



Groove Virtual Office

Integration Solution Development: Capabilities and Guidelines

Executive Summary

Groove Networks has released tiered product offerings, based on a services-oriented architecture, that address a wide range of integration scenarios.

- Built atop an open and extensible Web services API and infrastructure, the Groove Enterprise Data Bridge is an end-to-end product offering that allows customers and partners to quickly build and deploy applications that **integrate with enterprise data sources**. Data from Groove Virtual Office can be integrated with structured enterprise applications (e.g., ERP, CRM, SFA), information sharing systems (e.g., portals, Lotus Notes/Domino) and corporate databases (e.g., Oracle, SQL).
- In addition to being the implementation channel for the Enterprise Data Bridge, Groove Web Services are a public set of open services APIs that allow software developers to extend the reach of the Groove platform services and solution data to external applications and processes. With Groove v3.0, Groove Web Services are primarily targeted at **workspace lifecycle management** and **desktop application integration** scenarios.

This paper is an overview of Groove Virtual Office integration capabilities and technology options. The target audience is developers and integrators who are already familiar with the core capabilities of Groove Virtual Office.

Enterprise Data Integration

Enterprise applications and databases generate and store corporate assets (data, transactions) during the business processes they facilitate. In many cases, assets living in these systems provide context for workgroup collaboration or coordination as part of structured business processes. These centralized systems are ideal places to conduct transactions and store data. But issues often arise when:

- Teams of mobile or remote users, who are intermittently connected and often outside of their enterprise's IT infrastructure need to gain access to centralized data;
- Users need to share information and data, in the context of a business process, with workers outside of their own organization, e.g. suppliers, partners customers, or;
- Scarce IT development resources need to be acquired to write custom applications that extract data from centralized systems.

In such situations, project or process-based workgroup coordination often defaults to an unstructured and uncontrolled combination of phone, fax, email, IM, portals, and/or physical meetings. This can make it difficult for the organization, and, often times, the users to track the process and integrate it with enterprise systems.

As interest in Groove software as a solutions platform continues to grow, demand exists across multiple markets for Groove Virtual Office to seamlessly integrate with enterprise applications and databases as a superior way to address those issues.

About the Groove Enterprise Data Bridge

Integrating Groove Virtual Office workspaces with data stored in centralized repositories and business processes driven by center-based applications can yield greater efficiencies in key business operations. By extending and sharing contextual information across organizations to geographically distributed workers, to remote workers, and to intermittently connected workers, the latest information/data can be accessed and worked on regardless of physical location or network connectivity.

The release of Groove Virtual Office v3.0 included the launch of a new product, the Groove Enterprise Data Bridge. The Enterprise Data Bridge package is an end-to-end product offering that facilitates data integration between Forms solutions in Groove Virtual Office and enterprise applications, databases, and information sharing or collaborative systems. The bundled offering includes CASAHL ecKnowledge, a powerful integration middleware product from CASAHL Technology, Inc. Figure 1 depicts how the Enterprise Data Bridge fits in with the overall architecture of Groove Virtual Office.

