An Oracle White Paper in Enterprise Architecture
May 2010

Application Portfolio Rationalization: How IT Standardization Fuels Growth

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Executive Overview

Business is changing and evolving rapidly. The need to improve agility and operational excellence has never been greater:

- **Pace of business** – Technology has strongly influenced the pace of business. Customer and partner demand for getting the right information to the right people at the right time is ever increasing.

- **Globalization** – Companies need the ability to conduct business with any customer, supplier or partner (anywhere in the world). Technology and globalization has also resulted in an influx of niche players into the marketplace, increasing competition.

- **Innovation** – The pace of business and globalization drive the need for innovation. Companies need the ability to quickly adapt their business practices to suit changing market conditions, and launch new products and services faster.

- **Reduced Costs** – In today's economic climate "doing more with less" has become the mantra of many organizations. Improving efficiency, reducing complexity and lowering Total Cost of Ownership (TCO) has moved to the top of everyone's "to-do" list.

Companies need to do all these things in a secure, cost-effective manner without being constrained by the time and cost of reflecting these changes in the supporting IT environment.

Over time IT environments have evolved through waves of organizational changes, mergers and acquisitions, the introduction of new business processes, regulatory requirements, implementation of best-in-class applications, and advancing technologies. The result is a complex, inflexible, and costly heterogeneous IT environment with redundant processes and applications, information "silos," and incompatible technology.

Recent studies have shown that at large companies, eliminating these duplications and inefficiencies can reduce IT spending by tens or hundreds of millions of dollars while improving the quality of service and the satisfaction of those who rely on it.

However, to achieve "order of magnitude" improvements companies must take a holistic approach to rationalization, engage business and IT leaders to sponsor and participate in an enterprise-wide program of architectural review and transformation, and establish governance to ensure successful execution, implementation and to maintain a well-managed environment going forward. This drives the need for an Enterprise Architecture approach to application portfolio rationalization.

Introduction

Application portfolio rationalization is the act of streamlining the existing application portfolio with an explicit goal of improving efficiency, reducing complexity, and lowering Total Cost of Ownership by:

- Retiring aging and low-value applications.
- Modernizing aging and high-value applications.
- Eliminating redundant applications.
- Standardizing on common technology platform and version.
- Consolidating the applications—either physically, logically, or both.

This is done while consciously balancing individual business unit's need for responsiveness.

Virtually all organizations have, at one time, executed an "application inventory collection effort" using scarce resources. One element that usually characterizes these efforts is that they are "one-time events," focused only on applications architecture. This paper explains how an Enterprise Architecture approach to application portfolio rationalization serves as a means by which to:

- Achieve "order of magnitude" improvements.
- Engage business and IT leaders to sponsor and participate in an enterprise-wide program of architectural review and transformation.
- Establish governance to ensure successful execution, implementation, and to maintain a well-managed environment going forward.
- Improve overall agility and operational excellence.

While this paper focuses on application portfolio rationalization, it is important to remember the iterative approach, principles, and concepts discussed are applicable to business, information, and technology architectures as well.

An Enterprise Architecture Approach to Rationalization

Building an Architecture Vision

Before you start on your application rationalization journey, you need to build an architecture vision. An architecture vision is a blueprint of the enterprise that provides a common understanding of the organization and is used to align strategic objectives and tactical demand. An architecture vision articulates the structure of an enterprise in terms of its strategy, goals and objectives, operating model, capabilities, business processes, information assets, and governance.

Business Architecture

Development of an architecture vision begins with capturing the various "views" of the enterprise within Business Architecture. The key views include business strategy, business capabilities, business processes, knowledge (e.g. information assets, intellectual capital, etc.), and organization.

The objective of this activity is to develop a common, non-ambiguous understanding of the organization's Business Architecture.

