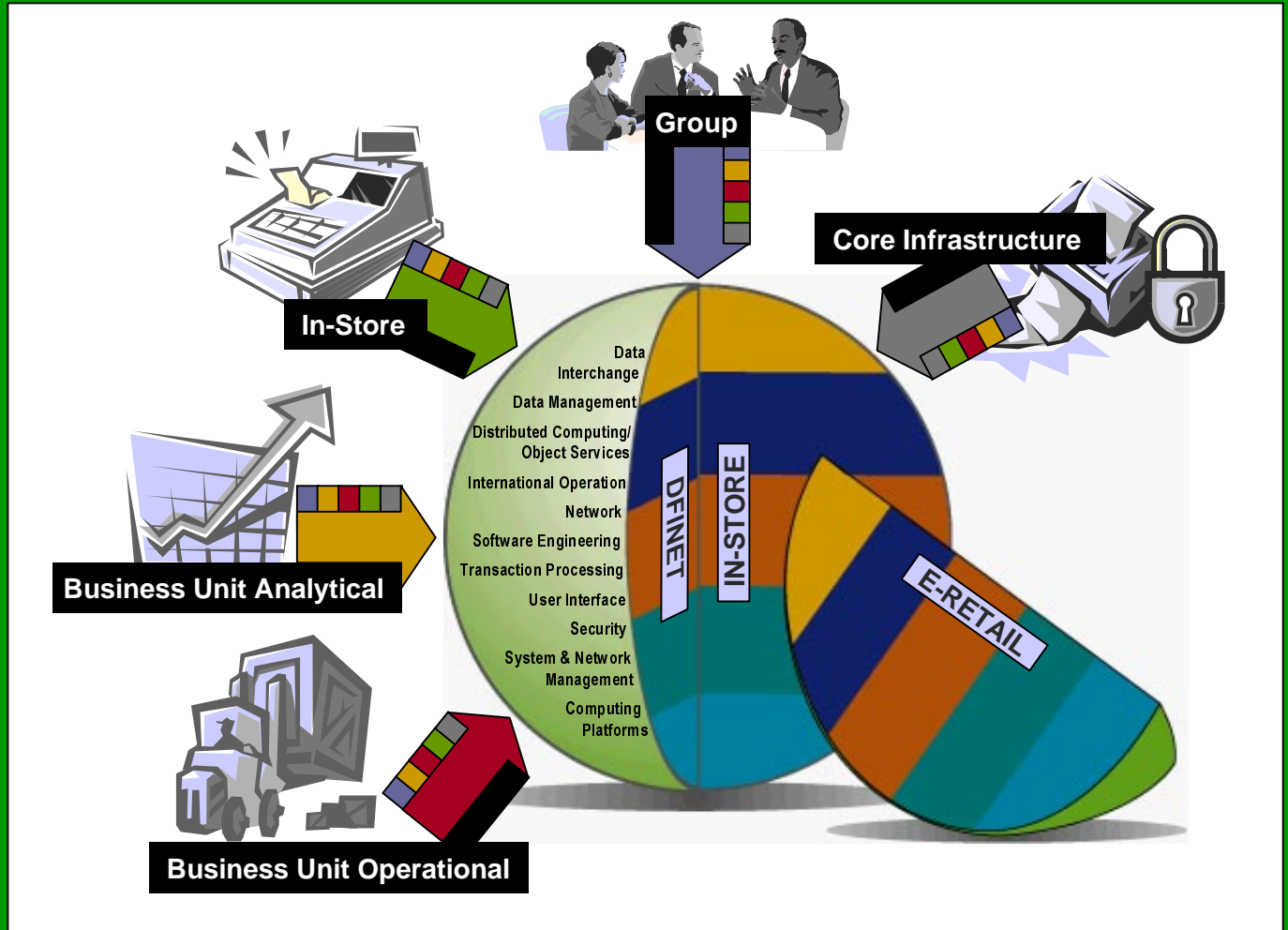




Nick Price
Group Technical
Architect

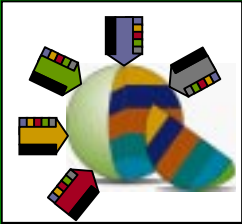
Geoff McClelland
TOG Consultant



VOL 1.0

DFG Technical Architecture

Designing for the future

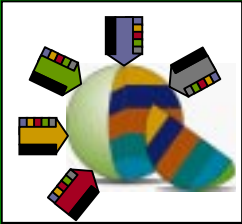


Dairy
Farm

TECHNICAL ARCHITECTURE

Agenda

- **DFG—Introduction to the Company**
- Why develop an Architecture?
- DFG TA Development Process
- DFG TA Structure
- Technology Directions
- Next Steps



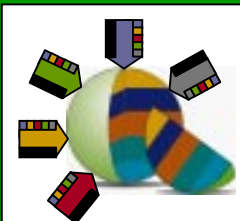
Dairy
Farm

TECHNICAL ARCHITECTURE

Dairy Farm—Mission

*To be the leading food and Drug Store
Operator in sales and shareholder value
creation in Asia Pacific*





Dairy
Farm

TECHNICAL ARCHITECTURE

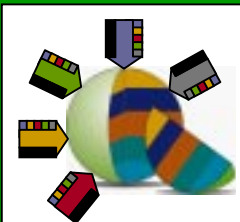
Number of Staff (including part-time)

ASIA

Hong Kong	20,533
Mainland China	1,039
India	39
Indonesia	1,132
Malaysia	1,055
Singapore	1,938
Taiwan	2,831
	28,567

AUSTRALASIA

Australia	22,709
New Zealand	10,000
	32,709
Total at 31 st December 1997	61,276

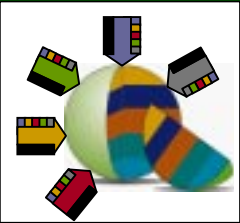


**Dairy
Farm**

TECHNICAL ARCHITECTURE

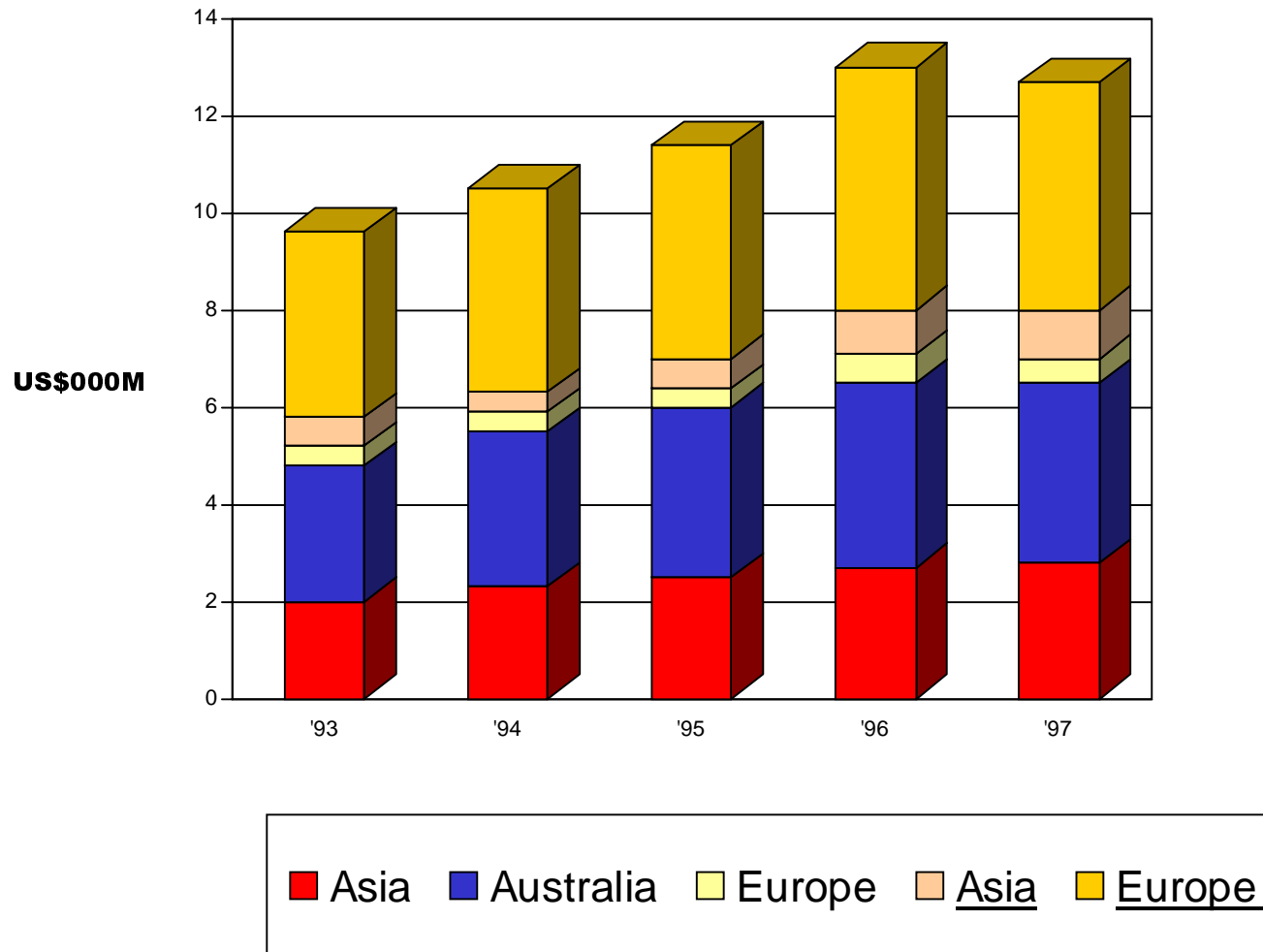
Selling and Distribution Space

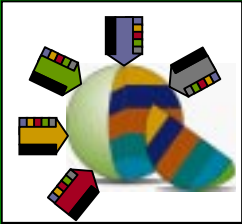
	Selling Area (^{'000} sq.ft.)	Distribution Centre (^{'000} sq.ft.)
ASIA		
Hong Kong	3,721	949
Mainland China	101	41
India	3	-
Indonesia	176	-
Malaysia	241	18
Singapore	514	59
Taiwan	1,075	325
	5,831	1,392
AUSTRALASIA		
Australia	5,581	2,536
New Zealand	2,257	547
	7,838	3,083
Total at 31 st December 1997	13,669	4,475



Sales by Region

Dairy Farm TECHNICAL ARCHITECTURE



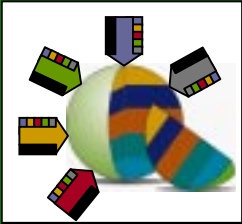


**Dairy
Farm**

TECHNICAL ARCHITECTURE

Dairy Farm—the company

- **New CEO appointed June 1996**
- **Significant changes taking place**
 - **Moving from a federation of companies to a Group**
 - **Creating centres of excellence to leverage competencies across the group**



Dairy
Farm

TECHNICAL ARCHITECTURE

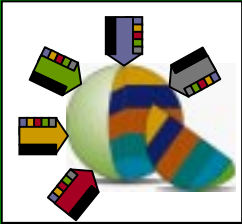
DFI Business Evolution

OLD

- De-centralised
- Federation
- Retailer push
- Large inventories
- Manual processes
- Buying / Selling
- Mass consumers

NEW

- Group
- Cohesion
- Customer pull
- Just in time
- Automatic processes
- Category Management
- Individual customers



DFG IT Evolution

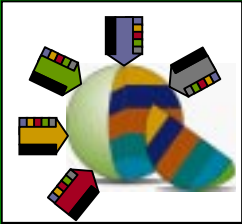
TECHNICAL ARCHITECTURE

OLD

- Mainframes
- Novell
- DOS
- Own development
- SNA, IPX, Paper
- Unmanaged
- Unresponsive
- Cost

NEW

- Unix
- Windows NT
- Windows 95
- Application Packages
- TCP/IP
- Managed
- Enabling change
- Benefit

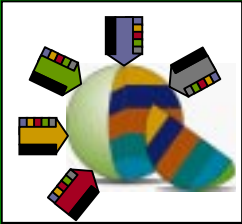


**Dairy
Farm**

TECHNICAL ARCHITECTURE

Architecture development rationale

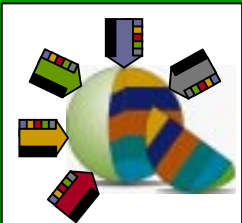
- **Competition from US/European retailers—requires rapid response**
- **Historic under-investment in IT. Now a one time chance to ‘get it right’**
- **Facilitate migration from Federation to Group (i.e. Regional Hubs, Central buying etc.)**
- **Business moving so fast, BU IT can’t catch up**
- **Need to minimise large \$\$\$ risk**



Agenda

TECHNICAL ARCHITECTURE

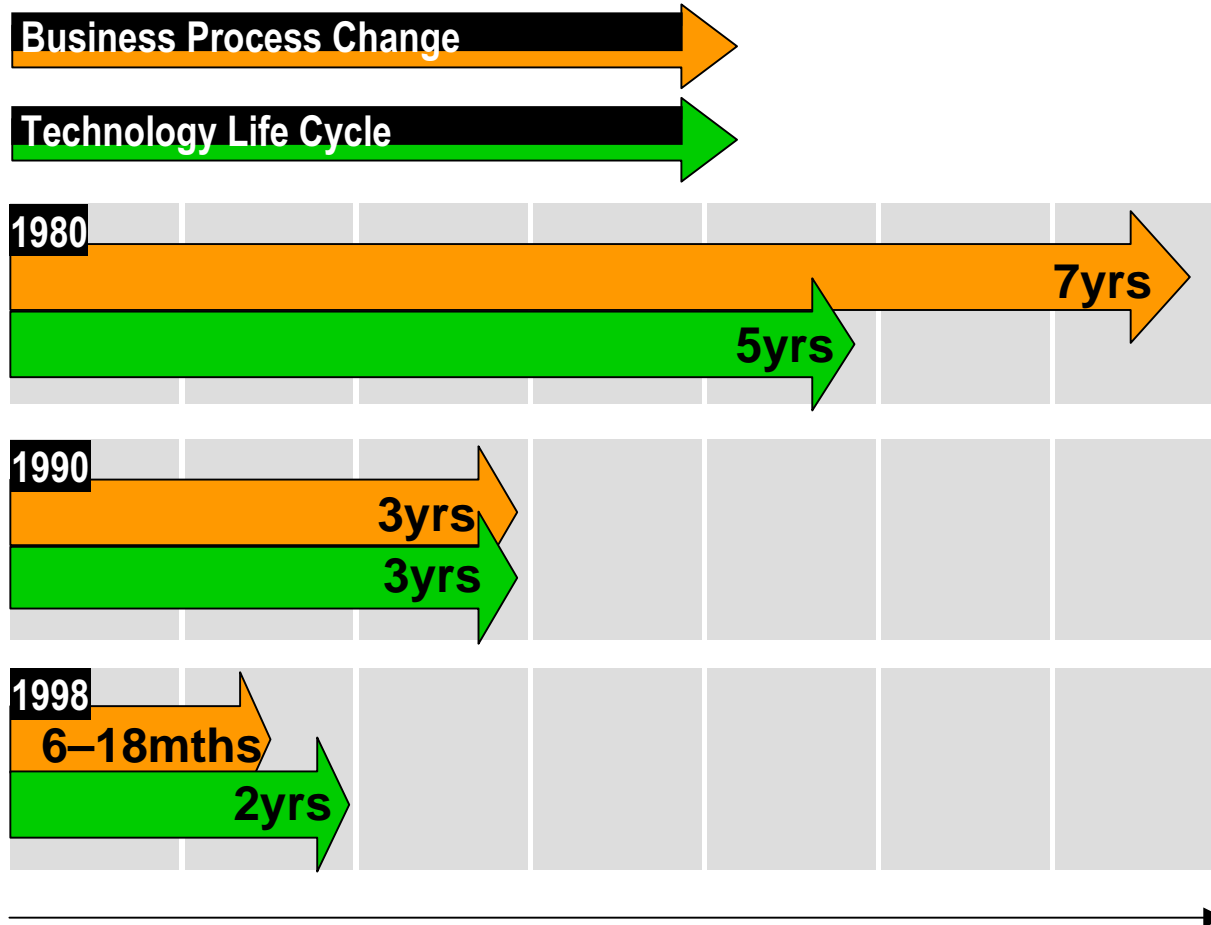
- DFG—Introduction to the Company
- **Why develop an Architecture?**
- DFG TA Development Process
- DFG TA Structure
- Technology Directions
- Next Steps