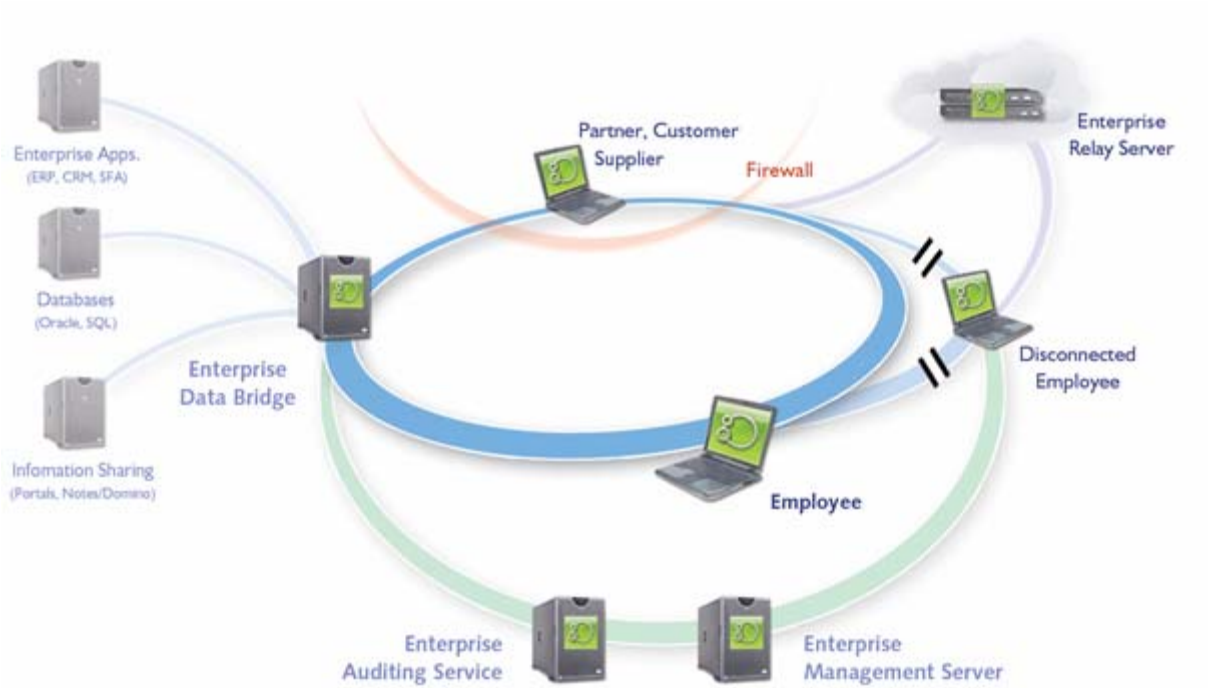


Figure 1. Groove Enterprise Data Bridge within the architecture

The Enterprise Data Bridge enables organizations to:

- Leverage centralized systems for what they're really good at - transactions, storage, queries, indexing – while leveraging Groove Virtual Office for what it is really good at – edge-based collaborative processes and projects that transcend organization barriers, physical locations, and network connectivity states. And do it all in a tightly integrated fashion.
- Extend centralized structured and unstructured data to client-side applications and processes for the benefit of mobile and remote users, as well as for process transcendence across traditional organizational boundaries.
- Enhance a transactional system by making the business process associated with that system collaborative in nature. For example, front-end a sales force automation (SFA) system with a Groove Virtual Office solution, adding interaction to the customer quotation generation process, such that sales reps can work with field engineers, product managers, sales operations, and project managers in a single, easy-to-use environment before generating any transaction in the actual SFA application.
- “Seed” business process coordination/collaboration with meaningful context in the form of data from centralized systems.
- Capture the data generated during, or as a result of, the collaboration process and push it back to centralized systems where it can be stored and analyzed.

As shown in Figure 2, the Enterprise Data Bridge comprises a Groove connector for ecKnowledge integrated with an always-on Enterprise Integration Server via Web services. The Enterprise Integration Server is purely a data access tier in this context, with a service identity that participates in Groove Virtual Office workspaces, and then on the back-end, exposes its Web services to the ecKnowledge process.

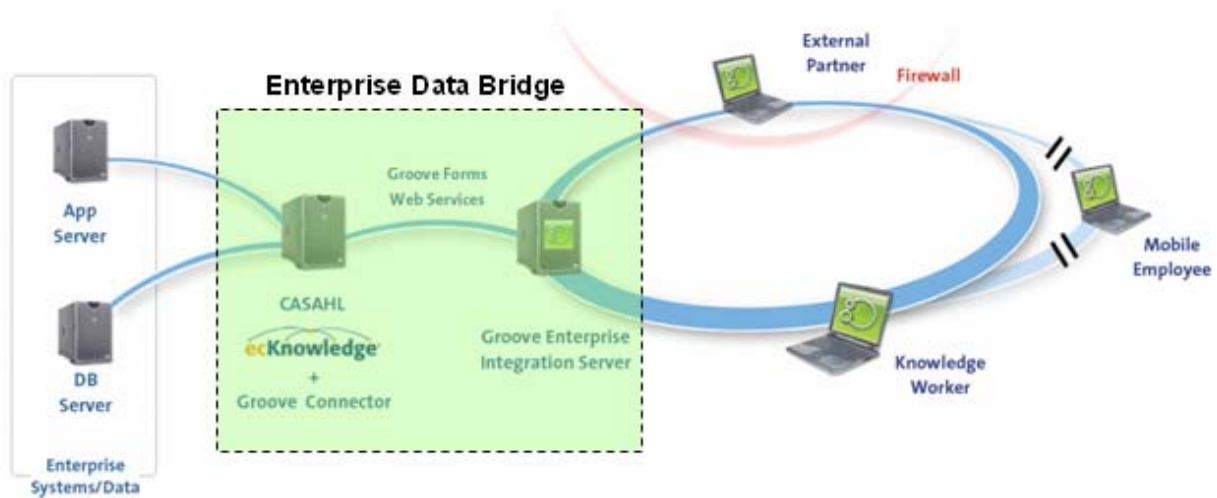


Figure 2. Enterprise Data Bridge components product components

For organizations interested in enterprise data integration with Groove Virtual Office, the Enterprise Data Bridge is the best option, as it is quicker, simpler, more extensible and more scalable in most cases than writing custom integration logic via Groove Web services. The Enterprise Data Bridge offers the following benefits:

