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CDC IXIS is an international bank headquartered in France that provides institutional investors, companies and local and regional governments with financial services such as capital markets, financing, banking and securities services, asset management and financial guaranty. A subsidiary of Compagnie Financière EULIA and Caisse des depots, CDC IXIS boasts \$33 billion in assets and employs more than 5300 people worldwide, more than 40% of them outside of France in its many international offices, which account for more than half of its business.

The North American office of CDC IXIS, based in New York, oversees the bank's steady expansion into the American market. The networking staff in New York, in cooperation with the systems and application teams, plays a critical role in that expansion, as well as of day-to-day operations, keeping the bank's battery of applications running over its LANs, WAN, and VPNs and making sure the network can support new offices as they come on line. Because all of the bank's important applications are hosted in the New

York data center and accessed via VPN, network performance and utilization are critical issues. For instance, all remote office emails must be received and scanned by servers in New York to assure compliance with various SEC regulations. Other critical applications include the transmission of trading information, position analysis reports, and the like.

### **Too Many Cooks, Not Enough Broth**

The networking staff relied on SNMP-based tools such as MRTG and Fluke Networks OptiView for managing and troubleshooting the network, but found that the device-level view they supply left many problems undetected. Worse, when problems were blamed on the network, as is inevitable in any enterprise, it was difficult for the networking team to prove otherwise.

“Troubleshooting was basically a process of elimination, drilling down through virtually the whole seven-layer OSI model,” says Henry Yiin, manager of network administration at CDC-IXIS North America. “Problems, of course, showed up at the application layer, but we didn’t have any easy way to connect them to the underlying infrastructure, whether server, network, or something else.”

As a result, almost every performance-related problem ended up requiring at least three people working on it: a networking specialist, someone from the systems team, and a member of the team responsible for developing or managing the particular application involved—not to mention the user, who often had to take time away from his or her business tasks to help reproduce the problem.

“The time required for troubleshooting was time we couldn’t use for planning or executing new projects or supporting the bank’s expansion in North America,” notes Yiin. Planning was also a problem because their device-level tools couldn’t easily deliver utilization information at the granularity required. “We couldn’t get a detailed enough picture without running the sampling rate so high that we couldn’t store enough data to be useful,” says Yiin. “And at the lower resolution we had to work with, we were losing the data we needed to accurately judge peak usage.”

So Mr. Yiin went looking for a network management system that could deliver the kind of information needed to accelerate troubleshooting and ease capacity planning. He and his staff put three products through their paces at the bank: the Network Physics NP-1000 and two other well-known network management/monitoring software packages, in an on-site process that lasted about 6 months.

### **Go with the Flow**

“One thing that caught our interest immediately was that the Network Physics appliance was based on a completely different principle from the other two, which were effectively more powerful versions of the same device-level approach we already used—reliant on information from agents and SNMP. We were curious to see what additional information the NP-1000’s flow-level monitoring would deliver.”

The answer was not long in coming. “Within the first week of evaluation the Network Physics box caught two problems that the other tools completely overlooked,” says Henry Yiin, Manager of Network Administration at the New York office of CDC IXIS. “Both were rather subtle—an RPC bug in an Exchange server and a misconfigured IP address in another office, but the NP-1000 saw the changes in response time they caused and let us zero in on the offending devices right away.” This incident turned out to be proleptic of the implementation experience as well. “It took less than a month to adapt the NP-1000 to our specific needs, and it was delivering useful information almost immediately,” says Yiin. In part, he notes, this is because the Network Physics flow-based approach gathers most of its information from a mirrored port on a switch, rather than hundreds of individual devices, so configuration is much simpler and quicker.

### **First Things First**

In fact, much of the configuration consisted of creating Business Groups, which are how the appliance links IT infrastructure performance to its business impact. Mr. Yiin points to this capability, which groups network flows in groups, based on IP addresses or ports, that can represent users, applications, business services, data centers, servers, or practically any other business-relevant set of resources, devices, or users, as a major help to troubleshooting. “It helps us prioritize our response to problems: rather than responding to the loudest complaints, we can identify the problem that’s hurting the business the most: which application, which users, which department is affected.”

