



NetNumber Manages Large-Scale Telephony Data with PointBase Embedded

In today's telecommunications industry, all forms of personal messaging are increasingly converging to be enabled by a single IP network. This has opened the door for a new type of technology that provides super-scalable Domain Name Systems (DNS) extended to support telephony based on the ENUM standard (IETF 2916).

Since 1997, NetNumber has been developing a full-scale ENUM system that uses DNS as a tool to "discover" all IP services associated with a specific telephone number. The Massachusetts-based company offers a complete set of secure, reliable, highly scalable products and services to wire-line carriers and wireless operators that allows them to translate telephone numbers into communications service address information. These translated addresses support all forms of IP-enabled communications, including multimedia messaging services, real-time voice, voicemail, fax and unified messaging.

NetNumber's initial ENUM offering enables operators to support multimedia messaging services (MMS) and local number and mobile number portability (MNP). Within this application, NetNumber needs a small but powerful database for storing large amounts of address information. The company selected PointBase Embedded, a platform-independent relational database, to deliver substantial data management in a small footprint.

"PointBase Embedded provides powerful support for emerging technologies in the telecommunications industry."

Bob Walter, Chief Technology Officer, NetNumber

The Challenges of the New Telephony

The introduction of ENUM dramatically changes the scale on which DNS operates. For example, the ".com" domain is arguably the world's largest DNS zone today, with approximately 30 million registered domain names. By comparison, a single wireless operator may use an ENUM server infrastructure to host records for more than 20 million subscribers, along with referrals for more than 40 million ported numbers.

NetNumber therefore sought a database for its server that could store hundreds of millions of numbers, while caching a subset of them in memory for active use. "We wanted a powerful 100% Java embedded database that uses JDBC while providing excellent query and update performance," said Bob Walter, Chief Technology Officer for NetNumber. The company was also looking for low administration, a low relative cost and responsive technical support.

"Traditionally, I would have considered the use of in-memory-only database technology," Walter said. "However, I've been impressed by PointBase's performance, ability to store large amounts of information and support online backup. PointBase has shown through rigorous testing that it delivers an excellent combination of price and performance for our application."

"The PointBase technical team is simply awesome— they have demonstrated a willingness to work with NetNumber engineering to resolve technical issues, as well as incorporate new functional requirements."

In addition to fulfilling its technical expectations, PointBase Embedded allows NetNumber to realize a number of business goals, including:

- Enabling a shorter time-to-market through rapid development of its emerging telephony initiative
- Controlling costs with an embedded database
- Providing greatly simplified software packaging with a transparent database that installs in a single JAR file
- Leveraging Java-based portability across all platforms

Scaling to Manage Massive Data

Today, NetNumber's ENUM server database is built on top of a JDBC interface that accesses the embedded PointBase SQL database. This gives wireless operators full control over access to their ENUM data and over the reliability and performance of the end-to-end ENUM service discovery process. Based on PointBase's scalable data management capabilities, NetNumber has successfully loaded 500 million referral records into a single table. From either a single phone number or a block of numbers, wire-line carriers and wireless operators are able to securely locate interconnected communication services on a global basis.

In the future, NetNumber expects its ENUM products and services to be used with emerging real-time voice and video communications, while continuing to rely on local database management systems. "A product like PointBase has the potential to revolutionize or evolve the state of database technology in the telco space in a very positive manner," Walter concluded.

Key Benefits to NetNumber

- Flexible data storage to enable the creation of advanced telephony technologies
- Lower costs and faster turnaround due to simplified development processes
- Shorter installation and implementation cycles to ease customer adoption
- Outstanding support throughout product development

NetNumber Products Using PointBase Embedded

- NetNumber ENUM Server (NES)



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