



The motivation for developing this technology was to provide a capability that has not truly been realized up to this point in history: real-time decision making, which is what Hilbert technology is all about. In order to realize that dream, the traditional, standard way of thinking about data had to be revisited at its core. The elegant simplicity and fundamental genius of this new technology lies in the principle of quantifying words of text into integers, solving the single largest problem in the Information technologies today: that of dealing with the information explosion.

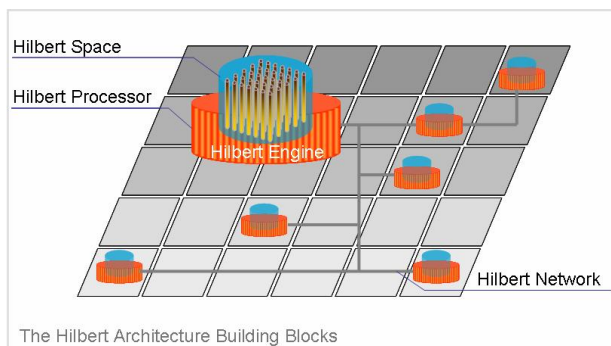
## The Hilbert Architecture Building Blocks

The Hilbert Architecture has three main building blocks:

### n The Hilbert Space

holds all information (structured and unstructured) in a numerical, multi-dimensional representation (spatial vectors). It also contains the source data without modification in its original form, for reference purposes. To speed data access,

manipulation, storage and analysis, all data pass through a migration phase where numeric and text data is converted or quantized into unique integers, to which complex but highly efficient mathematical operations can be applied. Thus even text information can be handled with as much speed as numerical data. The Hilbert Space is the source for all access and analysis done by the Hilbert Engine



### n The Hilbert Processor

supports all operations necessary to access, manipulate, store and analyze data within the Hilbert Space. It also coordinates the connection of multiple Hilbert Engines and Spaces together into a networked Hilbert Infrastructure. To make data from databases (structured data) or text from text files (unstructured data) available to the Hilbert Space and to access and analyze it, the Hilbert Engine performs three major steps: *Migration, Quantification and Access & Analysis*

### n The Hilbert Engine

defines the combination of Hilbert Space and Hilbert Processor and will later be used to describe the close connection between the Hilbert Space and its supporting Hilbert Processor.

Run ad-hoc queries without any re-indexing

Queries, analyses and reports are processed many times more rapidly than in any other environment

Development of complex SQL statements and hiring associated programming staff is unnecessary

Performance so speedy that it seems independent of volume and query complexity

Instant access to analytical information

Run analysis never run before

Can be run embedded, as a **SOA** (Service Oriented Architecture) service, as a stand alone product or as an industry specific solution

Low cost of ownership

Ease of integration

No complex up-front (ETL) process of forcing all data into a common format and common structure (and no loss of data that 'won't fit' or is too 'dirty'.)

Total cost is reduced and time-to-benefit is optimized

## The Hilbert Network

instantiates a networked, multi-computer, multi-database design. Each Hilbert Engine on a Hilbert Network can hold its own data and can reach and process data held by any other Hilbert Engine. There is no need for a dedicated server. The data held by all of the Hilbert Engines on a network become a single family of data or a complete virtual representation of all data – the Hilbert Virtual Space.

## Conclusion

The Hilbert Architecture with its components of the Hilbert Space, Processor and Network solves the five major challenges in ultra high-speed performance analytics: **integrating distributed data** from multiple sources, **high speed analysis** of data, **post-implementation flexibility** and the **application of smart algorithms** for a **fast and economical implementation**. The benefits offered include: improved data quality, faster querying and reporting, timely business insight, reduced processing costs, rapid and accurate matching and identification, and more. Additionally, the Hilbert Architecture is not encumbered by operating system dependencies that create layers of overhead—this reduces processing cycles by millions.

## Your Advantages

- n Support of networked, multi-computer, multi-data store processing environments
  - § Lower cost support personnel – no need for extra-expensive DBAs (Data Base Administration resources)
  - § No extra cost of a centralized processing environment
  - § Data consolidation capability with no interruption of operational databases
- n Run Hilbert on most common hardware platforms
  - § Lower Cost of hardware in relation to performance delivered
- n Extremely flexible system that builds and displays user-specified information
  - § Maximum end-user flexibility in creating custom reports and analyses
- n Run ad-hoc queries without any re-indexing
  - § Queries, analyses and reports are processed many times more rapidly than in any other environment
  - § Development of complex SQL statements and hiring associated programming staff is unnecessary
- n Performance so speedy that it seems independent of volume and query complexity
  - § Instant access to analytical information
  - § Run analyses never before possible

- n Can be run embedded, as a SOA (**S**ervice **O**riented **A**rchitecture) service, as a stand alone product or as an industry specific solution
  - § Low cost of ownership
  - § Ease of integration
- n No complex up-front (ETL) process of forcing all data into a common format and common structure (and no loss of data that 'won't fit' or is too 'dirty.')
- § Total cost is reduced and time-to-benefit is optimized

## About Hilbert

Pennsylvania based Hilbert Technology Inc. is an international provider of business intelligence (BI) solutions for large and medium size enterprises worldwide. The offering is based on the revolutionary, patented Hilbert Engine technology for the ultra high-speed access, manipulation, storage and analysis of large volumes of structured and unstructured data. The Hilbert solutions are offered as embedded Hilbert Engine technology, standard products or industry specific solutions. Organizations in public services, law, government, finance, communications, whole- and retail sales, transportation & tourism and chemical & pharmaceutical can employ Hilbert solutions to gain unparalleled speed in access and analysis over large data volumes.

## Notes

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