



Team Name : Neuratech

Problem Statement - 1 : Global Catalog Registry

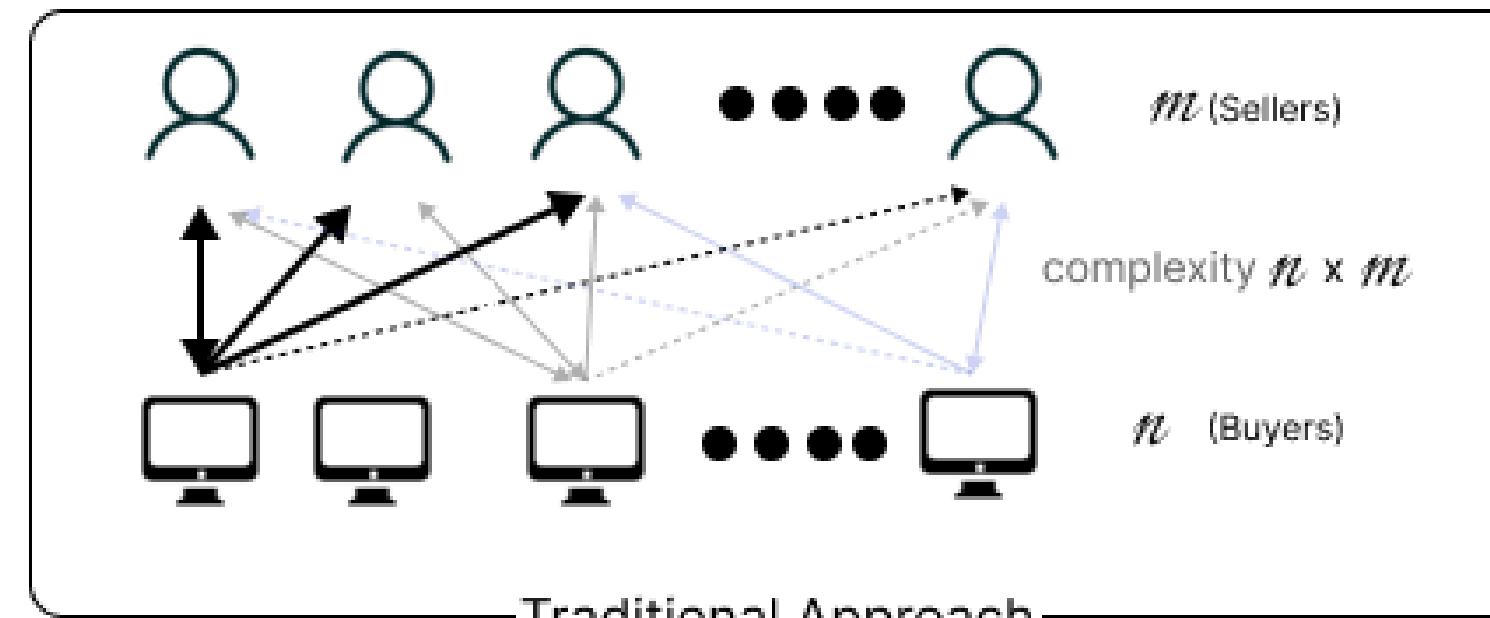
Team Members:

- 👤 Sumeet Gupta - MVC & API Development
- 👤 Saherish Kazi - Frontend & Integration
- 👤 Atharva Bansod - Backend & Scalability
- 👤 Talha Ansari - Database & Integration
- 👤 Shashank Yadav - Market Research & Analysis

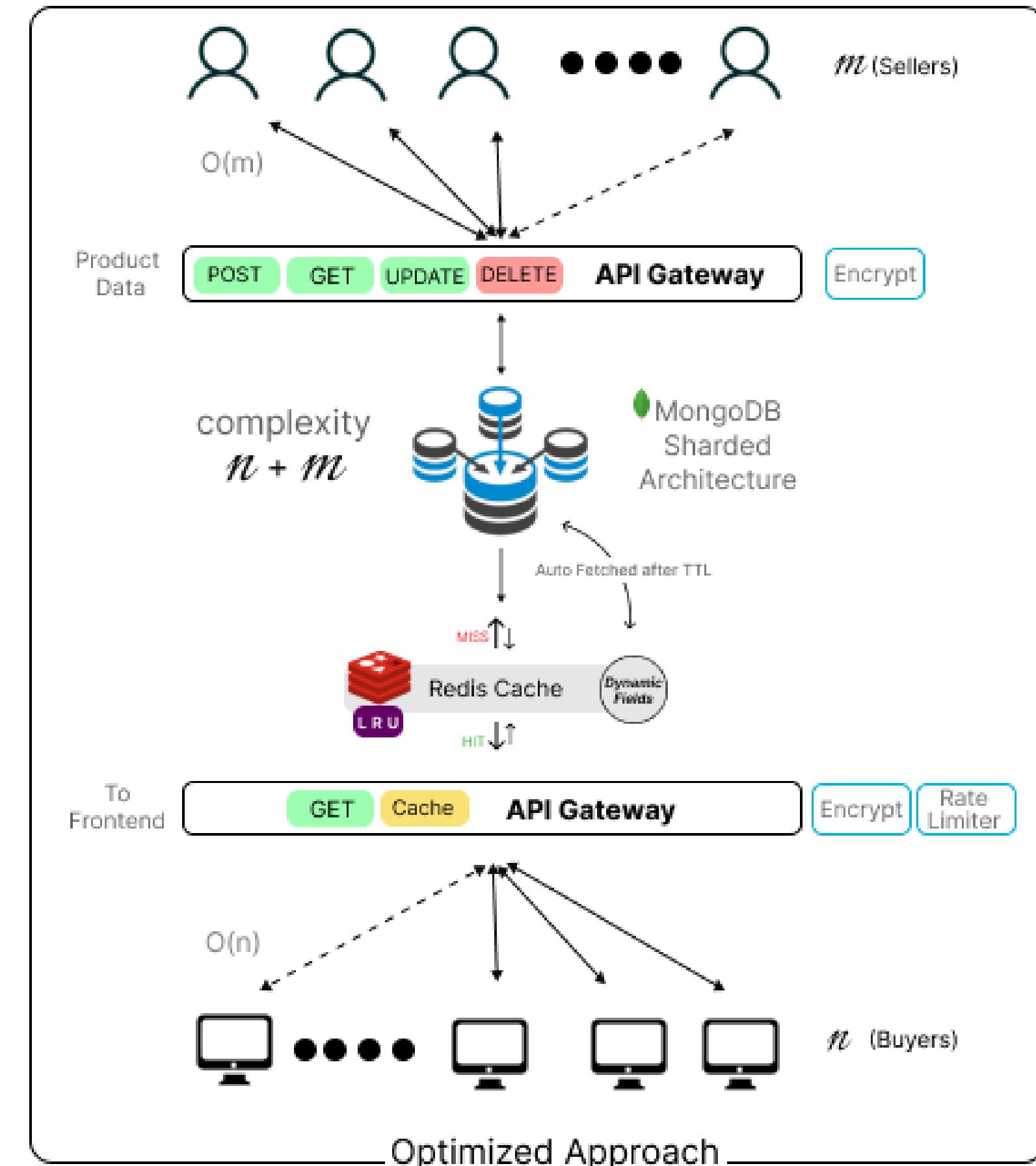


Prototype Video Link :
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si=vx0uGFbshy1Hndhj](https://youtu.be/4eGad8VdTyc?si=vx0uGFbshy1Hndhj)

