
Under the Covers: Migrating to a New Architecture

The biggest change with XI Release 2 is its new architecture, although it, in some respects, is not entirely new: the XI architecture is largely based on Crystal Enterprise's architecture. Understanding high-level aspects of the new architecture will help you adapt your support organization and better plan your migration. Business Objects provides you with utilities that will help you migrate to this new platform. This chapter provides an introduction to the new architecture, migration approaches and tasks, and the migration utilities. It is not meant to be a comprehensive guide. System engineers who must configure and optimize server processes should refer to the vendor documentation for more in-depth information. Project managers and BI experts who must plan the migration should check discussion forums, consulting partners, and vendor white papers for more up-to-date and detailed migration strategies. Also note that this book has been written using the BusinessObjects Enterprise server on a Windows Advanced Server operating system; migration tasks may be different when using other operating systems such as Unix and Linux.

File-Based Repository

Business Objects was one of the first BI vendors to leverage a relational database for its metadata repository. The relational repository contained information such as universe definitions, security profiles, and corporate documents. The use of a relational database allowed for a central source of metadata that geographically dispersed users could easily access. Backups were easy, as DBAs could readily back up the database. The relational database approach also ensured the product was open, and many administrators learned to read the relational repository to manage their deployments. However, the relational repository also could be a bottleneck when binary files needed to be exported to or imported from the repository. If your company had a large universe, downloading changes to that universe, while automatic for users, could take several minutes. The same is true of publishing corporate documents. When a user published a report to Corporate Documents, the .rep file was stored as a BLOB in the relational database. When another user accessed that corporate document, the .rep file had to be extracted from the relational database and in a sense reconstructed on the file system. For large documents, this could take several

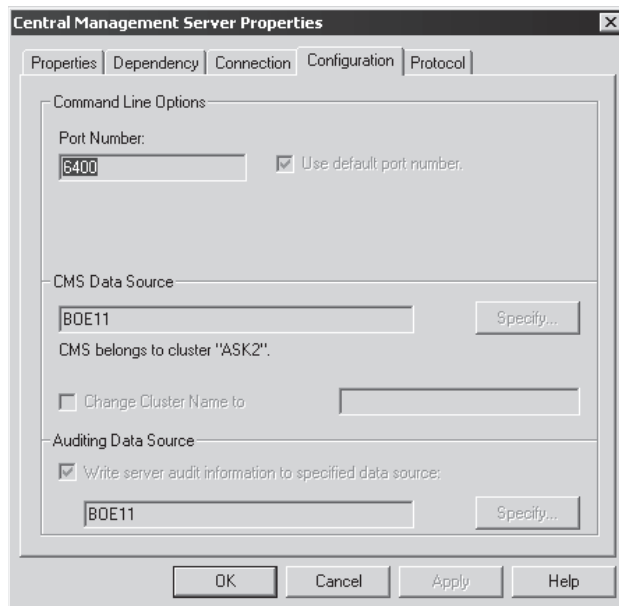
minutes. The response time issues certainly affected users' behavior, as they avoided saving data with a corporate document, sometimes for security reasons but often because of long response times. Thus, full-client documents were more often shared outside the repository on local area networks.

BusinessObjects Enterprise XI continues to use a relational repository but uses the file system more extensively. In XI, the relational repository is significantly smaller. The relational database is used more as a method of maintaining pointers and relationships between universes, reports, and users. All of the universe definitions and reports are physically stored on the file system. The best thing about this approach is the performance improvement. For designers, exporting universes is pretty much instantaneous. For users, publishing and accessing corporate documents is as fast as saving them to disk.

For administrators, it's important to develop a backup strategy that includes both the relational database and the file system and to ensure those backups happen in a synchronized fashion. If your BusinessObjects 6 deployment contained multiple universe and document domains, these are now represented as separate folders within the XI repository and maintained via one Central Management Server (CMS).

NOTE *So where is my BOMain.key? The BOMain.key no longer exists! In the past, administrators and users might have chosen a different .key file whenever they needed to access a different security domain defined via Supervisor. With BusinessObjects Enterprise XI, you would specify a different CMS created during the installation process or specified in the Central Configuration Manager. If you want to see where the relational repository resides, follow these steps:*

1. *From within Windows, launch the Central Configuration Manager by selecting Programs | BusinessObjects XI Release 2 | BusinessObjects Enterprise | Central Configuration Manager.*
2. *Right-click the Central Management Server and choose Properties from the pop-up menu.*
3. *From the Properties tab, you see the database user name and password used to log in to the CMS database.*
4. *From the Configuration tab, you see the relational database used for the repository and auditing if enabled. In the example at right, this is a SQL Server database named BOE11. If you have a new deployment (not upgraded from XI.0), then the default database name may be BOE11.5.*



Optimized Processes

Another unique aspect to Crystal Enterprise's architecture was its optimized processes and plug-and-play components. Many of these same processes in Crystal Enterprise 10 continue to exist in BusinessObjects XI. However, there are additional processes dedicated to the treatment of Web Intelligence and Desktop Intelligence tasks. Although each of these processes is called a "server," this is conceptual only. They are not separate physical machines. Instead, they are processes potentially all running on one server or with multiple instances distributed across several machines.

Figure 5-1 provides a conceptual overview of the key components in a BusinessObjects Enterprise deployment. Your deployment will vary depending on which interfaces you have purchased, if you have licensed a premium or professional addition, or if your implementation includes Dashboard Manager and Performance Management.

The following services are shared across the suite. Even if you deploy only one interface, for example just Desktop Intelligence, your environment will use these services:

- The Central Management Server is the key component within XI, handling security and the routing of requests to other services. If the CMS is not running, then users will not be able to log in to BusinessObjects. If, however, the CMS is running but other servers are not, then users may in fact be able to log in to InfoView but will receive an error when they try to open or refresh a document. Which error appears and when depends very much on the task the user performs and which server is unavailable.
- The Input File Repository Server handles the process of writing the results of Report Servers to the repository. When users access a shared report in real time, the Input File Repository Server processes the request.
- The Output File Repository Server handles the process of serving requests for users accessing the results of a scheduled report, called an instance. When users schedule a report, a Job Server will send the results of the report to the Output File Repository Server, which stores the report in a compressed format.
- The Connection Server provides connectivity to the data sources such as Oracle, SQL Server, and Teradata.

For each end-user interface you deploy, you will have the following types of additional services. These services are optimized to process certain document types, depending upon whether they have been executed in real time or scheduled. A Job Server processes reports that have been scheduled to run. It will retrieve the definitions of the report from the Input File Repository Server, connect to a data source, execute the query, format the results, and save an instance of the report to the Output File Repository Server. Job Servers replace the functionality previously provided by the Broadcast Agent Scheduler. There is a Web Intelligence Job Server, a Desktop Intelligence Job Server, and Crystal Reports Job Server. There is also a List of Values Job Server for Crystal Reports lists of values, not for lists of values defined in universes.

Report Servers process reports that are executed on demand or built ad hoc. There is a Web Intelligence Report Server, a Desktop Intelligence Report Server, and a Crystal Reports Report Server.

