



High Quality Data in real-time

Managing data and data quality are the biggest headaches that IT face in today's trading organizations. Here is how Hyper Rig cuts through the costs and the complexity.

Trading organizations have multiple trading and price management IT systems that feed trades and prices to other downstream systems. The problem is that this data eco-system typically runs on a fragile patchwork of shell scripts, database scripts, integration middleware, excel sheets and just about everything else. The result is failed overnight runs, severely delayed and still flawed reports and an organization that puts most of its focus on getting its business support tools to work instead of running its business.

Top five benefits of Hyper Rig for data management

1. Reduce IT maintenance budgets
2. Reduce cost and complexity of integrating new systems and data
3. Improve robustness and resilience
4. Reduce time taken to troubleshoot data problems
5. Create agility by improving responsiveness to change

The Challenge

Middleware Spaghetti: Increasingly, businesses use a range of independent middleware software systems. They include products for messaging, grid computing, data integration, extract-transform-load (ETL) and data quality management. The trouble is that middleware products are not business intelligent i.e. they don't understand the business problem they are solving. This makes it difficult to shoehorn business solutions into the technical platform. They require the IT department or external consultants to build in the intelligence they inherently lack before they can become useful for the trading and risk management arena. The problems can be grouped into a number of categories.

Data Islands: Data can become isolated and needs to be more integrated if it is to be useful. Despite the advances in data middleware tools over the last decade, most trading organizations still have fragmented data eco-systems. To create a more integrated view of the company data many firms use a data bus, however, the data backbone sold by most vendors is designed for a steady flow of data across a well behaved network of pro-active IT systems. This is seldom the case in trading businesses.

Data Quality: Checking the quality of trades and prices requires complex, multi-stage validation, filtration and enrichment. The challenge is to do this reliably at a high enough speed in real-time even when the system is heavily loaded but still allow flexibility and agility

Performance: Traditional data and data quality management systems cannot handle the "flood" of data that trading and risk management processes produce. With global trading the available over-night batch windows shrink to minutes instead of hours and data loads approach terabyte



proportions; Getting data from one system to another on-time is fast becoming the critical limiting factor.

Data Governance: Controlling, securing, versioning and managing the data produced and shared by the plethora of IT systems is no longer a luxury it is essential.

Costs: Middleware tools tend to be bulky and resource hungry. Typically medium to large enterprises spend more money on procuring, integrating and implementing middleware solutions than on core business support systems and yet the problems remain because the route causes have not been addressed.

The Solution

At Hyper Rig, we believe the solution comes by creating a cohesive data-eco system where each component in the system landscape acts as an intelligent part of the whole.

Integrated middleware: Hyper Rig is intelligent middleware that does messaging, grid computing, data integration, ETL and data quality management within an integrated framework that includes security, exceptions management and workflow. It also includes generic data models and process models for trading and risk management that can be easily extended, if required. Here are some of the features:

Pro-active data middleware: Hyper Rig has a smart **Data Watch** component that detects relevant changes in the data landscape and triggers ETL processes and work flows to provide rules based data transfers.

Divide and Rule: Hype Rig uses grid computing technologies to provide the necessary performance and scalability. That means that you can use a grid of commodity hardware to get better performance than monster servers that cost a fortune to buy and maintain.

Binary data transport: Most middleware focuses on the message and the broadcaster, the recipient(s), relying on a text based publish-subscribe mechanism. This does not work for the large volumes of data that trading organizations produce. The trick is to avoid converting the data from binary to text and back. Hyper Rig has a unique data middleware that accepts and keeps data in a binary format unless the edge application(s) ask for it in the text (e.g. XML) format. This results in the reduction of message size and a performance boost of at least an order of magnitude.

Data tags: Tagging data is essential when it comes to implementing data security, versioning and efficient archiving mechanisms. Hyper Rig takes over the management of data security, versioning and archiving from edge applications.

Use open technologies for command and control: Hyper Rig has been developed using open technologies from the ground up. It uses web services, Microsoft's Windows Workflow Foundation, web services, JMS and XML based standards like XSD, XSLT, XAML to store metadata about processes, workflows and data.

Here are some examples of how Hyper Rig can be used to resolve data quality problems:

Data Accuracy in exotic Fixed Income Options Trading: A common problem in fixed income trading is where legacy systems cannot properly model some of the trades e.g. the exotic options may have been modeled as simple options, trades may have been allocated to incorrect trading books, the wrong valuation models get called, Front Office P&L does not reconcile to Back Office



P&L etc. With Hyper Rig you can leave the legacy systems in place but regain control over the process.

Data Completeness in multi-system trading environments: In many organizations different vendor systems are used to capture trades. These systems have different ways to record the same thing, for example Fees and charges that are captured in one system may be captured differently or not at all in another. With Hyper Rig you can transform the data to create a unified view.

Data Consistency: Different systems may be using different attributes for the same piece of data or the same attribute for different data types e.g. some systems may be using "trade type" to specify whether a trade is a "swap" or an "option" whereas in another system "trade type" could signify whether a trade is an internal trade vs. an external trade. In another example a "Price" is received for a market product that is not listed in the master product list etc. With Hyper Rig you can create and store rules that can be executed in real-time to deal with thousands of such cases.

Data Relevance: The data may not be relevant for the business e.g. trade data may be coming from a trading systems with 30 attributes, out of which only 15 are relevant to a downstream system. Irrelevant data chokes up the data bus, affecting system performance and scalability. With Hyper Rig you can filter out the irrelevant data and only send the necessary items.

Data Validation: 80% of IT systems maintenance problems are due to data quality problems. With Hyper Rig you can set up simple and complex validations like reference and data range checks and resolve the issues before they cause downstream systems to fail..

Data Duplication: Data duplication is a common problem especially when the same trade is being captured by different systems. Hyper Rig can apply corrections and updates from electronic feeds to the required systems.

Non Conformance to Standards: The data in different systems may not be conforming to defined standards e.g. the data in the legacy system may not confirm with the standard defined for the new system with regard to data length, data format and descriptions etc. With Hyper Rig you can standardize the data across different systems.

About Hyper Rig

Hyper Rig is a service oriented (SOA) framework for trading and risk management. Hyper Rig combines advanced infrastructure and technology with business-intelligent trading and risk components that understand the business problem.

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