This information is used throughout the architecture development process to:

- Identify the business and IT owners to sponsor and participate in the architecture review and transformation process

- Identify and prioritize the areas in which to focus your rationalization efforts

- Capture business capabilities and/or business processes that will be used to identify redundancy and gaps in your applications portfolio

- Align IT strategies/initiatives with business strategy, goals, and objectives

Understand Your Company's Operating Model and Architecture Maturity

Understanding your company's current and desired future-state operating model and architecture maturity helps you to determine how to apply rationalization within your organization to achieve the desired results.

An operating model is the necessary level of business process integration and standardization for delivering goods and services to customers. An operating model has two dimensions—business process standardization and integration.

- Standardization of business processes and related systems means defining exactly how a process will be executed regardless of who is performing the process or where it is completed.

- Integration links the efforts of organizational units through shared data. This sharing of data can be between processes to enable end-to-end transaction processing, or across processes to allow a company to present a single face to customer.

MIT Sloan Center for Information Systems Research developed a model that represents the different combinations of the levels of business process integration and standardization.
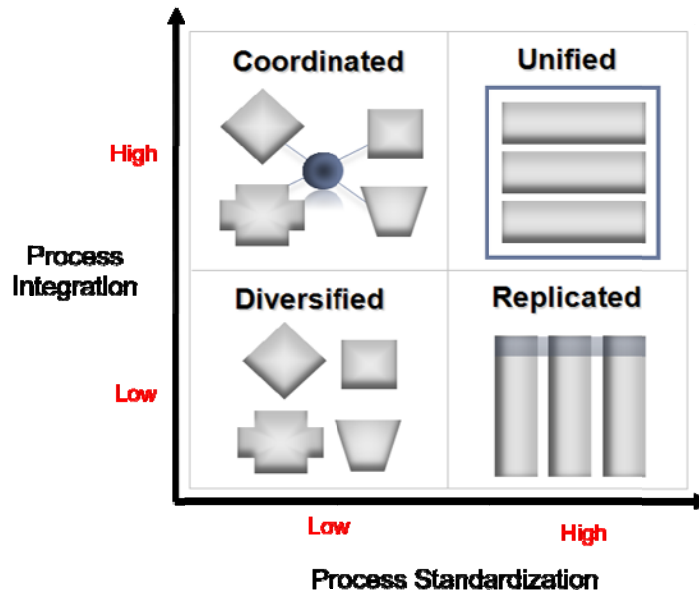
Understanding your company's current and desired future-state operating model helps you to determine how to apply rationalization within your organization to achieve the desired results. For example, a company with a diversified operating model would likely perform a rationalization of processes and applications within each business unit individually with the objective of optimization to improve efficiency. A company with a coordinated operating model would likely rationalize information assets with the objective of establishing a single version-of-the-truth and providing easy access to key information across the enterprise. All organizations (regardless operating model) will benefit from a rationalization of the technology architecture with the objective of standardization and consolidation of the IT infrastructure in support of an IT shared services model.

Your company's operating model shapes the future state architecture. For example, the future state architecture for a company with an objective of providing a single face to the customer and a diversified operating model may reflect a consolidation of applications logically through single common user interaction layer and Service-Oriented Architecture integration to support end-to-end processing, whereas for a company with a unified operating model (or the desire to move to one) may reflect a standardization of processes and consolidation of applications physically into a Global Single Instance to achieve the same objective.

Architecture Maturity

Many organizations know that they need to improve their IT-related processes in order to successfully manage change, but do not know how. Such organizations typically either spend very little on process improvement, because they are unsure how best to proceed, or spend a lot on a number of parallel and unfocussed efforts—to little or no avail.

Capability Maturity Models (CMMs) address this problem by providing an effective and proven approach to continual process improvement. An assessment is an evaluation of the organization's practices against the model. Assessments are tools for facilitating improvement. They are used to analyze strengths and weaknesses of an organization. An assessment of architecture maturity provides a measure of an organization's ability to support the Architecture Vision and helps you to determine how to apply rationalization to achieve the desired results.

