



# NOMAD Database Strengths

## **SUPPORTED STRUCTURES:**

- Relational, hierarchical and hybrid allowing for maximum flexibility in data storage and access
- Support for keyed and non-keyed data storage
- Alternate Indices - automatic and on demand - to create alternate views for more efficient access
- BTREE storage for efficient random access of large files
- Optional use of DATASPACEs (z/VM) for table lookups

## **DATABASE TYPES:**

- Single user and shared databases both available
- Shared databases allow for simultaneous updating and reporting
- Ability to create temporary (current session) NOMAD databases to aid with data manipulation for extract/retrieval
- Ability to create permanent NOMAD databases for efficient execution of multiple requests against a database subset

## **NOMAD SCHEMA:**

- Describes the structure of the database and defines the entire metadata for the NOMAD database
- Datatypes supported: alphanumeric, wide variety of numeric, date, datetime, text
- Fixed and varying arrays
- Timeseries arrays
- Multi-dimensional arrays
- Internal storage formats created automatically based on data output format
- Wide range of mathematical, statistical and financial functions
- DEFINEd items allow for computations to be stored with the metadata allowing for consistent results independent of application code
- Virtually any change can be made to the database description (Schema) after data has been loaded without dump and reload of the data

## **DATA INTEGRITY:**

- Field, record and database-level integrity checks defined in the Schema and applied automatically
- Rule-based referential integrity
- "Shadow writing" used for database updates - in the event of a system crash during an update operation the database is automatically restored to its last intact condition

## **DATA SECURITY:**

- Update restrictions rules and data retrieval rules
- Database passwords to enable rule-based security
- Secure NOMAD system profile to tailor the execution environment and provide additional security restrictions
- Database profile providing database level security and modification of a user's view of the database
- Data encryption for specified fields



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## **DATA ENTRY:**

- Procedural and non-procedural database maintenance commands
- Bulk database loading facilities
- DBEDIT - a powerful full screen environment to update any table in the database without additional programming

## **DATA ANALYSIS:**

- WHATIF and GOAL SEEK analysis to examine business alternatives
- Entity and instance CONSOLIDATION
- Powerful date manipulation functions
- Automatic resolution of simultaneous equations

## **DATA ADMINISTRATION FACILITIES:**

- Auditing facility to monitor updates performed on a database
- DBIMPORT/DBEXPORT for database backups and for moving databases between z/OS and z/VM
- Utilities for monitoring and reorganizing NOMAD databases for greater efficiency
- Nomad Application Performance Analyzer to monitor and record machine resources used by NOMAD to help optimize application code and database access
- One Pass performance optimizer that processes several report requests simultaneously with a single pass through the database



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