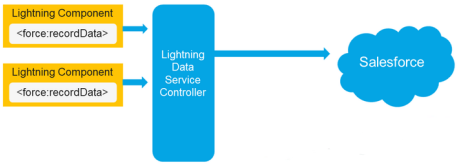
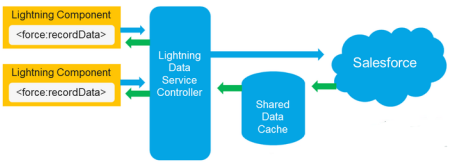
Even if you have multiple components using the Lightning Data Service, they are all going to use a single request and deal with a cached response

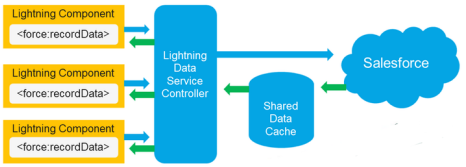
So let's talk about that a bit more. Let's say you have two components that are using the force:recordData tag. Each one will make a request for data through the Lightning Data Service Controller, and those requests will be funneled into one single request which is sent to the Salesforce server, such as you see here.



But what is returned is a response that will be stored in a shared data cache and also returned back to the two components that started all this, such as in the diagram below. And this means that not only will those two components be able to retrieve the data faster than two components that were using their own apex controllers



But if a third component that needed that same data were to come along, it would be able to get a cached response almost immediately without even having to make a call to the server. Boom!



And the beauty of it all is that you can implement this with just a few lines of markup code in the component and then a few more lines in the JavaScript controller to load and save the record. You do not have to write any Apex or SOQL code to implement this, but you get all the performance benefits.