

## The Vertica-powered nMetrics Network Performance Analysis Appliance

*Increasing Competitive Differentiation with the DBMS Inside*

Based in Sydney, Australia, nMetrics makes appliances for real-time application and network performance analysis. nMetrics' customers wanted to store more data and perform more analyses, which overtaxed the appliances' embedded database and slowed query times. By replacing its PostgreSQL database with the Vertica Analytic Database, nMetrics boosted query performance by 100x to 2000X, giving its customers the ability to run more complex reports against much more data and gain insights that competitive products can't provide. It also has a competitive edge as it enters the US and European markets, which are dominated by large customers with aggressive analytics needs.

### The Application

nMetrics customers include some of the leading companies in Australia and Southeast Asia, including ABN Amro, AON Risk Services Australia/New Zealand, Commonwealth Bank of Australia, and St. George Bank.

The company's appliances were built from the ground up using modern distributed software architectures, Web interfaces, commodity hardware and open-source software. As a result, nMetrics can offer superior analysis and reporting for about half the price of its competitors' products. nMetrics' products are also much easier to deploy and use, and less expensive to operate.

The nMetrics appliances are installed into customers' data centers, enabling customers to monitor and receive performance reports from as many as 500 sites – using a single appliance and without software agents at the network edge. The appliances capture flow data from a variety of traffic monitors, including Cisco NetFlow, IPFIX, SNMP and SPAN data.

nMetrics has built cutting-edge technology, but what customers ultimately care about is fast reporting. "Network operators don't care about the engine, they just want fast reports: who, what, where, how fast," says company co-founder and CEO Steve Urquhart. "If they get a fast report, they will buy our product."

### The Vertica Solution At a Glance

#### The Customer



[www.nmetrics.com.au](http://www.nmetrics.com.au)

#### The Industry

Telecommunications

#### The Application

- Next-generation network performance analysis appliances
- Achieved 100X to 2000X improvement in query performance
- Can now cost-effectively store and query a month's worth of short-term data (vs. seven days' worth)
- Accommodates ad hoc querying of large data sets, complex queries, and rapid development of more-sophisticated reports
- Migrated from PostgreSQL to Vertica in only two weeks
- Database runs fast on inexpensive hardware thus improving nMetrics profit margin
- Highly reliable, with built-in fault tolerance and automated recovery

## The Problem

Customers' networks produce huge amounts of short-term flow data—data samples of IP conversations taken at five-minute intervals. Because it is real-time data, short-term data is essential for network troubleshooting. It is also the primary detail data used to calculate all other data sets. The appliance database stores all the data sets for querying, for varying amounts of time based on need.

Storing and querying short-term data was gradually becoming unmanageable as the amounts of flow data increased (mostly a result of the addition of more large customers). Some customers were accumulating 100 to 200 million records a day.

Data growth was straining the embedded PostgreSQL database and creating longer and longer query times. Larger customers, such as banks and airlines, often had close to a billion flows or conversations of short-term data stored in a single table. "In some instances, we were taking upwards of 20 minutes to run a report, which is not acceptable from a Web interface," says co-founder and CTO Dave Britt. "As far as our customers were concerned, it was our product that was slow. They don't know or care that it's the database."

Customers also wanted to keep a month of data on hand, but the database was able to accommodate only seven days' worth. nMetrics additionally wanted to offer more complex analyses so that customers could get more value from the data. But the sheer volume of data prevented that.

## The Solution

The company's search for a more robust database led it to the Vertica Analytic Database. The database is a high-speed, relational SQL database management system (RDBMS) purpose-built for high-speed analytics and business intelligence. It uses a column-oriented, MPP architecture; aggressive compression; and other modern technologies to handle queries very fast and to operate inexpensively.

*"Vertica gives us competitive differentiation. It's put us in a different ballpark, alongside the big-swinging vendors. It's fantastic."*

*– Steve Urquhart, CEO  
nMetrics*

	PostgreSQL	Vertica	Improvement
Network Wide	605 sec	2 sec	300 x
Very Large Group	1254 sec	12 sec	104 x
Large Group	127 sec	1.2 sec	105 x
Small Group	235 sec	0.5 sec	510 x
Single Subnet	167 sec	0.08 sec	2000 x

Figure 1: The Vertica Database offered 100X to 2000X query performance improvement over PostgreSQL

