

Mobile code Offloading with annotations

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(Smart) Mobile phones

Aspect of human life enhanced :

- Reaching out to our loved ones
- keeping records of present and past event.
- Mode of identification for services.
- Means of conducting payment.
- Fun and Games.

Usage problems :

- Users cannot run applications(memory intensive) like they run on desktop or laptop.
- Battery life tend to restrict maximum satisfaction users want.

Solution

Code offloading . This is the act of running lines of code that are memory intensive or consume battery life on cloud servers that run similar architecture .

Code offloading approaches include:

- Method offloading.
- Thread offloading.

Architecture

We intend to use method code offloading, using a client-server architecture.

- Client: Classes that need additional computation power would extend a remotable class and the developer is required to annotate any method that needs more resources within the class with `@remote`.
- Server: receives a request from the client via a controller to process a chunk of code and then send the result back once the computation is done.

Architecture

Client

- The classes extends a Remotable class
- Methods are marked as @remote if they need extra resources
- There is a reference to a Controller which runs the code in the cloud .
- The result is received from the server and the phone displays the result as if it was run on the phone.

Architecture

Server

- The runs on Android_x86
- Gets a request from a client to process a particular method via a controller
- The controller get the process done using the cloud resources and relays any exceptions that occur during the process.

Merits

- Make use of resources in the cloud there by having faster and accurate results .
- Users can have more battery live.

Possible Use

- Developers would be running mini Integrated development environment on a mobile device.
- Game developers would take advantage of the cloud computing resources made available.

Thank you