

CLIENT/SERVER

Development of Client-/Server-Applications



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A SUGGESTION

- In my experience about three quarters of the applications I create are making use of databases
- For about half of those sooner or later the demand comes up to make the data available for more than one user
- This demand is usually restricted to two or three concurrent connections
- It is not very complicated to adjust an application using a local database to make use of some kind of database server



BUT

- You may have to adjust to special commands and data handling depending on the server used
- You or your customer may have to pay for the licence
- If a single-user-version is maintained the coding becomes more difficult
- For me the built-in engine in XOJO (SQLite) is completely sufficient for almost every use



DO IT YOURSELF

- There are possibilities like CubeSQL to get a server behaving like the built-in database
- The Studio Stable Database is a nice example for creating a database server in XOJO
- Doing it is not very difficult, you just have to mock up the behaviour of a simple database with a server socket
- Creating an own server gives much more possibilities
- You can create an intelligent server doing most of the job and not just delivering data



AN EXAMPLE FOR A TYPICAL STRUCTURE

Company	
ID	Integer
Name	String
Street	String
Zip	String
City	String
People()	Person

Person	
ID	Integer
Firstname	String
Lastname	String
Birthday	Date
Company	Integer
Numbers()	Number

Number	
ID	Integer
Type	String
Content	String
Person	Integer



THE CONSTRUCTORS

A typical constructor for the Company class will take the requested ID as a parameter, create a recordset reading the data for this ID from the database table „companies“ and fill the properties with the fields of the result.

Then a record set will be created containing the IDs of Person where field „company“ contains the company ID. This populates the array People.

The constructor of the Person class does the same for each Person, filling its properties and populating the array Numbers.

The constructor of the Number Class is just doing one query to fill the properties, there is no subtable for the numbers.



LOTS OF TRAFFIC

Assuming an average count of three people per company and three numbers per person, we see that opening a single company will cause seventeen database queries, in case of a database server all making use of the network thus causing lots of traffic.

Seventeen queries to get one instance of Company

1 Company	one query to get properties, one to get a list of People	2
3 People	one query to get properties, one to get a list of Numbers	6
9 Numbers	one query to get properties	9
Total of queries		17



AN INTELLIGENT SERVER...

... just knows about the structures. So the number of queries will be the same, but only one will be sent over the network.

The query will be something like „Give me the company with ID 321“. The server will react on this request by creating an instance of Company, locally doing the seventeen queries of course, and sending back the complete result to the client.

For the network this means one question and one (big) answer are transferred.

And this kind of server could even do much more for you!



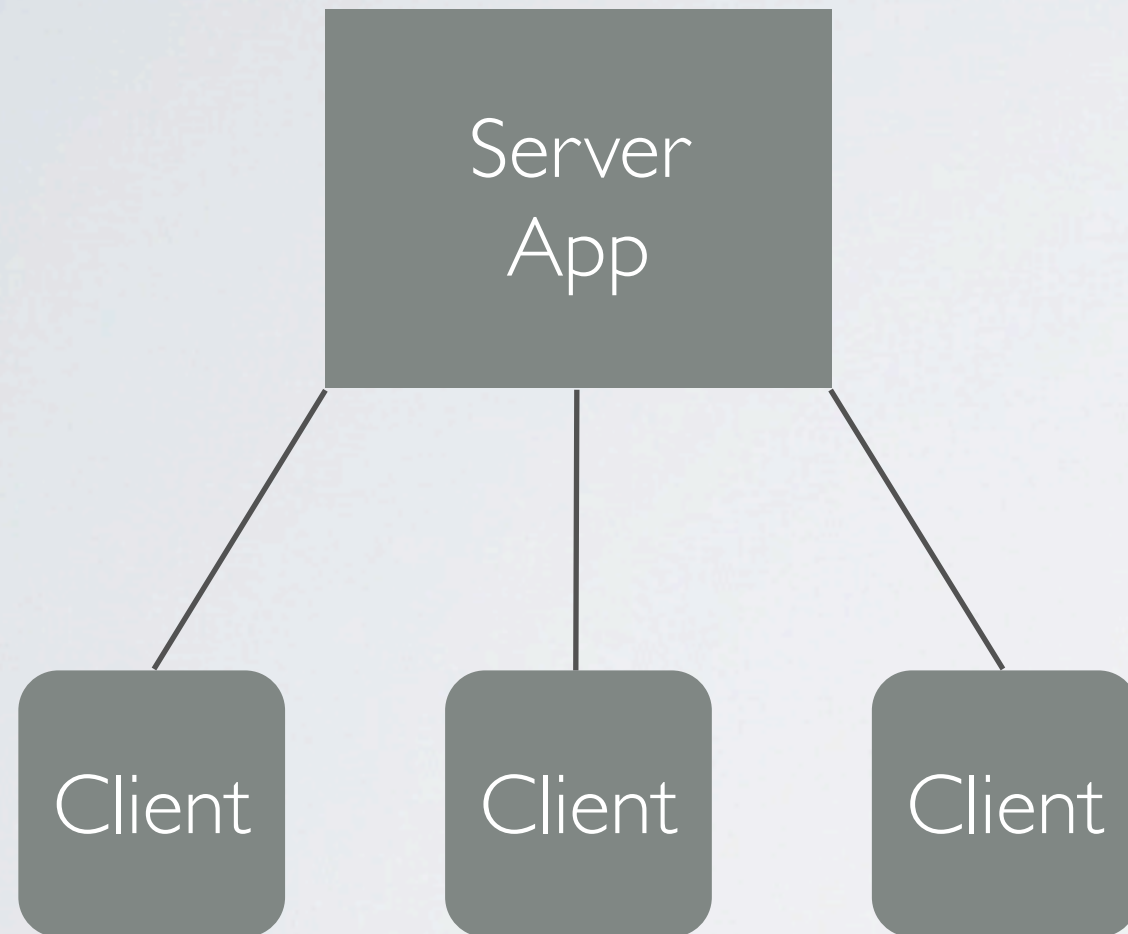
CREATE OUTPUT

For several years now I do not print in my applications. Before I got DynaPDF I had to print, calculating font sizes to get a correctly sized output, handling differences between MacOS and Windows in selection and handling of printers, change software when the printing was not working correctly due to changes in the operating systems and so on. Today I create PDF only. The user may print it, but mostly that is avoided since actually most documents are sent by email. This way creating PDF directly is even easier for the user, since the output has not to be converted to be sent.

An intelligent server can create the output for you. Thus the client can be smaller in size and the formatting is guaranteed to be consistent for all the users.



A SIMPLE CALCULATION



Needs for PDF-Creation	
DynaPDF.dll	5 MB
Font Family	400 KB
Letterhead	200 KB
Total	5.6 MB

PROS

AND

CONS

- Smaller footprint overall
- Easier maintenance
- Client hardware can be cheap/old
- No additional costs for licences
- Safety - your own protocol is not public
- Two applications instead of one
- Harder to develop, better with 2 PCs
- Stability of the server-side is crucial
- Uses most probably external classes
- Only for small workgroups



THANK YOU...

...and let's have a look at some examples



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