Dairy Farm

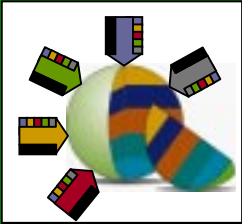
TECHNICAL ARCHITECTURE

Technology/Business Cycle Times



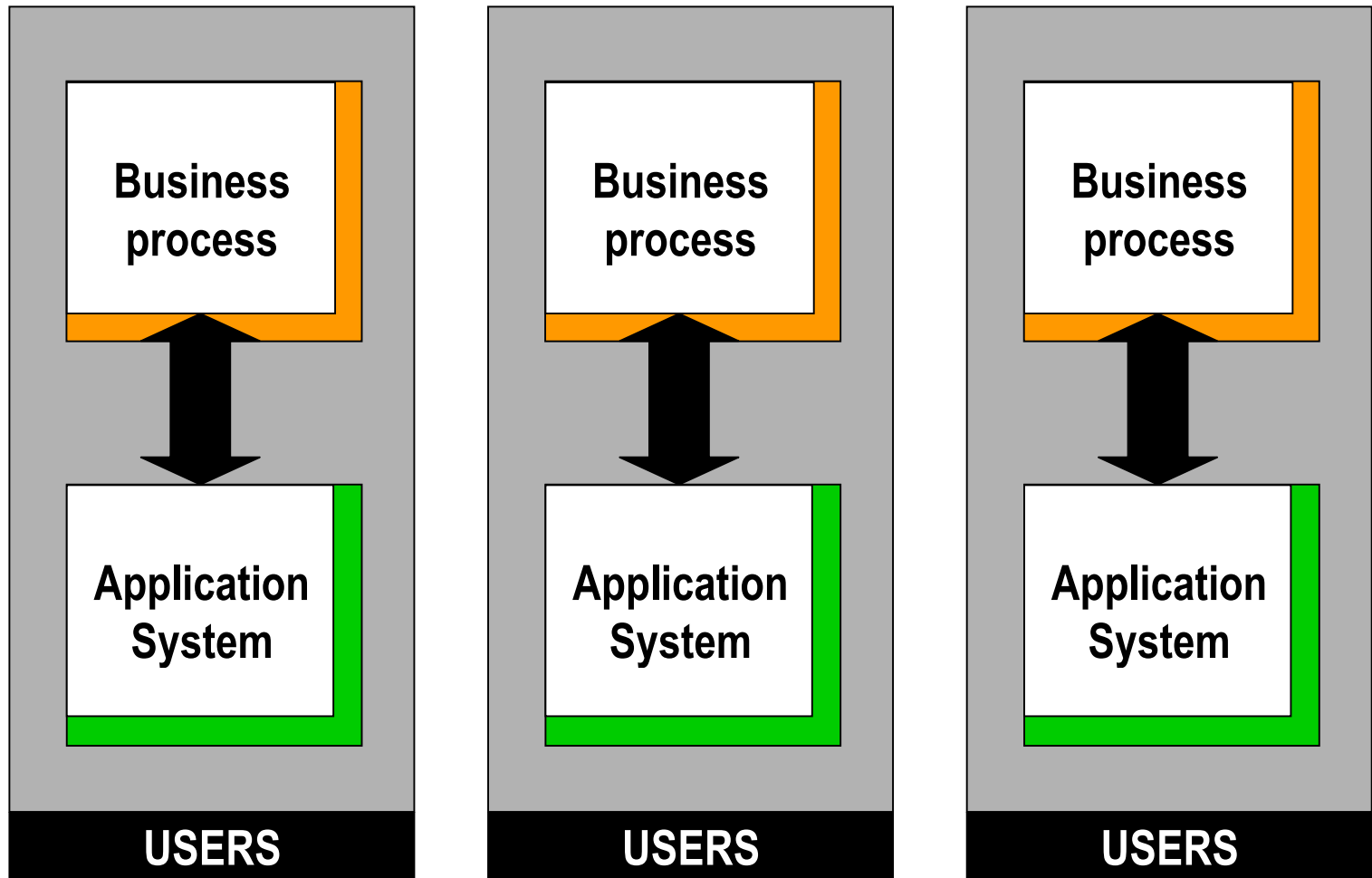
Source: Meta Group

Elapsed time

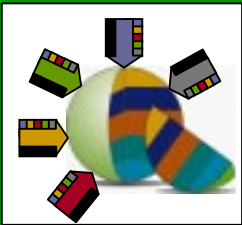


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TECHNICAL ARCHITECTURE

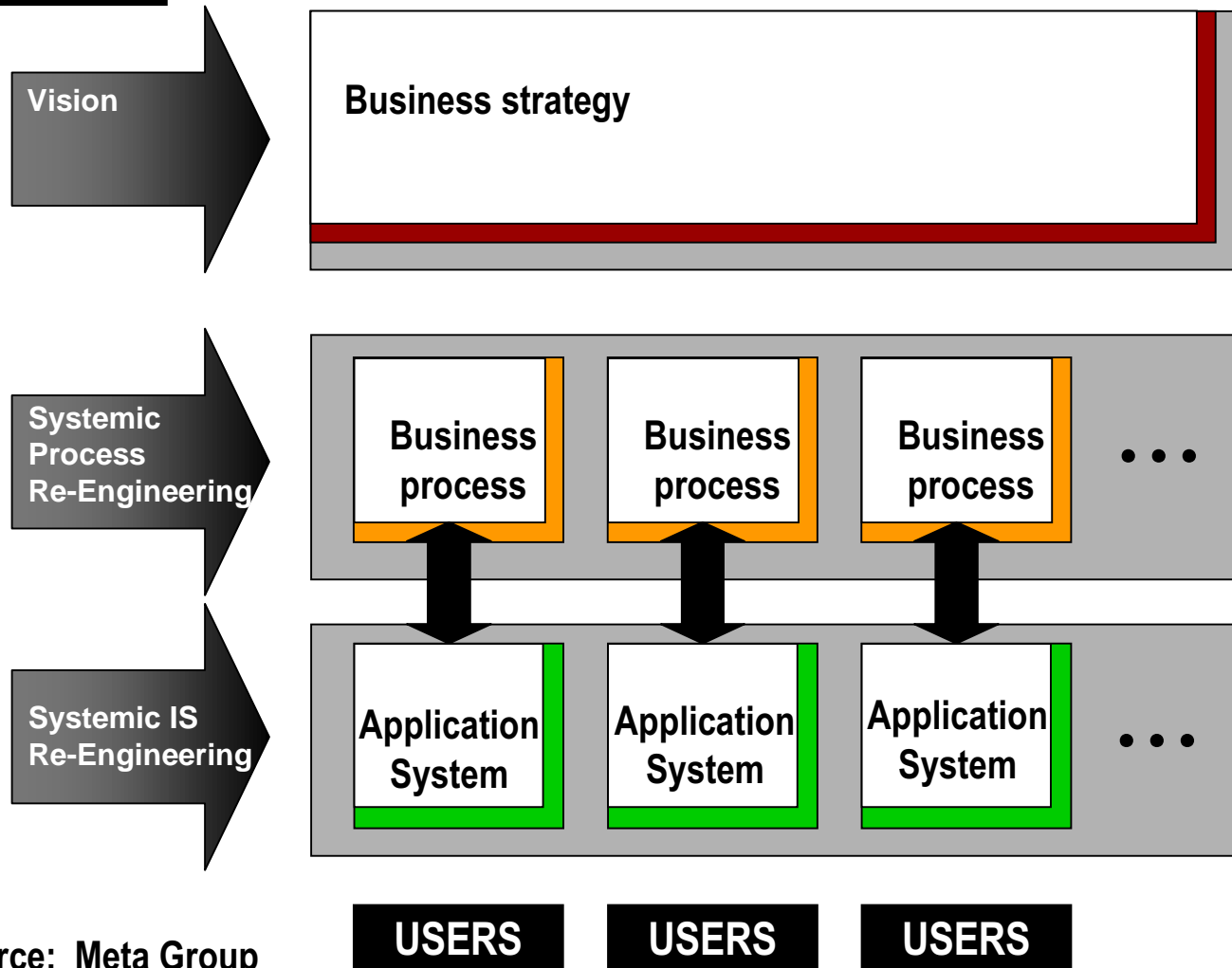


Source: Meta Group

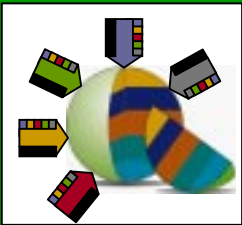


Value Chains

TECHNICAL ARCHITECTURE

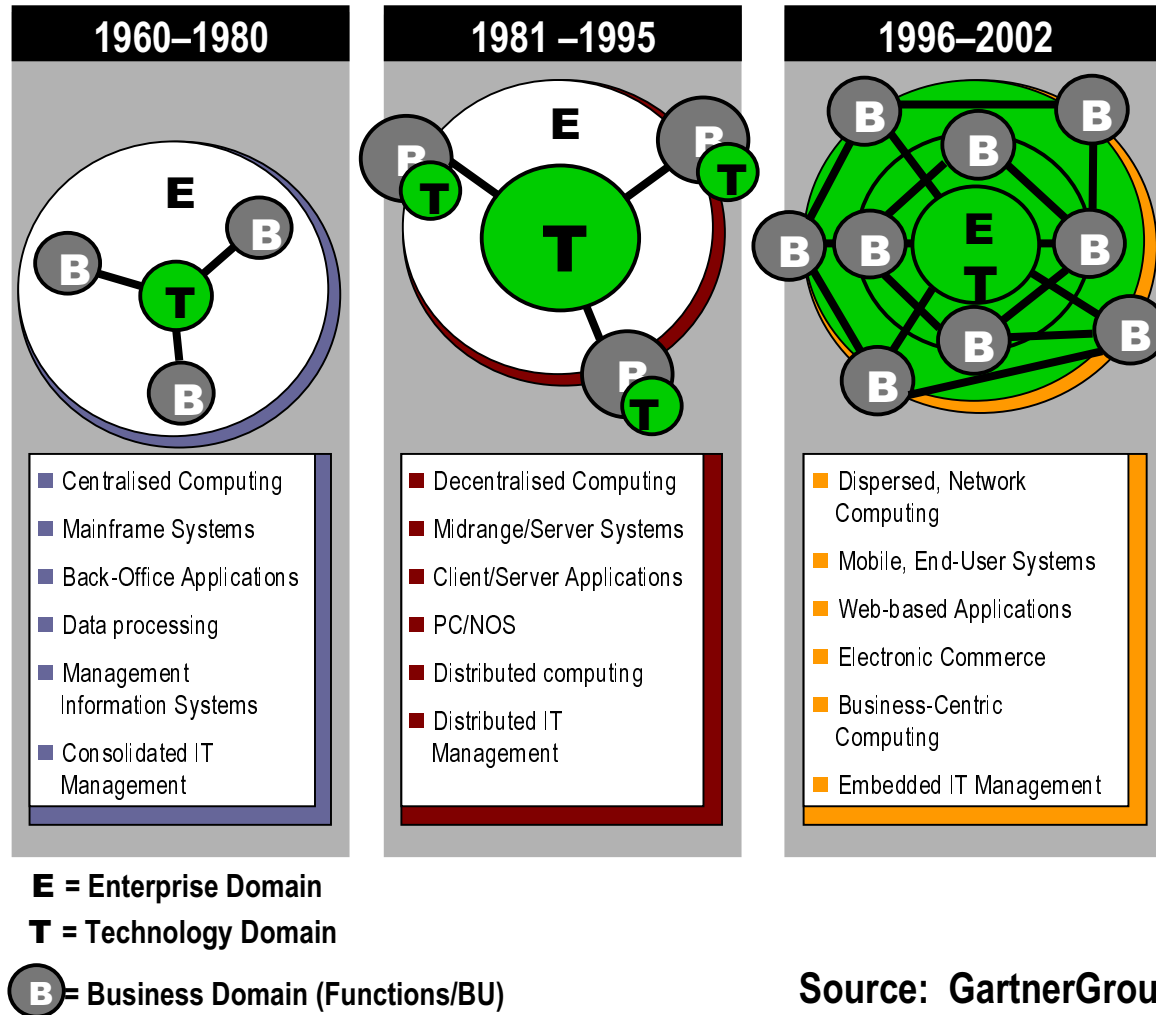


Source: Meta Group

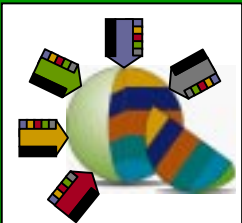


The Changing Nature of IT

Dairy Farm TECHNICAL ARCHITECTURE



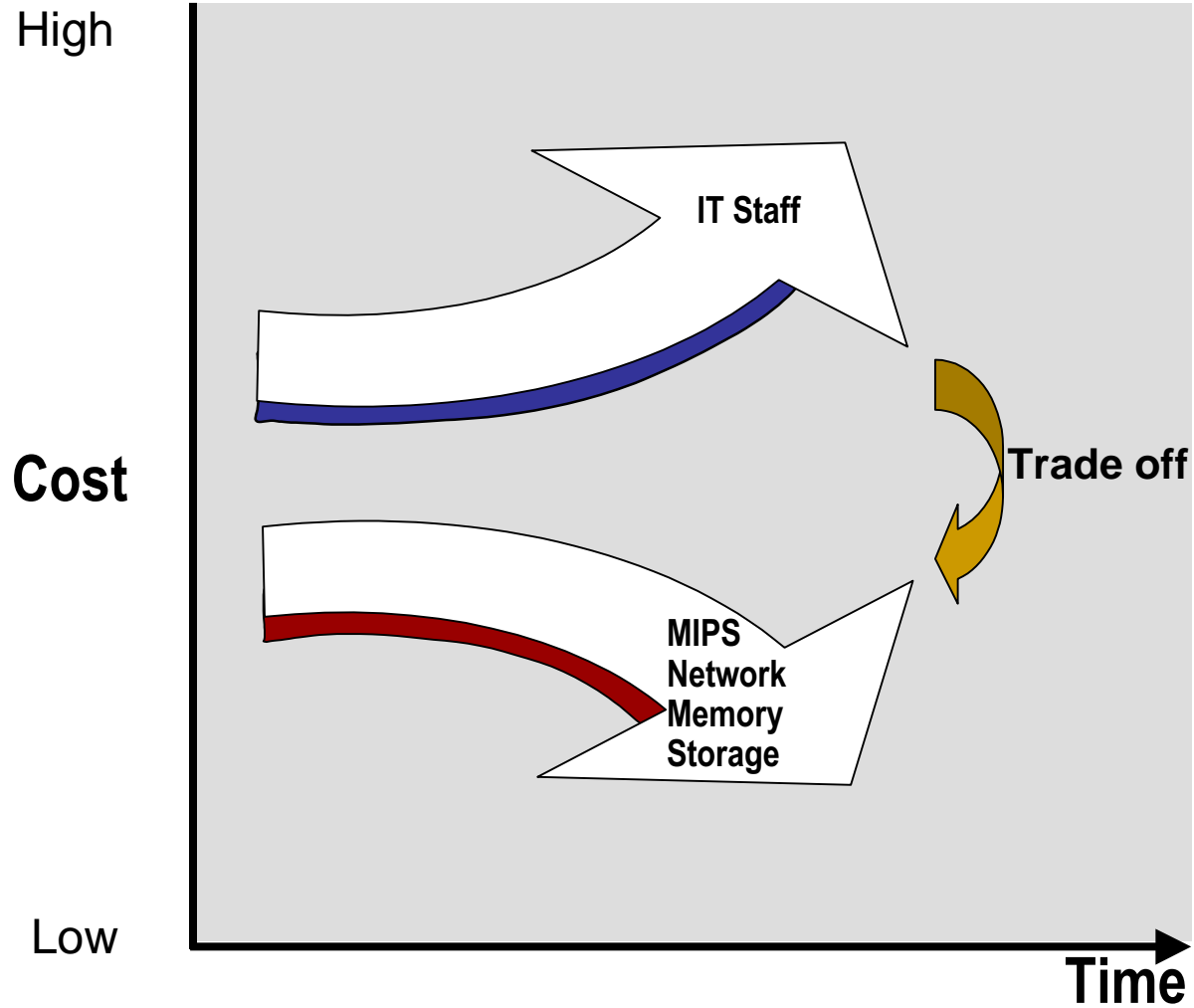
Source: GartnerGroup



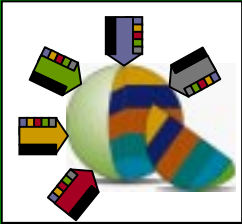
Dairy Farm

TECHNICAL ARCHITECTURE

IT Staff Negative Price Performance



Source: Meta Group

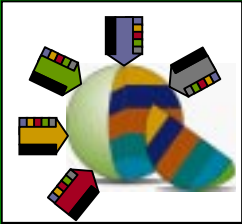


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Farm

TECHNICAL ARCHITECTURE

Agenda

- DFG—Introduction to the Company
- Why develop an Architecture?
- **DFG TA Development Process**
- DFG TA Structure
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- Next Steps

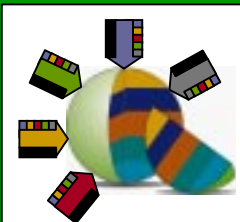


Technical Architecture Program Group

Dairy Farm TECHNICAL ARCHITECTURE

Charter

*To conceive, design, populate, publish
and continually improve a Technical
Architecture for the Dairy Farm Group*



Technical Architecture Program Group

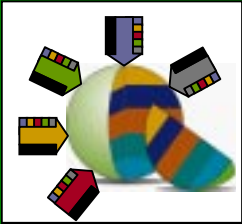
Dairy Farm TECHNICAL ARCHITECTURE

- **DFG Technical Architects**
- **Industry Consortia Consultants**
- **DFG Vendors**

Membership

*Mike Aikins
Shawn Davies
Ronald Fons
Paul King
Frank May
Geoff McClelland
Nick Price
Tim Redhead*



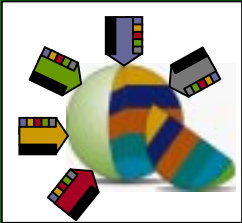


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TECHNICAL ARCHITECTURE

What is the DFG TA?

- **A process not a document**
- **A business lead technology plan**
- **A mechanism to ensure technology convergence (technologies, suppliers, system re-use etc.)**



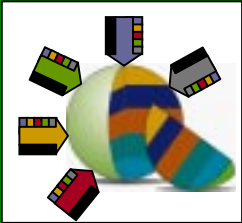
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TECHNICAL ARCHITECTURE

Technical Architecture Definition

