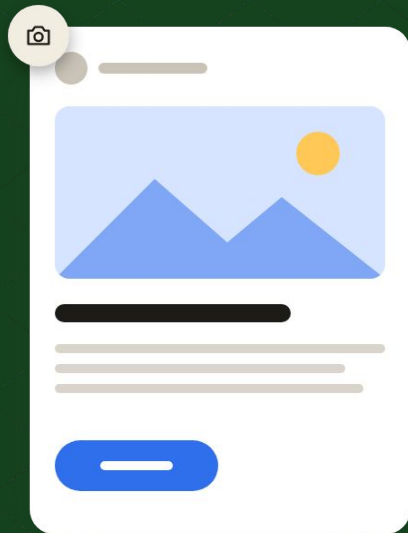
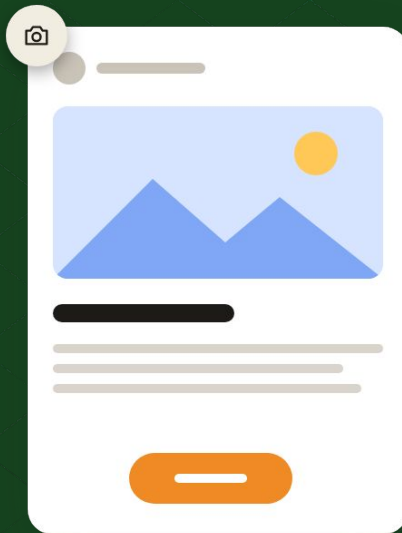
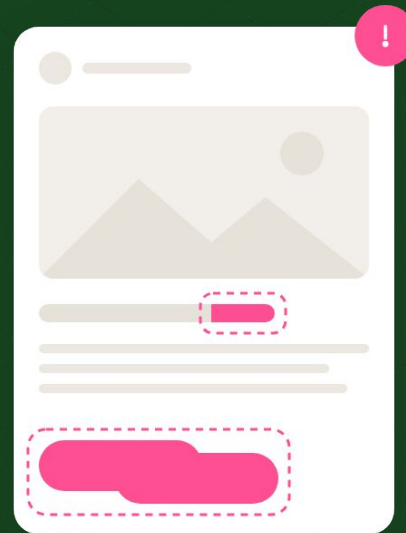




Before



After



Difference

```
bazel test //...
```

PASS

```
run_visual_regression.sh
```

PASS

upload

... wait for user action ...

approved

External System

generate images

compare against goldens

approve



Approach 1

```
1  js_library(  
2    name = "home_page",  
3    srcs = ["home_page.tsx"],  
4  )  
5  
6  visreg_test(  
7    name = "visreg_test",  
8    srcs = [":home_page"],  
9    golden = "home_page_expected.png",  
10 )
```



home_page.tsx



home_page_expected.png



//web/src/home:visreg_test

generate images

generated.png == expected.png?



PASS

Approach 2

```
1 # MODULE.bazel
2 http_file(
3   name = "visreg_web_src_home_home_page_chrome_500x200_ltr_dark",
4   urls = ["https://goldens.example.com/cas/9f2c4e1a..."],
5   sha256 = "9f2c4e1a7b3d...",
6 )
7 http_file(
8   name = "visreg_web_src_home_home_page_chrome_500x200_rtl_light",
9   urls = ["https://goldens.example.com/cas/41be07d9..."],
10  sha256 = "41be07d93a6f...",
11 )
12 # ... x 20,000
13
14 # BUILD.bazel
15 visreg_test(
16   name = "visreg_test",
17   srcs = [":home_page"],
18   golden = "@visreg_web_src_home_home_page_chrome_500x200_ltr_dark//file",
19 )
```



home_page.tsx



home_page_expected.png



//web/src/home:visreg_test

generate images

generated.png == expected.png?