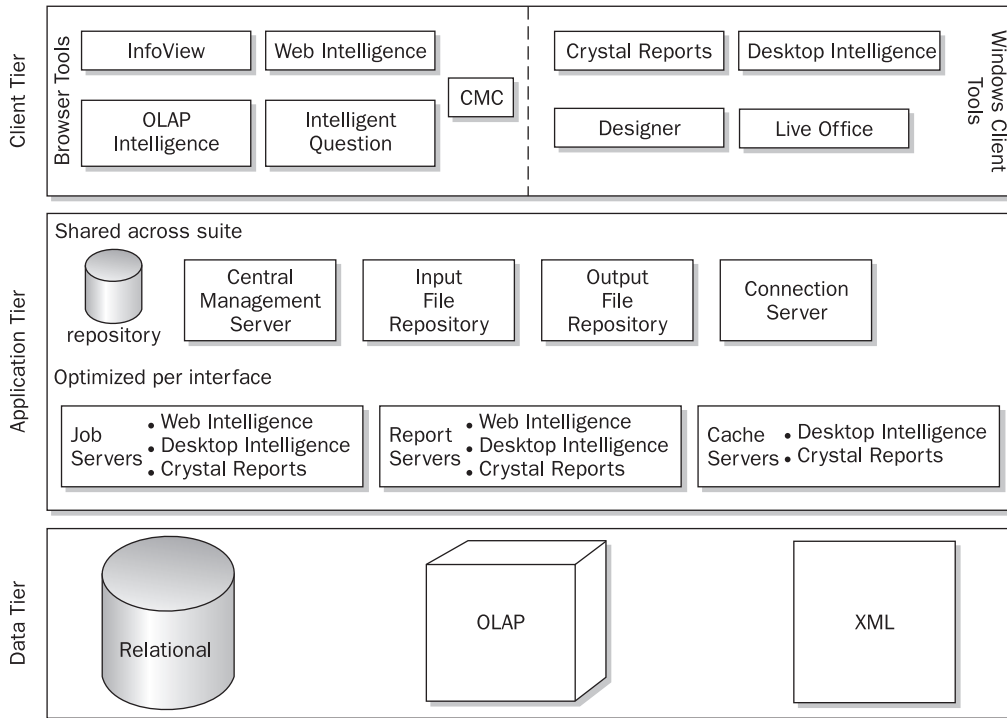
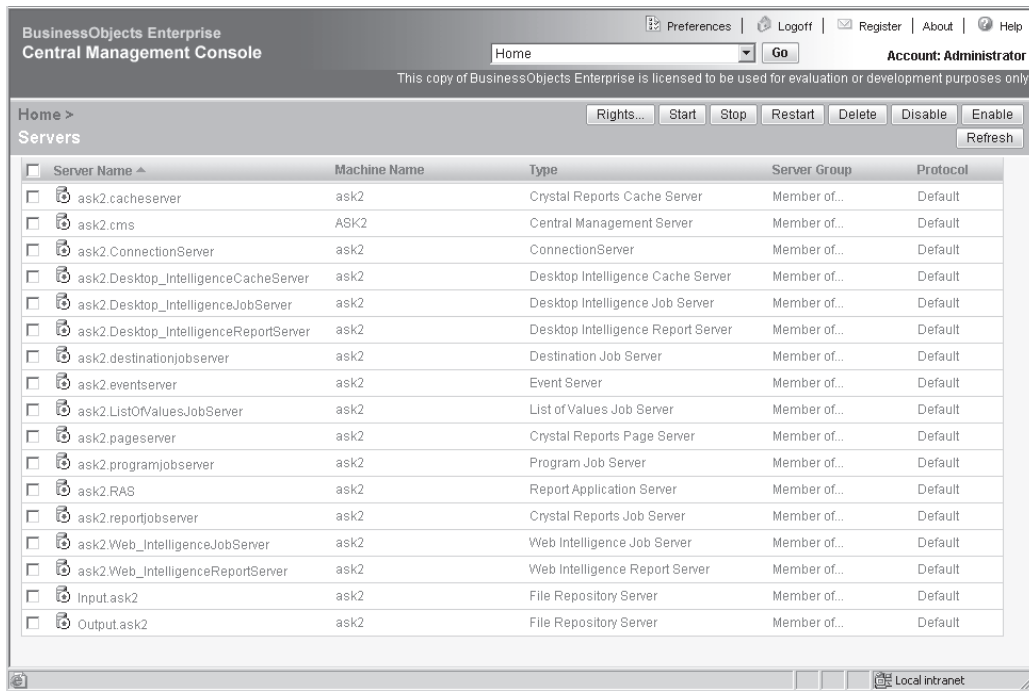


FIGURE 5-1 Conceptual overview of key components within the BusinessObjects Enterprise architecture

Cache Servers cache individual pages of reports for Desktop Intelligence and Crystal Reports users. When a user views a large report, the Cache Server sends a single page to the user’s browser. The Web Intelligence Report Server has caching abilities as part of that process, so you will not see a separate Web Intelligence Cache Server.

If your deployment includes Crystal Reports for pixel-perfect reporting, then you will see additional server processes optimized for that report type: Crystal Reports Page Server, List of Values Job Server, Report Application Server, and Destination Job Server. Don’t let the names of some of these servers mislead you to thinking they are not available for other report types; it’s simply that the work is performed by a different server process. For example, the List of Values Job Server processes lists of values only for Crystal Reports documents; it does not process lists of values for Web Intelligence or Desktop Intelligence documents. Instead, the Web Intelligence Report Server and Desktop Intelligence Report Server handle the processing for those lists of values.

Administrators may start and stop services using the Windows Central Configuration Manager, or they may use the web-based Central Management Console, shown next. In the following screenshot, services that are running are indicated with a green up arrow and stopped services have a red down arrow:



Migration

Because so much has changed with the underlying architecture, migrating from BusinessObjects version 5 or 6 to XI demands careful planning. It is not an upgrade that involves a simple copy from one version to another. XI Release 2 contains two tools that will help with migration: an Import Wizard and a Report Conversion tool.

The Import Wizard allows you to

- Migrate users and content from one version of the platform to XI Release 2.
- Copy users and content from a development environment to a production environment.
- Consolidate content from departmental BusinessObjects and Crystal implementations to an enterprise implementation.

The Report Conversion tool allows you to convert full-client reports or Desktop Intelligence reports to Web Intelligence documents. Both of these tools are discussed more thoroughly later in this chapter.

Your migration project should have four broad phases: planning, test, implementation, and ramp-up. The length of each phase will vary significantly, depending on the size and complexity of your existing deployment and your consolidation approach. As you plan your project, use the checklist in Table 5-1. An electronic copy of this checklist may be available on the Osborne web site and BOB. Each of the items in Table 5-1 is described more fully in the following sections.

Category	Item	Lead Person	Start Date	End Date	Comments	
Planning Phase	Understand key benefits you would like to obtain					
	Understand and identify licensing issues					
	Retain executive sponsorship and ensure incentives are in place					
	Ensure Crystal and BusinessObjects administrators work together					
	Take baseline of existing environment: FTEs to support, number of servers, defined users, active users, number of reports and universes					
	Read documentation (particularly Chapters 5 and 13 of <i>BusinessObjects XI: The Complete Reference</i>)					
	Train administrators					
	Inventory existing reports in repository, local networks					
	Identify shared reports that should be in repository					
	Identify opportunities for report rationalization and conversion to Web Intelligence					
	Develop/update security approach					
	Develop migration approach (consolidate or not)					
	Plan new architecture					
	Develop training strategy					
	Identify sample reports for benchmarking/testing (basic, complex); document current response times					
	Assess technical architecture readiness: Java application servers, standard browsers for Web Intelligence authors					
	Develop communication and implementation plan					
	Identify pilot users and content					
	Development/ Test Phase	Install XI Release 2 software				
		Scan and repair version 5 or 6 repository				
Back up version 5 or 6 repository						
Back up version 5 or 6 reports not in repository						
Plan groups and folders						
Test the Import Wizard for users and groups, documents, stored procedures, universes, permissions						
Understand and test new security						
Test universe connections and/or define ODBC						
Test sample reports and benchmark						
Test server load and new architecture						
Document new policies, procedures, support responsibilities						
Identify and test manual tasks						
Train pilot users and key support personnel						
Identify possible user/group overlap between Crystal and BusinessObjects environments						

TABLE 5-1 Migration Planning Checklist

Category	Item	Lead Person	Start Date	End Date	Comments
Go Live	Freeze updates to old environment				
	Train users				
	Migrate full repository and reports				
	Complete manual tasks				
	Sunset old environment(s) to achieve cost savings				
	Measure new environment: FTEs to support, servers, defined users, active users, number of reports and universes				
Ramp Up and Redesign	Set up external authentication				
	Convert full-client reports to Web Intelligence				
	Optimize and/or redesign universes				
	Calculate ROI				
	Promote and extend to new users				
	Leverage new modules				

TABLE 5-1 Migration Planning Checklist (*continued*)

Planning Your Migration

The first and most important phase of your migration is the planning phase. With some IT projects, it may be acceptable to plan a little, test a little, and implement for a longer period of time. With your migration to XI, the planning phase of the project may be your bigger investment. Plan well and your migration will go more smoothly. Plan poorly and you can expect to face numerous challenges. Planning breaks down into a number of key actions, as described next.

Understand the Key Benefits You Would Like to Obtain

As with any upgrade, document the justifications for the upgrade. These may include cost savings if you are consolidating environments; increased scalability from the XI platform; or new features available in XI such as Intelligent Question, collaboration, and improved auditing for Sarbanes-Oxley compliance. There is also the issue of ongoing support and maintenance for versions 5 and 6. The vendor publishes Technical Support Lifecycle plans on its web site (<http://support.businessobjects.com/programs/lifecycle/default.asp>) and currently plans to end technical support for version 5.1.9 at the end of 2007 and for version 6.5 in June 2008, although product patches will cease earlier.

With some of these benefits, there may be licensing implications. In migrating to XI, the software upgrade is covered as part of maintenance for like-for-like functionality. However, XI has a number of modules that you may not previously have purchased. For example, Live Office and auditing capabilities are both provided as part of a Premium licensing bundle. Identify which capabilities may incur additional licensing costs, evaluate the benefits, and obtain the necessary budget.

