Load Testing from Multiple Clients with a Pipeline

How we ensured the same high availability performance of our platform using Load Test as Code ran through pipelines.

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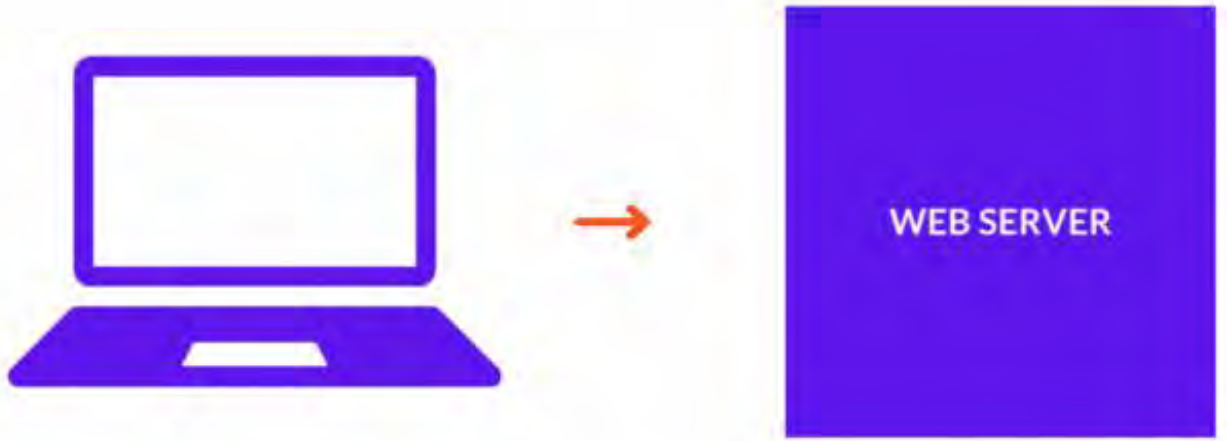
January 25, 2024

What is Load Testing?

Load testing is a type of performance test checking the upper limits of your system by subjecting it to extreme load conditions. Using automated pipelines, a load test can be further improved to simulate real world scenario, as traffic can be forced upon multiple servers (with different IPs).



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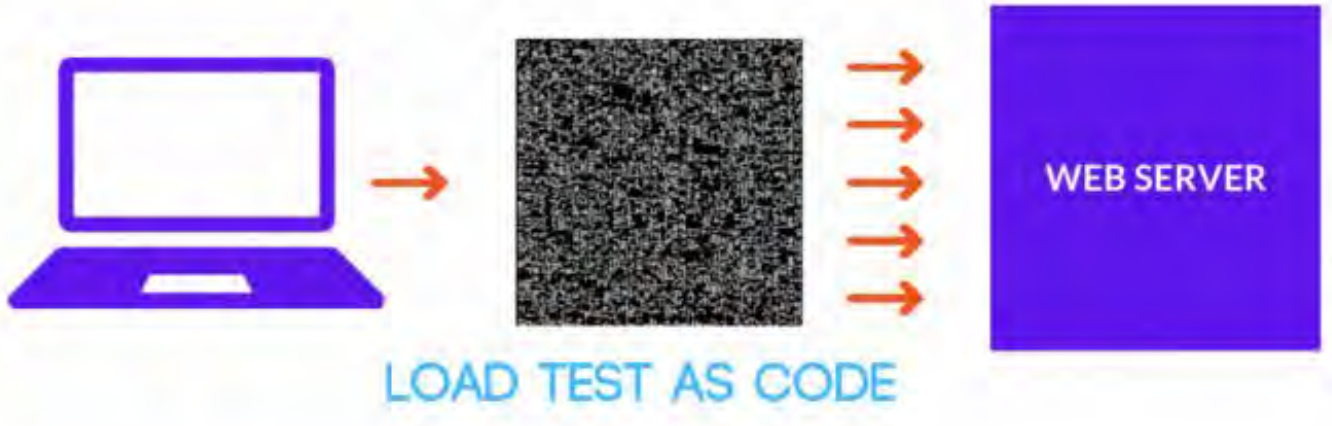
Load Test as Code



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Load Testing Tools

- Open Source
- Ease of Use / Community
- Programming Language
- Trigger from Command Line
- Reports

