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● — Optimizing Your Infrastructure for Outsourced  
Application Development



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Application Development**

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## Optimizing Your Infrastructure for Outsourced Application Development

### Surmounting the Challenges Successfully

- Improve communications with your outsourcers and better coordinate changes
- Implement defined, repeatable, and consistent processes
- Develop and maintain software with higher speed and greater quality

### Business Issues Surrounding Application Outsourcing

Traditionally, applications development was an area enterprises were cautious to outsource. Now, however, it has become increasingly popular as a way to bring down software development costs while improving software quality. Access to specific skills, flexibility and scalability of personnel, skills, and funding, core-process focus, and the increased efficiency of the IT organization are other reasons enterprises look to outsourcing.

The application outsourcing market was first initiated when enterprises employed third parties for maintenance of mainframe legacy applications. It now includes developing and deploying client/server applications, and, more recently, Web-based applications that enable e-business connectivity. Oftentimes, applications outsourcing involves packaged applications such as PeopleSoft, SAP, or Oracle, where the outsourcer offers expertise with the application and specialized consultants to help the enterprise reach their goals. If the outsourcer has particular expertise with a specific industry, the enterprise benefits from the experience these vendors provide, which can reduce costs, improve the quality of the application and the implementation, and increase the time to market. However, any customizations to the standard package may be quite costly.

There are a number of ways in which application outsourcing can be implemented. Outsourcing on-site within the enterprise allows for easy access to the programmers, but can be an expensive solution. Outsourcing onshore, where programmers work at a development center in the same country as the enterprise, is more cost effective, but may lead to communication and coordination challenges with program specifications, applications design, and testing. Nearshore, where outsourcing is delivered from an adjacent or nearby country, and offshore outsourcing, where programmers are located in remote countries, may produce the best cost savings, but only further increase the communication challenges.

Outsourcing Types	Description	Change Management Challenges
On-site	Outsourced staff located within enterprise	\$ Expensive \$ Access Rights, Security, Audit Trails, Approvals
Onshore or Domestic "Off-site"	Outsourced staff located at a center in the same country	Communication and coordination challenges Remote access into Change Management server for hosted environments
Nearshore	Outsourced staff located in countries adjacent or close the client	Increased communication and coordination challenges Packaging of components for delivery to outsourcer and validation of work completed Remote access into Change Management server for hosted environments
Offshore	Outsourced staff located in remote countries	Further increase of communication and coordination challenges Packaging of components for delivery to outsourcer and validation of work completed Terminology and methodology differences

