

TIPE – TIPE SOLUSI DATA WAREHOUSE

Apa itu OLAP?

- OLAP singkatan dari Online Analytical Processing yaitu sebuah sistem informasi yang sering digunakan pada suatu organisasi atau perusahaan dalam mengelola bisnis intelegren. Sedangkan seperti kita tahu, bisnis intelegen berguna mengumpulkan semua data mentah untuk diproses menjadi informasi yang berguna sebagai alat untuk menentukan keputusan / kebijakan.
- Aplikasi OLAP digunakan di berbagai bidang seperti : bagian keuangan , bagian pemasaran digunakan untuk riset pasar, peramalan penjualan, analisis promisi, dan di bidang manufaktur digunakan untuk proses perencanaan produksi dan analisis cacat.

Keuntungan OLAP (01)

- Kesuksesan implementasi aplikasi OLAP meningkatkan produktivitas manajer bisnis, pengembang, dan organisasi secara keseluruhan.
- Fleksibilitas yang melekat dari sistem OLAP berarti pengguna bisnis aplikasi OLAP dapat menjadi lebih mandiri.
- OLAP memungkinkan manajer untuk memodelkan masalah yang tidak mungkin dilakukan dengan menggunakan sistem yang kurang fleksibel dengan waktu tanggapan yang panjang dan tidak konsisten.
- Dengan menggunakan perangkat lunak yang khusus dirancang untuk OLAP, pengembang dapat mengirimkan aplikasi untuk pengguna bisnis lebih cepat dan menyediakan layanan yang lebih baik.

Keuntungan OLAP (02)

- Dengan menyediakan kemampuan untuk memodelkan masalah-masalah bisnis yang nyata dan lebih efisien atas penggunaan sumber daya manusia, OLAP memungkinkan organisasi secara keseluruhan untuk merespon lebih cepat terhadap permintaan pasar.
- Pasar responsif, pada gilirannya, sering menghasilkan peningkatan pendapatan dan profitabilitas.

Definisi ERP

- Pengertian ERP (Enterprise Resource Planning) adalah suatu software atau sistem informasi yang dibuat atau di gunakan pada perusahaan baik perusahaan jasa ataupun perusahaan pabrik (manufaktur), dimana ERP berfungsi sebagai alat untuk menggabungkan / mengintegrasikan semua proses bisnis perusahaan baik dibidang produksi, penjualan dan operasi di suatu perusahaan tersebut.

Contoh Software ERP opensource

- Ada banyak software ERP yang telah beredar di pasaran seperti: SAP, JDE , BAAN , MFGpro, Protean ,Compiere,Adempiere , One Soft SME Business Solution dan lain-lain.
- Salah satu software ERP (Enterprise Resource Management) yang opensource yaitu Compiere. Software compiere jarang digunakan pada perusahaan yang sangat besar, biasanya digunakan di perusahaan tingkat menengah kebawah seperti UKM.
- Pada umumnya Compiere menggunakan database Oracle, namun pada saat ini dapat menggunakan Postgre SQL.

Aplikasi atau Modul yang terdapat pada Software Compiere:

- Pemasaran/Penjualan : Memudahkan proses promosi dan menjual produk maupun jasa
- Bidang layanan: Mengelola layanan terhadap keluhan pem=langgan dan segala pertanyaan mengenai produk
- Pengendalian Inventaris : membantu menjalankan proses pembelian (procurement) dan pengelolaan inventory
- Produksi : Membantu bagian pelaksana produksi meningkatkan kinerja operator produksi.
- Distribusi : membantu meningkatkan efisiensi kegiatan operasional berkaitan dengan proses pengelolaan customer order (proses sales, shipping dan billing)
- Pengolahan SDM : mengintegrasikan proses-proses HR mulai dari aplikasi pendaftaran, administrasi pegawai, management waktu, pembiayaan untuk perjalanan, sampai ke proses pembayaran gaji pegawai
- Keuangan / Akunting: Mencakup standard accounting cash management (treasury), general ledger dan konsolidasi untuk tujuan financial reporting.

