DATA ONBOARDING

Magic SW:
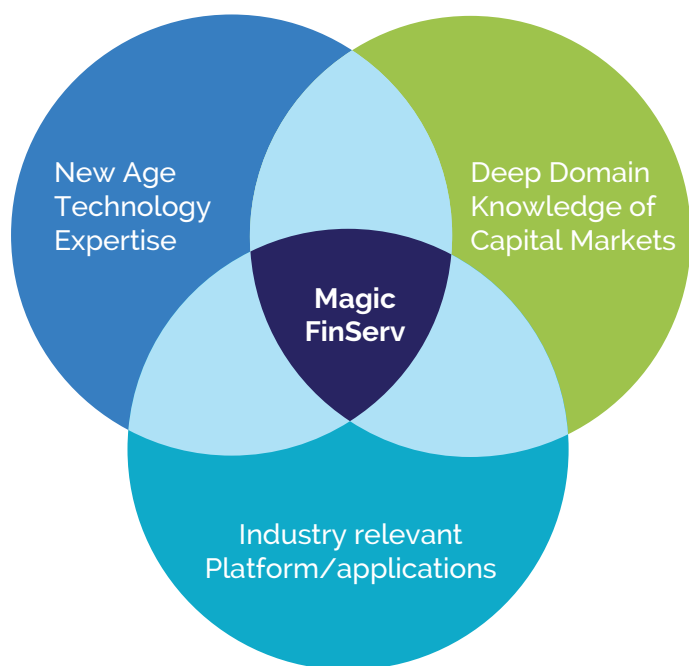## A 30 Year Journey of adapting New Age Technologies

1990

Foundation

1994

Interactive Websites

1998

Web Based Applications

2014

MagicBox – Cloud based SaaS product, Media Publishing

2002

Immersive Learning Solutions