Table 1: Outsourcing Options

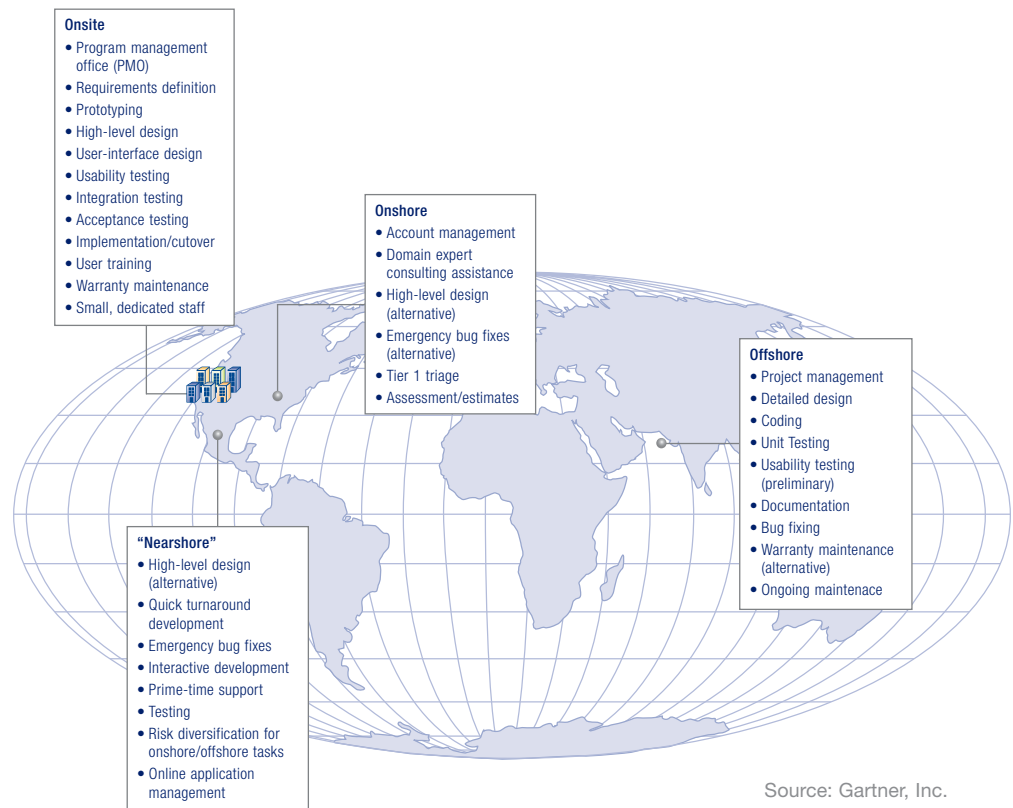


Figure 1: How a U.S.-Based Enterprise Might Allocate Development Activities Across Geographic Tiers<sup>1</sup>

With application outsourcing on the rise, what are some of the challenges it presents, and what can an organization do to help improve its success? Application outsourcing often involves supporting development groups that may be located in many different parts of the world. It may also create security risks, giving outsourcers access to internal proprietary applications. Organizations are finding that successful application outsourcing depends on a number of factors to ensure its success. Process management, change management practices, communication and coordination are paramount. What can organizations do to increase effectiveness in these areas?

## How Software Change Management Can Help Lead to Lower Costs and Greater Success

### Proper Deployment of Change Management Methodology

For enterprises considering application outsourcing, they must recognize the need to have defined, repeatable processes in place. Many outsourcing firms have been at the forefront of adopting the Software Engineering Institute's capability maturity model (CMM), which provides a guideline for applications development and maintenance quality. The higher an enterprise ranks on the CMM scale, the higher the quality and productivity, which translates to higher cost savings and value.

As Gartner states, "Successful offshore sourcing of development work requires enterprises to have a minimum level of development process capability. Enterprises at Level 1 of the Software Engineering Institute's Capability Maturity Model (CMM) can gain substantial benefits when using an offshore service provider at higher CMM certification levels if they put a few key processes in place."<sup>2</sup>

Serena® ChangeMan® products directly support many of the specific requirements defined in the SEI CMM Level 2, and automate key portions of development activity to ensure repeatable software quality. While no single tool can ensure CMM Level 2 compliance, Serena ChangeMan provides essential automation, audit trails and configuration management controls required to support the granular requirements of Level 2 compliance. A Serena ChangeMan implementation founded on industry best practices can have a dramatic effect on an organization's ability to deliver consistent, repeatable software quality.

For example, a large enterprise which has been using Serena® ChangeMan® ZMF for six years and has been involved with application outsourcing for the past 9 months says that ChangeMan ZMF is instrumental to their success with these efforts. Their Director of Change Management states, "It's important to have defined, repeatable processes in place before considering outsourcing application development. With ChangeMan ZMF, the transition to outsourcing has been smooth and seamless."

## Two Ways to Implement a Change Management System:

- *Outsourcers use own tools to deliver changed code to client company's existing change management systems*

One approach is to deliver the application code to outsourcers (see Figure 2 below) by checking out the files to them. In this case, the outsourcer would need to have their own internal change management system to manage their changes. When finished, the outsourcers send back the files to internal staff with the appropriate updates. Once the deliverables come back, either Serena® Comparex® or the built-in compare utility of ChangeMan DS is used to compare the differences. Serena® ChangeMan® M+R, which allows for automated version merging, combines the appropriate files. Internal staff can then manage the process of checking the files back in and following other internal processes. Then the testing, accepting, and deployment processes can begin. This approach is different than traditional development efforts; however, as they are placed into production, these changes need to be managed at least as carefully, as internally developed changes.

