

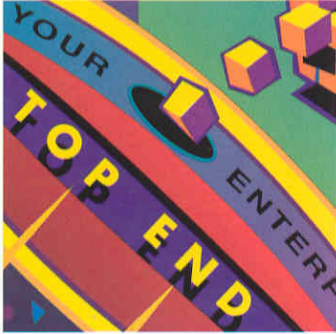


TOP END®

High Availability
Middleware for the
21st Century



TOP END Answers Your High Availability Challenge



Many businesses struggle to merge new and existing computing resources into a single enterprise-wide application environment. This feat usually requires connectivity between different databases, multiple communications protocols and topologies, a variety of operating systems, and an assortment of hardware platforms. Linking these diverse elements together and managing the results often seems a daunting task.

How can businesses ensure that their disparate suppliers, products, and technologies work together? Increasingly the answer is a sound middleware strategy. Middleware can meet your needs for connectivity, and the *best* middleware products also deliver outstanding high availability, security, performance, and scalability.

NCR's TOP END middleware addresses all of these requirements, and in doing so finally allows you to realize the benefits of open systems with the high availability you expect for your business critical applications. TOP END seamlessly connects disparate environments with hundreds (even thousands) of servers into a unified, cohesive environment. And unlike distributed computing schemes which encourage the dispersion of application components with no tools to manage them, TOP END provides graphical administration and a single view of your entire distributed application environment – all in a secure, highly available distributed environment.

TOP END Delivers it All



1. Simpler Adoption of Open Systems

TOP END makes it much easier to add UNIX and Windows NT-based services to your application environment. Not only does TOP END allow these open systems to interoperate with services on legacy platforms, but TOP END's management view is consistent across all supported operating environments. This maximizes your choice among hardware platforms, databases, and third-party applications without sacrificing functionality or overloading your administrators.

2. 7 x 24 Availability

Downtime is costly – impacting your revenue, support costs, and user satisfaction. One way or another, it hits your bottom line. High availability challenges are tailor-made for TOP END.

If you try to access an application on a distributed node after a failure, TOP END automatically re-routes your request to another live node. Of course, you never realize this since TOP END's recovery mechanisms are transparent to the user. TOP END can even restart applications or start up additional copies. In conjunction with clustering solutions like NCR's LifeKeeper®, TOP END offers even higher levels of open systems availability.

3. Management of Your Mission-Critical Applications

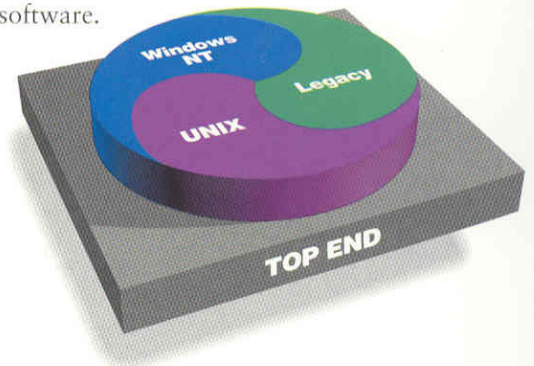
Whether your enterprise spans one building or the globe, TOP END makes it easy to manage distributed applications from a single location. Testing, deployment, and maintenance of multi-tier distributed applications is almost effortless.

4. Security for Your Applications and Data

Using the *de facto* industry standard for distributed security – MIT's Kerberos – TOP END ensures that your distributed environment is protected from unauthorized access. Message encryption services provide additional protection.

5. Protection of Your IT Investments

TOP END works with open and legacy systems, including mainframes, and can manage communications facilities so CICS and IMS-based applications operate with TOP END applications. This means you can add open systems and multi-tier applications at the best pace for you – while leveraging your existing equipment and software.



6. Cost Savings

TOP END delivers communications, security, and transaction management consistently across all platforms so developers don't have to reinvent these functions or rely on unfamiliar technologies that may not work together. Instead, they can concentrate on developing and debugging the business logic needed for their core applications.

7. Great Performance Delivery

Even with high availability, management, and security, fancy 3-tier architectures aren't worthwhile if they force your users to wait around during peak business hours for the latest CPU or network bottleneck to clear. TOP END balances your workload across all available systems ensuring consistent performance.

Questions you should ask if you are a middleware provider:

Before entrusting your critical business applications to another middleware provider, investigate the following and then compare NCR's TOP END against the competition:

Q. Has the middleware been proven to work well in large enterprises with thousands of clients and servers?

IMPACTS: Scalability, Investment Protection

Q. Is the offering consistent across all platforms, or are special versions offered for one vendor and not others?

IMPACTS: Interoperability, Vendor Independence

Q. Are comprehensive management tools provided so you can administer your distributed application environment, regardless of size or configuration?

