



SAUCECON 19

WELCOME TO THE WORKSHOP

Sauce Labs Troubleshooting





Your Trainer



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Slido #SC19 for questions

Today we will be using Slido to collect questions.

You can now go to **slido.com** on your phone or laptop and enter the event code **#SC19**.

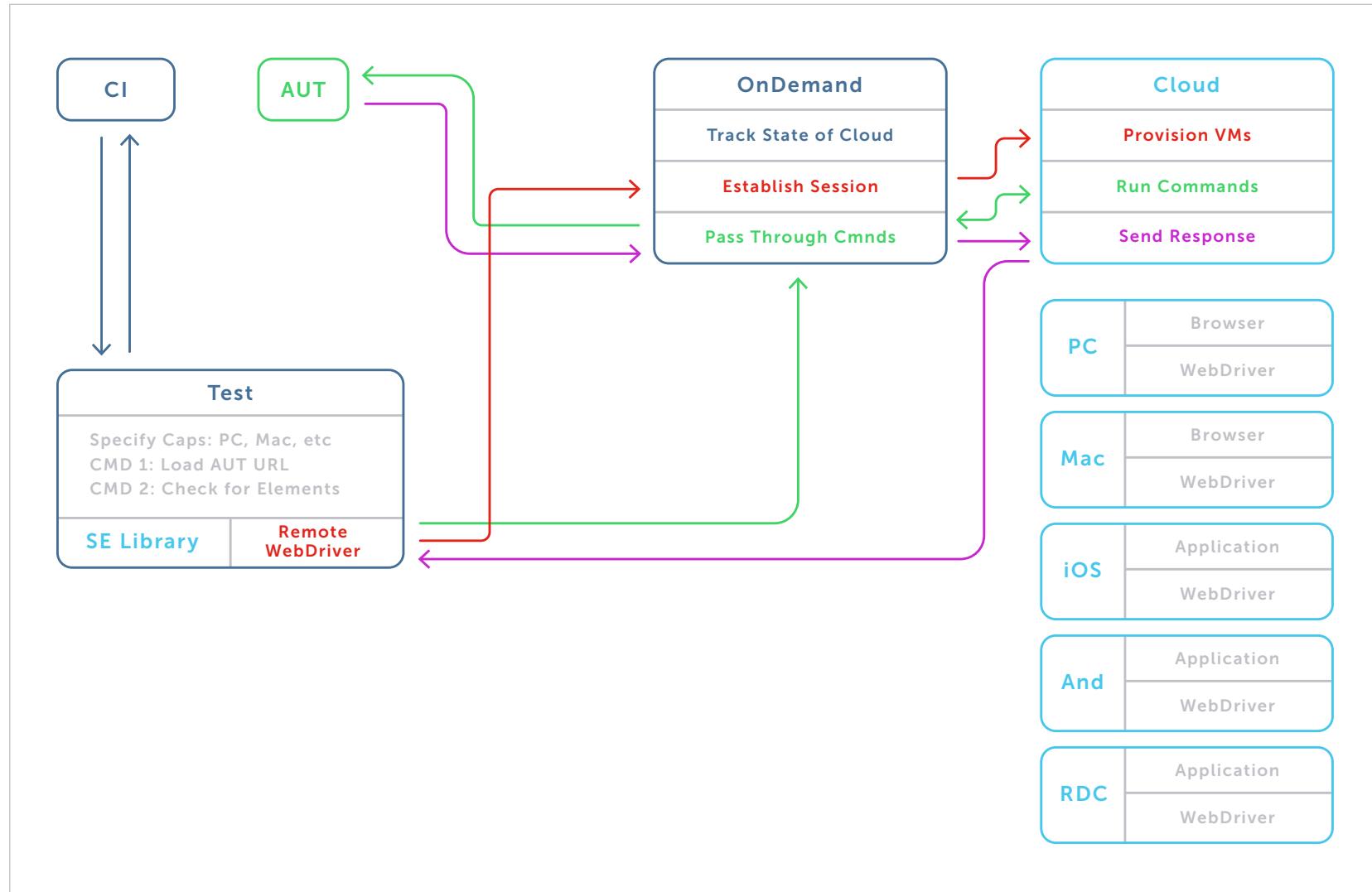
AGENDA

- Sauce Labs VDC Infrastructure
- Network and Data Center Considerations
- Real Device Allocation
- Using Sauce Storage
- Troubleshooting Pre-Run Executables
- Timeouts
- Common Errors and How To Resolve Them
- Troubleshooting Tools
- Why Are My Tests Failing?
- Sauce Connect Proxy
- W3C Webdriver Protocol

Sauce Labs VDC Infrastructure



The Sauce Labs Virtual Device Cloud



Network and Data Center Considerations

- Be aware of latency issues and design tests and test suites accordingly
- Use the nearest Data Center to where you are executing your tests – US or EU
- Whitelist the Sauce Labs IP ranges:

162.222.72.0/21 and 66.85.48.0/21 for US

185.94.24.0/22 for EU

- Default Selenium Server version used on Sauce may not match the version you use locally





Real Devices



Real Device Allocation

- Dynamic Allocation
 - Platform and OS version
 - Device name using regex
 - Phone/Tablet
 - Public/Private
- Static Allocation
 - Full ID of specific device
- If the requested device is unavailable, the test will be queued for up to 15 mins





Using Sauce Storage



Using Sauce Storage

- Sauce Storage is a secure, temporary storage space that can be used to upload mobile apps and pre-run executables.
- Files uploaded will expire seven days after upload, and be removed. If it has been over seven days since you uploaded your application to Sauce Storage, you will need to upload it again.

Using Sauce Storage

Uploading a file using curl:

```
curl -u YOUR_USERNAME:YOUR_ACCESS_KEY -X POST -H 'Content-Type: application/octet-stream'  
https://saucelabs.com/rest/v1/storage/YOUR_USERNAME/test_file_name?overwrite=true  
--data-binary @PATH_TO_TEST_FILE
```

The @ is important!

