gRPC Concepts

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Introduction

Basic Structure

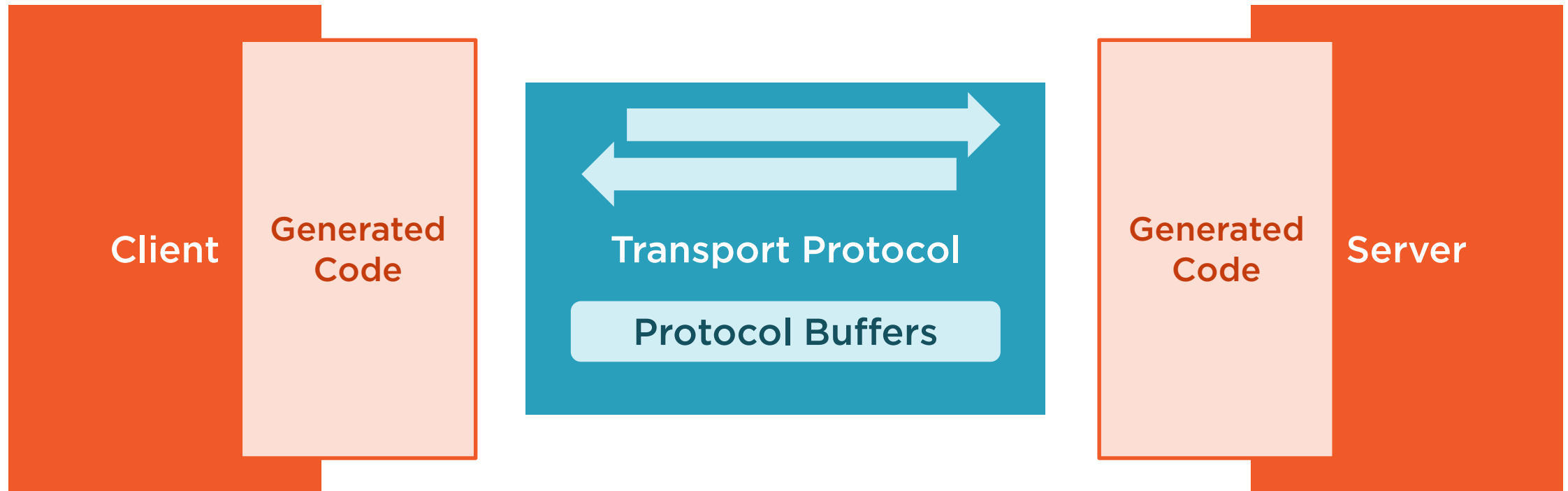Design Cycle

RPC Life Cycle

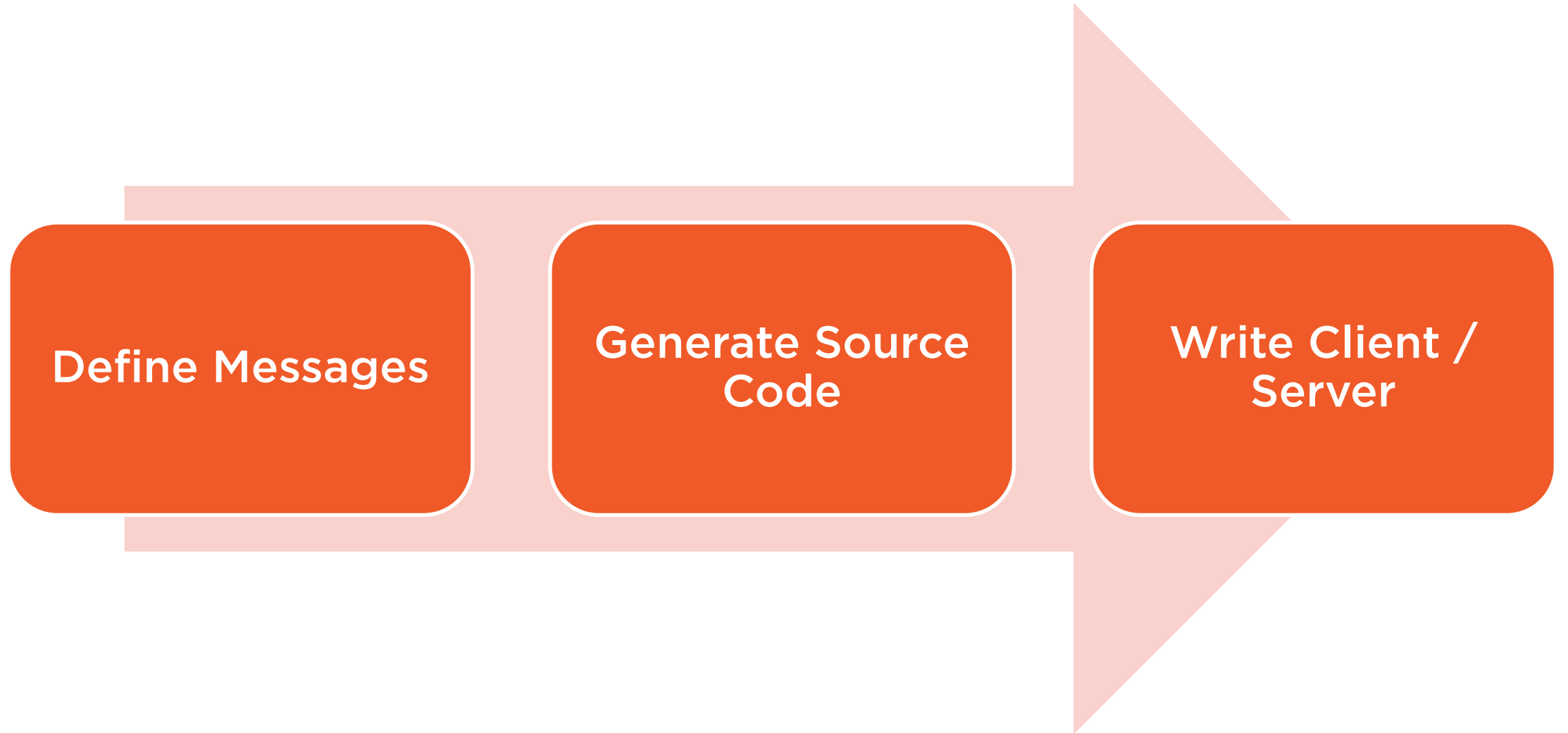Authentication

Message Types

gRPC Structure

Design Cycle

Define Messages

Generate Source Code

Write Client / Server

RPC Life Cycle

Create Channel → Create Client → Client Send Request (with optional Metadata) → (optional) Server Send Metadata → Send / Receive Messages

Metadata is useful for checking user credentials

Authentication

Insecure	**SSL / TSL**
Google Token-Based	**Custom**

Authentication

Insecure

Uses HTTP/1

Requires No Special Handling

SSL / TSL

Google Token-Based

Custom

Authentication

Insecure

SSL / TSL

Uses HTTP/2

Client Validates Certificate

Google Token-Based

Custom

Authentication

Authentication

Insecure

SSL / TSL

Google Token-B...