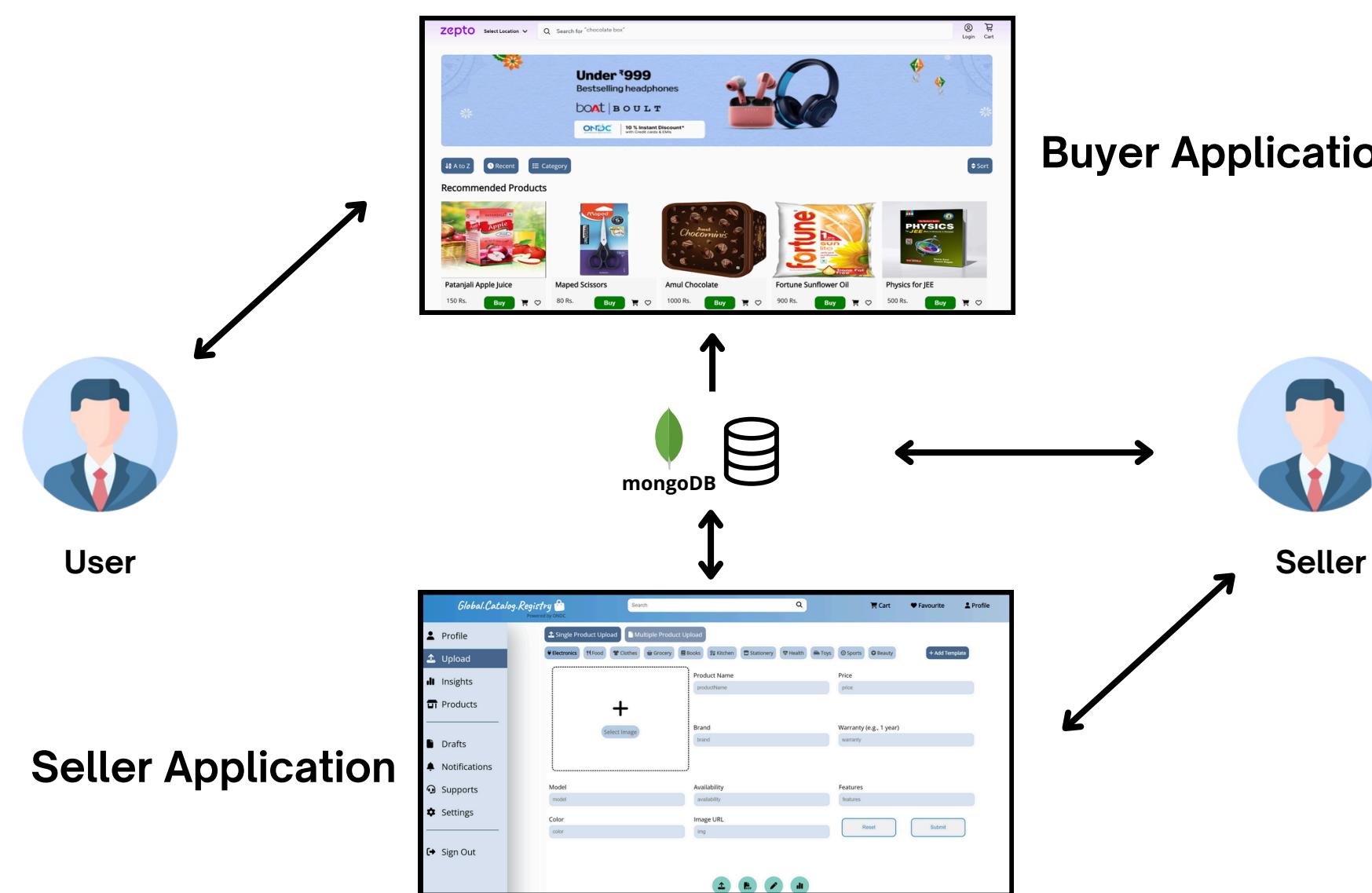
Prototype Hosted Link :
<http://gcrneuratechondc.vercel.app>



