



# ISV Integrations

Methods for Integrating Documentum with a  
3rd-Party Enterprise Application

Joshua Toub  
Practice Manager, Custom ECM Solutions  
Blue Fish Development Group



## Objective



Provide guidance for developing successful integrations to Documentum

- Business factors
- Technical factors

- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC<sup>2</sup>
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

## About Blue Fish

EMC<sup>2</sup>  
where information lives<sup>™</sup>  
Software Developer  
Conference 06

### Focused on ECM

We help companies manage and extract value from their intellectual assets

### Experience

In our 8th year of solving difficult content management problems

### Expertise

Expertise across the Documentum platform; host the dm\_developer community

### Client Centric

"Be Smart, Be Nice, Get Things Done"



**dm\_developer**

An Online Resource for Documentum Developers

# Blue Fish ECM Practices

## Web Content Management

- Focus on empowering business users
- Attention to ease of use, standardization, and consistency



## Custom ECM Solutions and Integrations

- Focus on unleashing clients' unique competitive advantages
- Attention to supportability and upgradeability



## Content Migrations

- Focus on retaining value of intellectual assets
- Attention to migration of regulatory docs in validated environments



## Information Access

- Focus on helping clients access and analyze their most critical information
- Attention to top-line business improvements



Foot Locker

## Web Content Management

- Focus on empowering business users
- Attention to ease of use, standardization, and consistency

### Navigation Manager for Web Publisher

- Enables business users to manage web site navigation

## Custom ECM Solutions and Integrations

- Focus on unleashing clients' unique competitive advantages
- Attention to supportability and upgradeability

### Bedrock™

- Reusable code library
- Enables rapid, high quality solutions

## Content Migrations

- Focus on retaining value of intellectual assets
- Attention to migration of regulatory docs in validated environments

### DIXI™ and Migration Workbench™

- For full spectrum of migration challenges

## Information Access

- Focus on helping clients access and analyze their most critical information
- Attention to top-line business improvements

### Documentum Adapter

- Enterprise and inter-application information access

- Specialize in enterprise integrations to Documentum
  - *Several complete to date*
- Provide strategic guidance to maximize the value of the integrated product:
  - *Gather and refine functional requirements*
  - *Identify integration targets from the Documentum product suite*
  - *Architect DfE-compliant technical approaches that emphasize partner synergies with EMC|Documentum*
- Provide implementation, QA, and packaging

# Contents



- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC²
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

## The 4 steps



- Step 1: Survey the Documentum landscape
    - *Content Server*
    - *Webtop*
    - *Retention Policy Services*
    - *Content Intelligence Services*
    - *Trusted Content Services*
    - ...
  - Understand the universe of possible integration targets
-

## The 4 steps



- Step 2: Identify synergies
  - *How does integrating to XXX improve your product?*
  - *How does integrating to your product improve XXX?*
- Successful integrations add value to the products on both sides of the integration
  - *Fosters support*
  - *Promotes sales activity*

## The 4 steps

- Step 3: Develop use cases and define high-level requirements
  - *End-user use cases*
  - *Administration use cases*
  - *Physical requirements*
- Step 4: Define data owners
  - *If possible, define **one** owner for any given type of data*

- Identify your implementation team(s)
  - *Logistic impact of geographically disperse teams can influence design*
  - *Team talents may influence design*
- Formulate a test strategy
  - *Functional test plans can be built from use cases **before** system design is complete!*
  - *Helps identify holes in use cases*

## Important factors to consider

- Performance
  - *How long does the integrated functionality take to execute?*
- Scalability
  - *How does the system scale with large data sets and user loads?*
- Maintainability
  - *Does the design facilitate maintainability? How?*
- Data “Freshness”
  - *How quickly must data changes appear in the other system?*
- Fault tolerance
  - *How does the integration handle communication problems between the systems? What happens if an error is encountered while processing in one system?*