Retain Executive Sponsorship

Many times a software upgrade is performed by the IT group as part of maintaining the BI infrastructure. However, if any of the goals of your migration project include BI standardization, consolidating departmental BI implementations, or leveraging new business features of XI

Release 2, then you need to ensure executive sponsorship before proceeding. Without this sponsorship, turf battles will impede your migration. The ability to provide additional business value is threatened.

Make Sure Crystal and BusinessObjects Administrators Work Together

In many organizations, there are separate Crystal Enterprise administrators and BusinessObjects administrators. Rarely do the different administrators talk to one another. They each have their own application responsibilities and user constituents, so why compare notes? However, as business intelligence becomes a strategic, enterprise resource, these administrators will ideally work within the same BI competency center and report to the same program manager. If that is not the case in your organization today, then at least begin a dialogue with one another to understand the environments, potential for overlap, and potential for synergy. BusinessObjects administrators have a lot to learn from the Crystal experts about the architecture and security. Crystal Enterprise administrators have a lot to learn from the BusinessObjects experts about the role of the universe, interactive reporting, and dashboards. Both need to understand product positioning and to develop a strategy for which product to use in particular applications.

Take a Baseline Inventory of Your Existing Environment

A baseline should include the number of full-time equivalent personnel (FTEs) to support the application and the number of servers, defined users, active users, and reports and universes. Many companies do not currently monitor active users and have not enabled auditing in their BusinessObjects environment. Even if you do not own an Auditor license, you can enable a degree of auditing on BusinessObjects version 5 or version 6 for logins that come through InfoView. This baseline is important in ensuring like-for-like performance in a version 6 and XI environment as well as understanding the cost/benefits of your migration. If you keep the hardware and support staff constant, yet have significantly increased your content, or active users, then you have achieved a measurable benefit.

NOTE *It was alarming to me to hear that some early migrators did this manually by counting items in various screens in Supervisor. Information on number of users, universes, reports, and more is readily available to you by running queries against the version 5 or version 6 repository tables. If you are not versed in the structure of these tables, use the ManagerO universe that has been available in the freeware directory in earlier versions of BusinessObjects.*

Read Available Documentation

A key part of any migration is to understand the areas that have the most significant changes. This includes any vendor-provided “What’s New” papers and in this book, Chapters 5 and 13. However, if you are the type to embark on hooking up the new DVD player without first reading the manual or driving to a new destination without opening a map, then ignore this step at your company’s peril.

Train Your BusinessObjects XI Administrators

BusinessObjects XI administrators should attend training sessions to learn how to install, configure, optimize, and maintain the server components and security. The vendor also provides training specific to migration tasks.

Inventory Shared Reports

Many BusinessObjects deployments have a multitude of reports on users' local disks and network folders. Many are not shared via Corporate Documents. It is possible to implement XI while leaving all these reports where they are. However, once an XI user saves the document or publishes it to the repository, it is converted to the latest release and version 6 users will no longer be able to open the report. If these documents are not being backed up on a regular basis, now would be a good time to do so. With XI, the concept of "Corporate Documents" is much more flexible. Folders (see Chapter 13) provide a powerful, secure way for users to share reports. As part of your migration planning, you want to inventory the reports stored in the repository, but also, understand the extent that reports are shared elsewhere. As part of this inventory, you may determine that a number of reports that were not in your 6.5 repository should indeed be shared via folders in the XI repository.

Tip *In addition to inventorying existing reports, be sure to clean up the repository by deleting unused documents and universes.*

Identify Opportunities for Report Rationalization and Conversion to Web Intelligence

This step will not be popular with full-client enthusiasts, people resistant to change, and people who hate cleaning out their closets. However, there are some significant advantages to a Web Intelligence document over a Desktop Intelligence document (discussed in the next section and in Chapter 24). As part of your migration planning, identify which documents are candidates for conversion or which documents will be left as is. As part of this planning step, you can use the Report Conversion tool to give you an estimate of the percentage of reports that will easily convert and the percentage of how many may be problematic. During this investigation stage, you may decide as part of your strategy that phase one will not include any conversion and that such conversions may happen only in a secondary phase. It's all a question of the trade-off between cost of converting versus benefits provided. Also consider if all the reports are necessary (accessing to auditing data is certainly helpful here!). If you have ten variations of one report with slightly different sorts or filters, consider if you can reduce the number of reports.

Develop/Update Your Security Approach

Security is discussed further in Chapter 13. Security in XI is much more granular than in previous releases of BusinessObjects. Now is the time to consider how granular you want the security, who will control resources, and what are the default permissions for various groups and applications.

Develop a Migration Approach and New Architecture

As I consider migration approaches, I can't help but think about pork barrel politics. You don't want your migration effort to get so bogged down in related redesign and consolidation efforts that it drags on indefinitely, and yet to migrate without some degree of cleanup is suboptimal as well. Figure 5-2 shows a typical departmental BI deployment. Each department has a different version of BusinessObjects, with its own repository and server infrastructure. The Finance group accesses both BusinessObjects version 5 and Crystal Enterprise. User IDs and passwords are duplicated in the two repositories. As you migrate to XI Release 2, the "fastest" migration with the least political impact is to continue to treat each of these siloed implementations separately and create three XI implementations. There are no issues of

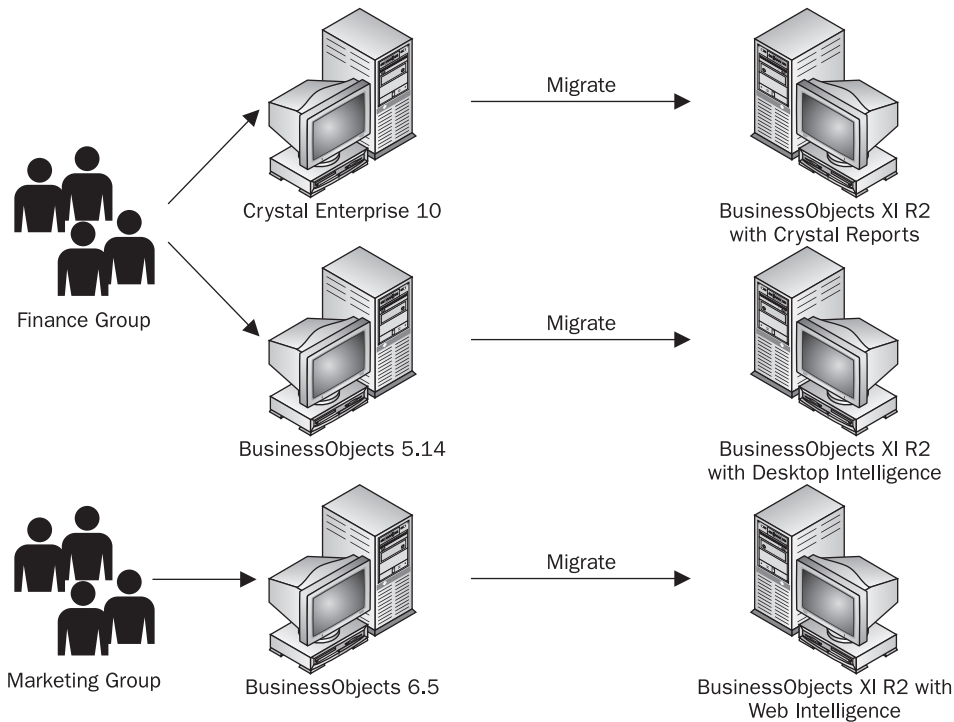


FIGURE 5-2 Simple migration approach with departmental BI implementations

overlapping user IDs and group definitions. However, you have done nothing to reduce your cost of ownership or to provide users with one source for all their BI content. Finance users still have to log in to two different InfoView portals. With this approach, your goal is to implement XI quickly and treat any cleanup, redesign, or consolidation efforts as a separate project.

Figure 5-3 shows an alternative approach to migration during which you consolidate the departmental implementations into one common XI implementation. You may externalize user authentication or continue to use BusinessObjects Enterprise's own authentication mechanism. Here, a Finance user is defined once. From a scalability perspective, you may choose to have the individual Report Servers (Web Intelligence Report Server, Desktop Intelligence Report Server, Crystal Report Server) run on separate physical machines; however, they are all controlled through one common CMS. With this approach, users access all BI content via a common InfoView.

Clearly, the approach in Figure 5-3 may offer the lowest cost of ownership for IT to administer. However, it requires a greater degree of coordination and planning and executive sponsorship. Importing rights for users who may have had different user IDs or replicated user IDs in previously departmental solutions will require some manual intervention. Consolidation is also *initially* more disruptive to users and support personnel. This disruption has to be weighed against the benefit of providing one common BI repository at a lower cost (although the end users may never see the BI support costs).