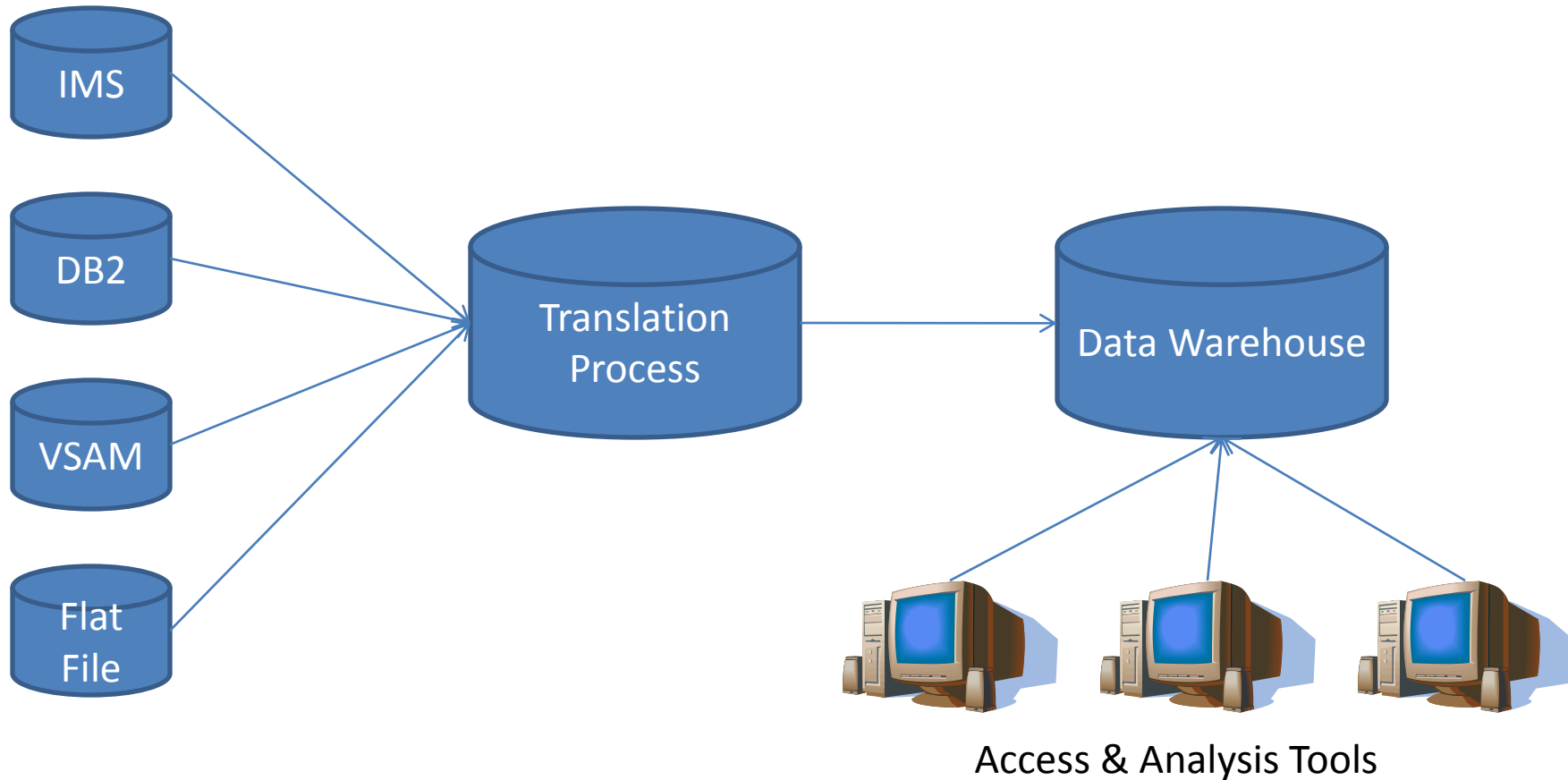
Types of Data Warehouses

- *Host Based (MVS) Data Warehouses*
- *Host Based single-stage (LAN) Datawarehouses*
- *LAN Based workgroup Datawarehouses*
- *Multistage Datawarehouses*
- *Stationary Datawarehouses*
- *Distributed Datawarehouses*
- *Virtual Datawarehouse*