PASS

Approach 3

```
1 js_library(  
2   name = "home_page",  
3   srcs = ["home_page.tsx"],  
4 )  
5  
6 visreg_test(  
7   name = "visreg_test",  
8   srcs = [":home_page"],  
9   golden = "home_page_expected.json",  
10 )
```

```
1 # home_page_expected.json  
2 [{  
3   "name": "Home Page",  
4   "permutation": { "browser": "chrome", "size": "1920x1080" },  
5   "hash": "0517f416648c5038"  
6 }, {  
7   "name": "Home Page",  
8   "permutation": { "browser": "safari", "size": "1920x1080" },  
9   "hash": "21e0b5cddd9a44b1"  
10 }]
```



home_page.tsx



home_page_expected.json



//web/src/home:visreg_test

generate images

hash == expected hash?



PASS

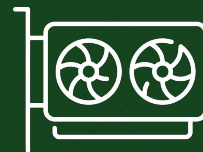
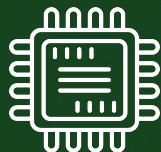
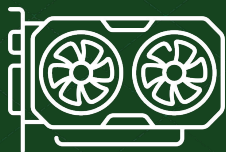
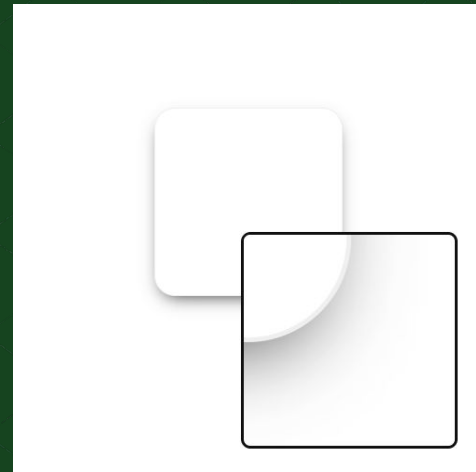
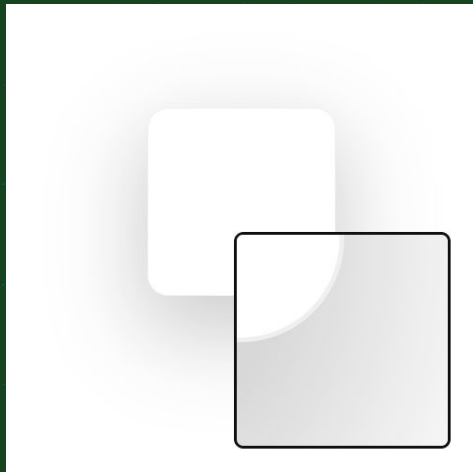
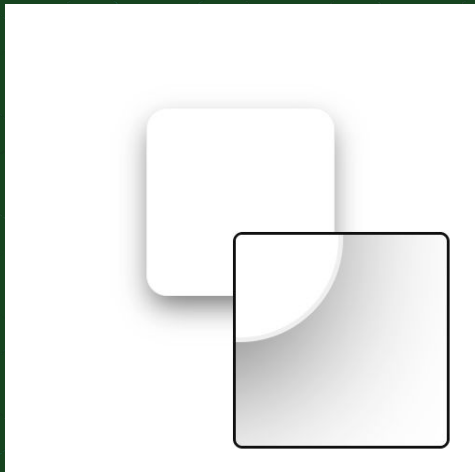
"0517f416648c5038"

≠

"21e0b5cddd9a4b1e"

≠

"c11bc8f92e4e40d7"





```
1 visreg_test(  
2     name = "visreg_test",  
3     srcs = [":home_page"],  
4     golden = "home_page_expected.json",  
5     exec_properties = {  
6         "Pool": "visreg-n2-standard-8",  
7     },  
8 )
```

source code

software dependencies

browser versions

hardware





```
1 $ bazel test //web/src/home:visreg_test --test_output=errors
2
3 FAIL: //web/src/home:visreg_test
4 ===== Test output for //web/src/home:visreg_test:
5 PASS Home Page chrome 1920x1080 0517f416648c5038
6 FAIL Home Page safari 1920x1080
7     expected: 21e0b5cddd9a44b1
8     actual:   7c4e9a02b1f3d865
9 =====
10 //web/src/home:visreg_test FAILED in 14.2s
11
12 Executed 1 out of 1 test: 1 fails remotely.
```

```
//web/src/home:visreg_test
```