Custom

Language-specific

Message Types

Unary	**Server Streaming**
Client Streaming	**Bidirectional Streaming**

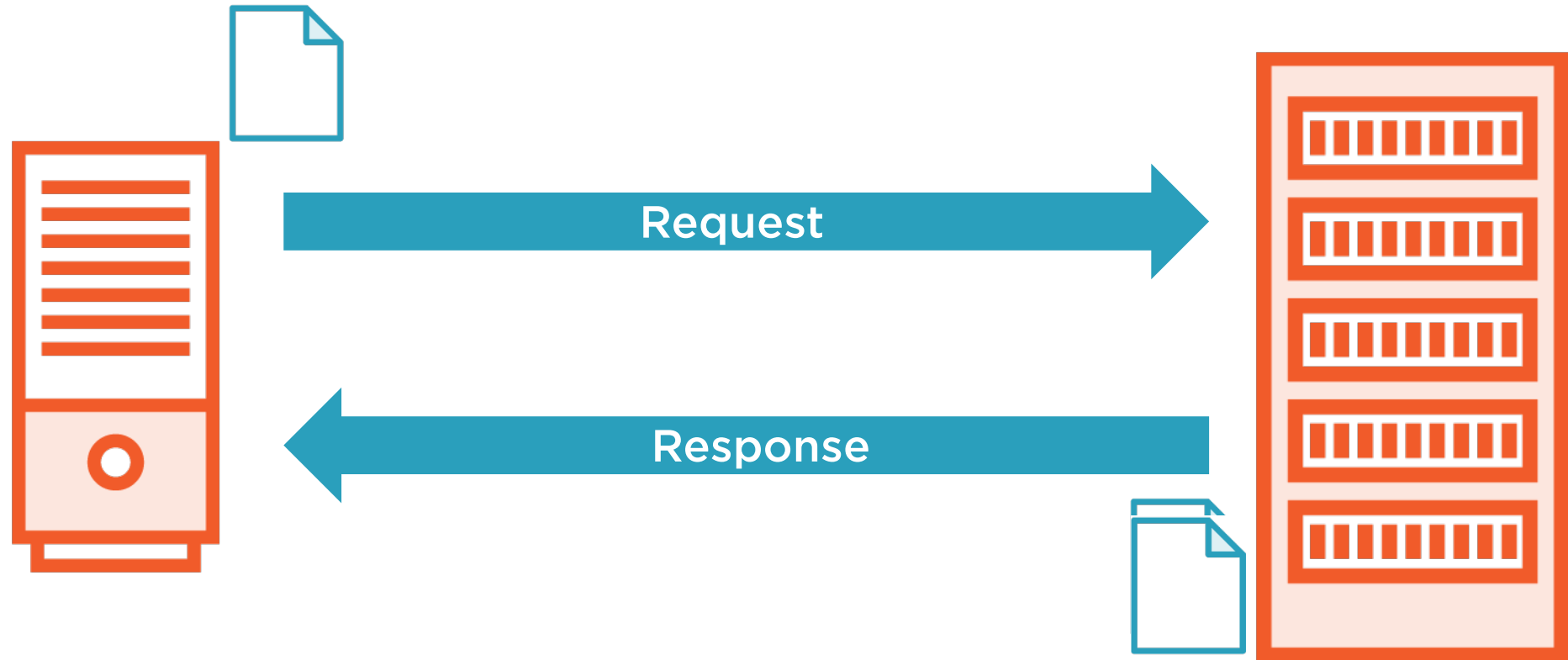# Unary RPC
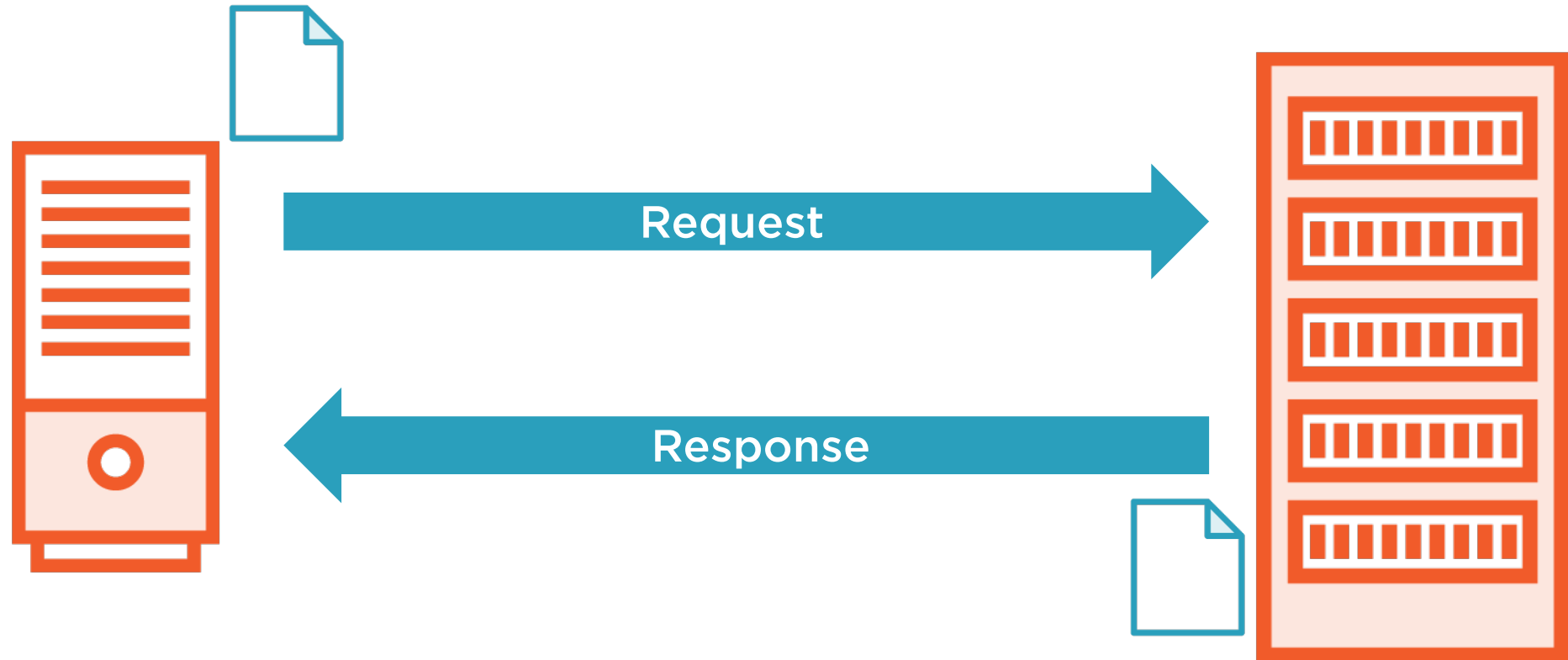
Request