These models have been adopted by large organizations, including the U.S. Department of Commerce, the U.S. Department of Defense, the UK Government, and a number of large services organizations, to assess competencies.
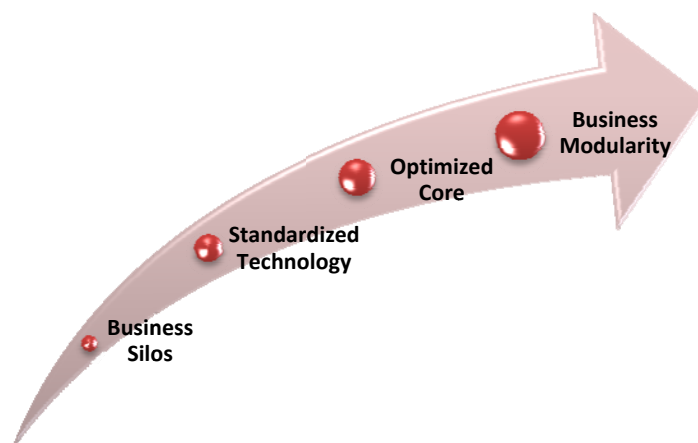
Source: MIT Sloan Center for Information Systems Research

MIT Sloan Center for Information Systems Research developed a capability maturity model that defines four stages of architecture maturity—Business Silos, Standardized Technology, Optimized Core, and Business Modularity. Each stage represents the IT capability being developed and the strategic business implications of that capability.

The development of architecture principles and standards is key to standardized technology. This stage starts with the rationalization, standardization, and consolidation of the IT infrastructure with the objective of achieving a reliable, cost-effective IT infrastructure shared services model. Rationalization of applications, focusing on "quick wins," starts in the later phases of standardized technology.

Oracle achieved optimized core by standardizing its core business processes, and consolidating redundant applications into a single global instance of enterprise resource planning (ERP) and

customer relationship management (CRM)—but only after achieving standardized technology stage of architecture maturity. Rationalization of processes and applications with the objective of standardizing processes and consolidating applications plays a key role in the realization of optimized core.

As companies advance from Business Silos stage to later stages, they realize benefits ranging from a reduction in IT operating costs to greater strategic agility. Companies should not attempt to skip stages (for example, implementing an ERP to skip from business silos to optimized core or implementing web services to skip from business silos to business modularity). Attempting to skip stages is usually unsuccessful because the necessary foundational work was not completed, and it exceeds companies' capacity for change. It is important for companies to progress at a pace to accommodate the organizational changes encountered at each new stage.

Architecture Principles and Standards

Gaining control of your IT architecture begins with the definition of enterprise-wide architecture principles and standards. Developing and enforcing these guidelines helps companies maintain the most appropriate and efficient systems, applications and processes, and to minimize unnecessary complexity, duplication, and costs. Some examples of application architecture principles are:

- Common use applications (global single instance, Financial/HR shared services)

- Technology independence

- Maximizing the effectiveness of the end user

- Adherence to open standards

- Optimizing and re-allocating IT spend (buy vs. build, virtualization, platform as a service, infrastructure as a service, software as a service)

Without a high degree of collaboration between business and IT leaders, companies probably will not adhere to even the best guidelines. To promote adherence, it is important to show how each architecture principle and standard helps the company to achieve its goals and objectives. Architecture principles and standards are made relevant by connecting them to the strategy of the company. This changes the conversation from "lack of conformance with IT standards" to "lack of support for the company's strategy" when managers resist complying with architecture principles and standards.

Future State Architecture Vision

The future state architecture vision is where it all comes together to reflect alignment of business strategy, goals, and objectives with IT initiatives for each layer of the enterprise architecture in

support of the desired future state business architecture, operating model, architecture guiding principles and standards, and enterprise architecture capability and maturity.

The future state architecture vision is also the architect's opportunity to sell the benefits of the proposed enterprise solution to the decision-makers within the enterprise, and to gain sponsorship and participation of business and IT leaders.

The goal is to articulate an architecture vision that enables the business goals, responds to the strategic drivers, conforms with the architecture principles and standards, and addresses the stakeholder concerns and objectives.

Clarifying and agreeing the purpose of the architecture effort is one of the key parts of this activity, and the purpose needs to be clearly reflected in the vision that is created.

