Stories and learnings from macOS Continuous Integration at Scale

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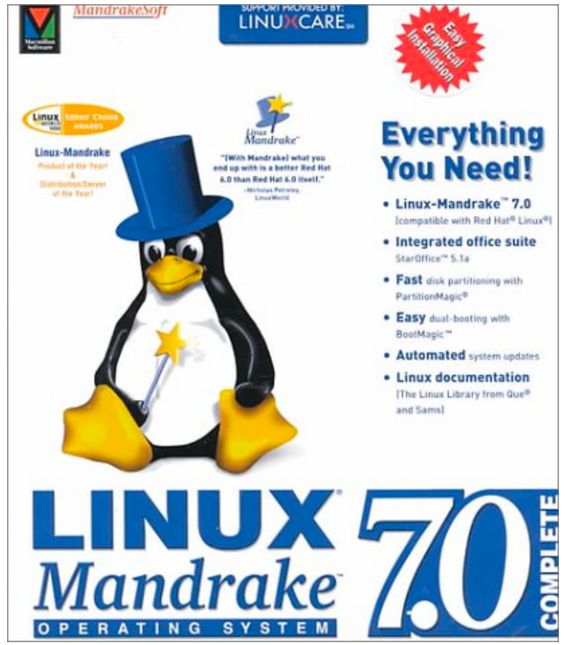

Building and Installing Software Packages for Linux

Mendel Cooper --- http://personal.riverusers.com/~thegrendel/

v1.91, 27 July 1999

This is a comprehensive guide to building and installing "generic" UNIX software distributions under Linux. Additionally, there is some coverage of "rpm" and "deb" pre-packaged binaries.


```
$ ./configure

$ make

$ make install
```

https://tldp.org/HOWTO/Software-Building-HOWTO.html

https://tldp.org/HOWTO/Module-HOWTO/


My Computer
Online Services
My Documents
Network Neighborhood
Recycle Bin
Set Up The Microsoft ...
Connect to the Internet
vmware
VMware Tools
Copyright © 1998-
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countries as well as
or more patents list
VMware Product Installation
Preparing 'VMware Tools' for installation...
Cancel

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You can even run Windows software.

Which means, of course, that the Mac may very well be the only computer you'll ever need. In fact, the Mac's flexibility — its ability to run both Mac and Windows® — has both customers and columnists very excited.

As Computerworld's Scot Finnie points out, now you can forget about about having "to choose either the Mac for its superior design or Windows for its wealth of available software." That's because "you can have both operating systems on the same computer — the best of both worlds." Mac OS X and Windows XP side by side. One great computer. Two operating systems. Many, many programs to run.

Talk about a win-win situation. Now you can take advantage of all the benefits of owning a Mac but still enjoy the convenience of starting up your Mac in Windows XP and running a Windows-only game or productivity application when needed. Third-party software solutions such as Parallels Desktop for Mac help make it possible.

That's a prospect that has the Wall Street Journal's Walt Mossberg very excited. "You can run any combination of Mac and Windows programs at the same time, on the same screen." For example, you could "simultaneously download your corporate email in Outlook using Windows while editing a home video in iMovie

Why you'll love a Mac.

1. It just works.
2. You can make amazing stuff.
3. Design that turns heads.
4. 114,000 viruses? Not on a Mac.
5. Next year's OS today.
6. The latest Intel chips.
7. Instant video chats.
8. More fun with photos.
9. One-click websites.
10. Amazing podcasts.
11. Rock star tunemaking.
12. Hollywood-style movies.
13. No hunting for drivers.
14. Awesome out of the box.

All those reasons you never bought a Mac? Not true anymore.

1. Know iTunes? You know Mac.
2. You can take it with you.
3. Macs run Microsoft Office.
4. Macs aren't slow.
5. You don't have to buy new stuff.
6. **You can even run Windows software.***