An expression of IT strategy embodied as a logically consistent set of principles that:

- *Are derived from business requirements*
- *guide engineering of IT systems across underlying component architectures*
- *are understood and supported by senior management and LOB's*
- *take into account the full context in which the TA will be applied*
- *enable rapid change in business processes and the applications that enable them*



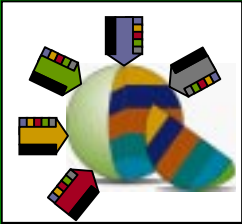
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TECHNICAL ARCHITECTURE

Technical Architecture Definition

A Technical Architecture is not:

- *A list of product standards*
- *a wiring diagram*
- *a taxonomy (Open Blueprint/TOGAF etc.)*
- *specifications of a software vendor*

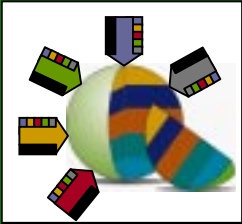


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TECHNICAL ARCHITECTURE

DFG TA Purpose

1. To enable rapid change in DFG business processes and systems by providing a clear definition of:
 - *DFG Endorsed technology standards*
 - *Technologies and products for use within DFG*
 - *Policies that govern the use of technology within DFG*

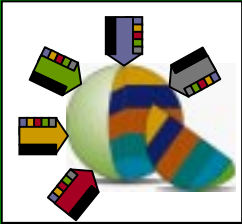


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TECHNICAL ARCHITECTURE

DFG TA Purpose

2. To present to planners and strategists within DFG and its technology partners a clear view of DFG technology strategy over a three-year time horizon



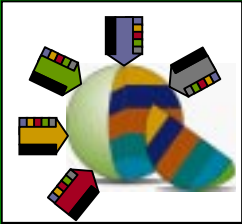
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TECHNICAL ARCHITECTURE

DFG TA Challenges

Three challenges to successful implementation:

- *Must be seen to be continually ‘actionable and affordable’*
- *Senior management must understand how the TA enables the business to achieve its objectives*
- *Design decisions must be demonstrated to link to DFG business requirements*

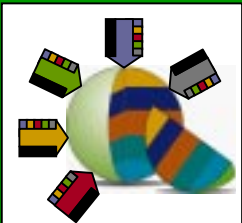


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TECHNICAL ARCHITECTURE

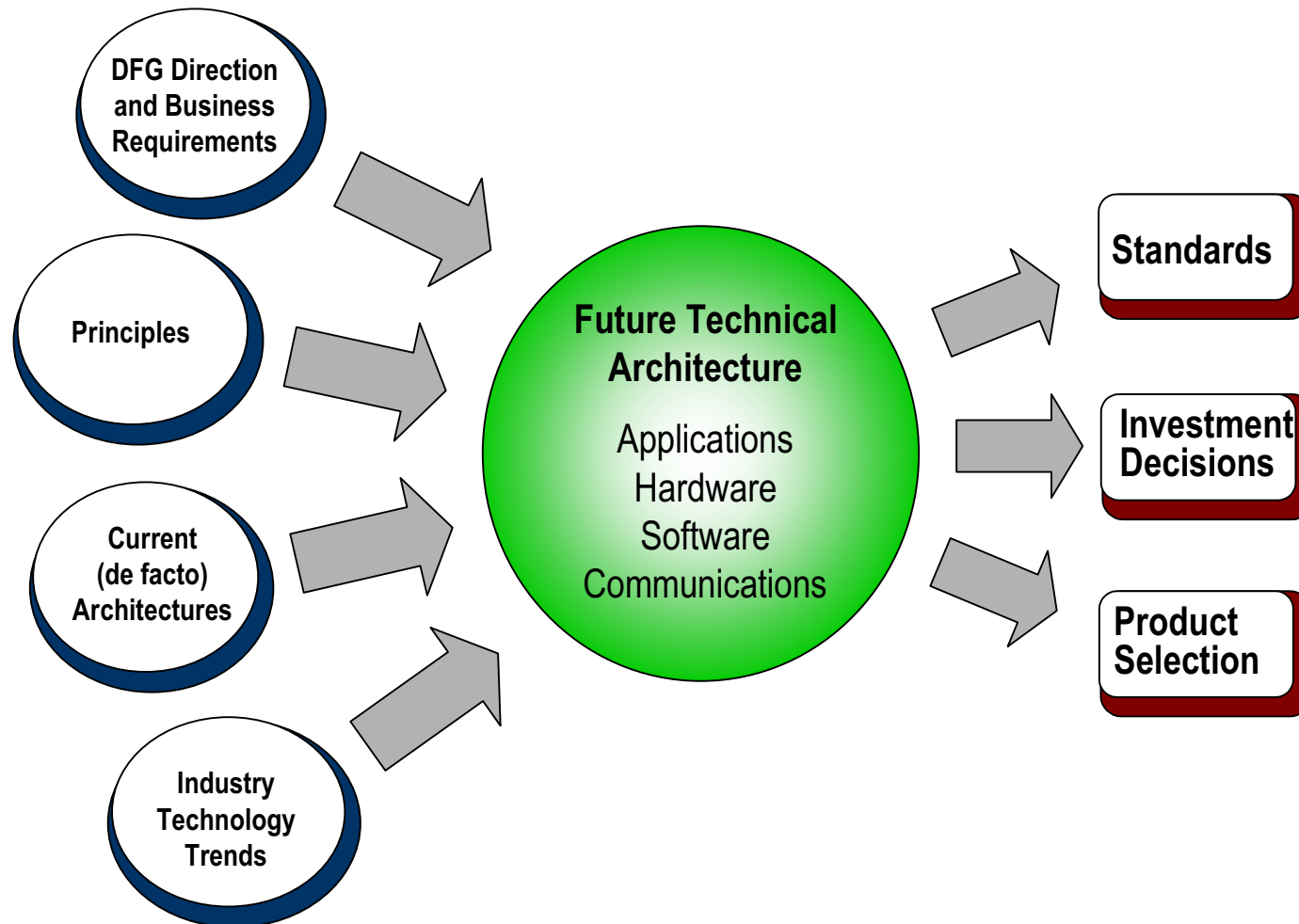
Agenda

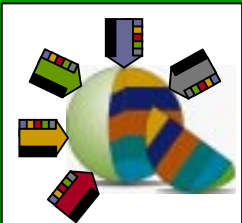
- DFG—Introduction to the Company
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The DFG Technical Architecture Inputs

