Sesi 7:

Information Technology Infrastructure & Architecture

IT Infrastructure

"Enabled base of shared IT capabilities which provide the foundation for other business sytems"

Mencakup antara lain:

- Jaringan, HW, SW
- Componentware (dipakai beberapa aplikasi), groupware
- ES!
- Architecture: physical & logical
- Policies, standards
- Management process

Pentingnya infrastruktur

- Keberlanjutan kinerja pengembangan aplikasi
- Memaksimalkan data dan fasilitas yang ada
- Rapid application development
- Mengurangi kompleksitas sehingga meningkatkan fleksibilitas
- Meningkatkan kecekatan bisnis
- Kompatibilitas dengan industri
- Meningkatkan reach (anyone, anywhere) dan range (any application, anything)

Terlupakan?

- Kelemahan pendekatan "Application Portofolio" dan penentuan proyek berbasis manfaat aplikasi adalah proyek infrastruktur sering terlupakan
- Mengapa?
- Karena dianggap "tidak menguntungkan"
- Akibatnya…? Hit & run projects.

Isu Infrastruktur dengan Bisnis

- Berusaha mengaitkan dengan kebutuhan bisnis – meskipun sulit!
- Mengidentifikasi kemungkinan bisnis yang bisa dilakukan dengan suatu infrastruktur
- Investasi pesaing / industri di suatu teknologi infrastrukur
- Manager harus paham hal-hal dasar, agar tidak mudah dikelabuhi vendor

Justifikasi Investasi Infrastruktur

- Application specific: benefits from the application that run on top of it
- Reduce operating cost, by using cost effective technology
- Enable growth in business transaction
- Changes in working practices, new ways of doing essentially the same thing

Beberapa Contoh Permasalahan Strategik Teknologi Informasi (bukan SI…!)

- Kemudahan pengoperasian dan pemeliharaan
- Konsistensi dengan strategi SI pada berbagau unit bisnis
- Flexibilitas untuk tumbuh kembang
- Technical Risk
- Business Risk
- Tingkat kehandalan hardware/software tersebut
- Tingkat resiko bisnis manakala hardware dan software tersebut mati…!
- *Responsiveness* terhadap kebutuhan bisnis unit-unit fungsional maupun divisional

Beberapa contoh Kebijakan TI Keen (1991)

- Our IT base must never block a practical and important business intiative
- If our competitor uses certain IT, we must not automatically immitate it
- If we reorganize, relocate, make acquisition or divestment, our IT will adapat quickly
- We shall have an open IT that enable us to enter consortium or make alliance
- Our IT policy requirement will be applicable in an international context

Beberapa contoh Kebijakan TI Earl (1988)

- IT is a source and support of competitive edge
- IT must give value for money
- Accountability of IT is in business unit, not functions
- IT must not impair flexibility
- IT must be developed and managed internationally

Contoh kebijakan lain

- Penggunaan standar internasional
- Penggunaan vendor yang memiliki proyeksi masa depan