Architecture projects are often undertaken with a specific purpose in mind - a specific set of business drivers that represent the return on investment for the stakeholders in the architecture development. Clarifying that purpose, and demonstrating how it will be achieved by the proposed architecture development, is the whole point of the architecture vision.

Defining a Strategy and Scope for Application Portfolio Rationalization

Through the course of building an architecture vision several areas have been identified in which to focus your rationalization efforts (for example, processes, applications, IT infrastructure). The next task is to develop a plan for rationalization and then incorporate this plan into your overall IT strategy. When developing this plan, it is important to remember that rationalization is an iterative process.

Companies may choose to rationalize all applications in their IT environment in one project, but a "boil the ocean" approach can introduce risks such as excessive up-front investment or an internal backlash.

A more practical approach is to develop a strategy that involves multiple projects, each focusing on rationalizing only the applications that support a horizontal or vertical "slice" of business functionality and is aligned with a business goal or objective. For example:

- Rationalizing all applications that support a business process with the objective of improving process efficiency and effectiveness

- Rationalizing all applications within a business domain (such as, Financials, Human Resources) with the objective of standardizing the processes and consolidating the applications to achieve a shared services business model

Another consideration for initial rationalization projects is to focus on the "quick wins." This enables you to progress at an appropriate pace, and generate early gains that can finance subsequent projects.

Involve business and IT leaders in the planning to jointly scope, prioritize, and sponsor rationalization projects. This improves alignment between business and IT, and ensures your initiatives are aligned with business strategy, goals, and objectives.

Rationalizing the Applications Portfolio

With an architecture vision and strategy in-place, you are ready to begin your application rationalization journey.

Inventory Existing Applications

Rationalizing your applications begins with capturing an inventory of all applications and the underlying technology currently in use.

Automated tools can quickly capture software applications and attributes installed in your environment (for example, application name, description, owner, location, department, number of users, number of interfaces, packaged/custom, hardware, operating system, database).

The next task involves "mapping" the applications to either business capabilities or processes within the business architecture to identify redundancy and gaps. Organizations choose to map to business capabilities because

- Company may have a low-level of business process management maturity. If business processes are documented, they commonly do not reflect the current and future needs of the business.

- Business processes change frequently making it difficult to map to a moving target.

Completing an inventory and mapping exercise will usually reveal many overlapping and duplicate applications that are candidates for consolidation.

Analyze the Applications Portfolio

Analysis of the application portfolio can be simple or elaborate—depending on organizational maturity. For some organizations, just understanding ownership for the application, what business capability it supports, and capturing an estimate of application costs will be a substantial accomplishment and is often enough to identify applications that obviously do not belong.

When a recommendation for an application isn't obvious, a more detailed evaluation may be required. Some common evaluation criteria include:

- Strategic value (degree of support for business strategy captured in architecture vision)

- Functional fit (degree of support for business capabilities or processes captured in Architecture Vision)

- Conformance to Architecture principles and standards (captured in architecture vision)

- Risk

- Total Cost of Ownership

Whatever level of analysis is applied, when the evaluation process is complete, you will be able to recommend actions to take for each application. These recommendations include:

- Retiring aging and low-value applications

- Modernizing aging and high-value applications

- Eliminating redundant applications

- Standardizing applications on a common technology platform and version

- Consolidating the applications—either physically, logically, or both

Using an application portfolio management system enables active management of your applications portfolio. This serves as a repository for your applications inventory, and provides functionality to analyze your applications portfolio.

