CLOUD MIGRATION

Reduced cloud operation costs and increased flexibility with a cloud-agnostic architecture and blockchain-based platform migration to AWS

CONTEXT

CLIENT

- National not-for-profit insurance advisory organization governed by its member insurance companies

BACKGROUND

- Our client has an open source, block-chain based distributed ledger platform powered by Hyperledger Fabric
- It is operated by our client to infuse efficiency, transparency, and security into regulatory reporting for its members.
- The platform is now further being advanced by Linux Foundation as the open-source ecosystem for the entire Insurance industry.

KEY CHALLENGES

- Dependency on specific cloud provider with higher operational costs, further making it unaffordable for small insurance carriers
- Legacy technologies for APIs and UI leading to risk of obsolescence and potentially higher cost of support later

SOLUTION – OUR ROLE

Chainyard, a premier partner of IBM and an active member in The Linux Foundation, has been selected as the service provider due to its history of success in developing and deploying blockchain-based platforms and consortiums for several industries.

Chainyard is responsible to

- *Provide technology consulting for architecture, migration, and upgradation*
- *Migrate the blockchain-based platform to a cloud-agnostic solution, initially to AWS*
- *Upgrade the UI and APIs to latest versions of Angular and NodeJS*

SOLUTION – KEY ACTIVITIES

DISCOVERY & ARCHITECTURE

Assessment of the current architecture, outlining the new cloud-agnostic architecture, and identifying the right AWS cloud services

CONFIGURATION & AUTOMATION

Implementing infrastructure-as-code approach to provision and manage cloud infrastructure through configuration and automation scripts

MIGRATION

Migrating the blockchain-based platform with the new cloud-agnostic architecture to AWS including end-to-end testing & documentation

UPGRADATION

Upgrading the UI and APIs to latest versions of Angular and NodeJS besides upgrading Chaincode to Fabric 2.2

SOLUTION – KEY COMPONENTS – CLOUD AGNOSTIC - AWS

MIGRATION

- **Blockchain-based platform** on Hyperledger Fabric on AWS
- Operator Node
- Analytics Node
- Carrier Node

UPGRADES

Hyperledger Fabric	HLF 2.2
User Interface	Angular 11.2.10
API-based Services	NodeJS 14.16.1 LTS

TESTING

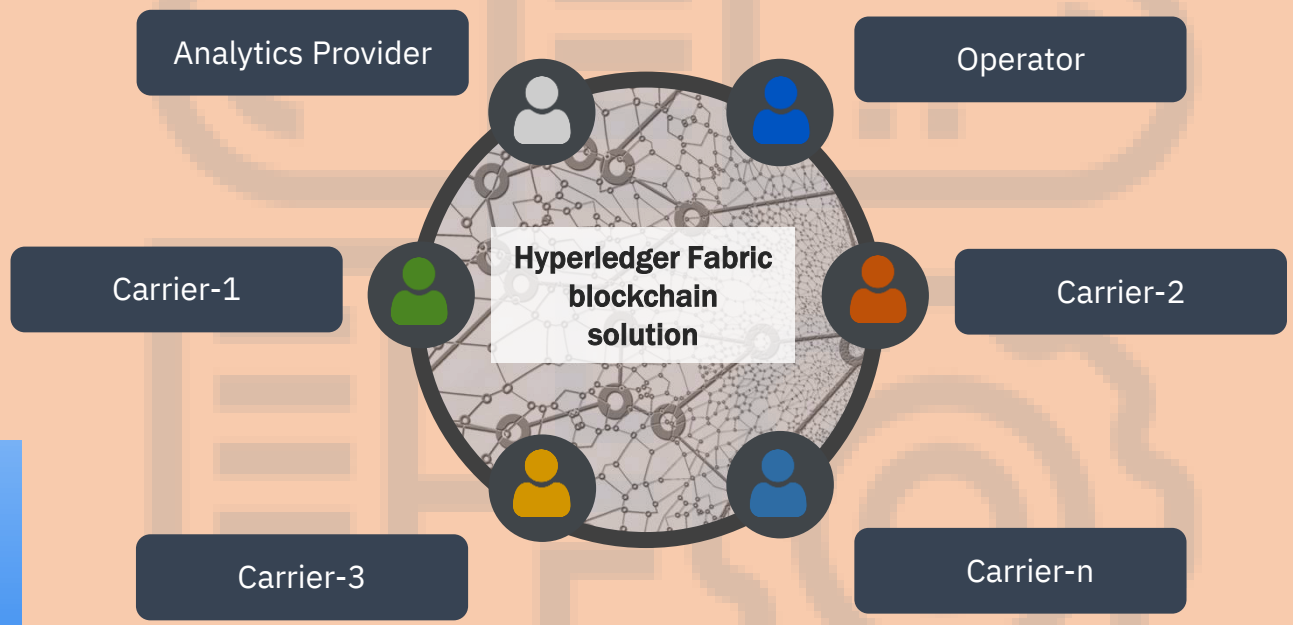
- Hyperledger Fabric Testing
- Security Testing
- End-to-end Functionality Testing

INFRASTRUCTURE AS CODE – CONFIGURATION AND AUTOMATION

- **Configuration of** HLF, Kubernetes, Applications
- **Scripts for HLF Configuration** – Operator, Analytics, and Carrier Nodes
- **Management of** NPM Registry, Image Repository
- **CI/CD for Applications** – Kubernetes Provisioning, Secrets Management, Built/Test Scripts, Github Actions etc.

SOLUTION – PARTICIPANTS & KEY TECHNOLOGIES

A blockchain-based distributed ledger platform for insurance carriers



KEY TOOLS & TECHNOLOGIES

Hyperledger Fabric For blockchain platform	**Angular** For UI components	**NodeJS** For API-based services
Hashicorp Vault For application secrets	**AWS Secrets Manager** For infrastructure secrets	**AWS Elastic Kubernetes Service** to host the platform
Terraform For AWS services provisioning	**Ansible Automation** For configuration / deployment	**Flux** For Kubernetes artifacts deployment
GitHub, GitHub Actions For code repo, CI/CD pipelines	**Github Package Manager** For Images	**Helm Charts** For app & n/w components deployemnt

RESULTS – KEY BENEFITS

ELIMINATED DEPENDENCY SPECIFIC CLOUD

By developing a cloud-agnostic architecture and migrating the platform to AWS as an initial service provider

REDUCED OPERATIONAL COSTS

By migrating to a low-cost cloud provider helping even smaller insurance carriers to become part of the consortium

INCREASED THE ABILITY TO USE NEW FEATURES

By upgrading the UI and APIs to latest framework versions besides reducing the risk of supporting legacy versions

RESULTS – KEY BENEFITS (contd.)

REDUCED DEPLOYMENT TIME

By making the configuration & deployment process as infrastructure-as-code approach and automation scripts

INCREASED SCALABILITY OF INFRA + DATA LOADING

With right cloud architecture and relevant set of services besides enhancing data loading scripts

ENHANCED CONSENT PROCESS

By enabling the process to operate seamlessly even on large data sets which was not possible in the previous version

CHAINYARD

Customer Success Briefs

THANK YOU

DevOps & Cloud