Dairy Farm TECHNICAL ARCHITECTURE

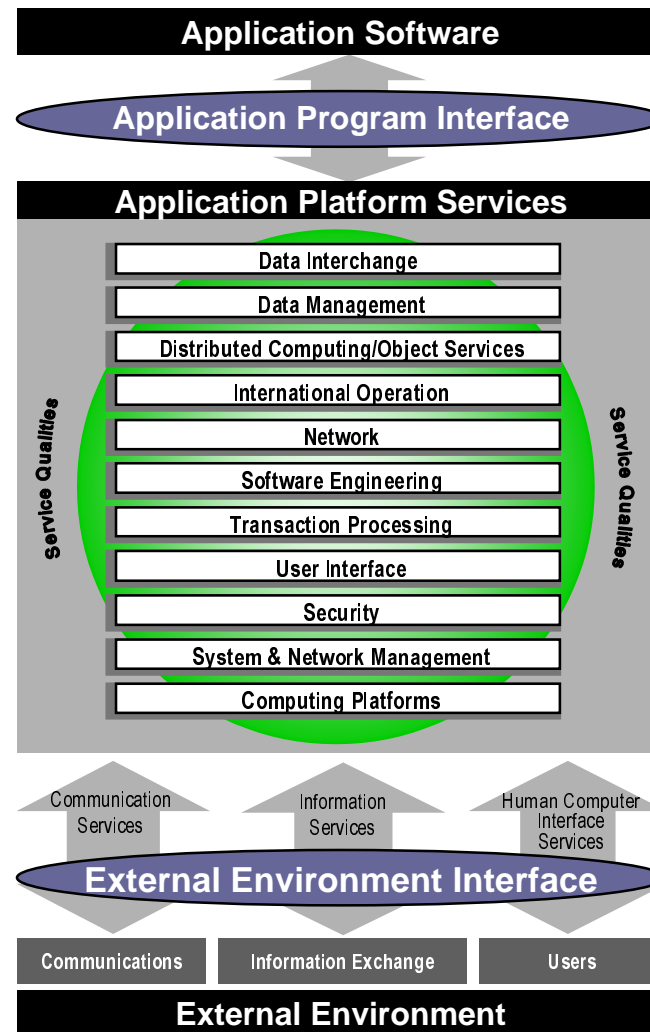




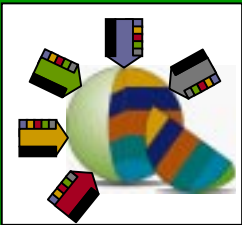
Dairy Farm

TECHNICAL ARCHITECTURE

Detailed Technical Reference Model



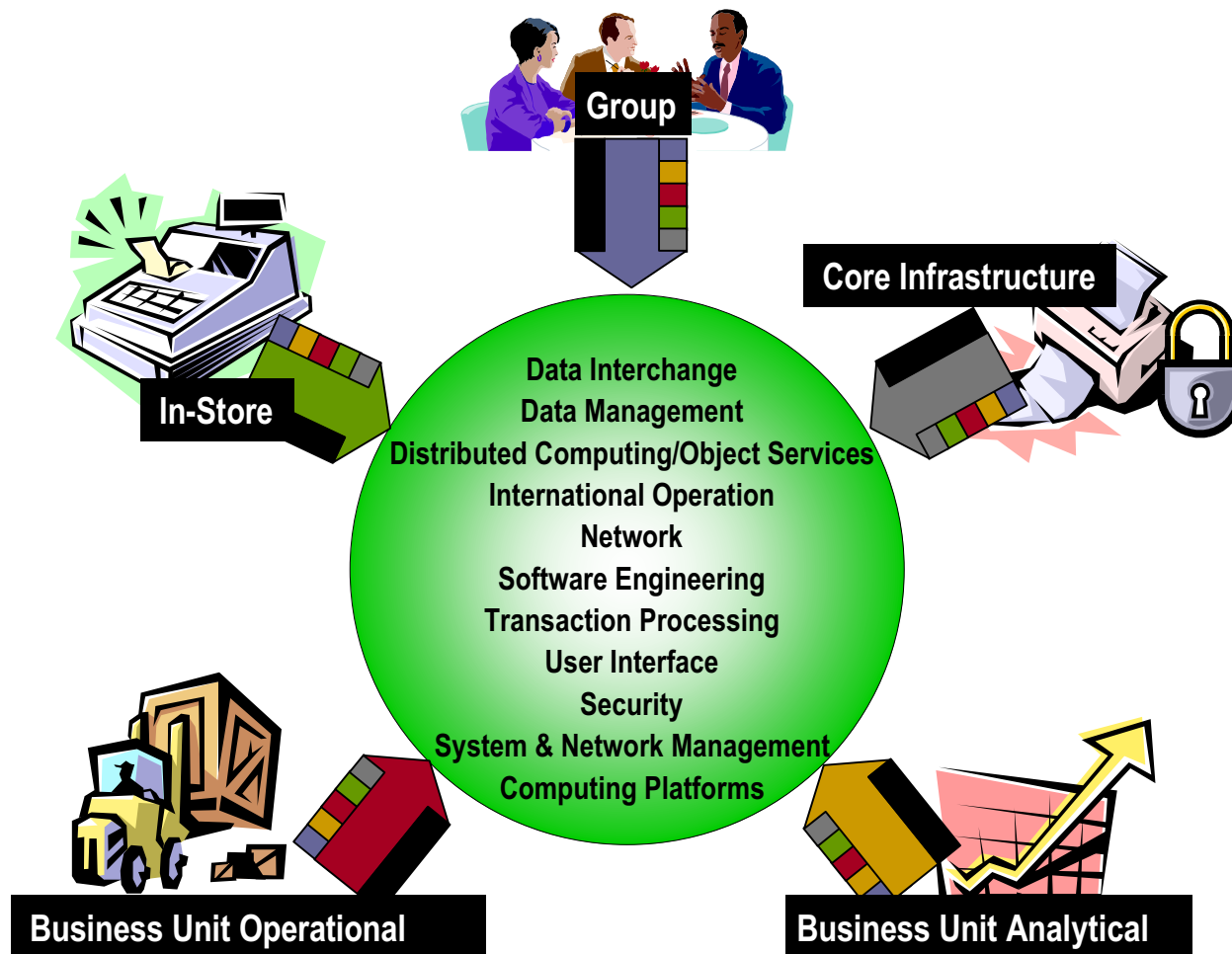
Source: The Open Group

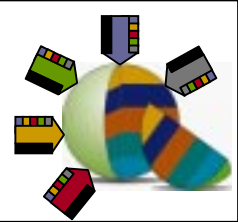


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TECHNICAL ARCHITECTURE

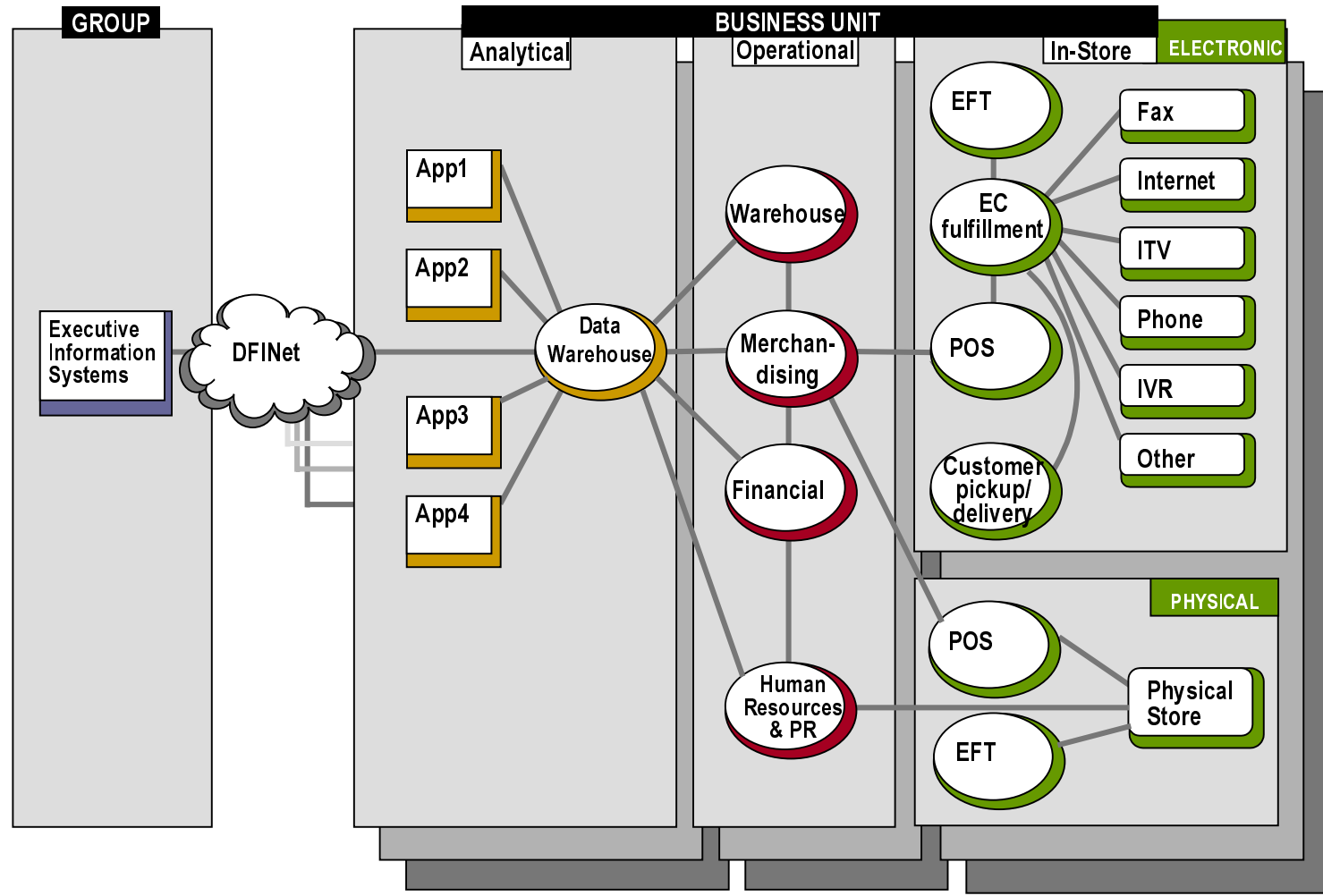
Business Domain Views

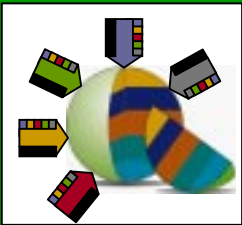




Scope of the DFG TA

Dairy Farm TECHNICAL ARCHITECTURE

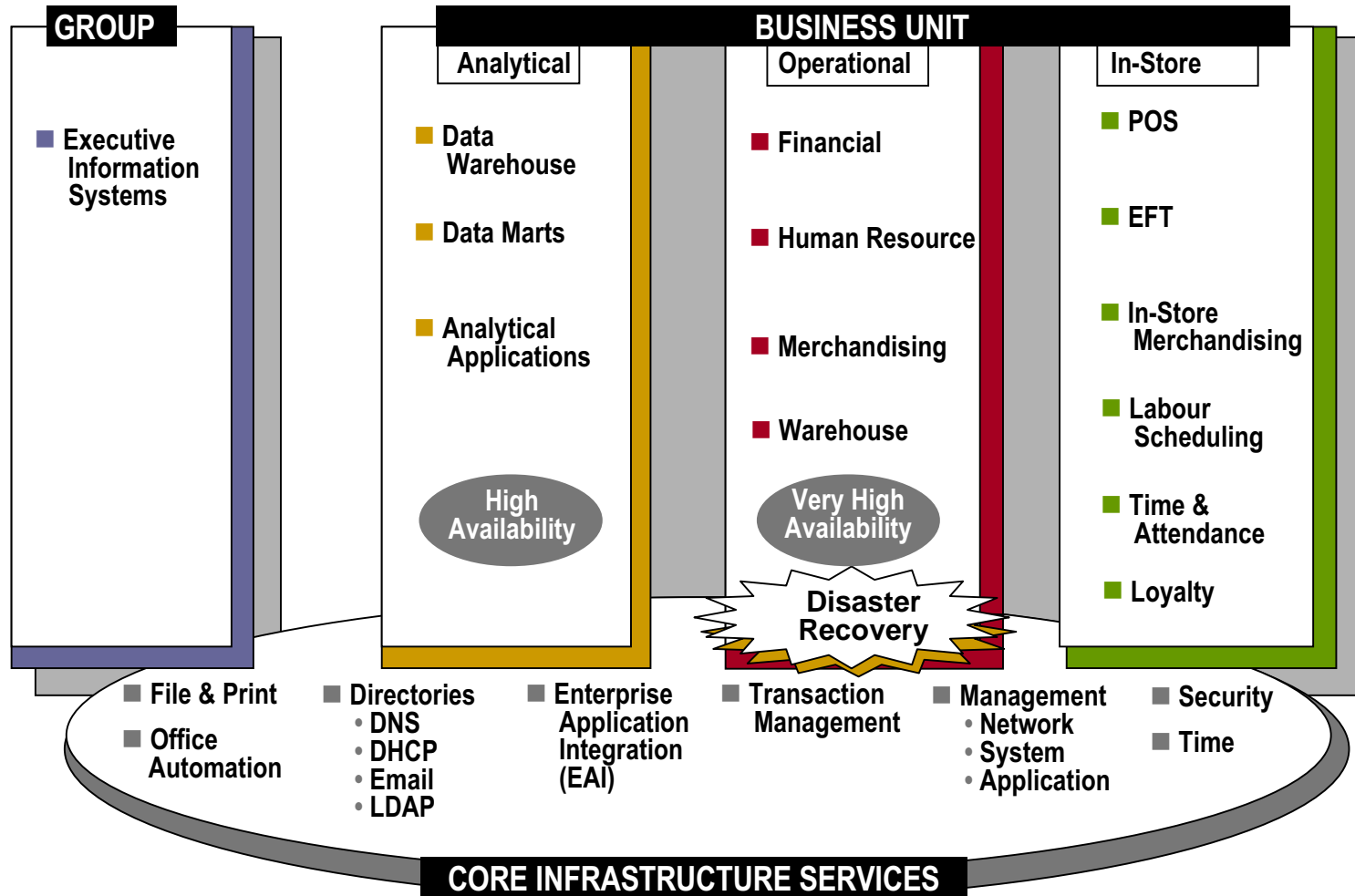


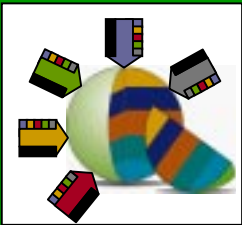


Business Process Domains

Dairy Farm

TECHNICAL ARCHITECTURE





Service Qualities: Security

Dairy Farm TECHNICAL ARCHITECTURE

Management, Audit & Control

- Policy
- Procedures
- Reporting
- Audit
- Administration

Functional Interface—Security API



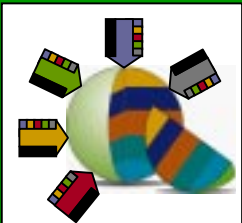
Services

Principal Authentication	Access Control	Confidentiality	Integrity	Non Repudiation
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Mechanisms

<ul style="list-style-type: none"> ■ Passwords ■ Tokens ■ Smart Card ■ Biometrics 	Access Control Information	Encryption/Decryption	Message Authentication	Digital Signatures
	Engineering Mechanisms		Modification Detection	



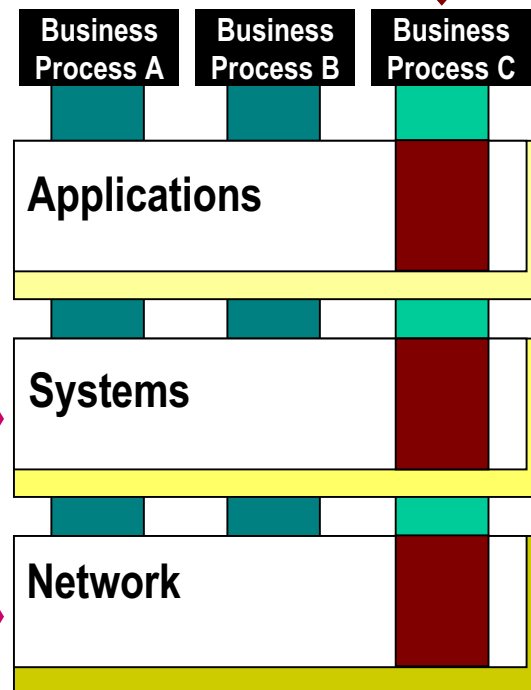
Dairy Farm

TECHNICAL ARCHITECTURE

Service Qualities: Systems and Network Management

DFG's Business Process Approach

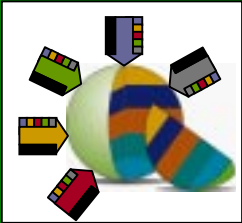
Management applied holistically to critical processes.



Traditional Approach

Management applied separately to technology domains.

