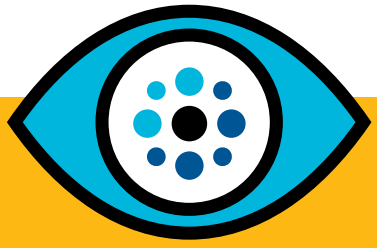
HP Reliable Transaction Router (RTR)

Data sheet



Overview

- Provides 24 x 7 application availability and disaster tolerance across multi-vendor systems to ensure business continuity
- Ensures absolute transaction integrity with two-phase commit and distributed security
- Provides scalable growth for large numbers of users without changing application code
- Provides a flexible infrastructure for easy development
- Uses public and private networks, including the Internet
- Delivers proven technology for Internet commerce applications

What is RTR?

RTR is a fault-tolerant, transactional messaging middleware product used to implement large distributed applications in client/server environments. RTR enables distributed applications to run in heterogeneous environments, allowing client and server applications to interoperate on supported Windows, HP-UX, Linux, and OpenVMS platforms.

RTR applications are developed and deployed using a three-tier client/router/server software model. Client applications call the RTR client software tier, which passes messages to the router tier of the software. Transaction messages are routed reliably and transparently, based on message content, to the appropriate processes in the server tier. Server applications typically execute transactions against a database and return results back to clients.

A single physical node may run one, two, or three tiers of RTR client/router/server software model. Each of the three software tiers may consist of one or more nodes. The software model and its content-based routing present a virtual rather than physical network to the application developer. This model enables application software to be independent of physical hardware (CPU) location, network naming conventions, and communications protocol. This facilitates single-node development, and transparent scalability of applications in complex network configurations.

RTR implements automatic software fault tolerance and failure recovery in multimode environments by adapting to many kinds of hardware (CPU), communications, application software, and site failures. Automatic failover and recovery of service operates by exploiting redundant or alternate hardware and network links. If alternate hardware or network links are not available, RTR automatically continues service when the CPU or network link becomes available.

RTR software fault tolerant features such as router failover and shadow-server processing provide nearly continuous computing services with completion of in-progress transactions despite single or multiple points of failure in the distributed client/server environment. RTR is also designed for high performance and low latency. Callout servers implement user authentication control and concurrent servers provide dynamic message load balancing for high performance. High performance transactional messaging is implemented as a full-duplex conversation with remote server applications using real-time flow control techniques. Use of these features generally requires no special user application programming logic.

Key features and benefits

Proven technology for Web-based applications

RTR can reliably tie together J2EE application servers with business critical applications. That is why RTR is used in hundreds of demanding business environments where availability, scalability, and data integrity cannot be compromised.

Bulletproof transaction integrity

- RTR supports transactional messaging across distributed systems to enable flawless transaction integrity.
- A two-phase commit protocol verifies that all pieces of a transaction, or none, are committed. RTR also supports publish/subscribe message broadcasts between clients and servers for information dissemination.

- RTR enables recovery of in-flight transactions if there is a failure during a transaction processing window. RTR achieves this by keeping all messages that are processed in the context of a transaction in a journal. In the event of a failure, the messages can be recovered later to complete the transaction.

For over a decade, major financial exchanges and banks around the globe have relied on HP RTR as a simple and reliable method of providing 24x7 availability for their transaction intensive applications.

Interoperability
RTR enables distributed applications to run in heterogeneous environments, allowing client and server applications to interoperate on the supported Linux, Windows, HP-UX, and OpenVMS platforms as shown in figure 1.

Software fault and failure tolerance for nearly continuous availability
- RTR extends fault and failure tolerance from single systems to fully distributed client/server environments. It provides protection against planned and unplanned system, software, and site disruptions—even against network failures. RTR also allows components of the system such as the database or operating system to be upgraded while the application continues to run.
- RTR provides automatic and transparent failover and recovery—ensuring uninterrupted service and completion of in-progress transactions with integrity to users. Its remote site shadowing capability provides real-time mirroring of transactions to a remote disaster-recovery site.

Scalability
- RTR applications are developed and deployed using a three-tier client/router/server software model. Client applications call the RTR client software tier, which passes messages to the router tier of the software. This architecture makes distributed systems that use RTR highly scalable.
- With RTR, your applications are unaware of the underlying network configuration, data resource locations, or the fault-tolerant features of the software. As needs change, you can dynamically configure without application interruption.

Fault and disaster tolerance
- Process and node redundancy with Active-Standby Configuration.
- Disaster tolerance capability with shadowed servers that enables achieving "Zero" Recovery Point Objective (RPO). This makes sure that no data is lost in case of a disaster and recovery sequence.

Application Programming Interface (API)
RTR provides APIs for development of distributed applications using languages such as C and C++, with all-or-nothing transaction semantics as well as an optional message broadcasting capability. C API calls are also available from a command line interface. The C++ API provides an object-oriented interface for developing user and system management applications. Applications can also use the X/Open XA interface.

Distributed transaction manager that understands XA Interface
If your database supports XA, then you have less to implement in your application environment. RTR provides the capability to use XA interface to work with XA compliant database systems through C APIs. This interface is used in transaction manager to Resources Manager exchanges to coordinate a transaction from within an application program. The use of XA can also increase the portability of your application.

Customer references

Visit http://www.hp.com/products1/rtr/references.html for success stories detailing how RTR delivers 24x7 performance in mission-critical environments.