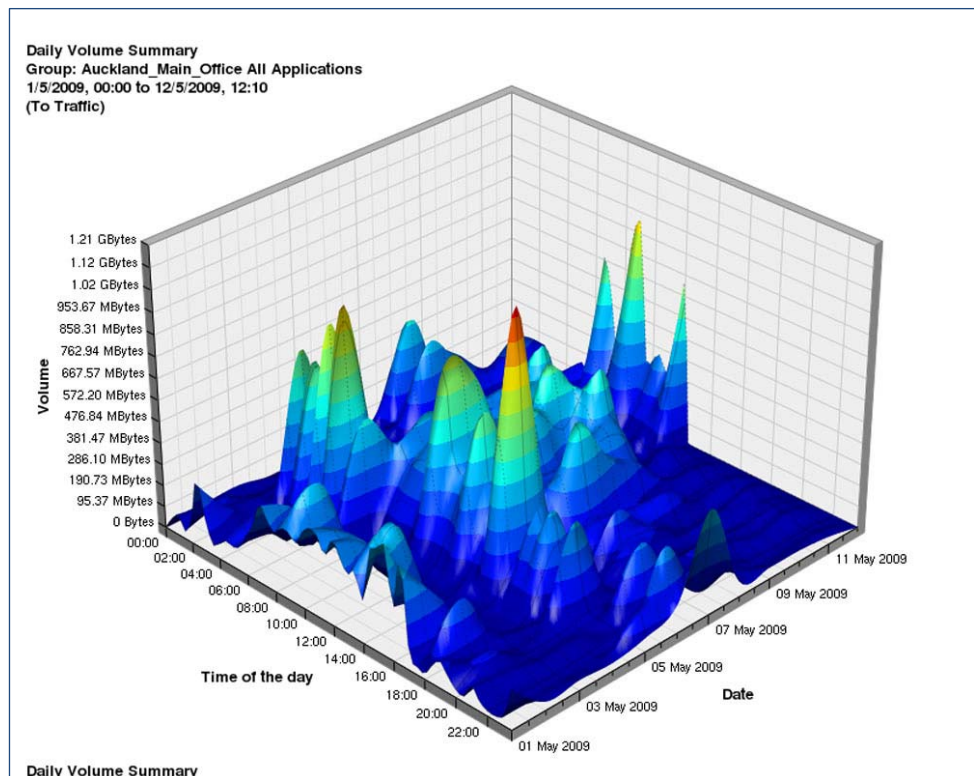
Before purchasing Vertica, nMetrics benchmarked it against the PostgreSQL database. In an initial test nMetrics conducted against a large data set, Vertica delivered 100X improvement over PostgreSQL 8.1 – reducing reporting time from 20 minutes to 12 seconds (see Figure 1). The test involved a low-end processor (a Dell 2850 dual Xeon with four GB RAM in a RAID configuration) and one of nMetrics’ slowest queries (a top talker report for a six-hour period) run on a very large group of subnets.

When the same query was run on a single subnet, the performance improvement was 2,000X – or a fraction of a second for a report. “We frankly didn’t believe Vertica’s performance claims – we didn’t believe a database could be that fast – until we saw it in action,” says Britt. “When you are querying a single subnet, it’s like trying to find a needle in a haystack – trying to find all the flows in a small data slice out of 400 million rows. Vertica was very, very fast.”

The Vertica database gave nMetrics great performance right out of the box, with minimal need for customization and schema migration with almost no modification. Moving from PostgreSQL took less than two weeks. And, although getting to a robust and shippable commercial product took longer, most of the work was completed surprisingly quickly, Britt says.

What might have been a huge leap of faith for nMetrics as an open-source shop – purchasing a commercial database – was quickly overcome by Vertica’s responsive technical support, says Britt. Other advantages were its support for Linux; ability to run on inexpensive hardware; ISV-friendly business and licensing practices; and low administrative overhead.

“Vertica solved an immediate problem for us: query performance,” says CEO Urquhart. “We’ve got the database rolled out in a number of large customer sites, and our customers are very happy with it. Vertica is also opening the door for us to do a lot more with the data that we already have.”



## The Final Word

CEO Urquhart concludes: “Vertica gives us two big advantages that are extremely important to our ability to compete in bigger markets like the US and Europe. First, we can scale to deploy into larger environments and more complex network topologies, so we can meet – and often exceed – the capabilities of our competitors. Second, because we can do more complex queries, we can generate more-intuitive reports with much better insight into networks. We’re going to display the data from complex queries in new and dynamic ways, while our competitors will still be using pie charts, bar charts and line plots. Vertica gives us competitive differentiation. It’s put us in a different ballpark, alongside the big-swinging vendors. It’s fantastic.”

## Try the Vertica Analytic Database Yourself

If you would like to learn more about how the Vertica Analytic Database can help your company increase its profitability and competitive edge through better analytic data management, or to request an evaluation copy, please visit [www.vertica.com](http://www.vertica.com).

### The Vertica Database Advantage for OEMs and ISVs

Create differentiated solutions  
Store more data, answer questions faster, provide real-time views and new insights

#### Faster time to market

Works out of the box, no tuning, standard integration with BI tools

#### Lower TCO

Requires little or no administration, cuts storage costs by 70%, automatic fault tolerance and recovery, runs on Linux

#### Built for Growth

Scales on inexpensive hardware, special flexible licensing, responsive support