2016

MagicFinServ launched, Enterprise Data Management

2017

Blockchain offerings with AI based automated

2018

AI, ML, NLP, Cloud based New Age Tech offerings

2020

RegTech, Compliance solutions offerings
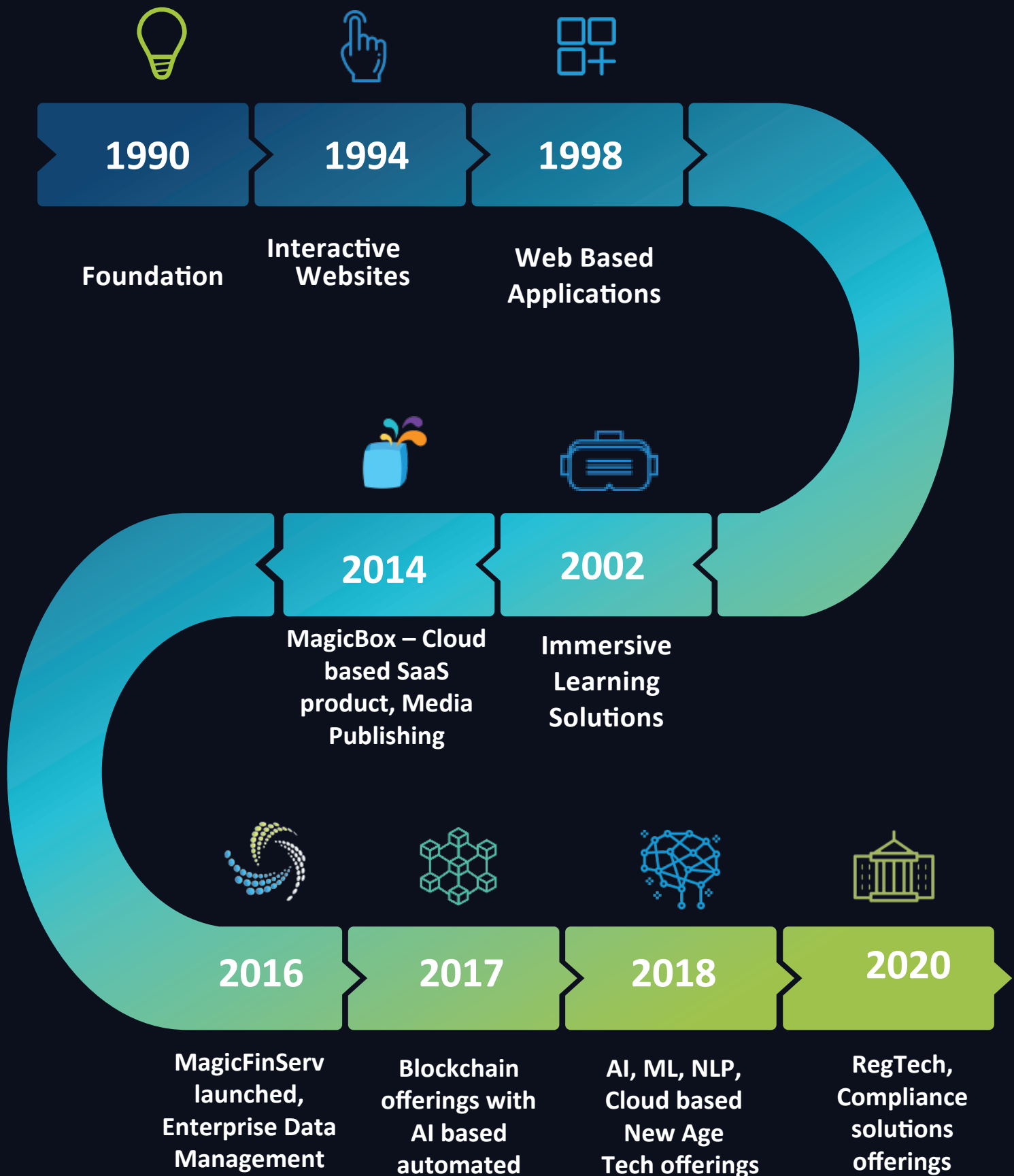
DeepSight™ launched

