUTOMATION TEST



## Our Client

Military Commercial Joint Stock Bank (MB) is a financially sound, strong management, transparent information, convenient and pioneering service provider to realize its mission. Over nearly 26 years, MB has grown to become a versatile financial group with MB's parent bank in Vietnam & abroad (Laos, Cambodia) and its member companies.

## Our Solutions

- Implement automation test scenario on T24 System with Serenity Automation Test Framework
- Develop & maintain automation framework using Java, Serenity framework, Appium
- Execute daily testing with Jenkins integration

## Business Needs

- The client is developing a new feature for transferring money in Vietnam market.
- They want to implement automation test service for the feature as well and reducing the manual effort as much as possible when testing

## Technology Stack





## F.3 VPBANK – AUTOMATION TEST

### Our Client

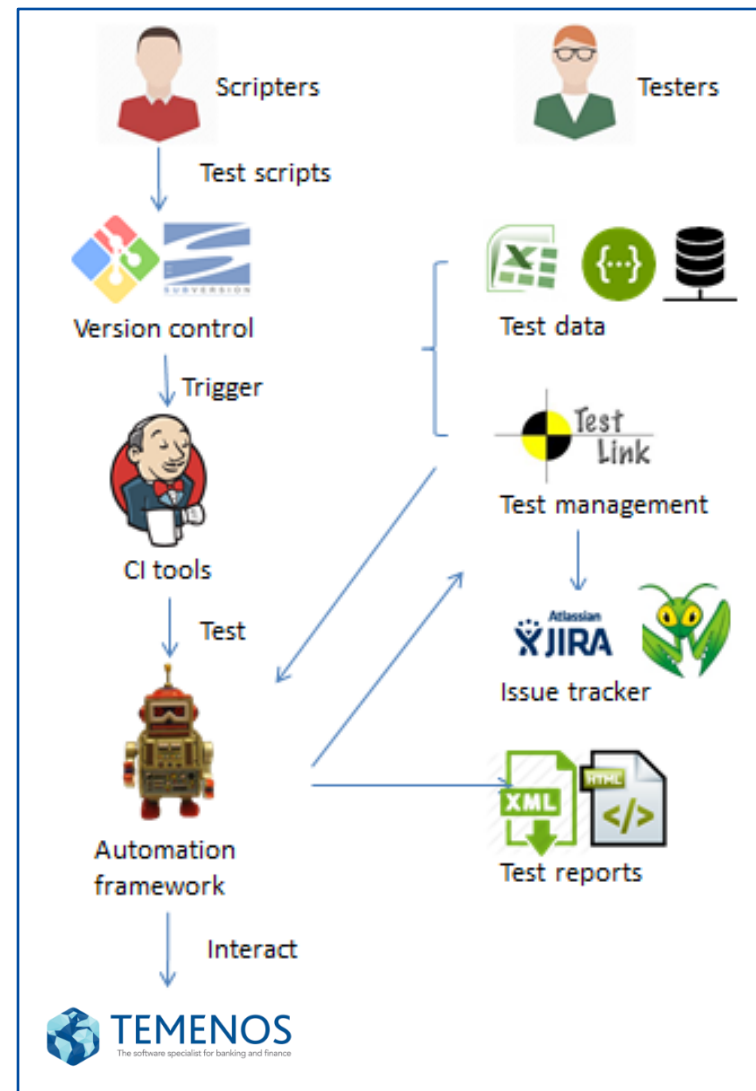
VPBank is one of the earliest-established Joint-stock Commercial banks in Vietnam, they have grown dramatically with the development and implementation of the strategic transformation program diligently with support from one of the world's leading consulting companies

### Business Need

- On T24 core-bank application, the Customer create new 47 types of Saving Passbooks and need to confirm business all of them work perfectly.
- On E-banking web application, Customer want to test Service Payment feature and Money-Transfer features.
- On Business Center application, Customer want to test the Money-Transfer feature

### Our Solutions

- We implement full flow automation testing, from create test-cases on Test Management tool, trigger automation script from CI tool (Jenkins). After run, the defects found in testing output will be import to Issue Tracker tool.
- We apply Hybrid Framework method to design and create test cases, test suites.
- Use Selenium WebDriver APIs, a popular test engine library to interact with web application.
- Apply Continuous Integration tool (Jenkins) to trigger testing job and notify the test result to whole team automatically.



# F.4 TELEHEALTH CASE STUDY



## Our Client

Video Visit (<https://www.videovisitglobal.com/>) is the Finnish market leader in the field of Digital Telehealth solutions with over 85% market share. The company provides remote care applications for over 100 hospitals in the country and also has international operations in Japan, Australia, Iberia and Baltic states.