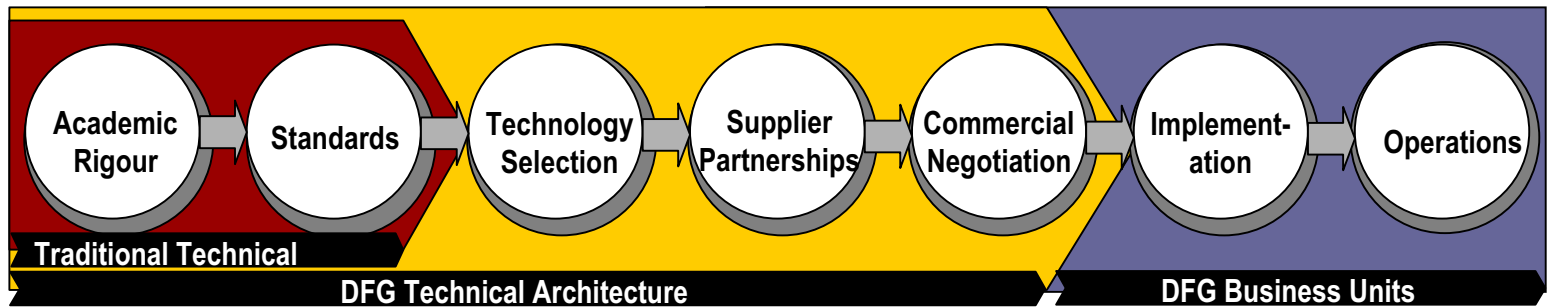


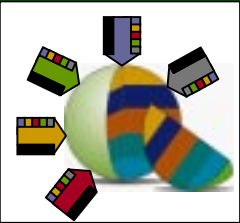


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Farm

TECHNICAL ARCHITECTURE

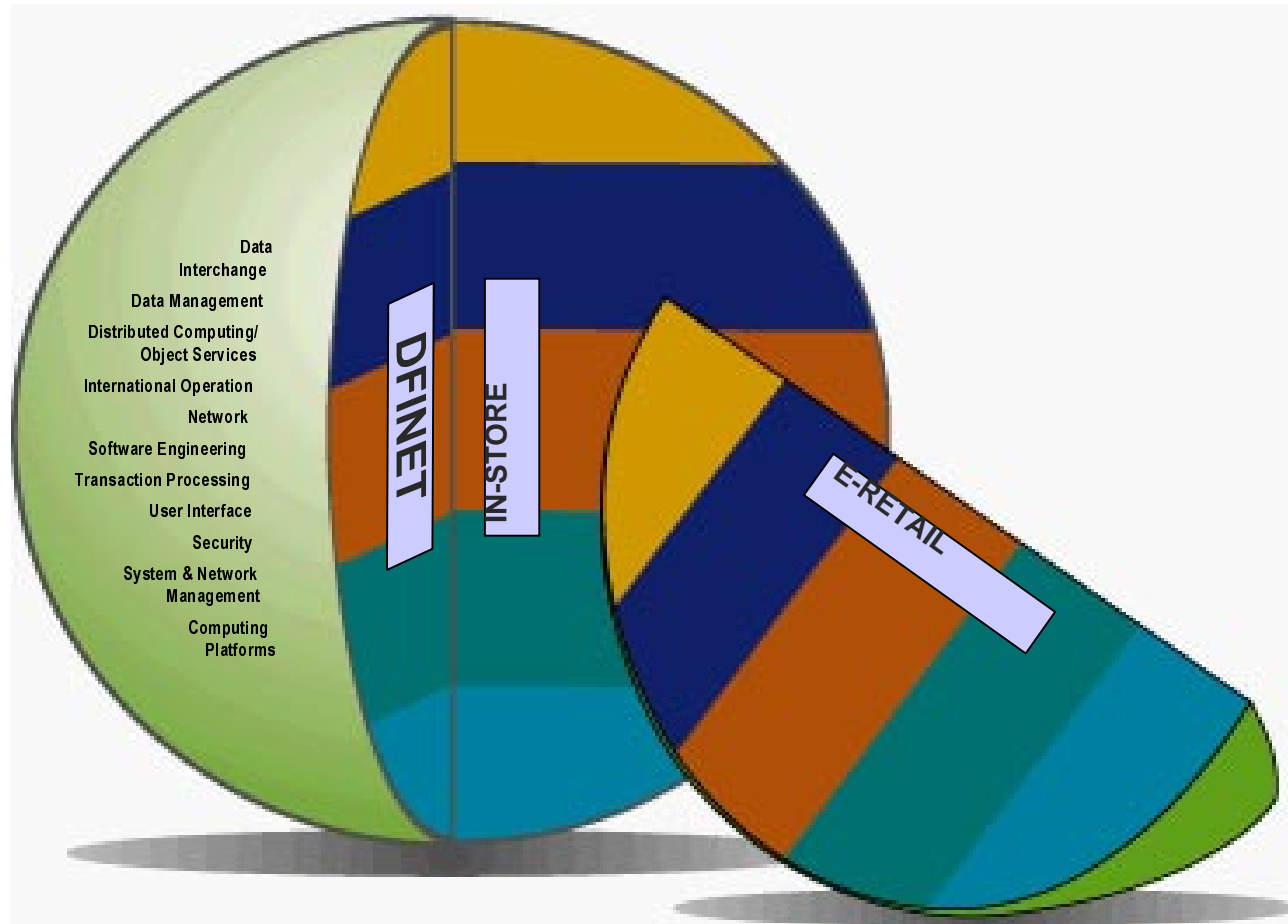
Depth of the Technical Architecture Process

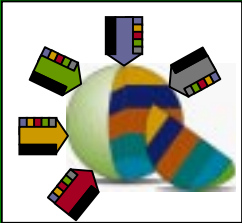




Slices

Dairy Farm TECHNICAL ARCHITECTURE

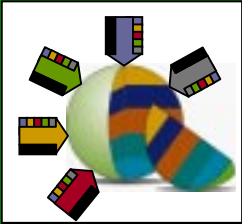




Agenda

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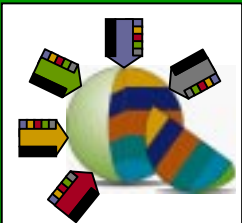


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TECHNICAL ARCHITECTURE

Technology Directions

- **Service Architectures**
- **Internet & WWW**
- **Network Computing**
- **Mobility and location independence**
- **Evolution of Application Architectures**
- **Enterprise Application Integration**
- **Increasing Network Bandwidth**

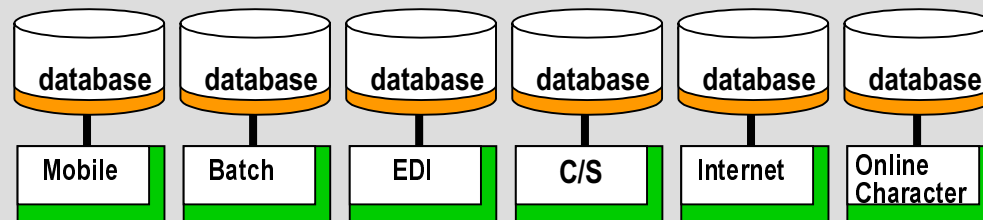


Dairy Farm

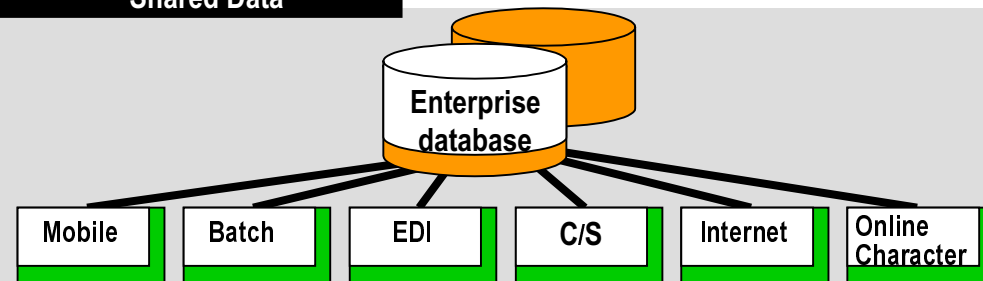
TECHNICAL ARCHITECTURE

Service Oriented Architecture

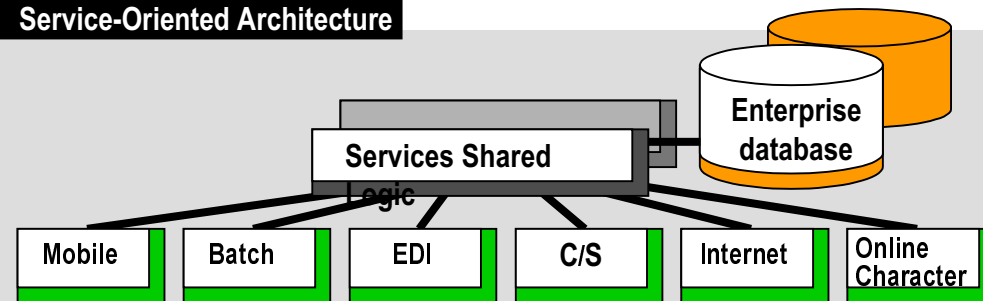
Shared-Nothing 'Stove Pipes'