Using Sauce Storage

Checking contents of Sauce Storage using curl:

```
curl -u YOUR_USERNAME:YOUR_ACCESS_KEY https://saucelabs.com/rest/v1/storage/YOUR_USERNAME

{
  "files": [
    {
      "name": "Calculator_2.0.apk",
      "size": 1207400,
      "mtime": 1555417854.000000,
      "md5": "e6ad4e69512284834ecc8ea30d62b2d8",
      "etag": "fb68e0ff29b6dfe56f2822787930a6fc"
    },
    {
      "name": "badupload.apk",
      "size": 65,
      "mtime": 1555417831.000000,
      "md5": "1a197af9d692dd79fea6f99ee30ac7af",
      "etag": "b7b4eb3cb6b8ec48a4bdfc9af5165a9f"
    }
  ]
}
```

Troubleshooting Pre-Run Executables



Troubleshooting Pre-Run Executables

Pre-run executables are executable scripts which you can run prior to a test starting

- Can be used to configure the VM in some way – e.g. set a registry key or edit hosts file.

Tips

- Start by running pre-run in foreground (default), so the test will not start until the pre-run has finished.
- Add some output (e.g. echo statements in a script) – anything written to stdout captured in `prerun.log` on logs tab.
- Once you verify it is running, you can change this to run in background if required.

Timeouts



Timeouts

maxDuration

As a safety measure to prevent tests from running indefinitely, Sauce limits the overall duration of tests.

Default: 1800 seconds (30 mins)

Max: 10800 seconds (3 hours)

commandTimeout

As a safety measure to prevent Selenium crashes from making your tests run indefinitely, Sauce limits how long Selenium can take to run a command in our browsers.

Default: 300 seconds

Max: 600 seconds

idleTimeout

As a safety measure to prevent tests from running too long after something has gone wrong, Sauce limits how long a browser can wait for a test to send a new command.

Default: 90 seconds

Max: 1000 seconds

Common Errors and How to Resolve Them





Troubleshooting Errors

Test scripts in GitHub at <https://git.io/fj3cf>

Builds and test runner logs at <https://bit.ly/2Gr0URx> – Build #12

Login to Sauce dashboard at <https://app.saucelabs.com/dashboard> using:

- Username: **sc19troubleshooting**
- Password: **troubleshoot**

Build SauceCon 19 Troubleshooting, 201904231152

Troubleshooting Errors

- **You've Exceeded your Sauce Labs Concurrency Limit**
 - Attempting to execute more tests in parallel than concurrency limit. We will queue some tests, for 10 minutes
- **Invalid Tunnel**
 - Specifying tunnel identifier for a tunnel that is not running
- **Failed to Download PreRun Executable (or mobile app)**
 - PreRun/mobile app is not correctly uploaded (or not there anymore) in Sauce Storage

Troubleshooting Errors

- **Test Exceeded Maximum Duration**
 - Default is 30 minutes, but you can bump this time up to 10800 seconds
- **Sauce could not start your job**
 - Invalid Selenium/Appium version

Troubleshooting Errors

- **Infrastructure Error – The Sauce VMs Failed to Start the Browser or Device**
 - Mobile app/pre-run is not available using the public URL provided
 - Invalid chromedriver version
- **Misconfigured -- Unsupported OS/browser/version/device combo**
 - Invalid desired capabilities. Review our Platform Configurator for correct settings

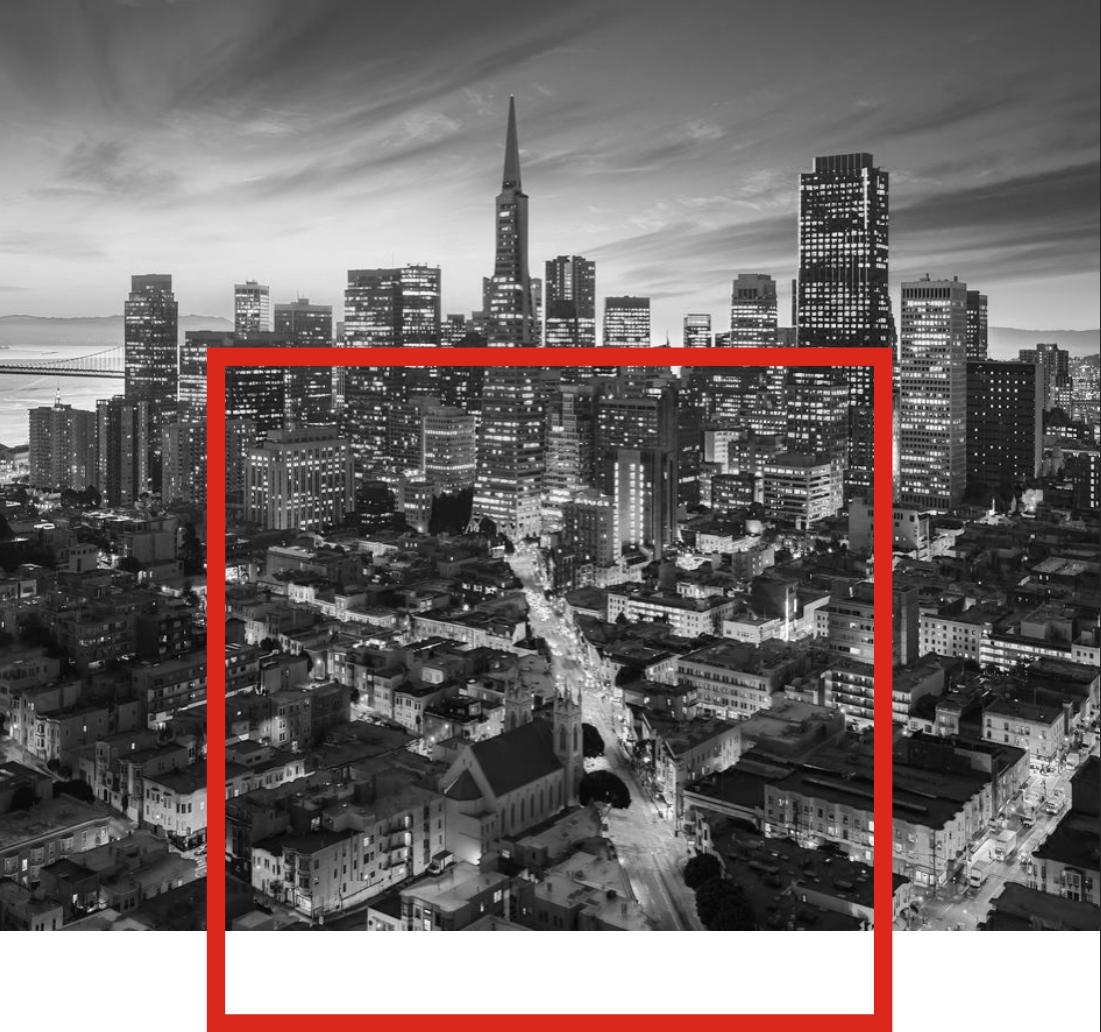
Troubleshooting Errors

- **User Terminated**
 - User cancelled the test mid run - not an actual error
- **Test did not see a new command in 90 seconds. Timing out**
 - Failure to call driver.quit()