## Business Need

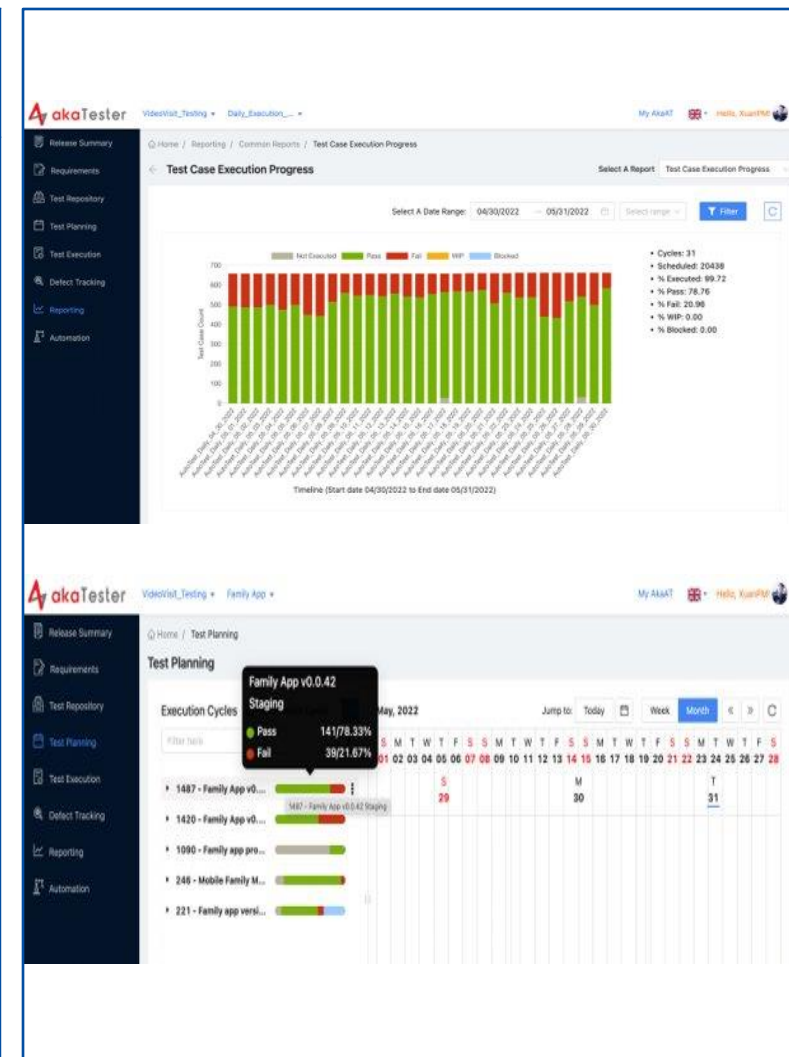
- Conduct testing for a cloud-based system: function test, performance test, regression test on Web/Mobile/Desktop version
- Shorten testing time to speed up time to market for new versions: testing was mostly conducted manually with low test coverage
- No in-house business analysts and testing team, need vendor's resources to serve the project

## Our Solutions

- 12/12/2020: Conduct POC
- 20/12/2020: Start Pilot
- 01/02/2021: Mass Implementation
- Present:
  - Scale up across organization
  - Apply automation in all important key projects

### Increase test coverage with 2500 Test Cases on

- 4 Applications
- 4 Platforms (Web/Android/iOS/Windows Application)
- 3 Environments (Review/Staging/Production)



# F.5 LOYALTY SYSTEM AUTOMATION TESTING

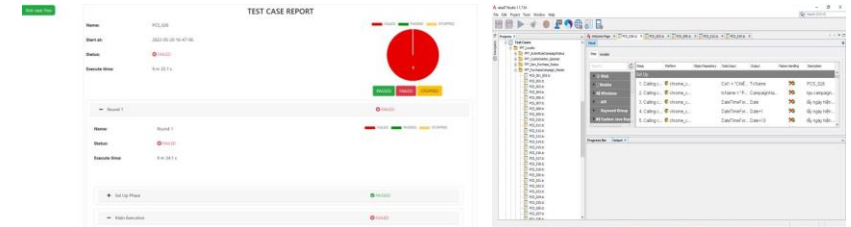


## Our Client

akaChain – powered by FPT Software – is the the blockchain for business platform. Built on HyperLedger Fabric, the standard for enterprise blockchain platform, akaChain offers a unique approach to security and consensus that enable transparency and trust and preserve data privacy that enterprises demand.