Traditional Approach



Technical Workflow Diagram

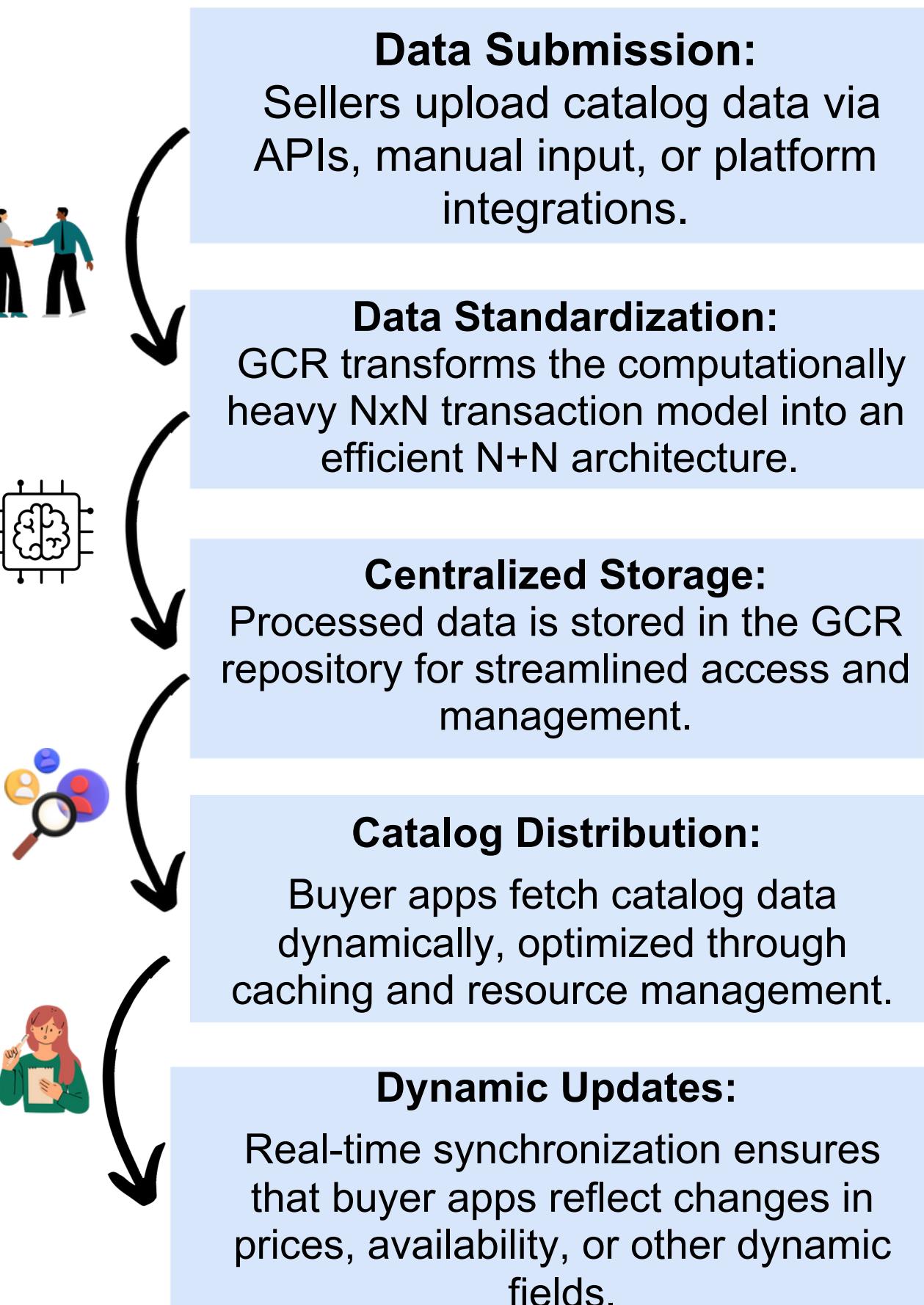


Current Challenges

The ONDC ecosystem faces challenges like computationally heavy **NxN transaction** model inconsistent catalog formats, disrupting user experiences and complicating integration between buyer and seller apps. High storage and processing costs result from redundant data management. Migration issues arise due to fragmented catalog systems across platforms. Additionally, managing dynamic data like prices and availability efficiently is a significant challenge.

Proposed Solution

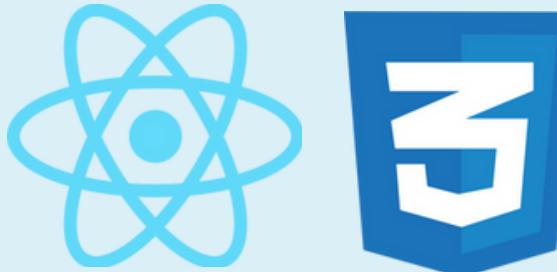
- **Standardized Catalog Structure:** Define a unified format with fixed fields (e.g., product name, price, warranty) to simplify processing.
- **Centralized Storage:** Create a scalable, efficient repository for all catalog data to eliminate duplication and efficient N+N architecture..
- **Automated Ease Integration Tools:** Enable seamless catalog creation, updates, and synchronization between buyer& seller apps and the GCR.
- **Pre-Built & Custom Templates:** Provide seed catalogs for common product categories to simplify onboarding for sellers.
- **Dynamic vs. Static Data Handling:** Incorporate mechanisms to efficiently manage dynamic and static information.
- **Unique Product Identification:** Introduce a system for uniquely identifying products while allowing sellers customization flexibility.



TECHNICAL APPROACH

Frontend & Visualisation

React.js, CSS, Chartjs



React.js, CSS & Chart.js are used for building dynamic and responsive user interfaces with a focus on performance and scalability.

Database & Storage

MongoDB, Redis, ElasticSearch



MongoDB is used for flexible, scalable NoSQL data storage, Redis is utilized for caching and session management, and ElasticSearch enhances search capabilities with powerful indexing.

Backend & Server

Nodejs, Express, RestAPI, Helmet



The backend is built with Node.js and Express.js to efficiently handle HTTP requests and RESTful APIs, while Helmet is used for enhancing security by setting various HTTP headers.

Hosting & Deployment

AWS, S3, RDS



For hosting, AWS provides a robust and scalable platform with services like EC2 for computing, S3 for storage, and RDS for database management, allowing seamless deployment and scaling of applications.