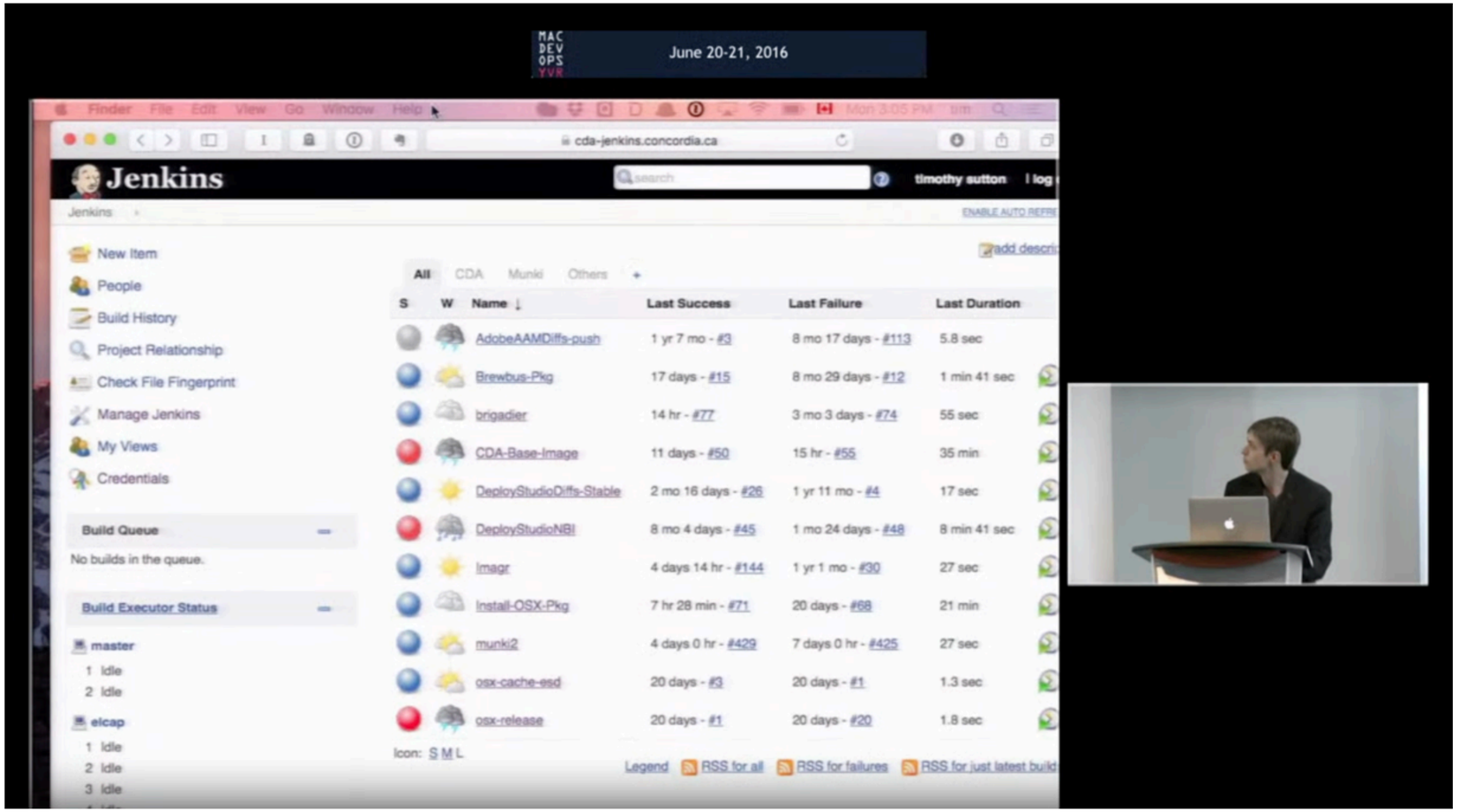
FINK

vmware ESXi

MacPorts

Xen™

QEMU



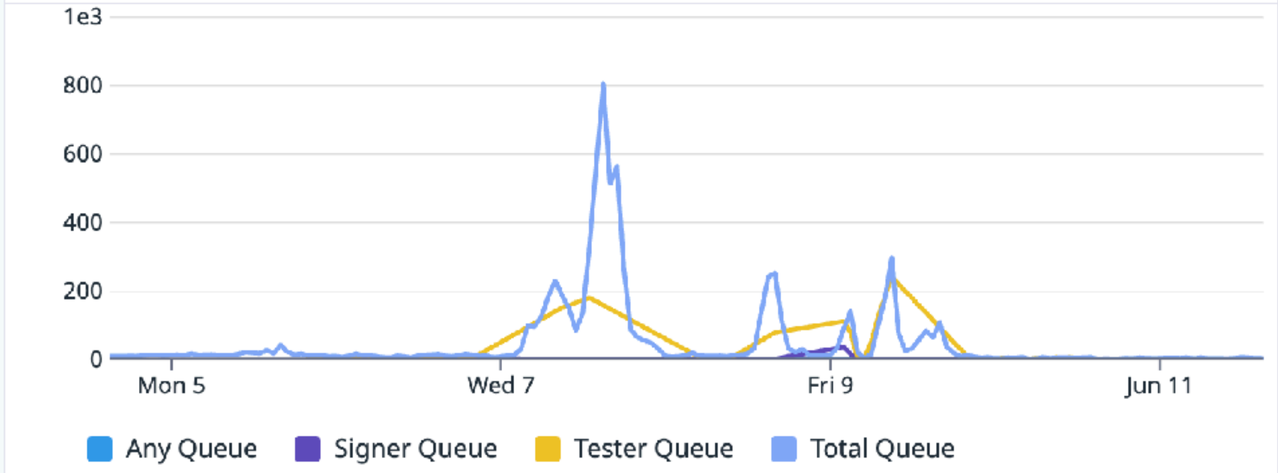
All | autopkg-dsl | autopkg-recipes-all | **autopkg-recipes-munki** | autopkg-recipes-pkg | mu

S	W	Name ↓	Build description
		autopkg-Adium.munki	1.5.7
		autopkg-AdobeAcrobatPro9Update.munki	9.5.5
		autopkg-AdobeAcrobatProXUpdate.munki	10.1.7
		autopkg-AdobeAir.munki	3.8.0.1430
		autopkg-AdobeFlashPlayer.munki	11.8.800.168
		autopkg-AdobeFlashPlayerExtractPackage.munki	11.8.800.94
		autopkg-AdobeFlashPlayerRepackage.munki	11.8.800.168
		autopkg-AdobeReader.munki	11.0.04
		autopkg-BBEdit.munki	10.5.5
		autopkg-Coda2.munki	2.0.11
		autopkg-Cyberduck.munki	4.3.1
		autopkg-Dropbox.munki	2.0.26
		autopkg-Evernote.munki	5.2.1
		autopkg-Facter.munki	1.7.3
		autopkg-Firefox.munki	23.0.1
		autopkg-Flip4Mac-2.munki	2.4.4.2
		autopkg-Flip4Mac-3.munki	3.2.0.16
		autopkg-GoogleChrome.munki	29.0.1547.65
		autopkg-GoogleEarth.munki	7.1
		autopkg-Handbrake.munki	0.9.9
		autopkg-Hiera.munki	1.2.1
		autopkg-MakeCatalogs.munki	N/A
		autopkg-MSOffice2011Updates.munki	14.3.6
		autopkg-munkitools.munki	0.9.0.1797.0
		autopkg-OmniFocus.munki	1.10.4
		autopkg-OmniGraffle.munki	5.4.4
		autopkg-OmniGrafflePro.munki	5.4.4
		autopkg-OmniGraphSketcher.munki	1.2.4
		autopkg-OmniOutliner.munki	3.10.6
		autopkg-OmniOutlinerPro.munki	3.10.6
		autopkg-OmniPlan.munki	2.3
		autopkg-OracleJava7.munki	1.7.25.15
		autopkg-Praat.munki	5.3.55
		autopkg-Puppet.munki	3.2.4
		autopkg-SassafrasK2Client.munki	7.1.03
		autopkg-Silverlight.munki	5.1.20513.0
		autopkg-Skype.munki	6.8.59.351

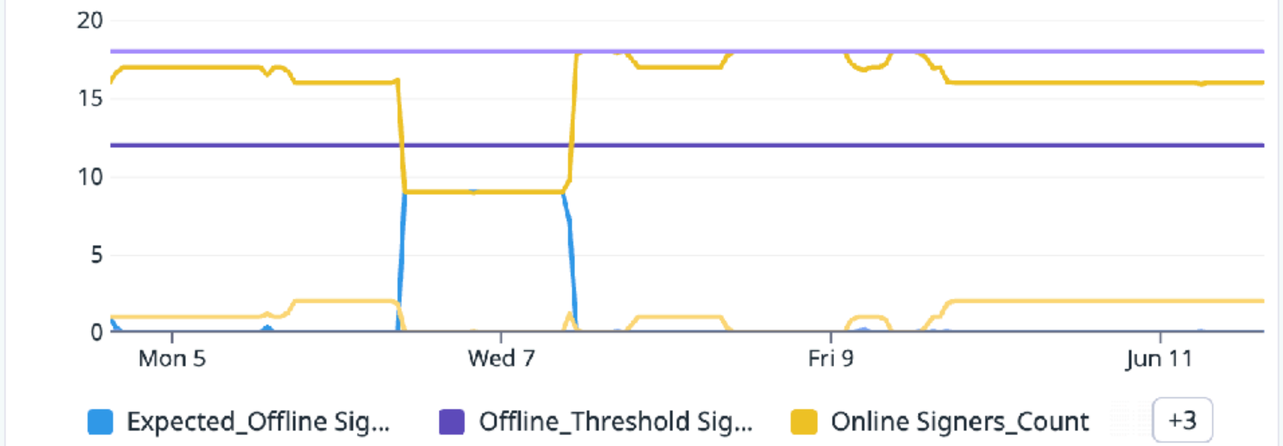

8.3
8.8
9.9

But why?!

