

VOLUME TWO, CHAPTER 1: INTRODUCTION

1 WHAT IS THE TECHNICAL REFERENCE MODEL?

The Technical Reference Model (TRM) is a two-volume compendium of the principles, practices, standards, technologies, and products that comprise the Information Technology (IT) infrastructure of the BLM. Volume I provides the Principles and Best Practices upon which recommendations of specific technologies in Volume II are based.

The TRM is one critical component in a comprehensive BLM effort to align its investments in computers and other information technology with the needs of the BLM land management and administration programs. The BLM IT community can take pride in having rapidly and successfully automated many business processes and information sources, and in having linked the entire BLM together via a standard email system and the Web. However, many opportunities remain for consolidation, standardization, and simplification that can make IT more cost-effective, functional, and reliable.

The TRM responds to a range of internal and external pressures for improvement, such as the following:

- Costs and complexity of IT support must be controlled when maintaining stove-piped and overlapping systems.
- The BLM's core business requires increasing information handling capabilities to deliver more consistency, greater accuracy, and easier access to its operational business information.
- The BLM has to operate within the larger technology context to take advantage of technological innovations and ensure that it does not fall behind.
- Recent laws and directives are requiring new approaches that are driving the BLM's improvement efforts to manage IT more effectively.

Each of these factors will be examined more thoroughly later in this chapter.

BLM management is leading several parallel activities to ensure that the BLM core business benefits from all that IT has to offer with as little duplication, complexity, and cost as can be achieved. BLM is a leader in implementing the requirements and recommendations available in the Clinger-Cohen Act of 1996, OMB guidance, GAO investment management ideas, executive orders, and industry experience. BLM has initiated the following actions:

- Appointed Chief Information Officer (CIO) for the agency, and will appoint State CIOs.
- Appointed an IRM CIO Council from among the State organizations to advise the CIO.
- Created an Investment Management Group responsible for guiding IT investments toward greater cost-effectiveness.
- Created a national IT Investment Board (ITIB), representing all the program offices, to authorize proposed major IT investments.
- Created the Systems Coordination Office to provide technical advice to the ITIB on IT proposals; develop project management processes and sponsor a project management training program; provide guidance, templates, and standards for better IT project management; provide direct help to IT project managers; and lead the BLM's effort to improve IT investment management practices and achieve Capability Maturity Model Level 2.
- Developed the Bureau Architecture (BA), a multifaceted process aimed at re-engineering business processes, improving data management, streamlining business software, and ensuring that the IT underpinnings of all these are optimal, now and into the future.

The TRM is an important part of the BA process and, therefore, of improving management of BLM IT investments. The TRM focuses on IT hardware, software, and standards that provide a common infrastructure for communicating, operating computing systems, and managing data within a reliable and secure environment (referred to as the "IT Factory"). It does not address software applications that serve particular business processes, specific databases, or other program-specific services, which are handled elsewhere in the BA

process. Volume I of the TRM sets out the principles, best practices, and standards by which the IT infrastructure will be governed. Volume II translates those principles, best practices, and standards into lists of technologies and products that promote the objectives of the BA. These are supported by technical implementation guidelines.

Volume II of the TRM organizes all the elements of the IT infrastructure into a layered and compartmented model of the IT services BLM requires. Each component of this model is treated in a separate chapter. After echoing the related principles and best practices from Volume I, each chapter assigns technologies and products to categories that indicate their current and future status in the IT architecture. In cases where doubt remains about the best technical choice, further research in the form of a trade study is recommended.

In each chapter of Volume II, technologies and products are assigned to the following categories in the Executive Summary Tables:

- **Current Environment**—The environment that all new applications and projects use for development. The technologies and products are approved for purchase and are supported by the BLM Help Desk and the vendor.
- **Containment Targets**—These technologies and products are not baselined and do not necessarily meet the BLM’s future architecture. These products may require a waiver for any new product development. These technologies and products are retained but not expanded in the Bureau. Containment products that do meet architecture and business requirements may become future baselined products. Contained items may not be supported by the BLM Help Desk and may require a call to the vendor for any support.
- **Retirement Targets**—Technologies and products that will be discontinued. From a user’s perspective, this means you can’t buy these technologies or products, you use them at your own risk, they are not supported by the BLM Help Desk, and the only support available may be from the vendor.
- **Near-Term Deployment**—Technologies and products that are planned for the time frame ranging from the TRM publication date of this document to the TRM publication date plus 18 months (full deployment within 18 months).
- **Long-Term Direction**—Technologies and products that are planned for the time frame ranging from 18 months past the publication date of the TRM to five years beyond the TRM publication date.
- **Trade Studies**—Requirements exist for technologies or products that must be chosen based on business requirements and selection criteria.
- **Emerging Technologies**—New technologies and products that show sufficient promise for future use and should be monitored by the BLM.