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Developing the Load Test Code

```
directory {
      simulations = "../user-files/simulations"
      resources = "../user-files/resources"
      #reportsOnly = ""                          # If set, name of rep
      #binaries = ""                             # If set, name of the
      results = "results"                         # Name of the folder
    }
```

Configuration File

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Developing the Load Test Code

Resources

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Developing the Load Test Code

```
package loadtestpackage

import io.gatling.core.scenario.Simulation
import io.gatling.core.Predef._
import io.gatling.http.Predef._
import scala.concurrent.duration._

class LoadTestSimulation1 extends Simulation {

}
```

Simulations

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Developing the Load Test Code

```
var credentials = Iterator.continually(
                                        Map(
                                          "authorization" -> ( "Basic <BASE64 user:password>" ),
                                          "apikey" -> ( "<apikey random value here>" ) )
                                           )
                                      )
```

Simulations

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Developing the Load Test Code

```
val httpConf = http.baseUrl("https://www.domain.com")
        .header("Accept", value="application/json")
        .header("content-type", value="application/json")
```

Simulations

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Developing the Load Test Code

```
val scn1 = scenario("GetUsersAPI")
      .feed(credentials)
      .exec(http("GET Users API")
      .get("/user/12345")
      .header("requestid","GUIDHERE")
      .header("Authorization",StringBody("""${authorization}"""))
      .check(status.in(200, 204))
      )
```

Simulations

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Developing the Load Test Code

```
setUp(
    scn1.inject((constantConcurrentUsers(5).during(10.minutes)))
        .protocols(httpConf)
    )
```

Simulations

Running the Load Test Code

```
$./gatling.sh
GATLING_HOME is set to /Users/karina.alvarado/workspace/gatling-c
Choose a simulation number:
     [0] loadtestpackage.LoadTestSimulation1
     [1] loadtestpackage.LoadTestSimulation2
0
Select run description (optional)
Load Test Run 1
Simulation loadtestpackage.LoadTestSimulation1 started...
```

Simulations

Running the Load Test Code

```
================================================================================
2022-11-11 01:00:00                                           5s elapsed
---- Requests ------------------------------------------------------------------
> Global                                                   (OK=10     KO=0    )
> GET Users API                                            (OK=10     KO=0    )
---- Errors --------------------------------------------------------------------


---- GetUsersAPI ---------------------------------------------------------------
|      |      | active: 20     / done: 10
================================================================================
```

Simulations

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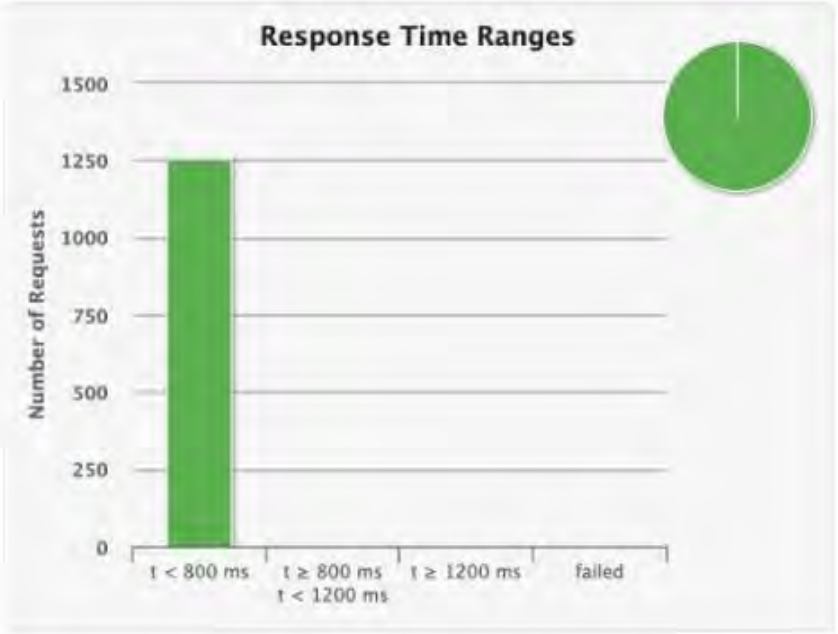
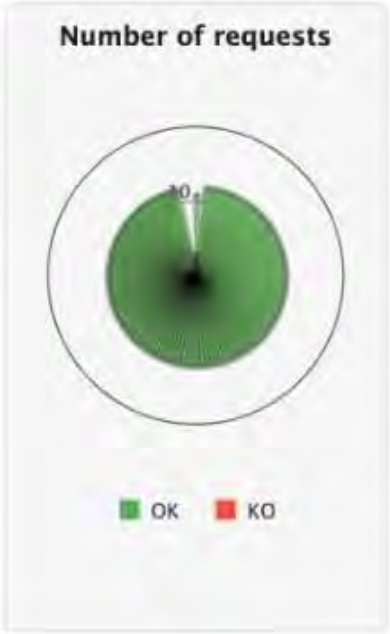
Load Test Results





