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Version 9 Enterprise Edition

Module 22A
Phase D Technology Architecture – Catalogs, Matrices and Diagrams

THE *Open* GROUP

Making standards work™

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Module Objectives

The objectives of this module are to understand:

- The Catalogs, Matrices and Diagrams of Phase D, Technology Architecture

- What they consist of

- How they are used

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Example Artifacts

Preliminary Phase	Phase B, Business Architecture	Phase C, Data Architecture	Phase C, Application Architecture
• Principles catalog	• Organization/Actor catalog • Driver/Goal/Objective catalog • Role catalog • Business Service/Function catalog • Location catalog • Process/Event/Control/Product catalog • Contract/Measure catalog • Business Interaction matrix • Actor/Role matrix	• Data Entity/Data Component catalog • Data Entity/Business Function matrix • System/Data matrix • Class diagram • Data Dissemination diagram	• Application Portfolio catalog • Interface catalog • System/Organization matrix • Role/System matrix • System/Function matrix • Application Interaction matrix • Application Communication diagram • Application and User Location diagram
Phase A, Architecture Vision • Stakeholder Map matrix • Value Chain diagram • Solution Concept diagram	• Business Footprint diagram • Business Service/Information diagram • Functional Decomposition diagram • Product Lifecycle diagram • Goal/Objective/Service diagram • Use-Case diagram • Organization Decomposition diagram • Process Flow diagram • Event diagram	• Data Security diagram • Class Hierarchy diagram • Data Migration diagram • Data Lifecycle diagram	• System Use-Case diagram • Enterprise Manageability diagram • Process/System Realization diagram • Software Engineering diagram • Application Migration diagram • Software Distribution diagram

Phase D, Technology Architecture	Phase E. Opportunities & Solutions	Requirements Management
• Technology Standards catalog • Technology Portfolio catalog • System/Technology matrix • Environments and Locations diagram • Platform Decomposition diagram • Processing diagram • Networked Computing/Hardware diagram • Communications Engineering diagram	• Project Context diagram • Benefits diagram	• Requirements catalog

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Catalogs, Matrices and Diagrams

Catalogs

- Technology Standards catalog
- Technology Portfolio catalog

- **Matrices**
- System/Technology matrix

Diagrams

- Environments and Locations diagram
- Platform Decomposition diagram
- Processing diagram
- Networked Computing/Hardware diagram
- Communications Engineering diagram

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Catalogs

- Technology Standards catalog
- Technology Portfolio catalog

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Catalogs

Catalog	Purpose
Technology Standards Catalog	This documents the agreed standards for technology across the enterprise covering technologies, and versions, the technology lifecycles, and the refresh cycles for the technology. It contains the following metamodel entities: •Platform Service, Logical Technology Component, Physical Technology Component
Technology Portfolio Catalog	The purpose of this catalog is to identify and maintain a list of all the technology in use across the enterprise, including hardware, infrastructure software, and application software. An agreed technology portfolio supports lifecycle management of technology products and versions and also forms the basis for definition of technology standards It contains the following metamodel entities: •Platform Service, Logical Technology Component, Physical Technology Component