Following the Executive Summary Tables are three tables that present the complete list of technologies, one each for products and technologies assigned to the “Current,” “Contain,” and “Retirement” categories. Each table lists all the products and technologies in that category within the BLM, along with rationales for why they appear. A replacement is specified for each “Retirement” product or technology.

The Standards Profile tables (Table 1.5 at end of chapter is an example) identify the technical standards to be used throughout the BLM IT Architecture. Technical standards define interfaces, services, protocols, and formats that enable configuration and operation of a system. Adoption of enterprisewide standards promotes interoperability and scalability of systems and applications. The Standards Profiles enable acquisition and development of standardized systems and applications to meet the BLM’s business needs cost effectively. These tables list each standard adopted by the BLM and include an explanation of how the standard is utilized and a reference to the published standard.

Each chapter includes implementation rules and guidelines for the use or introduction of each technology, and explanations of the technology recommendation. This is intended to promote a smooth transition from current to future technologies. However, this volume does not provide a prioritized, scheduled transition plan for moving the BLM toward a desired future state. Such transition planning also requires business program participation in order to prioritize IT improvements and must be handled separately as part of the BA process.

The system engineers who developed the TRM are not in a position to make certain choices that must be made by the BLM business community. For example, the TRM may determine that two technologies appear equally

capable of meeting business needs, although one may cost more than another. If there is no compelling technical rationale for choosing, business representatives must make the call. This issue arises frequently and will be addressed separately as part of the BA process.

Adoption of the TRM implies a more uniform national approach to many IT decisions. BLM land management programs operate in a highly decentralized fashion, which benefits the BLM's customers by permitting BLM personnel to make the right decision for local circumstances. To support decentralized land management, BLM IT support functions are mostly decentralized as well. Sometimes this works very well, permitting IT professionals to provide services that are ideally suited to local needs. In other cases, the decentralized approach has led to duplication, inability to share information, complexity in system administration, and higher costs. Occasionally, IT incompatibilities have resulted in inconsistent actions on the same land parcel by separate BLM programs. "Roll-ups" of program data are complicated by incompatible software, standards, and formats that impose unnecessary and recurring costs.

The philosophy of decentralization that benefits BLM program operations is not always suited to cost-effective IT management. In respect to the IT infrastructure, it is important to provide that degree of nationwide commonality that permits BLM to communicate, share information, plan activities, report results, and make consistent decisions. This implies reaching a consensus on a list of basic technologies, standards, and products that all BLM organizations agree to use. Volumes I and II of the TRM are a substantial start at defining those requisite elements of nationwide consistency.

If the BLM could confine such standardization of technologies and products to just the minimum required to permit nationwide interoperability, there would be less concern on the part of State and field office IT managers. However, the need to improve the cost-effectiveness of IT services means that the TRM also must identify opportunities to consolidate and streamline the list of technologies and products that duplicate one another unnecessarily. This is inherently more problematic to local IT managers, who may have a large investment in a product that is not listed in Volume II for retention. The TRM addresses this concern in the following ways:

- Ensuring that its recommendations are prioritized by the BLM business community.
- Avoiding technical bias in making recommendations.
- Providing the "Contain" category, which permits current use to continue until the business programs decide that it is feasible to change.
- Encouraging active and continuing involvement of the entire BLM professional community in the evolution of the TRM.

The TRM addresses primarily "national systems" or systems that are likely to become "national," and excludes purely local solutions if they do not conflict with national operations. State and local IT managers will retain flexibility to meet the needs of their immediate customers within the overall framework defined by the TRM. State and field managers will have an effective voice in the evolution of TRM recommendations through their representatives on the CIO Council. At this time, the degree of local autonomy has not been fully defined. However, a balance will be sought between the legitimate local need for flexibility and the equally legitimate national need for streamlining.