Adapting New Age Technologies to scale

1. Capital Markets /Buy Side focused

2. Leveraging NewGen Technology (AI/ML, Blockchain, Cloud)

3. Delivering Digital Transformation

- We solve last mile problems by providing Pre and Post processing solutions integrated with underlying industry platforms.
- Disrupting the Status Quo by optimizing Ops & IT for disproportionate benefits
- We measure our success by improving the ROI of your customers

New Age Technology Expertise

Deep Domain Knowledge of Capital Markets

Magic FinServ

Industry relevant Platform/applications

Magic FinServ
DRIVING BUSINESS IMPACT FROM INFORMATION

✓ **02** Global Locations
✓ **15+** Delighted Clients
✓ **20+** Years of Domain Expertise

Data Onboarding

An offering to our customers

1

The process of uploading customer's data to a new product is a critical step often involving adhoc manual data processes. Magic FinServ has the expertise in Client Data Processing/Onboarding with proficiency in Data Acquisition, Cleansing, Transformation, Modeling and Distribution.

2

We assist our clients having products catering to various segments of Financial Industry like Asset Management, Regulatory Reporting, Trade compliance, Crypto Analysis etc. for their Data Processing. We understand their data model.
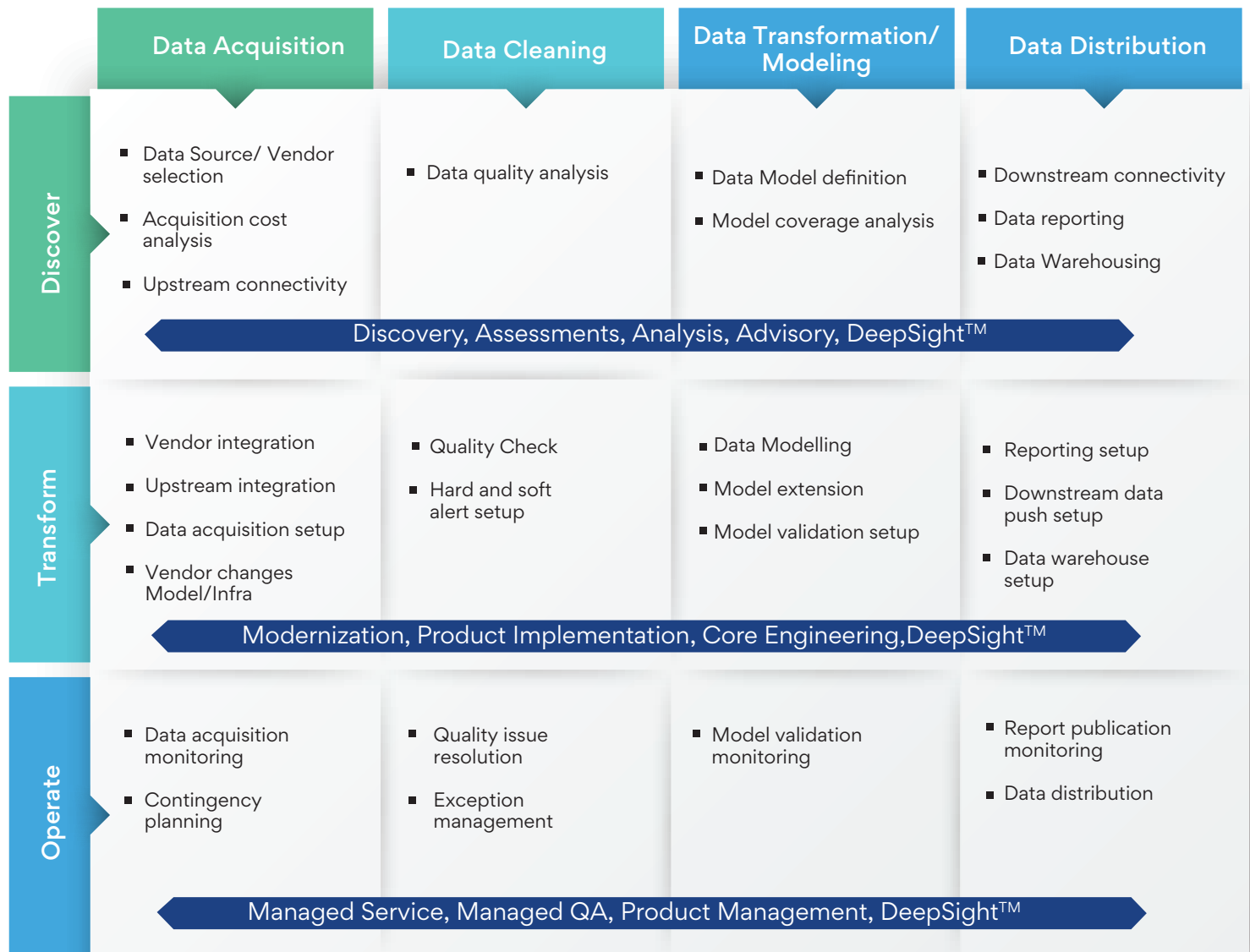
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In addition to Data onboarding, we also help clients to maintain their data through activities like Reference Data setup, Extraction, Transformation & Setup of their BAU activities (support structure setup, User training, etc.)
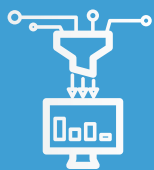
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Case studies of some of our existing engagements –
For Client 1, Reference data setup /security master creation
For Client 2, Client Data onboarding and ongoing BAU activities for multiple products
For Client 3, Extraction from multiple exchanges, processing and distribution of cryptocurrency market data