Host Based (MVS) Data Warehouses

- *Host Based (MVS) Data Warehouses*
 - The data warehouses that reside on high-volume databases on MVS are the host based type of data warehouses.
Such data warehouses
 - usually have very high volumes of data storage
 - require support for both MVS and client-based report and query facilities.
 - have very complex source systems
 - require continuous maintenance since these must be used for mission-critical purposes.
- **Steps to build such a data warehouse.**
 - *Unload Phase* involves selecting and scrubbing the operational data.
 - *Transform Phase* for translating it into an appropriate form and defining the rules for accessing and storing it.
 - *Load phase* for moving the data directly into DB2 tables or a special file for moving it to another database or non-MVS warehouse.
- *Host Based (Unix) Data Warehouses*
 - Oracle and Informix RDBMSs provide the facilities for such data warehouses. Both of these databases can extract data from MVS-based databases as well as a larger number of other UNIX-based databases.

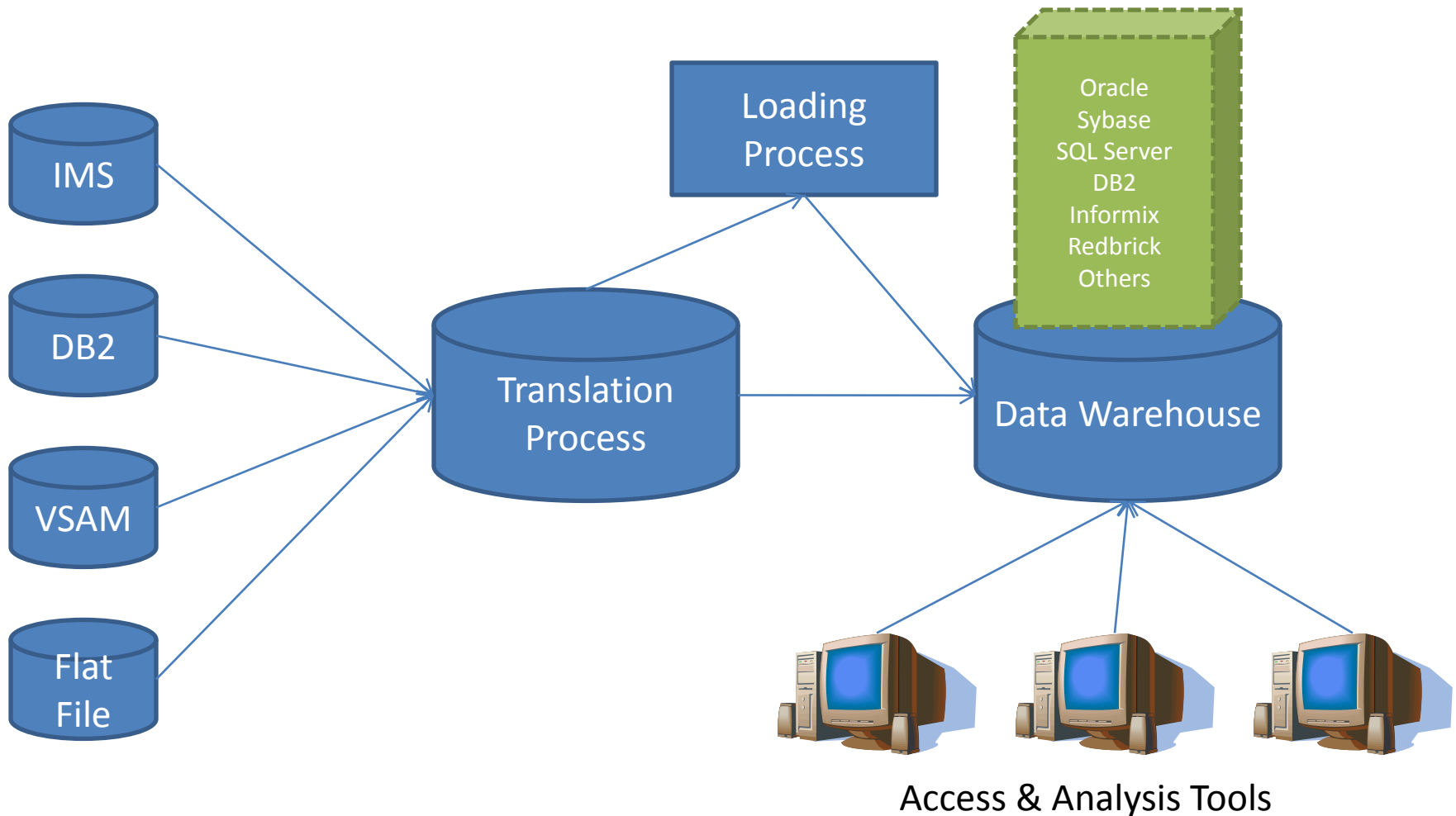
Host Based (MVS) Data Warehouses



Host Based single-stage (LAN) Datawarehouses

- With a LAN-based warehouse, data delivery can be managed either centrally or from the workgroup environment so that business groups can meet and manage their own information needs without burdening centralized IT resources.
- Limitations/challenges:
 - LAN-based warehousing solutions are normally limited by both DBMS and hardware scalability factors.
 - Many LAN based enterprises have not implemented adequate job scheduling, recovery management, organized maintenance, and performance monitoring procedures to support robust warehousing solutions.
 - Often these warehouses are dependent on other platforms for source data. Building an environment that has data integrity, recoverability, and security needs careful design, planning and implementation. Otherwise, synchronisation of changes and loads from sources to server could cause innumerable problems.

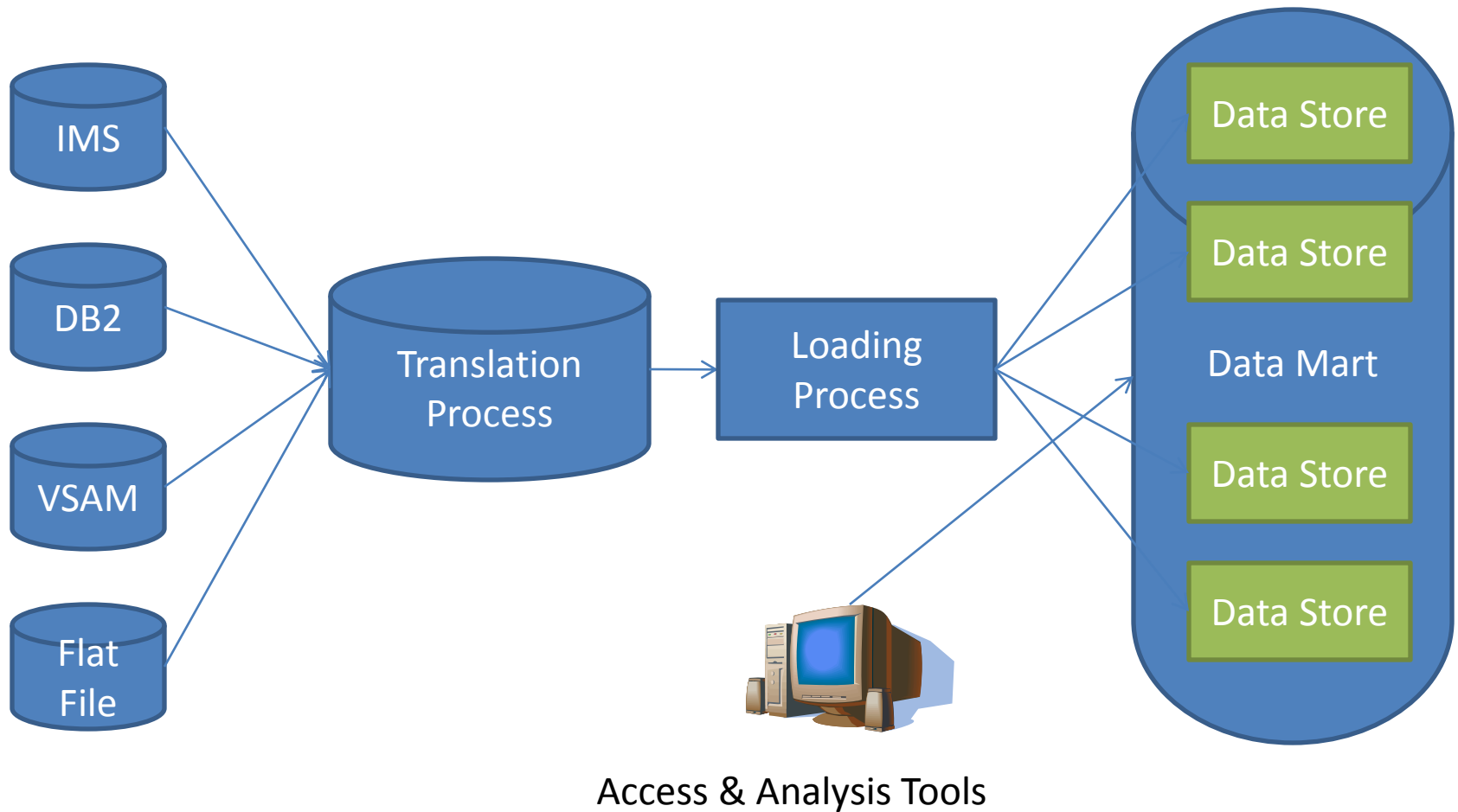
Host Based single-stage (LAN) Datawarehouses



