

Any User. Any Data. Any Deployment.

Technical
White Paper

A photograph of four business professionals sitting in a modern office setting, engaged in a discussion. The scene is overlaid with a semi-transparent yellow rectangle containing the title and subtitle.

Collaborative Reporting Architecture

Putting the Principles of Open Source
to Work in Business Intelligence

Actuate 9 moves Business Intelligence from closed, proprietary development models to an open, iterative development process that increases participation among developers and end users through the sharing of a common report design. These designs, based on open source technology along with interactive viewing, form the cornerstone of the Collaborative Reporting Architecture introduced in Actuate 9.

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Overview

Actuate 9 moves Business Intelligence from closed, proprietary development models to an open, iterative development process that increases participation among developers and end users through the sharing of a common report design. These designs, based on open source technology along with interactive viewing, form the cornerstone of the Collaborative Reporting Architecture introduced in Actuate 9.

This architecture represents a breakthrough in Business Intelligence by bringing not only technology, but also the principals of open source development into reporting applications of any size and complexity. These principles—participation, iterative development and modularity—help break down the traditional barriers to adoption of Business Intelligence, speed deployment and lower BI-related costs:

- *Participation of every user—from open source contributor to application developer; through analysts to end users—is made possible through design sharing and interactive viewing.*
- *Iterative development, encouraged by participation, as these producers and consumers collaborate while evolving report designs.*
- *Modularity, using reusable design components to reduce the overall maintenance burden associated with any given report, while still providing the ability to quickly react to changes in requirements or market conditions.*

Collaborative reporting reduces the overall number of reports while better meeting the needs of every user.

The Collaborative Reporting Architecture draws its strength from open source. The Business Intelligence and Reporting Tools (BIRT) project of Eclipse supplies the foundation technology within Actuate 9 for Business Reports and Actuate BIRT Reports. Asynchronous JavaScript and XML (AJAX) powers interactive viewing through iPortal, the portal from which these products are delivered. The Actuate iServer completes the architecture by supplying Information Objects, report scheduling, security, server clustering, high availability and web services interfaces.

The remainder of this paper describes this architecture in depth. The paper discusses common problems associated with alternative solutions and explains the technologic and business advantages to deploying the Collaborative Reporting Architecture. Benefits including reduced costs of maintenance, fewer reports, increased adoption and improved corporate performance, are clearly presented and explained.

Tension between IT, Business Analysts and End Users

Traditional Business Intelligence technology is still used by only 15 percent of employees within enterprises and rarely used by the organizations' customers and partners. Organizations spend extraordinary amounts of time and energy negotiating reporting requirements among IT, business analysts and end users. IT can't provide access to the data until they understand what the users want. Correspondingly, end users can't explain what they want until they see the data that IT won't release. This standoff results in tension between IT, business analysts and end users, which slows down projects, increases costs and lowers participation.

Self-Service Solutions Alone Create Shelfware

Common solutions to the above problem include:

- *Installing operational processes for requesting new or changed reports*
- *Deploying web-based, ad hoc reporting environments for self-service to remove IT from the mix altogether*
- *Delegating reporting responsibility among IT and power users by deploying skill-specific reporting environments for each type of user:*
 - *IT uses powerful client/server applications*
 - *Business analysts receive web-based tools*
 - *End users receive content through web portals and email*

These strategies are partially effective, but today's solutions still do not provide enough flexibility to support the organizations' ever-evolving

requirements. Consumers constantly wish for new perspectives derived from existing reports, analysts seek new designs and data sources, while IT speeds to keep up with these requests. When requested changes go beyond the skills and capabilities of the analyst or user, its ownership shifts—in its entirety—to the individual responsible for the most challenging modification. And that ownership is permanent—it cannot be relinquished or passed back. The problem with traditional reporting environments is that the ownership of report maintenance ebbs back toward the most skilled users: IT. The result is self-service shelfware, reports that stop evolving and lose their luster and the return of tension between IT, analysts and the users.

This process collapses because designs are not shared between these environments. The reason that this occurs is that each traditional report writer, even when supplied from a single vendor, supports its own proprietary design format. Each product creates silos of business intelligence where trading new ideas and insights can occur verbally, but not technologically. Without design sharing, these silos will stagnate and deteriorate, while users abandon the use of each tool, adoption diminishes and shelfware grows.

Even though skill-specific environments are deployed across IT, business analysts and end users, this process still breaks down without design sharing because each user operates in a vacuum, rather than as a participant in a collaborative process. Collaborative reporting begins with design sharing.

Iterative Development and Design Sharing

Design sharing across skill-specific environments enables each user constituency to participate in the report definition process. If the design is modular in nature, then it can be constructed gradually and grow naturally. When the report also provides degrees of interactivity for consumers, collaborative reporting takes over almost spontaneously.

By deploying simple reports at first, report developers can gain immediate feedback from consumers and iteratively add features, tables and graphs. The process continues when reports are deployed to users who can interactively change design characteristics and create individually personalized views. This capability helps these users clearly describe the next set of requirements for the report developers.