2 ADDRESSING NEW APPROACHES REQUIRED BY RECENT LAWS AND DIRECTIVES

Throughout the 1990s, Congress and the Executive Branch increasingly recognized the need for more effective management of government IT resources. Through new laws, executive orders, OMB guidance, and other vehicles, the Federal leadership has more specifically defined the actions BLM is expected to undertake. Developing a TRM, in one form or another, is one of those requirements. The following paragraphs provide a brief summary of the main legislative and Executive Branch drivers of BLM IT planning, focusing only on those aspects that help motivate the TRM.

2.1 CLINGER-COHEN ACT OF 1996

Originally named the “Information Technology Management Reform Act,” the Clinger-Cohen Act created new mechanisms to encourage agencies to manage their IT assets as if they were portfolios of investments. Each agency is required to appoint a Chief Information Officer (CIO) and to implement IT management processes that promote adherence to a number of “best practices” (summarized by the then-OMB Director, and long referred to as “Raines’ Rules”).

Clinger-Cohen also requires that each agency develop an “Information Technology Architecture,” defined in OMB Memorandum M-97-16 in the following words:

“The Information Technology Architecture (ITA) describes the relationships among the work the agency does, the information the agency uses, and the information technology that the agency needs. An ITA makes it easier to share information internally (for example, agency-wide email) and reduce the number of information systems that perform similar functions. The ITA provides the technology vision to guide resource decisions that reduce costs and improve mission performance.”

The memorandum goes on to say that an ITA comprises an “enterprise architecture” (the business side), and a Technical Reference Model and Standards Profiles. (The revised Circular A-130 now includes both the business side and the technology side within the term “Enterprise Architecture.”) Translating from OMB terminology, the BLM Bureau Architecture is equivalent to the Enterprise Architecture. The “A” and “T” components correspond to the Technical Reference Model and Standards Profiles.

The Technical Reference Model and Standards Profiles are tools originated in the National Institutes of Standards and Technology (NIST) about 10 years ago. A standards profile defines a set of IT standards that supports the services articulated in the TRM. A profile may contain specifications that describe the technical standards that enable a service, such as operating systems, network, and data interchange services.

At present, the BLM TRM primarily treats the IT infrastructure or “T” elements. However, certain TRM components and principles affect how applications will be designed and implemented. The BLM TRM includes technical standards. Thus, the BLM TRM is a direct response to the letter and spirit of the Clinger-Cohen Act.

2.2 OMB CIRCULAR A-130 “MANAGEMENT OF FEDERAL INFORMATION RESOURCES”

This Circular provides guidance to Federal agencies on complying with the Paperwork Reduction Act (as amended in 1995) and promotes a series of IT management improvements that are fully consistent with Clinger-Cohen. It advises agencies to set up tactical and strategic IT planning structures that rely on benefit-cost analysis, analysis of business needs, and best practices to ensure that maximum cost-effectiveness is achieved from the IT portfolio, with appropriate security and privacy safeguards.

The November 2000 version of Circular A-130 pulls together the requirements and advice issued since 1996 into a consistent directive for aligning IT investment management with the Agency’s “Enterprise Architecture (EA)” (the new name for the “IT Architecture” described in Memorandum 97-16). Circular A-130 now requires agencies to develop an “EA Framework” and then an EA, and to provide updates to OMB whenever the EA is significantly improved. All IT management and reporting activities are now tied into the EA’s blueprint for transition to a future target architecture.

Among the important requirements listed in Circular A-130 are the following:

- “Develop information systems in a manner that facilitates necessary interoperability, application portability, and scalability of computerized applications across networks of heterogeneous hardware, software, and communications platforms...”
- “Ensure that improvements... do not unnecessarily duplicate information systems available within the same agency, from other agencies, or from the private sector.”
- “Share available information systems with other agencies to the extent practicable and legally permissible.”
- “Acquire information technology in a manner that makes use of full and open competition, and maximizes return on investment.”

- “Acquire off-the-shelf software from commercial sources, unless...”
- “... address steps necessary to create an open systems [not "open source"] environment.”

The practical meaning (for the BLM) of "open systems" is an integration of COTS products that conform to published standards. The Software Engineering Institute has defined an “open system” as follows:

“... a collection of interacting software, hardware, and human components designed to meet stated needs, with interface specifications of its components that are fully defined, available to the public, and maintained according to group consensus, in which the implementations of components conform to the interface specifications.”