Our Approach to Data Onboarding

|	Data Acquisition	Data Cleaning	Data Transformation/ Modeling	Data Distribution
Discover	■ Data Source/ Vendor selection ■ Acquisition cost analysis ■ Upstream connectivity	■ Data quality analysis	■ Data Model definition ■ Model coverage analysis	■ Downstream connectivity ■ Data reporting ■ Data Warehousing
	Discovery, Assessments, Analysis, Advisory, DeepSight™			
Transform	■ Vendor integration ■ Upstream integration ■ Data acquisition setup ■ Vendor changes Model/Infra	■ Quality Check ■ Hard and soft alert setup	■ Data Modelling ■ Model extension ■ Model validation setup	■ Reporting setup ■ Downstream data push setup ■ Data warehouse setup
	Modernization, Product Implementation, Core Engineering, DeepSight™			
Operate	■ Data acquisition monitoring ■ Contingency planning	■ Quality issue resolution ■ Exception management	■ Model validation monitoring	■ Report publication monitoring ■ Data distribution
	Managed Service, Managed QA, Product Management, DeepSight™			

Major Challenges

Data Acquisition / Extraction -

- Constraints in extracting heavy datasets, availability of good API's
- Suboptimal solutions like dynamic scrapping in case API are not easily accessible
- Delay in source data delivery from vendor/client
- Receiving revised data sets and resolving data discrepancies across different versions
- Formatting variations across source files like missing/ additional rows and columns
- Missing important fields / Corrupt data
- Filename changes

Data Transformation

- Absence of a standard Taxonomy
- Creating a unique identifier for securities amongst multiple identifiers (Cusip, ISIN etc.)
- Data arbitrage issues due to multiple data sources
- Agility of Data Output for upstream and downstream system variations
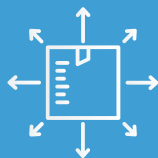
Data Distribution/Loading

- File formatting discrepancies with the downstream systems
- Data Reconciliation issues between different systems

Case Study 1: Reference Data Management

Data Acquisition for any security request

- Upstream Integration
- Multi Data Providers Strategy
- Market Identifier
- Security create/update strategy

Quality

- Downstream Negative
- Acknowledgements (NACK)
- Quality Checks
- Exception management

Distribution to the Downstream system

- Downstream integration
- Position refresh strategy
- Report publication
- Reconciliation between different system

Bloomberg Industry Classification

We worked with client to onboard latest Bloomberg industry classification. The Bloomberg Industry Classification Systems (BICS) is a proprietary hierarchical classification system, which classifies firms' general business activities. Client was using old legacy industry classification. We recommended them to move to new classification scheme. We update data acquisition, model rules. Also worked with Downstream teams to accommodate the change.

FastTrack Security Setup

The complete process of setting up a new security - from data acquisition to distribution to downstream systems, took around 90 minutes and users needed to wait till then for trading the security. We conceptualize and created a new workflow for creating a skeleton security (security with mandatory fields) which can be pushed to downstream system in 15 minutes. If sec is created in skeleton mode, only the mandatory data sets/tables were updated and subsequently processed. Identification of such DB tables was the main challenge as no documentation was available.

Overall it required major changes in the Data acquisition workflows and their regression impact on quality checks and distribution process had to be assessed and managed accordingly.

Case Studies

Holiday Calendar Feed onboarding

Earlier the client used to manually update every holiday for all the exchanges in the system.

We conceptualized and implemented holiday calendar feed to automate this holiday loading process.

We created a new data acquisition, validation and distribution workflows which also required data normalization to optimise the process.

Other than removing the risks of manual intervention, it helped in swift update of pricing schedule and subsequently made the downstream systems analysis like portfolio valuation readily available.

Quality Checks Improvisation based on NACK data

We did a special sprint to help the client minimize the NACKs received from the downstream systems by doing a detailed analysis on the NACK scenarios and improvising our Data Quality checks accordingly.

Multiple reasons covered as major Challenges earlier (ranging from variations in upstream system calculation, data arbitrage etc.) could trigger a NACK and reducing them improves the operation efficacy.

Ex. Incorporating a quality check that sum of Mortgages Pool factor cannot be more than 100%. Another example is validation of bond coupons schedule with the received and calculated data.

Regulatory Filing Product for AMC

The application is designed to help firms manage, interpret, aggregate, and normalize data from disparate sources, and assist in their Regulatory Filing obligations.