LAN Based workgroup Datawarehouses

- In this warehouse, you extract data from a variety of sources (like Oracle, IMS, DB2) and provide multiple LAN-based warehouses. Designed for workgroup environment, it is ideal for any business organization that wishes to build a data warehouse, often called a data mart. Usually requires minimal initial investment and technical training. Its low startup cost and ease of use allow a workgroup to quickly build and easily manage its own custom data mart.
- Common Issues:
 - Lack of understanding how to distribute data and supporting intentional data redundancy for performance reasons.
 - Many organizations may not have adequate job scheduling, recovery management, and performance monitoring to support robust warehousing solutions.
 - Although providing +ve cost benefits, LAN-based warehousing solutions can be limited by both hardware and DBMS limitations.
 - For many large enterprises, similar skills in database design, maintenance, and recovery are not present in every workgroup environment.

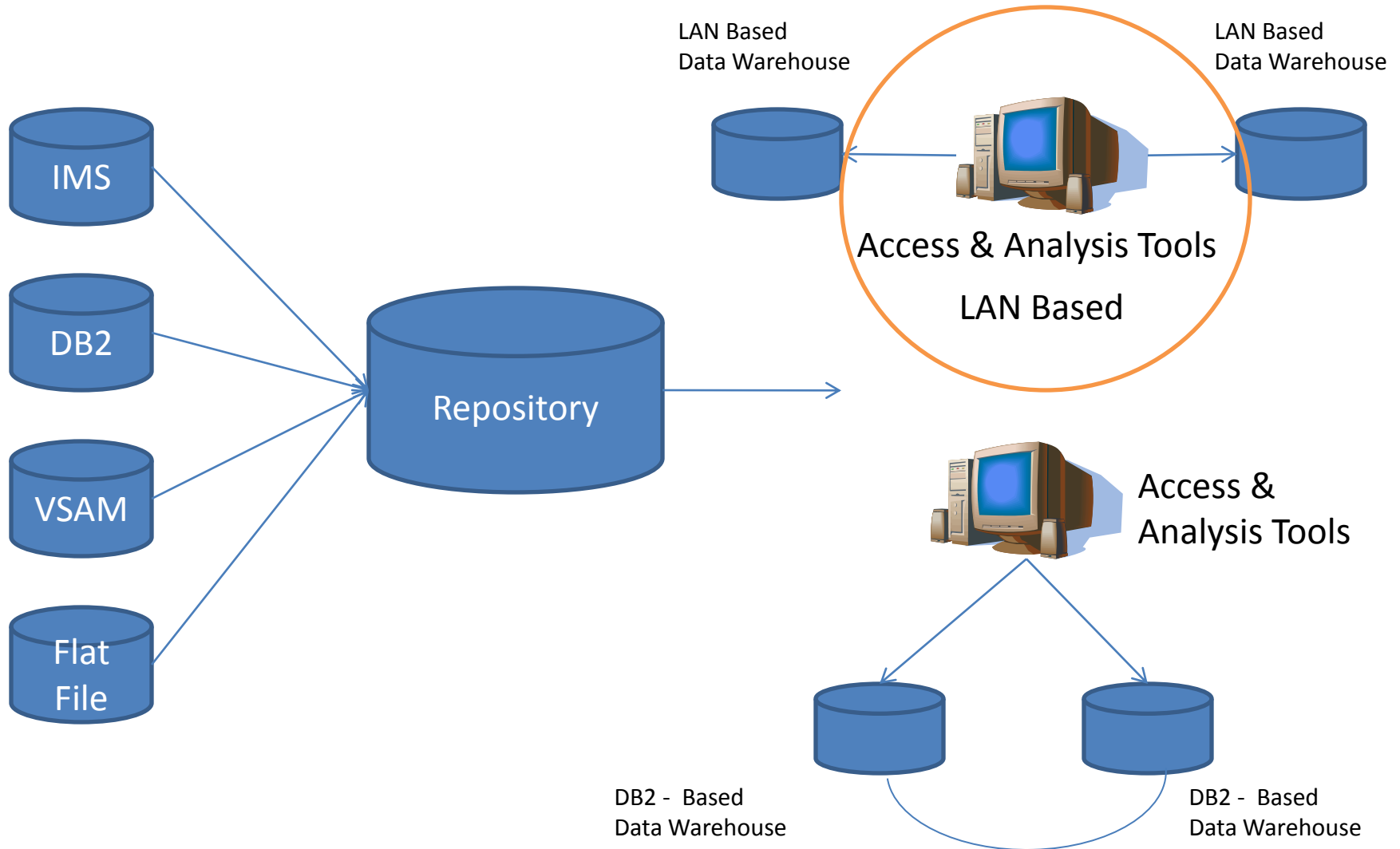
LAN Based workgroup Datawarehouses



Multistage Datawarehouses

- This configuration is well suited to environments where endusers in different capacities require access to both summarized data for up-to-the-minute tactical decisions as well as summarized, cumulative data for long-term strategic decisions.
- Both ODS (Operation Data Store) and the data warehouse may reside on host-based or LAN-based databases, depending on volume and usage requirements. Typically the ODS stores only the most recent records. The data warehouse stores the historical evolution of the records.