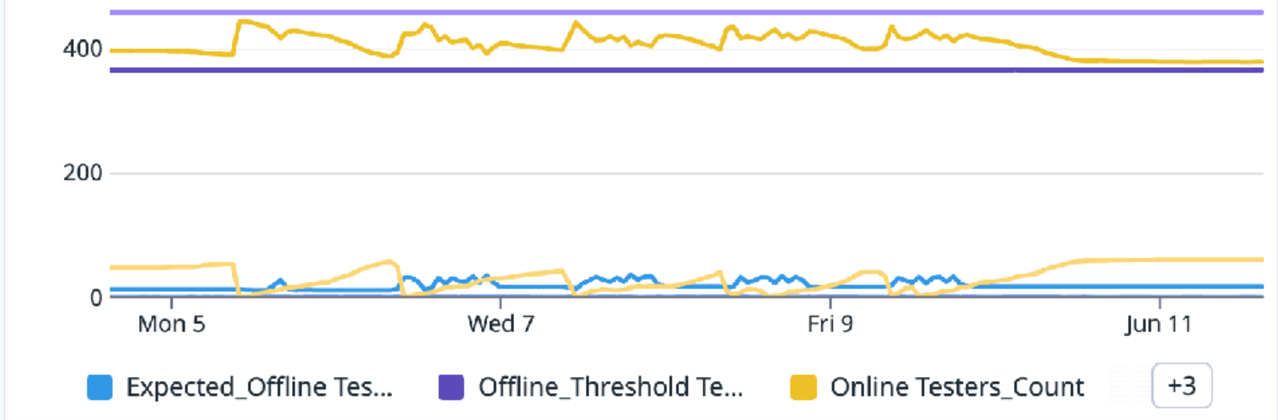
Queue - Env: production, DC: sjc2b



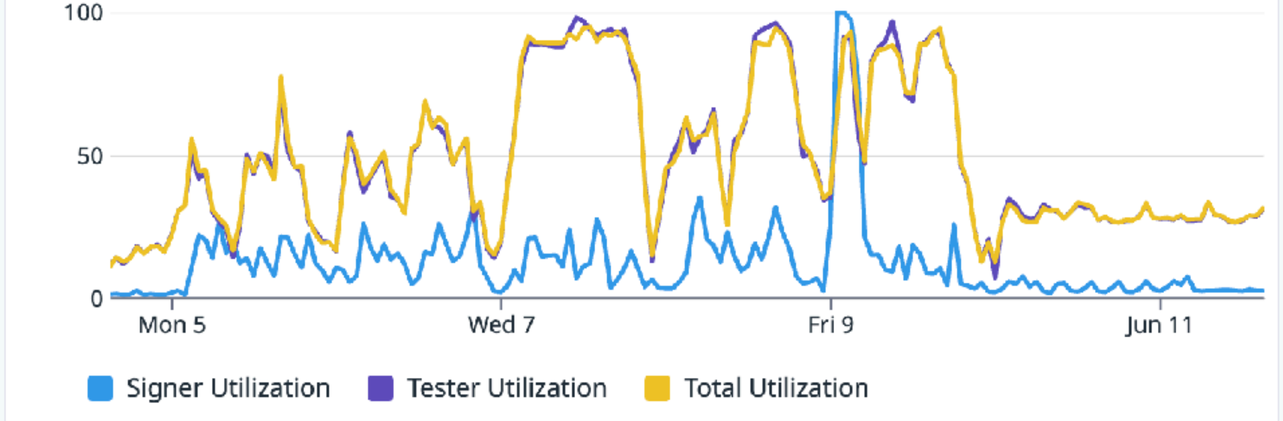
Signers_Count - Env: production, DC: sjc2b



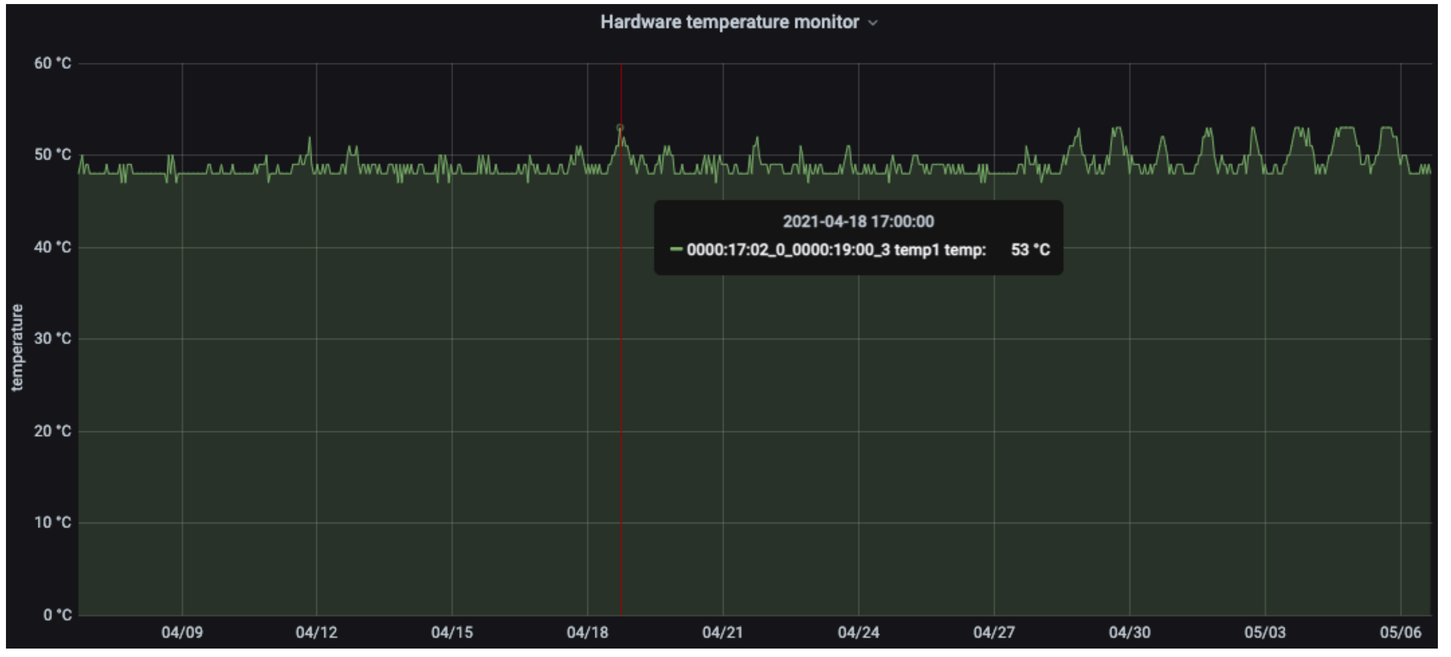
Testers_Count - Env: production, DC: sjc2b