For onboarding new clients in the applications, Implementation team takes care of the Planning , Analysis , Implementation & Testing Regulatory Filings with the help from Managed Services team.

As per the client request, we did an implementation process review and recommended below areas of optimization -

Master Data Dictionary to map fields from customer data points to product data points

Mapping client's source data to the required product's data points was a manual process and we proposed a rule & AI/ML based Master Data dictionary creation to automate this manual process significantly.

Parallelization of activities in the implementation Phase

Automation of data/file validation and sanity checks

Source data received from the client needs to be validated from data consistency along with business validations. We proposed creating a rule-based validation/recon tools for the same instead of excel based validations.

Calculation recommendations for new implementations using AI/ML

BAs identify the calculation methodology for computing answers to the Ques in Reg forms and does the required setup for the same. Utilizing AI/ML, we may be able to recommend any of the existing calc methods based on client profile & other characteristics

Case Study 3: Regulatory Data Processing – Managed Services

Regulatory Filing Product for AMC

Post implementation / client onboarding, Production Filing is taken care by the Managed Services/BAU team. Client also involved us to review their Managed Services processes by participating in their BAU work along with their MS team during QE/YE. This helped us to get the complete context of the workflow and enabled us to make well informed recommendations. With the intent of optimizing the process , we identified the focus areas and categorized them based on the severity of their impact.

Their generic ETL process for client data processing is as follows –

Source Data Files Tracking as per the expected File Checklist

Data Extraction : Source Data copied to Worksheets for Transformation

Data Transformation : Final Data(Input templates) preparation through Worksheets along with Data validation, Quality checks

Data Load : Templates creation from Worksheets which get loaded to the Application

Based on the severity of each focus areas that we have identified during the BAU process, we work on the same after each reporting cycle and are effectively following an incremental way of optimizing the process.

Optimization Case Studies in Managed Services

Data Extraction –

One of the areas was manual copy paste of data from multiple source files to work-sheets.

We created a macro so that it can select multiple source files and upload the data in one go. Also, we made it robust further to fetch the complete data in the source files even if the source files may have some filter applied on the data accidently as we noticed in client's data. We also made it scalable so that it could be utilized in any similar process optimization. Overall, this tool enabled us to reduce the effort on data extraction **by 30-40%**

Data Transformation –

We optimized the Transformation step by reducing the manual interventions significantly and we are discussing one of the major improvements below.

In the ETL process of creating a security master for a customer, significant number of manual overrides were done for identifying Asset Type for the new securities –

1
Asset Type was updated manually based on the last quarter Sec M data of similar instruments (ex. Options for same issuer with different expiry months

2
For the remaining new instruments, an Asset Summary WS is created after removing similar instruments data manually and sent to the customer to get Asset Type details

3
Once the client responds, we need to manually update the Asset Type for similar instruments which were removed earlier.

We have optimized the above step by analyzing the data, identifying the patterns, extracting the security issuer and conceptualized a rule-based logic to generate the required data . Consequently, manual intervention was required only for 5% of the records manually updated earlier in the first iteration itself and we further optimized based on the other identified patterns to reduce it further.

Overall, we were able to significantly reduce the effort & time on this step **by 50%** and optimized the data processing timelines for the client.

Case Study 4:
Investment Monitoring Platform Data Onboarding

Trade Compliance/Investment Monitoring Product

Investment Monitoring Platform automates and simplifies shareholder disclosure, sensitive industries and position limit monitoring and is a notification system for filing threshold violations based on market enriched customer holding, security, portfolio and trade files.

For onboarding new clients in the application, Implementation team takes care of the Initiation, Planning, Analysis, Implementation & Testing Regulatory Filings.

During Planning, we analyze the customer's data like Fund & reporting structure, Holdings, Trading regimes and Asset Types etc.. from ref data perspective.

Post the analysis, reference data is setup and source data is loaded after any requisite transformations.

It is followed by a quality assessment and completeness check.

Post this setup, positions data keeps flowing into the application in real time which is taken care by the Managed Services team.

