

Guides to Enhancing Netfinity Servers

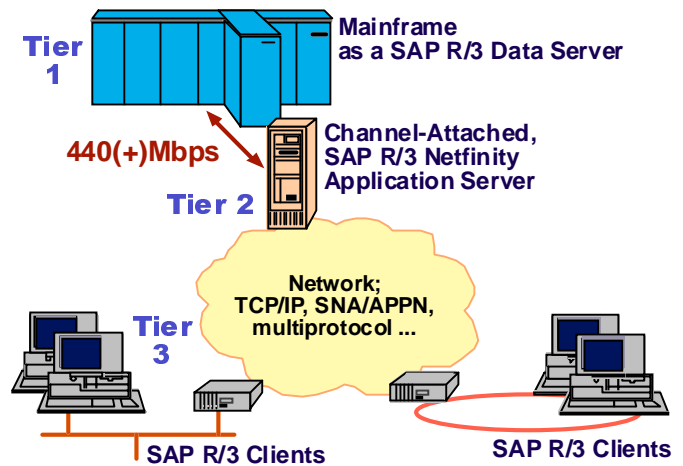
Turbo-Accelerated SAP[™] R/3[™] with Channel-Attached Netfinity Servers

SAP R/3, with more than 1,000 proven, industry-specific business modules and over 4,000 installations on IBM servers, is now one of the most popular and strategic means of implementing next-generation, mission-critical 'total business' information management systems. SAP R/3, which is inherently client-server based, offers tightly integrated programming solutions that embrace all aspects of an enterprise's day-to-day operation including: accounting; production; materials control; sales and distribution; human resources; quality control; project management, and plant maintenance.

SAP R/3 which supports a large number of operating systems, including **Windows NT, MVS** and **OS/390**, is now being widely used in S/390 mainframe environments in a **3-tier**, client-server configuration - where the mainframe acts as a data server. In such 3-tier configurations, IBM's feature-rich but value-priced **Netfinity Servers**, that can support up to 4-way, 200MHz Pentium II based multiprocessing, are becoming the preferred platform to be the SAP R/3 **Application Server**. The actual SAP R/3 business logic will run on the Application Server, while the graphical user interface will be handled by presentation software running on each client machine. The Application Server interacts with SAP R/3 modules on the mainframe to access mainframe resident applications and DB2 databases.

Netfinity SAP R/3 Application Servers can now be channel attached to mainframes using, high-throughput, low-cost **NETFINITY ESCON ADAPTERS**. Direct channel-attachment is by far the most prudent, high-performance, reliable, and cost-justifiable way to implement Application Server-to-mainframe communications. Channel-attaching the Application Server eliminates slow-downs and bandwidth bottlenecks caused by LAN connections and intermediary mainframe gateways such as 3745 FEPs. Netfinity ESCON adapters support IBM's latest and most-efficient channel-protocol, known as **MultiPath Channel Plus (MPC+)**. MPC+ greatly minimizes the hitherto overhead associated with channel transfers. It, moreover, permits the bandwidth of two or more separate channel connections to be synergistically combined to achieve high-throughput, zero-delay, fault-resilient, full-duplex mainframe communications. With the ESCON/MPC+ adapters it is possible to implement **440Mbps(+)**, full-duplex connections between the Netfinity SAP R/3 Application Server and a mainframe.

Channel-attaching a Netfinity SAP R/3 Server to a mainframe will dramatically expedite client response times – typically by an order of magnitude. SAP R/3 transactions, involving mainframe data access, that may have taken 35 to 45 seconds with a LAN-attached server, are likely to be completed in 3 to 5 seconds with a channel-attached Netfinity Server. ESCON/MPC+ empowered Netfinity SAP R/3 Application Servers can thus definitely turbo-accelerate your SAP system - thus further enhancing productivity, competitiveness, responsiveness, and end-user satisfaction.



Advantages of Channel-Attached Netfinity SAP R/3 Application Servers

- ❖ Tightly integrates Netfinity SAP R/3 Application Servers with mainframe Data Servers.
- ❖ Ultra-reliable, high-capacity, full-duplex data highway between the Application Server and the mainframe – which can sustain long-duration data transfers at speeds up to **448Mbps**.
- ❖ Eliminate all performance bottle-necks introduced by LANs and intermediary controllers and gateways.
- ❖ Realize a seamless, high-throughput 3-tier SAP R/3 architecture endorsed and supported by both SAP and IBM.
- ❖ Reduce response times by an order of magnitude --> 35 to 45 seconds down to 3 to 5 seconds!