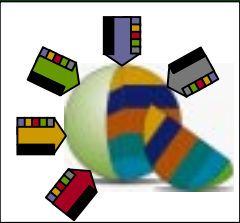


Shared Data



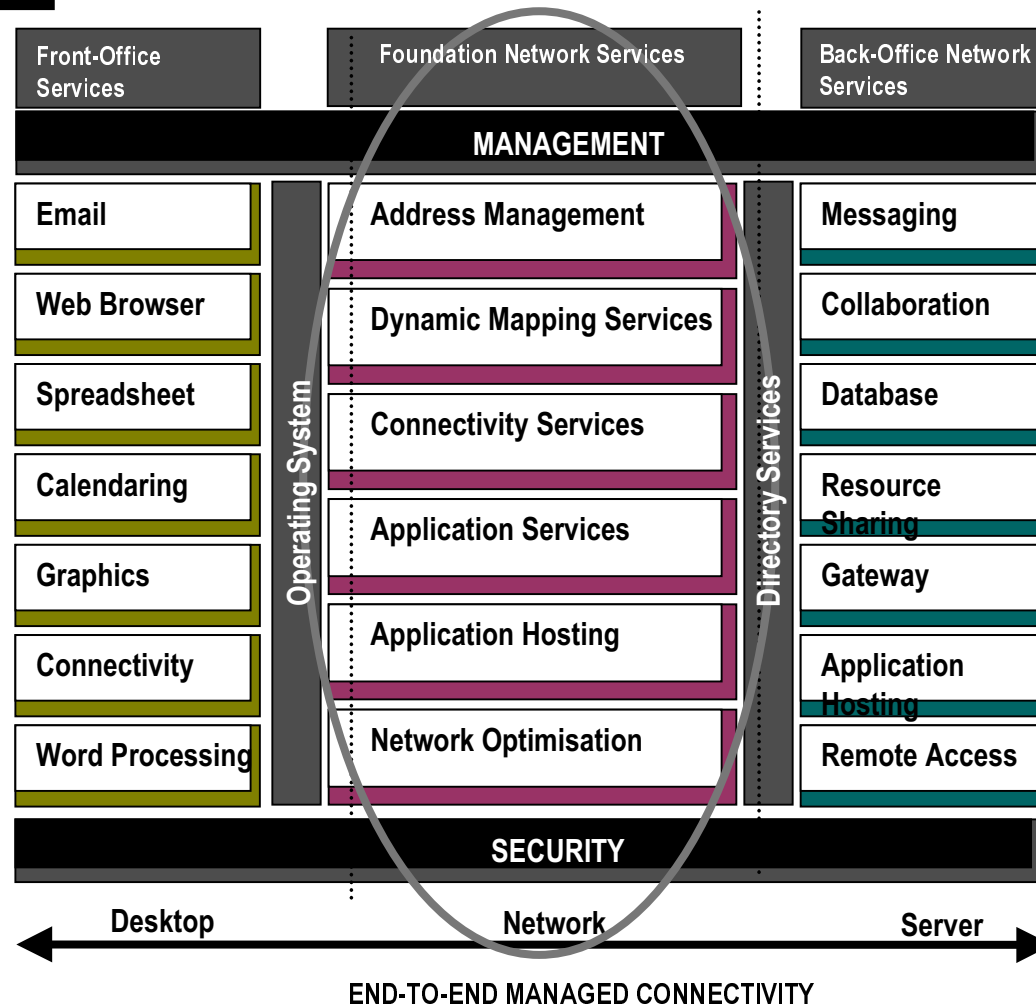
Service-Oriented Architecture



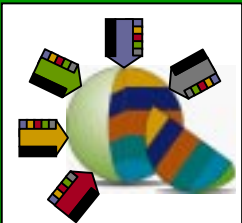


Network Services

Dairy Farm TECHNICAL ARCHITECTURE



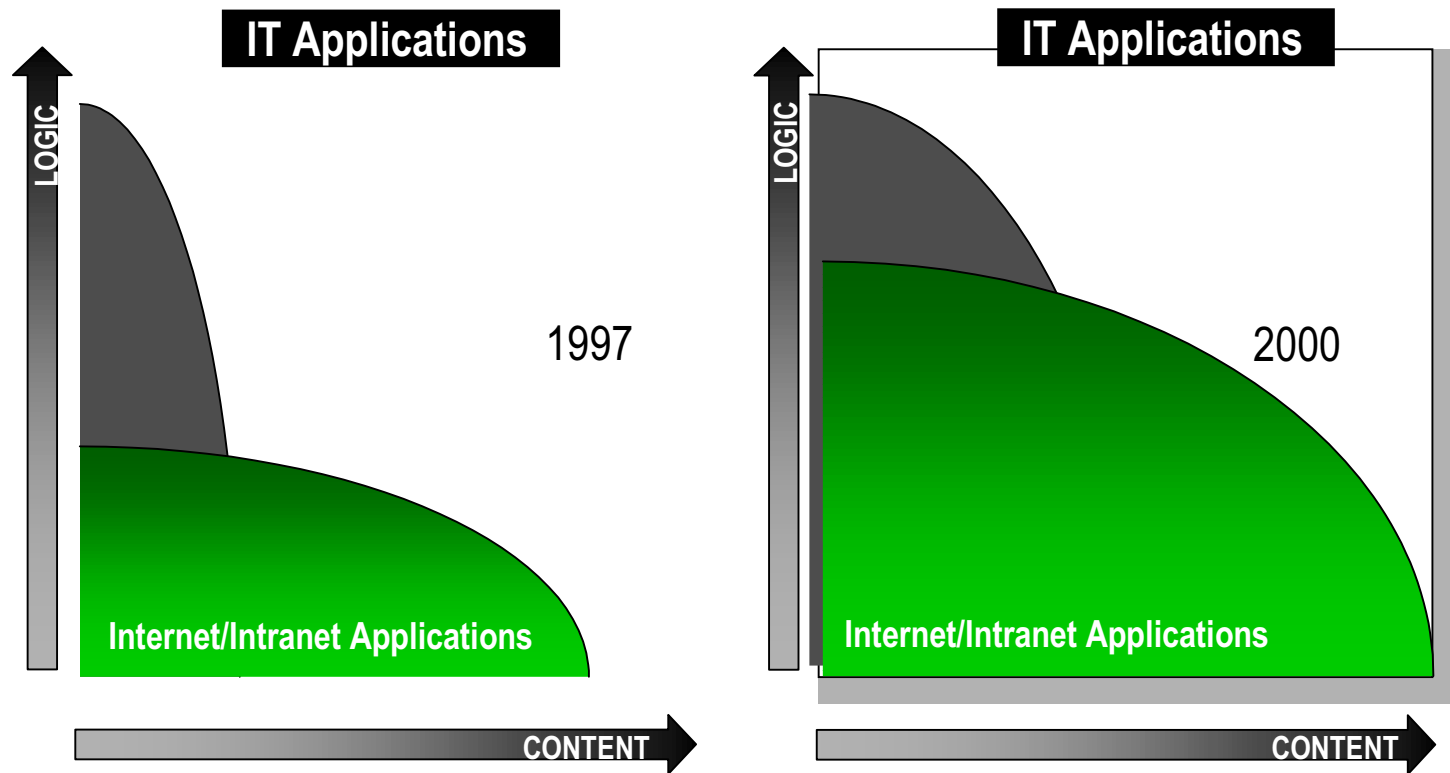
Source: GartnerGroup



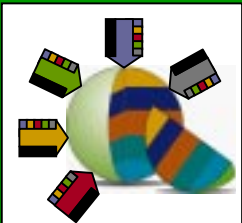
Dairy Farm

TECHNICAL ARCHITECTURE

Shift Toward Intranet/Internet Applications



Source: GartnerGroup

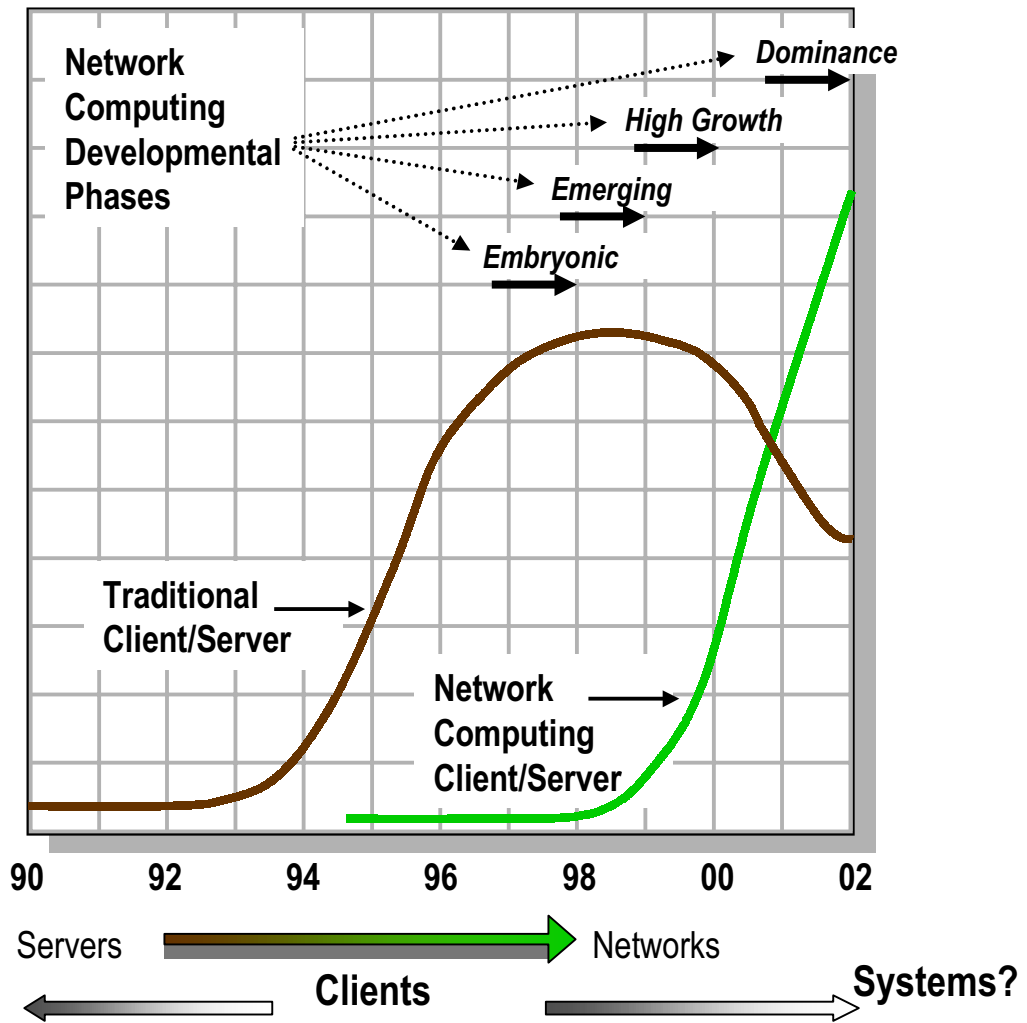


Dairy Farm

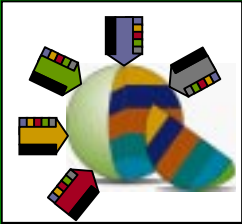
TECHNICAL ARCHITECTURE

Network Computing Transforms Client-Server

New Application Deployments



Source: GartnerGroup



Dairy
Farm

TECHNICAL ARCHITECTURE

Remote Access

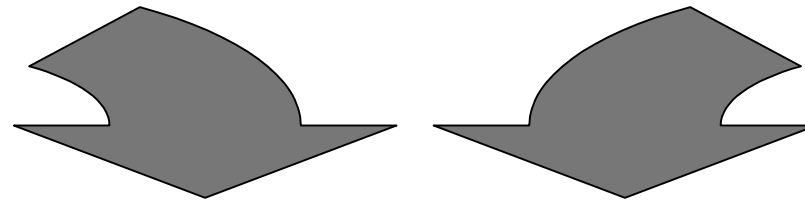
Telecommuters
Regional offices
Overseas employees

Mobile professional

Home offices
Hotels and airplanes
Client offices

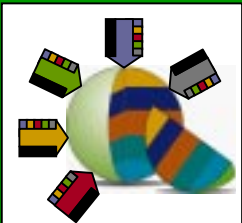
Task-oriented Mobile

Home offices
Hotels and airplanes
Client offices



Technologies

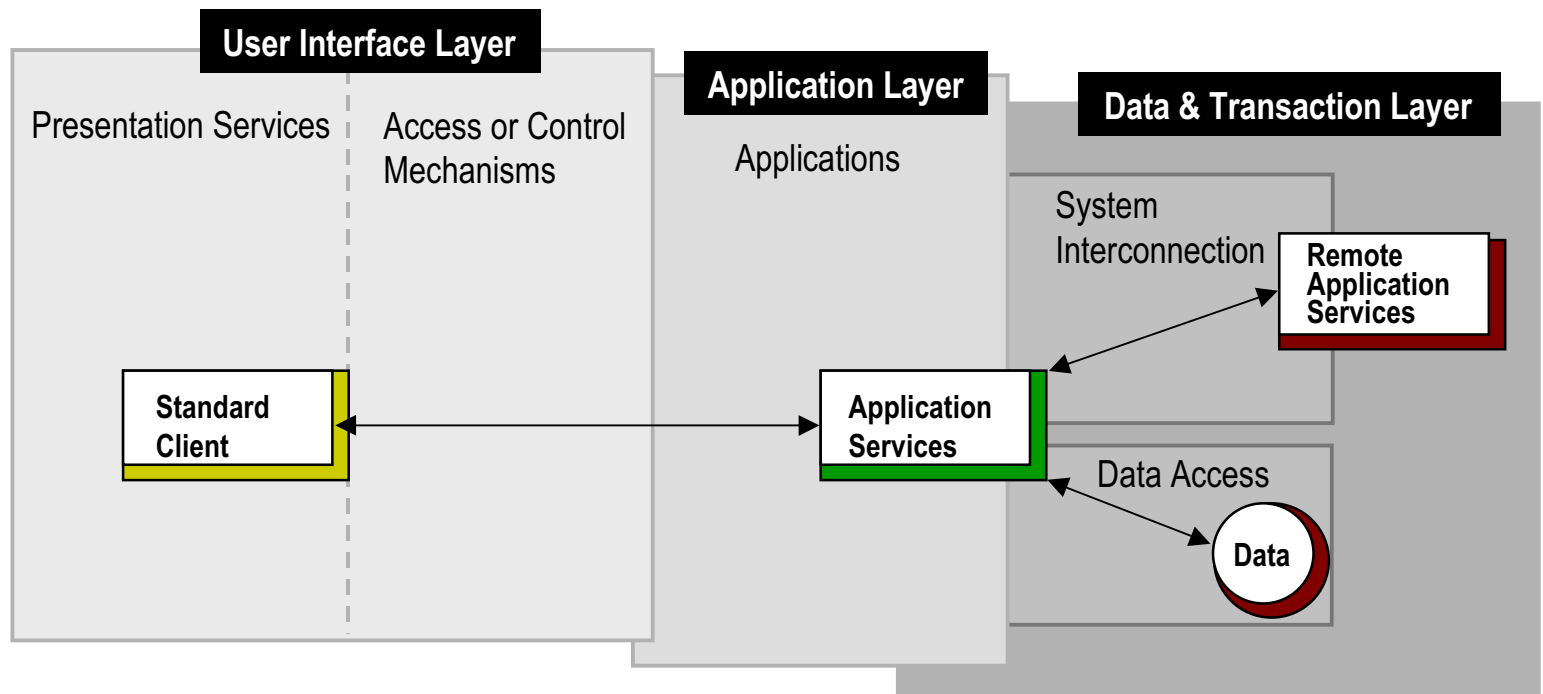
Integrated messaging
Portable devices
Wearable computing

