Transaction monitoring: driving efficiency in real-time trading

The dire effects of the recession on certain financial services firms has forced CIOs and other IT managers to examine new technologies that could improve online transactional efficiencies across all aspects of the business. As early adopters of technologies that could help revolutionise the industry, these firms are now in a position to follow new compliance measures, build lower-latency environments and report more accurately than ever before. By Nastel's Charles Rich

With so many transactions running through their environments, IT infrastructures for investment firms, banks and the like are more complex than ever. Business processes in large volumes become difficult to watch, manage and troubleshoot, as IT personnel don't always have the appropriate resources at their disposal. Millions of messages and transactions flow through these infrastructures daily; guaranteeing a successful pathway for each one of them is crucial for the efficient performance of any financial services firm.

A new strategy called business transaction performance (BTP) has emerged from the wreckage of the recession. When mated with a scalable complex event processing (CEP) engine, BTP is one of the most proactive IT strategies today. Rather than waiting until problems have blown up and affected business processes, BTP offers businesses a 360° view of processes from a central location, with automated, pro-active alerts for helping staff deal with problems in real time when they first occur.

Reactive IT doesn't work

In an environment that places a significant focus on low-latency transactions, IT personnel still face the challenge of having to deal with problems

when their initial symptoms appear. Forensic, reactive IT in this situation might help firms prepare for the re-occurrence of that problem, but there will always be another glitch to replace it, although usually by that point financial organisations run the risk of losing millions of dollars in missed trading opportunities and fire fighting.

A series of silos consisting of a network, a web-server farm, application servers, middleware messaging, databases and mainframes is how companies typically organise their production environments. Separate management tools result in a stovepipe perspective on the state of firms' applications, directly contributing to expensive fire fighting and overburdened service desks.

Since support groups discover approximately 65% of problems after customers have already identified them, problem-solving sessions can be long and expensive - IT groups gather in a room and point fingers during drawn-out sessions, maybe arriving at a conclusion, but in so doing wasting time, money and other resources. Flooded service desks and ineffective resource allocation result in extensive, needless spending.

While some software vendors have recognised this problem and are trying to solve it, many aren't taking an approach that accounts for every facet of the transactional environment. In order to truly solve such a complex problem and move an IT strategy from reactive to proactive, the solution must take every aspect of the environment into account. Only then can financial organisations truly gain a perspective that encompasses their entire IT infrastructure.

Full visibility

Ensuring problems don't affect business processes before they reach the end-user can only happen when IT personnel have deep, real-time visibility into the state of their running transactions and underlying infrastructure. To do this, they must be able to correlate operational, transactional and business performance data using a CEP engine in order to identify the patterns that alert them when they are veering away from what they deem to be normal business activities. With 360° situational awareness across the enterprise, businesses can resolve latency and operational issues quickly.

To accomplish this and curb unnecessary spending, financial organisations are beginning to leverage BTP - a business transaction management strategy that functions as an effective approach for end-to-end monitoring of applications and processes. This kind of strategy can improve general efficiency and reduce stealth waste from businesses through identifying and remedying business transaction latency by recognising instances and taking action when problems arise. It offers complete visibility down to the message payload, transaction or database call.

BTP leverages application management, application monitoring and transaction monitoring strategies to provide firms with a comprehensive view of their businesses. By offering an auto-discovered end-to-end perspective on business transactions, a BTP strategy searches for latency and its causes, automates problem resolution, reports results and improves business process efficiency. At the same time, IT staff can visualise the infrastructure using a stitched-together topology in a user interface.

Within the CEP engine, users can define .business normal' conditions based on how their business works; under business normal conditions, applications run correctly and efficiently. The engine compares instantly discovered, correlated and analysed data to the user-defined business normal definitions and rules. When environmental conditions don't match business normal rules, the engine can automatically alert staff of the symptoms that are occurring before these develop into full-blown problems that can throw business processes off-track.

With the predictive capability of BTP, IT workers don't have to throw hardware at problems until they go away - a practice that has become commonplace in the IT world. Financial organisations can save money by predicting these problems before they occur. To do this, it's crucial to shed light on blind spots occurring in middleware layers because they often lead to incorrect conclusions - and therefore wrong decisions - in the problem-solving process.

Scalability

A strategy of this magnitude requires high scalability and high availability. Across a broader infrastructure with large transaction volumes, firms must have the capacity to monitor large numbers of applications across thousands of servers, handle data from tens of thousands of queues and channels, and provide high availability via a grid.

A virtual CEP engine capable of spanning multiple servers can handle large volumes of messages and transactions running over the environment. To handle problems in real time, businesses of this size need to have an engine that processes millions of rules and tens of thousands of messages per second. Without it, their BTP strategies might not be able to keep up with the performance of the business.

Conditions leading to BTP's emergence

Increased governance, regulation and government ownership of investment bands, brokerages and other financial organisations have driven the development of more efficient avenues for monitoring and logging transactions. The public and governments have turned a keen eye towards the financial industry, which means financial firms have to be more wary of monitoring their own transactions.

One of the greatest factors driving the efficiency of technology in the financial industry is the desire to run systems at high-performance and low-latency levels. With increasing loads, many IT professionals worry that current systems won't stand up to the challenge. Increasingly hectic environments call for an automated alert system that will keep IT personnel abreast of how their processes are functioning.

Best execution auditing through complete visibility is one of the other main factors driving BTP adoption. Firms can more accurately pinpoint and address transactional misbehaviour and logic errors resulting from unexpected actions when they leverage a BTP strategy. Trades and other transactions follow best execution more closely when they pay consistent attention on daily processes running through their IT infrastructure. As an added benefit, rapid root-cause analysis contributes to reductions in cost and lower risk. ><

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