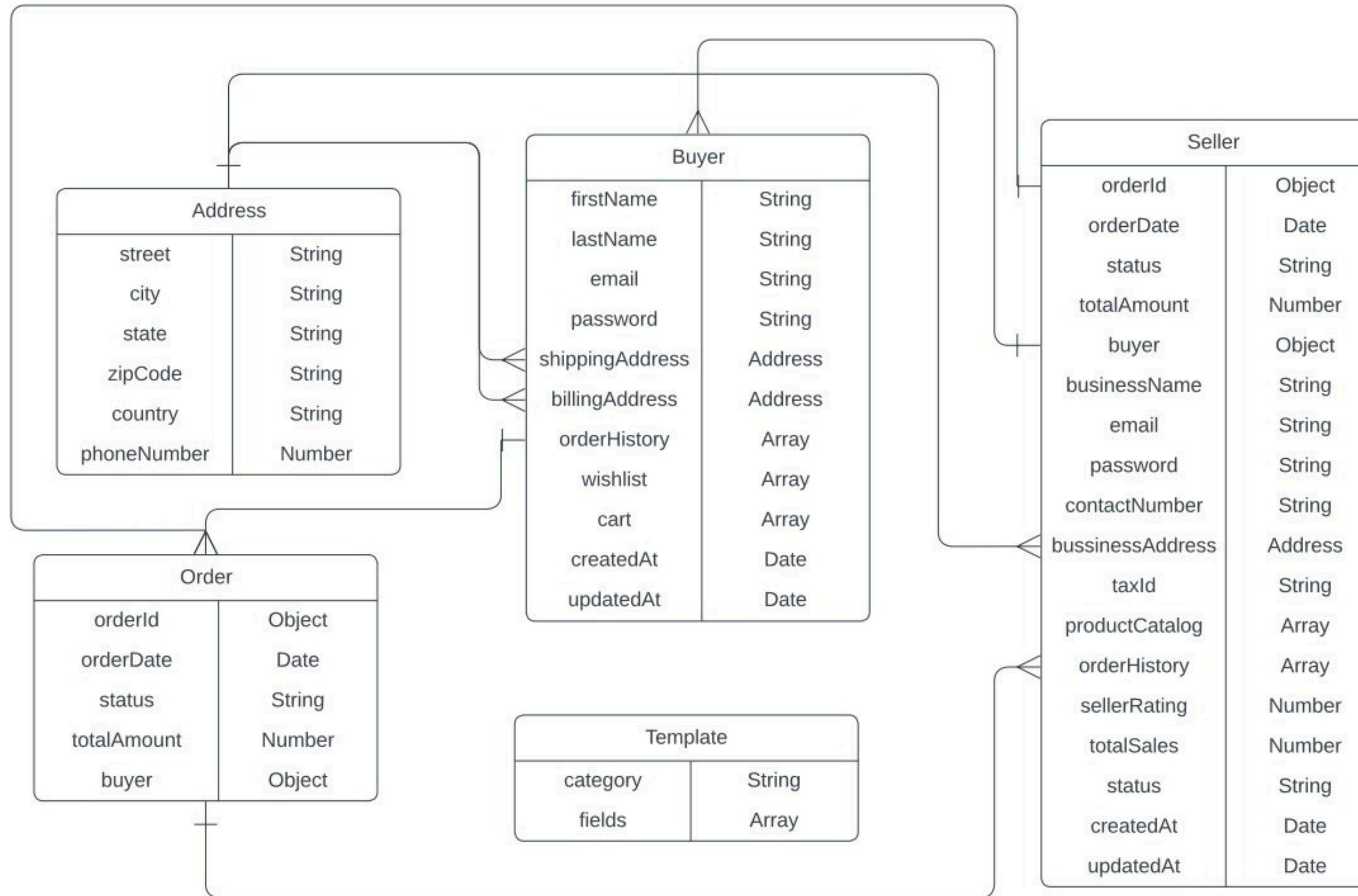
Scalability

Apache Kafka, Load Balancer



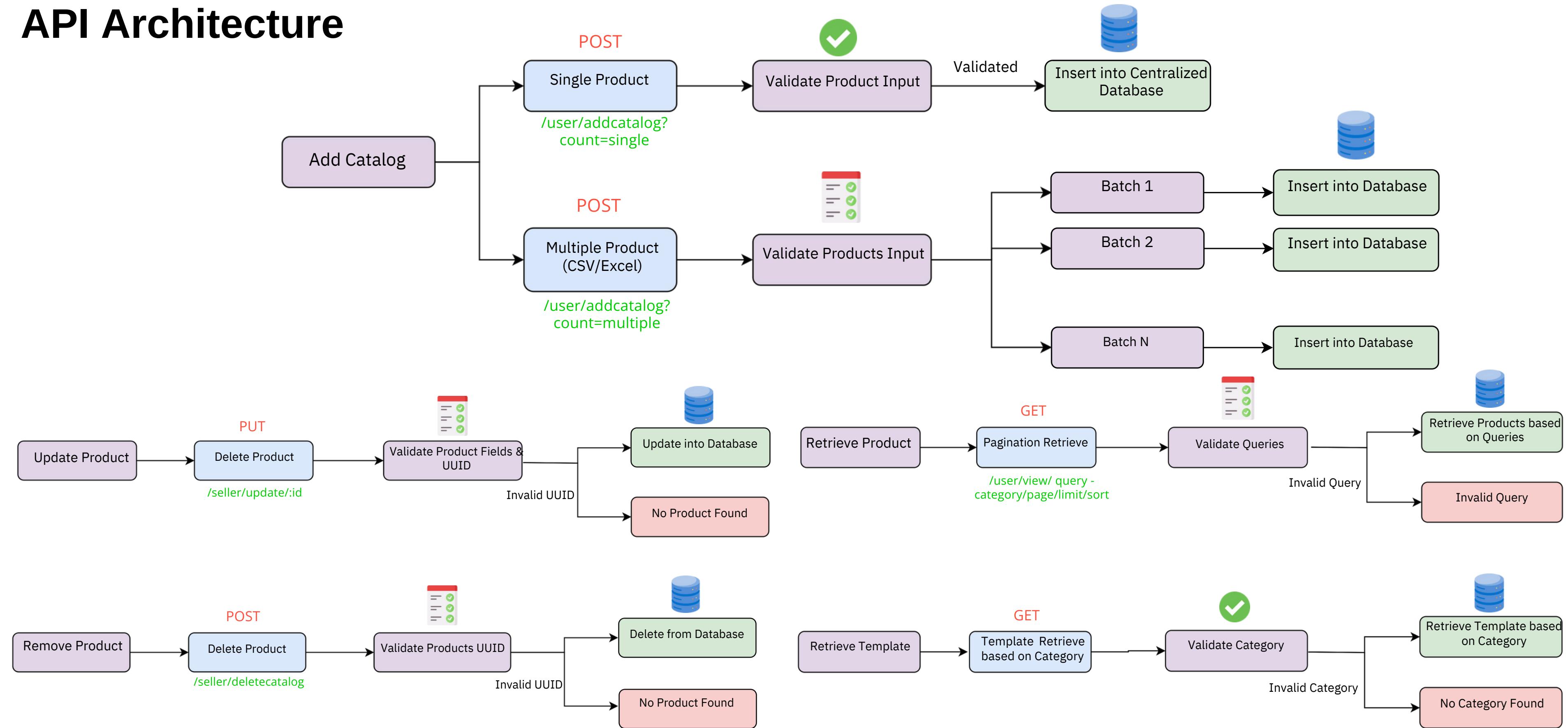
For scalability, we'll use Apache Kafka for real-time data streaming, Load Balancers to distribute traffic, and Microservices with AWS Auto-scaling for dynamic resource scaling based on demand.