Consider the merits of the following iterative report development process that includes IT supplying the basic reporting template, a business user building ad hoc reports from this template and consumers reviewing the subsequent interactive report:

- 1. IT starts the report definition process by creating simple report object components, such as table designs, chart designs or internal report logic.*
- 2. Reusable report components are saved as templates or composite designs.*
- 3. Business users then combine these templates with data to assemble interactive business reports that can be immediately deployed to any consumer.*
- 4. As consumers' needs evolve or become clearer, they can make simple changes themselves, such as font, format or grouping adjustments, without asking for an entirely new report.*
- 5. In cases where end users seek more sophisticated changes, such as column additions or new charts, end users can make these requests to the business user who supplied them with the original.*
- 6. Once made, the report design can be delivered back to the end user for consumption and further refinement.*
- 7. Larger changes, such as new composite graphics, can be added to the same design by IT and subsequently be returned to the business users and consumers downstream.*

Notice that each participant in this process owns responsibility for only a small part of the design—just their specialty—and that the environment they use to interact with the report is appropriate for their skills. Through sharing, each user can focus on delivering his or her report components without getting stuck with the responsibility of maintaining the entire report.

The benefits of design sharing are significant. Every user participates in the evolution and design of the report; even end users. Reports start small and grow through an iterative development process because the design itself is modular and comprises reusable components. This collaborative reporting process shortens each report's time to market and increases its longevity because it can continue to evolve as requirements change. This shared design eliminates communication issues between IT and end users, breaking the tension mentioned above and slashing the time required to negotiate fixes and modifications. Fewer reports need to be developed, and those that exist last longer.

Overall satisfaction and adoption of the reporting application increase while costs associated with maintenance and development drop. These benefits of collaborative reporting—widespread participation, iterative development and modularity of designs—parallel the principals found in successful open source projects. Projects such as Eclipse, managed by the Eclipse Foundation, contain examples of this success. Eclipse includes a number of development projects, including BIRT. The BIRT project was petitioned by Actuate in 2004 with the goal of creating new report development tools based on the Eclipse IDE, new report generation and charting engines and an open, XML-based report design format. Today, BIRT has come to life as a thriving, global, open source project. The popularity of BIRT is recognized globally in press, internet blog postings, job listings, conferences and through thousands of project downloads every month.

BIRT also represents the cornerstone of Actuate's Collaborative Reporting Architecture, which carries these principles of open source development into Business Intelligence projects of any size.

Collaborative Reporting Architecture

The Actuate 9 Collaborative Reporting Architecture blends the open technologies from the Eclipse Foundation BIRT project with the scalability,

performance and reliability of the Actuate iServer and the interactivity of AJAX into a Business Intelligence environment never before available.

The result is dynamic, interactive enterprise reports for any type of deployment, and an ad hoc web reporting environment that allows end users and IT to collaborate and iterate on report definitions, effortlessly evolve report designs and dynamically craft interactive web reports.

The Collaborative Reporting Architecture brings open source technology and principles such as participation, iterative development and modularity to work inside the enterprise to drive information adoption and corporate performance.

The Actuate 9 Collaborative Reporting Architecture is comprised of the following skill-specific, report design and viewing products:

- **Actuate BIRT Reports**—*Enable professional application developers and report developers to build dynamic, interactive enterprise reports ready for deployment to end users, and create composite report design templates for Business Reports. Because Actuate BIRT Reports is based on open source code, developers will be able to leverage templates and resources created by the BIRT ecosystem to speed report development and deployment.*
- **Actuate Business Reports**—*Enables business analysts and power users to craft ad hoc web reports by employing reusable BIRT-based foundation reports and including data from Information Objects. The iterative design and development approach empowers close collaboration between developers and end users, who can quickly create and rapidly evolve reports to meet the changing needs of information consumers.*
- **Interactive Viewing**—*AJAX-powered interactivity that enables every type of user to think beyond the current structure of the report and personalize it into his or her own perspective. Users have the flexibility to modify report views, reducing the number of reports that need to be created. This flexibility rewards end-user initiative with fast results and the insight to drive corporate performance.*

- **iPortal**—iPortal hosts Actuate BIRT, Business Reports and Interactive Viewing, and can be deployed independently for small workgroups or in conjunction with the Actuate iServer when enterprise caliber capabilities are required, including scale, access to Information Objects and multiproject support. JSR-168 portlets are also available to deploy content in standards-based portal environments.
- **Actuate 9 iServer**—Enterprise Reporting Application Platform with high scale, performance, reliability and security.
- **Actuate 9 Information Objects**—Enables data architects to leverage Actuate's Enterprise Information Integration (EII)-powered metadata to supply reusable data objects across the product line.

Conclusion

The Collaborative Reporting Architecture's modular BIRT-based designs can be shared among high-skill report developers, power and business users and consumers. This encourages participation across user and producer communities and fosters an iterative report development process which speeds development and adoption of the reporting application. These popular principals of Open Source development are now put to work inside organizations for Business Intelligence.

With Actuate's Collaborative Reporting Architecture, companies can shift from a 'closed BI model' where information access and analysis is siloed, to an 'open BI model' that speeds report development by supporting collaboration amongst people of every skill level.