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Exercise

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Matrices

- System/Technology matrix

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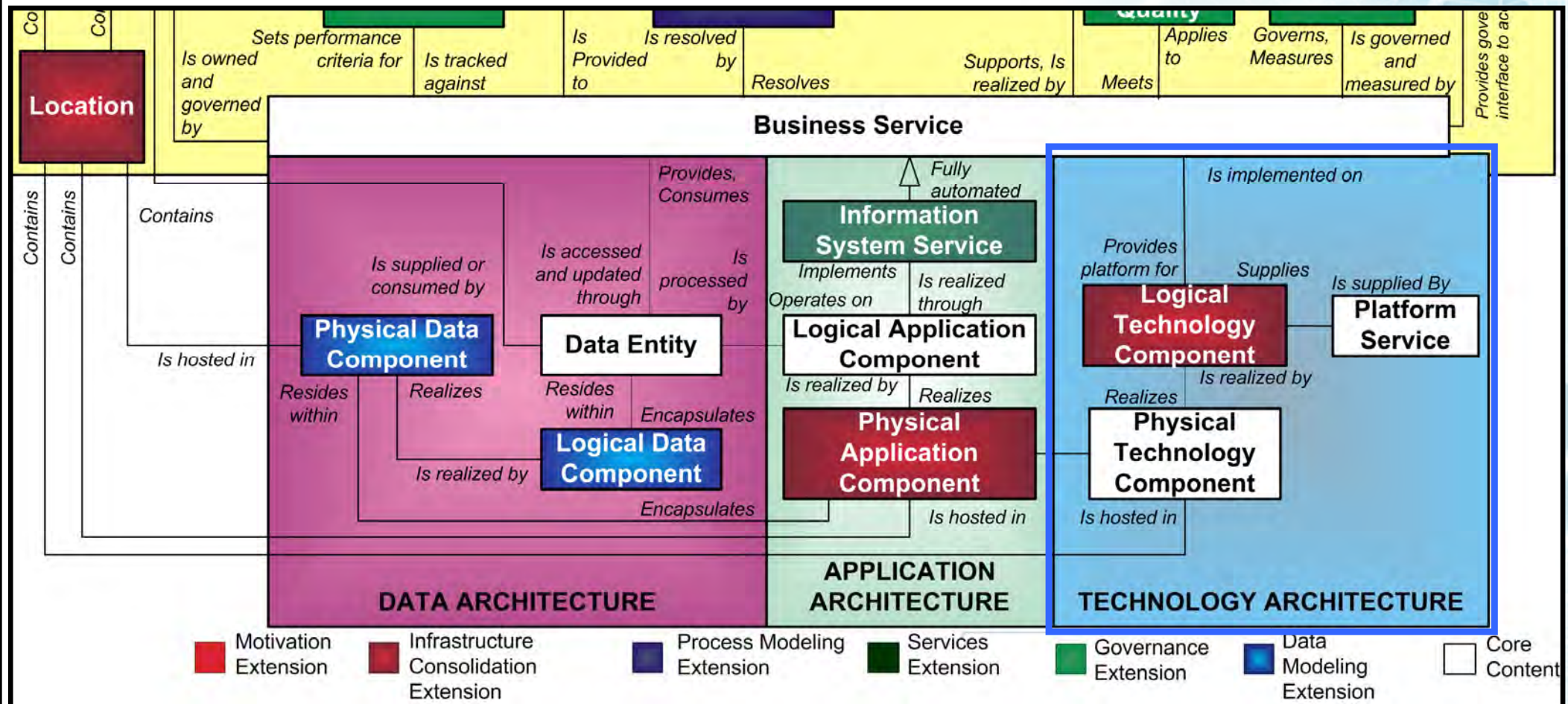
System/Technology Matrix

- The System/Technology matrix documents the mapping of business systems to technology platform.

- The System/Technology matrix shows:
  - Logical/Physical Application Components
  - Services, Logical Technology Components, and Physical Technology Components
  - Physical Technology Component *realizes* Physical Application Component relationships

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Example System/Technology Matrix

LOGICAL APPLICATION COMPONENT	PHYSICAL TECHNOLOGY COMPONENT	SERVER ADDRESS	IP ADDRESS
ABM	Web server - node 1	F01ws001@host.com	10.xx.xx.xx
	Web server - node 2	F01ws002@host.com	10.xx.xx.xx
	Web server - node 3	F01ws003@host.com	10.xx.xx.xx
	App server – node 1	F02as001@host.com	10.xx.xx.xx
	App server – node 2	F02as002@host.com	10.xx.xx.xx
	App server – node 3	F02as003@host.com	10.xx.xx.xx
	Database server (production)	F02dbp001@host.com	10.xx.xx.xx
	Database server (stating)	F03dbs001@host.com	10.xx.xx.xx
Load balancer and Dispatcher	Dispatcher server	F03nd001@host.com	242.xx.xx.xx