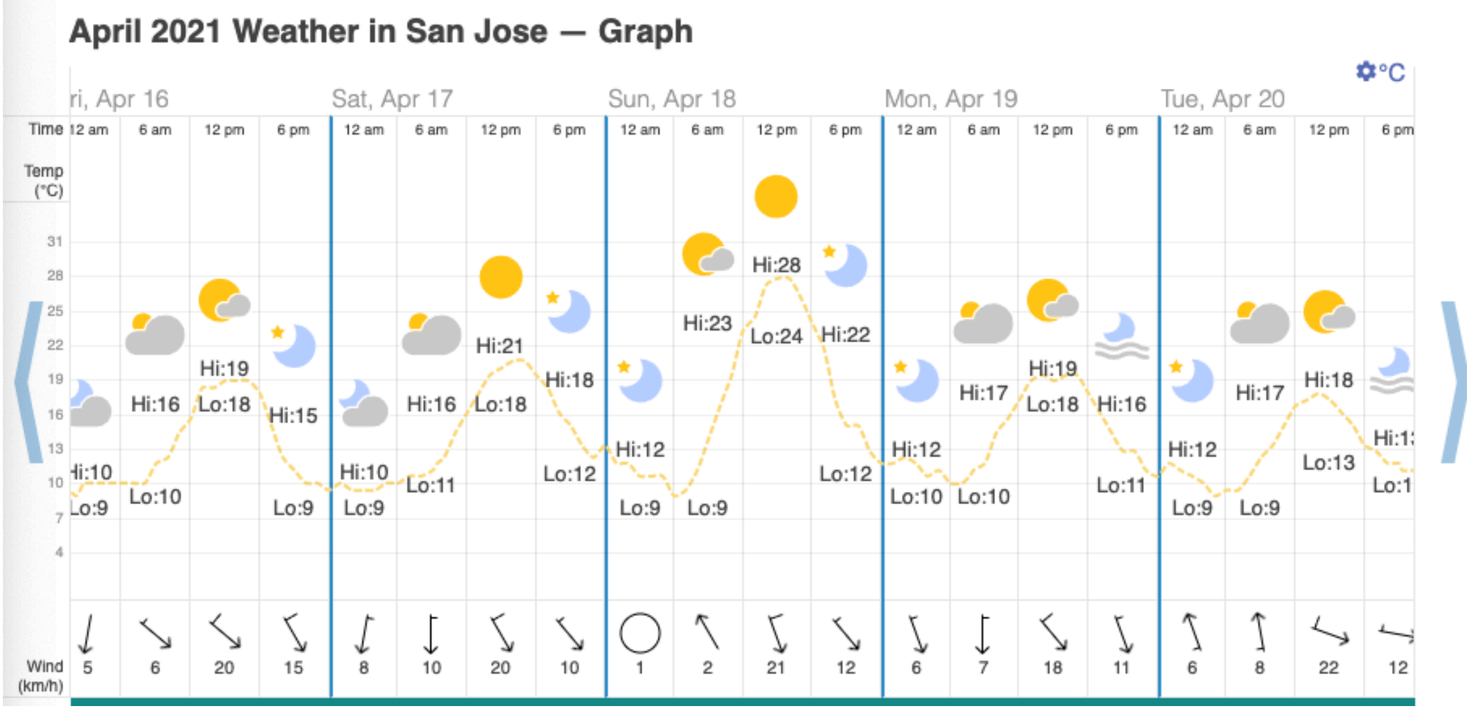


Utilization - Env: production, DC: sjc2b

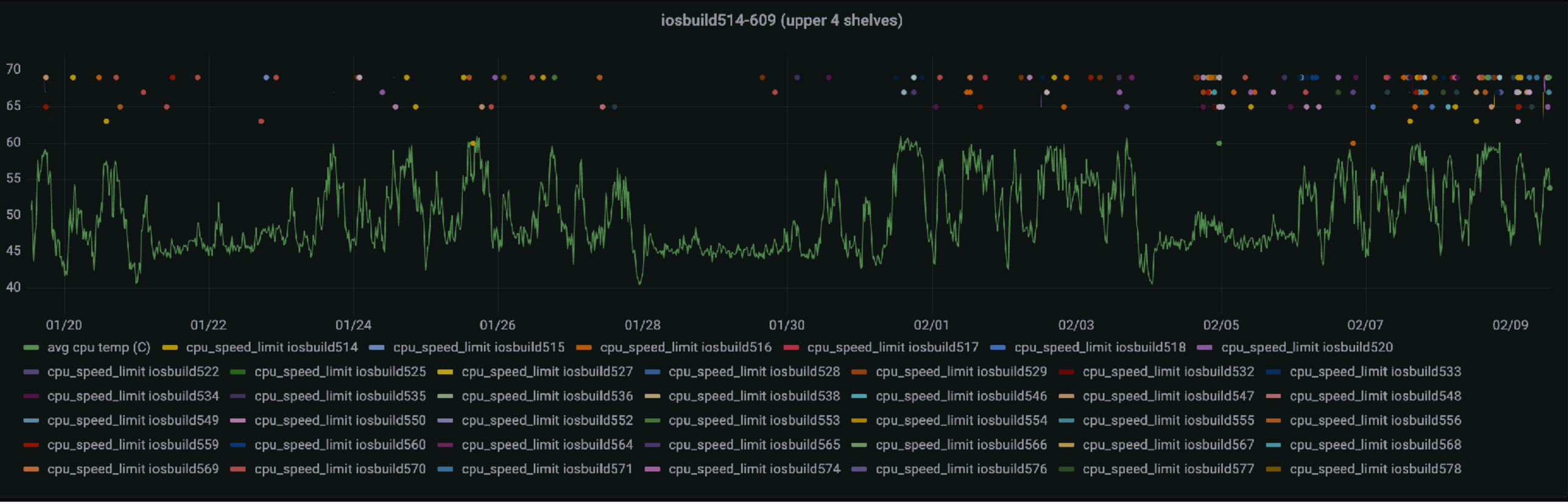


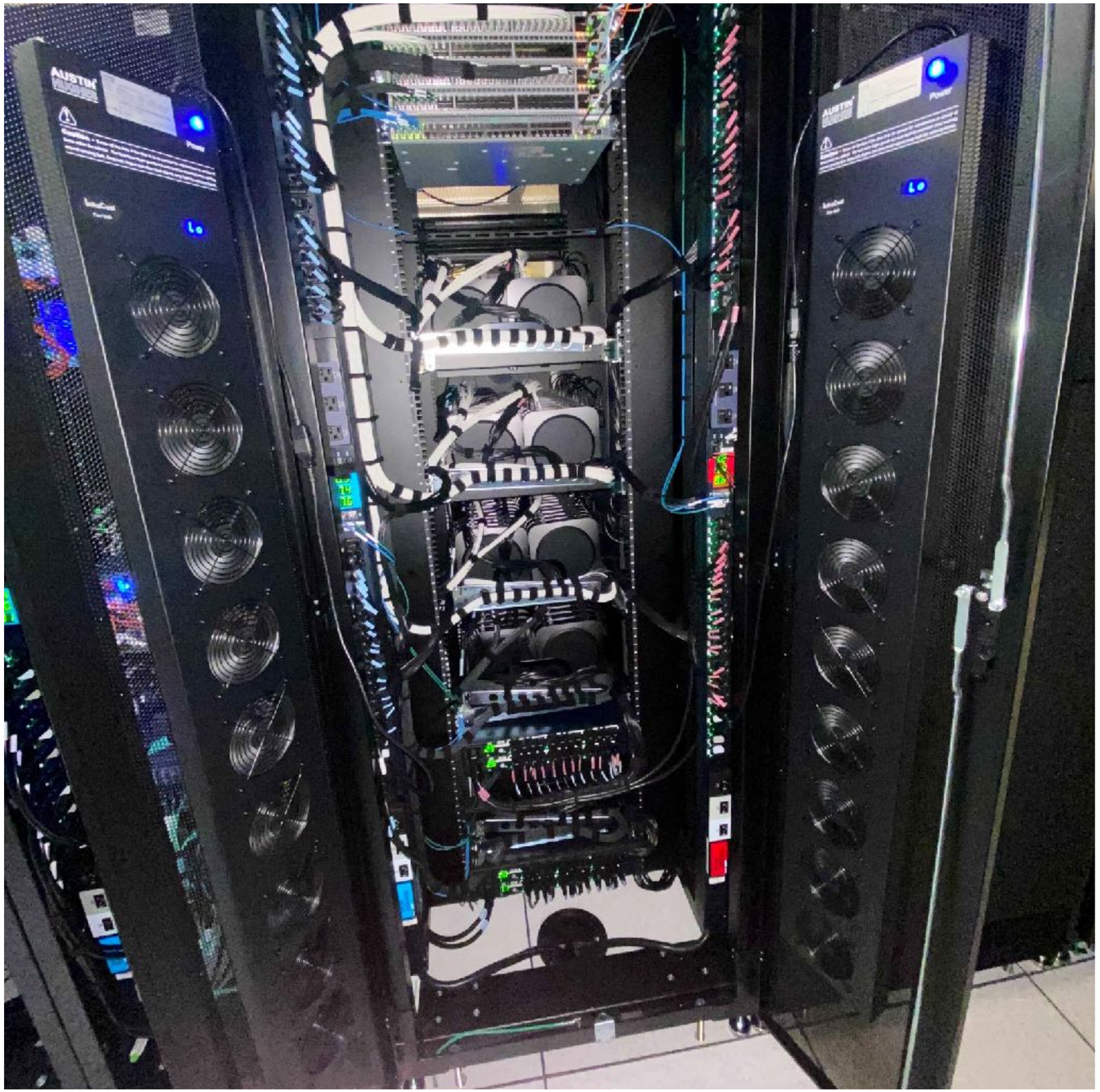
Edge cases


Hardware temperature monitor
60 °C
50 °C
40 °C
30 °C
20 °C
10 °C
0 °C
temperature
2021-04-18 17:00:00
0000:17:02_0_0000:19:00_3 temp1 temp: 53 °C
04/09
04/12
04/15
04/18
04/21
04/24
04/27
04/30
05/03
05/06


April 2021 Weather in San Jose — Graph
°C
ri, Apr 16
Sat, Apr 17
Sun, Apr 18
Mon, Apr 19
Tue, Apr 20
Time
12 am
6 am
12 pm
6 pm
Temp (°C)
31
28
25
22
19
16
13
10
7
4
Hi:10 Lo:9
Hi:16 Lo:10
Hi:19 Lo:18
Hi:15 Lo:9
Hi:10 Lo:9
Hi:16 Lo:11
Hi:21 Lo:18
Hi:18 Lo:12
Hi:12 Lo:9
Hi:23 Lo:9
Hi:28 Lo:24
Hi:22 Lo:12
Hi:12 Lo:10
Hi:17 Lo:10
Hi:19 Lo:18
Hi:16 Lo:11
Hi:12 Lo:9
Hi:17 Lo:9
Hi:18 Lo:13
Hi:1 Lo:1
Wind (km/h)
5
6
20
15
8
10
20
10
1
2
21
12
6
7
18
11
6
8
22
12