Case Studies in this area

Our client needed help streamlining their Client/Data onboarding process. The client requested an improved process to configure Jurisdiction rules in the application. Additionally, they also required assistance simplifying the report analysis that their client required for comparing the Regulatory filings.

We have technical and business expertise in this area with proficiency in collecting, uploading, matching, and validating customer data for using it in the product and we utilized them to optimize their product implementation process -

1 Organized the delivery process, created communication channels to maintain understanding between different stakeholders and revamped the onboarding process.

2 Captured process information from Product, Implementation, Support teams to simplify and streamline the existing customer/data onboarding experience with metrics like customer engagement, retention, productivity, longevity in mind.

3 With the thought and planning to build an exceptionally well detailed onboarding process, updated the Product data point document which is referred by clients for field definitions, multiple field mapping, Translations, code definitions, Report requirement etc. This handled Data Reconciliation issues between different systems.

4 The product has features to load different data files (E.g., Security, Position, Transactions etc.), customize Regulatory rule configuration, pre-process data files, create customized compliance warnings, direct or indirect Jurisdiction filings etc. Such complex features were streamlined and documented for maximum productivity.

5 Vital and valuable inputs shared across teams to structure & improve data/customer onboarding, enhance & optimize Product capabilities

Case Study 5: Crypto Market Data Analytics

Client delivers the cryptocurrency pricing and market data to institutional investors.

We assist them in their Data ETL process in preparing these reports -

1 We extract various data from exchanges or portals to get the prices, volume and circulating supply for tokens for analysis and other calculations and put the data in DB.

2 As of now, we have extracted crypto transaction data for 20 exchanges and are working on extracting data from more exchange portals.

3 We check blockchain platforms to get the transaction information for the tokens.

4 We explore different blockchain platform, look for API or try dynamic scrapping for data collection.

5 Then we clean and format the data and provide it to the client reporting team for their analysis and review.

Optimization Case Studies in crypto Data Processing

Implementing the publication of crypto pricing every 15 seconds to client customers

1

Worked with the client to decide on the best approach to publish the data since customer offered 3 different methods for the same.

2

Analyzed positives and negatives of the 3 methods and created a workflow signifying the same. Recommended the client to use the web sockets since it was helping to directly connect and publish the data.

3

To publish the data, data was acquired from the DB every 15 seconds and data manipulation was done to convert the data into the correct format (JSON).

4

The manipulated data was published through the contribution channel set up using web socket and received the ACKs for the data sent.

5

Worked with the client to perform a quality check on the web socket connection, the data sent, the ACKs to understand any gaps in the implementation

6

Also worked on the required alerting if in case the web socket connection breaks or any wrong message is sent or receive NACK for any message.

Case Studies

Data processing from one of the large Crypto exchange through APIs & Explorers

Highlight of this implementation was convincing the client to use the optimal way of data extraction through explorers & API instead of their preferred dynamic scrapping method, other than the challenge of extracting huge volume of data for processing (20+ bn txns for a quarter) from the exchange. Furthermore, the transactions had to decoded further in order to the required fields.

STEP 01

Identify the source

To scrape the transactions data from exchange, client suggested to follow the dynamic scrapping approach. Since the dynamic scrapping approach was not optimal, we tried to identify the sources of data for data acquisition, i.e. the explorers to get the data from and worked with the client to look for explorers and the APIs. On further analysis , we identified that Solana had 2 explorers, and both offered their APIs.

STEP 02

Exchange Transaction Types identification

Worked with the client on identifying the types of transactions required for the analysis and worked on a model to scrape the transactions data. Also worked on approach to decide how to get the huge amount of data and its storage and recommended to run the process on different machines in order to optimize it and run it effectively.

STEP 03

Code development and quality checks

Automated the code for Solana and used the required APIs from both the vendors to increase the data acquisition speed. Since the volume of data was huge, after some time the IPs were getting blocked which hampered the data collection. Implemented the process in such a way if in case the IPs got blocked and process stopped, on restarting the code, it picks from the last point where the code stopped.

Also worked with the clients to do the quality check for the data.

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