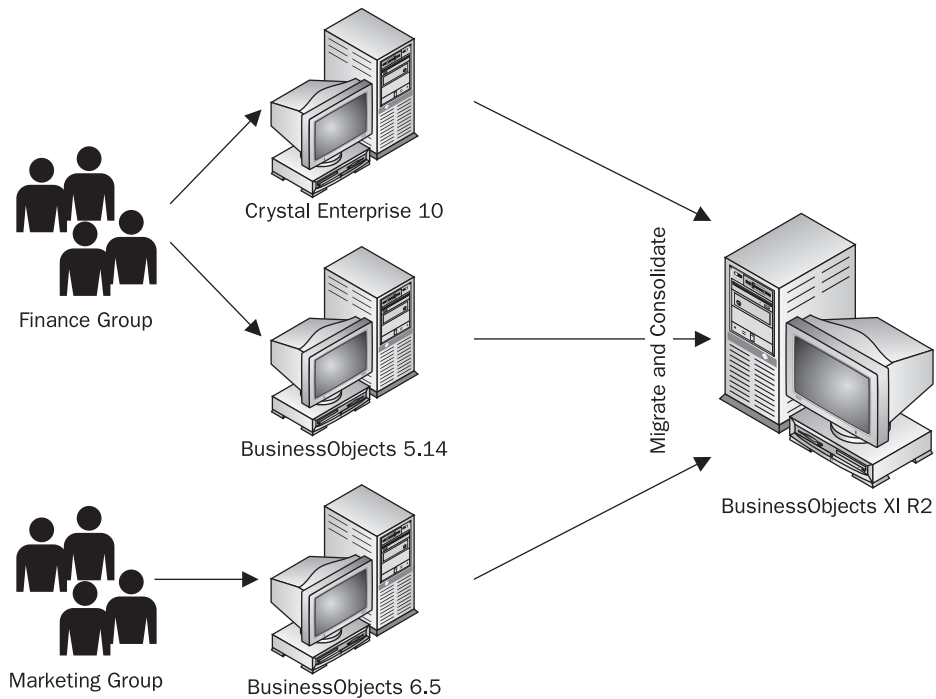


FIGURE 5-3 Migration and consolidation approach with enterprise-wide BI implementation

The best approach for any company is dependent upon the organization, available resources, and desired timeline. Even if you start by moving onto XI “as is” with separate server environments per department (Figure 5-2), do plan architecturally and organizationally for eventually consolidating environments (Figure 5-3) within a defined time period.

With some of the changes to the BusinessObjects Enterprise server architecture, you may also want to re-architect your deployment to distribute components across multiple servers. How you architect development/test/production environments also requires consideration (some options are discussed in Chapter 15).

The change in architecture is one aspect of the migration, the opportunity to “clean up” is another. With many initial BusinessObjects deployments, companies built huge universes not adequately aligned with the user needs. Users built powerful reports with way too many calculations that could have been defined in the universe to ensure one version of the truth and re-usability. The BusinessObjects XI universe has also evolved with features such as keys (see Chapter 9) and derived tables (see Chapter 11) that, when used appropriately, allow for a more scalable system that better leverages the power of the database. As part of your migration to XI, plan for some redesign time but perhaps in a secondary phase once you have reached steady state on the new platform. Failure to optimize universes and reports prior to increasing your deployment carries bad practices forward and may make it increasingly difficult to fix past problems.

NOTE Here too, you want to know how many users will be affected by any redesign efforts. Know how many users access any given universe. Ensure that your migration plan minimizes user disruption. In some cases, it may be wise to leave a poorly designed universe “as is” and provide an enhanced one separately.

Develop a Training Strategy

As discussed in Chapter 4, training should be differentiated for the different types of users. So too should XI migration training. Report consumers who had already been trained on InfoView, for example, may only need an e-mail about new login procedures and a few highlights of what’s new. Power users, on the other hand, may need web-based or classroom training or workshops that discuss the most significant changes. Training is not only determined by the type of BI user but also by your migration strategy. If you migrate to XI without consolidating environments or converting reports, less training may be necessary in the early phases of your implementation but more will be necessary as the users want to leverage some of the new capabilities.

Identify Sample Reports for Benchmarking/Testing

As with any major upgrade, it’s recommended to establish a baseline for current response times to more easily diagnose and pinpoint problem areas. Identify some use cases and ensure you have documented response times. This may include times for certain tasks such as logging in and refreshing a simple report, accessing a corporate document with data, executing a complex report with complex SQL, executing a highly formatted report with a complex layout, and so on.

Assess Technical Architecture Readiness

If your current deployment is based primarily on BusinessObjects two-tier or client/server architecture, evaluate your intranet environment. While BusinessObjects offers an ASP interface that uses Windows as the application server, this lacks some of the interactive reporting capabilities for report consumers. The JSP interface provides report consumers with features such as sort and filter within a zero footprint browser, but to leverage this, your deployment must contain Java application servers. For Web Intelligence report authors and power users, you must ensure standard browsers to run Java applets.

Develop a Communication and Implementation Plan

As discussed in Chapter 4, part of a BI implementation is not just implementing the software but also helping users understand how to better leverage it and promoting its effective use. With an XI migration, you need to develop a similar communication strategy so that users know what will be changed, why, and when.

Tied to your communication plan is an implementation plan with the number of users added in phases. Your implementation may be phased by department, user group, or universes. Your approach will be influenced by how your BusinessObjects deployment was organized in the past. As you further test the environment, this implementation plan should be fine-tuned. As part of your implementation plan, I recommend you adopt a strategy of reaching “steady state” before leveraging the new capabilities in XI.

Identify Pilot Users and Content

As you prepare for your migration, identify which users will be part of the pilot. You may choose to select users of different profiles (power user, report consumer) from several

business units, or using Figure 5-2 as an example, you may select just one department and subject area. This is a pilot and needs to be carefully controlled: you do not want to have to import a large number of user definitions, universes, and reports multiple times. The purpose of the pilot is to verify functionality, to check software configuration, and to understand what procedures and policies need to be modified.

Testing the New Environment

After thoroughly planning for your migration, you are now, finally, ready to get your hands dirty and start working with the software. I know: you may want to skip the planning and start working with all this cool stuff first. Indeed, evaluating XI before you initiate a project is one way to approach the migration. Arguably, a degree of evaluation time will better help you plan for your migration. But be very careful not to let your “controlled” evaluation evolve into a departmental implementation. There are a couple of areas in which you very quickly can impact some production users. The first of these is when you attempt to import or access reports.

Copy or Back Up the Version 5 or 6 Repository

During the XI Release 2 beta, when you used the Import Wizard to import reports, universes, or users to the XI repository, the Import Wizard updated the older repository to version 6.5. Certain tools, such as Designer, would then no longer be able to log in to the old repository. This practice changed in the production version, yet I still recommend that in testing the migration tools, you make a copy of the repository and generate a BOMain.key that points to the copied database. As part of your routine maintenance in version 6 or 7, you should be running a repository repair or compact on a periodic basis. If not, now is a good time to do so to delete any extraneous records from the repository tables.

NOTE *When using the Import Wizard, you will point the Import Wizard to the copy of the repository, thus ensuring production users are not affected.*

Back Up Version 5/6 Reports

When you publish a version 5 or 6 full-client report to the XI repository, Desktop Intelligence converts it to XI format. It is still a .rep file, but it can no longer be opened by an older version of BusinessObjects. Users will receive an error message that the file is corrupt. When you are still in the test phase, you do not want to render your existing full-client documents unusable to production users. Therefore, I recommend making a separate copy of any .rep documents that you may want to export to the XI repository.

CAUTION *Do not export a version 5 or 6 .rep file to the XI repository without first making a copy. If you skip this step, BusinessObjects full-client users may no longer be able to open their reports.*

Plan Groups and Folders

This topic and its importance are discussed in Chapter 13. It has a profound impact on how you structure security and on what security you import from your old repository. In version 6, access to individual documents had to be explicitly enabled or disabled. With XI, documents can be stored within folders, allowing administrators to control access at group and folder levels. This provides much more flexibility. You may then choose not to import what was a highly complex security scheme from your version 6 repository, but instead, to simplify the security in XI through groups and folders.

Test the Import Wizard for Users, Groups, Documents, Stored Procedures, Universes, and Permissions

The Import Wizard provides many options for importing content from previous versions of BusinessObjects and Crystal Enterprise to XI. During this test phase, you want to understand what gets imported and to where, what is the impact of merging environments, what is the impact of enforcing rights fidelity, and various other options. As part of your testing, plan to do the import multiple times and in multiple ways. The Import Wizard is very flexible, and you will find that doing an import of everything as it was may not be optimal.