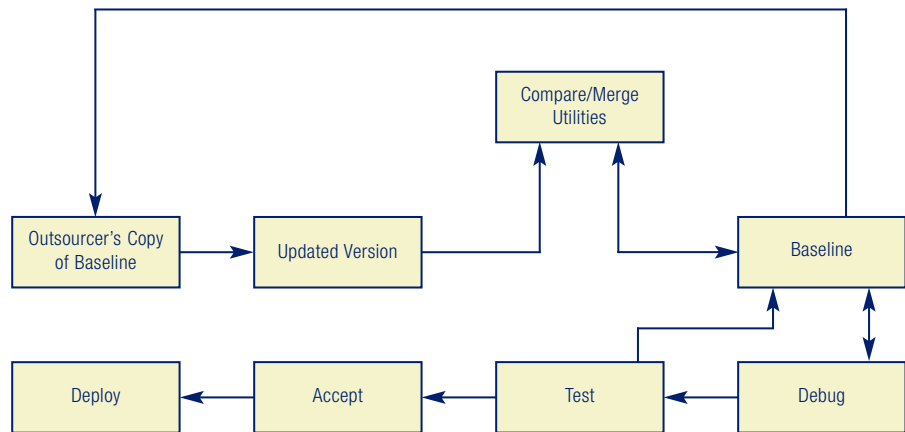


Figure 2: One Approach to Change Management for Outsourcing

- *Outsourcing working within the company's processes and systems, using Serena tools*

A change management system can be implemented with the outsourcer working within your already established and implemented change management system. This ensures all proper procedures are in place, and all personnel involved with change management, from programmers, managers, database administrators, testers, quality assurance, users, and production turnover are aware of the changes that are taking place.

### Using Serena Solutions in Conjunction with Outsourcing

Some systems lend themselves to this approach better than others. For example, the architecture of Serena® ChangeMan® DS is uniquely designed to accommodate software developers around the world by its creation of a virtual single repository and is much more scalable compared to other solutions.

Serena ChangeMan DS creates a virtual single repository using the intelligent communication agents that run in the background to manage software objects across your enterprise. You can store code anywhere, in non-proprietary formats, accelerating your enterprise infrastructure. ChangeMan DS provides a single point of control and still allows you to store your code and perform builds where they are desired. The central administrative server is attached to a metadata repository, which contains information on process flow, configuration, impact analysis, audit, and administration information only. Geographically dispersed development teams can coordinate their change management work seamlessly, with minimized space requirements and efficient, real-time access to files and information, managing change as it occurs.

With Serena® TeamTrack®, external parties may be granted access to submit, update and monitor their issues. This unique feature is very powerful for outsourcers because it allows collaboration between all stakeholders from any Web browser, any time, anywhere. This means that stakeholders can participate in the process whether they are across the hall or across the globe, whether they are in the same department or from completely different companies.

Serena® TeamTrack® Web and multi-platform access links the overall business process with the processes of individual functional groups anywhere, anytime, with a focus on quick response to market shifts. It provides all users with a role-based view of their responsibilities, assuring that all navigation and transactions are consistent with their job functions. Email notification and Web-based access encourage a real-time response from participants throughout the development process, and provide enhanced security with role-based views and permissions. When used with ChangeMan DS, Serena TeamTrack enables organizations to associate software code changes with requests, and coordinate between the request process and the development effort.

Serena ChangeMan ZMF, full-featured change-management solution for z/OS environments, establishes a flexible, process-driven infrastructure to streamline and simplify the development and deployment of quality applications. Outsourcers as well as internal staff can access the same system to ensure legacy applications and its changes are managed in the appropriate manner.