Note that "open system" does not imply "open source", and that proprietary COTS products fit this definition as well, as long as they provide unrestricted opportunities for integration with other Bureau COTS products. In most cases, BLM automation needs will be met by integrating such "open" COTS products.

2.3 OMB CIRCULAR A-119 “FEDERAL PARTICIPATION IN THE DEVELOPMENT AND USE OF VOLUNTARY CONSENSUS STANDARDS AND IN CONFORMITY ASSESSMENT ACTIVITIES”

Circular A-119 establishes a preference for Government use of “voluntary consensus standards” over “Government-unique” standards, wherever feasible. Voluntary consensus standards are defined as “standards developed or adopted by voluntary consensus standards bodies, both domestic and international.” Examples include the American National Standards Institute (ANSI), the International Standards Organization (ISO), and the Institute of Electrical and Electronic Engineering, Inc. (IEEE). The main goal of Circular A-119 is to bring Government information systems into line with industry practices and protocols so that the Government can reap the benefits of private sector innovations. Where it is feasible, the TRM has adopted this preference for voluntary consensus standards and will serve in the future as a vehicle to encourage further conformance with Circular A-119.

2.4 OMB MEMORANDUM 00-10 “OMB PROCEDURES AND GUIDANCE ON IMPLEMENTING THE GOVERNMENT PAPERWORK ELIMINATION ACT” AND APPENDIX II, OMB CIRCULAR A-130

This Memorandum and Appendix pull together and interpret the important requirements of the Government Paperwork Reduction Act of 1998 (GPEA), the President’s Executive Memorandum of December 17, 1999, “Electronic Government,” and previous guidance on the topic of Government e-commerce. The upshot is that by October 21, 2003, the BLM must provide electronic access to its customers (wherever practical) as a substitute for paperwork and must accept and use electronic signatures. These few words have huge implications for the way BLM organizes, plans, and executes its IT support. Alone, GPEA necessitates creation of the TRM and determines much of its technical structure and content. The TRM consequently builds on a model, principles, best practices, standards, and products that are inherently suitable to support e-commerce. Many of the TRM recommendations that might appear unnecessarily restrictive in the context of the current business environment are fully justified in light of the GPEA requirements, which simply reflect the trend in society’s expectations.

2.5 INFORMATION TECHNOLOGY ACCESSIBILITY (§508 OF THE REHABILITATION ACT, AS AMENDED 1998)

Section 508 of the Rehabilitation Act requires all federal agencies and departments to ensure, unless an “undue burden” would be imposed, that electronic and information technology (EIT) allows “individuals with disabilities comparable access” to EIT as those without disabilities. This applies to federal employees and members of the Public seeking information from federal agencies and departments. Final rules were published on December 21, 2000, which means that, by June 21, 2001, the BLM must bring its Web sites, applications interfaces, and physical IT equipment into compliance with the needs of handicapped users. While this effort is separate from the TRM, the TRM includes practices, standards, and products intended to support Section 508

compliance. Consistency with Section 508 requirements will be a specific test for any new component of the IT architecture.

2.6 FEDERAL ACQUISITION REGULATION (FAR)

All BLM IT business must be conducted in conformance with the FAR, which provides for free and open competition in acquiring goods and services for the Government. The FAR has implications for BLM IT development beyond the procedural requirements. How should the BLM balance use of (proprietary) COTS on a large scale, as provided in Clinger-Cohen, versus the interests of open access by competing vendors to BLM's acquisitions? How can streamlining and efficiency be achieved and maintained over time, if the FAR encourages a proliferation of competing vendors and products through the acquisition process? The answers to these questions will always include some degree of balance between technical goals and free competition requirements. However, the TRM proposes integration of COTS products that conform to published standards wherever feasible to minimize the degree to which purchases from one vendor lock the BLM into inflexible proprietary solutions. Ideally, vendors will produce proprietary solutions that conform to published standards to some degree, so that components can be readily integrated to serve BLM business needs.

2.7 FEDERAL AND DEPARTMENT OF INTERIOR ARCHITECTURES

In September 1999, the Chief Information Officers Council published a "Federal Enterprise Architecture Framework," which is essentially the Bureau Architecture abstracted to the highest level of generality, to provide a skeleton for Departmental and Bureau architectures. The Federal architecture lays out the same relationships between business processes, data flows, applications, and technology infrastructure as the BA, but confines itself to high-level principles, definitions, and models.