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Example System/Technology Matrix

TECH FUNCTION	HARDWARE LOGICAL	HARDWARE PHYSICAL	SOFTWARE LOGICAL	SOFTWARE PHYSICAL
Load balancing	▪Name – Balancer ▪Vendor - IBM ▪Server Type – eServer ▪Clustered – No ▪No. of Nodes – N/A ▪Server logical address - d04lb01@host.com ▪Maintenance Window – Sun 0100 to 0300	▪Model/Type – IBM P7xx ▪Serial Number – 1S4568 ▪Processor Type - RISC Power p5 ▪Number of Processors - 4 way ▪Memory - 1GB ▪Hard drive - 40 GB ▪IP - 11.xx.xx.xx	▪Product- IBM Load balance manager ▪Vendor - IBM ▪OS – UNIX based	▪SW Components – LB v3.2 (list all the other components of the SW product) ▪AIX 10.2.1 ▪License Type - ▪Enterprise wide license ▪License expiry date - 12/31/2008

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Example System/Technology Matrix

APPLICATION COMPONENT	DEPLOYMENT UNIT	TECHNOLOGY COMPONENT
▪Load Balancer	▪Smart dispatch v1.2 (both installation and execution code)	▪Load balancing server (d03lb001@host.com)
▪Commerce pages	▪HTML code ▪Applets ▪JSP	▪Web Server cluster (d03ws001@host.com, d03ws002@host.com, d03ws003@host.com)
▪Commerce Engine	•Order Entry (both installation and execution code) •Shopping Cart (both installation and execution code)	•Application Server (d03as001@host.com, d03as002@host.com)

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Diagrams

- Environments and Locations diagram
- Platform Decomposition diagram
- Processing diagram
- Networked Computing/Hardware diagram
- Communications Engineering diagram

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Environments and Locations Diagram

- Depicts which locations host which applications
- Identifies what technologies and/or applications are used at which locations
- Identifies the locations from which business users typically interact with the applications.
- It should also show the existence and location of different deployment environments
  - including non-production environments, such as development and pre production.

