



arangen, inc.

The Arangen Approach to Enterprise Information Integration

Call: 1-408-942-7320 or email: info@arangen.com



arangen, inc.

Arangen	1
Enterprise Integration	1
Data Integration Solutions Ineffective	2
Arangen Solution	2
Arangen Technology	4
Arangen Federation	4
Arangen Consolidation	5
Complex Integration	6
Complex Federation	6
Migration & Consolidation	7



arangen, inc.

Arangen

Data integration has two primary objectives: federation - the extraction, cleansing, reorganization, and merging of data for direct reuse; and consolidation - the migration of federated data to modern databases to improve efficiency and performance. Re-purposing data from legacy 'stove pipe' data silos enables enterprises to modernize, reduce costs, and streamline on-going business operations. Data integration challenges represent one of the three top priorities of CIO's surveyed over the last year.

Enterprise Integration

Since 1990 the rapid growth of enterprise computing has resulted in a proliferation of distributed computing systems: Netware, Windows NT, Unix, etc... on a range of platforms from desktop PC workstations to mainframes. All of these platforms support a wide variety of data applications that have become essential components in today's modern enterprise.

Diverse enterprise business applications have become separate data silos that jealously guard their data from external collaboration. Over the years, as these data silos have grown to hold larger and ever more valuable data sets, the need to share and integrate data has become imperative. It has become necessary to combine and utilize data from the different business application data silos to streamline business processes and improve the efficiency, flexibility and responsiveness of today's enterprises.

"What customers really want is a single, simple, cost-effective integration platform for the immediate and continuous capture, transformation, and delivery of data from one database to another, regardless of the database type, physical location or hardware platform."

Robert Anderson,
Gartner Group

"...integration maintenance and support accounts for 44%-54% of IT budget resources ... "
"... 50% of the implementation cost of packaged application software is spent on integration."

Gartner Group



arangen, inc.

Driving factors behind enterprise data integration are:

- Compliance & Governance Mandates
- CRM, ERP & SCM integration with other enterprise data systems
- B2B, B2C, B2P web integration with legacy systems
- BI & SOA integration initiatives
- Technical & Industry specific. integration initiatives (i.e. RFID, HIPPA)
- Master Data Management
- Permanent removal of data silos from the enterprise

Data Integration Solutions Ineffective

Early attempts to solve data integration problems relied on building data integration hubs either with internal efforts using scripting and custom 3GL programming, or vendor supplied middleware platform-specific integrations solutions, or some combination of both. Typically an extract, transfer and load (ETL) layer was interposed between the operational databases and the reformatted data sources used for reporting or other purposes. Sometimes a proprietary SQL-like language or defined function language was used to access and/or re-write queries to the integration hub data silos. It is now clear that such solutions merely become the next level of data silo.

Arangen Solution

The Arangen solution provides a customized platform-independent integration server that federates legacy databases making enterprise data appear as if it resides on a re-engineered virtual-database. The Arangen integration server accepts and executes standard SQL queries to provide real-time, read/write access to enterprise data. Arangen technology is implemented in standard Java and installs and runs on any platform with any recent database.

Arangen's platform-independent solution interacts with live legacy databases without disturbing day-to-day business operations - making it possible to develop and deploy new applications alongside existing legacy applications. New/updated applications can be tested in place, in real-time, against legacy applications on the same raw data. The Arangen solution reduces a project's overall integration risk by providing a gradual, phased roll-over process for moving business operations to new or updated enterprise applications.



arangen, inc.

Alternatively, the same technology can be applied to enable one set of legacy applications to access and share the data from other legacy data silos. This gives an enterprise the option to extend the service-life of existing legacy applications, rather than build new ones; or to re-target legacy applications from an acquired business unit to the parent company's enterprise data systems.

An Arangen solution can connect multiple contemporary or legacy databases into one or more virtual (federated) databases supporting read/write database operations. Any part of any individual database can be integrated with other databases to create any number of separate virtual (federated) databases, any of which can be actualized (consolidated) into a separate stand-alone database. Any number of Arangen integration server platforms can be cross-connected to perform collaborative, cooperative computing, enabling a project to be partitioned to share the workload, as well as to separate and isolate critical or secure project components.

