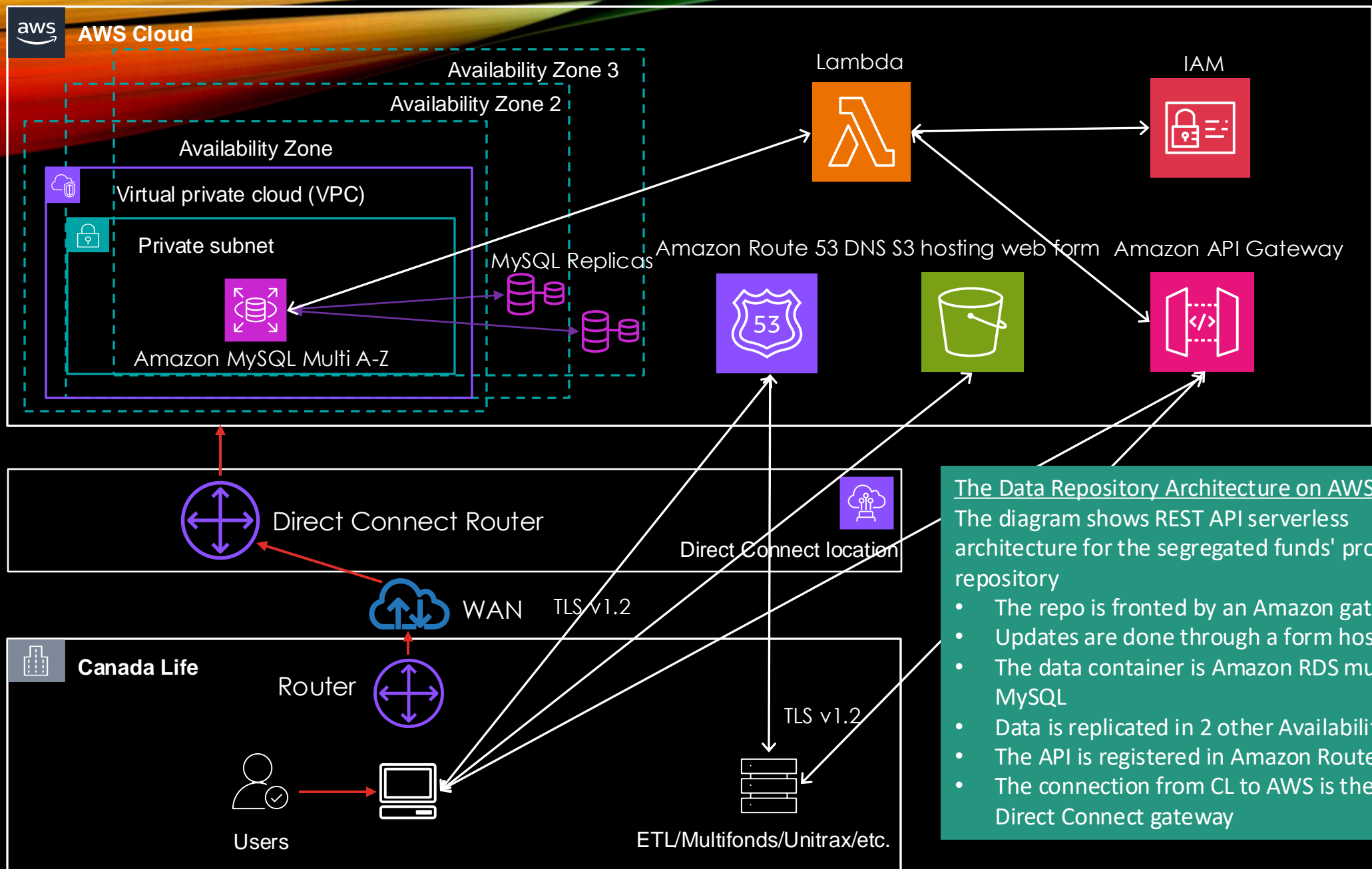# SEGREGATED FUND PRODUCT REPOSITORY

Time to enter 21st century

EXECUTIVE SUMMARY

- Canada Life doesn't have a digital enterprise product repository for any of its products