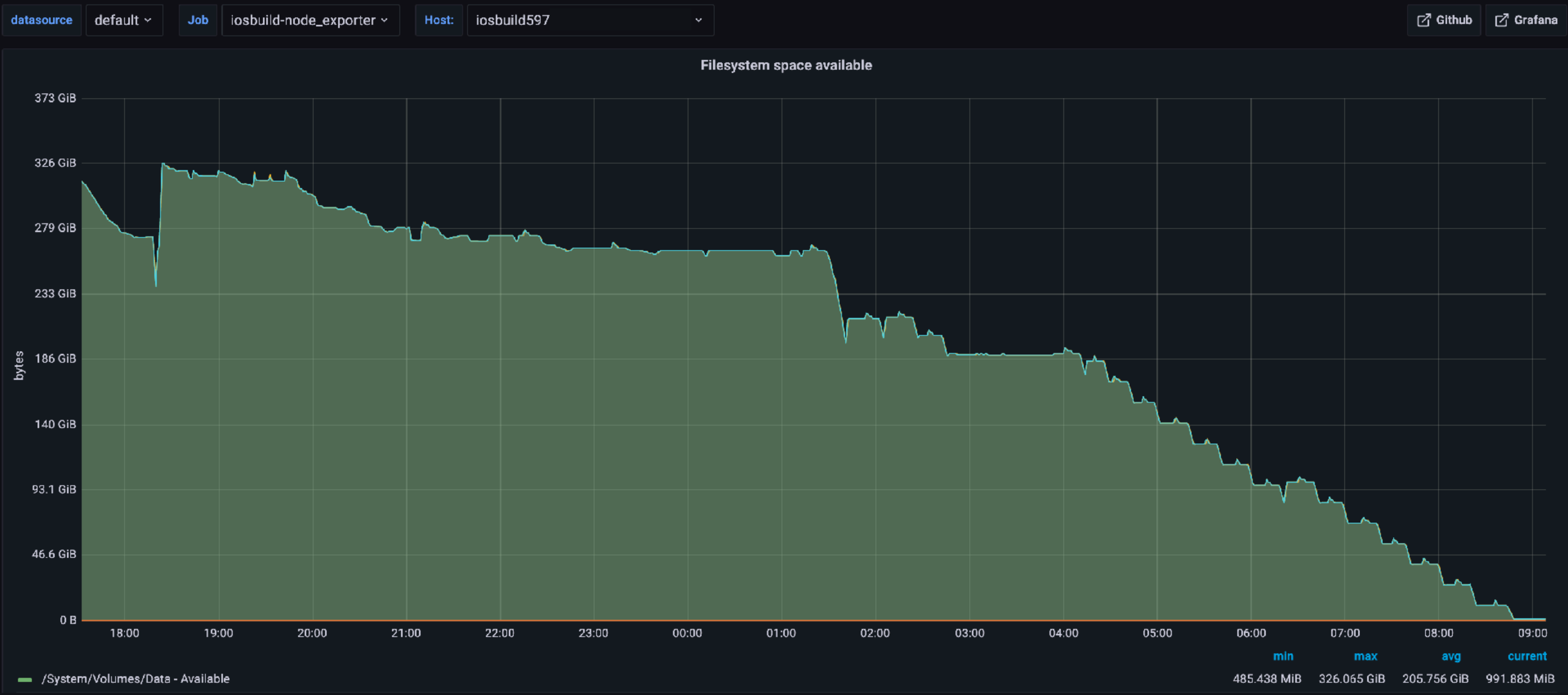
Rack 405 temps/throttling





```
$ smartctl -a disk0 | grep 'Data Units'
Data Units Read:                    1,331,085,631 [681 TB]
Data Units Written:                 1,341,802,663 [687 TB]
```

```
void IOAccelEventMachine2::hardwareErrorEvent(): GPURestartDeferred

panic(cpu 2 caller 0xffffff8022131941): userspace watchdog
timeout: no successful checkins from WindowServer in 120 seconds
```


datasource
default
Job
iosbuild-node_exporter
Host:
iosbuild597
Github
Grafana
Filesystem space available
373 GiB
326 GiB
279 GiB
233 GiB
186 GiB
140 GiB
93.1 GiB
46.6 GiB
0 B
bytes
18:00
19:00
20:00
21:00
22:00
23:00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
min
max
avg
current
/System/Volumes/Data - Available
485.438 MiB
326.065 GiB
205.756 GiB
991.883 MiB

Big Sur

- Automated root CA trust into keychain now requires MDM
- tokend removed from macOS, but CryptoTokenKit-backed identities have multiple bugs when used for codesigning with Xcode
- Recovery environment requires a physical mouse now, so.. let’s learn how to add that to TwoCanoes’ Arduino code and how to remotely flash all the devices
- Undocumented codesigning changes for iOS 15 and enterprise-signed builds (apps won’t launch unless signed on Big Sur)

```
Aug 25, 2021 12:42:59 PM hudson.plugins.swarm.Client run
SEVERE: An error occurred
javax.net.ssl.SSLException: No buffer space available (Write failed)
   at sun.security.ssl.Alert.createSSLException(Alert.java:127)
   at sun.security.ssl.TransportContext.fatal(TransportContext.java:324)



Aug 25, 2021 11:03:06 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
Aug 25, 2021 12:44:58 PM hudson.remoting.Request$2 run
INFO: Failed to send back a reply to the request hudson.remoting.Request$2@21f3ba77: hudson.remoting.ChannelClosedException: Channel
"unknown": Protocol stack cannot write data anymore. It is not open for write
Aug 25, 2021 12:45:00 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Terminated

sending incremental file list
SquareCore.framework/
SquareCore.framework/Info.plist
SquareCore.framework/SquareCore
rsync: [sender] write error: No buffer space available (55)
rsync error: error in socket IO (code 10) at io.c(823) [sender=3.2.3]
rsync error: received SIGUSR1 (code 19) at main.c(1612) [generator=3.2.3]
Command PhaseScriptExecution failed with a nonzero exit code

/* com.apple.actool.errors */
~/.jenkins/workspace/[snip]/Referral.xcassets: error: Failed to launch IBCocoaTouchImageCatalogTool via CoreSimulator spawn
    Underlying Errors:
        Description: Failed to handshake with platform tool
        Failure Reason: Failed to keep platform tool alive
        Underlying Errors:
            Description: Failed to keep launch platform tool and keep alive
            Recovery Suggestion: Try restarting your computer
            Underlying Errors:
                Description: The operation couldn't be completed. No buffer space available
                Failure Reason: No buffer space available
```

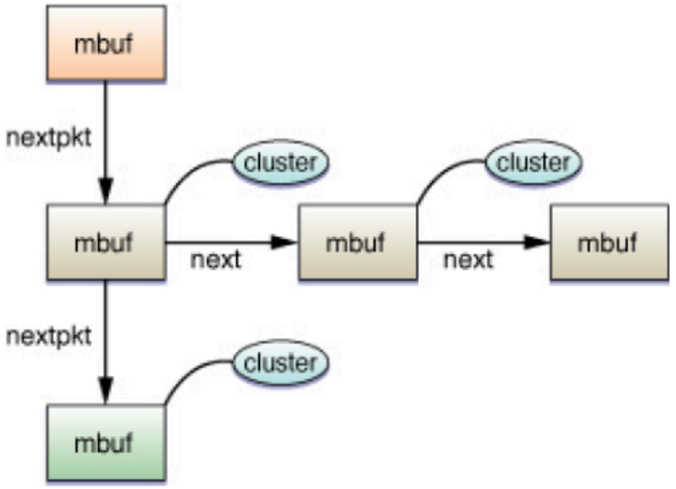
Working with Memory Buffers

All of the networking KPIs are built on top of a shared data structure called a memory buffer, or mbuf. An mbuf is the fundamental unit of data flow through the networking stack and represents a packet (or portion thereof). This section describes the way mbufs and mbuf chains are organized and describes a number of common operations on mbufs. For a complete list of mbuf operations, see `kpi_mbuf.h`.

Structure of an mbuf

A memory buffer, or mbuf, represents the contents of a single data packet. Its structure consists of a packet header (which may be absent for newly-generated outgoing traffic) and a payload (which contains the actual data).