Practically any transformation from an old database to a new virtual database is possible. The new virtual-database schema may contain virtual-tables consisting of columns pulled from different tables from different legacy databases. Virtual-tables provide full real-time data select-update-insert-delete to the source legacy databases. The Arangen integration server is fully customizable as changes, updates or revisions are needed.

Arangen's platform-independent solutions use structural metadata to characterize databases and provide database federation, consolidation, re-engineering and migration capabilities. The Arangen integration approach represents data entities with metadata properties to describe data identity, type, content, and relationships. This makes data entities very dynamic and flexible. A data entity can be modified or updated by simply changing the metadata that defines its structure. The Arangen approach is an accretion model of system development where data entity definitions are always added and never need to be removed from the system under development. This makes it possible for the original definition of a data entity to reside and be used side-by-side with a 10th generation (evolved, improved) version of the very same data entity. This technology maximizes database integration flexibility for application development and testing. The Arangen approach expects evolutionary change to be common and accommodates change rapidly and effectively.

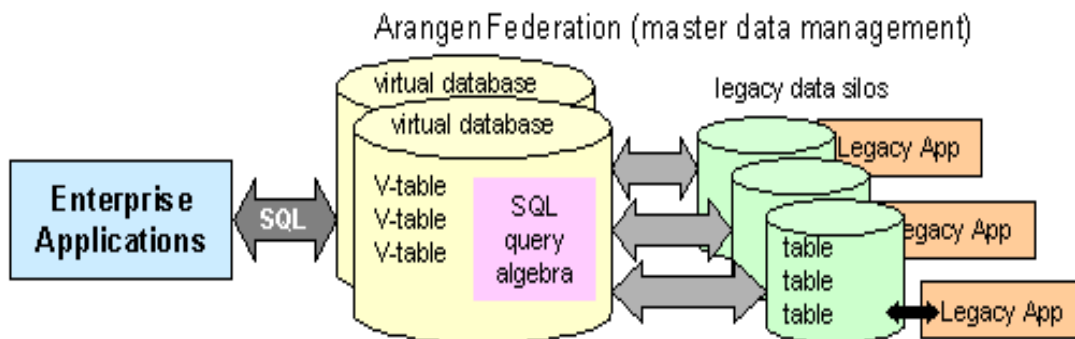


Arangen Technology

Arangen Federation

The objective of data federation is to access, combine, and reorganize enterprise data that is locked away in legacy data silos. Arangen's platform-independent solution creates virtual-database schemas to re-engineer enterprise data without disturbing the integrity or operation of the back-end legacy databases. Arangen accomplishes this with metadata configurable query engines that can restructure enterprise data for many different purposes.

Data federation is an important first step for developing new or upgrading existing enterprise applications. A federated data source enables IT professionals to use re-engineered enterprise data while developing new applications. Further, live federated data enables new applications to be deployed and validated, side-by-side, against existing legacy applications. Upon acceptance of the new application, the Arangen solution can be used to consolidate the legacy enterprise data.



The virtual schema has full capability for complex joins and may contain virtual tables consisting of columns from disparate databases and tables

Figure 1

Arangen's platform-independent technology provides a robust, scalable federation platform for SOA and myriad BI applications. The Arangen technology platform enables new application(s) development, deployment, and testing without disturbing the continued operation of the existing enterprise legacy systems.



Arangen Consolidation

Arangen Consolidation moves a federated data source to a new target database. Consolidation starts by creating a database from the federated virtual-database schema, then copying the re-structured enterprise data from the federated data source (and hence from the back-end legacy data silos) to the new database.

Arangen's platform-independent solution automates the consolidation process. Enterprise data can be transferred in one pass, or can be transferred in a phased roll-over process that fits the natural operation of the enterprise.