Troubleshooting Tools





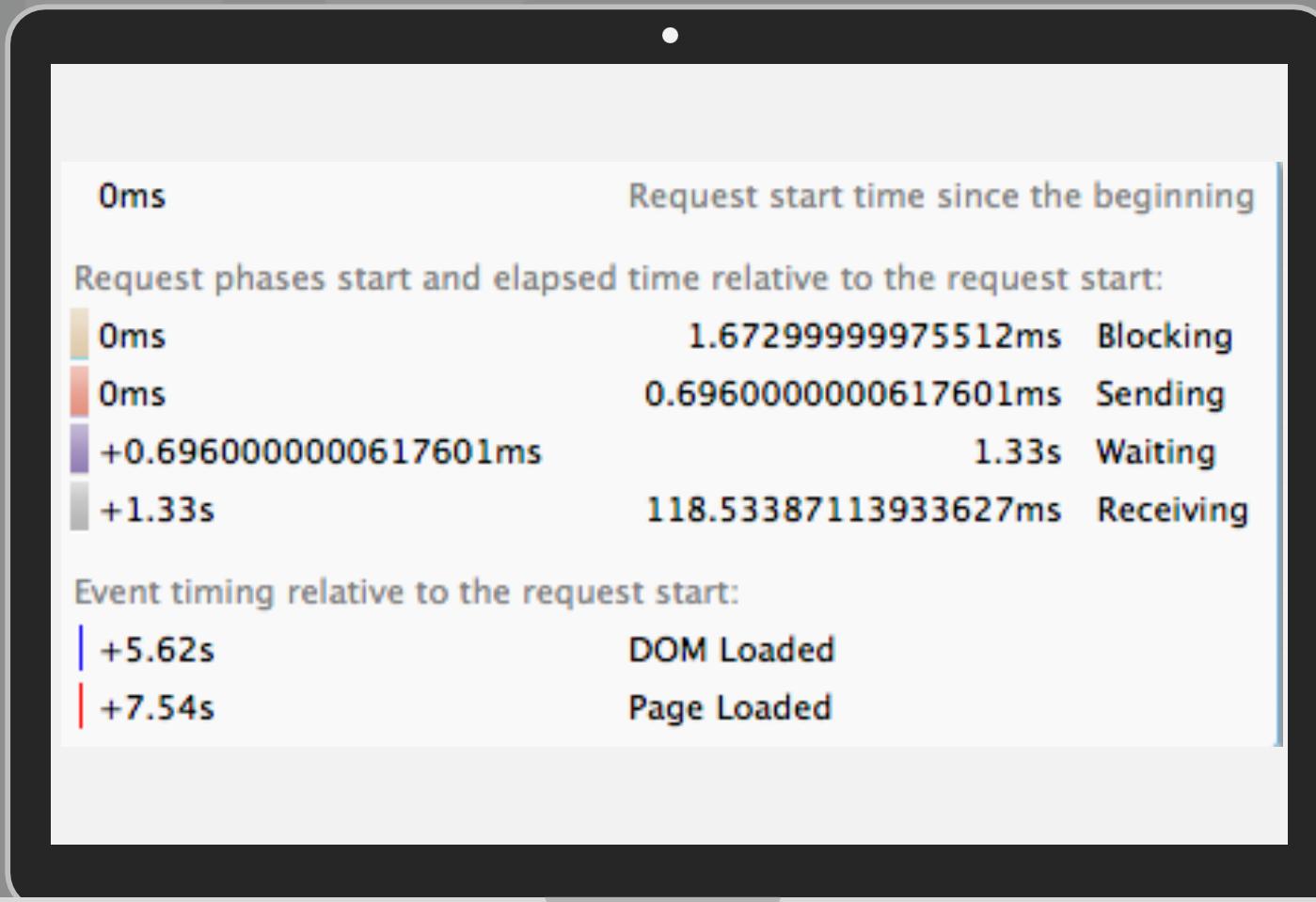
Troubleshooting Tools

- Extended Debugging
- Analytics

Extended Debugging

- Set `extendedDebugging: true` in capabilities
- Capture of network requests made by browser
 - Network tab on test results page shows captured data
 - HAR file can be saved for later analysis
- Capture of browser console logs
 - View in logs tab on test results page or download

Reading HAR Files



Request Conditions



BLOCKING	Description
Blocking	The browser is waiting to complete the request until other requests are processed
Sending	The amount of time it takes the client to send the request to the server
Waiting	The amount of time it takes the server to respond to a request
Receiving	The amount of time used by the server to transfer the requested resources to the client

Event Times



BLOCKING	Description
DOM Loaded	The amount of time for the HTML to be received by the browser and parsed into the DOM tree
Page Loaded	Total time taken for the page to be fully loaded, including AJAX or JavaScript REST calls



```
{  
  "http://webdriver.io/api/action/click.html": [  
    {  
      "level": "error",  
      "column": 0,  
      "text": "Failed to load resource: the server responded with a status of 404 (OK)",  
      "source": "network",  
      "networkRequestId": "1543.182",  
      "url": "https://pbs.twimg.com/profile_images/477099293250052097/fMFjb8gu_400x400.jpeg",  
      "timestamp": 1501197041.22091,  
      "line": 0,  
      "type": "log"  
    }  
  ]  
}
```