Paris Guide to IT Architecture

Laartz, Sonderregger & Vinckier

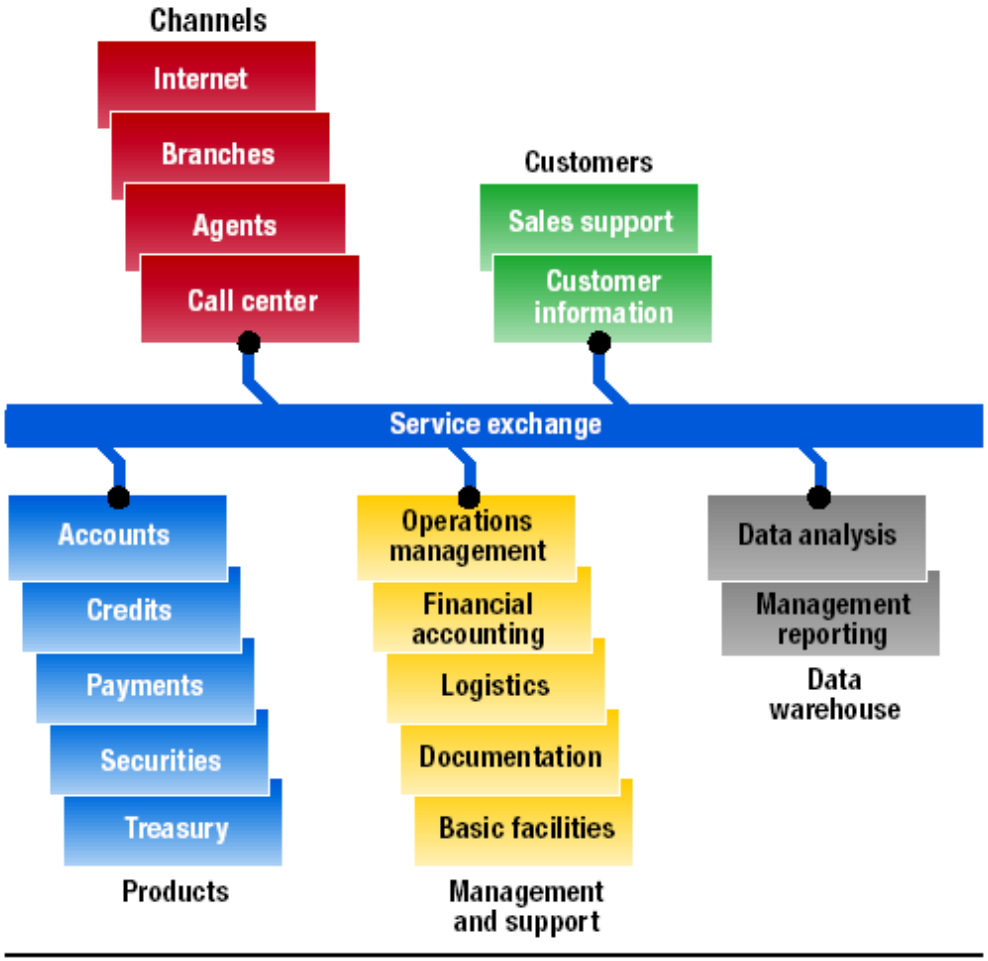
Define Long Term Plan

- IT architectures break down complicated applications landscapes into manageable parts → domains.
- Each domain performs a discrete function.
- An insurance company, for instance, would have domains such as :
  - product systems for life or automobile insurance
  - channel systems for call centers or physical branches.
- Permits IT functions to be built in one domain and then made available to other domains that need them.
  - A product-pricing algorithm, for instance, could be built in the product domain and then made available to all channels.

'm Plan

EXHIBIT 1

Plan the city block by block: A bank's IT architecture



Build a Stable Interface Infrastructure

- Services / Middlewares
- A customer information system, for example, should provide a standard service (name, address, customer number, birth date, and family members) regardless of whether it is requested by a salesperson's application or the company's Web site.

Appoint Zoning Boards

- Usually a separate group within the IT organization, to manage the evolution of an IT architecture.
- Roles:
  - to define the discrete domains and the functionality belonging to each. Domains can be defined according to:
    - which kinds of functionality and data belong together,
    - the de facto standards that software packages set for them, and
    - which part of the business should manage them.
  - identify the technologies and software development tools to be used in the domains.
  - ensure that the company builds and manages a strong and highly stable service infrastructure.

Contoh

- A bank's zoning board might, for example, decide that certain kinds of software belong in the call-center domain:
  - the software that generates the scripts telephone operators read when customers call,
  - the software that integrates the computers of those operators and their telephones, and t
  - he software that generates reports on call-center performance indicators.
- Adopt UNIX as the system's platform and require all interfaces with software in domains other than the call center to pass through the standard services.