Figure 2-1 A chain of mbuf chains



If you create a socket with `sock_socket` and do not call `sock_close` on that socket, it will live on *until the next reboot*, stealing precious resources from other kernel extensions and running applications. You *must* clean up after yourself. The kernel cannot do it for you. This means:

- If you create a socket with `sock_socket`, you must close it with `sock_close`.
- If you allocate an mbuf, you must either free it explicitly or pass it to a send function that frees it implicitly.

https://developer.apple.com/library/archive/documentation/Darwin/Conceptual/NKEConceptual/SocketManipulation/SocketManipulation.html

$ netstat -mmm

tsutton 2 years ago

The breakdown at the bottom also helps me map mentally the mbuf cluster sizes back to the counter rows above:

```
2KB cluster = cl
4KB cluster = bigcl
16KB cluster = 16kcl
```

tsutton 2 years ago

this is now 20% less voodoo to me

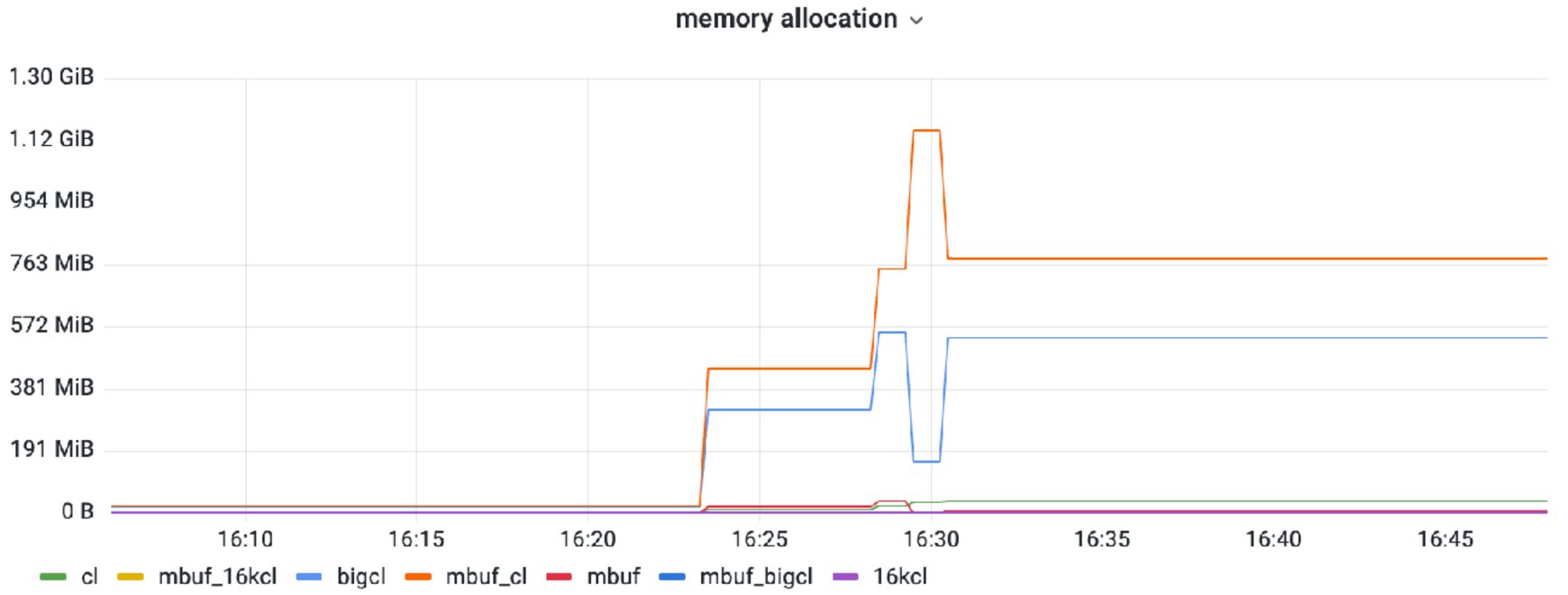
tsutton 2 years ago

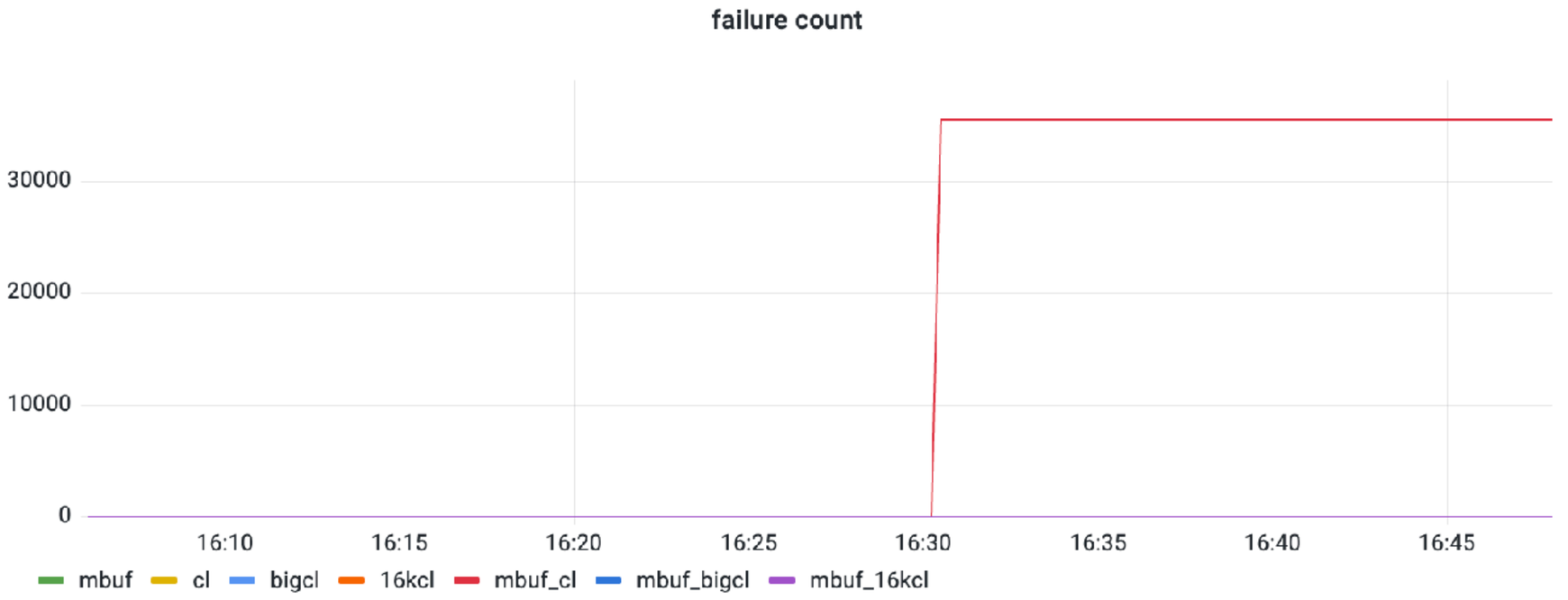
So given an output of:

```
class         buf    active    ctotal     total cache    cached uncached     memory
name         size      bufs      bufs      bufs state      bufs      bufs      usage
---------- ----- -------- -------- -------- ----- -------- -------- ---------
mbuf         256      2448      2010      4288    on       710      1130  502.5 KB
cl          2048      2118       612      2730    on        81       531    1.2 MB
bigcl       4096       160      1205      1365    on         0      1205    4.7 MB
16kcl      16384       164        27       191    on         0        27  432.0 KB
mbuf_cl     2304      1050      2118      2118    on      1068         0    4.7 MB
mbuf_bigcl  4352         0       160       160    on       160         0  680.0 KB
mbuf_16kcl 16640         0       164       164    on       164         0    2.6 MB

<snip>

1056/2448 mbufs in use:
    1056 mbufs allocated to data
    1392 mbufs allocated to caches
1050/2730 mbuf 2KB clusters in use
0/1365 mbuf 4KB clusters in use
0/191 mbuf 16KB clusters in use
15089 KB allocated to network (15.9% in use)
```

