mprpc Documentation

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Contents

mprpc is a lightweight MessagePack RPC library. It enables you to easily build a distributed server-side system by writing a small amount of code. It is built on top of gevent and MessagePack.

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CHAPTER 1

Introduction

1.1 Installation

To install mprpc, simply:

```
$ pip install mprpc
```

Alternatively,

```
$ easy_install mprpc
```

1.2 Examples

1.2.1 RPC server

```
from gevent.server import StreamServer
from mprpc import RPCServer

class SumServer(RPCServer):
    def sum(self, x, y):
        return x + y

server = StreamServer(('127.0.0.1', 6000), SumServer())
server.serve_forever()
```

1.2.2 RPC client

```
from mprpc import RPCClient

client = RPCClient('127.0.0.1', 6000)
print client.call('sum', 1, 2)
```

1.2.3 RPC client with connection pooling using gsocketpool

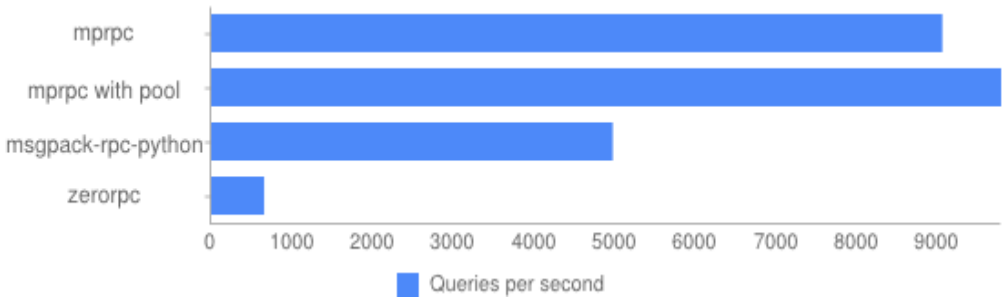
```
import gsocketpool.pool
from mprpc import RPCPoolClient

client_pool = gsocketpool.pool.Pool(RPCPoolClient, dict(host='127.0.0.1', port=6000))

with client_pool.connection() as client:
    print client.call('sum', 1, 2)
```

CHAPTER 2

Performance

mprpc significantly outperforms the official MessagePack RPC (**1.8x** faster), which is built using Facebook's Tornado and MessagePack, and ZeroRPC (**14x** faster), which is built using ZeroMQ and MessagePack.

2.1 Results



2.1.1 mprpc

```
% python benchmarks/benchmark.py
call: 9508 qps
call_using_connection_pool: 10172 qps
```

2.1.2 Official MesssagePack RPC

```
% pip install msgpack-rpc-python
% python benchmarks/benchmark_msgpackrpc_official.py
call: 4976 qps
```

2.1.3 ZeroRPC

```
% pip install zerorpc
% python benchmarks/benchmark_zerorpc.py
call: 655 qps
```

2.2 Environment

- OS: Mac OS X 10.8.5
- CPU: Intel Core i7 2GHz
- Memory: 8GB
- Python: 2.7.3

CHAPTER 3

API Reference

class mprpc.**RPCClient**

RPC client.

Usage:

```
>>> from mprpc import RPCClient
>>> client = RPCClient('127.0.0.1', 6000)
>>> print client.call('sum', 1, 2)
3
```

Parameters

- **host** (*str*) – Hostname.
- **port** (*int*) – Port number.
- **timeout** (*int*) – (optional) Socket timeout.
- **lazy** (*bool*) – (optional) If set to True, the socket connection is not established until you specifically call open()
- **pack_encoding** (*str*) – (optional) Character encoding used to pack data using Messagepack.
- **unpack_encoding** (*str*) – (optional) Character encoding used to unpack data using Messagepack.
- **pack_params** (*dict*) – (optional) Parameters to pass to Messagepack Packer
- **unpack_params** (*dict*) – (optional) Parameters to pass to Messagepack

:param tcp_no_delay (optional) If set to True, use TCP_NODELAY. :param keep_alive (optional) If set to True, use socket keep alive.

Unpacker

call()

Calls a RPC method.

Parameters

- **method** (*str*) – Method name.
- **args** – Method arguments.

close()
Closes the connection.

getpeername()
Return the address of the remote endpoint.

is_connected()
Returns whether the connection has already been established.

Return type bool

open()
Opens a connection.

class mprpc.**RPCServer**
RPC server.

This class is assumed to be used with gevent StreamServer.

Parameters

- **pack_encoding** (*str*) – (optional) Character encoding used to pack data using Messagepack.
- **unpack_encoding** (*str*) – (optional) Character encoding used to unpack data using Messagepack
- **pack_params** (*dict*) – (optional) Parameters to pass to Messagepack Packer
- **unpack_params** (*dict*) – (optional) Parameters to pass to Messagepack Unpacker

Usage:

```
>>> from gevent.server import StreamServer
>>> import mprpc
>>>
>>> class SumServer(mprpc.RPCServer):
...     def sum(self, x, y):
...         return x + y
...
>>>
>>> server = StreamServer(('127.0.0.1', 6000), SumServer())
>>> server.serve_forever()
```

CHAPTER 4

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