### Impact on Application Development

One of the biggest hurdles of outsourcing is the ability to coordinate and communicate changes. With change management processes in place, communication is improved by allowing all personnel to view changes, and to approve those changes that need to move forward in the development life cycle. These change management activities include:

- Check source code in and out
- Request and manage approvals
- Notify the team of changes
- Conduct pre-change impact analysis
- Describe and maintain a migration path for earlier versions of components
- Manage compiles and builds

The Serena ChangeMan products can be used in a multisourced environment for external as well as internal development, thereby offering a complete picture of the changes in the enterprise. In addition, application development can be managed across all major operating platforms. The ChangeMan products provide a central point for viewing, reporting, and acting on development activities no matter where they reside in the organization.

Your most valuable assets, your core applications, are protected because baselines are secure. With consistent and repeatable processes, maintenance time is decreased and the quality of software improves. Having change management in place allows for all the pieces of an application to be identified and known. This enables you to take the whole application to testing and quality assurance, with all parts together, defined and labeled, leading to fewer errors in the testing and user acceptance phases of the development life cycle.

### Impact on Security

To lower the security risk of having external staff access business-critical applications, ensure that outsourcers only have access to non-production environments, like development and staging, which are maintained separately from production. Through ChangeMan, code can be secured at the development site so that only authorized staff is allowed to view code. ChangeMan enforces who can access what code at various stages of the development life cycle.

Serena Change Management Solutions	Benefits for Application Outsourcing
Organize and manage software applications	<ul style="list-style-type: none"> <li>• Improve knowledge of application components</li> <li>• Decrease maintenance time</li> <li>• Simplify build process</li> <li>• Less complexity, less errors</li> </ul>
View changes and approvals	<ul style="list-style-type: none"> <li>• Improve communications with notifications and approvals</li> <li>• Business units know what changes are coming</li> </ul>
Standardize processes	<ul style="list-style-type: none"> <li>• Implement defined, repeatable processes</li> <li>• Produce better quality applications</li> </ul>
Support cross-platform development	<ul style="list-style-type: none"> <li>• Manage multi-sourced environments—external and internal</li> <li>• Manage application development for the enterprise from a single point of control</li> </ul>

Table 2: Change Management Benefits for Outsourcing

## Summary

Change management practices must be in place to successfully utilize outsourcers. Serena solutions are critical to your outsourcing efforts because they provide the required change management system to ensure higher quality software and increased productivity, which translates to higher cost savings and value.

## Case Study

A current ChangeMan customer is a large enterprise organization, with over 11,000 developers worldwide. Over 50% of these developers are part of application development outsourcing. One of the managers involved with outsourcing indicates, "Having the tools like the ChangeMan products is mandatory to help with the management of outsourced development."

According to this customer, Serena ChangeMan solutions are integral for a number of reasons:

- *Establishment of a secure source baseline*  
Organizations need to know the source code for their core business applications is secure, with no unauthorized access. Dealing with different personnel, different regions and different time zones increased the need to coordinate and maintain their source code assets. The ChangeMan products help that effort.
- *Auditability and Traceability*  
The Audit functionality of the ChangeMan tool is especially helpful, and enables the company to ensure correct synchronization of components and procedures. Potential problems were identified before they impacted production.
- *Promotion environment*  
The ability to establish separate environments for specific functions has been instrumental in managing offshore outsourcing. Having development areas separate from testing areas allows for a clean hand-off from offshore developers to the testers. Testing is much cleaner and clearer as all the components needed to complete the testing process are moved along the promotion path together.
- *Knowledge transfer of compiler options*  
ChangeMan was in place before outsourcing efforts began. Therefore compiler options for components under ChangeMan control were already established. Using ChangeMan now guarantees that offshore development knows how to generate application components.

### Change Management and Serena

The Serena ChangeMan family is the only Enterprise Change Management (ECM) solution that can manage parallel changes to software code and content running on different platforms, from mainframes to distributed systems to the Web. With outsourcing, enterprise applications no longer have boundaries, even within a company's computing infrastructure. Serena products enable management to view, correlate and approve all relevant changes from anywhere, using a Web browser. Visit [www.serena.com](http://www.serena.com) for additional information.



### Contact

To learn more about these products, and how to begin implementing comprehensive change management in your enterprise, visit Serena at [www.serena.com](http://www.serena.com) or write us at [info@serena.com](mailto:info@serena.com).

