

## Harrier Stockpile at the National Stock Exchange of India

### The Client

India Index Services Ltd (IISL) is a joint venture between the National Stock Exchange of India and CRISIL. IISL owns, maintains and publishes leading Indian indices like the Nifty which are traded on NSE derivatives market. NSE is the third largest stock exchange in the world volume-wise and technologically one of the most advanced. NYSE and Goldman Sachs each have 5% stake in NSE. CRISIL, a Standard & Poor's company, is a leading India based global credit rating agency, financial research and advisory company.

### The Problem

IISL wanted to enhance their system by upgrading to a web based solution. IISL aimed to have a comprehensive system to compute stock market indices along with calculation of P/E values of stocks based on last four trailing quarterly results, to meet regulatory requirements.

### The Solution

Harrier Stockpile™ is a multi-exchange, multi-currency, multi-methodology index computation system with support for applying corporate actions adjustments on the constituent stocks. It supports capturing, defining and maintaining indices. IISL licensed Harrier Stockpile for their internal use and required Harrier to customize it to work with their internal database. Harrier deployed and customized the system to suit IISL's requirements.

### Key Features

Along with index computation, Harrier Stockpile has following features:

1. Computes stock P/Es more flexibly and accurately
2. Corporate Actions Diary: It displays a list of corporate actions to be applied on various index constituents along with the status of the corporate event. The user can also undo any applied corporate action from here, if required.
3. Industry classification with configurable multi-level hierarchy of classification
4. Historic Index computation
5. A comprehensive Web-based, user friendly and platform independent system using three tier architecture.

### Major Challenges & Solutions

- Integration of Harrier Stockpile user-interface and business layers with IISL's existing data layer

We integrated front-end and business layer of Harrier Stockpile with IISL's existing database by understanding IISL database schema and modified all the SQL queries used

in Harrier Stockpile to fetch and store data in IISL database. This was easy to do because of modular architecture of Harrier Stockpile and configurable SQL queries.

- Computation of P/E value for stocks based on financial performance for trailing four quarters

This was a little challenging due to the inconsistent pattern and duration of publishing financial results followed by various companies. Each scenario required a different approach of combining profits for annualized values. We studied various scenarios and developed algorithms to address various combinations and computed annualized P/E values.

- Financial Reports required were having huge amount of data to display

We implemented paging of data for month-wise values, to be provided in reports.

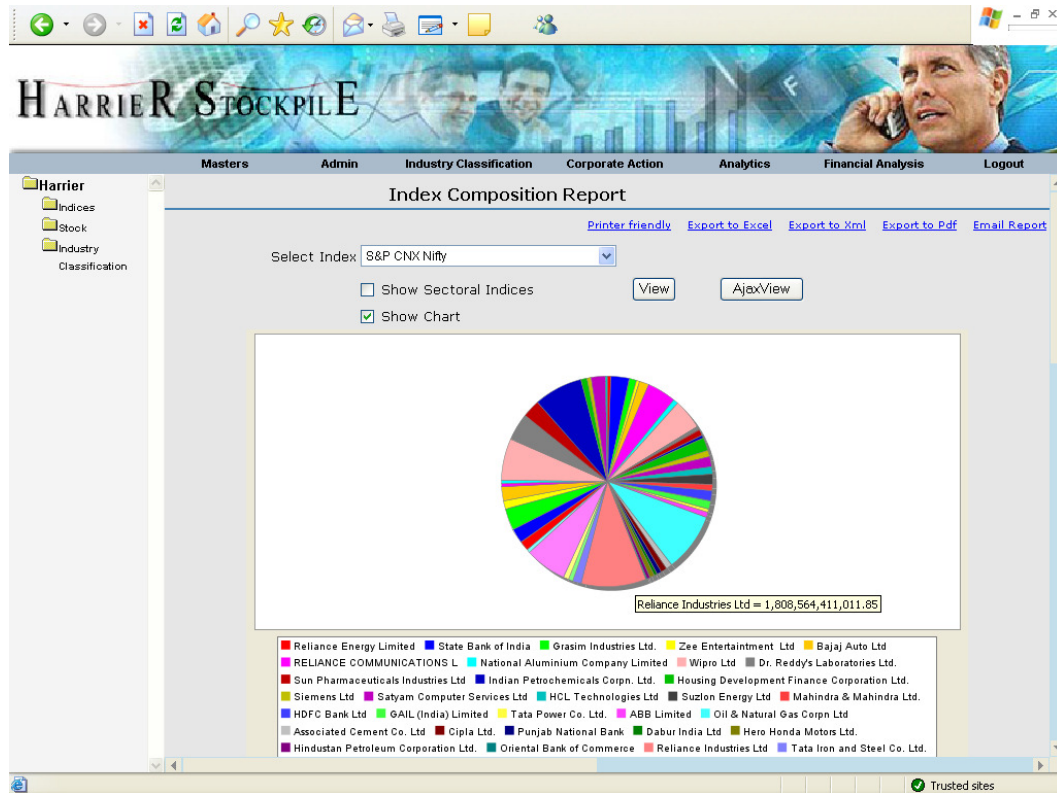
- Time-out error of reports as the duration of calculation was very much

We used Multi-threading to ensure that the Web-server does not timeout while data is being processed to generate a report.

### Technology Environment

**LINUX, Core Java, Jakarta Struts framework, JSP, Apache Tomcat, Oracle 8i, Eclipse, log4J, ANT, Jfree Report, Jfree chart, Postgres 7.3**

Screen:



Team Size: 4

Duration: 6 months