

**Network Centric Computing**

**Formal Element: gRPC Calculator**

by

Jack Harding

This Report is submitted in partial fulfilment of the requirements of the Honours Degree in Electrical and Electronic Engineering (DT021A) of the Dublin Institute of Technology

14 April 2019

Lecturer: Dr Ray Lynch

**Contents**

[Introduction 2](#_Toc5006270)

[Objective 2](#_Toc5006271)

[Code 2](#_Toc5006272)

# Introduction

1. A background discussion on gRPC. Include a comparison with traditional RPC.

## Protocol Buffer

Google developed it for object serialisation and is a mechanism in gRPC for generating language specific code. Similar to RPC, the objects are defined in a definition file where the input and output parameters are defined, interfaces are replaced by messages in gRPC and the used in .proto files. Inside the an RPC interface is a function which specifies input, output, and the parameters each take; the same is done with a proto file, a message is declared

Similar to JSON and XML but is more efficient due to its binary encoding, making it far faster, when XML and JSON are compared to proto, the compressed data size is a third of XML and half that of JSON.

# Objective

# Code

1. Add a button to your C# calculator
2. Calls a gRPC remote function and displays the return value on the calculator screen.
3. It is up to you to decide what the remote function will do.

* A detailed description of your particular implementation of the code above.
* You should include an explanation of the particular code snippets related to gRPC.
* Also include flowcharts etc. that will demonstrate your understanding of the technology.