# Contents

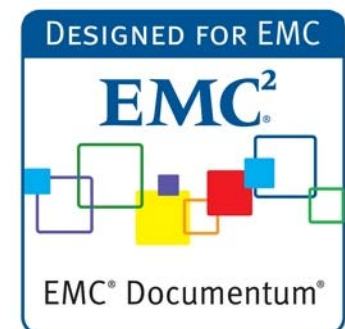


- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC²
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

## Designed for EMC: What is it?



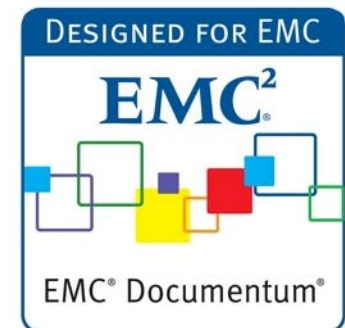
- Accreditation program for partner solutions built on EMC
- Ensures that solutions are strategically aligned with current and future Documentum products
  - *Promotes partner synergies*
  - *Drives revenue for partner and for EMC*
- Ensures that solutions are technically sound
  - *Reduces technical risk*
  - *Signifies compatibility with the greater EMC|Documentum ecosystem*



# ISV Integrations and Designed for EMC



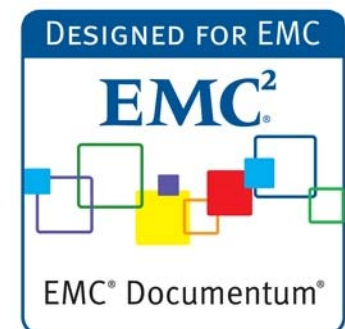
- DfE is especially important for ISV integrations
  - *Strategically: A well-executed implementation enables EMC and the partner to sell into each other's install base*
  - *Technically: Because ISV integrations often occur at the "platform" level,*
    - Soundness is extra-critical
    - Interaction with other Documentum-based applications is likely
- EMC QuickStart ISV: A program that guides partners through the design and architecture of integrations



# DfE Technical Design Principles



- Content representation
  - *Content and metadata must be stored in the Documentum Repository*
  - *Permissions must be modeled in the repository*
  - *Establish clear ownership of content*
- Content access
  - *Content should be accessed by means that preserve business rules and processes associated with the content*
- Compatibility
  - *Naming conventions, object name registration*
  - *Compatible with EMC-supported platforms*
- Platform utilization



- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC<sup>2</sup>
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

# Integration layers

- ~~Database~~
  - ~~SQL, stored procedures~~
- Docbase
  - DFC, DQL, API
- BOF
  - TBOs, SBOs, Web Services (WSF)
- Application
  - WDK

## Why integrate with the BOF?



- Packaging
  - *Code is nicely encapsulated in SBOs and TBOs*
  - *Distribution via the global registry*
- Modularity
  - *SBOs and TBOs can be readily reused*
  - *Facilitates unit testing*
- Services (SBOs) can be published as Web Services
  - *Decouples integration*
  - *Facilitates communication in heterogeneous environments*

- DFC APIs
  - *Highly performant for java-based integrations*
  - *Promotes tightly-coupled integrations*
- Primary Interop Assemblies (PIAs)
  - *For tightly-coupled .NET-to-DFC integrations*
- Web Services
  - *Loose coupling—enables different teams to work on each end of the integration*
  - *Facilitates testing—complete end-to-end environment not necessary for most tests*
  - *Ease of use*

# Contents



- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC²
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