In 2000, the Department of Interior published its Departmental Architecture, which takes the Federal framework to a greater level of specificity for Interior agencies. Its objective is to provide the principles, definitions, and models that agencies can build upon to ensure maximum interoperability and information sharing among agencies within the Department of Interior.

The BLM TRM is consistent with the frameworks provided by the Federal and Departmental architectures, and its further development will remain coordinated with those teams.

2.8 WHAT ARE THE BENEFITS OF THE TRM?

The TRM will provide a **single point of reference** for BLM IT professionals, program staff, contracting officers, and potential vendors. The TRM will clearly enunciate those IT principles, best practices, standards, and technologies that the BLM is trying to implement within its Bureau architecture. This will promote consistency and predictability, which will help reduce the costs and complexity of the BLM's IT inventory.

The TRM's complete listing of products within the IT portfolio may naturally serve as input to a **configuration management "baseline"** of approved products. That is effectively what the Annual Work Plan institutes, since it establishes the TRM as the official list of what can and cannot be purchased anywhere in the BLM.

The TRM will provide a **center for debate and resolution** of competing new technology proposals. At present, each BLM organization decides what to purchase independently. In the future, these organizations will be obliged to bring their proposals before the entire IT community for possible inclusion in the TRM. This ensures that BLM IT professionals will become aware of new products and technologies and can help evaluate them.

By consulting the TRM, BLM system and software developers can readily learn which **development tools** are slated for long-term use in the agency and can then tailor their proposals to the guidelines provided by the IT Investment Board (and Systems Coordination Office) to maximize their likelihood of approval.

The TRM will provide a critical piece of the **IT Investment Portfolio**, which must be managed by the IT Investment Management Group (IMG) as part of controlling the IT Capital Acquisition Fund. The IMG will benefit from those parts of the TRM that indicate which technologies should be implemented to support the BA.

A long-term benefit of the TRM will be more **successful hiring and training** of IT professionals as the IT inventory is streamlined and converted to open systems and standards. The BLM will need IT professionals with fewer idiosyncratic, proprietary skills, and greater depth in a smaller variety of more universal (although

no less sophisticated) languages and skills. Since industry is moving in that direction, BLM is positioning itself to take advantage of a growing skill base.

In summary, the TRM will assist BLM IT professionals to better meet business needs with greater reliability, more flexibility, fewer demands for scarce skills, and less unit cost of services. For the TRM to succeed, it will require the direct assistance of the BLM business community to provide business-based judgments in situations where technology reasons are not decisive. Throughout Volume II of the TRM, the need for trade studies is identified, and almost every trade study will require business input to apply business preferences to technical alternatives.

2.9 WHO WILL USE THE TRM?

The principal users of the TRM can be summarized as follows:

Users	Use
National and State IT Managers	Planning and acquiring IT systems.
Project managers and BLM software developers	Guidance on best practices, standards, architectural constraints, and development environments and tools.
Systems Coordination Office personnel	Evaluating IT investment proposals against guidelines in TRM.
BLM Contracting Officers	Identification of appropriate requisitions, and to promote the objectives of the Competition in Contracting Act.
The Investment Management Group	Maintaining the IT portfolio and the CM baseline, and tracking progress toward greater IT cost-effectiveness.
The BA Team	Building the entire suite of processes, tools, and databases required for the Bureau Architecture, of which the TRM is one component.
BLM Partners	Interior and other state and Federal agencies wishing to share information and possibly tools with the BLM.
BLM Public Customers	Aligning their IT investments with the TRM so that they can more readily take advantage of e-commerce opportunities.
BLM IT Suppliers	Tailoring their offerings to the long-term needs of the BLM.

2.10 HOW WILL THE TRM EVOLVE?

The TRM will evolve through continuous interaction with the IT industry and the BLM business community. The TRM will be reviewed at least twice a year to assess whether it should be revised to accommodate new technology developments and business decisions. Trade studies are one formal mechanism for TRM development. They will be conducted in accordance with priorities set by the BLM business community. The CIO Council and IT IMG will propose candidates for study and provide oversight. Trade studies are envisioned as comparative studies of technologies and products. Factors like compliance with open standards, consistency with the BA and TRM, total cost of operation, maintainability, reliability, and security will be evaluated by technical personnel. Evaluation results will then be referred to the business community for decision, since business priorities may justify choices that are not necessarily the most technically efficient. The CIO Council and business community representatives will participate in this continuing process.

