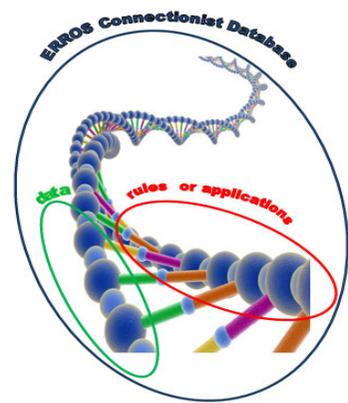




With **traditional application development** methods, data are put in tables and the rules that govern that data are coded in programs. These separate worlds of **data and programs have to be kept in synchronisation**, at best a fragile process. It is this separation of the data and the rules that is responsible for most of the ills of the computer application industry.



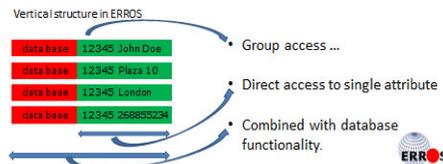
ERROS is the **first computer environment** in which the database definitions, the application definitions and the user data are designed to be **totally integrated**, stored in the unique **ERROS Connectionist Database**. This might be compared to the structure of the DNA string in which both sides are related but independent and are interconnected to form one whole.

ERROS runs under the IBM i operating system on the IBM Power Systems platform. Rather than using the **“horizontal” record structure of relational databases**, in which related data for, say, a person, are stored in a single record, **ERROS uses its own patented “vertical” record structure** to allow variable amounts of data to be stored in the database without Null values or wasted space.

Horizontal in relational database..

```
[customer NS][name A30][address A25][city A20] [banknr N10]
key
12345 [John Doe] [Plaza 10] [London] [268855234]
```

Versus Vertical in ERROS®



ERROS allows entity types, individual entities, attribute definitions and individual attribute values or iterations to be referenced, stored and retrieved by name, and/or number and/or date (and time), without any regard to their physical location. Therefore, an **ERROS application developer does not need to design a physical database schema** and indeed cannot do so.

All entity types and their attributes are defined in the ERROS Connectionist Database, rather than in program code, so no program changes are required when new entity types or attributes are defined. The process of defining the business model and the applications is **totally object oriented**. Applications and data are interpreted at very high speed by the ERROS Database Handler. There are no compiled applications.

Most attributes are stored as connections or relationships. **All relationships are bi-directional** and users can browse all connections in either direction at the same very high speed, allowing them **to find connections that they did not know existed**. ERROS applications turn raw data into a semantic knowledge base. ERROS solves, with relative ease, a variety of problems for which many developers and even database researchers do not have a generic solution, such as **incremental development, many-to-many bi-directional relationships, data provenance or public and private data**.

ERROS applications achieve a consistent **almost 0 second response time**, even for most queries, as ERROS does not use joins or SQL. Response times do not noticeably degrade as data volumes grow.

ERROS communicates with the user, using a **ready to go graphical interface**. This generates HTML and JavaScript on the fly, so all applications **work immediately over the internet** on Pcs, Macs, tablets and smart phones. Developers do not require HTML skills. It also generates PCL5 for printing.

ERROS allows the **incremental creation of advanced applications...**

- that integrate very complex, relational and network data structures with limitless levels of hierarchy
- that can handle totally variable length data without Null values or wasted space
- with navigable, bi-directional, many-to-many relationships by default
- with the ability to handle “Big Data” in its 224 bit address space
- without a detailed up-front specification
- without physical database design or database normalisation
- mostly without any program coding
- with very high security that can be set at the field level
- with almost 0 second response times, even for most queries, as ERROS does not use joins or SQL
- with scalability – response times do not noticeably deteriorate as data volumes grow
- that can be run in main memory for maximum performance for very high usage
- with an easy to use graphical interface for browsers and a totally consistent method of operation for all applications
- that can retrieve people, things, etc. by multiple identifiers if their names change
- with concurrency control, high resilience, high data integrity and a high availability option
- with much reduced Total Cost of Ownership for development, maintenance and operations
- that can 'grow-as-you-go' incrementally.

Data and application definitions are created using ERROS's Open Application Architecture (OAA) using object oriented techniques that allow re-use of all data definitions. These and the application definitions, together with the menus, procedures and the security definitions, are all stored together with the user data in the ERROS Connectionist database. We call ERROS **The Connectionist Framework** as it provides a foundation on which you can build your solutions without needing to spend time building separate layers of database and applications.

Application creation is an extraordinarily productive process in ERROS and **maintenance is dramatically simplified**. Applications can evolve in line with the ever changing real world, solving the costly issue of growing maintenance backlogs. With ERROS, you 'grow-as-you-go'.

ERROS applications are equally suitable for..

- for commerce, including complex transaction processing
- for massive, perhaps global, co-operative databases with different parts of the database being controlled by different businesses or institutions or their experts, scholars or curators
- social business; knowledge sharing & collaboration
- for the apparently unstructured data of the humanities
- for cataloguing collections of any object type, both from the fine arts and elsewhere, and including Union Catalogues containing the holdings of multiple institutions and collectors
- for recording history of any kind, such as employment history or the British 17<sup>th</sup> century Civil War
- for any domain or database on any topic.

[ERROS videos on YouTube](#)

Videos that illustrate the creation of a very simple application are being put up on YouTube. A link to these can be found at

[www.eros.co.uk/ERROS\\_YouTube.htm](http://www.eros.co.uk/ERROS_YouTube.htm)

As ERROS is too different from other application development methods, to be described in these few sentences. The detailed **ERROS Description Manual** can also be found on the above link. For further information please sent an email to Rob Dixon.

20<sup>th</sup> August 2014