IMPACT: Cost, Maintainability

Q. Does the middleware require sustained connections between clients and servers, or is the need for dedicated memory and network resources only present during a communication?

IMPACTS: Cost, Scalability

Q. Is High Availability the focus for the middleware provider, or an afterthought thrown in for marketing purposes?

IMPACT: Your Bottom Line

Features	Benefits
Automatic Rerouting of service requests to alternate processors in the event of network or processor failure	<ul style="list-style-type: none"> • 7 x 24 availability • No disruption to users • Lower operational cost, continuous productivity
Scalability to hundreds of thousands of clients, tens of thousands of servers in a single application environment	Enterprise support no matter how large the environment, today or in the future
Automatic Redistribution of processing requests to less loaded processors	<ul style="list-style-type: none"> • Better utilization of available resources • Consistent, shortest-possible response times
Global Administration <ul style="list-style-type: none"> • Central control of the distributed enterprise • Single operational view with graphical tools • Automated software distribution 	<ul style="list-style-type: none"> • Reduced administrative cost • Problems are diagnosed and addressed quickly by qualified support staff
Security Services <ul style="list-style-type: none"> • Authentication of user identity • Authorization for access to a given service • Message privacy via encryption 	<ul style="list-style-type: none"> • Protection of critical resources • Tracking of access attempts
Message-Oriented, Connectionless Architecture 3-tier Architecture	<ul style="list-style-type: none"> • Flexible redeployment of distributed applications, as your business needs change • Better performance and scalability

TOP END Customers Span All Industries and Parts of the Globe

"We have deployed our new Securities 3000 series product on the NCR WorldMark 5100M and TOP END and rely on both for their scalability and availability. We view TOP END as a critical part of our application because it gives us confidence to meet our large-scale rollout. I personally believe that TOP END is a jewel in NCR's crown, and the addition of TOP END Internet Services enhances its already strong middleware offering."

David Allen
Chief Database Architect
Reuters

"TOP END provides an important level of functionality to very large Oracle environments, addressing requirements for very high transaction throughputs, many thousands of users and multiple enterprise servers. Oracle applications take advantage of TOP END's session and resource management, transparent message routing, workload leveling and legacy system co-existence to extend Developer/2000's industry-leading scalability."

Sohaib Abbasi
Senior Vice President of Oracle Tools Division
Oracle

"With TOP END, we are able to share information between different TOP END applications on different databases. We can use TOP END as our middleware to integrate between them, irrespective of whether we are using Oracle or Sybase... TOP END is, for us, middleware which allows us to keep our options open."

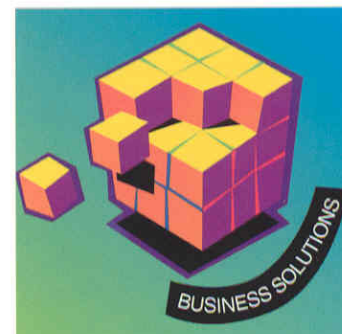
Werner Schaefer
General Manager of Information Systems,
Passenger Services and Load Planning
Swissair

"We have been running our reservation system using TOP END and are impressed with its reliability and performance. Given our positive experience with this product we are now working with NCR to extend our TOP END environment to the Internet as well."

Gerret Goossen
Director of Automation/Information,
Travel Unie International

"The Standish Group believes that TOP END technology, coupled with the inexpensive and dynamic transportation platform provided by the Internet, is a strong and viable option for globally-dispersed enterprise organizations looking to implement industrial strength electronic commerce solutions."

The Standish Group,
"COMPASS Product Profile – TOP END"



TOP END vs. Traditional TP Monitors

Some vendors have attempted to simply map the commit/rollback capabilities of mainframe-based systems onto distributed computing architectures. While conceptually appealing, this seldom provides the robust, scalable solution that businesses need. And management tools are usually an afterthought.

With TOP END, NCR took a different approach. TOP END is built on over 20 years of TP monitor experience, plus several generations of distributed computing architectures. TOP END is designed not only to support traditional TP Monitor functionality, but also to address the needs of the distributed enterprise.