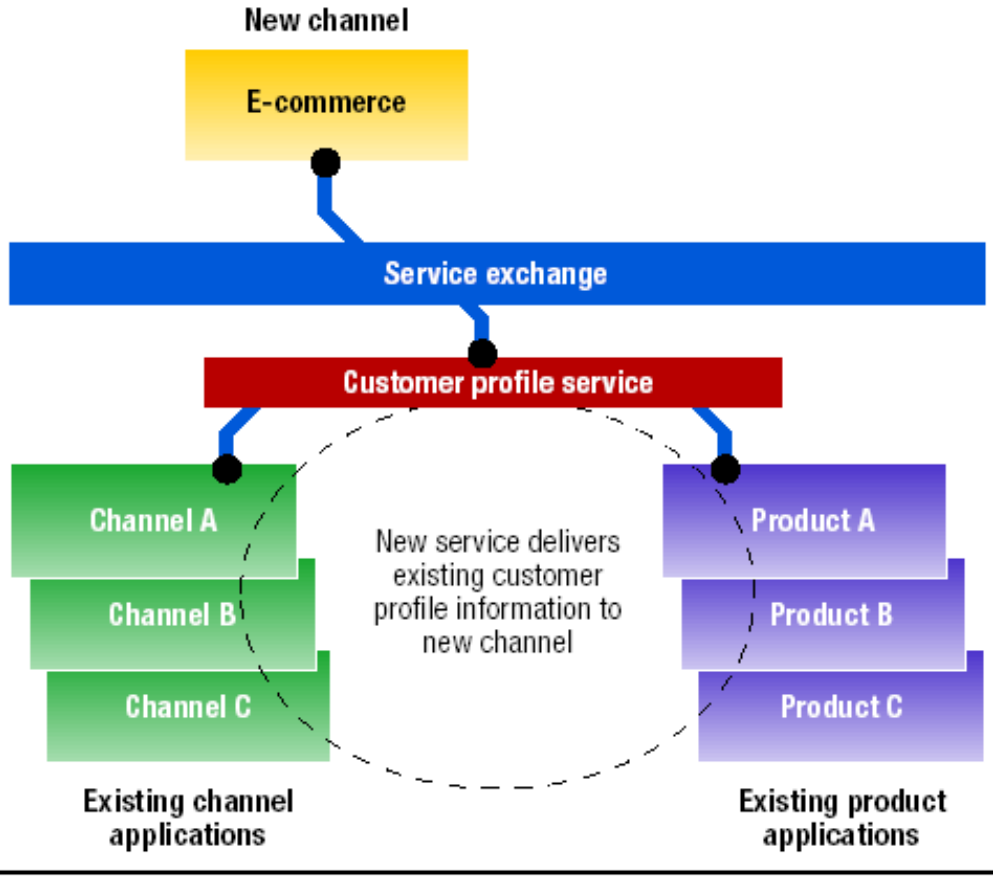
Make The Most of What You Have

- building new systems should first try to get what they can out of their current applications
- By building adapters on to existing applications: “wrappers”
- Example:
  - Wrapping permits a company to deliver a clean and stable customerprofile service, for example, to an important new e-commerce domain even when the data are drawn from a variety of existing systems
  - A data warehouse that serves the purpose of supplying background for a CRM initiative could be added in the same way.
- Under this approach, new applications and domains such as e-commerce can be insulated from the problems of an existing IT architecture even while it is being renovated or replaced.

Wrapping dalam E-Commerce

EXHIBIT 2

First exploit existing systems



Prosedur Penentuan Database & Network Architecture

Sumber: Alex Rusli

Phase Objectives

- To determine the application architect, particularly in relation to the database architect.
- To determine the amount of information/data which will be maintained and processed by each application, and if applicable, within each geographical area.

Core Required Information

- Types of business users
- Location of business users (same area, different area, different building, etc.)
- Type of access required by each user towards relevant information within each application
- Amount of data that needs processing within each application

Tasks

1. Based on Business Context, determine the database required for all the information required.
2. By understanding the spread of the user, determine the database grouping
3. Based on the system architecture, draw the network infrastructure.

Database Space Requirement

Software Component	Disk Space Required (MB)

Table 1: Disk Space Requirements for the Database Server

Database Space Requirement (cont.)