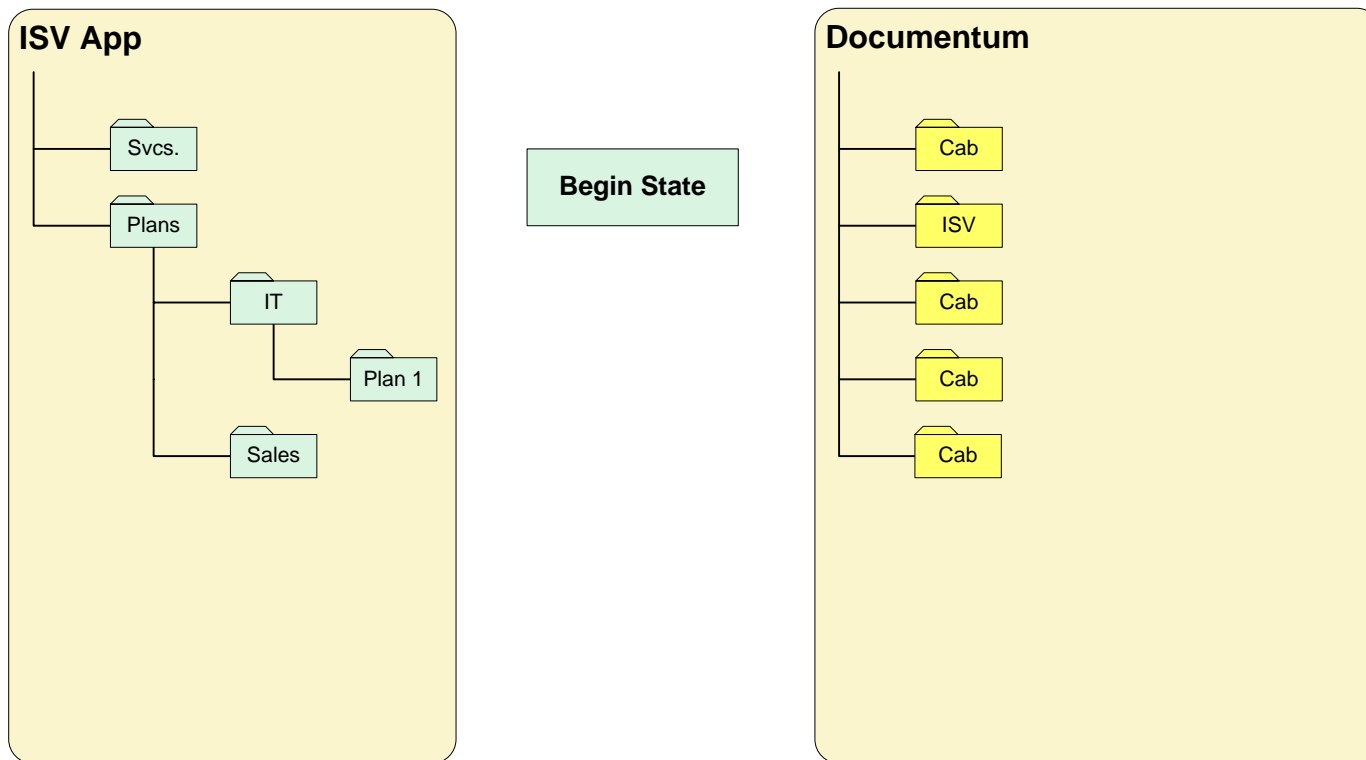
- Data synchronization: a classic enterprise integration challenge
  - *How can we ensure the integrity and “freshness” of mutable data across multiple systems?*
- Recommended approach:
  - *One system is the master*
  - *Use multiple synchronization tactics to maximize integrity while maintaining performance*
- Lots of unit testing

