ABN AMRO Bank data centers gain flexibility with eNetwork Software.

The Network Bank

In 1991, ABN AMRO Bank was formed by the merger of two smaller banks and has since developed into a well-established, multifaceted institution of international reputation. With more than 950 branch, regional and headquarter offices in the Netherlands, and approximately 935 foreign offices in 71 countries em-ploying 80 thousand employees, it is no wonder that ABN AMRO brands itself the Network Bank. ABN AMRO's total assets exceed 1,000 billion Dutch guilders, making it one of the 10 largest banks in the world and the largest foreign bank operating in the United States.

Network computing support for high-quality systems

To support its Dutch organisation, the bank operates two data centers situated three kilometers apart that are linked with IBM® ESCON® high-speed connections. The data centers include three IBM Parallel Sysplex® systems which operate IBM OS/390® software on 19 host images. Fourteen of the host images run the daily production work-loads and five operate the bank's rigorous acceptance test processes. To support the network, the data centers are equipped with four local IBM 3745 Nways® Communications Controllers running Network Control Programs (NCP), which are connected to 60 remote IBM 3745 Controllers. The network itself includes 210 thousand SNA logical units (LUs), 30 thousand workstations, 3,000 servers and 1,600 automated teller machines (ATMs).

System	IBM Parallel Sysplex
Software	IBM OS/390 IBM VTAM IBM NCP
Hardware	IBM 3746 Nways Multiprotocol Controller (Model 900) IBM 3745 Nways Communications Controller

Model of the new ABN AMRO Bank headquarters scheduled to open in 1999.

APPN simplifies host system reconfigurations safely and reliably.

In 1996, the bank's networking team decided to implement new IBM networking technologies, such as Advanced Peer-to-Peer Networking® (APPN®) and High-Performance Routing (HPR). They began by upgrading the VTAM functions of the IBM eNetwork™ Communications Server for OS/390 in the data centers to support the bank's implementation of IBM Parallel Sysplex systems. The networking team also wanted to deliver the benefits of generic resources, simplify the definition of networking software configurations and increase the capacity of networking hardware over time.

Increasing availability and reliability with APPN

Business-critical projects, like Year 2000 readiness and Euro currency, urgently required the bank to set up new host partitions. The ease of adding APPN end nodes (ENs) enabled ABN AMRO's networking team to deliver the new host systems quickly. Furthermore, the ease of defining APPN resources in general also provided network connectivity to newly added ENs without the need to apply any changes to the existing subarea routing definitions. Harry van der Wijk, a member of ABN AMRO's networking team, explains the importance of these advantages: "This was very important to us, because without APPN, it would have been a major effort to apply more than a few configuration changes to our existing subarea routing infrastructure, due to its size and complexity."