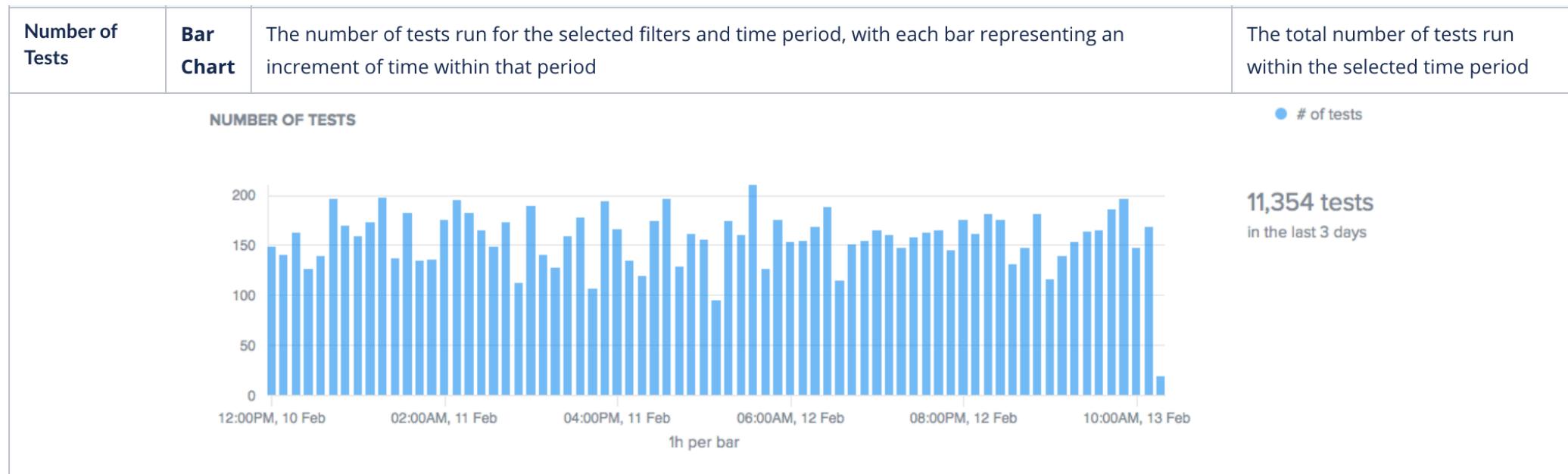
Reading Browser Console Logs

Analytics

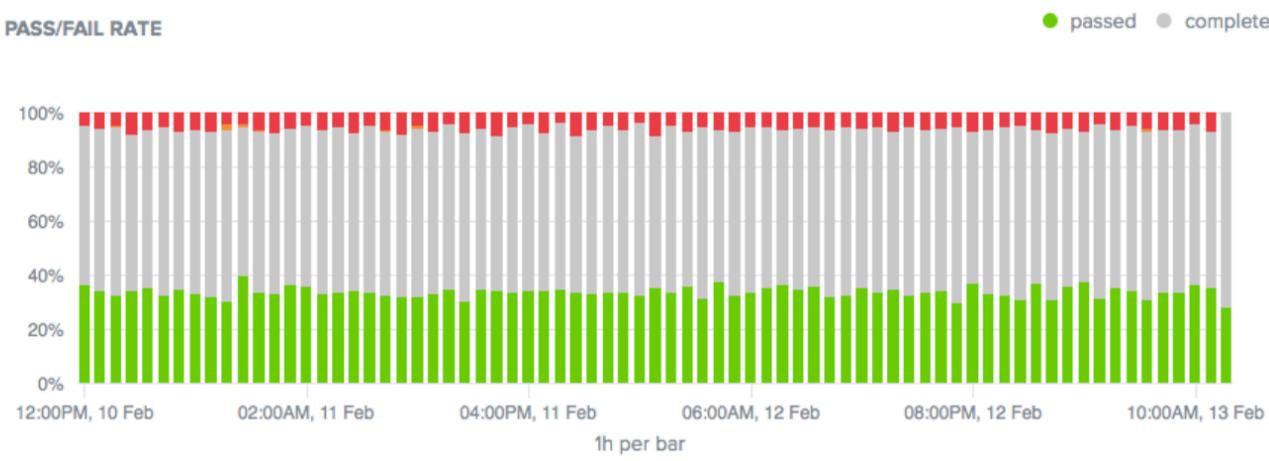
Provides a comprehensive overviews of your overall test performance, and features that let you drill down for detailed information to further optimize your tests and builds.

- Filters to drill down on specific dimensions: time, owner, OS, browser, build, tags
- Trends: visualisations showing number of tests, pass/fail rate, number of errors

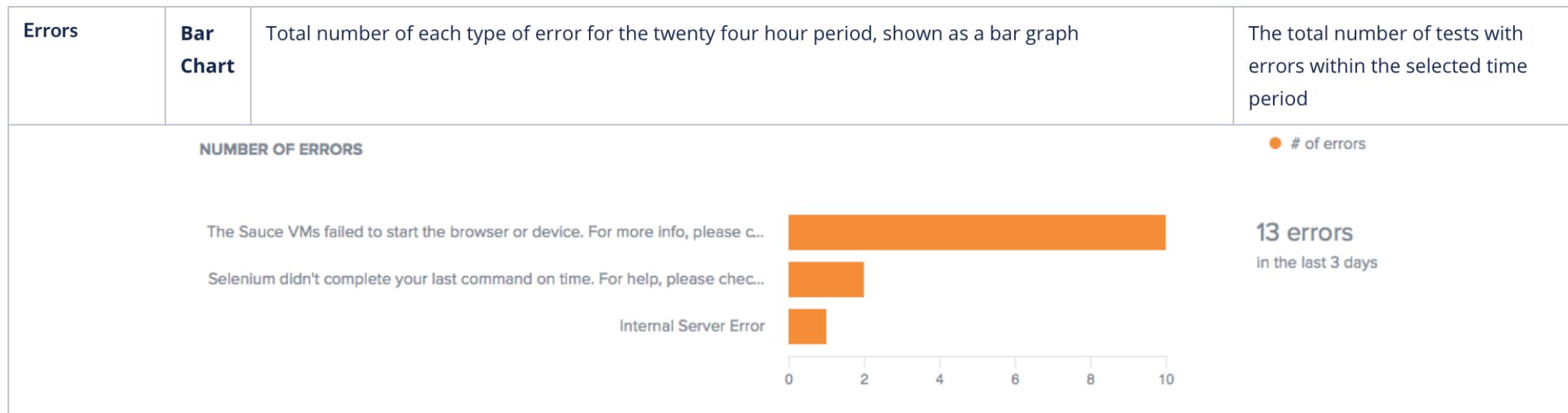
Analytics - Trends



Analytics - Trends

Pass/Fail Rate	Bar Chart	<p>Each bar shows the percentage of tests with each type of test status for that time period. The four status types are:</p> <ul style="list-style-type: none"> Passed - the percentage of tests that have run to completion and been assigned a status of Passed Failed - the percentage of tests that have run to completion and been assigned a status of Failed Completed - the percentage of tests that have run to completion without being assigned a status of Passed or Failed Errored - the percentage of tests that did not run to completion 	The overall percentage of tests that have passed within the selected time period
<p>PASS/FAIL RATE</p>  <p>33% passed in the last 3 days</p>			