...

```
write img to $TEST_UNDECLARED_OUTPUTS_DIR
```

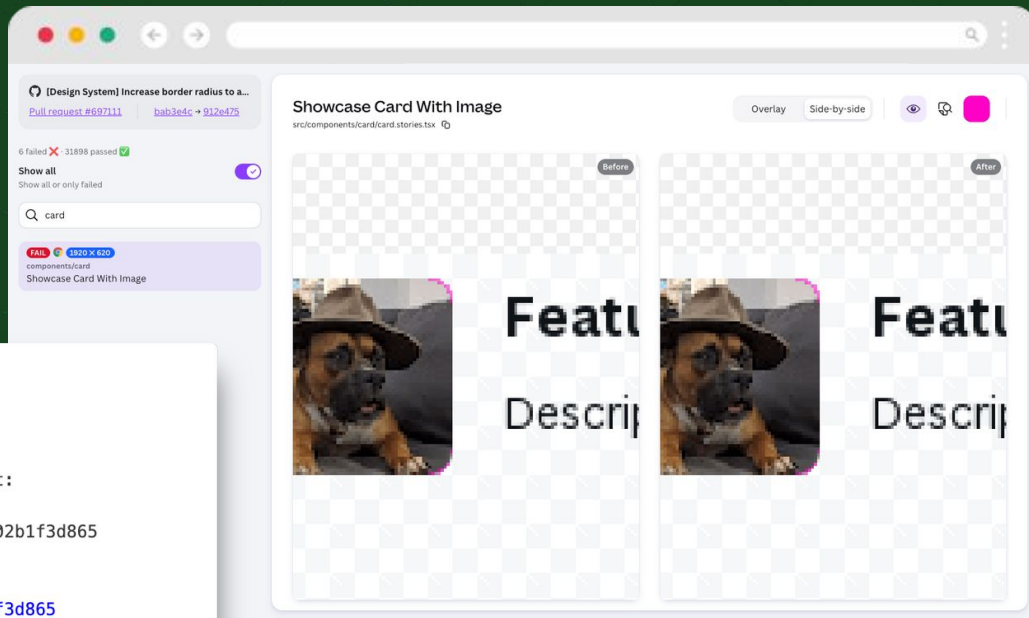


```
bazel-testlogs/web/src/home/visreg_test/test.outputs/outputs.zip
```



```
1 # BES `TestResult` event
2
3 id {
4   test_result { label: "//web/src/home:visreg_test" }
5 }
6 test_result {
7   status: FAILED
8   test_action_output {
9     name: "test.outputs__outputs.zip"
10    uri: "bytestream://rbe.example.com/blobs/b7e2...9f04/4194304"
11  }
12 }
```

--bes_backend=grpc://rbe.example.com



```
1 $ bazel test //web/src/home:visreg_test --test_output=errors
2 FAIL: //web/src/home:visreg_test
3 ===== Test output for //web/src/home:visreg_test:
4 PASS Home Page chrome 1920x1080 0517f416648c5038
5 FAIL Home Page safari 1920x1080 21e0b5cddd9a44b1 != 7c4e9a02b1f3d865
6
7 Review the diff:
8 https://visreg.example.com/diff/21e0b5cddd9a44b1..7c4e9a02b1f3d865
9
10 =====
11 //web/src/home:visreg_test FAILED in 14.2s
12
13 Executed 1 out of 1 test: 1 fails remotely.
```

test case p50

1.2s

largest visreg test suite

25m → 4m

test case p99

4.4s

scale

12 million / day