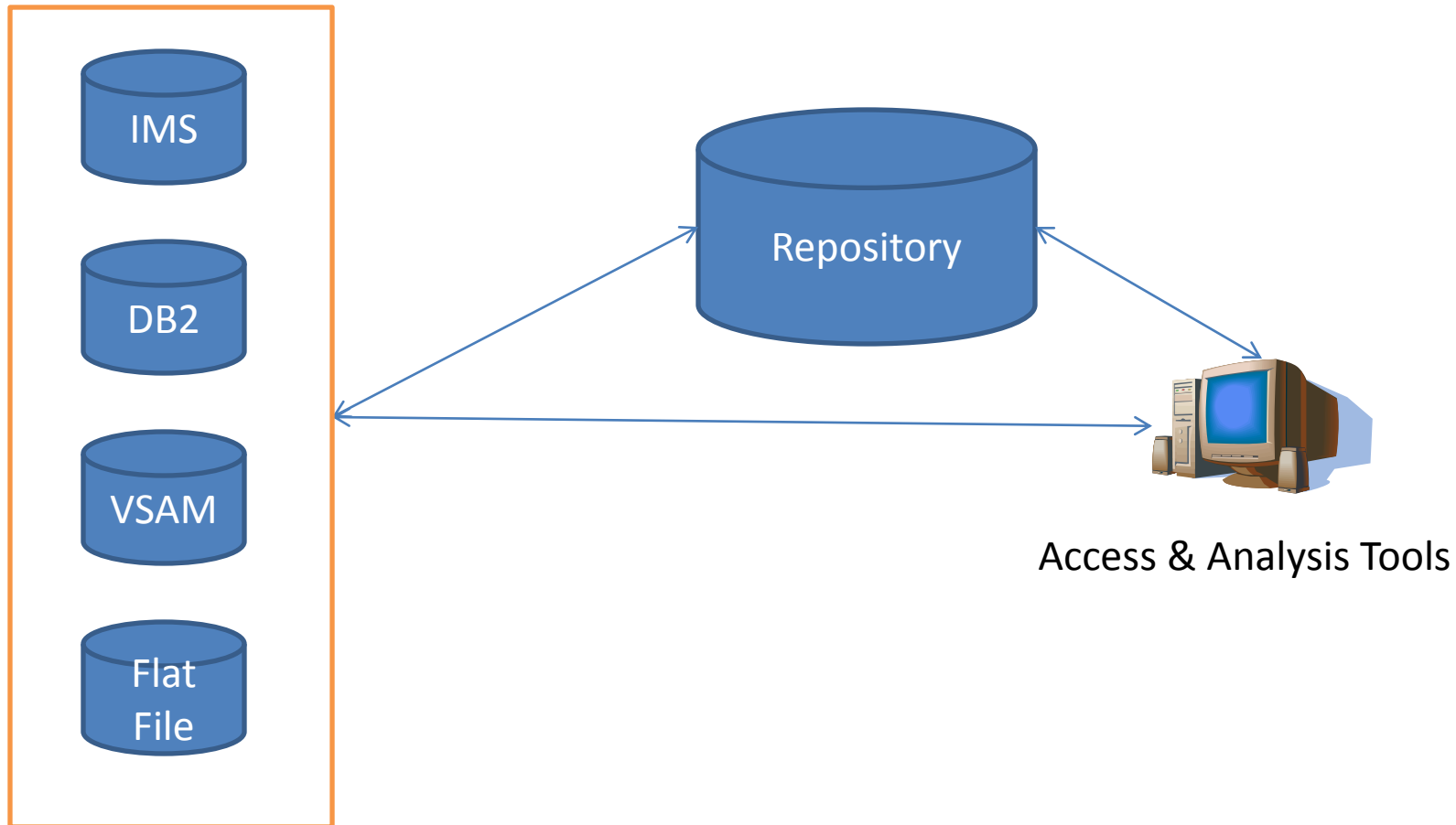
Multistage Datawarehouses



Stationary Datawarehouses

- In this type of a data warehouse, user are given direct access to the data, instead of moving from the sources. For many organizations, infrequent access, volume issues or corporate necessities dictate such an approach.
- This is likely to impact performace since users will be competing with the production data stores.
- Such a warehouse will require sophisticated middleware, possible with a single interface to the user. An integrated metadata repository becomes an absolute necessity under this environment.