Analytics - Trends





Analytics - Trends

BUILD AND TEST STATISTICS

[Builds](#)[Tests Without Build](#) FAILED TESTS ONLY ERRORED TESTS ONLY

NAME	START TIME	DURATION	OWNER	STATUS	ERROR
111744	4/6/2017, 7:13:14 AM	11m 57s	a-team	errored	(n/a for build)
111714	4/6/2017, 4:57:43 AM	7m 41s	a-team	failed	(n/a for build)
TestSetPageLoadTimeout	4/6/2017, 4:57:43 AM	1m 14s	a-team	passed	
TestStatus	4/6/2017, 4:57:43 AM	1m 15s	a-team	failed	
TestAddCookie	4/6/2017, 4:57:43 AM	18s	a-team	passed	
TestFindElement	4/6/2017, 4:57:43 AM	8s	a-team	complete	
TestNavigation	4/6/2017, 4:57:43 AM	13s	a-team	passed	



Why Are My Tests Failing?



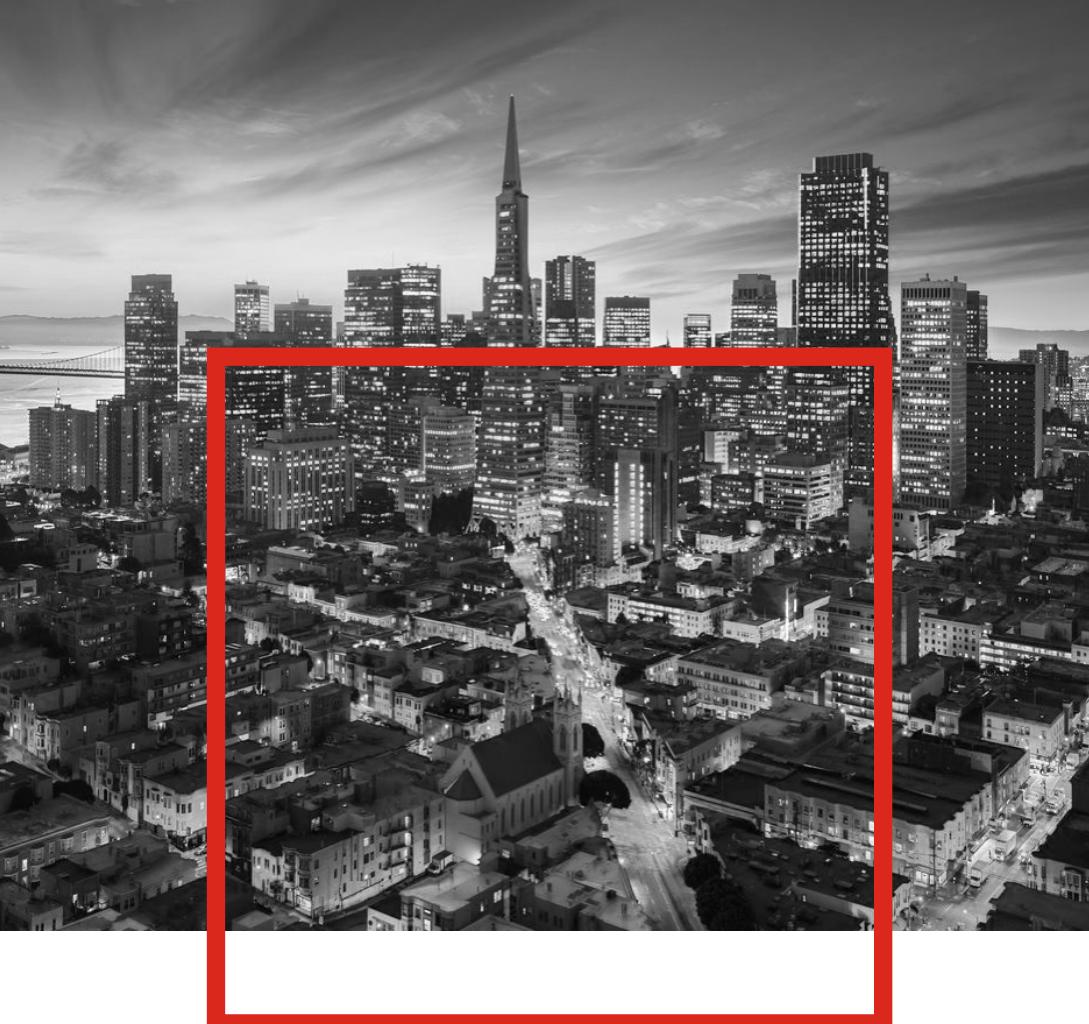
Failing Tests

- Sauce Labs does not decide whether a test passes or fails – your test script/runner decides this.
 - Look at test runner output in conjunction with Sauce Labs test details page.
- Are failures consistent or intermittent?
 - If intermittent, how often.. 1/5, 1/10, 1/20 etc?
 - Is it a flaky test, or a consistent failure?
- Are you using a “latest” browser version? Is there a new browser release?
 - Sometimes a new browser release means a change in a driver, which could change some behaviour, causing a test to fail.