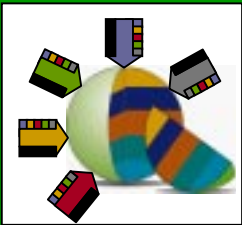


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TECHNICAL ARCHITECTURE

3-Tier Logical Application Partitioning

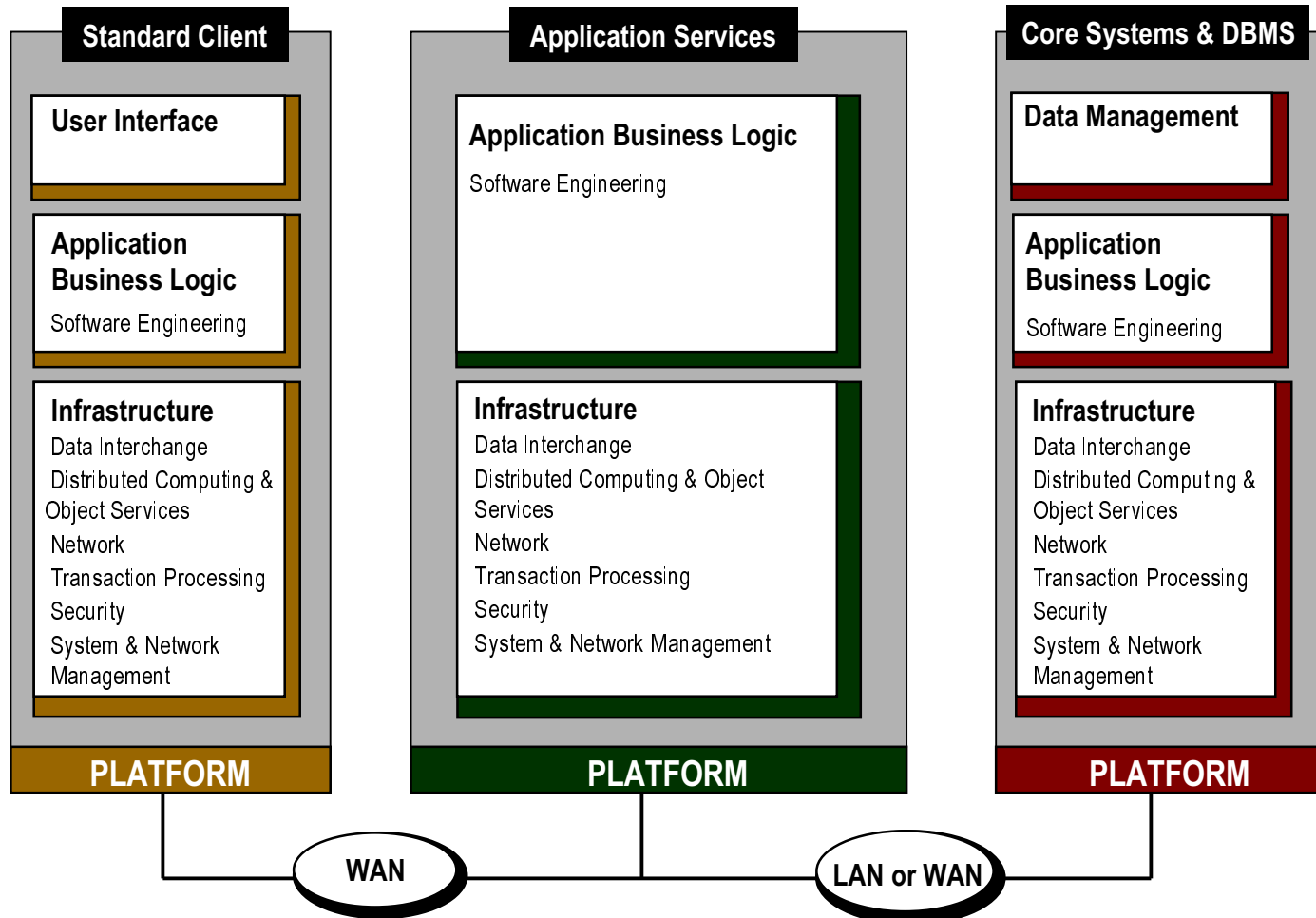


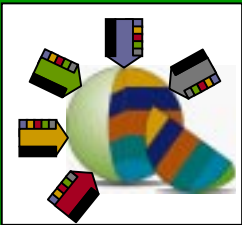


Typical 'n' Tier Application Physical Deployment

Dairy Farm

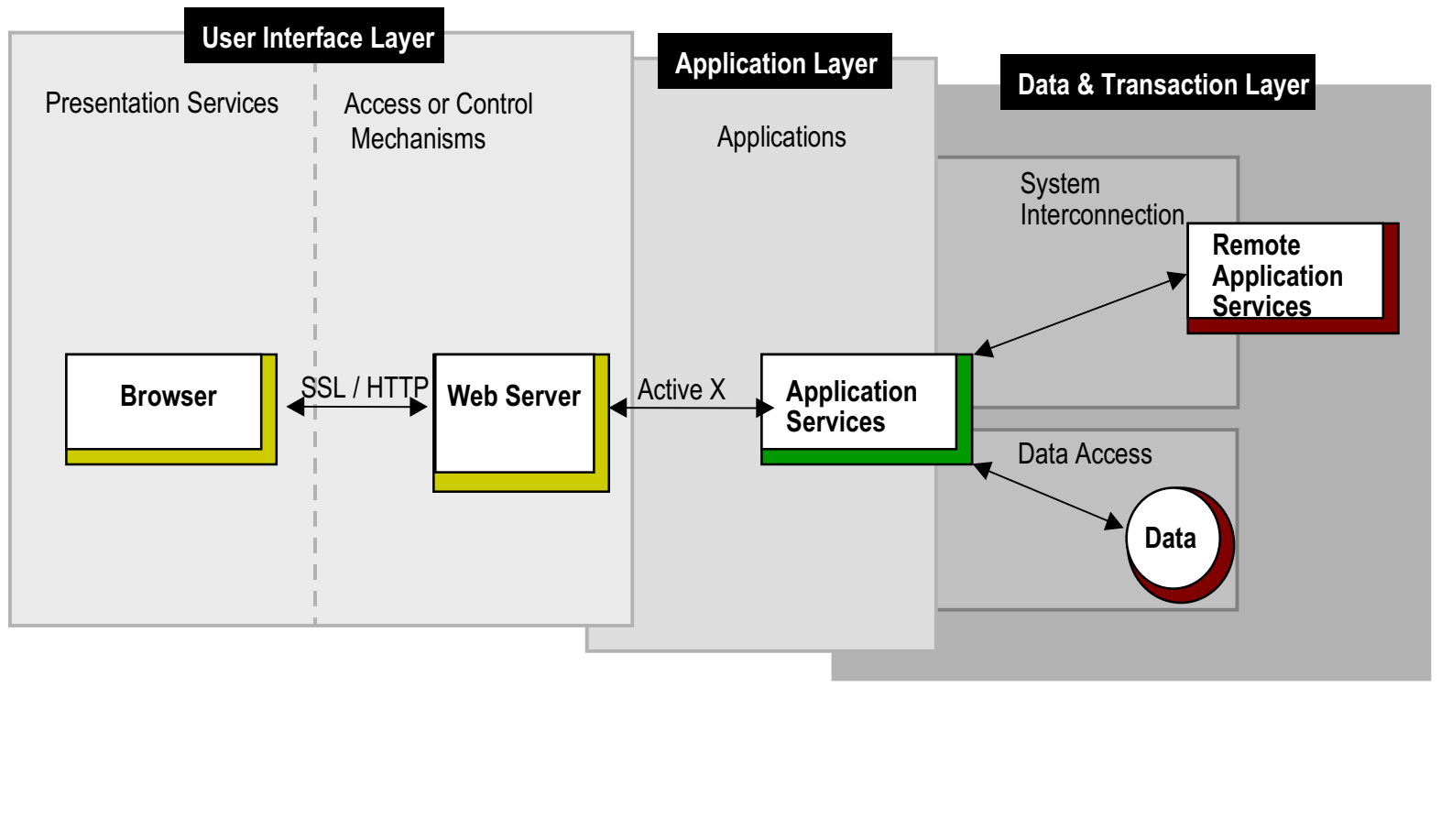
TECHNICAL ARCHITECTURE

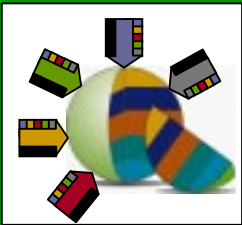




Application Logical Partitioning for E-RETAIL

Dairy Farm TECHNICAL ARCHITECTURE

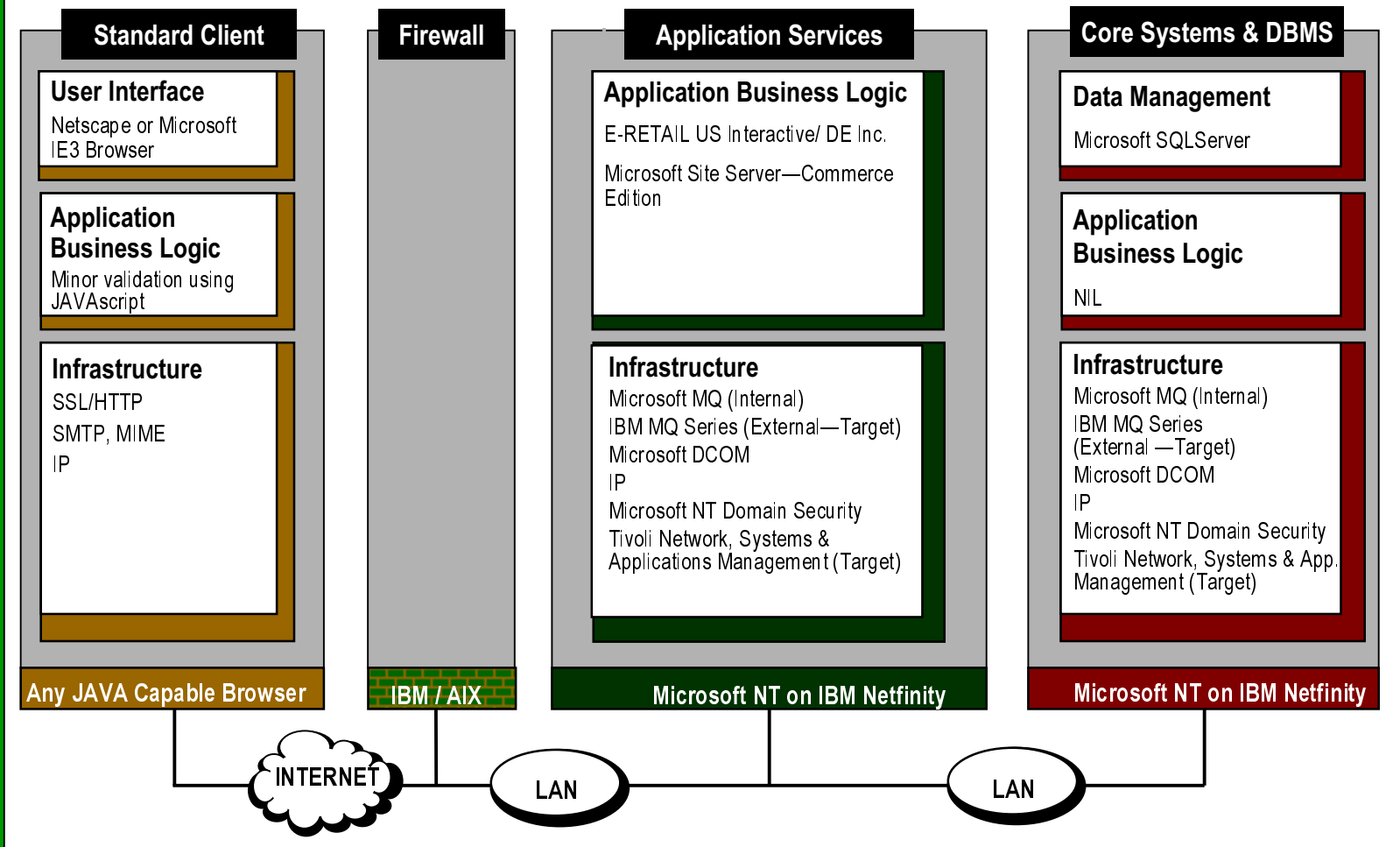


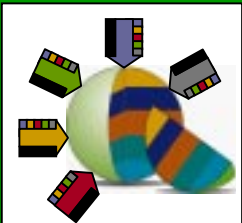


Application Physical Topology for E-RETAIL

Dairy Farm

TECHNICAL ARCHITECTURE

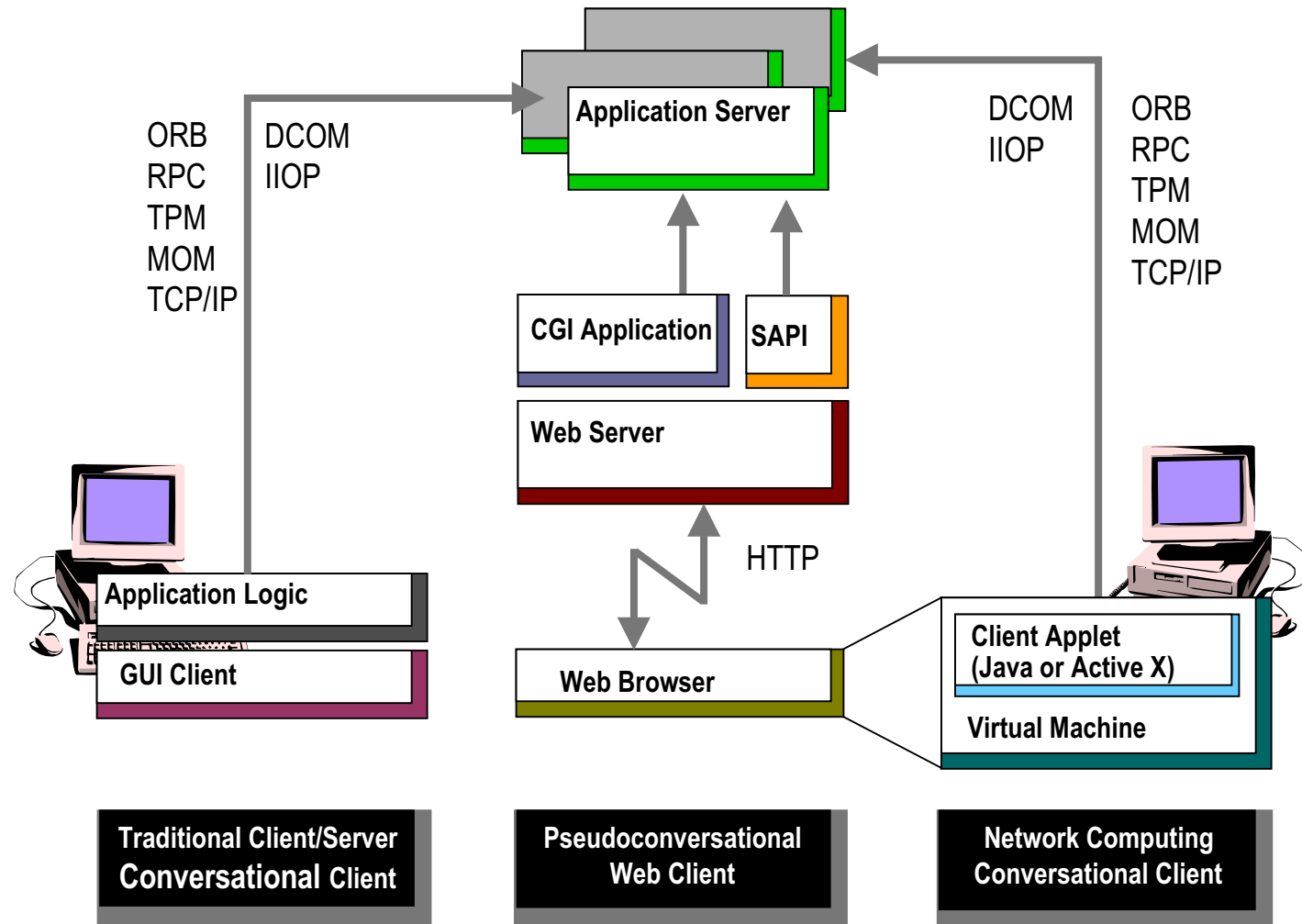




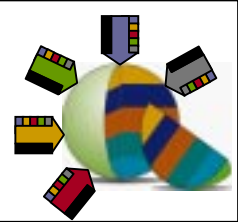
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TECHNICAL ARCHITECTURE

Co-existence of Client Models



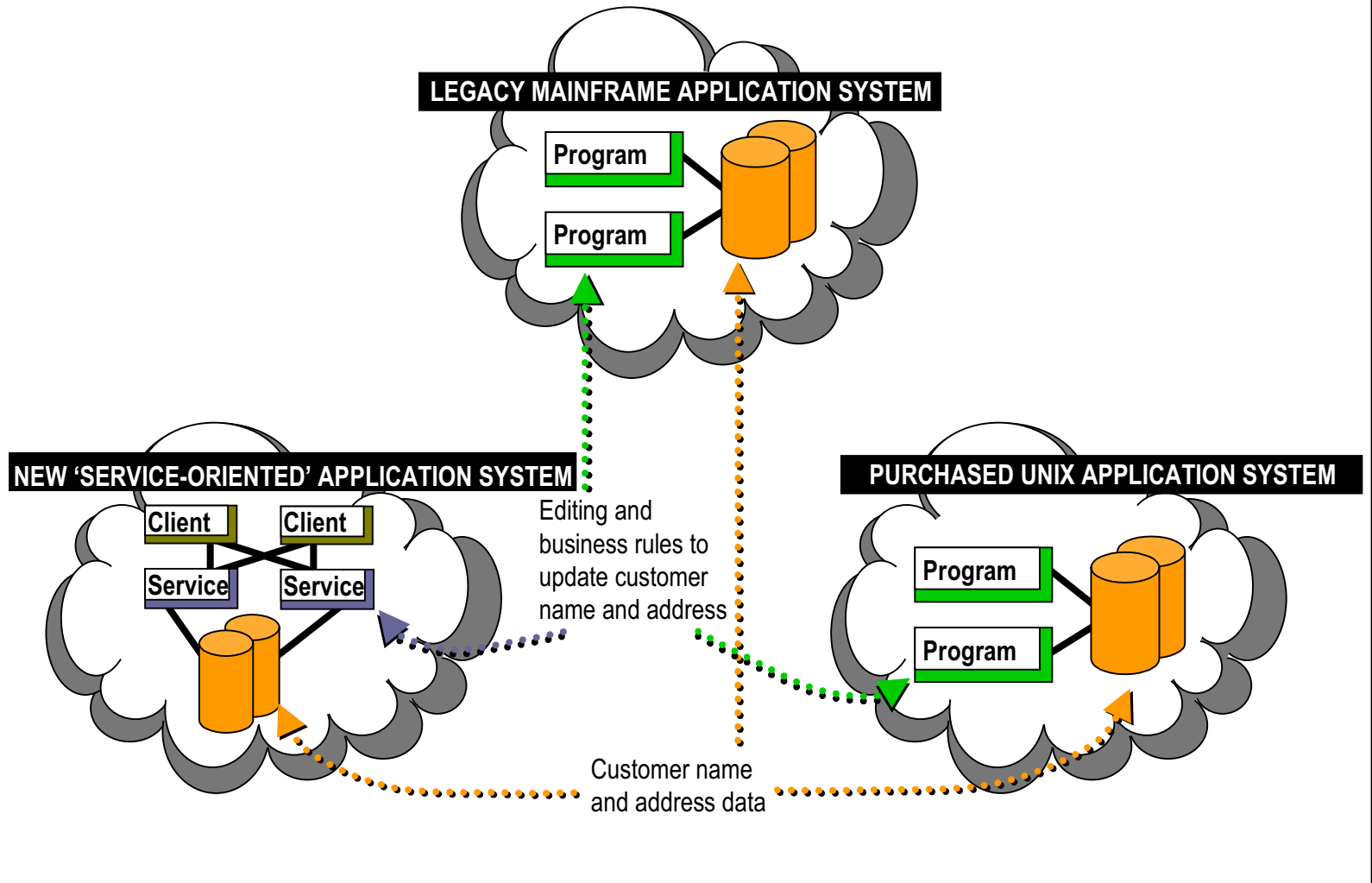
Source: GartnerGroup



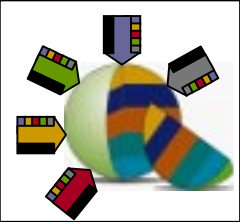
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TECHNICAL ARCHITECTURE