Results

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Load Test Results

Stats Fixed height Full size Expand all groups Collapse all groups

Requests	Executions					Response Time (ms)							
	Total	OK	KO	% KO	Cnt/s	Min	50th pct	75th pct	95th pct	99th pct	Max	Mean	Std Dev
All Requests	1257	1255	2	0%	10.303	82	87	89	120	164	178	91	16
Search	12	12	0	0%	0.098	422	435	437	439	441	441	433	5
SubGroup	12	12	0	0%	0.098	252	259	261	266	267	267	259	4
Search	12	12	0	0%	0.098	84	86	88	91	92	92	87	2
Select	12	12	0	0%	0.098	83	88	89	90	91	91	87	2
Browse	12	12	0	0%	0.098	8935	9059	9128	9204	9228	9234	9067	91
Edit	2	1	1	50%	0.016	253	420	503	569	583	586	420	167

Results

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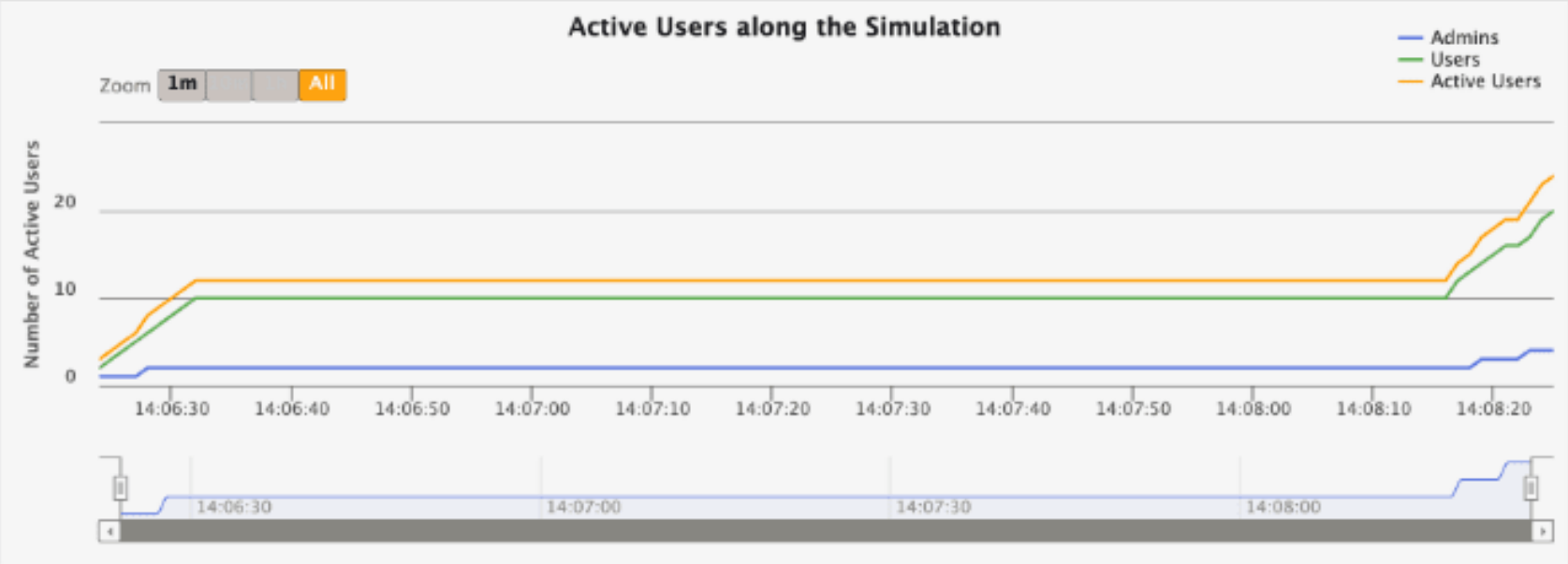
Load Test Results