## Our Solutions

- Using AkaAT Tool to create and manage both Automation Testing and Manual Testing
- Integrated Automation Testing with CICD so Automated test script can be triggered and run nightly and to be managed by AkaAT tool

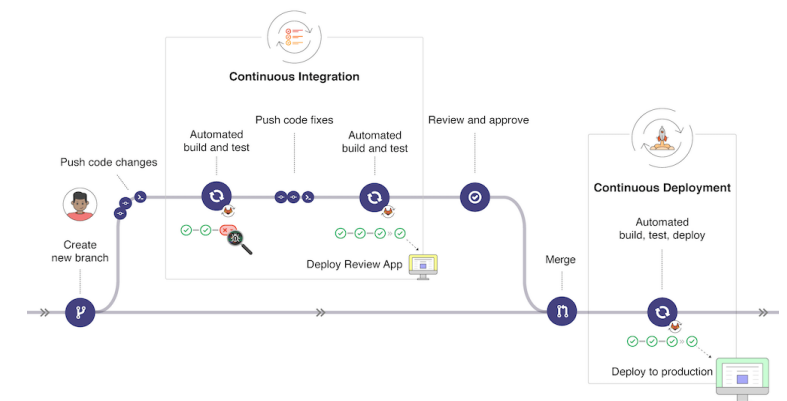


## Business Need

- The Customer needs to growing rapidly but must keep quality of product and services
- Product need to run regression test for all the functionality areas of the web, mobile in multi stage, on multi devices to ensure quality and stability after each release new version.
- Duration and cost for quality activity need to reduces so they can quickly release new feature and in budget.

## Implementation Methodology

- Build Mix team Manual + Automation with Agile working Model
- All of TCs are managed in akaTester  
→ Automated TCs will be marked
- Integrate akaAT Studio with CI/CD GitLab



# F.6 TPBANK AUTOMATION TEST



## Our Client

TPBank is a bank offers most effective banking & finance solutions to the customers, especially the young and active segment. Based on advanced technological infrastructure and specialized management, the bank has always been pioneering in setting trends in modern banking services, aiming to become the leading digital bank in Vietnam.

## Business Need

- The Customer was upgrading their new version of e-banking application. With new features and new responsive interface.
- The new version is a hybrid mobile application which need to run on modern web browsers (Chrome, Firefox, IE, Edge, Safari ...) and popular mobile platforms (iOs, Android) .
- Application use setting backend application which controlled by administrator and get/set data from core-bank application
- Apply automation testing in system/acceptance test phase to reduce manual testing effort.

## Our Solution

- Apply BDD method (behavior driven development) to design & create test cases, test suites.
- BDD method encourage closer collaboration, helping teams keep the business goal in mind.
- Use Selenium WebDriver APIs, a popular test engine library to interact with web application. Appium as a bridge to connect with mobile devices.
- Apply Selenium Grid to distribute the test job on multiple machines concurrently.



Responsive Web application run on multiple screen sizes



Support multiple web browsers



Application on both iOs and Android machines

# F.7 ROKU AUTOMATION TESTING



## Our Client

Customer "DISH", was founded on adventure and an unshakable desire to win. It's what drove us to launch satellites into space when people said we couldn't. Provides services to approximately 19 million customers

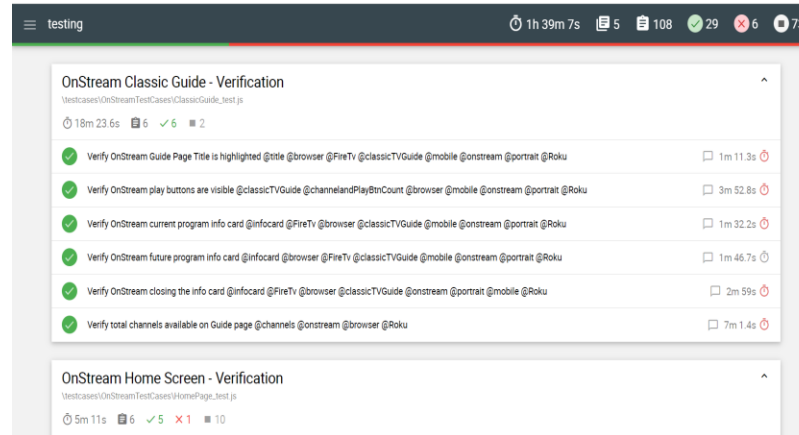
## Business Need

- The client needs a solution to automate application on Roku devices
- That solution must be able to integrate with existed framework (that already supported automation for web, mobile application)

## Project Challenges

The Client was looking at overcoming a lot of challenges that were being faced across the organization. A few specific challenges faced were:

- Have more than 2 versions per day with more than 150 test cases need to be tested
- They already tried automate but cannot before
- Hard to perform complete testing since have a lot of programs from multiple channels.