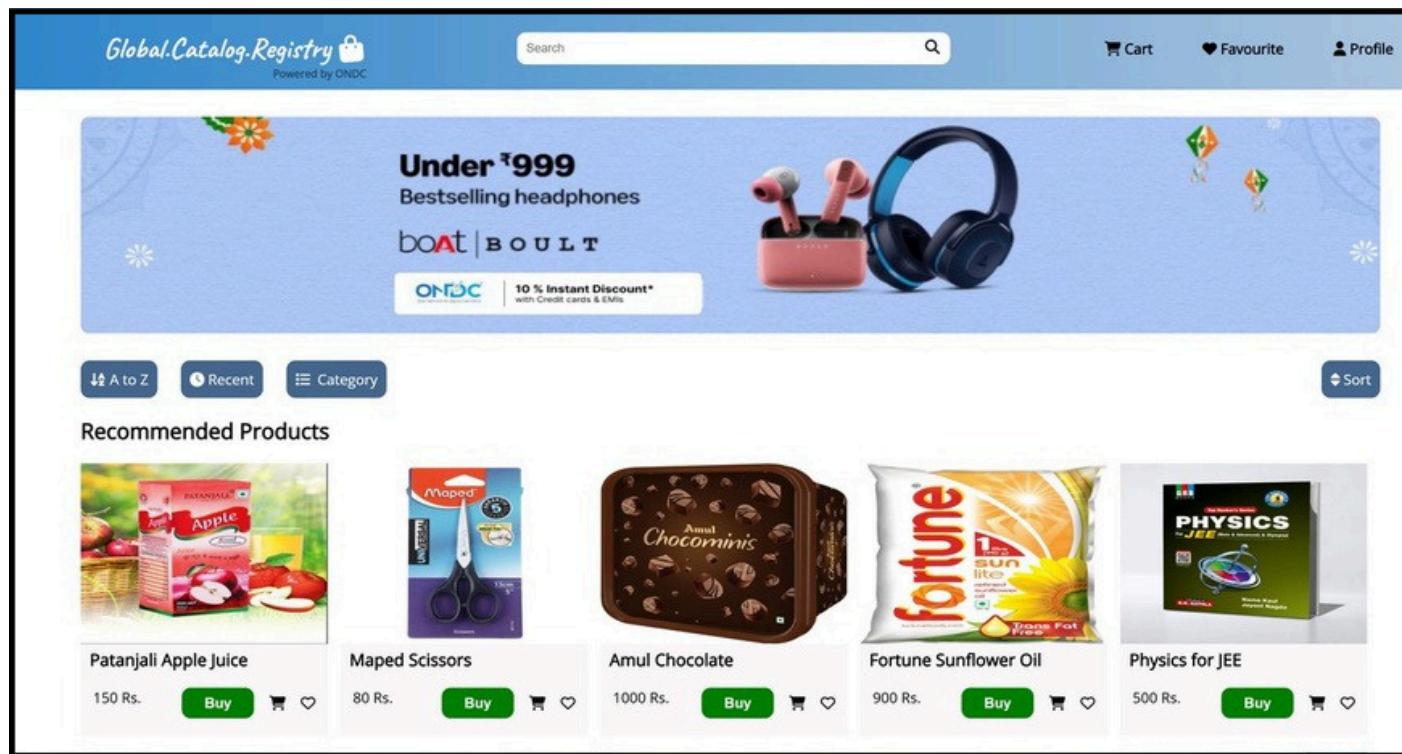
Centralized Database Architecture



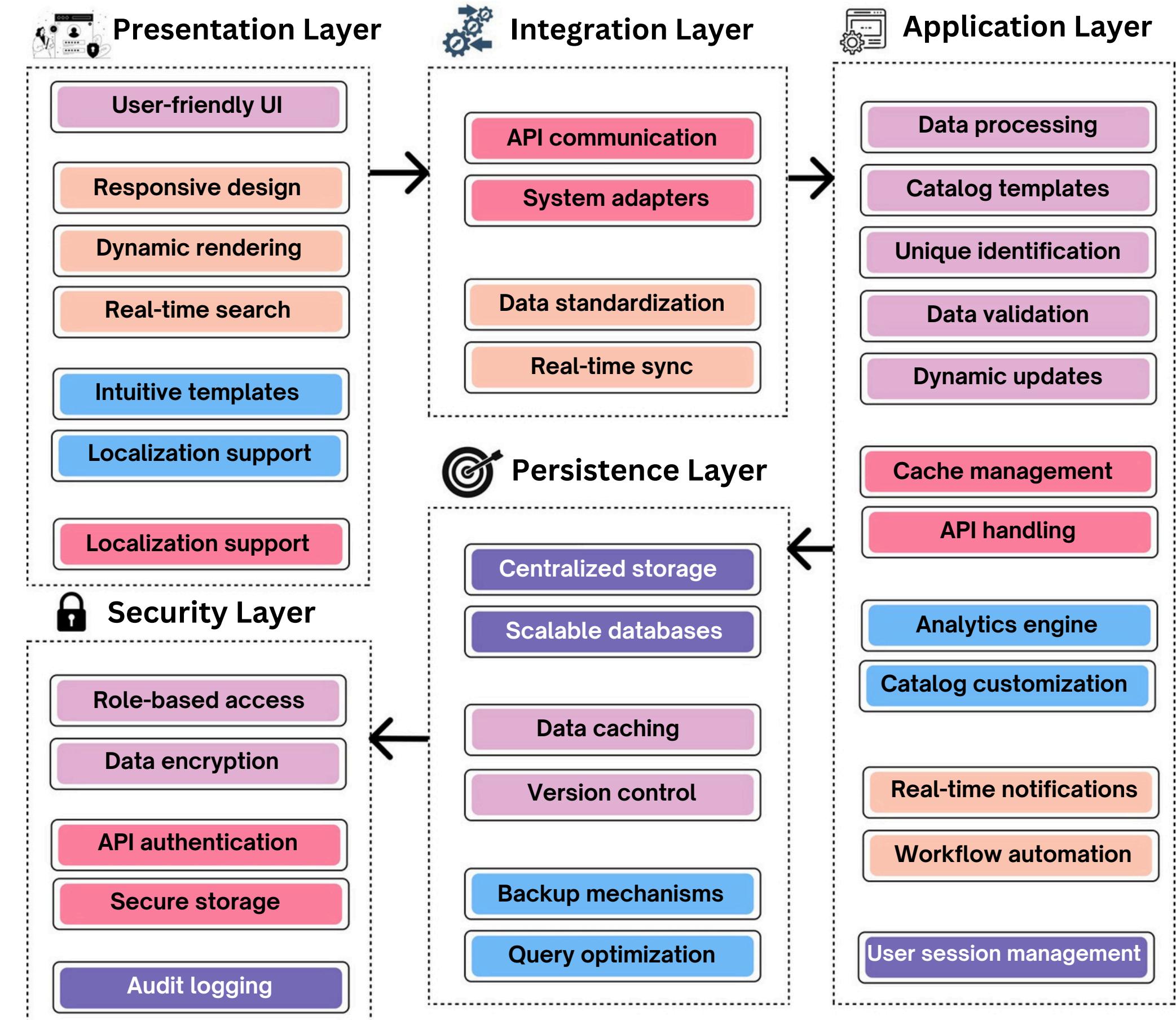
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skinType	String
applicationMethod	String