2.11 HOW IS THE TRM ORGANIZED?

Each chapter/subchapter of Volume I of the TRM introduces the Technology Components, and presents Architectural Principles and Best Practices relevant to each architectural group. Volume II is organized into one chapter/subchapter for each component of the TRM diagram that shows how IT services are classified and

relate to one another. In each chapter/subchapter, related principles and best practices are summarized and technologies and products are classified using the definitions provided earlier.

The remaining chapters/subchapters of Volume II are as follows:

Chapter No.	Title
2	Conceptual Architecture
3	Integration Architecture
4	Network Communication Architecture
5	Platform Architecture
6	Systems Management Architecture
7	Enterprise Security Architecture
8	Application Architecture
8.1	Introduction
8.2	Software Engineering
8.3	Business Desktop Environment
8.4	Software Component
8.5	Application Communication Middleware
8.6	Database Management
8.7	Geospatial

TABLE 1.1 Sample Executive Summary Table

<p align="center">Current Environment</p> <p>The environment that all new applications and projects use for development. The technologies and products are approved for purchase and are supported by the BLM Help Desk and vendor.</p>	<p align="center">Next 18 months Near-Term Deployment</p> <p>Technologies and products that are planned for the time frame ranging from the TRM publication date of this document to the TRM publication date plus 18 months (full deployment within 18 months).</p>	<p align="center">18 months - 5 years Long-Term Direction</p> <p>Technologies and products that are planned for the time frame ranging from 18 months past the publication date of the TRM to five years beyond the TRM publication date.</p>
<p align="center"><u>Containment Targets</u></p> <p>These technologies and products are not baselined and do not necessarily meet the BLM’s future architecture. These products will require a waiver for any new product development. These technologies and products are retained but not expanded in the Bureau. Containment products that do meet architecture and business requirements may become future baselined products. Contained items may not be supported by the BLM Help Desk and may require a call to the vendor for any support.</p>	<p align="center"><u>Trade Studies</u></p> <p>Requirements exist for technologies or products that must be chosen based on business requirements and selection criteria.</p>	<p align="center"><u>Emerging Technologies</u></p> <p>New technologies and products that show sufficient promise for future use and should be monitored by the BLM.</p>
<p align="center"><u>Retirement Targets</u></p> <p>Technologies and products that should be discontinued. From a user’s perspective, this means you can’t buy these technologies or products, you use them at your own risk, they are not supported by the BLM Help Desk, and the only support available may be from the vendor.</p>		
<p><u>Principles:</u> List principles from TRM Volume I that apply to this executive summary table.</p> <p><u>Industry Trends:</u> Enumerate industry trends that affect the products listed in this table.</p> <p><u>Implications:</u> List implications of the product, technologies, and industry trends that the TRM reader/user will need to consider.</p>		

TABLE 1.2 Sample Table for “Current” Technologies

Product/Technology	Rationale
Corel WordPerfect Office 2000	WordPerfect is the desktop publishing standard for the Bureau. Its continued use ensures that internally generated documents share a common look and feel.
<Technology or product >	<Rationale for inclusion>
<Technology or product >	<Rationale for inclusion>

TABLE 1.3 Sample Table for “Containment” Technologies

Product/Technology	Rationale
Adobe PageMaker 6.52	Functionality may be duplicated by other current desktop publishing applications. Further study is required. For manageability and economy of scale, large bureauwide purchase of this application may be recommended.
<Technology or product >	<Rationale for inclusion>
<Technology or product >	<Rationale for inclusion>

TABLE 1.4 Sample Table for “Retirement” Technologies

Product/Technology	Replacement	Rationale
Netscape Communicator 4.5	Netscape Communicator current version	Replaced by a product upgrade.
<Technology or product >		<Rationale for inclusion>
<Technology or product >		<Rationale for inclusion>

TABLE 1.5 Example Standards Profile

Standards Profile	Description
<ul style="list-style-type: none"> • The Open Group’s XA Specification • The Object Management Group’s CORBA Specification 	<p>During the development of Enterprise-wide applications, the BLM development community will favor products based on the accompanying industry standards and/or some hybrid thereof, if necessary.</p> <ul style="list-style-type: none"> • Transaction Processing (Monitor) - All application development efforts employing transaction processing are required to employ an XA compliant transaction processing monitor. • Application Communication Middleware - All application development efforts requiring application level interprocess communication will be required to employ a CORBA compliant Object Request Broker.