



POWERFUL SOLUTIONS FOR A DYNAMIC NETWORK

Sprint counts on NonStop servers across the enterprise for superior performance with low TCO

TOM STEELE HAS HIS EYE ON THE FUTURE—specifically, the future of the HP NonStop platform, as it moves to the Intel® Itanium® microprocessor and the NonStop Advanced Architecture.

As a principal network design engineer at Sprint, Steele has a vested interest in this evolution. It's why he sits on HP's Itanium Migration Advisory Group. "We go out, we see the lab, we talk about the progress they've made," he said. "We try to influence the direction they're going in and how quickly they deliver certain pieces of the new architecture. I really like the way the platform is turning out."

The Itanium processor-based NonStop server will deliver cost savings and greater flexibility in addition to a significant price/performance boost, according to Steele. "In the current NonStop server environment, development systems have the same level of fault tolerance as production systems," he explained. "But with the new Itanium processor-based system, you can drive the cost down by using a non-fault-tolerant simplex machine for development. For production, if you just need the same kind of fault tolerance you have today, you deploy a duplex system. And if you

have an extremely critical application, you can make it a triplex system; HP hasn't even calculated the number of 'nines' that you can get from one of those."

A LONG AND PRODUCTIVE HISTORY

This is not to say that Sprint doesn't make extensive use of current NonStop technology; in fact, it's a relationship that has grown stronger over the years. "The NonStop platform has been at Sprint since the very beginning," Steele stated. When Sprint was just a long-distance and local voice network, the company needed processors at

the switch site that could offload some of the data collection and processing tasks. NonStop server-based SCPs were also deployed on the long-distance side of the network to handle some of the more complicated routing algorithms that a long-distance switch couldn't do. Sprint put a NonStop system in place to collect and save operational measurements and billing information from the switches. Some of the company's enhanced services—calling cards, operator services, and hospitality services—run on a variant of the NonStop server-based SCP. Provisioning for the long-distance switches is handled by a NonStop system.

In Steele's view, one of the best things about the NonStop platform is its low total cost of ownership (TCO). "As you move into the second and third year, far fewer people are needed to operate and maintain a NonStop system than other high-end computing platforms," he said. "A single person operates our SCPs, which consist of four systems; if you look at some of the other brands of SCPs, it can take as many as nine people to keep them running. And the support for open standards is another area in which we save money, because we don't need to invest in special programmers. For developers on the OSS side of the NonStop system environment, it's just like working on any other UNIX® platform."

Sprint takes advantage of other HP products and services as well. "We've got HP platforms throughout the company, both in the network and supporting the network," said Steele. "In addition, Sprint recently switched to HP OpenView as the enterprisewide internal operations

platform." Over the past few years, Sprint has consolidated operations into two groups: network and enterprise. OpenView was chosen as the platform to manage all the computing systems. The NonStop servers will be incorporated into this overall management framework in the near future.

NO LATENCY, NO LOST DATA

HP's Zero Latency Enterprise (ZLE) framework made its first appearance at Sprint about the same time the year 2000 rolled in; in fact, the two events were inextricably linked. "Faced with Y2K issues and a huge increase in data coming into the network, we put a challenge out to the industry," recounted Steele. "We said: 'Tell us how you would solve the problem of capturing and storing 20,000 records a second, with geographical replication so that we never lose connectivity and we never lose a record.' At that time, HP (then Tandem) was the only company that came back and said: 'We can do that.' That collaboration with Sprint was a foundational element of what became the ZLE architecture."

Many benefits have accrued from Sprint's implementation of the ZLE architecture, but customer service tops the list in Steele's mind. "The ZLE framework gives us a way to see exactly how traffic is traveling through the network," he stated. "It enables us to troubleshoot problems and optimize service in real time for our customers."

A network the size of Sprint's is very dynamic due to the proliferation of temporary "virtual" circuits such as Frame Relay and Internet Protocol links. In the event of customer problems or network errors, the ability to reconstruct the state of the network is critical. Sprint keeps an online topology of the network on its ZLE framework-based system, making it possible to view the state of the network at any given point in time; tie it back to particular call detail records, faults, and alarms; or help trace a problem that a customer may have experienced.

A duplicate ZLE architecture-based system resides in a second data center. HP NonStop Remote Database Facility (NonStop RDF) software moves the data between the

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A PERVERSIVE PRESENCE

Sprint relies on NonStop servers in several key areas:

- **Service control point (SCP) system** comprises four network nodes across the United States and handles some 3.7 billion transactions per month.
- **Service Delivery Platform (SDP)** produces transaction processing applications that insert call processing data into live network elements in near real time.
- **Sprint Call Center** handles station-to-station and person-to-person calls, international general assistance and directory assistance, fraud features, and other services including call screening and routing.
- **E-911** handles emergency services.
- **ODS/ZLE** is Sprint's name for the operational data store (ODS) on HP's ZLE architecture. Sprint call detail record (CDR) and operational measurement (OM) volume is approximately 356.5 million per day on eight ODS/ZLE platforms.



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two systems. At one point, Sprint considered using a storage area network (SAN) configuration for replication, but that approach was deemed inadequate for mission-critical data. “The SAN could not synchronously replicate the data across the geographical distance of 1,300 miles, so there was a period of time during which data could be lost,” noted Steele. “But with the NonStop system and NonStop RDF, the data is protected all the way through the flight. Until it's written and stored in the other database, the initial transaction is not closed. So we don't risk losing the data at all.”

related to that data should be, and what kind of storage it belongs on. Then we'll work together to determine the right products.”

Steele concluded: “It takes a good, strong partner to be able to come in and do that—take the sales hat off and focus on what's best for the customer. That's what HP is doing, in addition to providing the specialized computing platforms and services we need to run our business. This is much more than a vendor relationship. It's a strategic partnership that plays a critical role in the ongoing success of Sprint and our customers.” ♦

TAKING OFF THE SALES HAT

A robust and strategic partnership with HP contributes to Sprint's success. “There was a time when we looked at vendors as vendors,” noted Steele. “We basically said: ‘Just sell us something, and we'll figure out how to use it.’ But we came to understand that vendors can bring a huge amount of information to the table, based on their experience. In fact, right now we're engaged with HP in a study about how to ‘value manage’ the data that resides in the ZLE framework. HP is helping us figure out how important the data is, what the service level agreements

FOR SPRINT, NONSTOP SYSTEMS:

Ensure reliability through fault tolerance and NonStop RDF software

Provide low TCO through easy manageability and open standards

Can migrate to a future advanced architecture for even greater performance