Frequently Asked Questions about Channel-Attached Application Servers

Q: How do I implement a 3-tier, SAP R/3 client-server architecture with a channel-attached Netfinity Server?

A: In a SAP R/3 3-tier architecture, the Netfinity Server becomes the Application Server at Tier 2 which performs the actual SAP R/3 business logic and services all the clients. The mainframe, typically running DB2, becomes a high-capacity Data Server that provides the Netfinity based SAP R/3 Application Server with access to mainframe applications, files and databases. Enterprises thus get the best of all worlds – i.e. unrestricted access to data center resources while being able to gainfully utilize powerful, cost-compelling Netfinity Servers as Application Servers. Channel-attaching the Netfinity Application Servers to the mainframe ensures the highest possible throughput for SAP R/3 data exchanges between the Application Server and the Data Server, thus dramatically improving the overall response times enjoyed by the SAP R/3 client population.

Q: How do I channel-attach a Netfinity SAP R/3 Application Server to a mainframe?

A: Netfinity Server to mainframe channel-attachment is realized using **PCI bus** based Netfinity ESCON channel-attachment adapters. The Netfinity ESCON supports **17MBytes/sec ESCON** channel-connections. A Netfinity SAP R/3 Application Server can support up to 4 ESCON channel-adapters. Hence it is possible to have up to four separate channel connections between the Application Server and the mainframe. The MPC+ support, embedded within the ESCON adapters, ensures that all four of these separate channel connections can be logically grouped together to combine their bandwidth, provide resiliency against connection failure, and facilitate full-speed, full-duplex data transfers. Moreover efficiency is the hallmark of MPC+. With MPC+ it is possible to routinely sustain actual data transfer rates of 14MBytes/sec [i.e. 112Mbps] – over long durations of time, with near zero error rates. With four MPC+/ESCON adapters are installed, a Netfinity SAP R/3 Application Server will be able to continually exchange data with a mainframe at 448Mbps.

Q: Do I need more than one channel-connection between a Netfinity SAP R/3 Application server and a mainframe?

A: Ideally yes. With MPC+, one Netfinity ESCON channel-adapter alone will ensure that there is indeed a high-bandwidth data path for high-speed data transfers between the Application Server and the Data Server. This single channel connection, despite its high throughput, may, however, not be enough to satisfy the performance and high-availability demands of today's high-volume, mission-critical, 3-tier SAP R/3 systems. Only having one channel connection precludes full-duplex, simultaneous bi-directional data transfers between the Application Server and the mainframe – given that a single mainframe channel, even when using MPC+, is only capable of half-duplex communications. Full-duplex interactions, essential for high-speed SAP R/3 transaction processing, are only possible when there are two or more active channel connections. Multiple channel connections also provide for load balancing and fail-safe redundancy.

Q: Can I use the Netfinity ESCON adapters with IBM's new CMOS, S/390 Parallel Enterprise Servers?

A: Yes. These highly proven and widely deployed channel-adapters work, and have been rigorously field tested, with all IBM bipolar and CMOS mainframes, including the new G5, CMOS machines announced in June 1998. The Netfinity ESCON Adapters are supported and maintained by IBM.

Q: What protocols can I use between a Netfinity SAP R/3 Application Server and a mainframe across the channel?

A: The Netfinity ESCON Adapter is essentially protocol independent. The Netfinity ESCON adapters support both TCP/IP and SNA/APPN. Hence, they can be used to support SAP R/3 data transfers between the Netfinity SAP R/3 Application Server and the mainframe using either TCP/IP or SNA/APPN.

The Feature-Rich, Value-Priced IBM Netfinity Servers

IBM's Netfinity family of Intel processor based servers enable enterprises to confidently build a reliable and cost-effective foundation for e-business and enterprise-wide computing. Netfinity Servers provide enterprises with the power, control, scalability, resilience and high-availability they require to effectively run their business. Netfinity Servers are the optimum platform for running sophisticated applications such as SAP R/3, moving massive amounts of data and providing all the connectivity in today's changing world.