# Synchronization tactics

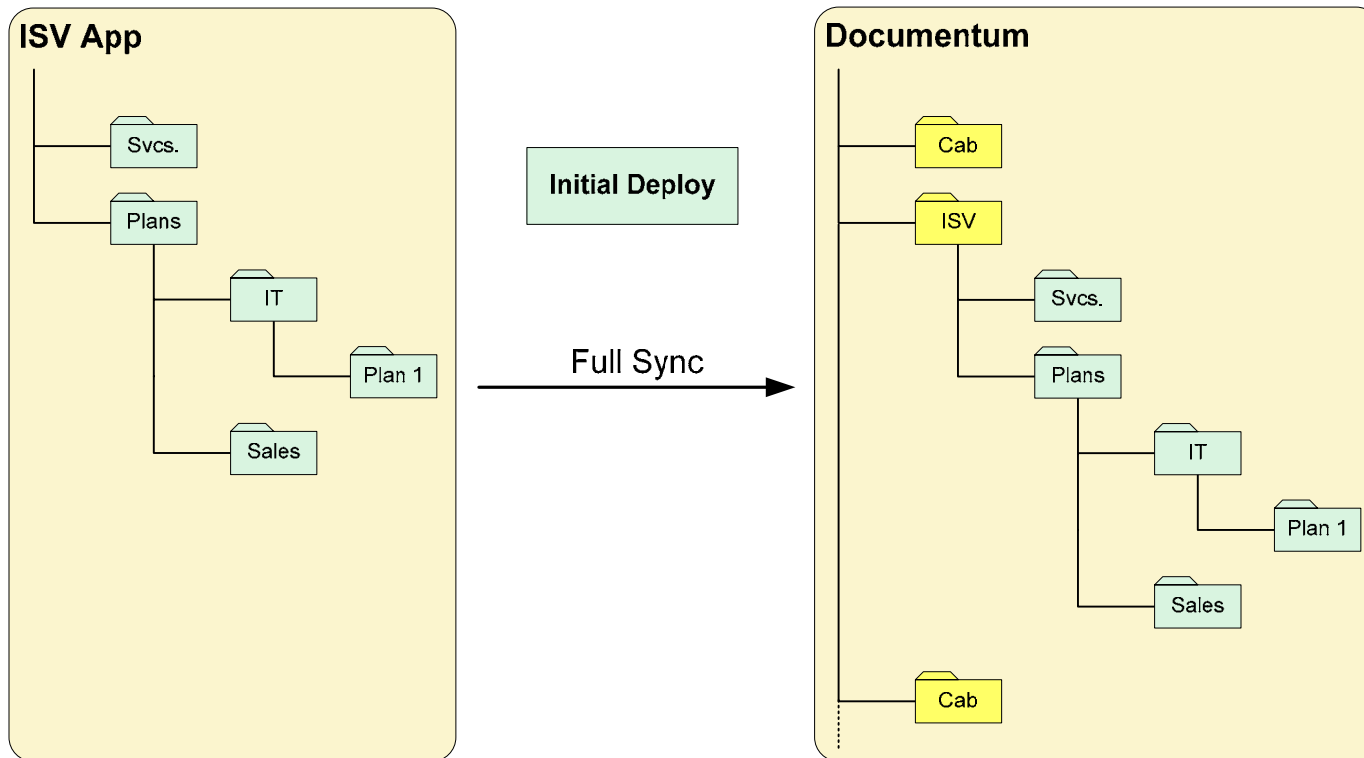


- Asynchronous synchronization
  - *Processed in the background*
  - *Suitable for data sets of any size*
  - *Good for establishing “known-good state”*
- Synchronous synchronization
  - *Transactional operations*
  - *Suitable only for small amounts of data*
  - *Good for synchronizing data in real time as it changes*