## Test Automation Solution

- Wrap the library to automation for Roku application and integrate into existed CodeceptJS framework
- Adding some new features to built-in Roku library such as screen shoot, dump controls, ...
- Build API fee automation framework to verify fee calculation before generating to PDF file by using Java, Rest Assured, TestNG
- Apply Review coding quality tool for CICD process.



## FPT Resource

- 3 Senior Automation Engineers, 2 Senior QA and 1 PM joined team.
- Beside automate for Roku application, team also support another team in reviewing code
- Sharing coding skills as well as transferring knowledge to help big team from client to improve skills
- Implement 150 Test Script Automation in 6 months.

## Results

- FPT Automation Test framework handle a large of data test with different test cases to cover business rules as much as possible
- The manual effort is reduced from 90% to 10% and automation effort is increased from 10% to 90%



# F.8 HSBC MOBILE AUTOMATION TEST



## Our Client

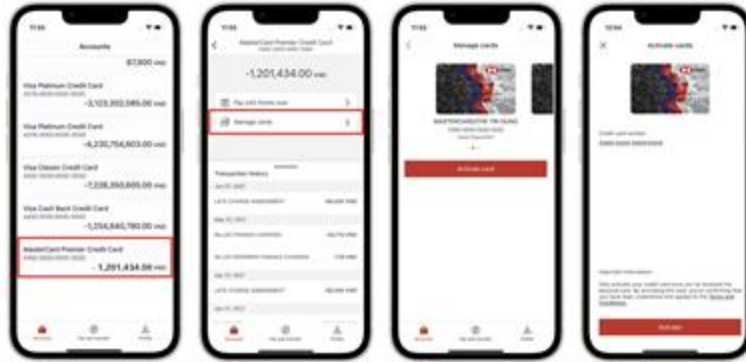
HSBC Holdings plc is a British multinational universal bank and financial services holding company. It is the largest bank in Europe by total assets ahead of BNP Paribas, with US\$2.953 trillion as of December 2021.

## Business Need

- The client needs QA automation services for their new features in Southeast Asia
- The QA engineer must have the solid skill to handle and develop the existing automation framework that uses Gradle, Java & Appium.

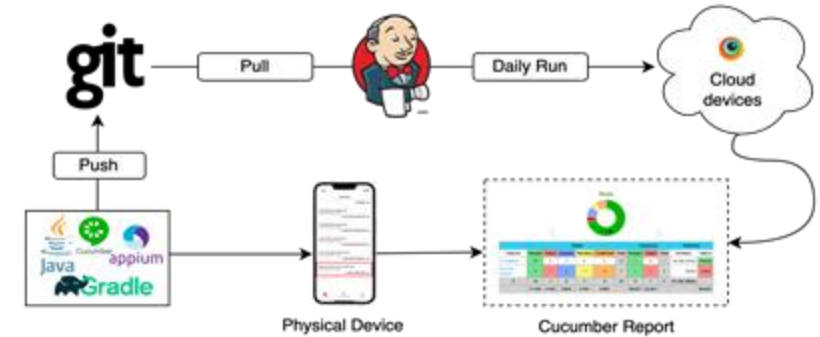
## Project Challenges

- There is a big client related to banking so the onboarding process, working devices & information must follow strict rules and take a lot of time for starting the project
- There is a lot of rule related to coding convention and process as well as project structure. And the new QA must learn all the things to handle the task without much support



## Test Automation Solution

- The automation framework was based on the Java Dependency Injection pattern
- Using Cucumber for implementing test scenarios and Gradle to build.
- Connect & running the test on mobile devices using Appium
- A coding quality review process with 3 steps: Gradle spotless (local), HSBC reviewers, CI/CD checks.
- Run & monitor the quality of the new feature with automation testing before & after releasing the feature with CI/CD.



## FPT Resource

- The FPT team have 1 PM & 2 Senior QA Automation
- Also, there is another development team in Vietnam for developing the new feature & fixing bugs

## Achievement

- Developed & deployed Vietnam RTP feature with 100% main flow test cases have been coverage after 6 month
- Help to speed up the testing process and release the new feature on time
- The client extended the new phase for new features in the Indonesia market

# F.9 CYARA AUTOMATION TEST

## Our Client

Cyara helps organizations achieve flawless customer experiences through automated testing and monitoring that simulate real-world customer interactions across IVR, voice and digital channels.