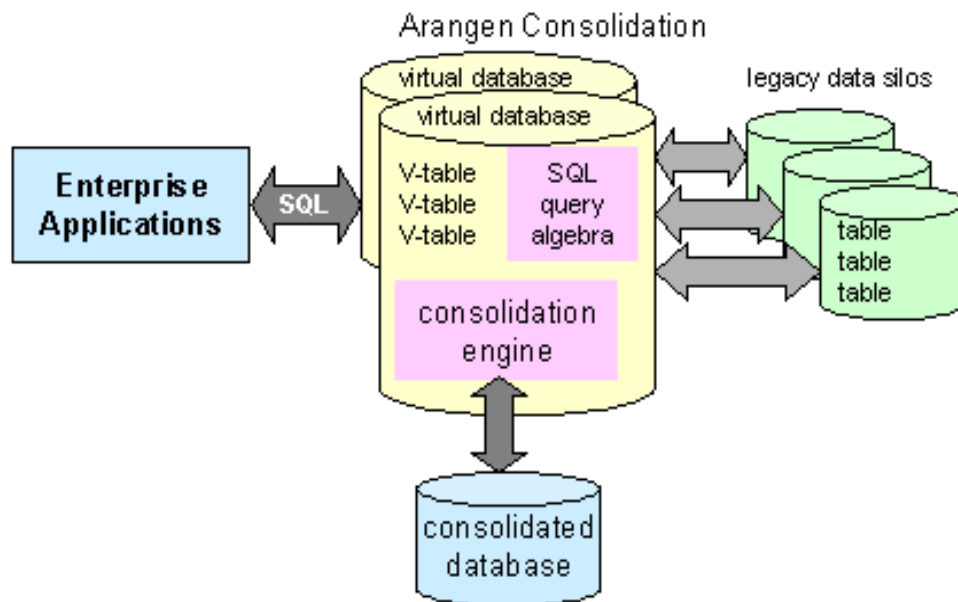


Figure 2

When consolidation is complete Arangen software/technology is no longer required (and can be safely removed) and the old legacy system can be decommissioned and discarded.

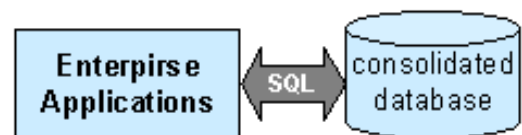


Figure 3

The Arangen process for building new applications allows complete confidence and freedom to re-architect, re-integrate, and re-engineer core business operations for modernization, efficiency, cost reduction, and performance, while responding quickly and effectively to new and evolving business challenges.



Complex Integration

Complex Integration is a technology that provides stand-alone applications with bi-directional access to re-structured data across an entire enterprise. Arangen Complex Integration can extend the reach of applications into virtually any enterprise data silo in real time.

Complex Federation

Complex Federation provides legacy-to-new, new-to-legacy, and legacy-to-legacy data conversion connections that allow applications to reach into multiple data silos and share data in the appropriate re-structured format. Complex Federation uses Arangen virtual-database schema technology to provide federated data sources that replicate the structure of the original legacy database schema.