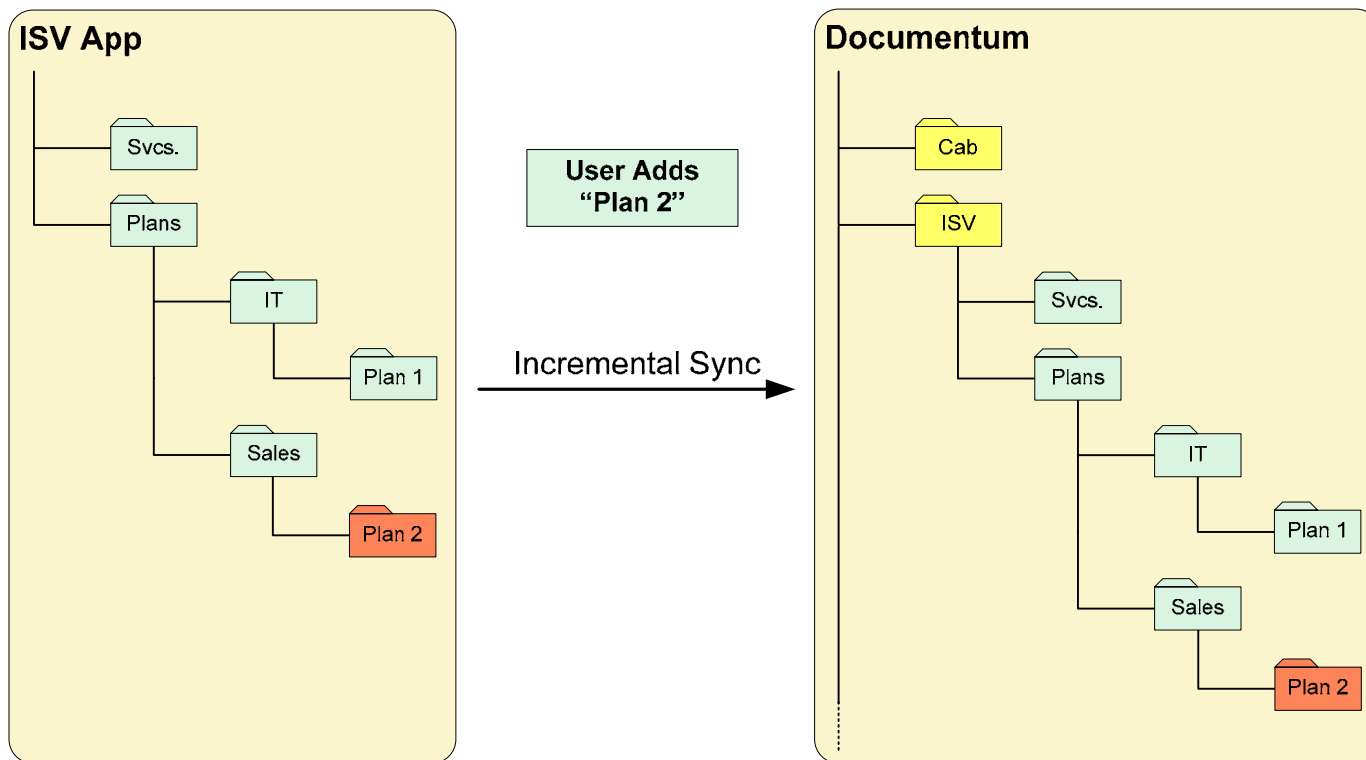
# Synchronization example



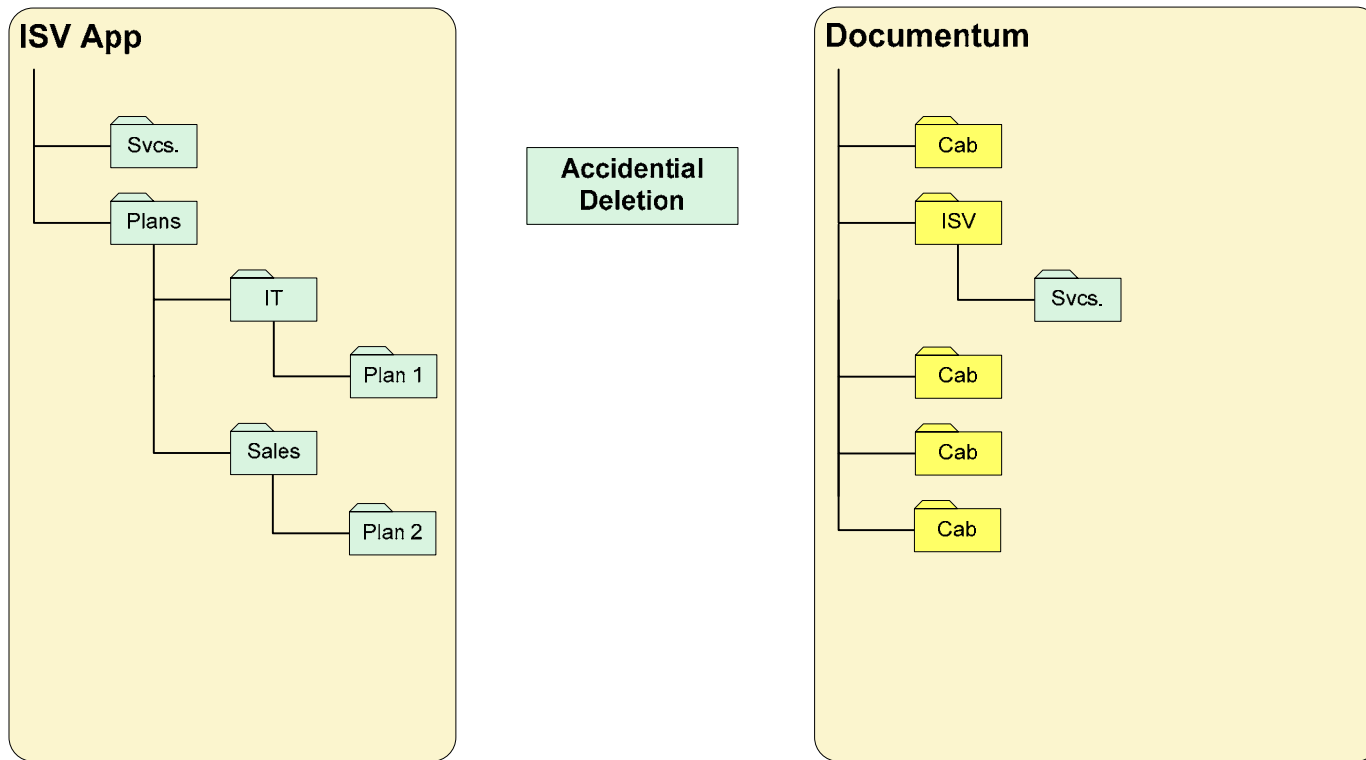
# Synchronization example



# Synchronization example

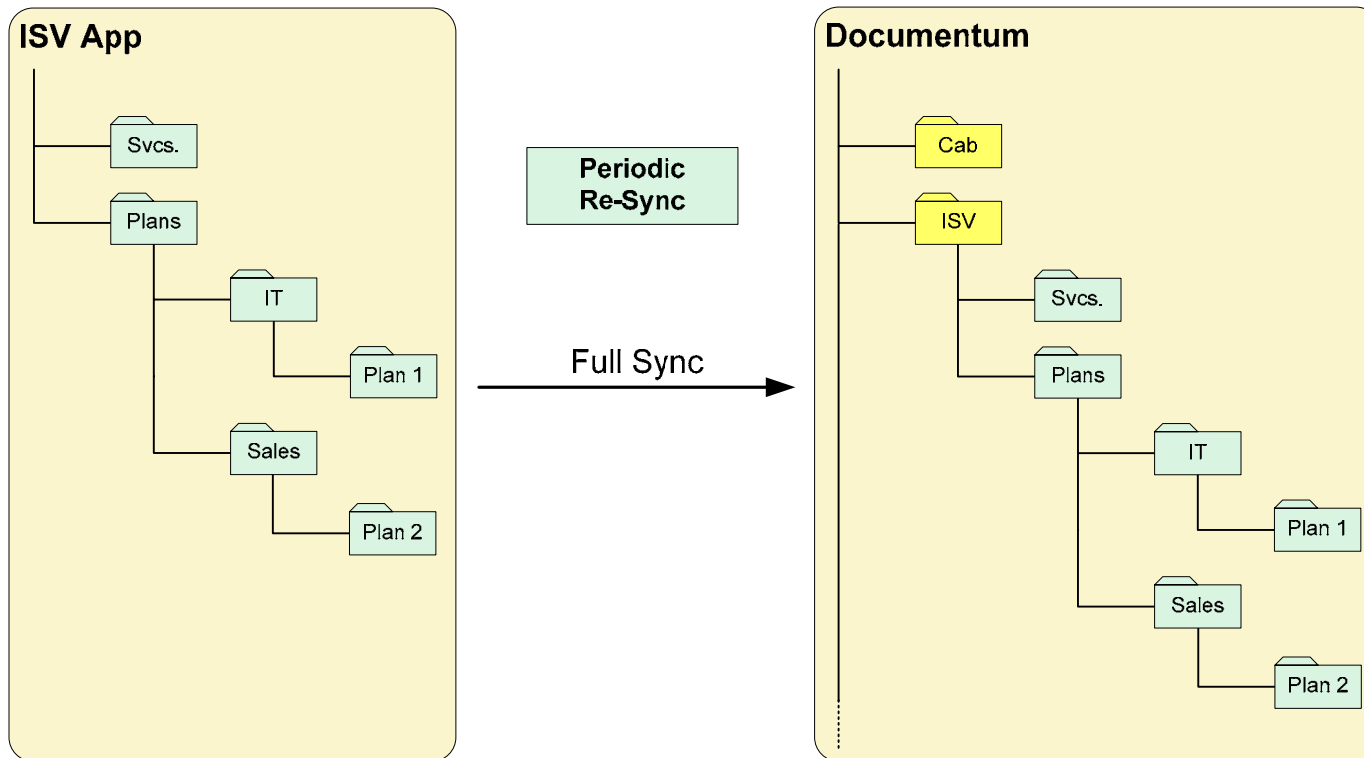


# Synchronization example



Accidental  
Deletion

# Synchronization example



# Contents



- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC²
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

- Authentication

- *Process of establishing a user's identity*

- Built-in: OS authentication and LDAP
    - Customization options:
      - Authentication plugin (Content Server)
      - Authentication schemes (WDK)

- Authorization

- *Process of granting a user permission to perform a given function*

- Documentum uses Access Control Lists (ACLs) to perform authorization
    - Customization is typically not feasible (*Permissions must be modeled in the repository*)

## Two scenarios:

### 1. *Integration target uses ACLs for permissions*

- Security model is explicitly defined
- The foreign ACLs can typically be mapped to Documentum ACLs
  - May require manipulation if the foreign ACLs have different evaluation semantics
  - May require Trusted Content Services to fully re-create the permissions model in Documentum