Results

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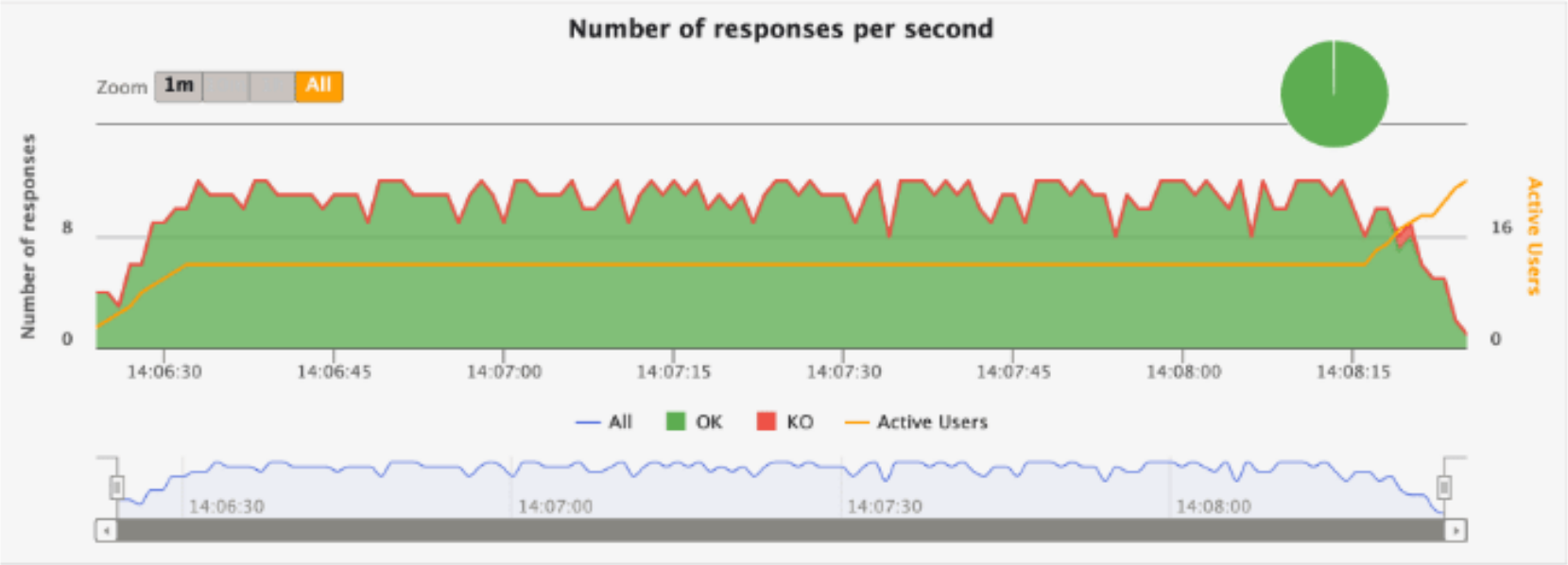
Load Test Results



Results

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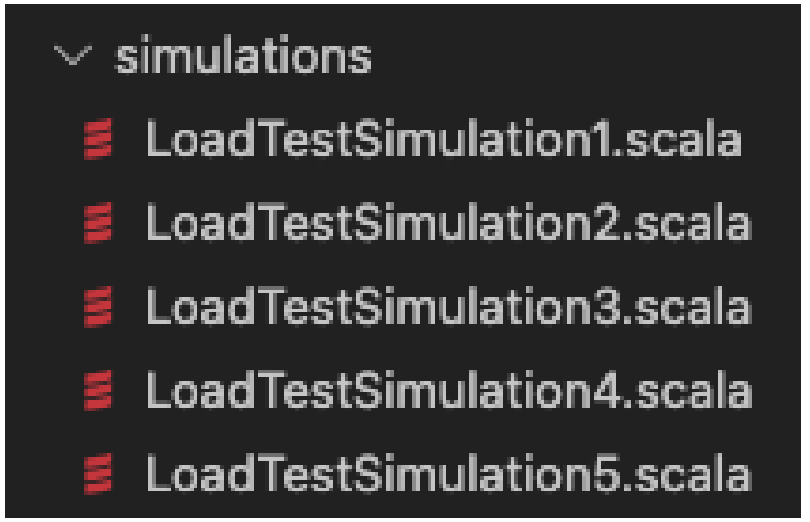
Platform vs Application

Adding a Pipeline

Other things to solve...