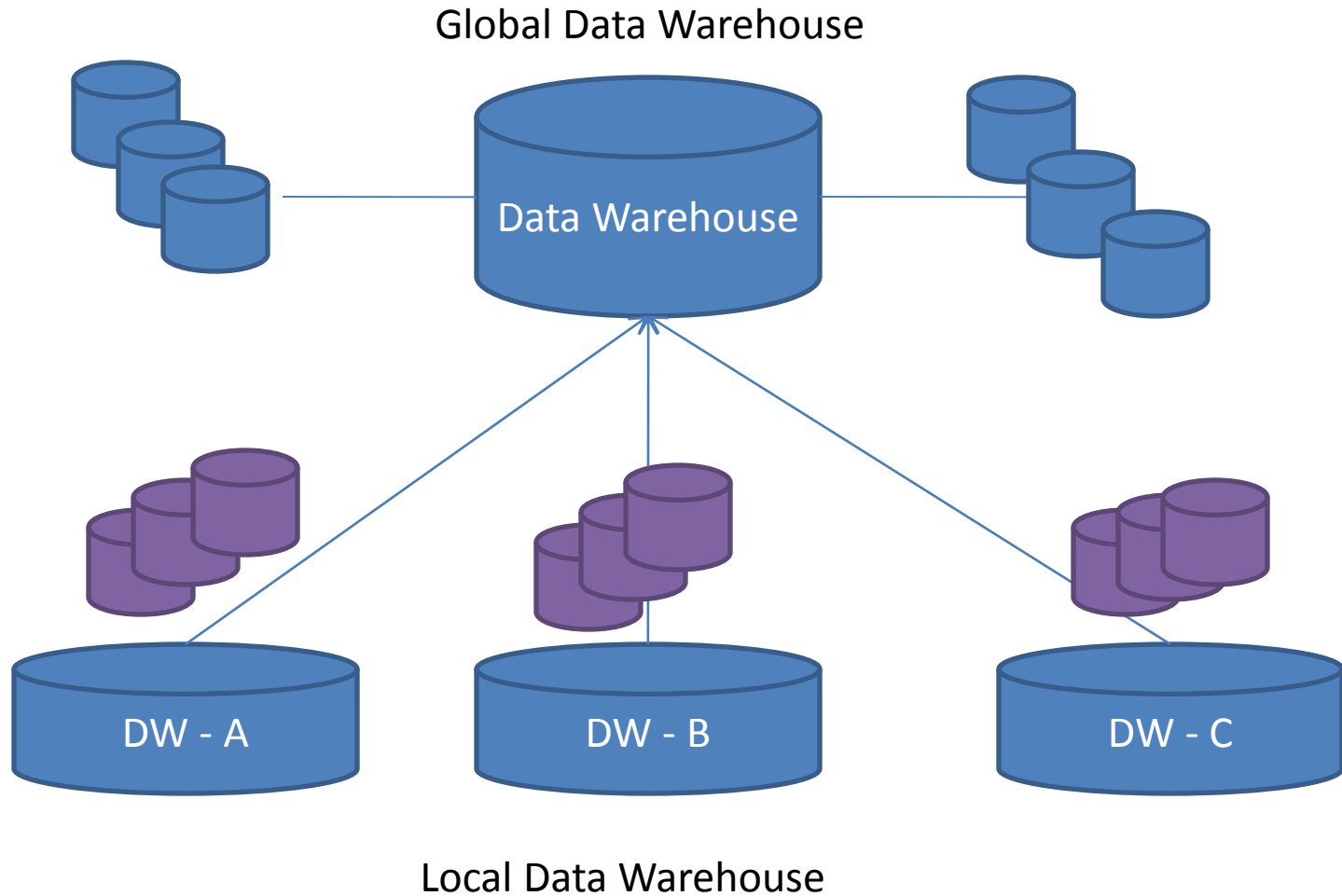
Stationary Datawarehouses



Distributed Datawarehouses

- There are at least two types of distributed data warehouses and their variations for the enterprise: local warehouses distributed throughout the enterprises and a global warehouse.
- Useful when there are diverse businesses under the same enterprise umbrella. This approach may be necessary if a local warehouse already existed, prior to joining the enterprise.
- Local data warehouses have the following common characteristics: Activity occurs at local level
 - Majority of the operational processing is done at the local site.
 - Local site is autonomous
 - Each local data warehouse has its own unique structure and content of data.
 - The data is unique and of prime importance to that locality only.
 - Majority of the data is local and not replicated.
 - Any intersection of data between local data warehouses is coincidental.
 - Local site serves different geographic regions.
 - Local site serves different technical communities.
- The primary motivation in implementing distributed data warehouses is that integration of the entire enterprise data does not make sense. It is reasonable to assume that an enterprise will have at least some natural intersections of data from one local site to another. If there is any intersection, then it is usually contained in a global data warehouse.

Distributed Datawarehouses



Virtual Datawarehouse

- The data warehouse is a great idea, but it is complex to build and requires investment. Why not use a cheap and fast approach by eliminating the transformation steps of repositories for metadata and another database.
- This approach is termed the 'virtual data warehouse'.
- To accomplish this there is need to define 4 kinds of information: A data dictionary containing the definitions of the various databases.
 - A description of the relationship among the data elements.
 - The description of the way user will interface with the system.
 - The algorithms and business rules that define what to do and how to do it.
- Disadvantages:
 - Since queries compete with production data transactions, performance can be degraded.
 - There is no metadata, no summary data or no individual DSS (Decision Support System) integration or history. All queries must be repeated, causing additional burden on the system.
 - There is no refreshing process, causing the queries to be very complex.

Virtual Datawarehouse

