

Modify the grpc Client Timeout

Requirement:

- Modify the `grpc client timeout` to take it's value from `options()`.

1) Steps to modify the `Timeout` in the cpp file:

- Open the File needed to be modified:
Link to Github used → <https://github.com/nfultz/grpc/issues/28>
File to be modified → `src/client.cpp`

Snippet of Code to be modified:

Cpp Code

```
...  
RawVector fetch(CharacterVector server, CharacterVector method,  
RawVector requestArg, CharacterVector metadata)  
{  
  
    //Timeout to be modified  
    gpr_timespec deadline = five_seconds_from_now();  
  
    //setup  
    grpc_call *c;  
    ...
```

- Timeout function for a `Configurable Time`:
Link to Github used → <https://github.com/grpc/grpc> - underlying C library
File to be modified → `grpc/test/core/end2end/tests/authority_not_supported.cc`

Required Function:

Cpp Code

```
...  
static gpr_timespec n_seconds_from_now(int n) {  
    return grpc_timeout_seconds_to_deadline(n);  
}  
...  

```

Required Function ➡ `n_seconds_from_now(int n)`

This function uses the pre-defined function [`grpc_timeout_seconds_to_deadline(n)`] to configure the Client Timeout so that it can be set by the user to any variable `n`.

- Modify the Original Code:

My approach to modify the `fetch()` function is to add an additional argument `n` which represents the number of seconds needed for the Client to Timeout. I don't know exactly where the `options()` is, so that would be my approach until it is clarified.

Modified Code:

Cpp Code

```
...
RawVector fetch(CharacterVector server, CharacterVector method,
RawVector requestArg, CharacterVector metadata, int n)
{

//Timeout after modification
gpr_timespec deadline = n_seconds_from_now(n);

//setup
grpc_call *c;
...
```

I assume that the header files are correctly included and that the function `[n_seconds_from_now(n)]` is correctly prototyped in the header file and defined in the cpp file. However, if it is not, then I may define the function in the client.cpp file itself for proper use.

This will allow the user to set a [Configurable Time](#) in seconds for the Client to Timeout.

2) Modify the R Code of the Client:

- Snippet of Code to be modified:

R Code:

```
...
grpc_client <- function(impl, channel) {

  client_functions <- lapply(impl, function(fn, n)
  {
    RequestDescriptor <- P(fn[["RequestType"]])$proto)
    ResponseDescriptor <- P(fn[["ResponseType"]])$proto)
    list(
      call = function(x, metadata=character(0))
      read(ResponseDescriptor, fetch(channel, fn$name,
      serialize(x, NULL), metadata, n)),
    ...
  )
}
```

The new argument representing the [Configurable Time](#) is added to the function arguments in the R File.