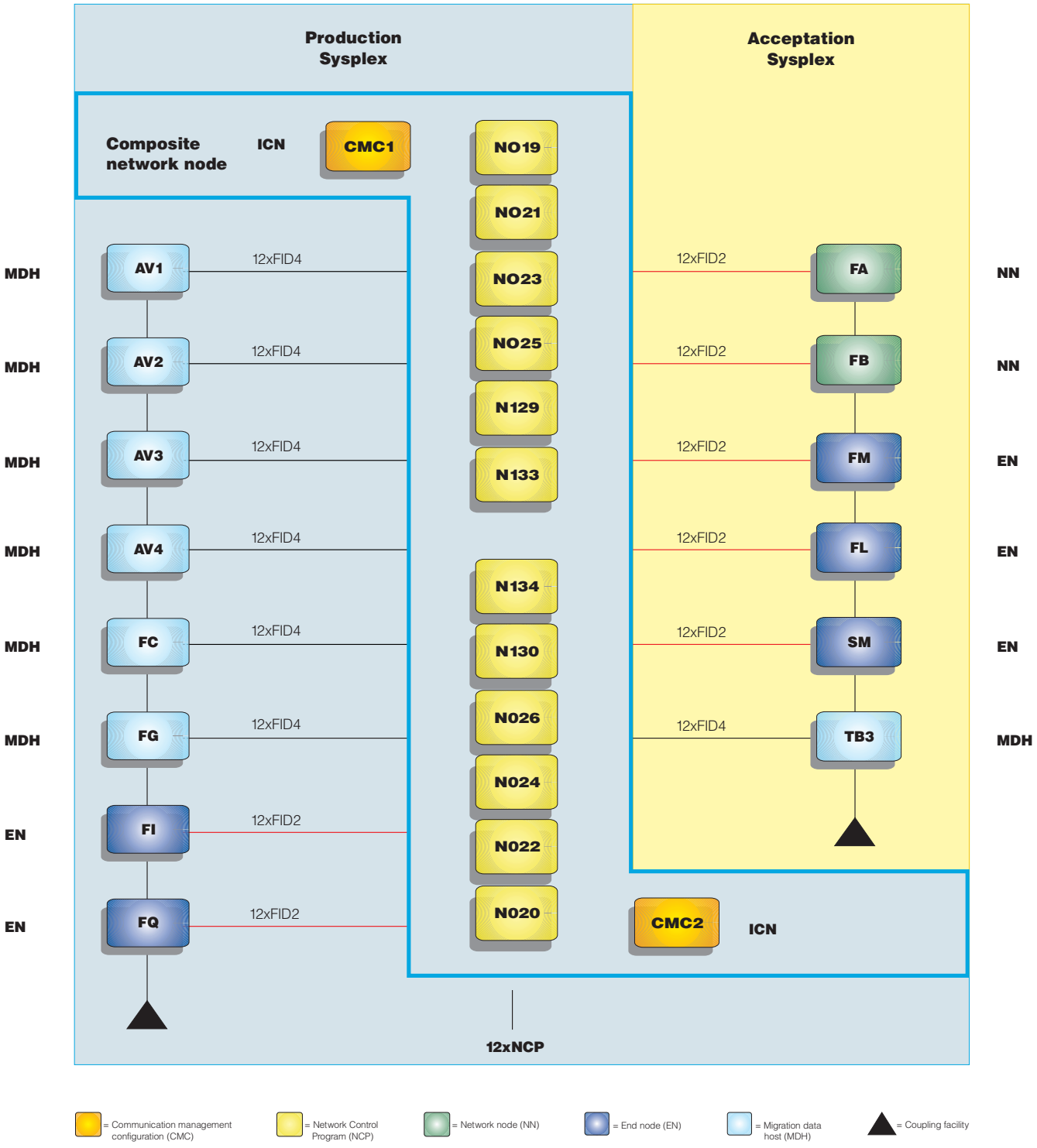
"I am confident that APPN dynamics will always find a route – even in situations where subarea networking would have failed."

Harry van der Wijk, ABN AMRO

ABN AMRO also uses the APPN central directory server (CDS) function, which makes it easy to relocate applications across OS/390 host images. Harry van der Wijk states, "The CDS also made it possible for us to design a new disaster recovery fallback procedure, which will be implemented together with generic resources."

An unexpected benefit of APPN in the ABN AMRO configuration is that multiple connections between APPN end nodes (ENs) and composite network nodes (CNNs) provide built-in redundancy, which increases availability and reliability.

The bank has also implemented HPR between the host production systems defined as APPN ENs with tangible bene-fits to availability and performance. For example, HPR's non-disruptive route switch facility ensures that host-to-host sessions will stay active even when intermediate network resources fail. HPR's automatic network routing (ANR) improves performance in the IBM 3745 Communications Controller, where it relieves memory usage and processor cycles.



ABN AMRO data center configuration design for APPN/HPR.

Advice for other customers

Implementing APPN was a success at ABN AMRO because the bank's networking team carefully studied, planned and managed the successive phases of their migration project. The bank's team advises other customers who are considering the implementation of APPN/HPR to adopt their approach.

Customers should be aware that APPN format identification field 2 (FID2) connections result in increased NCP buffer use and controller hardware cycle utilization in APPN configurations that include the IBM 3745 and the NCP.

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