### 2. *Integration target uses another method for permissions*

- Security model is implicitly defined by rules
- Authorization requires evaluating a series of conditions according to the security rules

## Reconciling security models



- Transform a rules-based model to an ACL-based model
  - *Builds an explicit security representation from an implicit model*
  - *The foreign application must evaluate permissions for each subject (user or group) on a given object*
- Can be an expensive operation
  - *The foreign system must calculate permissions for each object*
  - *Can lead to ACL proliferation in Documentum*

# Speeding up security



- Caching
  - *Foreign application may be able to cache the explicit model for subsequent synchronizations*
- Create a permissions hash
  - *The hash is an ACL signature*
  - *Enables the system minimize security changes*
- Use groups
  - *Smart usage of groups can reduce security overhead*

# Contents



- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC²
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

- UI integration can be used to:
  - *Facilitate flow between the integrated applications*
  - *Provide a consistent look-and-feel across the integrated environment*
- Do **not** embed business logic in the UI integration
  - *UI code is typically only used for a given application; other Documentum applications would not evaluate UI-level business logic*

- Various levels of UI integration possible:
  - *None: integration all in the back end*
  - *Low: common authentication; URLs link the applications*
  - *Medium: new themes; branding*
  - *High: WDK components extended/replaced to access integration functions*
- We have found that the “Low” level often gives the best bang for the buck
  - *Easy to do*
  - *Provides users with a good use story*

# Contents



- About Blue Fish
- Planning your integration
- Accreditation: Designed for EMC²
- Integration approaches
- Data synchronization
- Security
- User interface
- Wrap-up

## In summary...



- Work with the DFE and partner ISV groups to align the integration with EMC offerings
- Identify use cases
- Define single data owners
- Test early and often
- Use the BOF as your primary integration point
- Explore using hybrid tactics for data synchronization
- Be aware that your security model may impact performance
- Use UI integration techniques to improve user experience