Diffusion

Push technology

CASE STUDY // SCALABLE 'REAL-TIME' DASHBOARDS

Business Challenge

One of the largest smallcap/ midcap financial institute's key tools in managing Risk and Compliance on a daily basis is a comprehensive dashboard application. The dashboard included real-time reporting on various positions, workflow for approval processes and reporting, both current and historical.
This system was beginning to experience severe problems in terms of timeliness of data and performance. Screen loading times were increasing as more and more data was added to the system resulting in user frustration and a lack of wider business adoption.

Technology Solution

Diffusion makes available the functionality to extend an existing application, allowing it to operate as a Rich Internet Application which is Web 2.0 compliant. In practical terms, Diffusion allows an application to update a browser in real-time with no need for a browser refresh. Push Technology suggested a two level approach to resolving the issues currently experienced within the dashboard application.

The first step was to insert the Diffusion server as the communication layer between the back-end systems and the dashboard client. Diffusion incorporates its own light-weight message structure that inherently improves performance by updating data on a delta basis rather than requiring a full data refresh. The back-end application was altered so that all data was rendered into a Diffusion message structure using the Diffusion API. Initial loads for the clients were defined and the conditions for delta updates added.

To complete the transformation of the application, the Diffusion Flex 2 client was deployed as the dashboard front end. The Diffusion client accepts Diffusion messages in real-time and updates the browser without the need for a refresh. Added to this, the use of the Flex 2 client dramatically improved performance by reducing the need to render large amounts of HTML on the browser, replacing this process with the download of compiled Flash files.

Scalable Adaptive Solutions

Business Results

The introduction of Diffusion and the Diffusion client into the architecture of the dashboard application had significant positive effects:

The performance of the dashboard application was increased by several magnitudes. The cumbersome browser refresh model was replaced with real-time Diffusion components resulting in a significantly faster load time and the introduction of delta messages ensured that updates were immediate.

New functionality was made available with the introduction of Diffusion. Previously, all of the data displayed was static but the use of the Diffusion client allowed a greater level of dynamism on the dashboard. Charts, graphs, traffic lights and grids all update in real-time giving an immediate view of the business for the users.

The requirement for server resources was reduced with the introduction of Diffusion. The implementation of delta-based updates reduced the amount of bandwidth and size of hardware required to run the Dashboard. In addition, Diffusion's in-built monitoring allows all messages to be logged and examined if necessary, providing a solid audit trail and statistics on usage.

All of the above was realised by utilising existing functionality within the dashboard application. This involved minimal reworking of the existing back-end application and business logic avoiding the necessity of an expensive reengineering exercise to achieve the same objectives.

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