Module (Platforms)

Platforms for Mobile and EC/EB Applications

e-Business Applications, Architectures, Integration

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Chapter 2: Object-Orientation, Java, and UML -- A Tutorial
Chapter 3: Database Technologies and SQL -- A Tutorial
Chapter 4: Web Engineering and XML Processing – A Closer Look
Chapter 5: CORBA -- A Closer Look

A Technology Briefing Module from

"e-Business and Distributing Systems Handbook"

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MODULE (Platforms): Platforms for Mobile and EC/EB Applications

Module Overview

Middleware services are growing at a rapid rate to support a wide range of current and future applications. In the "Middleware" Module, we discussed the general purpose middleware services such as Web, CORBA, XML/SOAP, and distributed transaction processing that can support almost any type of application. In this module, we turn our attention to the higher level and specialized middleware services that are becoming available to support specialized applications such as mobile computing, ecommerce/ebusiness, and realtime systems (see Figure 1 - our focus is on the block with dark borders). Many of these special purpose middleware services, shown with a dark border in the following diagram, are also being packaged with other infrastructure services to form ***"Application Servers",*** also known as ***"Middleware Platforms".*** Examples of these platforms are Mobile Application Servers based on WAP (Wireless Application Protocol), eCommerce Platforms such as IBM's Websphere, and eBusiness Platforms for B2B trade such as Vitria's Businessware.

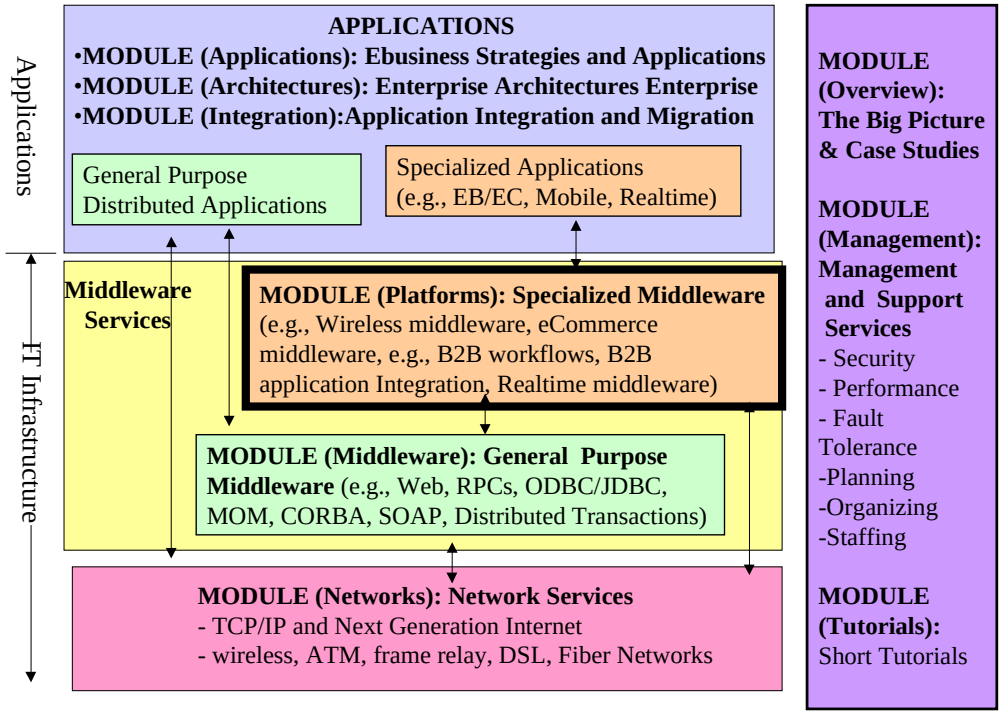

Figure 1: Specialized and Higher Level Middleware Services

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This trend of application servers/middleware platforms is significant because now you can buy a complete suite of technologies that work together to solve specific business problems. It is easier and cheaper to build ecommerce applications by using ecommerce platforms and build mobile applications by using mobile application servers. The following chapters of this module discuss these application servers/middleware platforms in some detail.

Chapter 1: Mobile Computing Platforms -- The Mobile Application Servers

Chapter 2: ECommerce Platforms for C2B Trade -- The Commerce Servers

Chapter 3: B2B Platforms and Standards -- The B2B Servers

Chapter 4: Platforms for Multimedia and Collaboration

Chapter 5: Application Server State of the Practice, Market, and Art

These chapters in essence discuss Application Servers and their variants (Mobile Application Servers, Commerce Servers, B2B Servers, and Collaboration Servers). Simply stated, an ***Application Server*** (also known as app server) is a platform for development, deployment, and management/support of Web-based applications. Let us take a quick look at the application servers and its variants. At present, application servers exist in the following classes:

- General purpose application servers
- Special purpose app servers developed to support, for example, mobile applications and ecommerce applications.

General Application Servers, or just application servers, package several technologies (network support, middleware services, software development environments, and monitoring/control systems) to build, deploy and manage modern Web-based applications. The current and future versions of general application servers include facilities for development, deployment, and management of web-XML applications. This includes facilities for EJB (Enterprise Java Bean) component development, XML exchanges, load balancing, failure handling, and adapters for connecting to back-end applications. Sun is positioning its J2EE and Microsoft is positioning its .NET platform as application servers. A well known application server is the BEA Weblogic Server. We will discuss the general application servers in Chapter 5.

Mobile Application Servers, discussed in Chapter 1, are application servers that package several technologies (wireless network support, wireless middleware services, wireless software development environments, and wireless monitoring/control systems) to build, deploy and manage mobile applications. Nokia's WAP Server, Oracle's Mobile Application Server, and Agilo's Server IBM's Web are examples of mobile application servers.