Federated merge of primary and one or more legacy applications

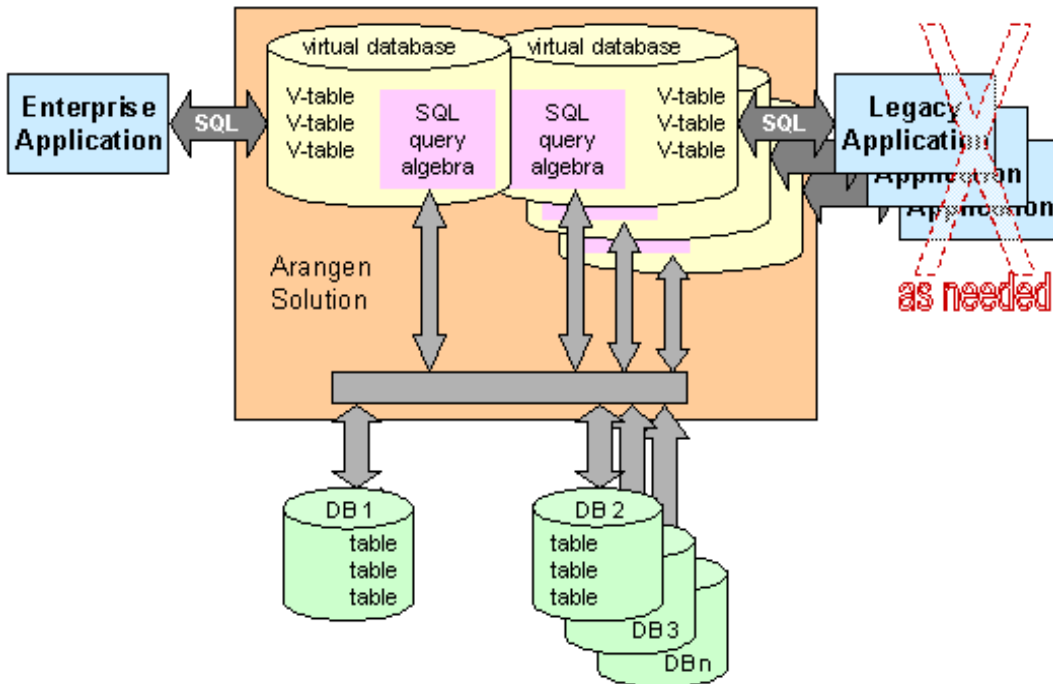


Figure 4

Arangen’s platform-independent Complex Federation preserves and leverages the value of legacy assets, legacy data and legacy applications. Arangen technology integrates, federates, consolidates, and delivers re-structured and re-engineered enterprise data to information consumers.



Migration & Consolidation

Arangen's platform-independent Migration solution moves enterprise data from existing legacy data systems to one or more, new or existing, data systems in a process of federation and consolidation. The resulting database(s) may be fully consolidated, or may consist of several partially consolidated systems federated with legacy data-silo components. Likewise, legacy applications may be decommissioned, reconnected to newly consolidated databases(s) (reverse federation), or left connected to their original legacy databases.

Consolidated merge of primary and one or more legacy applications

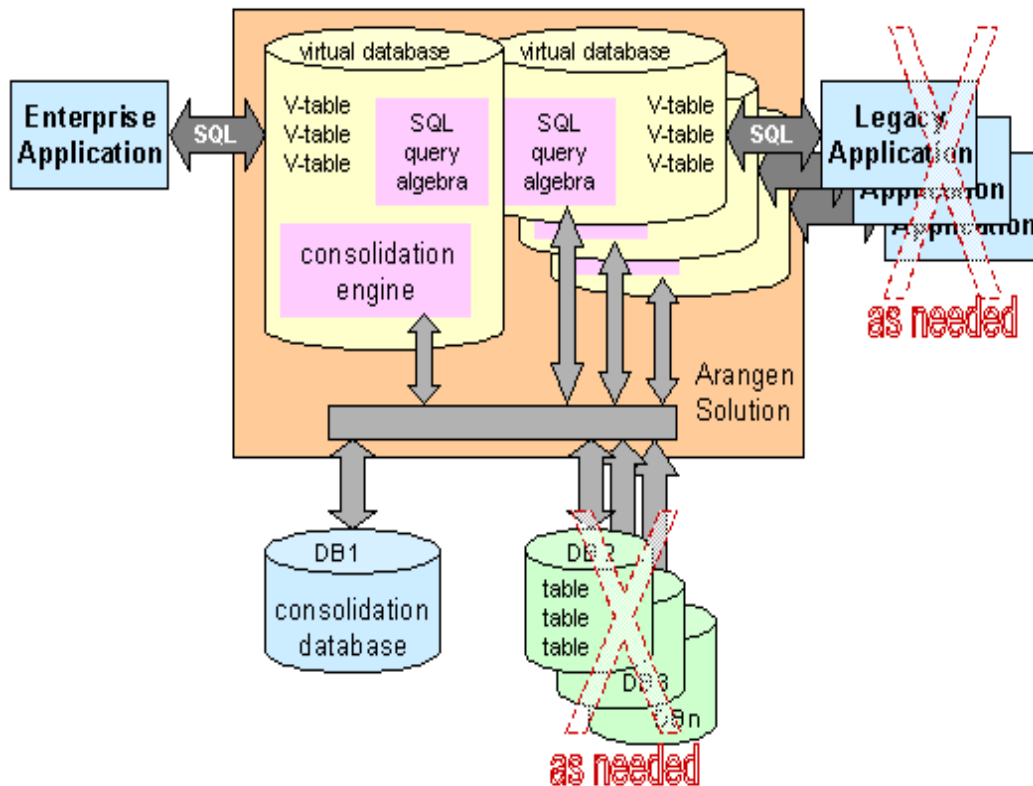


Figure 5

Arangen's platform-independent Migration solution enables an enterprise to preserve their legacy data when upgrading or retiring obsolete applications and systems. Legacy data can be extracted, restructured, and re-purposed for re-use in new or existing enterprise applications.