In the example below, each bubble represents an application. The applications are grouped by business capability. The size of the bubble represents the number of users. The color of the bubble represents the application health (i.e., risk factor combined with degree of conformance with architecture principles and standards). Each bubble is aligned with the approximate total cost of ownership (i.e., maintenance and support). The application portfolio management system should allow you to easily configure reports to view the applications portfolio from different perspectives, as well as perform "what if" type analysis."
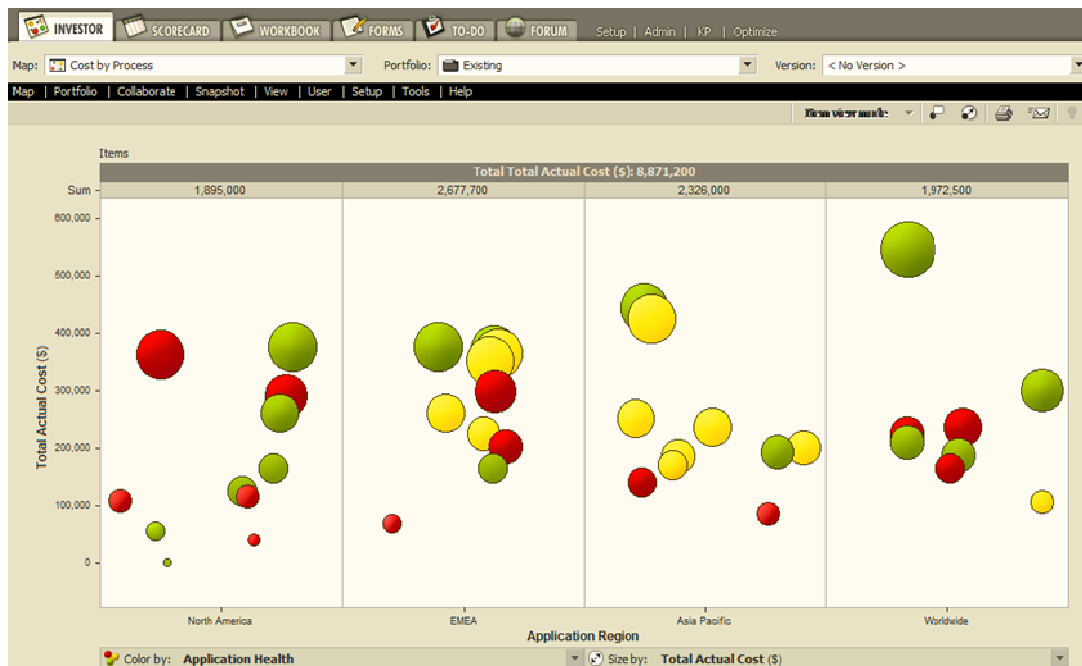
Source: Oracle Primavera, Portfolio Management Investor Map

Transforming from Architecture Vision to Realization

Future State Architecture

Many organizations have paid generously for recommendations that are never implemented. Some common reason why is that the recommendation may not reflect alignment with the desired future state architecture vision (business strategy, goals, and objectives, operating model, architecture guiding principles and standards) or a lack of a thorough assessment of the impact of change on all relevant architectural areas. Enterprise Architecture addresses these issues by providing the structure and discipline necessary for developing a holistic view of the enterprise solution across all layers of the enterprise architecture, an understanding of the individual components that make-up the enterprise solution, and an understanding of how they interrelate. This promotes development of a comprehensive future state architecture and roadmap that aligns with business strategy, goals, and objectives, and introduces the least amount of risk and impact of change on the business.

A comprehensive Future State Architecture should:

- Consist of views across all layers of an Enterprise Architecture framework (business, application, information, technology)

- Conform to architecture principles and standards as defined in the architecture vision.

- Employ relevant industry reference models and architectures to facilitate development, and reduce risk

- Identify current state to future state gaps and changes (recommended action for each application resulting from application portfolio analysis)

- Capture benefits, risks, and mitigation measures for each of the changes

- Align with business strategy, goals, and objectives as defined in the architecture vision

- Align with operating model as defined in the architecture vision

- Provide recommendations to address the opportunities-for-improvement identified in the EA capability/maturity assessment

Strategic Roadmap

Once you know the recommended action for each application, you will realize that some are easier to implement than others, and some may even be in conflict. Some applications may be candidates for immediate retirement, while others can be retired later.