Commerce Servers, discussed in Chapter 2, are application servers that package several technologies (network support, EC middleware services, EC software development environments, and EC monitoring/control systems) to build, deploy and manage EC applications. These servers are also known as eCommerce servers. Microsoft's Commerce Server, Sun's Iplanet, and eCommerce platforms from Open Market are examples.

B2B Servers, discussed in Chapter 3, are application servers that package several technologies (B2B network support, B2B middleware services, B2B software development environments, and B2B monitoring/control systems) to build, deploy and manage B2B applications. Vitiria's BusinessWare, Active's ActiveWare and HP's e-Speak are examples.

Collabortation servers, discussed in Chapter 4, are application servers that package several technologies to build, deploy and manage collaborative applications. Lotus Notes is an example of collaboration servers.

Naturally, you can envision ***"Super Application Servers"*** that combine all the services needed for web, mobile applications, and EC/EB services on a single platform. That is exactly what has happened. IBM's WebSphere is an example. Another interesting example is the Netscape Application Server that

combines web development capabilities with enterprise applications to integrate with corporate data sources. These "Super Application Servers" are discussed in Chapter 5 along with a discussion of state of the practice (case studies) and state of the market (commercial products).

Reader Background Expected

This Module builds upon the discussion of middleware services contained in the Middleware Module. Thus the Middleware Module is a necessary prerequisite. In addition, the information contained in the Applications Module is highly recommended as a prerequisite because it describes the EC/EB applications that the middleware platforms support.

Module Case Studies

XYZCorp Case Study: Middleware Platforms Architecture

The focus of the XYZCorp case study in this module is on Middleware Platforms Architectures (see Figure 2). This task goes beyond the basic middleware architecture developed in the "Middleware" Module and highlights the role of commercially available platforms that package several technologies together. In particular, the company wants to evaluate COTS (Commercial-Off-The-Shelf) platforms that could support mobility and B2B as well as C2B trade. It is important that these platforms interwork with other middleware services that were established in the XYZCorp "middleware architecture" in the "Middleware" Module. We will develop this architecture by working through the following projects that will be completed in this and later chapters in this module:

- A mobility project that will support a variety of mobility services for its employees and customers in the next few years. See Chapter 2 of this module
- An ecommerce project that will setup an online purchasing system for customers to purchase the company products through the Web. See Chapter 2 of this module
- A B2B project for business partners and suppliers to interact with each other through direct interactions and/or emarkets. See Chapter 3 of this module.
- A next generation middleware project that will support futuristic groupware, multimedia applications, and enterprise-wide distributed applications. See Chapter 4 of this module.

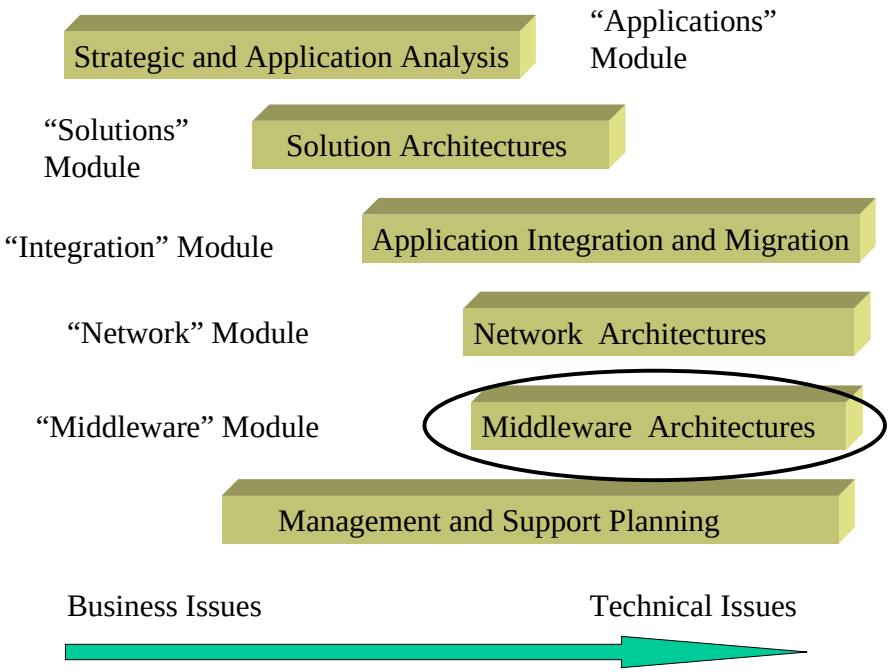

Figure 2: XYZCorp Planning Tasks

Additional Case Studies and Examples

Several additional case studies and examples are discussed in the chapters of this module. A number of case studies that are relevant to the topics discussed in this module appear regularly in trade magazines, vendor documents, web sites and books. Chapter 5 of this module gives a sample of relevant case studies and points to numerous sources for additional case studies and examples.

In addition, the following case studies in the "Case Studies and Examples" Chapter of the "Overview" Module can be used to illustrate different aspects of the material in this module:

Section 2.3 Ecommerce/eBusiness Examples:. These examples can be used to understand how technical choices were made some time ago and to analyze how different application servers could be used for the cases

Section 2.5 A Financial Marketplace. After reviewing this case study, you can choose a B2B server for this marketplace

Section 2.6 City of Seattle Public Utilities Go Wireless. This case study shows how the decisions were made in 1999. How would you do it today?

Section 2.9 A Customer Relationship Management Portal. Many technical choices are made in this case study. Can you use a super application server for this portal/ which one and why?

MODULE CONTENTS -- HIGH LEVEL

MODULE CONTENTS -- DETAILED