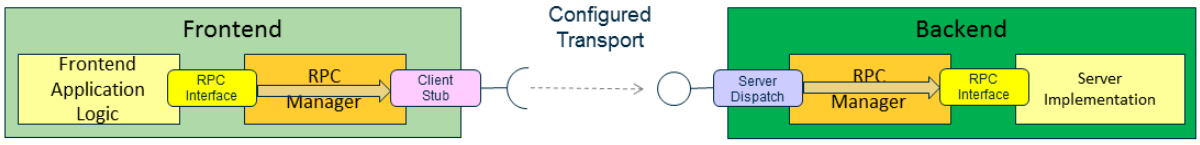
TEST PDF 2:

DRAWING PRODUCTION JS

This article discusses RPC communication in iTwin.js

Overview

the functionality of an iTwin.js app is typically implemented in separate components that run in different processes, potentially on different machines. These components communicate through interfaces. These interfaces can either be implemented as Rpc or Ipc. For web applications, iTwin.js uses *RpcInterfaces* or RPC.



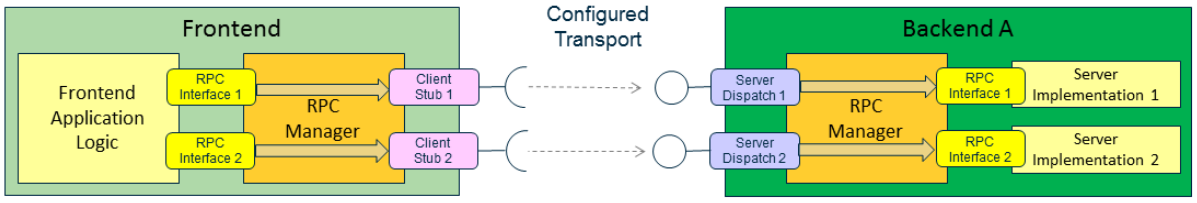
The diagram above shows an app frontend requesting operations from some backend. The terms *client* and *server* specify the two *roles* of an RpcInterface:

- *client* -- the code that runs on the frontend, and calls methods on an RpcInterface.
- *server* -- the code that runs on the backend, and implements the RpcInterface.

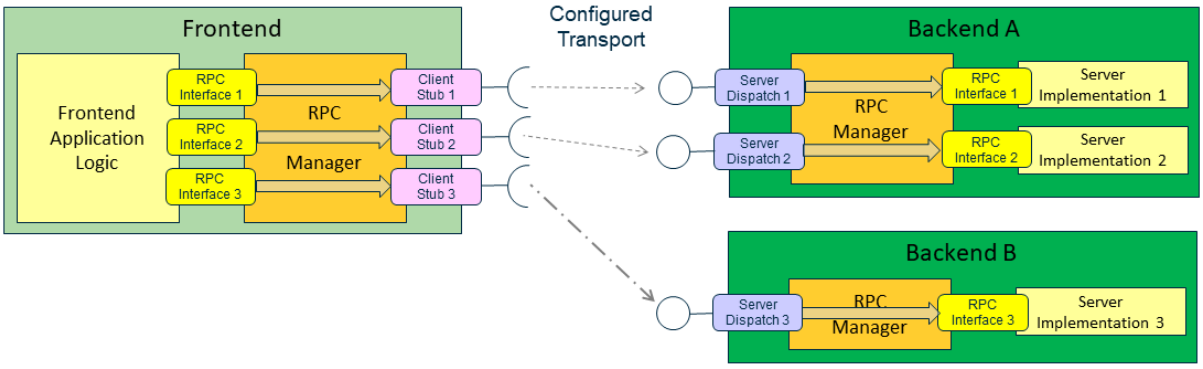
Classes that derive from RpcInterface define a set of operations implemented by a server, callable from a client.

As shown, client and server work with the RpcManager to manage the available RpcInterfaces. RpcManager exposes a client "stub" on the client side that forwards RPC requests. On the other end, RpcManager uses a server dispatch mechanism to relay the request to the implementation in the server. In between the two is a transport mechanism that marshalls the data passed from the client to the serverover an appropriate communications channel. The transport mechanism is encapsulated in a *configuration* that is applied at runtime.

A typical app frontend will use more than one remote component. Likewise, a server can contain and expose more than one component. For example, the app frontend might need two interfaces, Interface 1 and Interface 2. In this example, both are implemented in Backend A.



An app frontend can just as easily work with multiple backends to obtain the services that it needs. One of the configuration parameters for an RpcInterface is the identity of the backend that provides it. For example, suppose that the frontend also needs to use Interface 3, which is served out by Backend B.



The RPC transport configuration that the frontend uses for Backend B can be different from the configuration it uses for Backend A. In fact, that is the common case. If Backend A is the app's own backend and Backend B is a remote service, then the app will use an RPC configuration that matches its own configuration for A, while it uses a Web configuration for B.

As noted above, the client of an RPC interface can be frontend or backend code. That means that backends can call on the services of other backends. In other words, a backend can be a server and a client at the same time. A backend configures the RpcInterfaces that it *implements* by calling the initializeImpl method on RpcManager, and it configures the RpcInterfaces that it *consumes* by calling initializeClient. For example, suppose Backend B needs the services of Backend C.