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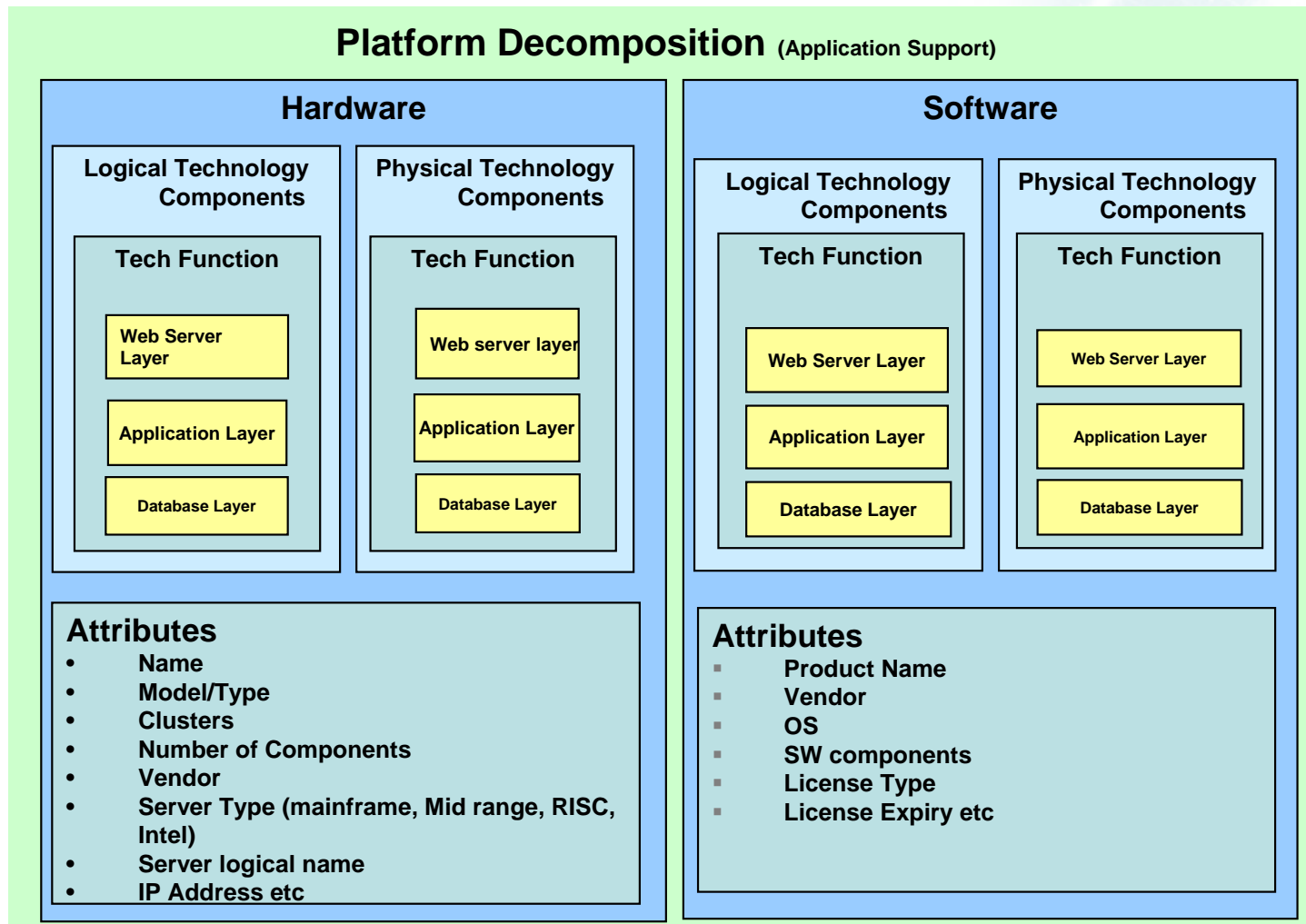# Example Environments and Locations Diagram