Group	Information	Total Inbound and Outbound Throughput (Mbits/sec)
⊖ UNIX NFS Servers		7.782
⊖ Database Servers	UNIX and NT Database...	2.816
⊖ RMFE Compute Servers		0.659
⊖ UNIX SAMBA Server		0.644
⊖ Internet Proxy Server		0.342
⊖ SummitGroup		0.329
⊖ ARM Servers		0.328
⊖ PAM Servers		0.301
Local Traffic	Local Traffic	1.195
⊖ Member Servers	Member Servers	0.247
⊖ Member Clients	Member Clients	0.054
⊖ Protocols	Protocols	
⊖ Connected Servers	Connected Servers	
⊖ Connected Clients	Connected Clients	
⊖ Sophis Servers		0.228
⊖ AutoSys Servers		0.115
⊖ Production Web Servers		0.107
⊖ Amerisc Servers		0.084
⊖ UNIX BCOM Servers		0.073
⊖ Mail/SMAP Servers		0.072
⊖ Development Web Servers		0.068
⊖ Market Data Servers		0.058
⊖ MD Multicast		0.044
⊖ 590 Madison Network		0.029
⊖ IRD Servers		0.023
⊖ Software VPN Users		0.023
⊖ Windows E-mail Servers		0.017
⊖ NT Name Servers		0.016
⊖ Flextrade Servers		0.011
⊖ Bloomberg Proxy Servers		0.010
⊖ LA Office	LA VPN	0.008
⊖ Hardware VPN Users		0.006
⊖ AT Financial		0.004
⊖ NT Print Servers		0.003
⊖ NT File Servers		0.002
⊖ Win2K Name Servers		0.002
⊖ Barclays Capital - Future		0.001
⊖ Modem Dialup Users		0.001
⊖ IP Telephony		336E-6
⊖ Reuters Session Server		42.62E-6
⊖ Reatick (ECN) Network		4.709E-6
⊖ BoNY Access		224.3E-9
⊖ RediPlus		134.2E-9

Business Groups permit managers to monitor infrastructure performance in terms of how it impacts the business, and to drill down to the affected servers, clients, and applications (protocols).

It's here, however, that Mr. Yiin's major worry about the Network Physics appliance surfaces. "Business groups are really important to us, but we're concerned that as we add more of them, the appliance will slow down too much. I want to make sure their processing power keeps up with us. Even now, much of the time spent troubleshooting is just waiting for the NP-1000 to display the appropriate time period and business groups—once that's up on the screen, we can generally see right away what to do."

That's because the flow-based analysis of traffic can quickly identify whether a problem is network, server, application, or client-based. "Now we generally know almost immediately where the problem is, so we don't need three or four people on it," says Yiin. "We can assign it right off to the right team, and they can use their device-level tools to drill down even further if need be."



Henry Yiin, manager of network administration at CDC-IXIS North America, relies on three tools for network management: MRTG and Fluke Networks OptiView for a device-level view, and the Network Physics NP-1000 for rapid problem identification, alerting, and capacity planning.

### **Boosting the Bottom Line**

This personnel savings was a factor in the ROI equation that helped convince the bank to buy the NP-1000. At CDC North America a typical helpdesk call to report a suspicious network or system performance problem will involve at least one system administrator and one network administrator to troubleshoot and narrow down the problem scope, and more often an application developer will be involved, too. The amount of time needed is averaged 2.5 hours. “At a very conservative estimate of two helpdesk calls a week, and a savings of two hours per call,” says Mr. Yiin, “the personnel savings is over \$36,000 per year.” ( $\$175 \text{ per engineer/hour} \times 2 \text{ engineers} \times 2 \text{ helpdesk case/week} \times 52 \text{ weeks} = \$36,400.$ )

However, adds Yiin, this is actually the smaller part of the savings. “Many of the bank’s applications involve extremely time-sensitive information, so that the cost of downtime is potentially enormous,” he says. “Although it’s hard to quantify the savings here, this aspect of ROI was actually the most important part of the decision to buy the NP-1000.”

Other factors in the decision included rapid time-to-value, and the fact that the time saved troubleshooting leaves more time for other tasks. “Now we have more time for both troubleshooting less critical problems that we ordinarily would have to put off solving, and, more important, for planning for and supporting the bank’s expansion,” says Yiin.

The continuing success of CDC IXIS in the U.S. has put capacity planning in the forefront of the IT department’s priorities. Here, too, the Network Physics NP-1000 appliance has made a big difference. “With its one-minute granularity we get a much more accurate reading on both peak and average usage,” says Yiin. “It’s proved particularly useful with our long-established Los Angeles office, which we are using as a baseline to establish the level of WAN and VPN connectivity we need for new offices as they are established.”

### **The Next Step**

Down the road, Yiin hopes to use the Business Group capability of the NP-1000 to set up a bill-back system for better accounting of IT services and their use by each department. As well, he hopes to use the scheduling and web-based reporting functions to automatically post regular reports to the bank’s intranet, to make performance information available to a wider range of managers.

### **Sidebar**

The Network Physics NP-2000™ is the successor hardware platform to the NP-1000, incorporating in one 1RU appliance the same functionality as the dual-1RU NP-1000 and running the same software, now at Version 3.0. It is a flow-based appliance for the management of networked business services. Quickly deployed via simple, non-intrusive spanning port or tap connections, it operates across all network connections—LAN, WAN, VPN, MPLS, Internet, and third-party—to deliver real-time and historical data about performance, utilization, route quality, end-to-end application performance, and end-user experience—without the need for agents, SNMP, RMON-2, or synthetic transactions. The NP-2000 greatly simplifies management complexity by presenting real-time and historical network data in the context of the business entity, application, or process they impact, enabling uses to maximize service quality and uptime, optimize alignment of IT operations with business priorities, and reduce operating costs by finding problems faster and smarter.

Average initial deployment runs \$100K – \$200K.