NOTE *You will want to test the Import Wizard multiple times, trying to import different content each time. Plan to spend days on this, not minutes or hours. This is not because the Import Wizard is particularly difficult but because you have different options as to how and what you import. The impact of certain settings is not immediately apparent until you also have a good understanding of the new security as well. Also, if you do not run a scan, compact, and repair as part of your routine repository maintenance, I recommend doing so before using the Import Wizard.*

Understand and Test New Security

Security in XI is much more granular than in earlier versions of BusinessObjects and leverages the Crystal Enterprise security model. This is discussed in Chapter 13. As part of the import process, importing users and groups is fairly straightforward. However, importing the associated permissions to documents and universes requires a greater understanding of the new options in XI Release 2. If you have poorly defined security in your version 5 or 6, you do *not* want to import it; instead, you will find it faster to redefine permissions at the group and folder levels.

NOTE *Through several client and vendor conversations (and lively debates with the book's technical editors), I understand that the vendor does not officially recommend migrating security from older BusinessObjects deployments to XI. However, I think this recommendation is not so black and white and is highly dependent upon what you are trying to migrate and the effort involved in migrating versus rebuilding. Migrating user IDs, passwords, and universe permissions is straightforward and something I would recommend. Migrating profiles and complex permissions to individual Corporate Documents is significantly messier and something I would recommend to rebuild in the new environment. In any migration, evaluate your existing security and test the Import Wizard with multiple options.*

Test Universe Connections and/or Define ODBC

When you import a universe, the connection gets imported as well. However, if you use ODBC for certain connections, the system administrator must ensure that these same ODBC connections exist on the machine(s) running XI.

Test Sample Reports and Benchmarks

Assuming you took a baseline measurement of sample reports and use cases in your planning phase, you can now compare the performance improvements in XI.

Test Server Load and New Architecture

If you have re-architected departmental implementations to an enterprise implementation, run test scripts to understand the maximum load in the new environment for simultaneous

logins, report viewing, query execution, and so on. Third-party tools such as Mercury LoadRunner can help you test server performance.

Document New Policies, Procedures, and Support Responsibilities

Given all the changes in the XI architecture, you will need to document and update a number of policies, procedures, and support responsibilities:

- **Backup of relational repository and file-based repository** With earlier versions of BusinessObjects, your DBA backed up the repository that contained the universe and corporate documents. With the new XI architecture, the backup of the relational repository and the file-based portion must be synchronized.
- **Moving items from test to production** How best to set up development, test, and production environments in earlier versions of BusinessObjects was widely debated, a debate that most likely will continue in BusinessObjects XI. You can use folders and copy items, or you can install a separate CMS and use the Import Wizard to create BIAR files (see Chapter 15). The important thing here is that your existing procedures will need modification.
- **Save to Corporate Documents** With earlier versions of BusinessObjects, there was one area to share common reports within InfoView: Corporate Documents. This area was often tightly controlled by BusinessObjects administrators. In XI, you can have multiple folders. This flexibility will force you to re-evaluate who should be able to publish content to shared folders.
- **Prepare support staff** Ensure support staff know what is coming and that they understand changes in responsibilities and procedures, new error messages, known problems, and migration plans.

Identify and Document Remaining Manual Tasks

While the Import Wizard will help you migrate a number of items within the BusinessObjects environment, there are a couple of things that you must define manually. As the Import Wizard is updated with subsequent service packs, check the vendor support site for remaining manual tasks. At the time of this writing, these tasks include

- **Broadcast Agent schedules** Reports that were scheduled via Broadcast Agent Scheduler must be rescheduled. Calendars are new in XI Release 2 and require additional definitions. Web Intelligence reports that use the OpenDocument function are imported into the new repository, but the links need to be redefined as the file paths will have changed.
- **Train pilot users and key support personnel** You planned an approach for training your pilot users; now you are ready to train them to begin using XI in a test environment. Ensure that key support personnel are part of the first wave of trained users.

Handle Consolidation Tasks

If you are also doing consolidation as part of your migration, be sure to identify possible user/group overlap between previously separate Crystal and BusinessObjects environments. Identify which user IDs and group names may have existed in multiple systems. For example, in Figure 5-2, the Finance group exists in both Crystal Enterprise and in BusinessObjects 5. Importing duplicate groups and users requires additional review of the merged rights.

Implementation Phase: Going Live with Your BusinessObjects XI Migration

You've *planned* your migration, you've *tested* the new platform; now you are ready to *implement* BusinessObjects XI and go live with your migration.

Freeze Updates to the Old Environment

Ideally, you will freeze any updates to any environments for BusinessObjects version 5 or 6. You may still run and support these environments, but if you can limit changes to universes and changes to corporate documents, you will not need to migrate the same content into XI more than once.

Migrate Full Repository and Reports

In the test phase, you may have imported only certain BI content into the XI repository. At this point, you import all users, groups (depending on external authentication approach and decision to migrate security or not), universes and their connections, stored procedures, and reports. Re-organize the reports to ensure that you are leveraging the new folder structure. Review the security settings and permissions to ensure that document access is defined at the group and folder levels.

Train Users

Depending on your migration strategy, you may migrate users to the new environment in phases according to department, groups, or subject area. Ensure you have an appropriate training plan and capabilities in place. Not all users will need to attend classroom training. Some may prefer to learn by doing; others may want to learn by workshops or Webinars. Plan classroom training for experts and power users.

Attain Steady State

Once all users have been granted access to the new environment and you have reached a level of stability in which users can perform the same tasks as in the old environment, you can plan to do the following:

- **Sunset old environment(s) to achieve cost savings** Sunset the old server environment in phases, first by disabling logins, and then by shutting down the server.
- **Measure the new environment** If one of your goals to migrating to XI is to reduce the cost of ownership for your BI environment, measure the new costs post-migration. Include FTEs to support the environment, hardware, and software. However, a BI environment rarely stays at the same level, so be careful to consider the costs relative to the number of active users, capabilities deployed, and applications.

Assuming you have the appropriate Premium licensing, Auditing is enabled by default in XI Release 2. Regularly monitor activity levels and response time in the new environment.

Ramp Up and Redesign

You've reached steady state, now ramp up: add more users, leverage new features, and add new modules. Be sure to

- Promote the availability of the new platform, intended benefits, and access to new users.

- Evaluate which new capabilities you will use: Collaboration, Encyclopedia, Intelligent Question, Process Tracker, Dashboard Manager, Live Office, and so on.

You may do some redesign as part of your migration, but I would advocate deferring such changes until after your initial wave of migration has reached a steady state on the new platform. Minimizing the number of changes can help you more easily pinpoint the root cause of a problem: is that query slower because of the new Connection Server or because you changed the universe? At the same time, you want to timebox the number of disruptions to users. You do not want users to feel they just went through a set of changes related to migration and then have to endure another set of disruptions as you optimize. In this regard, redesign should be planned for but done only after you have reached a stable environment on the new platform. Possible redesign tasks include the following:

- **Set up external authentication** To ensure that users have a consistent user ID and password across your corporate applications, set up external authentication as part of the XI environment.
- **Optimize universes** Ensure universes are aligned with business users' needs rather than the physical design of the data warehouse or source system, provide advanced objects that may previously had been created as individual report variables, and evaluate when to use new features such as derived tables and keys to provide better query performance.
- **Convert full-client reports to Web Intelligence** Web Intelligence in XI Release 2 has many new features that previously only existed in the full client. For companies that have been waiting for more power in the thin client, you now have the opportunity to convert these full-client reports to Web Intelligence and still have powerful authoring capabilities.