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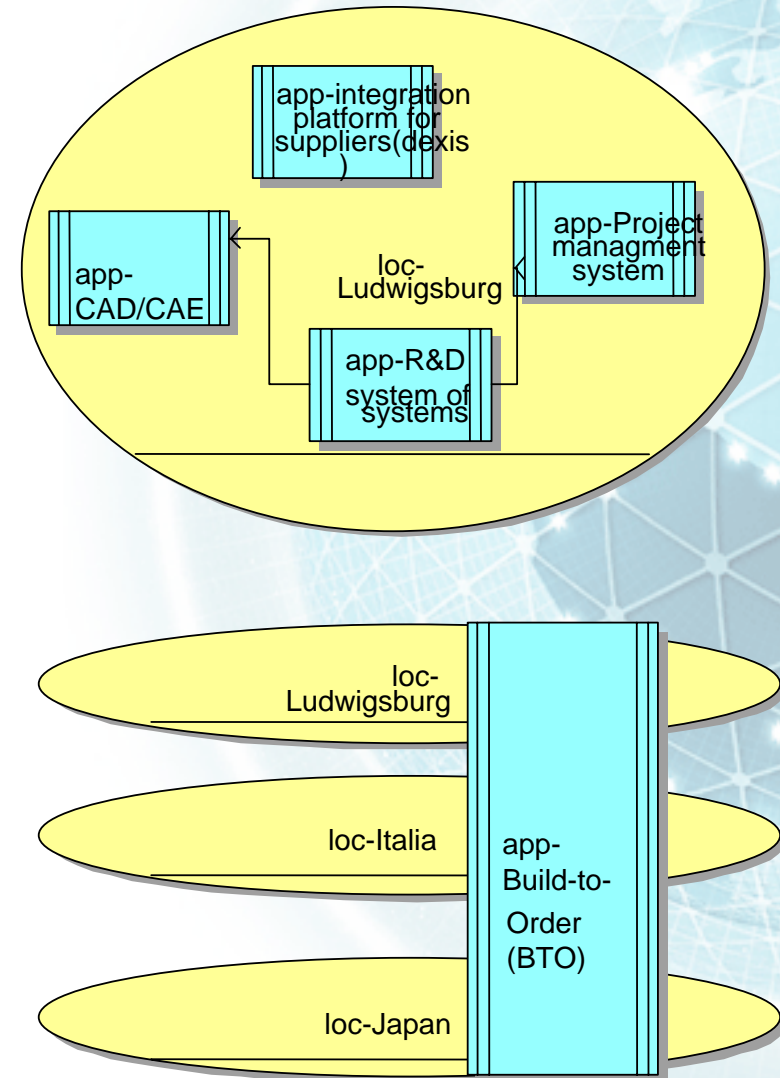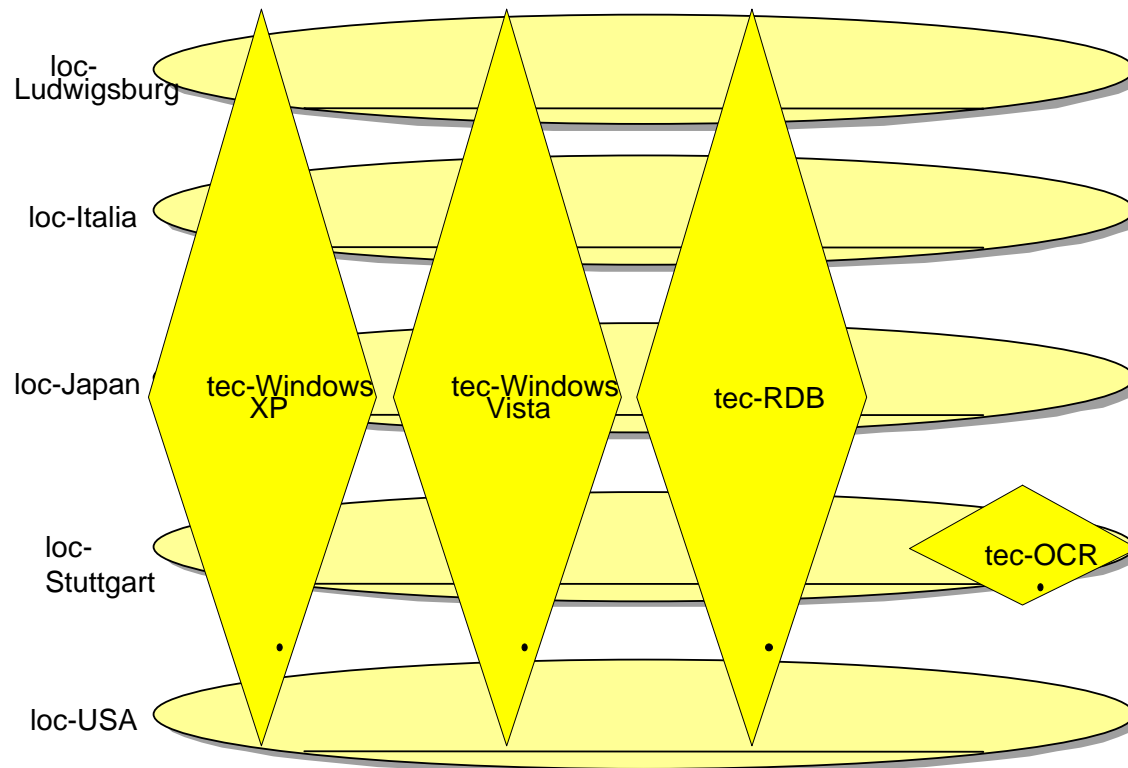
Platform Decomposition Diagram

- The Platform Decomposition diagram depicts the technology platform that supports the operations of the Information Systems Architecture.