Building a roadmap starts with a collaborative effort involving Architects, business and IT leaders, and PMO using specific criteria to prioritize recommended actions. Some examples of these criteria include:

- Alignment with business strategy, goals, and objectives

- Clear business/IT sponsorship (budget approved)

- Business impact (tangible benefits, non-tangible benefits)

- Cost (license, implementation, training, support)

- Technology, people, process, and tools dependencies

- Risk

- Advances Enterprise Architecture (EA) maturity (achieves conformance with architecture principles and standards)

Most organizations do not have the budget and resources to follow all of the recommendations at once, even if such drastic measures were desired. A roadmap that reflects a phased-rollout approach is more practical, and introduces the least amount of risk and impact of change on the business. Transitional architecture is an effective technique for capturing the Enterprise Architecture views, gaps, changes, and benefits specific to each phase in a transformation from current state to future state.

Maintaining a Well-Managed Applications Portfolio

Defining Governance

Keeping an application portfolio "optimized" requires a vital ongoing governance process.

Virtually all organizations have, at one time, executed an "application inventory collection effort" using scarce resources. One element that usually characterizes these efforts is that they are "one-time events" with a push to collect application data results in a new spreadsheet. Some painful, manual analysis is done on the collected data and a few actions might be taken. In truth, however, there is often no continuity to the process, the data, or the analysis. Therefore, the next time the organization will potentially go through the same time-consuming process all over again.

The benefits of application rationalization are best achieved through the adoption of a formal application portfolio management process and system. This provides the necessary infrastructure for dealing with the next "event."

A formal application portfolio management process ensures that your investments are in synch with changing business needs and trends. At the technology level, application portfolio management improves the overall effectiveness of IT, ensuring that IT is not a reactive— always playing "catch up" with the business—function anymore. At the business level, it enables you to "do more with less" and helps achieve overall business objectives.

Using application portfolio management enables active management of your applications portfolio. This serves as a repository for your applications inventory and provides functionality to analyze your applications portfolio. You can prioritize each of the recommendations based on resource availability, budget, business impact, and dependencies, and you can perform "what-if" scenarios to enable you to look at alternative sets of application changes in order to arrive at the optimum set of changes.

A process and system alone will not achieve the desired results. To fully realize the benefits of application portfolio management, an executive sponsor should be established to make the program relevant to the organization and to make strategic decisions, and a team of cross-company business and IT leaders be formed to engage in the architectural review and transformation, and provide cross-organizational governance and accountability.

The value and impact of application portfolio management may be understood in the context of various strategic initiatives including

- Mergers and Acquisitions: application rationalization may be used in pre- and post-merger and acquisition situations to guide strategic fit assessment and post merger consolidation, respectively.

- Business Processes: application rationalization can provide insights into gaps or redundancies in the current application portfolio, and enhance an organization's ability to introduce innovation products, provide better customer service, and manage risks more efficiently and effectively.

- Compliance Management: Organizations need to know if their applications have compliance issues. Application rationalization allows the organization to look at its systems from a compliance perspective, facilitate transparency, and then manage the application investments from a life cycle management perspective.

- Enterprise Architecture: By consolidating technical and enterprise architecture, organizations are able to reduce the cost of their infrastructure. This provides agility to the business, which allows for faster rollouts of new products and technologies that drive the bottom line.

- Vendor Management: application rationalization, and knowing the application inventory, arms management for vendor negotiations and gives the organization an opportunity to lower license and maintenance costs by consolidating vendors.

- Outsourcing: Prior to outsourcing, all experts will say the organization should have a good sense of what applications it already owns; their associated value and risks, and the application spend. Knowing what you have, and what you need to get, will aid in identifying opportunities to optimize and re-allocate the application spend.

- Audit Prioritization and Remediation: It is critical to know what the riskiest business and technical issues are so that you may articulate and address them. Executives can communicate how they plan to mitigate issues and create a single system of record that gives a consistent, live view of the health of the application inventory.

Oracle@Oracle: A Case Study

Larry Ellison, Chairman of Oracle Corporation, once said, "The value of information increases exponentially as fragmentation is reduced." The proof of this was demonstrated dramatically through Oracle's own rationalization efforts, beginning in 1999.