API Architecture

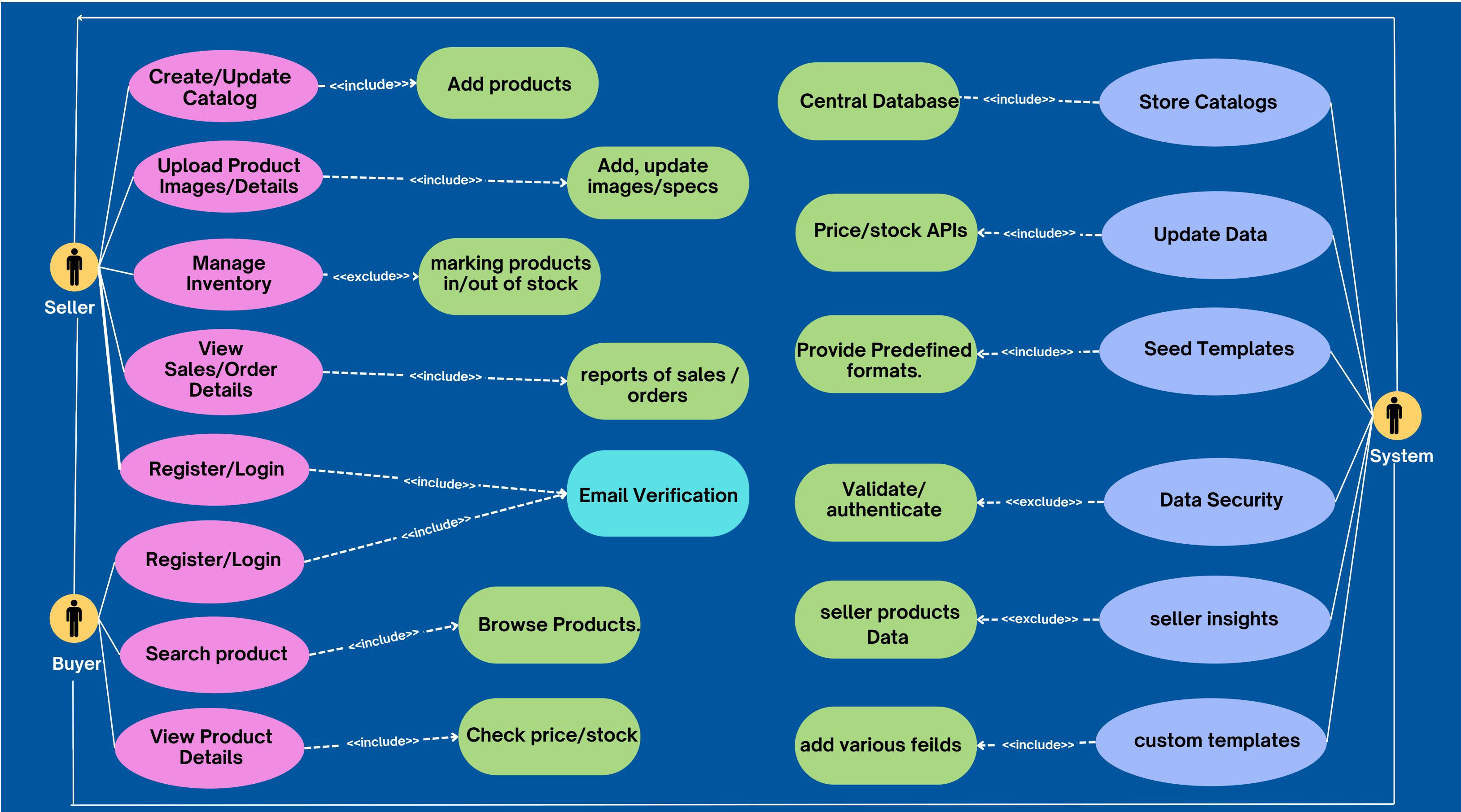


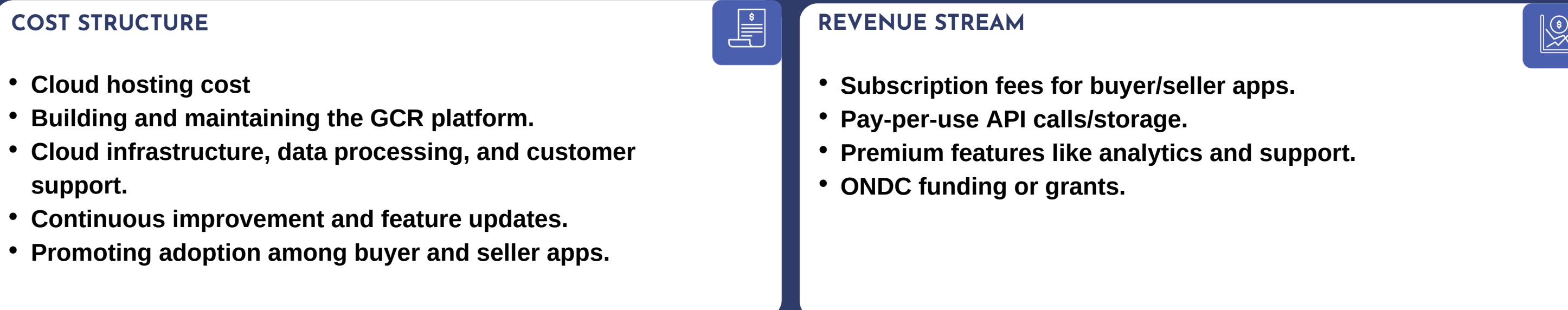
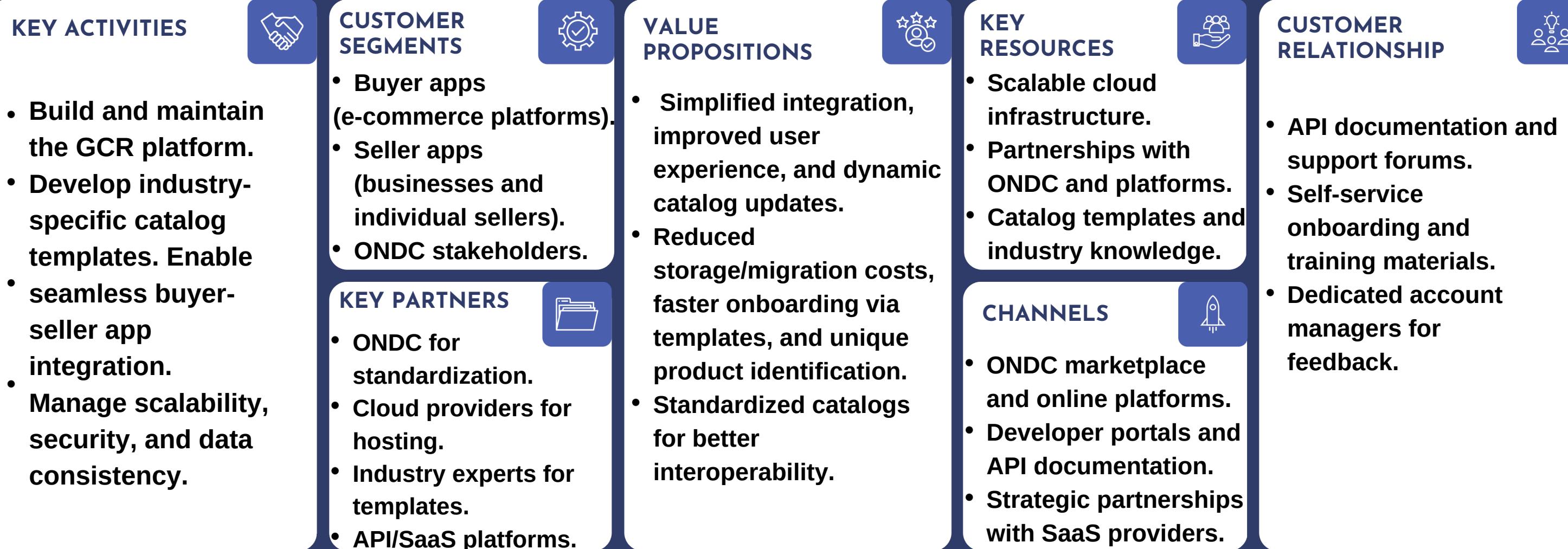