EAI: Unintegrated Applications



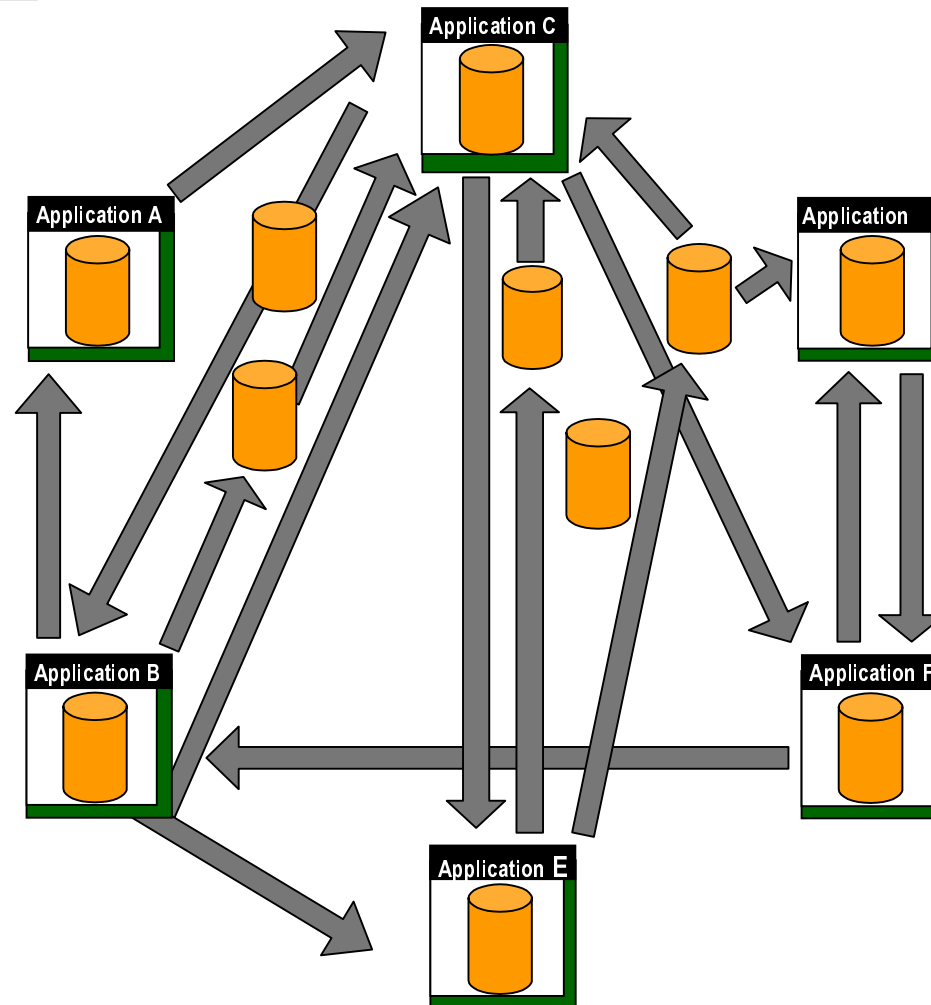
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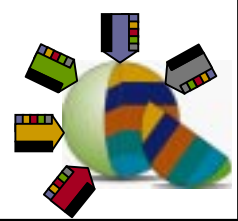
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TECHNICAL ARCHITECTURE

EAI: Today's Application Integration



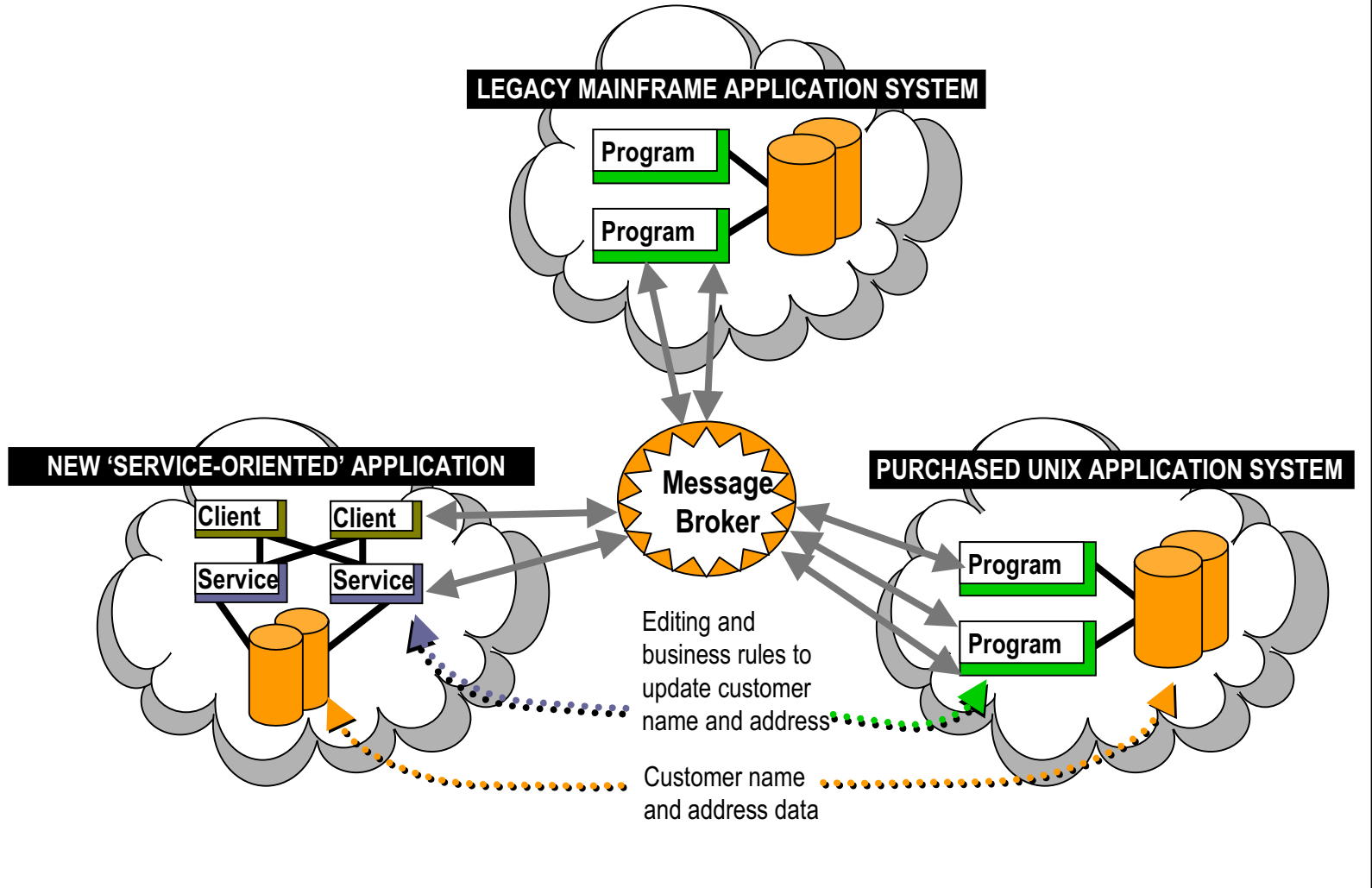
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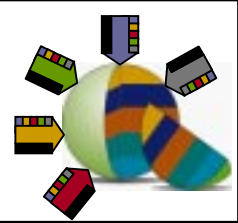
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TECHNICAL ARCHITECTURE

EAI: Message Broker



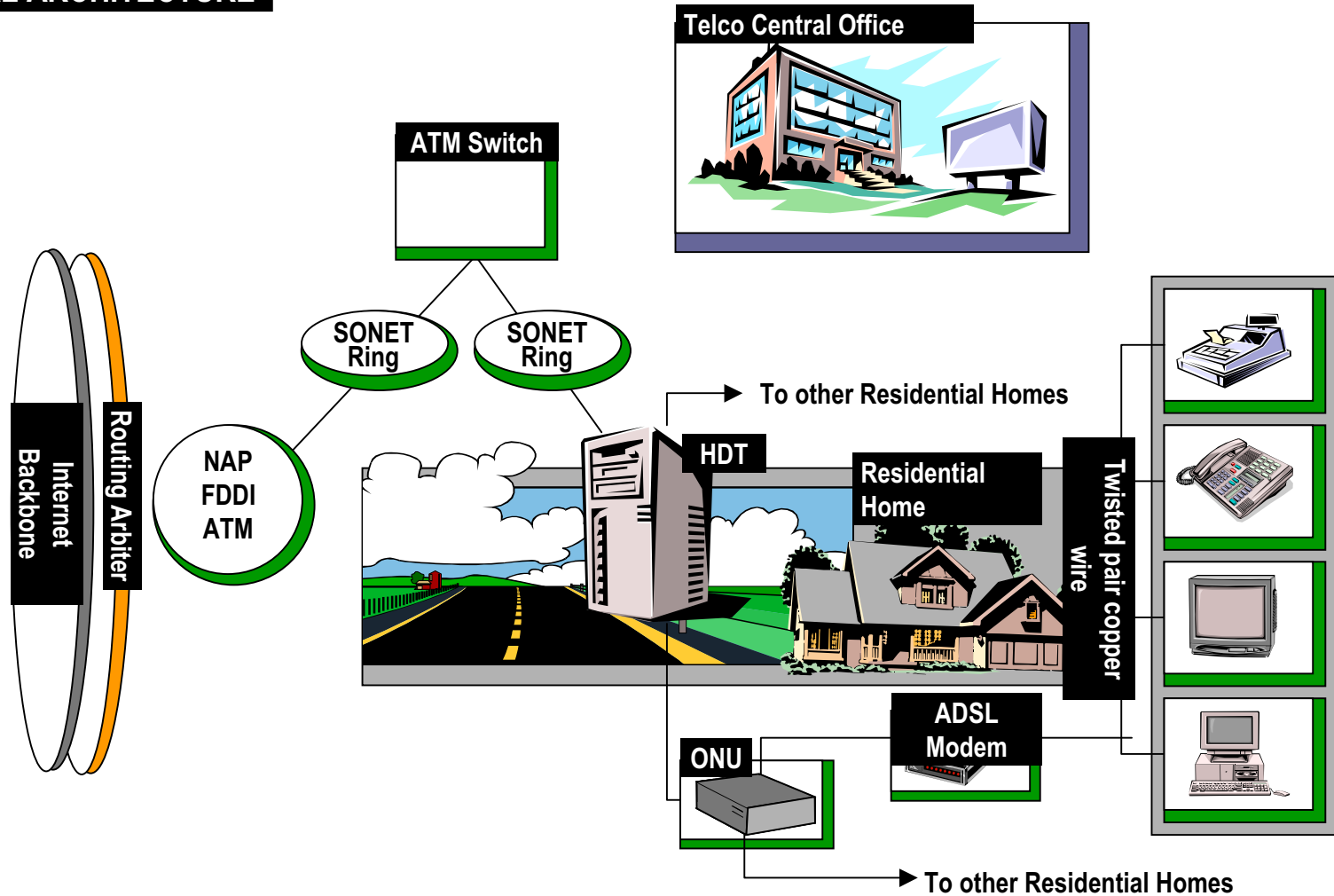
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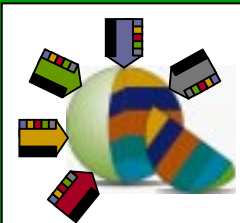


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TECHNICAL ARCHITECTURE


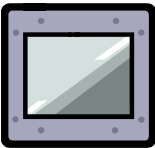

New Access Technologies

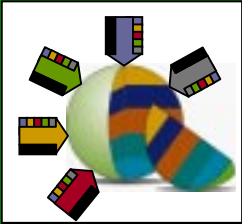




Future Digital Networks

Dairy Farm TECHNICAL ARCHITECTURE

Technology	Analog	ISDN	ADSL	ADSL
Bandwidth	56Kbps	128 Kbps	1.5 Mbps	6 Mbps
 <p>Two text pages (64Kb)</p>	1.1 seconds	0.5 seconds	0.04 seconds	0.01 seconds
 <p>Complex image (16MB)</p>	36 seconds	16 seconds	1.3 seconds	0.4 seconds
 <p>Full length movie (4.3GB)</p>	21 hours	11 hours	9 hours	14 minutes

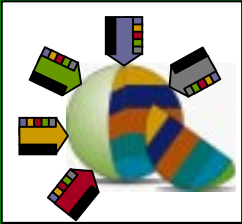


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TECHNICAL ARCHITECTURE

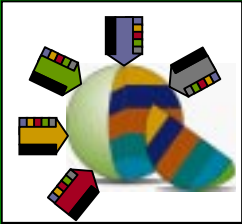
Agenda

- DFG—Introduction to the Company
- Why develop an Architecture?
- DFG TA Development Process
- DFG TA Structure
- Technology Directions
- **Next Steps**



Next Steps

- **Following the endorsement by the Operating Committee, TA is being presented to the DFG Board for sanction**
- **Implement new IT Governance process**
- **Continue Implementation with Business Units**
- **Version 1.1 to be released 12/98**



**Dairy
Farm**

TECHNICAL ARCHITECTURE

Agenda

- **DFG—Introduction to the Company**
- **Why develop an Architecture?**
- **DFG TA Development Process**
- **DFG TA Structure**
- **Technology Directions**
- **Next Steps**