- **Integration with a vast array of systems:** Through the product bundle with CASAHL ecKnowledge, the Enterprise Data Bridge allows for integration with virtually any enterprise application, database, mainframe system, or information sharing system. CASAHL ecKnowledge offers many connectors, some that are application specific and others that connect at the database layer.
- **Low overhead, ease of development and deployment:** Little-to-no custom application or security infrastructure investment by IT is required to meet solution requirements. Integration jobs can be created through a wizard-based configuration user interface. Optional components in the Enterprise Data Bridge package allow users to create and connect new integration solutions directly from a Groove Virtual Office workspace.
- **Mature, robust product:** The CASAHL ecKnowledge product has been in market for eight years. It is a mature, stable, robust product that enables Groove integration in a small fraction of the time and cost associated with development, deployment and administration of custom integration applications.
- **Single point of integration:** For enterprise-class integration solutions, there are a number of benefits associated with the Enterprise Data Bridge's single node, server-side approach:
 - **Always on:** By leveraging Groove Web Services on the Enterprise Integration Server, there is an always-available single point of access for mediation of data integration. As opposed to the Groove Virtual Office client, the Enterprise Data Bridge is designed to be administered for 24x7 availability. Data integration will always occur on schedule or as driven by some external event, regardless of whether or not end users are online and available at the time. When users are available, the Enterprise Data Bridge service identity on the Enterprise Integration Server will disseminate data from the centralized system to all client end-points in the workspace.

- Secure, cross-firewall communications: Enterprise Data Bridge is installed within your organization's network infrastructure. Its service identity can securely communicate with other workspace user identities across any network barrier simply by leveraging Groove system-level communications infrastructure. This means that no security or VPN infrastructure is required to extend data access to remote and mobile workers who require it, and this access is guaranteed to be provided in an ultra-secure fashion.
- Low-cost, centralized administration: Administrators control access and usage of services that tap into Enterprise Data Bridge and can be invited to workspaces.
- **Scalability**: Leveraging the Enterprise Data Bridge as a server-side integration solution affords greater opportunity to scale solutions across many workspaces.
- **Failover, redundancy, and load balancing**: CAS AHL ecKnowledge provides capabilities for cooperative load balancing, and controlling failover and redundancy in deployments where multiple ecKnowledge machines are running.

Workspace Lifecycle Management

When integrating Groove Virtual Office with external enterprise applications, there sometimes exists a need to impart workspace lifecycle management into a solution, such that collaborative activities in Groove Virtual Office workspaces are woven directly into a structured business process. In such an instance, organizations often want to do things like create spaces, invite users, and shut down spaces programmatically based on events that occur in either the external application or in the Groove workspace.

Building solutions that handle workspace lifecycle management requires the development of custom "controller" applications using the Groove Web Services API.

About Groove Web Services

The Groove Web Services API provides an extensible services offering atop the Groove platform that leverages standard protocols, including XML, SOAP and WSDL. Groove Web Services are available both client side from Groove Virtual Office, and server-side from the Enterprise Data Bridge, which is based, in part, on the Enterprise Integration Server. In either case, as shown in Figure 3, Groove Web Services can be consumed by any external application, either locally on the same device as the Groove process, or remotely from another network-connected device.

