

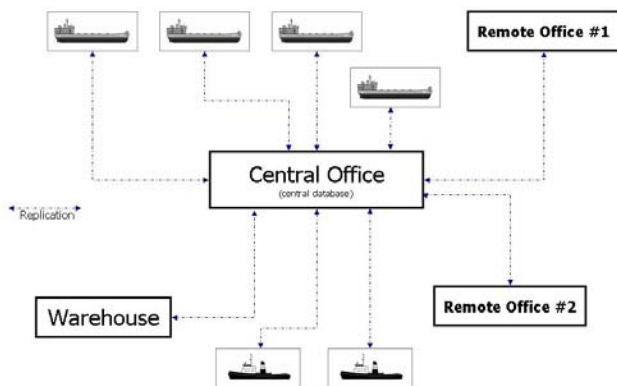
REPLICATION MANAGER

The *NS 5 Replication Manager Module* provides the capability to transfer data to and from the company's operational sites, including offices, vessels, units, warehouses, suppliers, crewing agents, and shipyards.

NS 5 has a built-in communications facility that performs automatic data transfer as determined by the customer or on demand via cellular phones, land lines or satellite. The transmitted data is automatically loaded into each site's database and displayed at each user's workstation, as applicable.

DISTRIBUTED PROCESSING ARCHITECTURE

NS 5's Replication Manager ensures continuous synchronization of information across all databases installed in the main office, remote offices, and vessels and provides a reliable enterprise-wide processing environment. This is made possible by NS 5's distributed processing architecture.



The following pages highlight some of the characteristics and functionalities of the Replication Manager Module.

CENTRAL OFFICE

The Central Database, generally located at the main office, acts as the distribution center for all transactions entered at other database sites in the system. The Central Database collects the transactions in the system, integrates the data pertaining to materials, maintenance, crewing, compliance and other operational information, and redistributes the latest data to the applicable remote databases. This functionality allows the shipowner / operator / manager to keep current data throughout the organization.

CUSTOMIZED DISTRIBUTION

NS 5 allows a company to specify what data will be stored at each operational site. For example, a shipboard's database usually contains only the data pertinent to that vessel. It may also contain selected data received from other sites. In a regional office, a single integrated database includes the data of all vessels managed by that office. The operations carried out at a particular site may be confined to the applicable combination of Maintenance & Repair, Purchasing & Inventory, Crewing, Payroll, Quality & Compliance and Voyage Management.

RELIABLE TRANSACTIONS

This communication design has been in operation since 1987 with millions of transactions processed to date. The transaction file loading, which emulates manually performed operations, adds to the overall durability of the system.

REPLICATION MANAGER

COMMUNICATIONS TOPOLOGY

- Uses a single database to contain data for one, many, or all vessels in the fleet, with a completely transparent data distribution mechanism
- Allows for links to business partners such as suppliers, crew agents and port agents
- Has transmission scheduling that is highly flexible, facilitating a timely turnaround between sites, making it possible to move information between widely dispersed users at whatever frequency is defined
- Is a true 32-bit platform, offering increased performance and speed
- Provides flexibility in the implementation of the communications topology. The selected topology can be changed as the system is expanded. Also, a fully-implemented system can be altered to suit changing operational needs
- Supports a variety of communications media that allows selection of the most economical alternative. For example, the system can be switched from satellite to cellular or other means when physical conditions permit. The alternate approaches for ship-to-shore communications include:
 - MAPI, the email programming interface standard supported by most major E-mail packages on the market today (e.g. MS Exchange, Lotus Notes, and others). These software packages can provide the transport for Replication Manager's data files
 - A third-party solution (e.g., Marinet, Rydex, etc.) can be integrated
- The transfer and receipt of files via diskettes, for exchange with the Central DB by courier

DATA MANAGEMENT

- Transfers only new data from ship to shore and vice versa
- Provides automatic filtering of the transactions so that, for example, a shipboard system will be sent only those transactions pertaining to the relevant vessel
- Rigid transaction file naming convention aids in assuring that databases that are out of sync can be easily resynchronized, and establishes an audit trail confirming that information was received.
- Contains a transaction logging facility that is well-suited for building interfaces to external systems, external systems, e.g., accounting or machinery condition monitoring packages
- Replication Manager provides the means to manage and re-queue any file for re-transmission, thereby preserving the integrity of the data, and preventing any data from being lost
- Using a scheduling program, Replication can be scheduled to run as often as desired, completely free of monitoring, or replication can be done manually on demand
- In a multi-user, LAN-based installation, the data transfer operations can be performed while other users perform their day-to-day functions

DATABASE ADMINISTRATION

- Initial Remote databases are created by extracting the appropriate data from the Central database
- New copies of Remote databases can be regenerated automatically at any time by extracting the appropriate data from the Central database. This preserves the database on board the vessel, even in the event of a complete system failure

REPLICATION MANAGER

TECHNICAL DETAILS

Our organization has a 20-year history of providing marine operations software solutions, and we are today the leading provider of such systems to the community of major U.S. maritime operators.

Standard architecture. NS 5 is written in the Java programming language, which is arguably the leading programming language of the Internet. As one of the most popular software technologies in existence today, Java has attracted a vast aftermarket of software design tools, utilities and add-ins, which we are able to benefit from; typically, these allow us to provide more flexible and powerful capabilities to the end-user, or to facilitate interfacing with other software programs. Although our standards-based approach to database design and integration means that NS 5 can potentially support a variety of DBMS's, our primary database platform is MySQL (www.mysql.com), a lightweight but robust and extremely powerful DBMS which is rapidly making inroads into the database market and which is now being bundled by major manufacturers such as Hewlett-Packard.

Integration. The NS 5 system has been designed from the start as an integrated system wherein the same data may be referenced for numerous different functions. Functional modules incorporated in NS 5 include Purchasing & Inventory Control, Maintenance & Repair, Code Compliance, Voyage Management, Crew Management & Payroll.

System accessibility and replication. Ability to replicate information to and from the vessels on a reliable and cost-effective basis is a key requirement in the marine environment. The impact of this requirement is often overlooked, as the replication capabilities advertised by land-based systems are typically based on those provided by the database vendors, which assume the continuous availability of large amounts of inexpensive bandwidth - conditions which simply do not exist in the marine environment. ABS Nautical Systems is the industry leader in this area - our proprietary Replication Manager technology, optimized for our applications' needs, has replicated tens of millions of transactions since the 1980's with high reliability and at low cost.

Integration with external systems. We have long experience in this area, with most of our major client implementations featuring at least one interface with an external system.

SYSTEM RECOMMENDATIONS

	<i>Server</i>	<i>Workstations</i>
Processor	2 GHz or higher (*)	1 GHz or higher (*)
RAM	1 - 2 GB (depending on no. of users)	512 MB or higher
Display	Super VGA (1024 x 768)	Super VGA (1024 x 768)
Peripherals	CD-ROM or DVD, Keyboard, MS Mouse or compatible pointing device	CD-ROM or DVD, Keyboard, MS Mouse or compatible pointing device
OS	Windows 2000 Pro/Server Windows XP Pro/Server Windows 2003 Server	Windows 2000 Pro Windows XP Pro

REPLICATION MANAGER

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