Buyer Page



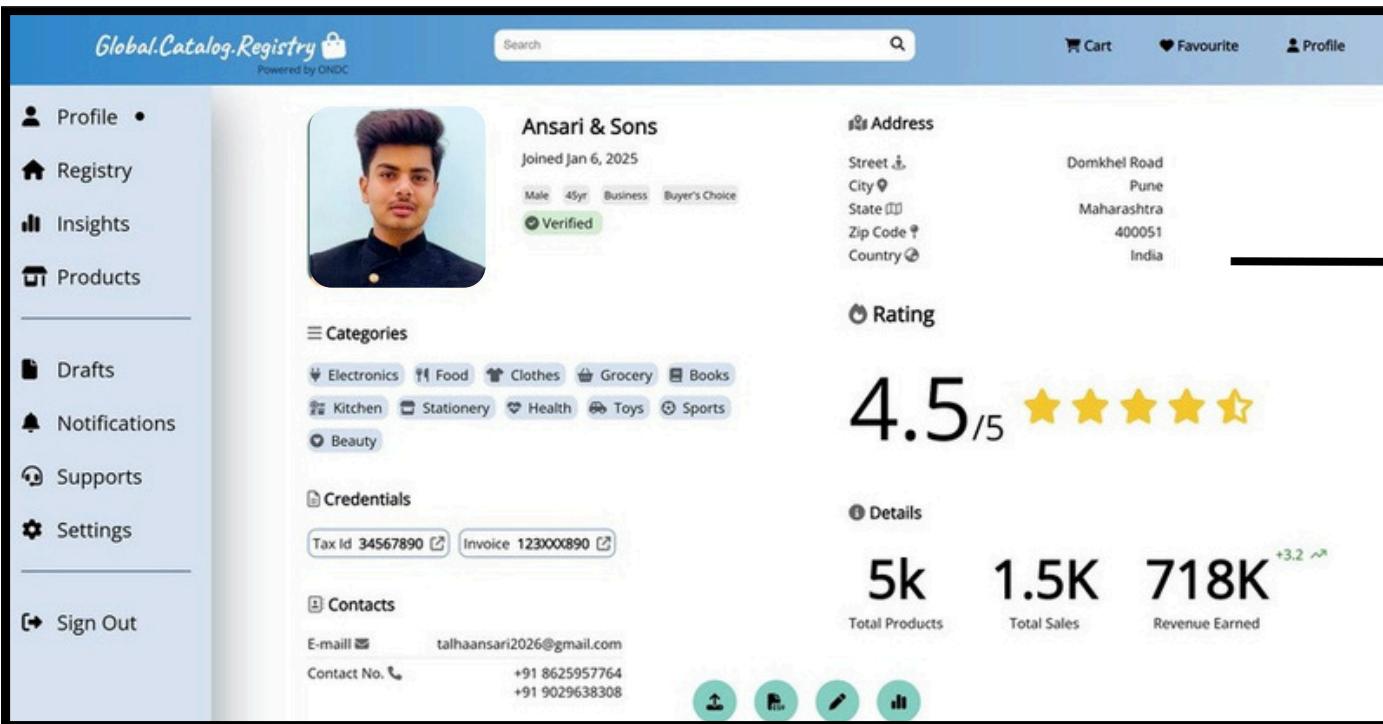
Use Case Diagram





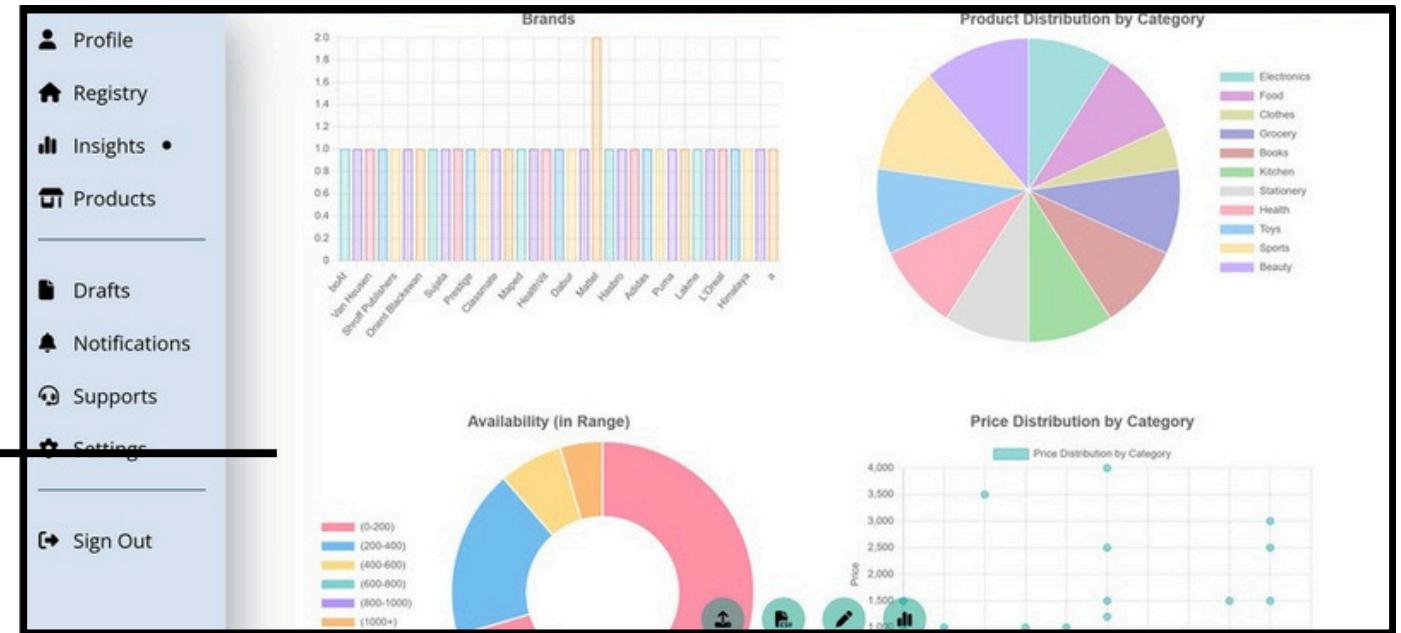
GCR BUSINESS MODEL

Seller Page

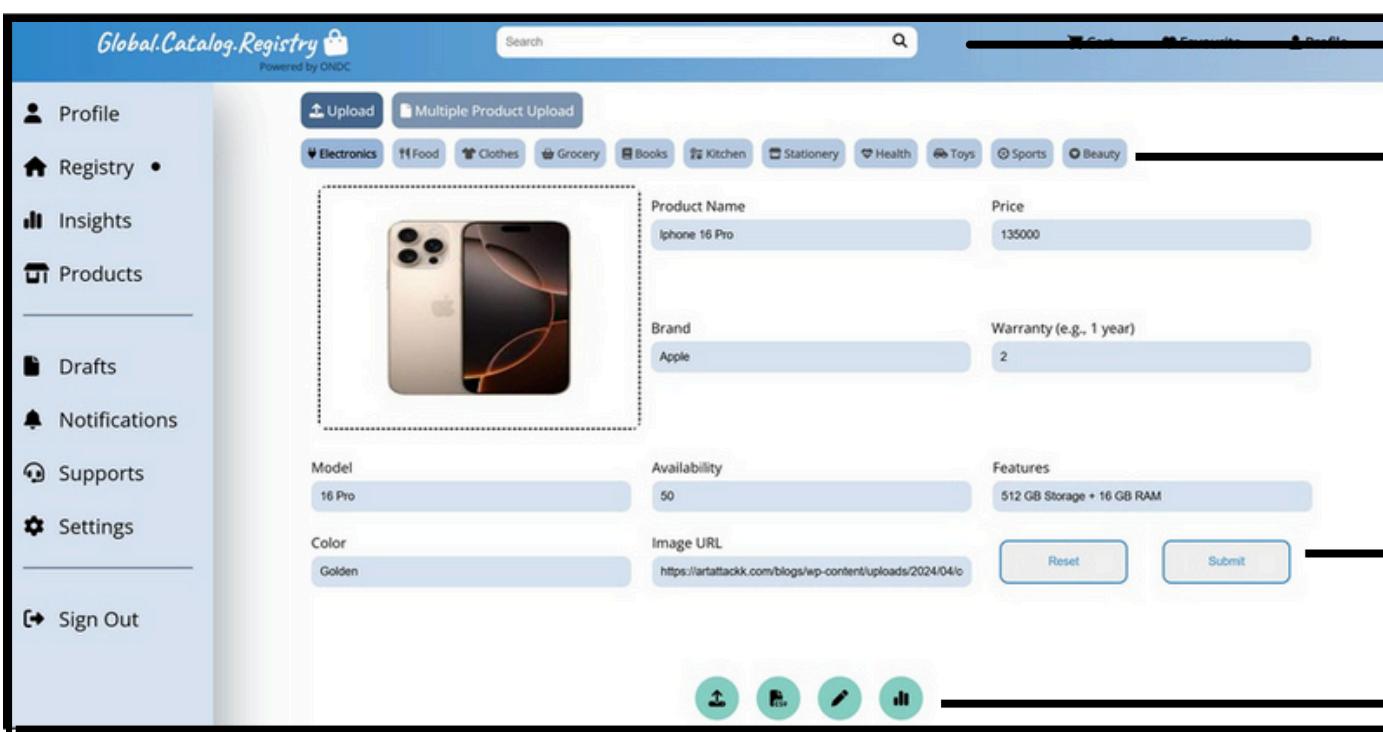


This screenshot shows the Seller Profile page. It features a profile picture of Ansari & Sons, joined on Jan 6, 2025. The address is Domkhel Road, Pune, Maharashtra, India. The rating is 4.5/5 stars. Key metrics include 5k Total Products, 1.5K Total Sales, and 718K Revenue Earned. The sidebar includes links for Profile, Registry, Insights, Products, Drafts, Notifications, Supports, Settings, and Sign Out.