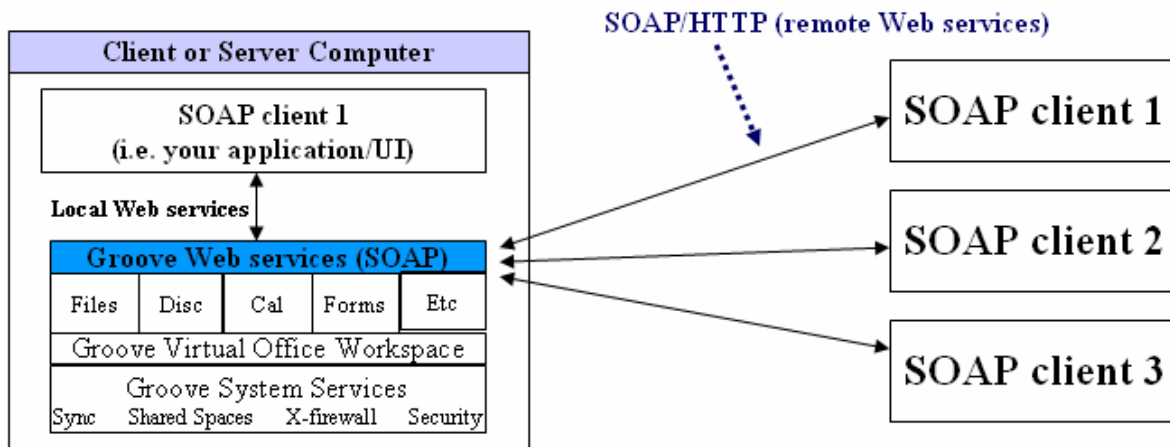


Figure 3. Groove Web Services can be called by local and remote processes

When building workspace lifecycle controller applications via Groove Web Services, there are APIs that allow you to do things like: create workspace from template, create workspace archive (.gsa), and shut down workspace. For details on the range of services and methods available through Groove Web Services, see the Web Services Developer's Guide and API Reference Guide that are part of the GDK.

It is recommended that workspace lifecycle controller applications leverage server-side Groove Web Services on the Enterprise Data Bridge. In doing so, the application will benefit from many of the advantages discussed in the section above on the Enterprise Data Bridge, e.g., single point of integration.

Desktop Application Integration

The goal of Groove Web Services is to extend programmatic access to Groove platform services, via standard protocols, to external application environments. With local access to Groove Virtual Office Web services, an application that is installed and running on the same machine as Groove Virtual Office can call those services using Web services as a local IPC mechanism. With these facilities in place, there are some interesting local desktop application capabilities.

Local Application Data Integration

While Enterprise Data Bridge is the product for building integration solutions that work with relatively large scale enterprise-class systems, the Web services API can be used to develop and deploy custom integration applications that handle data integration on a smaller scale on the local desktop computer. For example, Figure 4 shows a screenshot of prototyped integration with Palm Desktop software. In this prototype, a custom Web services application, which is, in essence, a middleware (between Palm Desktop and Groove Virtual Office) data replicator, creates and runs mappings between the Groove Virtual Office and Palm Desktop.

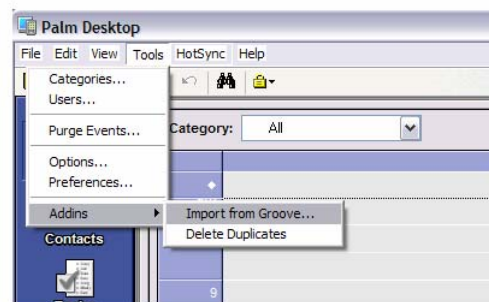


Figure 4. A prototyped integration scenario with Palm Desktop, via local Web services application

“Powered-by-Groove” Application Development

Groove Web Services can be used as a means to add Groove platform services to another application running on a user’s local computer, i.e., the same device as Groove Virtual Office. Independent software vendors (ISVs) can embed Groove platform services in new or existing applications via Groove Web Services. Because Groove Web Services provide a loosely coupled arrangement of open services, ISVs can make use of only the parts of Groove application infrastructure which make sense for their functional requirements, while benefiting from Groove decentralized system services, such as the synchronization engine, security, local persistence of data, and online/offline capabilities.

Imagine an ISV with a business process application (BPA) that uses Groove Web Services to integrate online presence awareness and instant messaging with their application. The ISV could represent bits and pieces of Groove functionality and data in their application’s user interface by making use of only the Groove components relevant to their application. In this case, Groove user presence would integrate with the application by providing a view to other users’ online presence along with one-click access to Groove instant messaging. Groove user presence capabilities make the process-oriented application more valuable by allowing federated users to speed time-to-decision through efficient and secure ad-hoc collaboration, without ever leaving the BPA user interface.

Before considering the use of Groove Web Services for building a powered-by-Groove application, you should be very familiar with the design and capabilities of the API relative to the desired functionality of your application. With this approach, you will experience limitations (only a subset of Groove platform capabilities are available through Web services), and specifically, you will lose access to native UI services in the Groove Virtual Office client. For these reasons, it is important to first consider Groove Forms for client-side Virtual Office solutions.

See the Web Services Programmer’s Guide and API Reference for more information.

Summary

Groove Networks provides a rich set of integration technologies for integrating Groove Virtual Office solutions with external applications and systems.

- The **Groove Enterprise Data Bridge** is an end-to-end product package allowing for data integration between Groove Virtual Office (Forms) and enterprise applications and databases. Enterprise data integration solutions can be quickly developed and deployed with minimal IT overhead associated with the development, administration and maintenance.
- **Groove Web Services** provide a standards-based approach for developing custom integration applications. With Groove Web Services, the integration opportunities range from workspace lifecycle controller applications, to data integration between Groove Virtual Office and other desktop applications, to the development of powered-by-Groove applications.