Sauce Connect





Sauce Connect Proxy

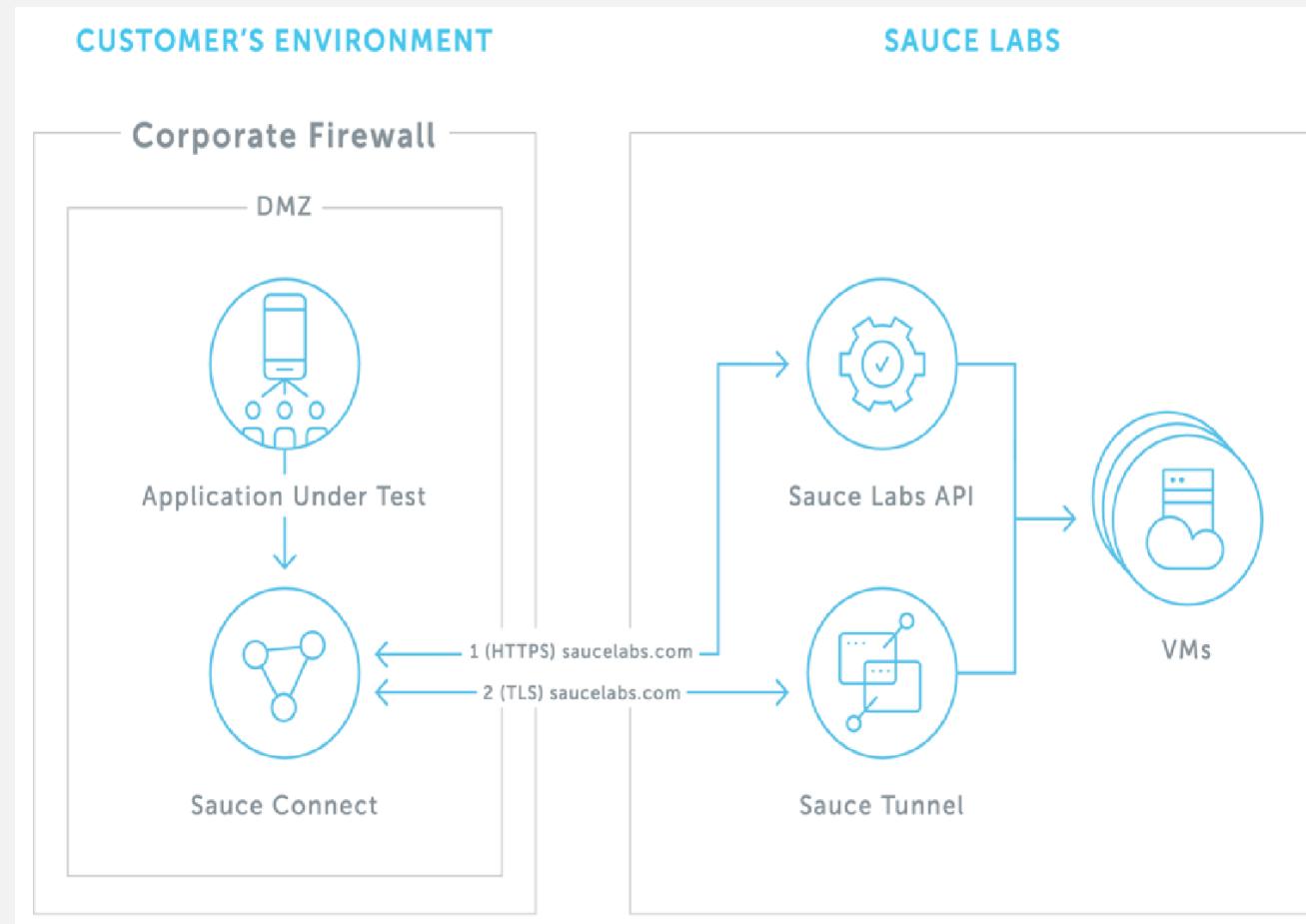
- What is Sauce Connect Proxy?
- Sauce Connect Architecture
- SC and Your Tests
- Troubleshooting Sauce Connect Proxy

What is Sauce Connect Proxy?

Sauce Connect is a proxy server that opens a secure connection between a Sauce Labs virtual machine running your browser tests, and an application or website you want to test that's on your local machine or behind a corporate firewall.

- More secure alternative to whitelisting IP addresses
- Allows localhost testing
- Secure SSL/TLS connection to Sauce Labs
- Caching web proxy to minimize data transfer
- SSL bumping to handle self-signed certificates

