HEATING UP IN SOUTH AFRICA

Vodacom captures lion's share of cellular communications market

When it went live in 1994, South African cellular communications leader Vodacom fully expected a robust and enthusiastic take-up of its services. Market analysis suggested that half a million subscribers would be on its rolls within 10 years, and the company sized its network, mediation, and billing systems accordingly.

The robustness and enthusiasm were there, all right. Today, less than 10 years out of the gate, Vodacom boasts close to 9 million subscribers—significantly more than its nearest rival in the mobile communications space, and twice as many as the country's fixed-line monopoly, Telkom SA. Fortunately, the continuous availability and linear scalability of the company's HP NonStop servers have enabled Vodacom to provide uninterrupted service to its customers, despite exponential growth and the burgeoning demand for new services.

Vodacom uses NonStop servers for both upstream call control and downstream event management and reporting. "At the network level, our function is mainly call management and, to some degree, subscriber control," explained Maxim Naidoo, manager of IN development and strategy. "Once the subscriber's interaction with the core network has been completed, we generate a series of downstream events that trigger the financial systems and translate the call activity into revenue. The information is also mined to support fraud detection and near real-time customer care interaction."

"The network side focuses on the online management of the traffic," concurred Ray Oehley, executive head of the Billing Systems Division. "On the other side is the offline management of the call detail records, including billing, financial and usage reporting, and market analysis. We're beginning to see an increased need for real-time billing, however, especially in our extensive prepaid market. Online call rating will allow for greater control and less fraud in this environment."

Vodacom takes full advantage of HP's broad portfolio of computing solutions. The company's Recharge Management System (RMS) is based on HP ProLiant servers, and its core financial processing activities rely on a large installed base of HP AlphaServer systems. In addition,

Vodacom has standardized on HP printers and personal computers, with the exception of some locally sourced laptops. "We have worked quite hard with HP to establish a corporatewide business relationship," said Naidoo.

ALL-IMPORTANT MEDIATION

Project manager Gerard Cannoo oversees key initiatives in the area of mediation, which integrates the upstream switches and the downstream billing and other client systems. "Mediation means taking the data in, checking its integrity, and converting it into a common format," he explained. "It involves aggregation—adding value to the data by associating call data with subscriber data and account profiles—and also the preparation of the data for batch-mode delivery."

Mediation provides the interface between the network elements, where calls are handled and call data is generated, and downstream applications (for example, fraud, billing, and archiving) that require event and usage data. It also includes the Interconnect Accounting System, which determines the correct revenue apportionment for different operators—other mobile service providers, the fixed-line operator, and any international roaming component —involved in a given call. Vodacom's mediation system consists of Verizon UMS software (customized for local operation) running on a geographically separated pair of NonStop S86008 servers. The system also includes HP ServerNet Wide Area Network (SWAN) controllers for connection to the X.25 network.

"The mediation side needed to always be there," noted Oehley. "If we cannot poll data from one of our switches, we're likely to lose that revenue. Our switches use a 'ring buffer'; data is written into the buffer continuously, and it overwrites itself once it's full. We have to extract data from the buffer before the tail comes around, so the continuous availability of the NonStop platform—coupled with the ability to expand the system as needed—was viewed as a huge benefit."

A PROMISE KEPT

It didn't take long for Vodacom to test the scalability promise of the platform. "We saw a phenomenal rise in both subscriber volume and call volume," continued Oehley. "Within 12 to 16 months of installing the NonStop S74000 servers, they were running at 100 percent capacity for 20 hours a day."

Because Vodacom could not afford to take a server down for the six to eight hours needed for the upgrade to NonStop S86000 processors, the staff worked out a process to accomplish it online. The upgrade went flawlessly, with no degradation in performance and no delay in the delivery of downstream data.

"We were having to run both eight-processor NonStop S74000 systems at full capacity for 20 hours a day," summarized Oehley. "We can now manage that capacity on a single eight-processor NonStop S86000 server, if necessary; although we still split the load across the Bellville and Cape Town sites to meet our service level agreements. It's critical for us to be able to manage the rapid growth and massive volume that continue to characterize our business, and NonStop systems definitely help us do so—we more than doubled the capacity, without bringing any systems down or incurring any interruption to the service."

THE NETWORK PERSPECTIVE

The linear scalability of the NonStop platform has also been a huge benefit on the network side. "In 1996, Vodacom selected an application from Global One (now Interact) to handle subscriber life-cycle and voucher management," said Maxim Naidoo. "We wanted something that could match the rest of the network in terms of robustness—

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something that was redundant, reliable, and always available. So the fact that the Global One application ran on the NonStop platform was a definite plus."

In 2001, Vodacom added location-based services to its portfolio, using HP OpenCall Intelligent Network Server (INS) software on the NonStop platform. And in 2002, the company purchased Telecommunications Service Creation Environment (TSCE) software from HP. "This gave us the opportunity not only to buy and implement IN-based applications, but also to create these applications on our own," said Naidoo. "We now have the ability to develop our own services and deploy them very quickly, at a fraction of the cost that mainstream vendors would charge for them. Using one or two resources, we can develop a network efficiency application or a new subscriber feature, and deploy it to the network within a matter of weeks."

The move toward more internal development represents a massive cost saving for Vodacom. "So far, in the three services that we've managed to implement, we expect something on the order of $5 million in savings compared to the previous systems," continued Naidoo. "We've also dramatically reduced the licensing cost for those applications, and that has been a big win for us." Vodacom's prepaid front-end and service control point (SCP) systems comprise a combination of NonStop S74000 and S86000 servers.

Vodacom enjoys a dominant position in the South African cellular market, but the company is not stopping there; projects are ongoing to extend its reach throughout the continent. With operations in Tanzania, the Democratic Republic of Congo, Lesotho, and Mozambique, and the likelihood of a license-sharing arrangement in Nigeria, Vodacom is clearly a major force in today's global telecommunications market.

HP NonStop servers will continue to play a vital role in Vodacom's growing success. "At Vodacom, we want our different business domains to be seamlessly integrated, in real time," concluded Naidoo. "The way to achieve this is through online transaction processing, and the NonStop platform is a key element in our strategy to achieve this important goal." ◆

FOR VODACOM, NONSTOP SYSTEMS:

- Provide uninterrupted service to cellular communications customers
- Enable rapid development and deployment of new services and subscriber features
- Support fraud detection and near real-time customer care interaction through data mining