Specifications

Server Operating System Support

Amdahl SPARC Summit Solaris
Digital UNIX for Alpha Systems
HP-UX® for PA-RISC Systems
IBM® AIX® for RS/6000
IBM MVS®/CICS
Microsoft® Windows NT®
(All Intel® platforms)
NCR UNIX SVR4™ MP-RAS for
WorldMark® Systems
Olivetti Intel Unix SVR4
Pyramid DC/OSx Unix
SCO® UnixWare
Sun® Solaris® for SPARC Systems
Unisys® UNIX

Client Support

IBM OS/2
IBM 3270
Microsoft Windows® 3.1
Microsoft Windows 95™
Microsoft Windows NT Workstation
Microsoft DOS
Remote Login
SCO UnixWare
Sun's Java
X-Window

Standards Supported

ActiveX
STDL
X/Open™ DTP

Communications

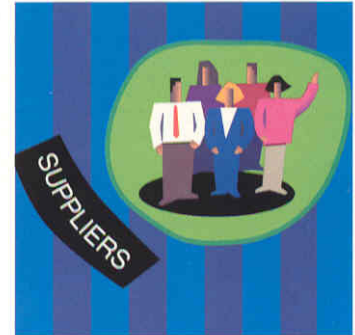
SNA
TCP/IP

Client Application Development Tools

Asymetrix Toolbook
Borland Delphi
Centura SQL Windows
Dynasty
Forte
Four Seasons SuperNova
Microsoft Visual Basic®
Object View
Oracle Developer/2000
Passport
Powersoft® PowerBuilder®
Sun's Java
Westmount I-CASE

Server Development Environments

C, C++, COBOL,
Four Seasons SuperNova
Gresham ISAM-XA
Administration Tools
IBM CICS, IMS
Informix®
Ingres
NCR ADE Workbenches
NCR Teradata®
ORACLE®
Software AG ADABAS
Sun's Java
Sybase®



Expanding Your Enterprise with TOP END

Using the Internet and Corporate Intranets

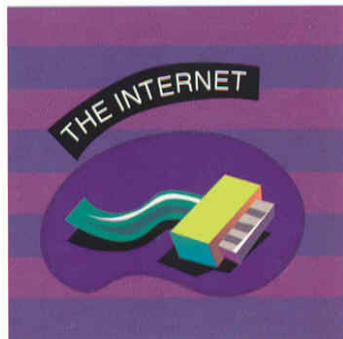
TOP END's middleware infrastructure is totally independent of the underlying communications infrastructure. Extending well beyond the world of corporate WANs and LANs, TOP END provides the tools needed for large-scale distributed computing – across the Internet and private Intranets with the Web browser as the key user interface.

Companies using the Internet/Intranet for business information exchange are often discouraged by poor performance, wide variation in response times, and availability problems. Adding TOP END to your Web server-based application environment improves scalability. And bypassing slower Internet protocols like CGI allows TOP END's Java-based client software to deliver subsecond response times for Internet/ Intranet applications. Automatic load leveling dynamically initiates and closes application services needed to maintain response times. If a

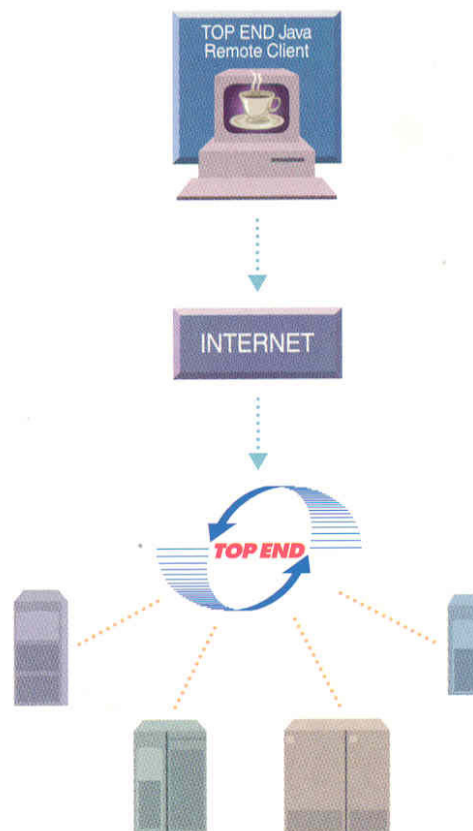
server fails, TOP END automatically fails over to an alternate server. And of course, TOP END's Kerberos security and encryption tools are perfect for Internet use.

ActiveX Support for Instant Applications

TOP END uses Object-Oriented Technologies to allow developers and users to make real-time changes to their computing environment from their desktops. Its support for ActiveX, designed by Microsoft and sponsored by The Open Group, enables TOP END services to be instantly on-line with access from popular desktop applications such as Microsoft® Excel, Word, and PowerPoint®.



**TOP END Connects
Your Enterprise
to Global Markets**



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