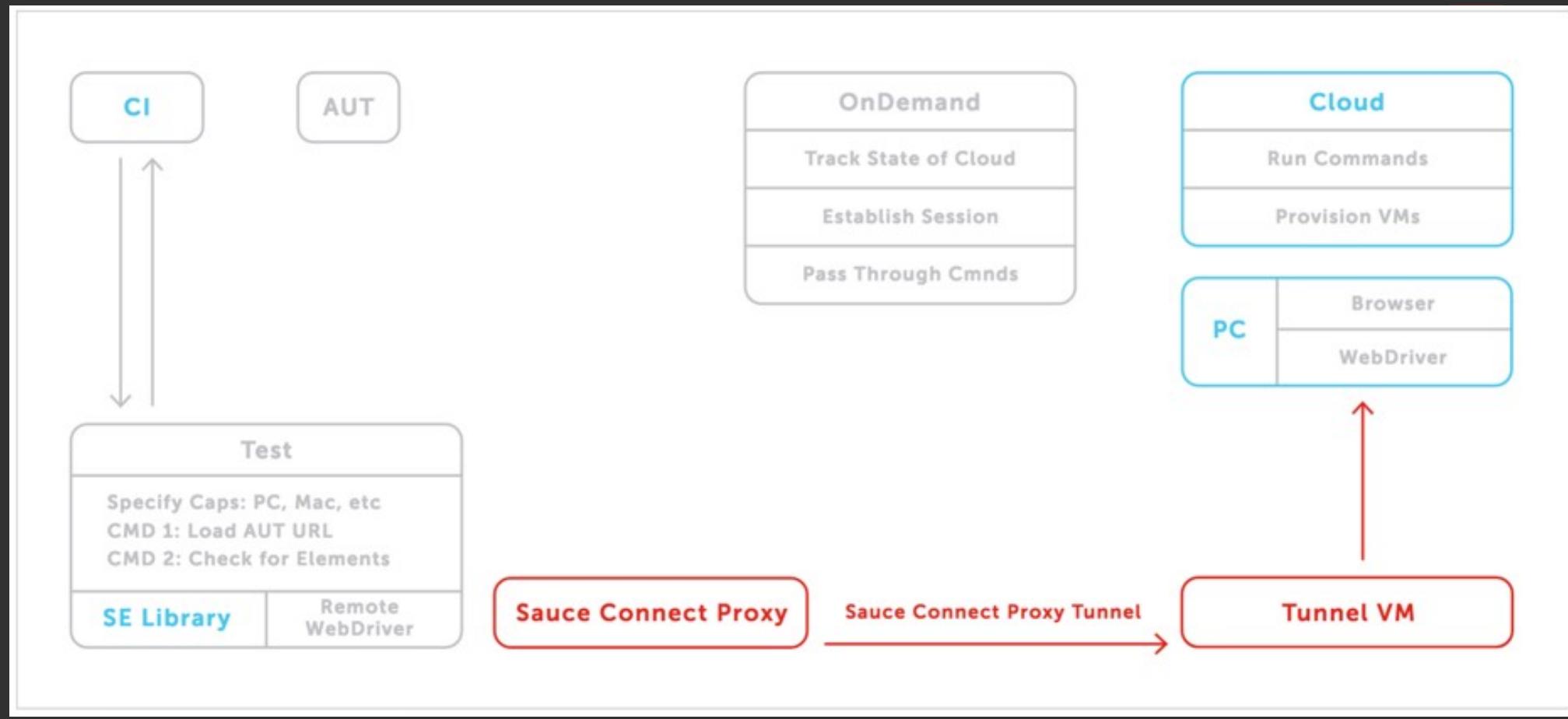
Sauce Connect Tunnel Architecture



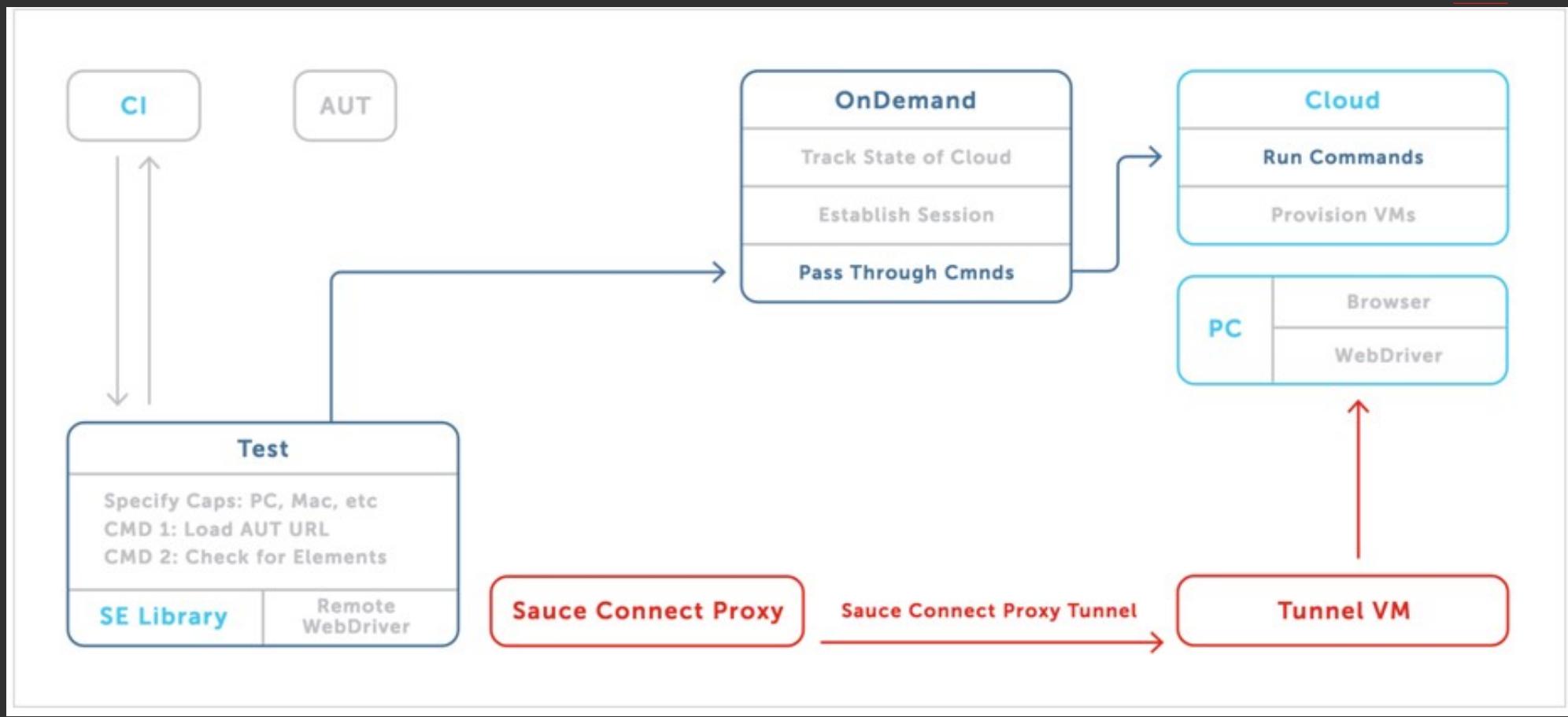
Sauce Connect Proxy And Your Tests (Step 1)



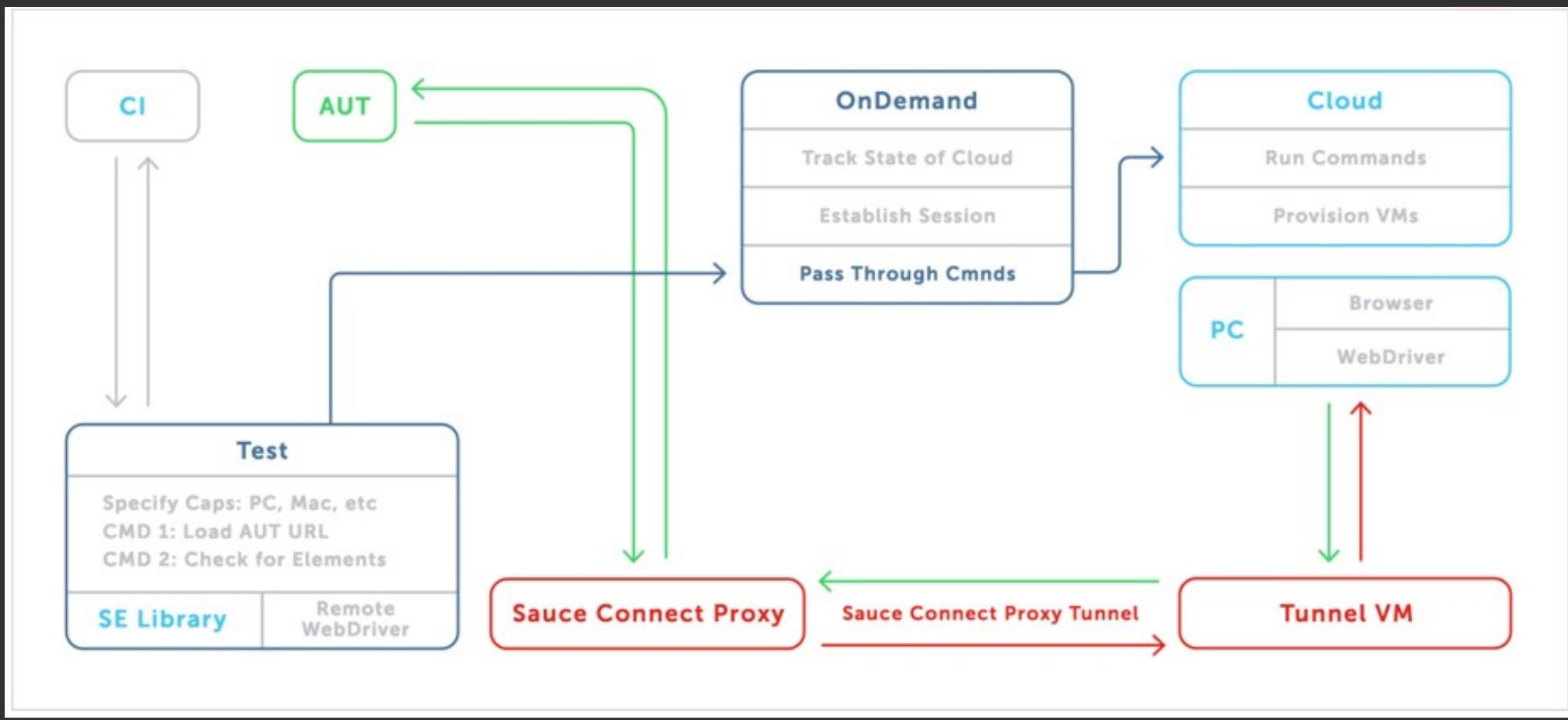
Sauce Connect Proxy And Your Tests (Step 2)