- The diagram covers all aspects of the infrastructure platform and provides an overview of the enterprise's technology platform.

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Example Platform Decomposition Diagram

Platform Decomposition (Application Support)

Hardware

Logical Technology Components

Tech Function

- Web Server Layer
- Application Layer
- Database Layer

Physical Technology Components

Tech Function

- Web server layer
- Application Layer
- Database Layer

Attributes
- Name
- Model/Type
- Clusters
- Number of Components
- Vendor
- Server Type (mainframe, Mid range, RISC, Intel)
- Server logical name
- IP Address etc

Software

Logical Technology Components

Tech Function

- Web Server Layer
- Application Layer
- Database Layer

Physical Technology Components

Tech Function

- Web Server Layer
- Application Layer
- Database Layer

Attributes
- Product Name
- Vendor
- OS
- SW components
- License Type
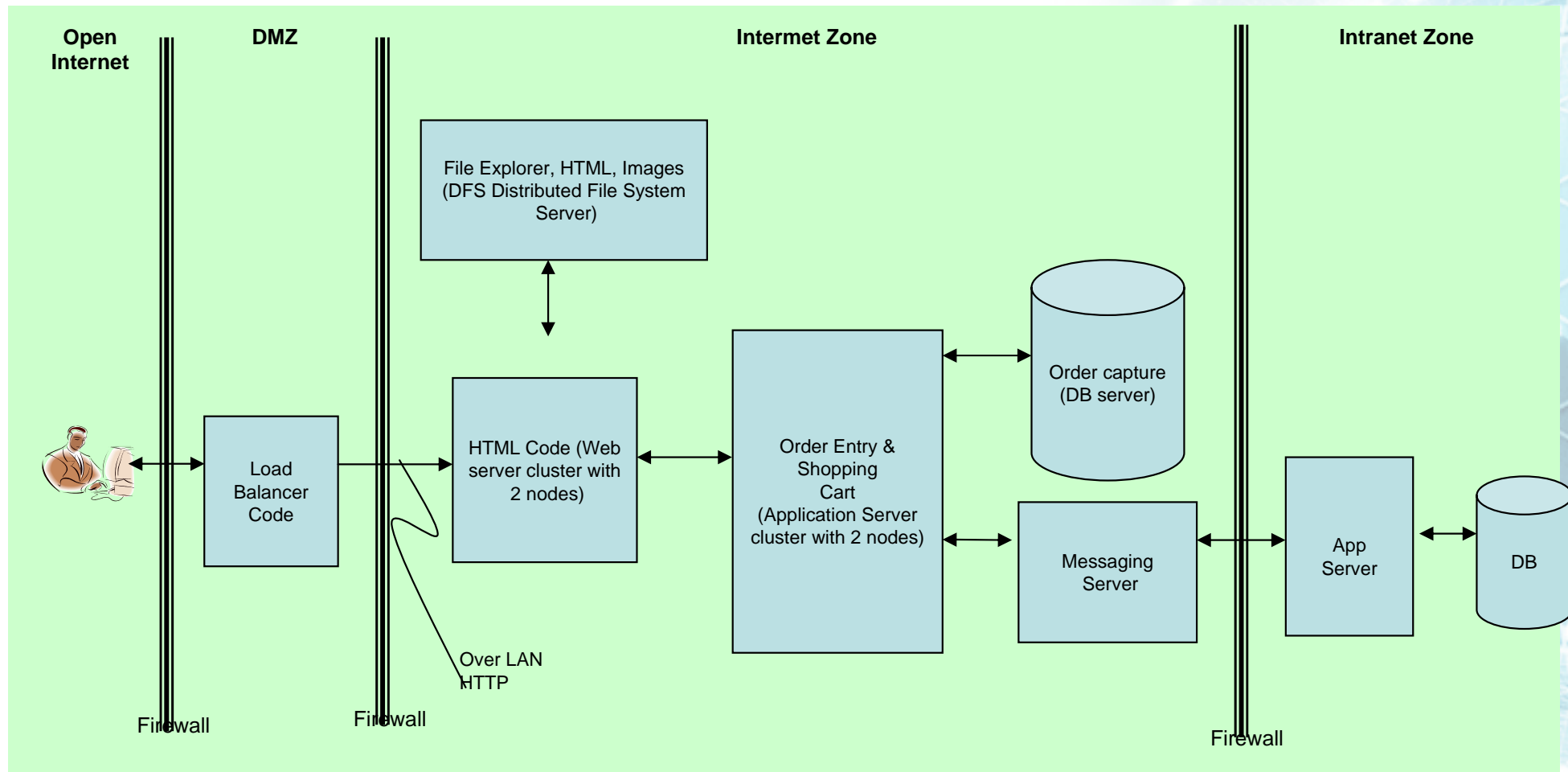- License Expiry etc