Import Wizard

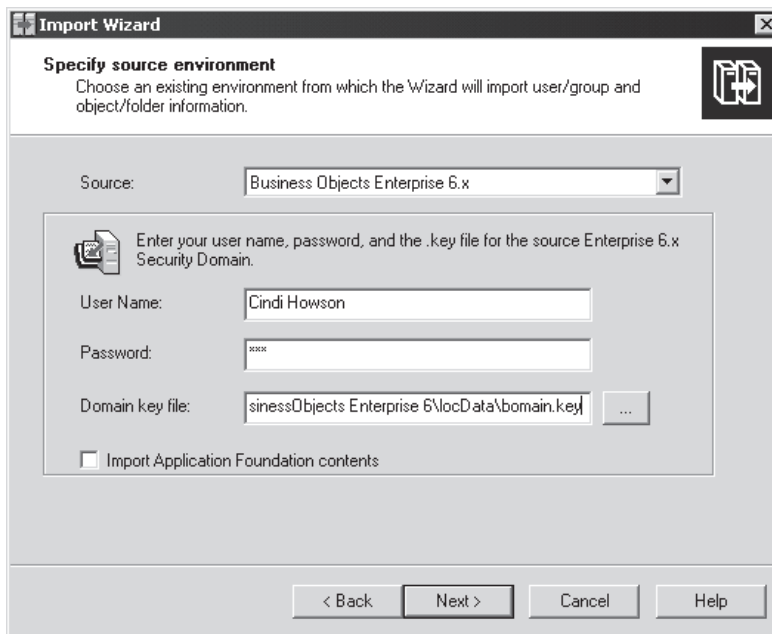
The Import Wizard is a utility that allows you to import repository content from earlier versions of BusinessObjects or Crystal Enterprise to XI. It is a desktop application and requires connectivity to both the old repository and the new repository. The wizard allows you to import everything from a repository or to select components of a repository such as users and groups, universes, documents, and stored procedures. As you import this content, you can merge the content (important if you are consolidating environments) or have the wizard append identifiers to determine from where the content was imported.

CAUTION *In earlier versions of BusinessObjects, it was an accepted practice for designers to copy universes via the file system and export the universe to relevant repositories. In XI, permissions are associated with a universe. In XI Release 1, sharing universe files outside the repository could render the universe inaccessible. This problem seems to be corrected in XI Release 2 as long as designers use the check box Save For All Users. However, when migrating universes from earlier versions of BusinessObjects to BusinessObjects XI, it is recommended to use the Import Wizard.*

NOTE *Before using the Import Wizard, ensure you have run a Repair and Compact on the old repository to delete any extraneous records in the repository tables. Also make a backup of the older repository database.*

In the following example, you will use the Import Wizard to import users and groups:

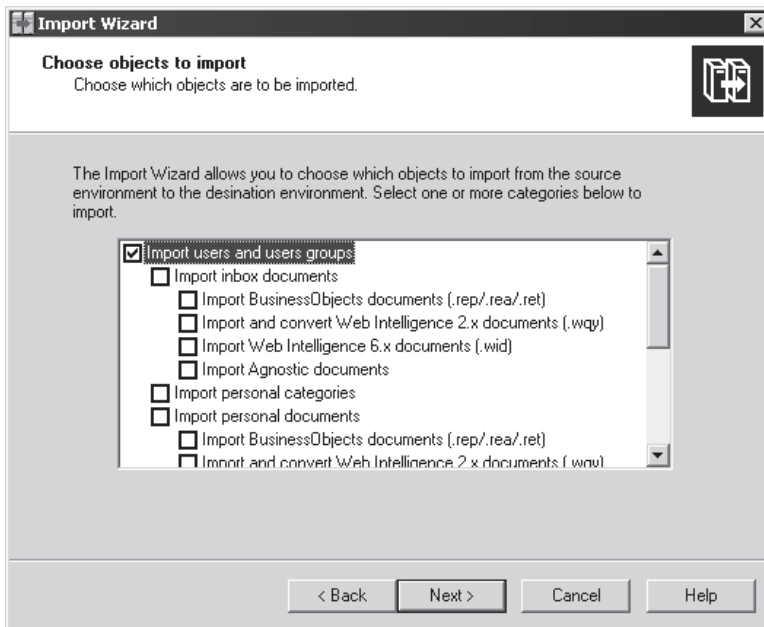
1. From Windows, select Start | Programs | BusinessObjects XI Release 2 | BusinessObjects Enterprise | Import Wizard.
2. At the Welcome Screen, click Next.
3. Specify the repository from which you want to import content. Under Source, use the drop-down menu to select the appropriate version. The required information will change, depending on the version of the source repository. In the following example, you are importing from a version 6.1 repository. For User Name, enter the General Administrator user name and password. Specify the network path for the BOMain.key. Click Next.



NOTE For step 3 to work correctly, you must have a connection to the version 6 or earlier repository. Depending upon which database you used for this repository, you may need to make an ODBC connection on the computer on which you are using the Import Wizard.

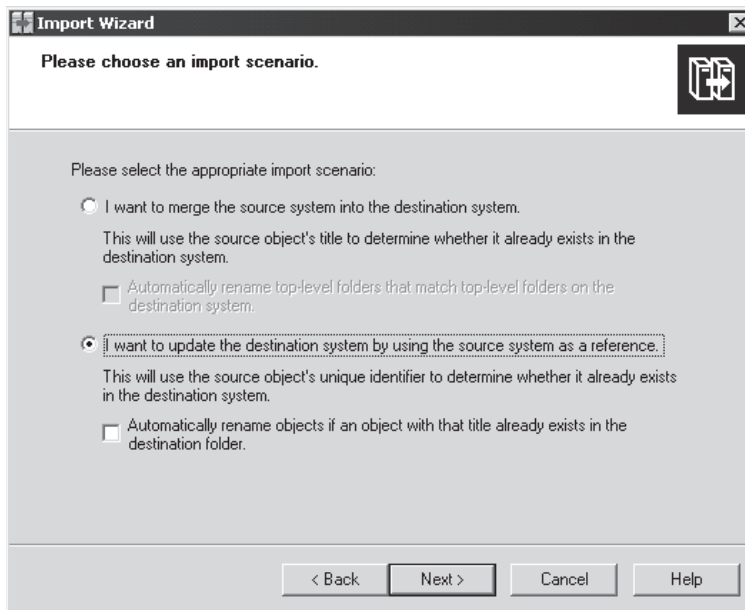
4. The wizard will display a warning informing you of which content it can import. Unfortunately, it does not tell you what content it will not import. Click Next.
5. Specify the XI repository that you want to import to. Enter the name of the Central Management Server as well as the administrator's user name and password. Click Next.

- Specify the object(s) that you wish to import. As discussed elsewhere in this book, the term “object” here refers to any BI content, not to be confused with universe objects. By default all objects are selected. If you are testing the wizard and only want to import objects selectively, be sure that you have not inadvertently left any undesired objects checked. In this example, you are importing users and their group associations. If you only import corporate documents or universes and you want the rights associated with those documents and universes also imported, then you must also select users and groups. If you select users and groups, the wizard will later ask you to select which users and groups. If you select corporate documents, the wizard will later ask you to select document domains and individual documents. If you select universes, then all universes from multiple domains will be imported. This is one import option in which you will *not* later have the option to further narrow your selection.

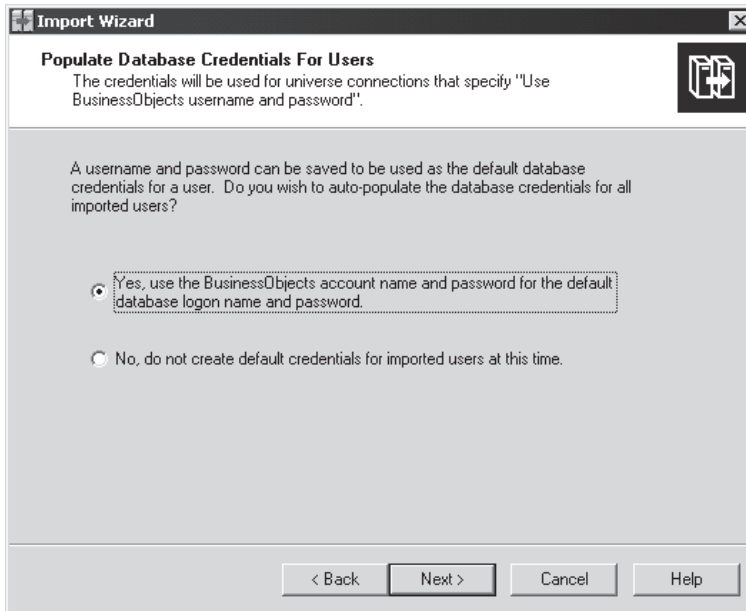


- When importing users and groups, you are also prompted to choose a security option. If you wish to preserve the security from the source repository, select Yes. If you only want to import the user names and group assignments but not the associated permissions, choose No.
- The wizard asks you if you wish to enforce rights fidelity. If you want the rights in the source environment to be identical to those in the destination environment, then check this box. However, if you are consolidating environments or if you are importing objects selectively, then do not check this box, as you will want rights from multiple sources to be merged.

