

3n (National Notification Network) Optimizes System Reliability and Availability



3n (National Notification Network)
Glendale, CA
www.3nonline.com

Industry:

Communications

Annual Revenue:

Less than \$50 million

Employees:

50

Oracle Products & Services:

Oracle Database
Oracle Real Application Clusters
Oracle Application Server
Oracle Application Server Web
Cache
Oracle Streams

Key Benefits:

- Created a true Active-Active environment for database replication, eliminating any of the customer downtime that 3n competitors' customers encounter during the transition time to failover sites.
- Enabled the company to replicate data in real time over 1,000 miles
- Gained the ability to determine where to initiate sessions based on load balancing
- Heightened visibility of notifications and confirmations

"The 'active-active' configuration we have with Oracle Streams really helps set us apart from our competitors. It's a true reliability and availability advantage for us in the market."

– Kim Terry, Chief Information Officer, 3n (National Notification Network)

Whether communicating about shelter locations during a natural disaster, a shift change, or routine business and customer communication, organizations globally rely on 3n (National Notification Network) to get their message across quickly and accurately.

Founded in 2002, 3n is a leading provider of mass notification systems. The company's InstaCom system enables one person, through one call or a Web browser, to deliver critical information to thousands of people via any communication channel—be it phone, fax, e-mail, instant messenger, short message service (SMS), computer, or personal digital assistant (PDA)—and to cycle through each and every channel on record until the message is delivered and confirmed by the recipient.

Since it was founded, 3n has been looking at ways to ensure absolute availability and reliability of its services. In 2006, the company decided to try an innovative approach to safeguarding its reliability by using a high availability feature of Oracle Database 10g called Oracle Streams. The new capability allows a variety of technologies to share and propagate data, events, and messages.

"We can replicate data in real time with Oracle Streams, enabling us to ensure the highest possible availability for our users," said Kim Terry, chief information officer of 3n.

Assuring Redundancy

In the five years since it opened its doors, 3n's business has expanded rapidly as businesses, cities, hospitals, government agencies, and schools discovered the benefits of mass notification systems. In 2005 and 2006, 3n's customer base more than doubled in size.

Organizations of all types have come to rely on 3n as an effective service for business continuity, emergency response and management, and daily business activities when they need to communicate effectively and reliably with a small or large audience in a short time. The communications transmitted range from contacting temporary or replacement workers about shifts; notifying parents about a student's absence, and alerting residents to a serious situation, such as a toxic spill or an impending storm.

In many cases, 3n's system has reduced the time it takes to notify a user's entire audience from hours or days to just minutes.

To deliver its service, 3n uses Software as a Service (SaaS) model that allows customers to access the system through the internet as well as through a live attendant or operator. "Everything hinges on unwavering reliability," Terry said.

As a result, the company had been looking at ways to create what it termed an "active-active model"—one that, even in the event of a localized failure, could capitalize on the built-in redundancies of the system to replicate data in real time.

"We provide an emergency notification product that our customers rely on," Terry said. "Their expectation is that the 24/7 system will always be available whenever they need it."

Full Redundancy

In order to deliver the necessary redundancy and reliability, 3n started out by installing an all-Oracle technology infrastructure—including Oracle Database, Oracle Application Server 10g, and Oracle Real Application Clusters—in a facility close to its California headquarters. It then replicated the entire environment at a second facility in the Rocky Mountains, approximately 1,000 miles away.

"We are talking about total redundancy," Terry said. "We have multiple Oracle Databases, multiple Oracle Application Servers, multiple Oracle nodes on Oracle Real Application Clusters—and all the other network components are also redundant." The company runs the system on RedHat Linux on top of Dell servers.

In time, however, the company wanted to see if it could do more with its Rocky Mountain site than let it idle while waiting for an emergency or failover scenario. It also wondered if it could avert taking one system offline—even for a moment—in the event of a crisis.

“With Oracle Streams, we’re able to fully utilize our equipment. Rather than having a failover scenario with idle equipment, we can utilize equipment on both sides for capacity and eliminate the inherent failover issues associated with switching back and forth between primary and secondary sites.”

