B2|Collaboration and Integration Server

B2|Collaboration and Integration Server is a software server platform supporting requirements for collaboration and integration within oil and gas specific work processes.

The **B2|Collaboration and Integration Server** is a scalable, distributed server. The server is platform independent, as well as application and database independent. The server contains technology for communication with the participants in the collaboration environment, and is communication protocol independent. This allows B2 to use the appropriate protocols for any environment, and multiple protocols can be used simultaneously for efficient data and information flow to the participants and supporting systems.

The Collaborative Envelope

The **B2|Collaboration and Integration Server** is the core for all of the software products. **The B2|Collaboration and Integration Server** (or servers) is used as the central repository as well as the enabling technology for establishing "sessions".

In the **B2|Collaboration and Integration Server**, a session is defined as a envelope collecting all resources that are relevant; users, roles, access rights, workflows and workflow rules, applications, integration modules and corresponding data, relevant unstructured data objects, documentation, physical hardware and similar. The set of resources in a session can be customised to meet different requirements from customers.

Integration

The server is unique with its ability to connect to information systems, applications or databases through **B2|Integration Modules** (B2|IM), allowing automatic gathering of information about changes that are happing in these systems related to a specific session or a number of sessions involved in the full life cycle of a workflow.

Integration Modules
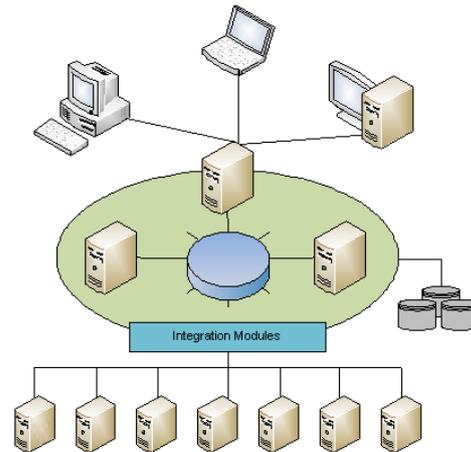
There are a number of integration modules for specific applications available, and also generic modules for connecting to services in the network (web services or similar). B2 contains a middleware product that is unique in regards to supporting cross disciplinary collaboration, with its **B2|IM** to existing databases, information systems and applications. The **B2|IM**s are developed to allow the highest level of integration to existing systems. The **B2|IM**s allows full interoperability between existing systems, both with respect to data transfers, tracking of activity and distributed access to common data.

B2|Integration Modules

The **B2|Integration Modules** (B2|IMs) are responsible for connection to existing databases and applications such as technical databases like Halliburton OpenWorks, Halliburton EDM, Statoil DBR, Schlumberger Eclipse and similar. B2|IMs can perform functions such as read, write, monitor, process or combinations of these of data points of interest.

Some of the **B2|IM**s are general-purpose. Examples of such **B2|IM**s are **B2|Logging IM**, an integration module that automatically records metadata for the project, creating an audit track of activity in the project. Such meta data can be changes in data points in external systems (a well trajectory has changed depth for example), information describing the activity in the

project (user A logged in and user B shared his application to user C) or information about decision points or specific content added by users (attachments such as screen shots or files describing the reason for a decision for example).

B2|IMs are integrated with the server-based extensible common data model as defined in the **B2|Collaboration and Integration Server**. **B2|IM**s support real time data, and can be deployed in the network as required.

A **B2|IM** consists of a B2-specific part and a custom part tailored towards the system it should interface with. The system specific part can be either proprietary (system vendor API) or standardized (web service, database connector, etc.).

Integration modules, servers and clients are connected using the network infrastructure, and communicate using TCP and UDP connections.

Projects within B2

B2 projects are created on the **B2|Collaboration and Integration Server** using the administrative client **B2|Project Administration** application. The projects are configured and published such that **B2|Integration Modules** and clients such as **B2|Integrated Well Planning**, **B2|Integrated Operations**, **B2|Virtual View** and **B2|Virtual Arena** can subscribe to the projects.

The core of a B2 project is a configuration defining which users and their roles that have access to the project, which integration modules that are active for the project and which content or data points the integration modules should be subscribed to in the existing infrastructure. The last could in many instances be a well or well planning project as defined in the Halliburton OpenWorks, EDM or Statoil DBR.

Configuration of IMs for a project in turn defines the content of the data model for that specific project.

User administration in B2 projects is done on a per project basis, but new projects may be configured according to a template. Furthermore, the user administration can be connected to established user management systems such as Microsoft Active Directory.

Data model – B2|Meta Model

The B2 suite contains the **B2|Meta Model**, a common data model. The model structure contains the metadata and B2 projects, including the data that is exposed into the **B2|Web Service**.

The **B2|Meta Model** is extensible and dynamic, and has been developed over a number of years according to requirements from the oil and gas industry.
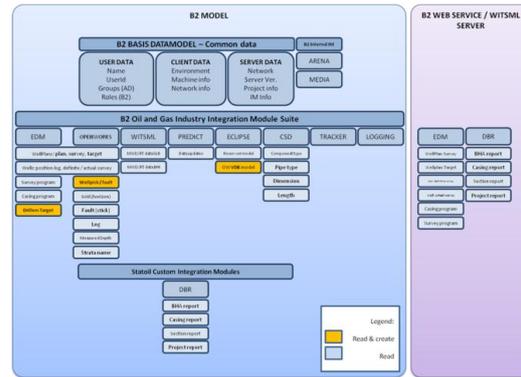
Infrastructure and deployment architecture

The infrastructure and architecture of the B2 suite is customizable. The traditional IP network is used as interconnection infrastructure between servers, integration modules and clients. Servers can be deployed centralized or distributed, or even in a cloud as a service as appropriate or desired by the customer.

Integration Modules are usually deployed close to B2 servers, but can also be distributed on servers in the network. Clients are usually installed on end-user workstations or laptops, although it is possible to have centralized access through terminal server such as Citrix or similar.

Relevant work flows
- Integrated Well Planning
- Drilling support at rig or installation
- Operations monitoring in onshore operations centers
- Drilling analysis and optimalisation

B2 infrastructure

The **B2|Collaboration and Integration Server** is one of the components in the B2 suite. The B2 suite also contains the required server and integration components, such as the **B2|Meta Model** and **B2|Integration Modules**.

This common infrastructure serves end-user application clients such as the **B2|Integrated Well Planning, B2|Integrated Operations**, **B2|Virtual View** and **B2|Virtual Collaboration Arena**.