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Processing Diagram

- The Processing diagram focuses on deployable units of code/configuration and how these are deployed onto the technology platform.

- The Processing diagram addresses the following:
  - Which set of application components need to be grouped to form a deployment unit
  - How one deployment unit connects/interacts with another (LAN, WAN, and the applicable protocols)
  - How application configuration and usage patterns generate load or capacity requirements for different technology components

- The organization and grouping of deployment units depends on separation concerns of the presentation, business logic, and data store layers and service-level requirements of the components.

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Example Processing Diagram

Open Internet | DMZ | Intermet Zone | Intranet Zone

File Explorer, HTML, Images (DFS Distributed File System Server)

Load Balancer Code

HTML Code (Web server cluster with 2 nodes)

Order Entry & Shopping Cart (Application Server cluster with 2 nodes)

Order capture (DB server)

Messaging Server

App Server

DB

Over LAN HTTP

Firewall

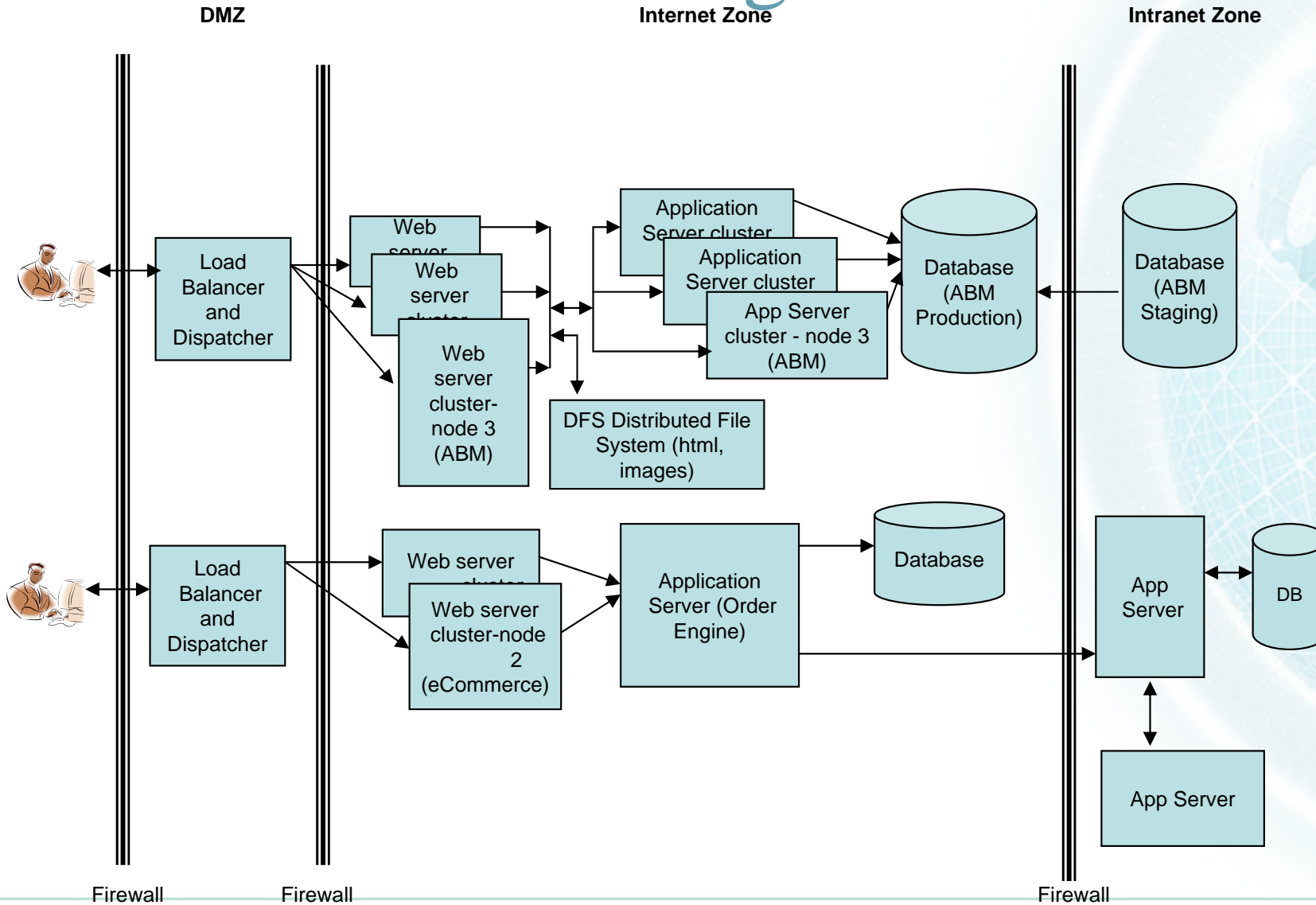Firewall

Firewall

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Network Computing Hardware Diagram

- The purpose of this diagram is to show the "as deployed" logical view of logical application components in a distributed network computing environment.

- The diagram is useful for the following reasons:
    - Enable understanding of which application is deployed where
    - Establishing authorization, security, and access to these technology components