## Business Need

- Cyara was looking forward to some QA with very high skills in automation testing. They also require the candidates have very good English skills in communication
- They need QA from FPT must be able to assure the quality of their platform by applying quality engineering in the Agile Scrum process

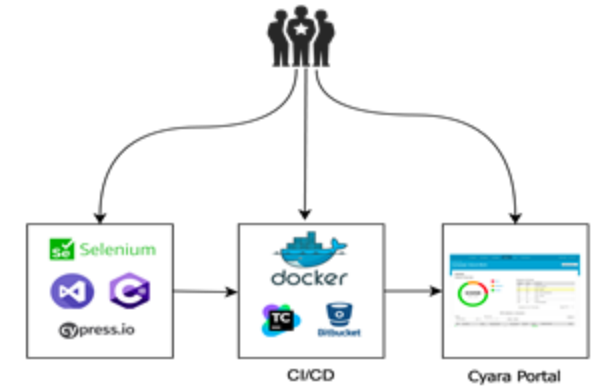
## Project Challenges

- The client has very high expectations of the quality of QA resources
- The new QA only have 2 weeks for getting familiar & knowledge with new technology & system before working on the tasks



## Our Solutions

- Assure the quality of the Cyara portal which is the main product from Cyara
- Maintain existing automation frameworks which are using selenium, C#, Cypress
- Build & monitor automation testing on the CI/CD with TeamCity, Docker
- Implement new automation test scenarios
- Join to perform the manual tests as well as defect investigation for all features on the Cyara portal
- Enable solutions to enhance quality assurance activities



## FPT Resource

The FPT team have 10 Senior Auto QA & 2 Leader in Vietnam

## Results

- Handled successfully the automation test framework in the short time
- Helped to improve the automation coverage in software testing activities by reducing significant effort in manual testing.
- FPT team has been recognized by Cyara CTO for the great effort in the automation test service

# F.10 METRO TICKET SYSTEM – TESTING TRANSFORMATION



## Our Client

Customer "O" is a supplier of equipment and services for selling train tickets in Japan. Operating the largest prepaid card system in Japan for travel and shopping

## Business Need

- The Client required urgent help for improving its test design & document quality.
- Improve quality metric, coverage.
- Automation testing assessment

## Project Challenges

The Client was looking at overcoming a lot of challenges that were being faced across the organization. A few specific challenges faced were:

- Manual Test case doesn't cover from Test view point, not cover all business cases, not up-to-date & contained many duplicated.
- Required out come based solution for automating the application under test.
- Resource is lack of quality engineering skill

## FPT Scope

Test Advisory & Transformation



Example photo

## Our Solutions

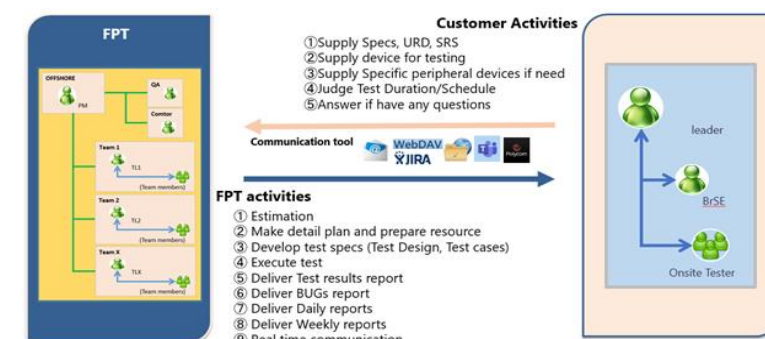
FPT offered the following Test Advisory Services and propose some key changings.

### Functional Testing

- Review & propose new Testing Viewpoint manage proc.
- Revamp Test Case / Test Design template.
- Turning Test Case / Test Design review process

### Test Automation

- Transform to DevTestOps model, apply CICD, CT
- Apply akaAT solution for Regression & Sanity Testing
- Monitoring and controlling the execution of automated tests every day, interpreting, reporting and logging the automated test results)
- Turning development standard for improve automation test capability.
- Apply Review coding quality tool for CICD process.



## Our Solutions

FPT offered transformation activities:

- FPT deploy 1 Test Manager & 20 member (12 Manual Test and 8 Automation Test) to improve output immediately.
- Setup Testing Center Of Excellence model for training & Applying new process, template, checklist.
- Recover all test case / test design are lacked
- Build CICD & Continuous Testing system
- Implement 7000 Test Script Automation by akaAT tool.

## Results

- Better coverage leads to less bug to real system
- Reduce leakage rate through each phase/project (10% ~ 20%)
- Productivity improvement through each phase/project (5%~10%)
- Reduce Time to go-live 20% & 30% Testing Effort





HOLA PARK

# THANK YOU

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