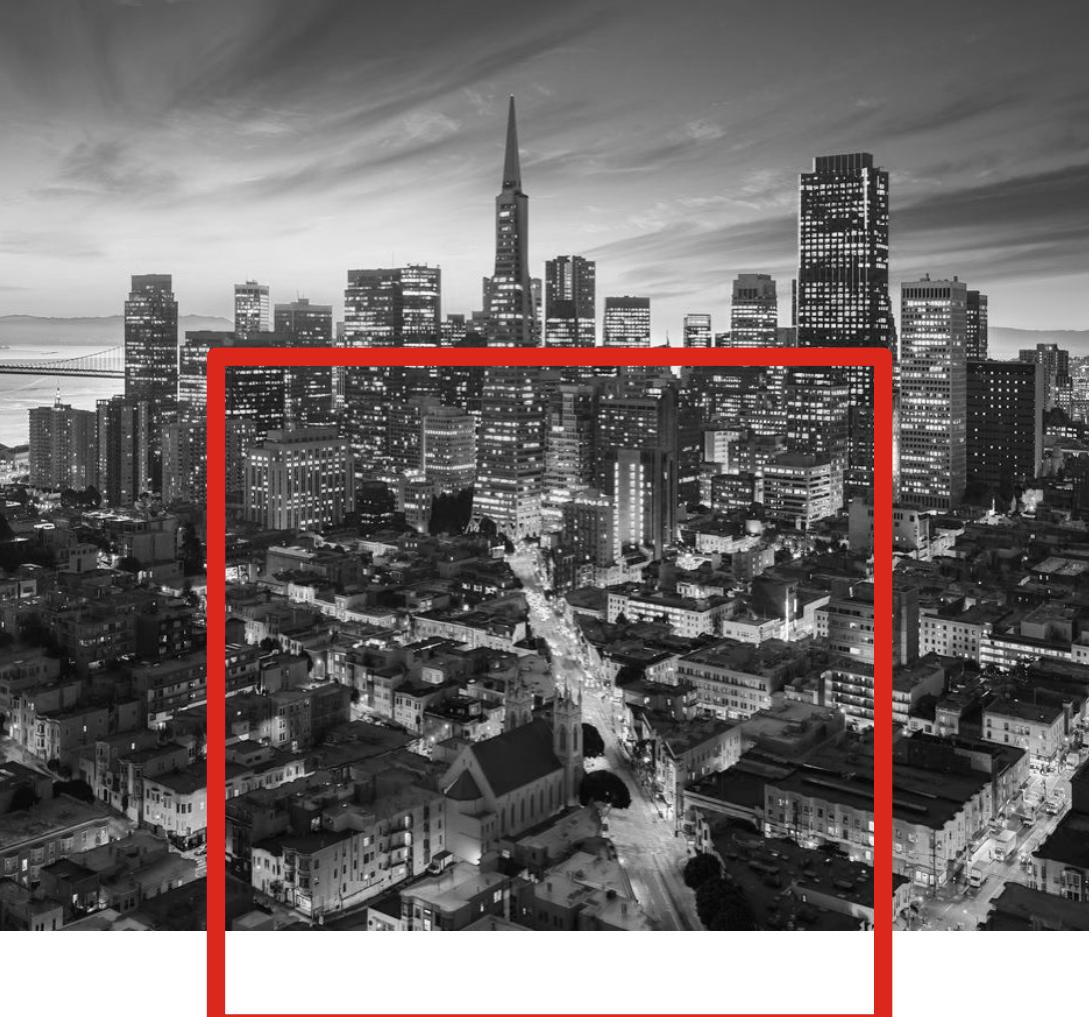


Sauce Connect Proxy And Your Tests (Step 3)



Sauce Connect Proxy And Your Tests (Step 4)





Troubleshooting Sauce Connect Proxy

- SCP needs to talk to Sauce REST API and tunnel VMs
- Whitelist the Sauce Labs IP ranges
- Use --doctor to run network diagnostics
- Use –verbose and –logfile to generate a logfile
- Disable SSL bumping with the argument
-B / --no-ssl-bump-domains



W3C Webdriver Protocol



W3C Webdriver Protocol

- In June 2018, W3C moved the WebDriver spec to a recommendation, which means it has officially received the endorsement of W3C. The new protocol includes updates to some of the commands and introduces new commands to support capabilities in today's modern browsers.
- Browser vendors have been steadily adopting the W3C protocol in recent browser and driver releases.
- Selenium 4 will be completely W3C standardized, but W3C support has been part of Selenium since 3.11.0.
- Sauce Labs support the W3C protocol, but some changes to capabilities are required – see wiki.



Thank you!