    - Understand the Technology Architecture that support the applications during problem resolution and troubleshooting
    - Isolate performance problems encountered and perform necessary upgrade to specific physical technology components
    - Identify areas of optimization
    - Enable application/technology auditing and prove compliance
    - Serve as an important tool supporting effective change management

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Example Network Computing Hardware Diagram

DMZ　　　　　　　　　　　　　　　**Internet Zone**　　　　　　　　　　　　　　**Intranet Zone**

Load Balancer and Dispatcher

Web server cluster

Web server cluster

Web server cluster-node 3 (ABM)

Application Server cluster

Application Server cluster

App Server cluster - node 3 (ABM)

DFS Distributed File System (html, images)

Database (ABM Production)

Database (ABM Staging)

Load Balancer and Dispatcher

Web server cluster

Web server cluster-node 2 (eCommerce)

Application Server (Order Engine)

Database

App Server

DB

App Server

Firewall　　　　　Firewall　　　　　　　　　　　　　　　　　　　　　Firewall

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Communications Engineering Diagram

- The Communications Engineering diagram describes the means of communication between assets in the Technology Architecture

- It takes logical connections between client and server components and identifies network boundaries and network infrastructure required to physically implement those connections.

- It does not describe the information format or content, but addresses protocol and capacity issues.

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Communications Engineering Diagram