At that time, Oracle's goals and objectives were to:

- Enable and drive business process standardization and improvement

- Consolidate and simplify IT

- Lower total cost of ownership

- Provide access to global information

- Provide ongoing business and production support

- Provide Sarbanes-Oxley compliance and audit support

- Ease mergers & acquisition consolidation

Oracle achieved remarkable results. Some of which were a reduction of 70+ instances of redundant applications to one global single instance of CRM and ERP applications in four years; with two data centers (production and disaster recovery) supporting all four Oracle divisions, in 62 countries and 19 languages; resulting in $1 billion in savings per year!

Additional benefits realized:

- People: Higher service, redeployment of skills, head count lowered by 25% and lower cost per head

- Process: Standardized global processes, reduced processing and per transaction costs, increased efficiency, improved Quality of Service and greater ability to respond quickly to change, simplification through standardization

- Technology: Consolidated infrastructure, faster upgrades, scalable platform, management dashboards and easier support & maintenance

- Business: Finance & Administration costs lower by 30%, payback in 28 months, enabled the business to focus on the business & control, enabled the ability to integrate acquisitions faster, enabled corporate governance & compliance, established shared services for Demo, Education and Support

- Information: Better (smarter) information, accurate, meaningful, consistent and timely information, improved decision making

- Ancillary Services: Established shared service for Demo, Education and Support systems; consolidated applications from Country-based model and standardized processes and technology platform

- Email: Consolidated from 97 systems to two systems

- Middle Tier: Consolidated and standardized on Oracle Grid leveraging low-cost, commodity servers, increasing performance and lowering cost

Oracle's Results

The payoff for Oracle has been the ability to drive profitable, sustainable growth achieved through consolidation, simplification, global processes, shared services and use of standard products. In 1999, Oracle's operating margins were 20% and in 2007, they grew to 40%. These margins, along with other management accomplishments, have provided Oracle the agility for its market leading growth.

Conclusion

In this economic climate, the need to improve efficiency, reduce complexity, and lower total cost of ownership (TCO) is at the top of everyone's to-do list.

Over the past 10 years, Oracle has helped many of our largest customers (and Oracle) to achieve these objectives through standardization of processes, consolidation of applications and information, and simplification of technology infrastructure.

Building on this experience, Oracle has developed an Enterprise Architecture Framework and Architecture Development Process to serve as the foundation for transformational strategies such as application portfolio rationalization to provide customers a means of achieving similar results. Oracle is eager to work with you to realize your business objectives by helping you develop a sustainable, architectural vision and roadmap.

Oracle Enterprise Architecture Framework
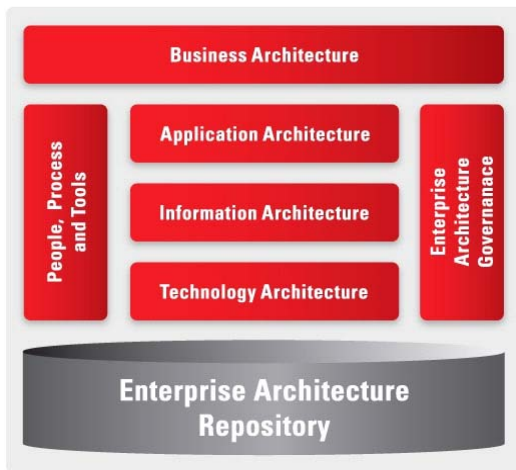
Oracle Architecture Development Process
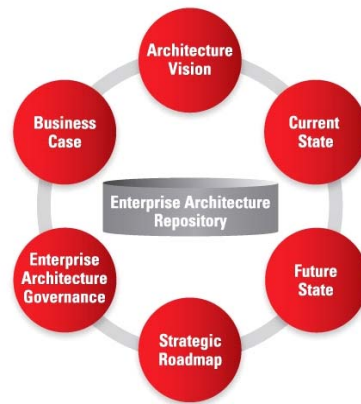
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