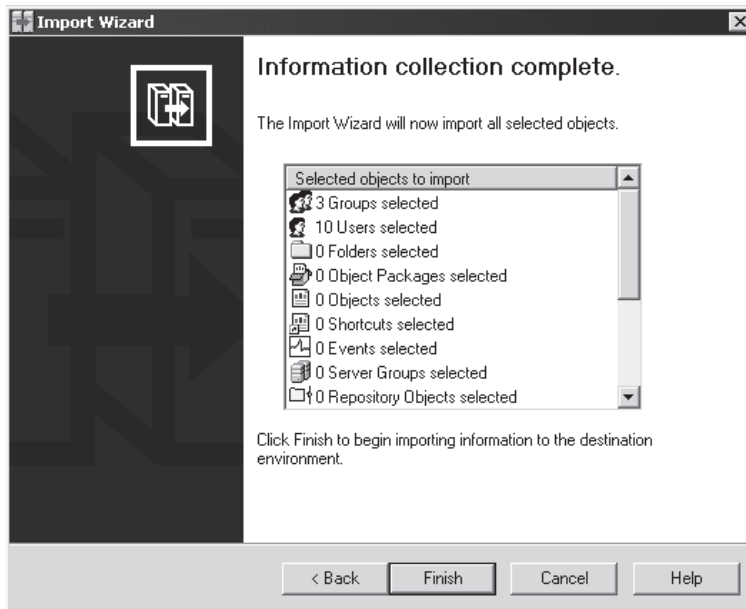
9. The wizard asks you to choose an import scenario. Which scenarios are available to you will depend on whether or not you specified to enforce rights fidelity or to merge rights. You can either merge content or have objects renamed if they already exist in the destination system.



10. Depending on which objects you have selected to import, you may be prompted to further select elements. In this example, you selected users and groups. The wizard further prompts you to choose which users and groups. Figure 5-4 shows how the root or top level of the BusinessObjects 6.x repository (Plastics Express) becomes a group in XI. The left image shows the users and groups as they appear in Supervisor in version 6.1. The right screen shows the groups as they will be imported into the CMS. In this example, select the group Finance and click Next.
11. If you are importing users, the wizard will ask you if you wish to create database credentials for these users. If any of your universe connections want to use the BusinessObjects user ID and password as the same login for the data source, select the option “Yes, use the BusinessObjects account name . . .” and click Next.



12. The wizard will provide a summary of the elements you intend to import. If these settings appear correct, click Finish to begin the actual import. If your selections appear incorrect, click Back to modify your selections.



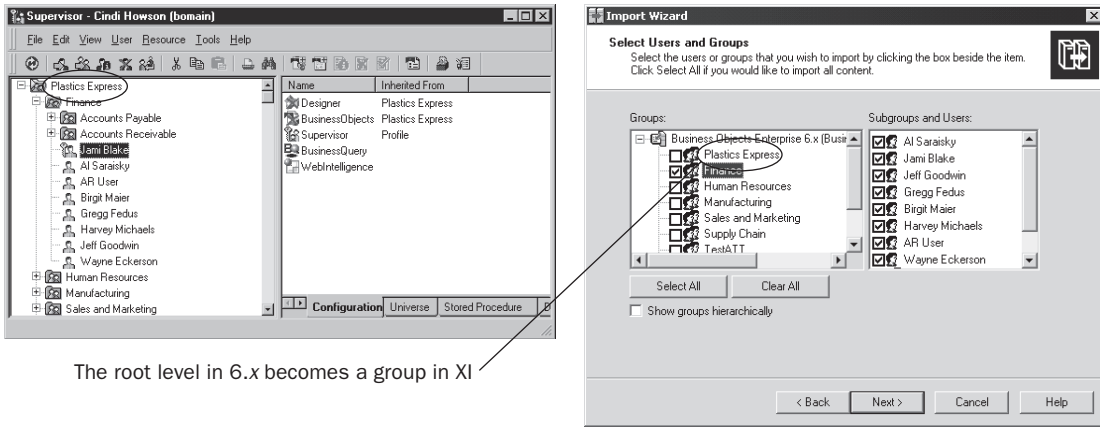
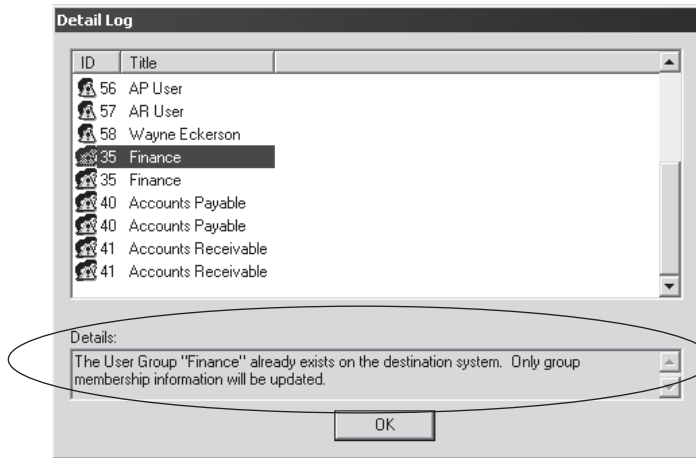


FIGURE 5-4 Users and groups imported from a 6.5 repository into BusinessObjects XI

13. A thermometer will show you the progress of the import as it reads data from the old repository and copies it to the XI CMS. Once the wizard has completed the import, it displays a status of any warnings or errors. Warnings are informational; errors mean the item could not be imported. To investigate a warning, highlight the item from the list and click View Detail Log. In the following example, there is a warning for the group Finance:



14. Within the detail log, scroll to the element with the warning. The following warning indicates that the group Finance already existed in the CMS. Because you chose to merge the rights in step 8, the Finance group from the 6.5 repository was not recreated, but rather users that existed in the Finance group in 6.5 have been added to the Finance group that already existed in XI.
15. Click OK to close the log and Done to close the wizard.

Once you have imported users, groups, documents, universes, and connections into the XI repository, test the various elements. Refer to Chapter 13 to understand how security settings in earlier versions of BusinessObjects are translated in XI.

Report Conversion

BusinessObjects began as a client/server application in which reports were authored in a Windows-based interface. In version 5, you may have published these full-client reports to Corporate Documents for other users to access them via a browser via the InfoView portal. Prior to version 6, Web Intelligence was quite limited in its capabilities as a web-based query and reporting tool. It lacked the rich report layout, complex queries, and advanced charting that existed in the BusinessObjects full client. Version 6 of Web Intelligence closed some of this disparity, and Web Intelligence XI Release 2 closes it even further. Lack of synchronized multiple data providers in the full client was one of the most often cited reasons for not using Web Intelligence. Web Intelligence XI Release 2 now has this capability. As well, the number of formula functions to create report-based calculations (see Chapter 22) is roughly double that of previous versions of Web Intelligence.

There are a number of additional benefits that a Web Intelligence document provides to end users over a Desktop Intelligence document, including:

- Greater scalability
- The ability to drill, filter, sort, and format a report from a zero-footprint browser with a simple right mouse click
- A context panel with help text and data lineage for individual objects that provide business users with essential metadata

One capability, however, that the Desktop Intelligence document continues to provide that is not available in Web Intelligence is disconnected analysis. End users can take a report with them and continue to access and analyze the data. The vendor plans to release an offline viewer for Web Intelligence in the near future. For a table comparing capabilities in the different interfaces, see Table 24-1 in Chapter 24.

For reports that you know only need to be accessed by InfoView users, Business Objects provides a report conversion utility that converts full-client documents to Web Intelligence documents.

NOTE *The use of this conversion utility is an entirely optional part of your migration. You can run full-client reports without modification in XI Release 2. Converting full-client reports to Web Intelligence reports is recommended only when there are certain Web-based capabilities you want users to be able to access.*

Expect the Report Migration tool to continue to be enhanced. The fact, for example, that there is a Free Hand SQL tab in the tool but that documents with this type of data provider do not convert suggests to me that the vendor has additional plans for improvement. However, for the initial version released with XI Release 2, according to Business Objects Product Management, if your document contains the following capabilities, the reports will not

convert, as these capabilities do not exist in Web Intelligence, or they exist but involve capabilities that require reports to be rebuilt manually:

- Personal data providers
- Free-hand SQL
- Stored procedures
- OLAP data provider
- VBA data provider
- XML data provider
- Query on query
- Query filter based on calculation
- @script() function
- User-defined universe objects (not be confused with user-defined report-based variables)

If your full-client document contains the following capabilities, then the report will partially convert but then may need additional manual modification:

- VBA macros
- OLE objects/pictures
- Hide object
- Value-based breaks
- Breaks on multiple dimensions
- Complex report filters that use formulas in the filter
- Series in charts
- Multicube() function
- Fold/unfold
- User-defined hierarchies