3.2.2 Application Server

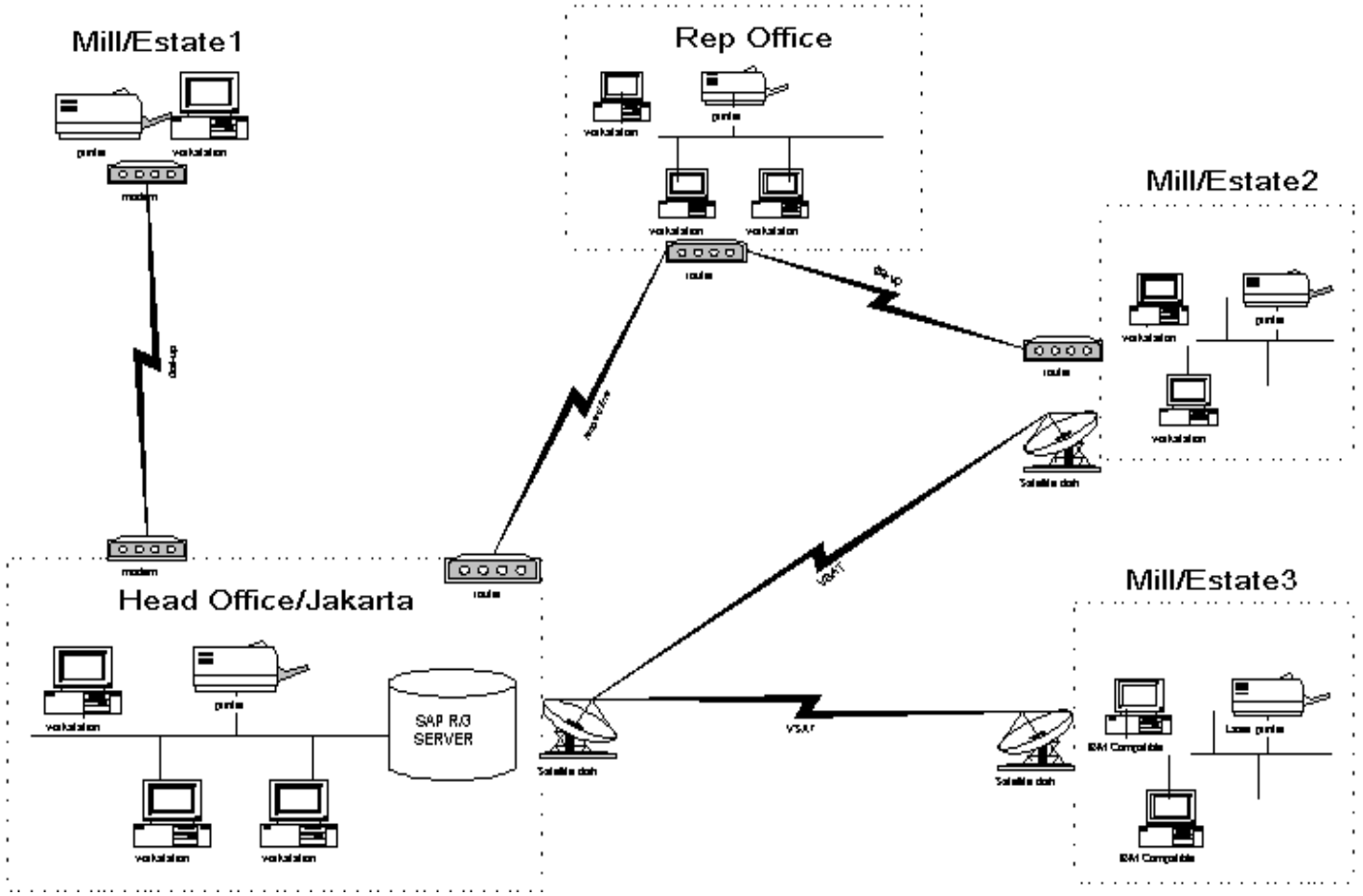
Software Component	Disk Space Required (MB)

Table 1: Disk Space Requirements for the Application Server

Target Applicatios - Technology Components

Target Applicatios - Technology Components							
	Tech. Components						
Target Applications	Implmnt Options	Process Distrib	Data Managmnt	Telecomm Options	Graphics	Security	Others
Aplikasi ABC	Package	Centralized	Hierarchial	Internet	no	RSA 2048	
Aplikasi XYZ	Customs	Cent-Decent	Relational	VAN	GUI	DES only	
Aplicaksi KLM	Customs	Centralized	Relational	Internet	GUI	none	
Summation	---- list of technology components required -----						

Network Architecture



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Phase Outcome

- System Space Size tables
- System Architect diagram and narrative
- Network Architect diagram and narrative

Sumber data untuk estimasi kebutuhan disk space, bandwidth & processor

- Sejarah dari:
  - volume log transaksi
  - Volume log pemakaian bandwidth
  - Dsb.
- Besarnya data (kB)
  - Transaksi
  - Arsip/Backup
  - Management report
  - Overhead: OS, aplikasi, etc.
- Proyeksi pasar ke depan
  - Berdasarkan asumsi business plan

Tozer's Technology Planning (1996)

Technology Planning using an environmental layer