

# OSFCI: 2022 updates

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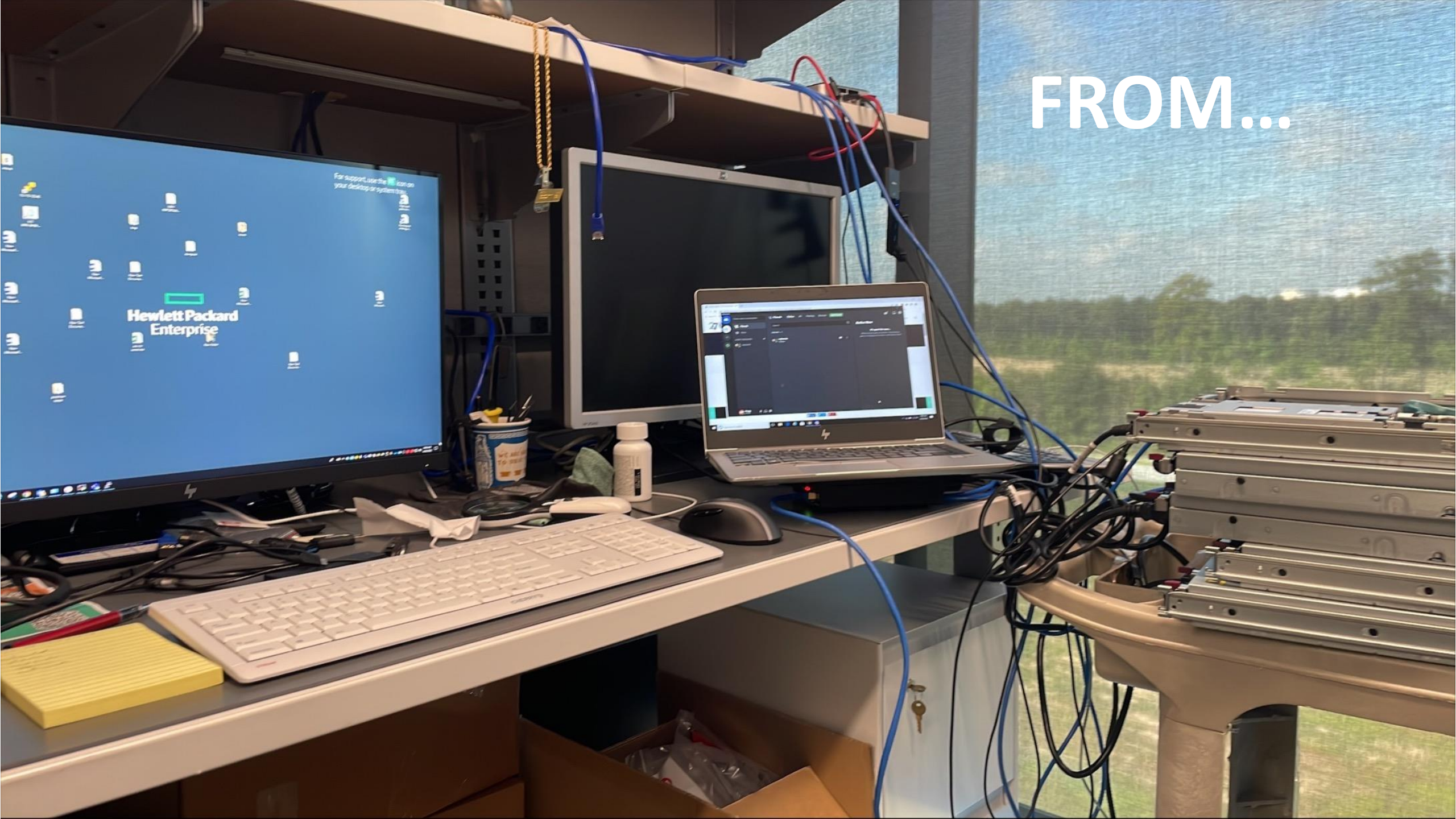
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FROM...







# ...TO

- The pandemic hit hard
  - Firmware development had to become fully remote
- Dual security model
  - Open-source with customer control
  - Proprietary with supplier liability
- Enable adoption of open framework at scale

# GOALS

- Automate remote build, testing and release management of BMC and ROM firmware
- Validate on target that Open-Source Firmware works as expected (OpenBMC and LinuxBoot)
- Have specially provisioned instances for customers, public and OCP
- Make it fully open source and encourage community adoption





# Open Source Firmware at scale

Welcome to the development platform dedicated to  
implementation and testing of Open Source FW on HPE  
Proliant/Apollo platforms



# DEMO – BUILD OPENBMC

0d 0h 55m 18s End Session arunkoshy ▾

load standard OpenBMC Or  build Load my Firmware DL

Or

Just drag and drop your bmc firmware here

load standard bios Or  build Load my Firmware DL

Or

Just drag and drop your system bios here

**NOTE:** Tasks Summary: Attempted 4592 tasks of which 4147 didn't need to be rerun and all succeeded.

Summary: There were 6 WARNING messages shown.

