

Smart Solutions for Globally Available Environments

Introduction:

The global economy in today's environment includes even the smallest companies who reach around the world. Change is constant. Company mergers and acquisitions, growth into new geographic markets, new technology and changing consumer expectations drive the need for more information. This world runs round the clock, and information needs to be available whenever and wherever it is needed.

Today's podcast will discuss the challenges faced by IT departments and database administrators in this environment. Cathy Elliott, an IBM Information Management marketing manager for Informix Software, will talk about how good planning along with IBM software can make these challenges manageable.

Q: Cathy, what makes a global environment different for DBA's and IT departments?

A: For starters, there is more and more data in repositories located around the world. DBA's and IT departments have to serve the differing needs of multiple users, including data collected and delivered in different formats and requirements for functionality and features to suit individual needs. Some locations around the world may have limited or zero technical resources available on-site.

Of course, the first challenge is to define and manage the implementation of business requirements into data services. It is really important to understand and define the needs of all of the disparate groups of information providers and users around the world. The design of the data and applications will then drive the architecture for global deployment. Sometimes companies have the luxury to start from the ground up, but most often they need to merge multiple legacy systems with new applications. All of this has to be done in the most cost-effective way to survive in today's economy.

Tools from IBM like Rational Requirements Composer, Rational RequisitePro and Rational Data Architect, allow for the business needs of users to be captured and modeled into data services. When there are hundreds (and even thousands) of database repositories located around the world, the need for easy remote administration becomes even more important, and IBM Informix Dynamic Server is the ideal database management solution.

Q: Can you provide some real life examples?

A: Sure. Let's look at a retail store scenario. The retail business grows as they open stores in new locations. Many times each store contains a "mini" data center to collect point of sale data, manage inventory, track employee schedules, etc. The individual store needs all of the information to run their local business, but it must also be available to regional and central headquarters for the corporation. Rarely would an individual retail store be able to keep a fulltime technical staff to perform all of the database and IT administration on-site. Margins are slim in this industry, but there are many ways they can achieve economies of scale.

First, the planning should result in an architecture that can easily be replicated in each store. This store level architecture means that the software and business operations work the same (or nearly the same) everywhere. This significantly simplifies deployment, training and on going management, especially as the business grows to thousands or tens of thousands of stores. The IBM Rational products can help with this level and volume of detailed planning.

Second, the architecture plan must provide for availability of systems and data to everyone across the corporation who needs access. Global business also means global time zones. This along with internet retail sales drives the need for 24 X 7 X 365 operations. Any lost minute of business will result in lost revenue. IBM Informix Dynamic Server cluster solutions provide continuous availability with automated failover capabilities to eliminate downtime for server maintenance or in a disaster situation.

Third, the design and deployment needs to handle peak volumes. Retailers have to build their systems so they can scale and withstand the largest shopping days of the year. In a global environment, those peak days will vary around the world and performance on those days will drive business the rest of the year. IBM Informix Dynamic Server provides the flexibility for business solutions to scale up on large hardware or scale out with multiple small servers in a cluster.

Fourth, the security requirements for a global business are even more stringent. Retailers must meet financial and security regulations in each country they operate. Customer financial information, including credit card transactions, must be protected. Solutions deployed around the world need the level of security provided by IBM Informix Dynamic Server, including label-based access control down to an individual cell of data.

And fifth, the design should leverage existing technical resources required for deployment and ongoing management. DBAs and specialized IT staff are scarce resources. Many large companies, especially retailers, benefit from having a centralized staff of technical resources who manage their thousands of remote servers. With IBM Informix Dynamic Server, the 'centralized' staff can also be a virtual team located anywhere in the world.

Q: Thousands of servers located around the world sounds complicated. How is it possible to plan and manage on this scale?

A: It can be a nightmare if not planned properly. The right software to do the job is key. A thorough plan can be developed using tools from IBM like Rational Requirements Composer, Rational RequisitePro and Rational Data Architect. These tools make sure the business needs of the users are well defined. Building the architecture model for deployment can take into account the needs of the users and the logistics management required when there are thousands of remote servers. With Informix Software, current customers are able to manage an average of 2,000 servers per individual DBA. For example, one company has a staff of 5 DBAs managing over 10,000 remote servers. Reliability and availability make this possible. .

Q: What makes a good deployment plan?

A: A good deployment plan takes into account that there may be changes to people, process and technology. From a technology perspective, the best ways to produce, package and distribute the software will really depend on your system. But a good deployment plan will include several go/no-go decisions points during the installation process. With standard software deployed to each location, the bulk of the testing can occur one time on a standard software image. During a complex deployment, the plan includes decision points for testing the install, and a roll-back process if there are issues with the application. This is especially important for mission critical implementations. From a people and process perspective, providing a review of the overall usage model before getting down to granular training, helps people have another opportunity to see the big picture. Using process maps and diagrams, as well as simulations from the requirements phase helps with the process. This allows them to "walk the process" before getting into feature/function oriented training.

Also mentoring and "train the trainer" programs help to provide a visible and accessible resource for users, depending on the scope of the changes. Lastly, a good project will provide procedural documents - which may be just the requirements content, repackaged - but includes background and details. The user can examine these details to be sure they are using the tool correctly, and will help notify them when an issue is occurring. The tool provides a place where users can see the capabilities and process interactions defined. IBM's Rational Unified Process or RUP, includes process guidance for developing deployment plans, and examples can also be obtained there.

Q: Once the initial plan is deployed, what about ongoing maintenance and incremental change?

A: Incremental changes start long before implementation as part of a roadmap and release strategy. This strategy relies on having a pipeline of user needs that can be formalized and prioritized in the form of requirements, to keep DBA's in-tune with the evolving business objectives of the organization. As mentioned earlier, using requirements definition and management tools like Rational Requirements Composer and Rational RequisitePro in addition to the change and release management toolset, allows for the business needs of users to be captured and modeled into data services for implementation on the Informix platform.

In the retail example above, ongoing changes occur to the architecture as new stores are added to the corporation. By having a model and deployment plan, the new store can be set up with a minimal effort by reusing the store deployment plan and utilizing standard software images. The existing DBA resources can be used to manage database operations remotely. IBM Informix Dynamic Server has a number of autonomic features that can automatically manage standard maintenance activities, and customized triggers can deliver nearly hands free administration. Tools are available to monitor the status of the database, including a map-based interface that visually displays the status of all of the servers around the world. Alerts for threshold situations can even be delivered to the DBA's cell phone, or they can trigger actions to proactively address potential issues. Problematic applications can be traced down to the individual SQL statement for tuning and problem resolution..

For peak usage situations, a database server can be added in minutes to spread the load across multiple servers accessing and updating a common shared disk. This active/active clustering solution is a great way to scale out using low cost hardware, such as plugging in a new blade in an IBM Bladeserver. The cluster solution provides load balancing that can also be set up and monitored visually

Q: What else should companies consider when planning a large global deployment?

A: I can't emphasize enough the value of a good plan, and then executing to that plan. The plan needs to meet both the requirements of the business and of all of the providers and consumers of the data. High quality is dependent not only on doing things in the right way (with good process), but also in making sure you do the right things (meeting all of the requirements). Long term success is dependent on utilizing resources in a cost effective and efficient way – for short term deployments as well as ongoing maintenance and change management.