

**A STREAM PROCESSING BASED REGTECH SOLUTION  
ARCHITECTURE FOR BANKS**

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Degree of Master of Science in Computer Science

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Science

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## DECLARATION

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.....

A.Yasothar

Date

The above candidate has carried out research for the Masters thesis under my supervision.

.....

Dr. Indika Perera (Research Supervisor)

Date

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## **ABSTRACT**

Recent advancements in financial technology have given the opportunity for the rise of regulatory technology. RegTech or smart regulation is the use of cutting-edge technology for compliance and regulatory purposes. With technology invading the finance domain in the form of FinTechs, manual regulations and compliance will become obsolete in the near future. Banks should come up with architectures to build RegTech systems surrounding existing banking systems. Sri Lankan banks which are currently at the verge of implementing open banking to open-up banking services to FinTechs, have the biggest necessity of implementing RegTech solutions. With millions of transactions happening per second, and billions of amounts being moved between continents, the monitoring mechanism also should be smart and efficient. Biggest challenge of architecting a RegTech solution surrounding the current legacy Sri Lankan banking eco system is that they should have a minimal footprint on the operation and should have zero visibility on its existence. Stream processing on the other hand, a technology paradigm that took strides in the recent times, is a suitable candidate to address these challenges. Once we tap into the open banking API stream data and architect a RegTech solution surrounding it, the possibilities will become endless. Another major challenge is once we architect a solution, we need to evaluate it whether it caters the needs of all the stakeholders of the project. Architecture trade off analysis method and cost-based analysis method are two such analysis methods which brings all the stakeholders of a project to a single table and addresses their concerns. These methods are widely accepted and practiced by architects. This project will select a Sri Lankan bank, analyze on their current RegTech capabilities, propose a stream-based solution architecture, evaluate this new architecture using ATAM and CBAM methodologies, and implement few RegTech use-cases using the proposed solution. This proposed architecture can be used as a blueprint for any future RegTech solution implementation.

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## **LIST OF ABBREVIATIONS**

ATAM	Architectural Tradeoff Analysis Method
CBAM	Cost Based Analysis Method
FTP	File Transfer Protocol
CDM	Cash Deposit Machine
KYC	Know Your Customer
CBSL	Central Bank of Sri Lanka
IB	Internet Banking
ATM	Automated Teller Machine
ESB	Enterprise Service Bus
API	Application Programming Interface
PSD2	Payment Services Directive 2
SOAP	Simple Object Access Protocol
REST	Representational State Architecture
FCM	Financial Crimes Mitigation