0

Image successfully generated ...

DONE !

Read 27262976 bytes of 67108864

Read 29360128 bytes of 67108864

Read 31457280 bytes of 67108864

Read 33554432 bytes of 67108864

Read 35651584 bytes of 67108864

Read 37748736 bytes of 67108864

Read 39845888 bytes of 67108864

Read 41943040 bytes of 67108864

Read 44040192 bytes of 67108864

Read 46137344 bytes of 67108864

Read 48234496 bytes of 67108864

Read 50331648 bytes of 67108864

Read 52428800 bytes of 67108864

# DEMO – BUILD LINUXBOOT

0d 0h 58m 34s End Session arunkoshy ▾

load standard bios Or <https://github.com/arunkoshy/me> build Load my Firmware DL

Or

Just drag and drop your system bios here

Operating System Installer ▾

106000K	.....	99%	4.35M	0s
106050K	.....	99%	152M	0s
106100K	.....	99%	98.2M	0s
106150K	.....	99%	108M	0s
106200K	.....	99%	105M	0s
106250K	.....	99%	57.4M	0s
106300K	.....	99%	7.19M	0s
106350K	.....	99%	19.7M	0s
106400K	.....	99%	22.2M	0s
106450K	.....	99%	26.9M	0s
106500K	.....	99%	12.4M	0s
106550K	.....	99%	7.63M	0s
106600K	.....	99%	37.6M	0s
106650K	.....	99%	6.02M	0s
106700K	.....	99%	4.22M	0s
106750K	.....	99%	99.2M	0s
106800K	.....	99%	109M	0s
106850K	.....	100%	108M=13s	

2021-11-10 14:57:17 (7.81 MB/s) - 'kernel.xz' saved [109441440/109441440]

xzcat kernel.xz | tar x  
mv linux-5.4 linux  
go get -u github.com/u-root/u-root

# DEMO – LOAD

0d 0h 51m 23s End Session arunkoshy ▾

load standard OpenBMC Or build Load my Firmware DL

Or

Just drag and drop your bmc firmware here

load standard bios Or build Load my Firmware DL

Or

```
Sent 29360128 bytes of 33554432
Sent 31457280 bytes of 33554432
Sent 33554432 bytes of 33554432
Transfer Succeeded
Read 2097152 bytes of 33554432
Read 4194304 bytes of 33554432
Read 6291456 bytes of 33554432
Read 8388608 bytes of 33554432
Read 10485760 bytes of 33554432
Read 12582912 bytes of 33554432
Read 14680064 bytes of 33554432
Read 16777216 bytes of 33554432
Read 18874368 bytes of 33554432
Read 20971520 bytes of 33554432
Read 23068672 bytes of 33554432
Read 25165824 bytes of 33554432
Read 27262976 bytes of 33554432
Read 29360128 bytes of 33554432
Read 31457280 bytes of 33554432
Read 33554432 bytes of 33554432
Verify: PASS
Started EM100Pro
Starting terminal. Press CTL-C to exit.
```

```
Read 27262976 bytes of 67108864
Read 29360128 bytes of 67108864
Read 31457280 bytes of 67108864
Read 33554432 bytes of 67108864
Read 35651584 bytes of 67108864
Read 37748736 bytes of 67108864
Read 39845888 bytes of 67108864
Read 41943040 bytes of 67108864
Read 44040192 bytes of 67108864
Read 46137344 bytes of 67108864
Read 48234496 bytes of 67108864
Read 50331648 bytes of 67108864
Read 52428800 bytes of 67108864
```



# DEMO – POWER ON

0d 0h 55m 32s [End Session](#) arunkoshy ▾

Just drag and drop your system bios here

Operating System Installer ▾

BMC Web

Contest Web

connect power

disconnect power

```
Read 50331648 bytes of 67108864
Read 52428800 bytes of 67108864
Read 54525952 bytes of 67108864
Read 56623104 bytes of 67108864
Read 58720256 bytes of 67108864
Read 60817408 bytes of 67108864
Read 62914560 bytes of 67108864
Read 65011712 bytes of 67108864
Read 67108864 bytes of 67108864
Verify: PASS
Started EM100Pro
Starting terminal. Press CTL-C to exit.

root@d1360poc-9440c941b11a:~#
```

# DEMO – CONTEST INTEGRATION

Load standard tests

Or

Specify a github repo and

Load custom tests

Please select testcases:

☒ Hostname validation

☐ SSH connection validation

Run

Download results

```
        "{{{ .FQDN }}}"  
      ],  
      "password": [  
        "openBmc"  
      ],  
      "user": [  
        "root"  
      ]  
    }  
  },  
  "TestName": "Literal test"  
},  
"TestFetcherName": "literal"  
}  
]  
}]  
requestor: [contestcli-http]  
  
2022/04/13 21:10:40 HTTP POST failed: Post "http://10.3.0.148:8080/start": dial tcp 10.3.0.148:8080: connect: connection refused  
2022/04/13 21:10:40  
2022/04/13 21:10:40 Error: Unable to execute the testcase  
2022/04/13 21:10:40 Done
```