Kim Terry
Chief Information Officer
3n (National Notification
Network)

“We wanted to take the system a step further,” Terry said. “We wanted a second site that provided redundancy without the need to have a delay or gap in service while we completed the failover process.”

That vision led the company to begin exploring an “active/active” technology model that would enable the company to utilize all its equipment, in Colorado and California, to the fullest extent possible.

“It took us quite a number of iterations to get a really solid design in place, and part of that design was choosing a product to replicate data in real time,” Terry said. “We conducted a thorough analysis and determined that Oracle Streams would best satisfy our needs.”

Oracle Streams enables the propagation and management of data, transactions, and events in a data stream either within a database, or from one database to another. The stream routes published information to subscribed destinations. This approach yields greater functionality and flexibility than found in traditional solutions for capturing and managing events, and for sharing the events with other databases and applications.

“Bi-directional” Replication

It was critical to 3n that their customers never experience any outages, even in the event of a failover Oracle Streams provides the immediate, online replication 3n was hoping for—and more. “We actually have bi-directional replication today,” Terry explained. “Whether we use the Colorado site or the California site, the data is copied to the other database within seconds.

“Part of our transition to live replication was so our customers could, through the Web on the front end, be hitting any one of our sites transparently,” he continued. “For that, you need live, real-time replication.”

The company also is taking advantage of the solution’s flexible load-balancing capabilities.

“We now have load balancers in place that automatically determine if a user can best be served by beginning their session in Colorado or California. The system then automatically routes the session to that location,” Terry said.

Building to Scale

When 3n first decided to deploy its mass notification system on Oracle's 10g environment, it had three criteria in mind: redundancy, scalability, and the availability capabilities to meet the needs of its customers.

"We were looking to build an Enterprise-class system, something that would be readily accepted and acknowledged as secure and reliable by large Fortune 1000 corporations," Terry said.

"Looking across the market, we wanted to avoid things that wouldn't scale well or wouldn't be able to do some of the replication and clustering and other advanced features of Oracle."

Although 3n's end-to-end Oracle implementation is focused on electronic communications, the company considers its applications and systems to be multi-purpose—ranging from time-sensitive emergency notifications to more routine business communications such as meeting announcements and HR benefits enrollment reminders. "Today the 3n InstaCom system is relied upon by some of the world's largest and most complex organizations, including Oracle itself. 3n in turn relies upon Oracle to deliver our notification solution with the flexibility, scalability, and availability that only Oracle technology can provide," according to Marc Ladin, vice president of global marketing for 3n.

Delivering Greater Advantage

With Oracle Streams in place, the company believes it has gained a competitive advantage. "Having this 'active-active' configuration really helps set us apart in the market," Ladin said.

"Our competitors are offering either dedicated hosting or customer-premise deployment solutions—and when you're doing this type of dedicated hosting, you are going to have failover issues," he explained. "We've eliminated that from the equation with Oracle Streams. That's an important part of our unique value proposition."

Why Oracle?

Although 3n founded its business on Oracle, it looked at several products before deciding to use Oracle Streams, including ones specifically designed to relay information.

“Frankly the other products were overkill,” Terry said. “Even though they had more maturity and time in the market, they didn’t offer any additional value over what we would get directly from Oracle. And they were all north of \$100,000 solutions.”

“Oracle Streams is an integrated feature of Oracle Database so we didn’t incur additional costs and got the functionality we required,” Terry said.

Implementation Process

Implementing the solution was part of an overall design concept 3n had been working to put into place for a year—but wasn’t able to realize until it added Oracle Streams. After working briefly with Oracle Consulting on the overall design and direction, the company turned over the project to an in-house database administrator (DBA).

“Basically, our in-house person picked it up and continued on with the implementation himself,” Terry said.

3n introduced Oracle Streams in stages, and went into full production only after extensive sequences of testing and retesting its performance. “Because of the reliability necessary in our systems and the different conditions that can occur, we implemented Oracle Streams very conservatively,” Terry said. “In our line of business, we have to be absolutely certain of a system’s reliability. Oracle Streams is proving its value daily.”

3n (National Notification Network) is a leading provider of mass notification systems. The privately held company is based in Glendale, California.