Problem 1

Selecting a simulation programmatically



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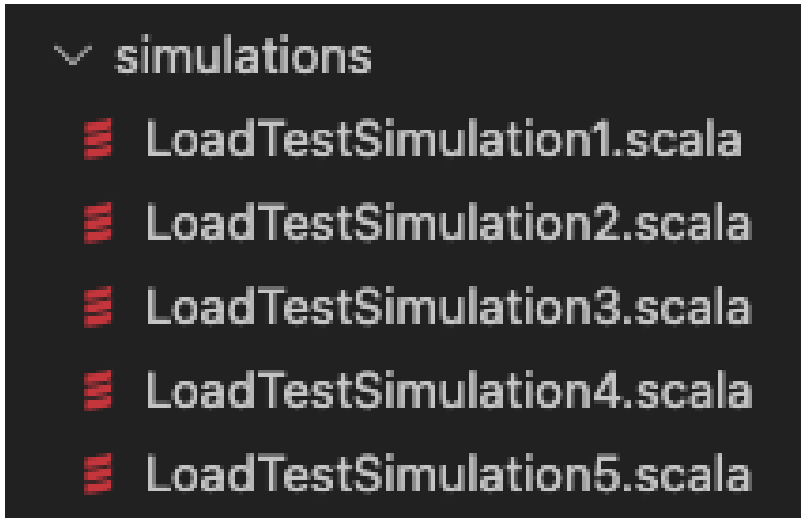
Problem 1

Selecting a simulation programmatically




```
gatling {
  core {
    runDescription = ""          # The description for this simulation run, displayed in each report
    simulationClass = "loadtestpackage.{{ FQCN }}"         # The FQCN of the simulation to run (when
    used in conjunction with noReports, the simulation for which assertions will be validated)
```

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Problem 1

Selecting a simulation programmatically

```
- name: Update Variables
  run: |
  sed -i -e 's/{{ FQCN }}/${{ github.event.inputs.simulation }}/g' ./conf/gatling.conf
```

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Problem 2

Re-usable across different environments

https://{environment}/method

Problem 3 & 4

Override authentication and authorization headers
Override injection rates

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Just Run It

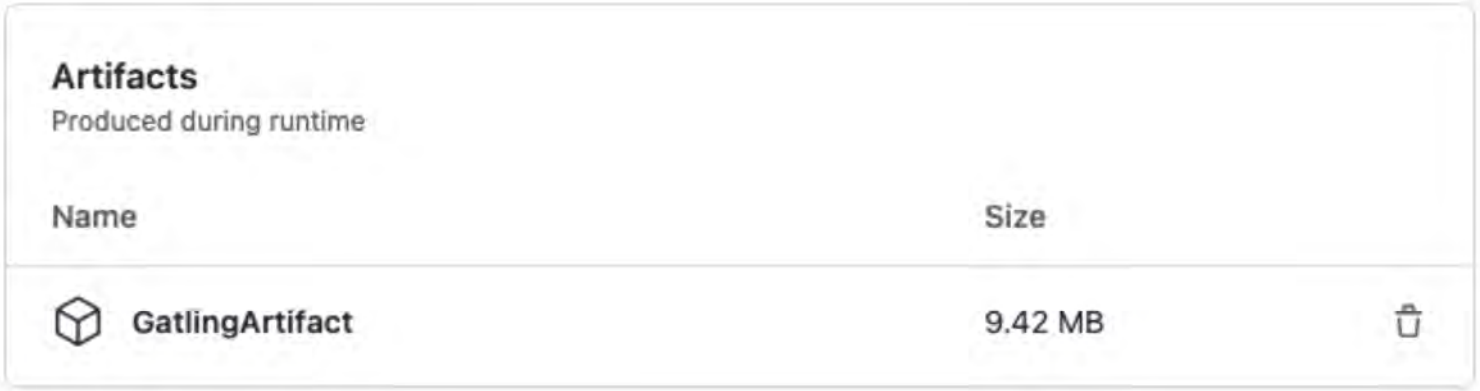
```
- name: Install JAVA dependency
  uses: actions/setup-java@v3
  with:
    distribution: 'zulu'
    java-version: '17'

- name: Run the Load Test
  run: |
    #change directory to display compile errors if any
    cd bin
    ./gatling.sh
    cd ..
```

Reports?

```yaml
- name: Output the Gatling Test Results
  uses: actions/upload-artifact@v2
  with:
    name: GatlingArtifact
    path: results
```

GitHub Artifact



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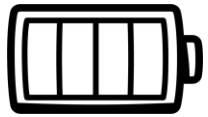
Important!