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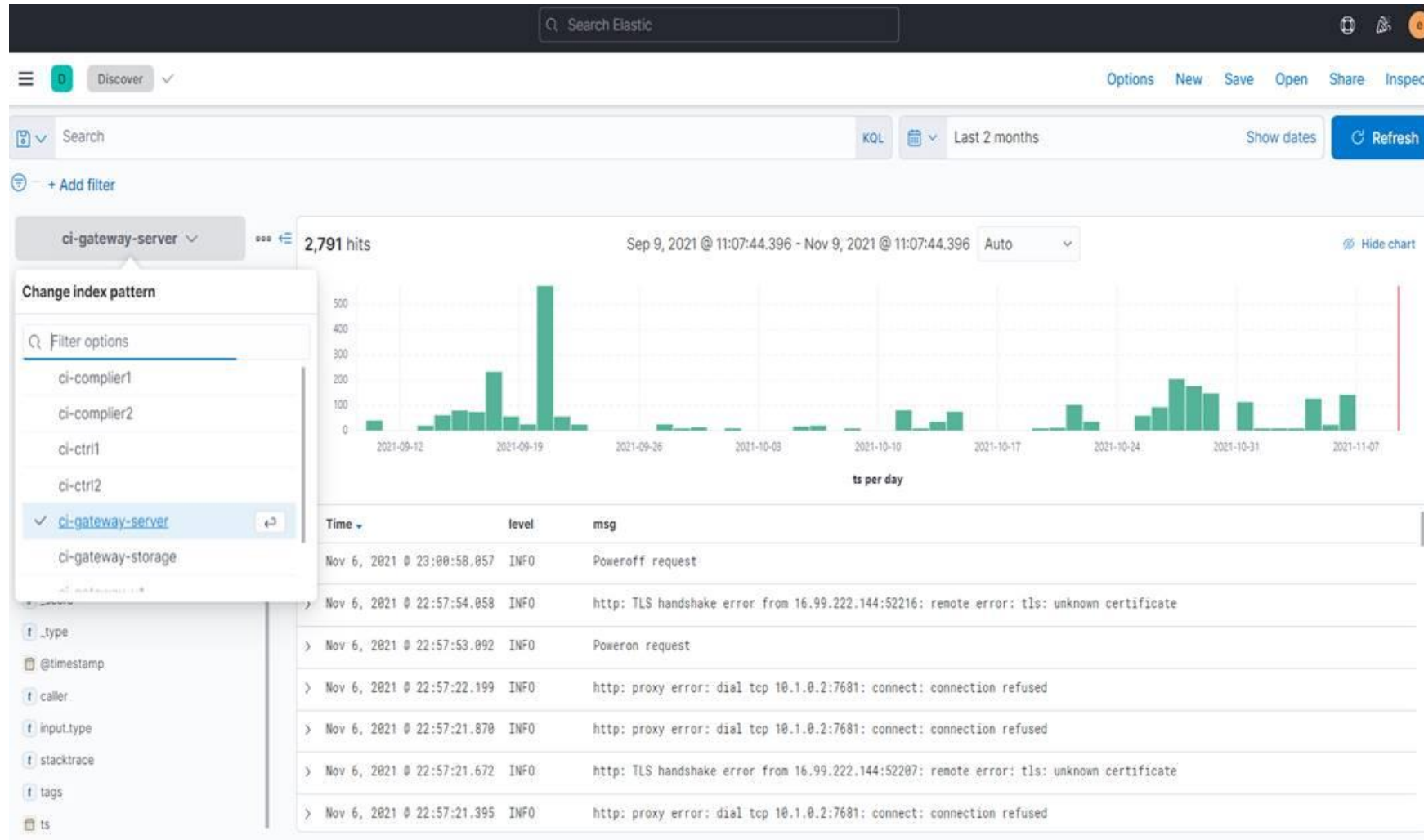
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# WHY IS THIS CRITICAL?

- Leverage community of hyper-scalers via OCP's emerging test frameworks and standards
- Easier developer workflow around build, debug and observability on real hardware
- Manual firmware development and validation has been disrupted by hybrid / remote-work model
- Production hardware safety and continuity

# ADMIN ANALYTICS - ELK





# ARCHITECTURE

- Modular architecture and configurable
- Written in Go
- API endpoints supporting:
  - Automation including external frameworks like Contest
  - Non-interactive mode
  - Build and load firmware, log retrieval, power operations
  - Examples: <https://github.com/opencomputeproject/OSF-OSFCI/tree/master/api>
- Enhanced analytics and logging
- Fully open-source under MIT license



# OUTCOMES

- In use externally and internally
  - For both proprietary and open-source development
- Seed community efforts around a common set of tests
- Combine innovations from community members
- Accepted by OCP



# THANK YOU

Questions?

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