Response

```
rpc Method(RequestType) returns (ResponseType)
```
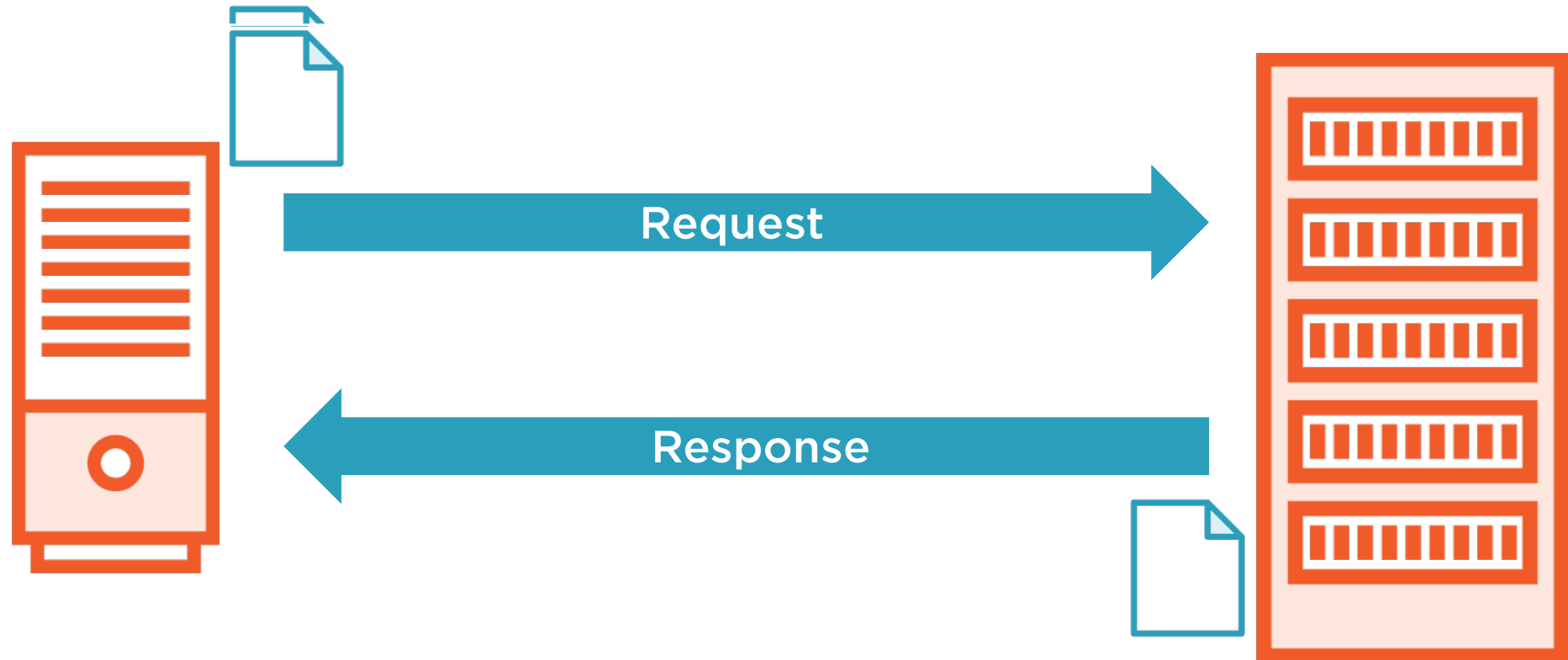
Server Streaming RPC


```
rpc Method(RequestType) returns (stream ResponseType)
```
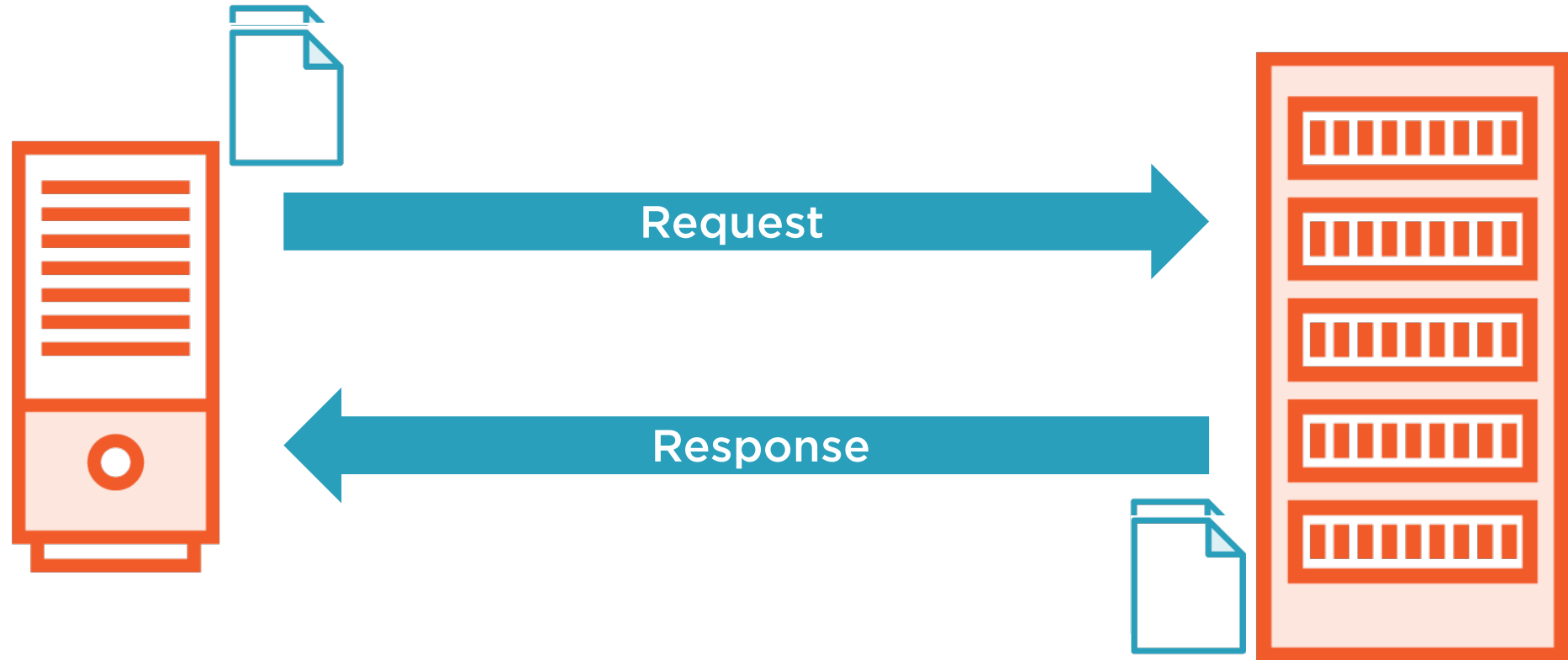
Client Streaming RPC


```
rpc Method(stream RequestType) returns (ResponseType)
```

Bidirectional Streaming RPC


```
rpc Method(stream RequestType) returns (stream ResponseType)
```

Summary

Basic Structure

Design Cycle

RPC Life Cycle

Authentication

Message Types