Performance

Breaking Point?

Scheduled Runs

Serverless

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What?

Load-Test-as-Code for Non-Coders

https://dev.to/devsatasurion/load-test-as-code-for-non-coders-31g8

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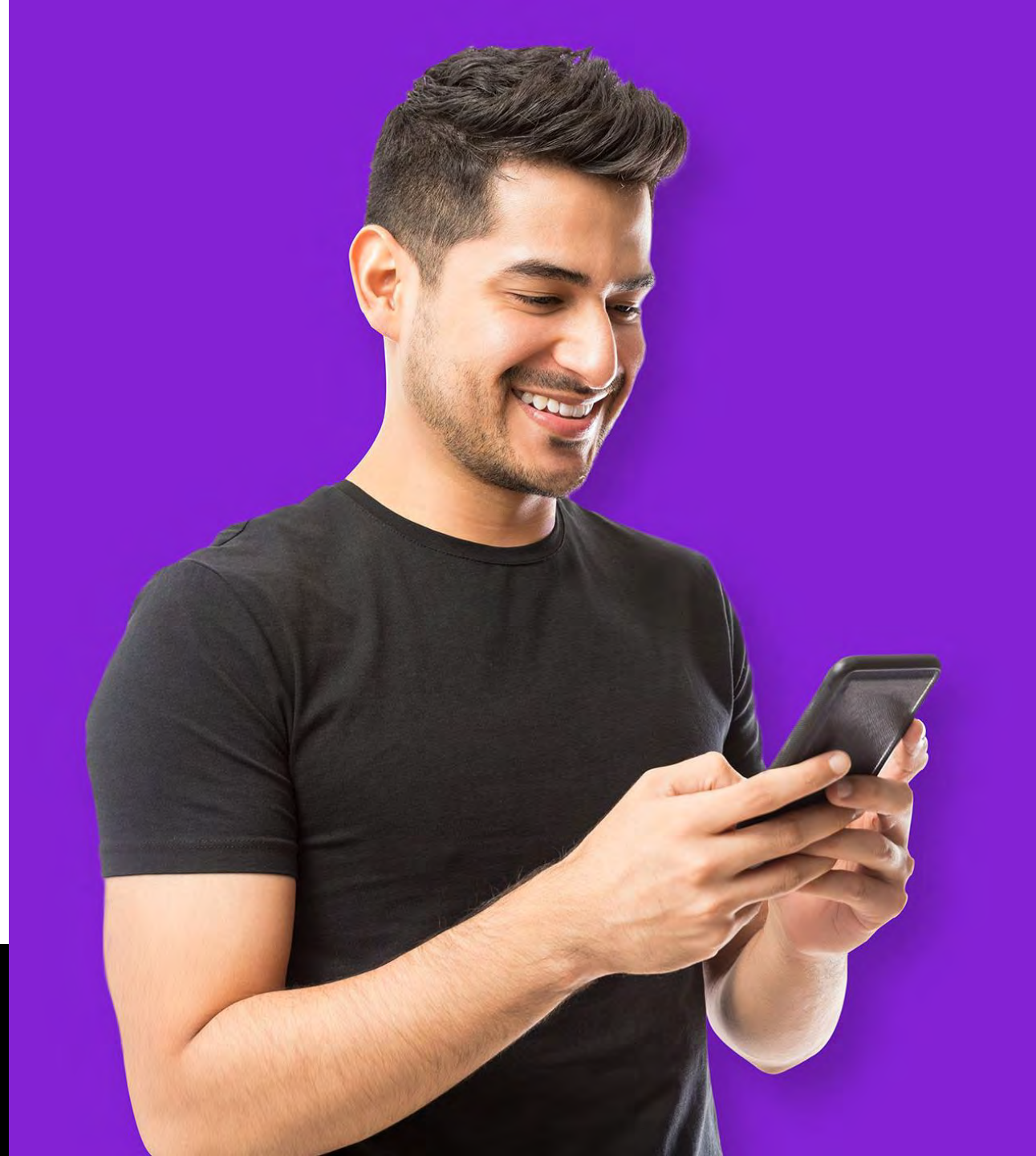

Keep it simple.