Seller Profile



Seller Dashboard



This screenshot shows different ways to upload products. It includes a 'Category Based Template' for filling in product details like Product Name, Price, Brand, Model, Availability, Features, Color, and Image URL. It also shows 'Single Product Upload' and 'Multi Product Upload via CSV/Excel' options.

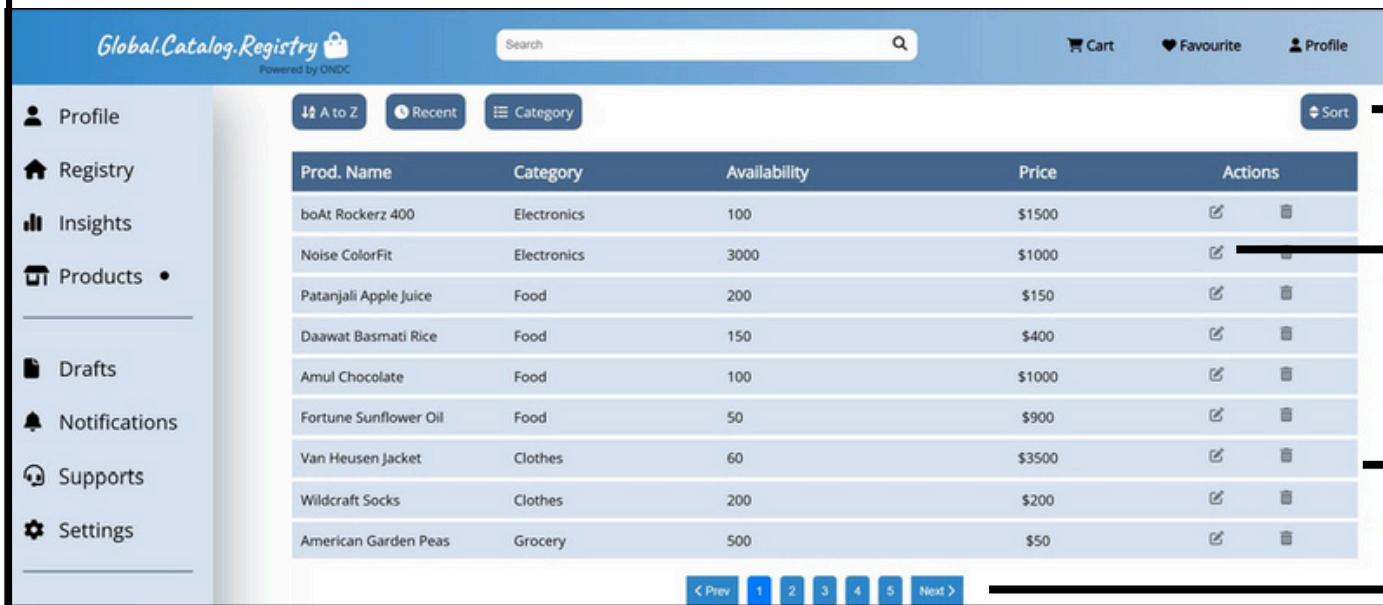
Search Products

Category Based Template

Multi Product Upload
via CSV/Excel

Single Product Upload

Quick Links for Features



This screenshot shows the Product List page. It features a table with columns for Prod. Name, Category, Availability, Price, and Actions. The table lists items like boAt Rockerz 400, Noise ColorFit, Patanjali Apple Juice, Daawat Basmati Rice, Amul Chocolate, Fortune Sunflower Oil, Van Heusen Jacket, Wildcraft Socks, and American Garden Peas. The sidebar includes links for Profile, Registry, Insights, Products, Drafts, Notifications, Supports, and Settings.

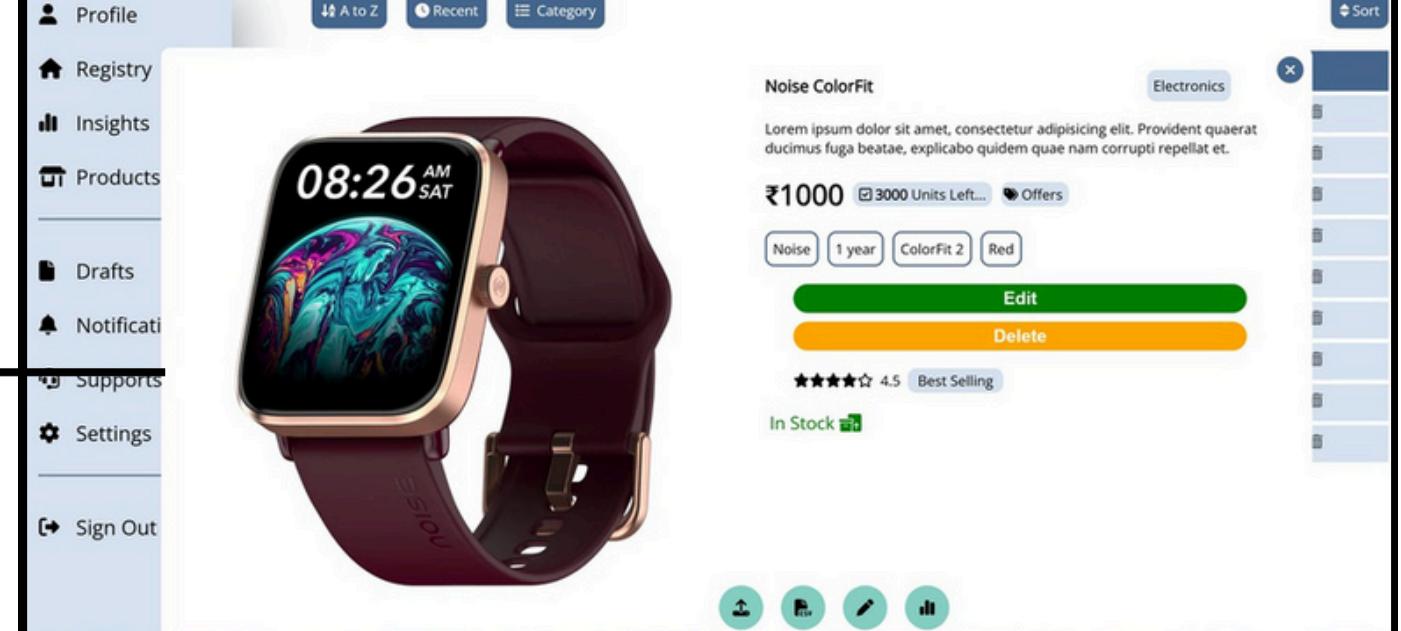
Filter Options for Products

Edit Dynamic Data of Products

Product Data

Product List

Pagination



This screenshot shows a detailed view of a product, the Noise ColorFit. It includes a large image of the smartwatch, its price (₹1000), availability (3000 units left), and a 'Best Selling' badge. It also shows dynamic data like 'Noise 1 year ColorFit 2 Red' and a progress bar for stock levels.