- All products are stored locally in each system in which they are used

- Consequently, all systems must be updated if there is a change to the product or a new product needs to be added

- This is an untenable situation today and it's a significant drag on business productivity because most of these updates are done manually

- Canada Life needs a fast, modern, secure, easily updatable, extensible repository accessible to the firm's employees and systems

AWS Cloud

Availability Zone 3

Availability Zone 2

Availability Zone

Virtual private cloud (VPC)

Private subnet

MySQL Replicas

Amazon Route 53 DNS   S3 hosting web form   Amazon API Gateway

Amazon MySQL Multi A-Z

Lambda

IAM

Direct Connect Router

Direct Connect location

WAN   TLS v1.2

Canada Life

Router

TLS v1.2

Users

ETL/Multifonds/Unitrax/etc.

The Data Repository Architecture on AWS
The diagram shows REST API serverless architecture for the segregated funds' product repository
- The repo is fronted by an Amazon gateway API
- Updates are done through a form hosted in S3
- The data container is Amazon RDS multi-AZ MySQL
- Data is replicated in 2 other Availability Zones
- The API is registered in Amazon Route 53 DNS
- The connection from CL to AWS is the existing Direct Connect gateway

Business Description

Product: SaaS (software as a service) solution/data service for segregated fund products for CL

Details:

☐ Maintain product data for the full universe of segregated funds (about 11+K currently)

☐ Serve data through REST API using OpenAPI protocol

☐ Offer UI to maintain the data (add, update, delete)

☐ Available only to internal CL clients(users and systems)

Technical Specs

✓ AWS-hosted highly available and scalable serverless solution

✓ Using Amazon RDS MySQL Multi-AZ encrypted database

✓ Amazon Gateway API Service

✓ Amazon IAM service for authentication and authorization

✓ API registered on Amazon Route 53 DNS

✓ Data encrypted at rest and in-flight using Amazon KMS and TLS 1.2

✓ Amazon Direct Connect connection (already exists)

✓ RPO – 5 minutes

✓ RTO – 1 hour

SLA

✓ Max 10 individual and system users

✓ Only individual users are allowed to make updates

✓ Response to GET request < 1 sec

✓ Response to ADD/UPDATE/DELETE < 1 sec

✓ Max concurrent requests 1000

✓ Max monthly requests of 100K

✓ Max capacity for the dataset 50K

COSTS

➢ Pricing: 1) SaaS – fee per month

2) CL ownership - fixed cost per project with options for $extra

➢ Monthly fee: TBD – Prod + QA, extra $ for additional environment

➢ Additional Options: multi-region DR (TBD), CL SSO (TBD), etc.

ADDITIONAL COMMENTS

- This implementation would be the most advanced, modern, cloud-based IT service in the CL portfolio following the best practices, a showcase and an inspiration to every other system and/or project at CL
- This project should be regarded as production POC for extending the practice to other products such as non-seg mutual funds, GICs etc.
- Additional products could be added easily based on the existing infrastructure for a lot lower cost
- Eventually, CL should have the full product repository available in the cloud for internal and possibly external client consumption

Internal CL cost estimate (of my own)

Based on my recent experience at CL and its practice I would estimate the cost to CL if it were to develop this functionality internally (all estimates are conservative, meaning that more likely than not they would be higher in reality):

- Project duration: 4 months
- Project team: 5 people (one PM, two developers (one for UI, one for computing), one BA, and one architect), testing and deployment are omitted but would certainly account for another $30-100K (based on the scope and depth).
- Average cost per person: $60K

The Full Cost of Development: $300K as **the base minimum**

With a typical CL project overshoot of 2-6 months: add $150K + $300K to the above for the overall cost of $450K - $600K

SUMMARY

Property	Vendor Solution		Canada Life Solution
	SaaS	Client-owned	
Ownership	Vendor	CL	CL
Delivery	100%	95%	100%
Support	100%	0%	100%
Timeline	3 months	3-4 months	6+ months
Costs development	$0	$125K	$400K-$600K (page 5 estimate)
maintenance	$7K	Actual AWS costs	Actual AWS costs