Customer lab

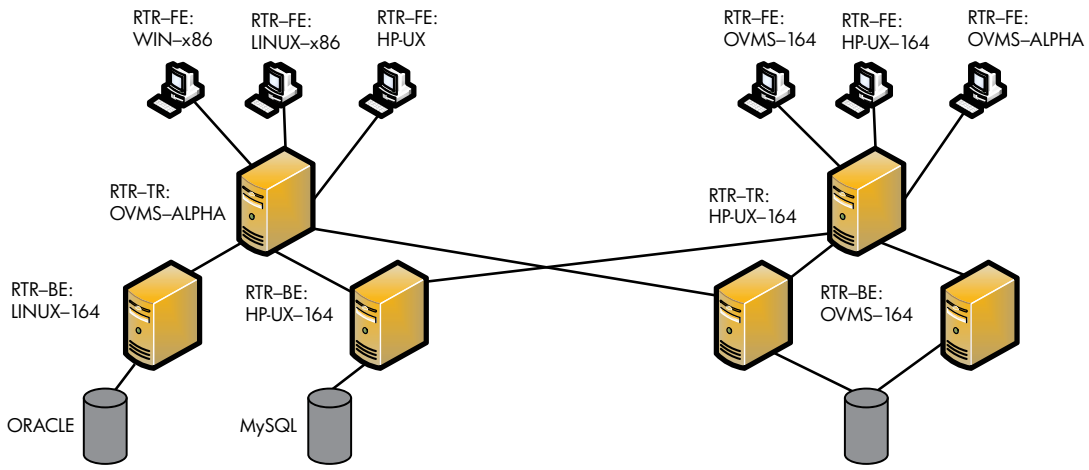
The OpenVMS Customer Lab is a dedicated lab that offers a safe environment for testing application software. It is designed to provide OpenVMS partners, Independent Software Vendors (ISVs), and customers access to cutting-edge HP technology. Guests can schedule hardware, software, and engineering resources to stage their applications in controlled environments before going live in their own production environments.

HP RTR customers can make use of this facility to measure response times and throughput on different size systems and configurations.

RTR concept demo

Visit http://www.hp.com/products1/rtr/rtr_concept_demo.html to view a flash demo that is aimed at illustrating the concept of RTR using an interactive simulation of an RTR facility

Figure 1: RTR network across operating systems and databases



Licensing and part numbers

HP RTR is Per Core Licensed (PCL) with one license required for each physical core active in the system or hard partition. If additional processors are later added to the system or hard partition, each core requires an additional PCL.

The following table provides operating system compatibility for the current and immediately previous versions of the RTR product set.

RTR Support Matrix				
Version	**V5.0**		**V5.1**	
Platform	FE	BE	FE	BE
OpenVMS Alpha	Yes	Yes	Yes	Yes
OpenVMS Integrity	Yes	Yes	Yes	Yes
Linux x86 - 32 bit	Yes	No	Yes	No
Linux x86 - 64 bit	No	No	No	No
Windows x86 - 32 bit	Yes	Yes	Yes	Yes
Windows x86 - 64 bit	No	No	No	No
HP-UX Integrity	No	No	Yes	Yes
Linux Integrity	No	No	Yes	Yes

Note: FE—Front End; BE—Back End
HP plans to introduce RTR for Linux x86-64 bit platform in H2 CY 2009.

SKU#	Description
RTR SKUs on Integrity	
BA384AA	HP RTR Front End VMS I64 Media
BA384AC	HP RTR Front End VMS I64 PCL LTU
BA384ACN	HP RTR Front End LTU Tradein
BA408AC	HP RTR Back End VMS I64 PCL LTU
BA408ACN	HP RTR Back End LTU Tradein
BA416AA	HP RTR Back End VMS I64 Media
BA416MN	HP RTR VMS I64 Manuals
BA428AA	HP RTR Back End HP-UX Integrity Media
BA428AC	HP RTR Back End HP-UX Integrity PCL LTU
BA428ACN	HP RTR Back End Tradein LTU
BA429AA	HP RTR Front End HP-UX Integrity Media
BA429AC	HP RTR Front End HP-UX Integrity PCL LTU
BA429ACN	HP RTR Front End Tradein LTU
BA498AA	HP RTR Back End Linux Integrity Media
BA498AC	HP RTR Back End Linux Integrity PCL LTU
BA498ACN	HP RTR Back End Tradein LTU
BA499AA	HP RTR Front Linux Integrity LTU Media
BA499AC	HP RTR Front End Linux Integrity PCL LTU
BA499ACN	HP RTR Front End Tradein LTU
RTR SKUs on ProLiant	
QM-73AAA-AA	HP RTR FE Linux PPL License
QB-73AAA-SA	HP RTR FE Linux CD Lic Pkg
QM-36DAB-AA	HP RTR FE Win PCL License
QB-36DAB-SA	HP RTR FE Win CD Lic Pkg
QM-4BTAB-AA	HP RTR BE Win PCL License
QB-4BTAB-SA	HP RTR BE Win CD Lic Pkg

Free loan

HP offers its no-cost Software Loan Program to customers who want real-time experience with a layered product before placing their order. For more information contact your HP sales representative or visit http://www.hp.com/products1/rtr/freeloan.html

Service options

A variety of service options are available from HP. For more information, contact your local HP account representative or distributor. Information is also available on www.hp.com/hps/software

Ordering information

For ordering and configuration information for HP RTR contact your HP sales representative or visit http://www.hp.com/products1/rtr/

For more information

To learn more about how HP RTR can improve the reliability of your mission critical systems, please contact your HP representative or visit http://www.hp.com/products1/rtr/

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Technology for better business outcomes

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