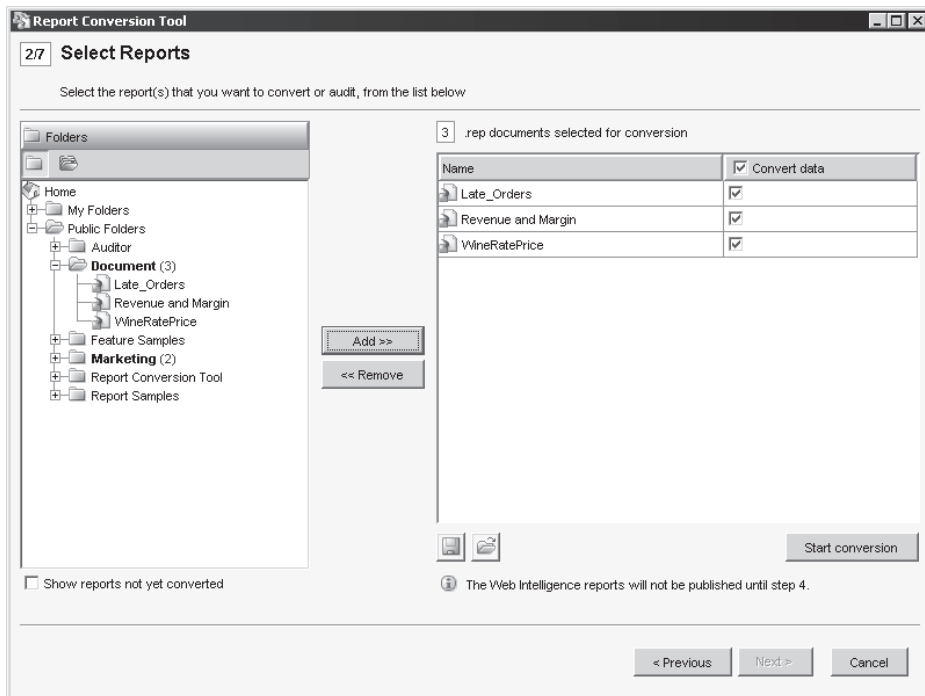
In order to use the utility, the document must exist in the XI repository. It does not convert .rep files that exist on local or network drives.

To launch the BusinessObjects to Web Intelligence Conversion tool:

1. From Windows, select Start | Programs | BusinessObjects XI Release 2 | BusinessObjects Enterprise | Report Conversion Tool.
2. When prompted, log in to the XI repository that contains the full-client documents you wish to convert.
3. You can choose to perform the actual conversion or to preview which reports will convert successfully or not. To preview the conversion, choose Create An Audit Report Only. To perform the actual conversion, choose Convert And Publish Reports and then click Next.



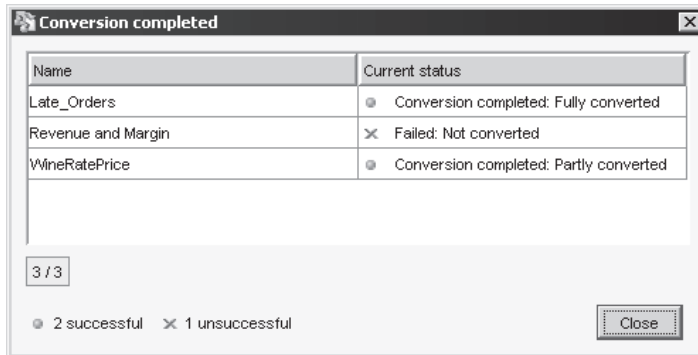
4. The tool displays a list of folders in the repository. To see just the full-client documents, check the box Show Reports Not Yet Converted. Folders that contain full-client documents appear in bold, with a count of the number of .rep files.



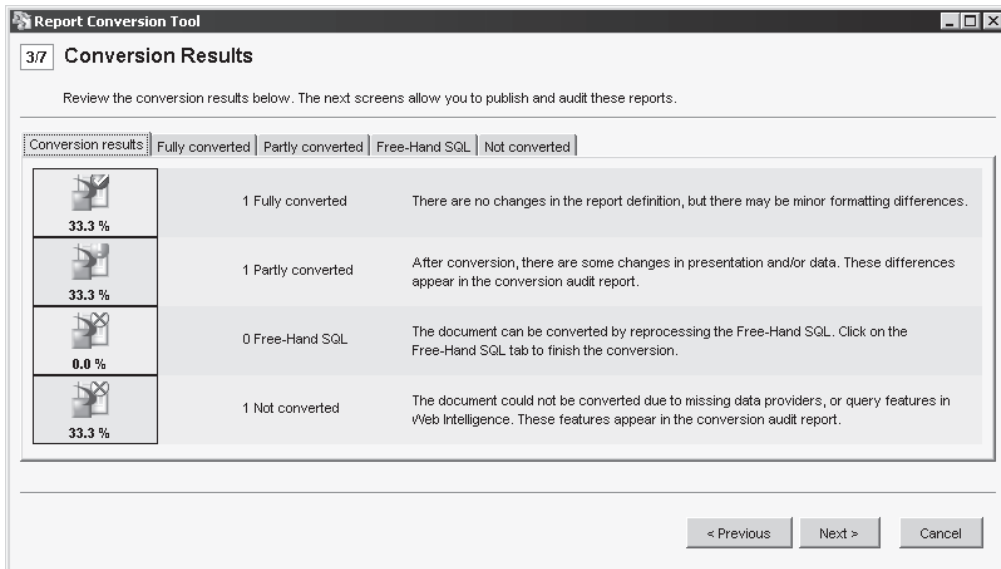
5. Highlight the reports you wish to convert and click Add so that they appear on the right under the column ".rep documents selected for conversion." If the documents also contain data, leave the Convert Data check box checked. If, however, your documents contain only query and layout information, and users must refresh the document upon opening it, then leave this box unchecked.

TIP Converting documents without data will be faster. You need to consider the impact of re-running queries for however many reports you will be converting compared to slower conversion of reports that contain data.

- Once you have selected the documents, click Start Conversion to begin the conversion process.



- The utility will provide a status reports of which documents were successfully converted, partially converted, or failed. Select Close to close the summary list and see a detailed explanation of each report conversion.
- From the Conversion Results panel, there is a tab for each type of conversion: successful, partial, or failed. Use these tabs to understand why a conversion may not have worked or to identify manual tasks for partial conversions.



- For successful and partial conversions, you can proceed to publish the newly created Web Intelligence documents to the repository. Click Next.

- Choose the target folder for each report and click Next. In the following example, the .rep files and .wid files will remain in the same folder that they were originally imported from: Document. Note that the folder name, Document, was automatically created by the Import Wizard as the name of the Document Domain from the version 6 repository.

4/7 Publish Reports

Select the fully and partly converted reports you want to publish and specify the new name and location.

You must enter your InfoView connection settings before you can view your reports InfoView Logon

Where do you want to publish the fully converted reports? in the same categories as the original report

	<input checked="" type="checkbox"/>	Target name	Name	Target folder	Target categories
<input type="radio"/>	<input checked="" type="checkbox"/>	Late_Orders	Late_Orders	Document	

Where do you want to publish the partly converted reports? in the same categories as the original report

	<input checked="" type="checkbox"/>	Target name	Name	Target folder	Target categories
<input type="radio"/>	<input checked="" type="checkbox"/>	WineRatePrice	WineRatePrice	Document	

Publish

< Previous Next > Cancel

- When you are satisfied with the settings for which reports to publish, click Publish.

NOTE If you click Next without first clicking Publish, your reports will not be converted to Web Intelligence.

- The utility will provide you with a status list of converted and successfully published reports. Once you have previewed the list of reports, select Close.
- You will be prompted whether to display an audit report of the conversion process or not. Click Next and then Finish to close the Conversion tool.

Once you have converted the desired reports, preview the converted reports within Web Intelligence and fine-tune the appropriate layout or query definitions.

Summary

Migrating to XI involves much more than a software upgrade. To properly leverage the capabilities of an integrated architecture, consider consolidating and merging previously disparate implementations. To do this requires careful planning and organizational readiness.

When there is no central BI competency center or when each implementation is departmentally controlled, you may want to migrate separate Crystal or BusinessObjects 6.x environments to separate XI server environments as a way of more rapidly moving to XI and gaining an understanding of key changes. Do realize, though, that this strategy may

help you move onto the XI platform faster in the short term but does not help you realize the longer-term lower cost of ownership. Nor does it provide your users with one source for BI content. Thus, even if this is your short-term migration strategy, you should ideally plan for a consolidated environment in the long term, with the appropriate organizational support, security, and folder structure.

BusinessObjects XI Release 2 provides two utilities that help you migrate to the new platform: an Import Wizard to migrate repository content and a report conversion utility to convert full-client reports to Web Intelligence documents. The report conversion utility is optional and only required if you want to convert existing Desktop Intelligence reports to the thinner-client Web Intelligence format.