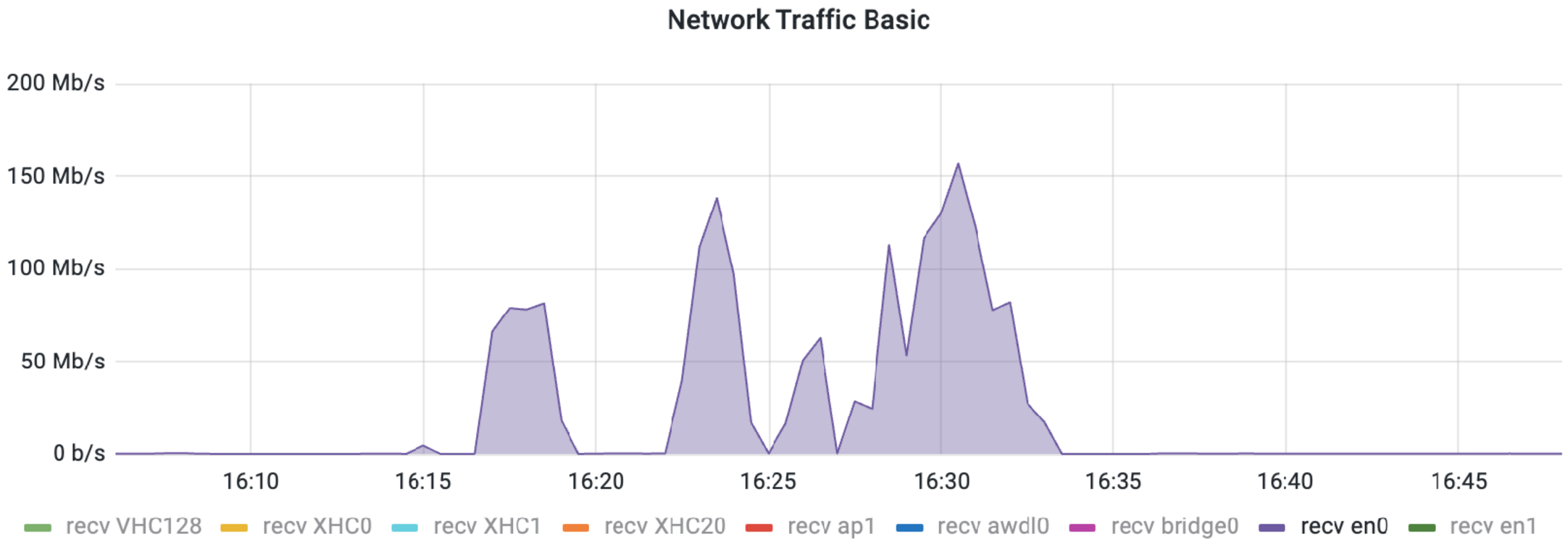
- 1050/2730 2KB clusters in use maps to 1050 `active bufs` and 2730 `total bufs` of the `cl` class
- 0/1365 4KB clusters in use maps to 0 `active bufs` and 1365 `total bufs` of the `bigcl` class

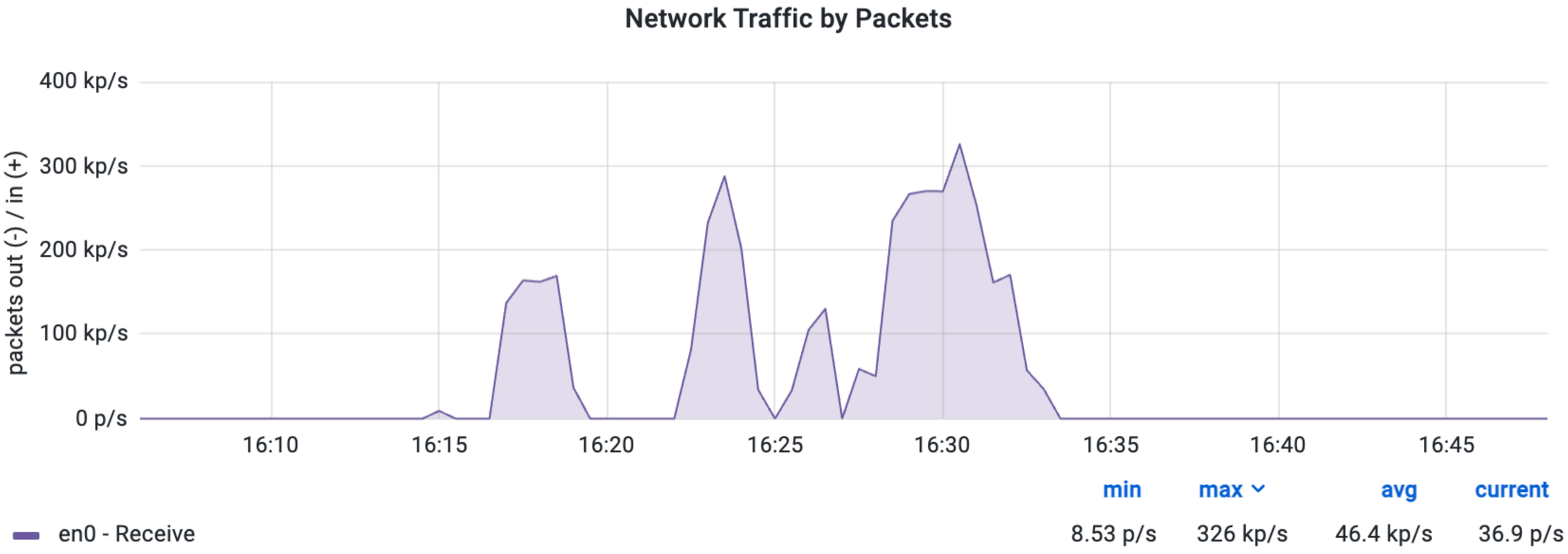
..and so on

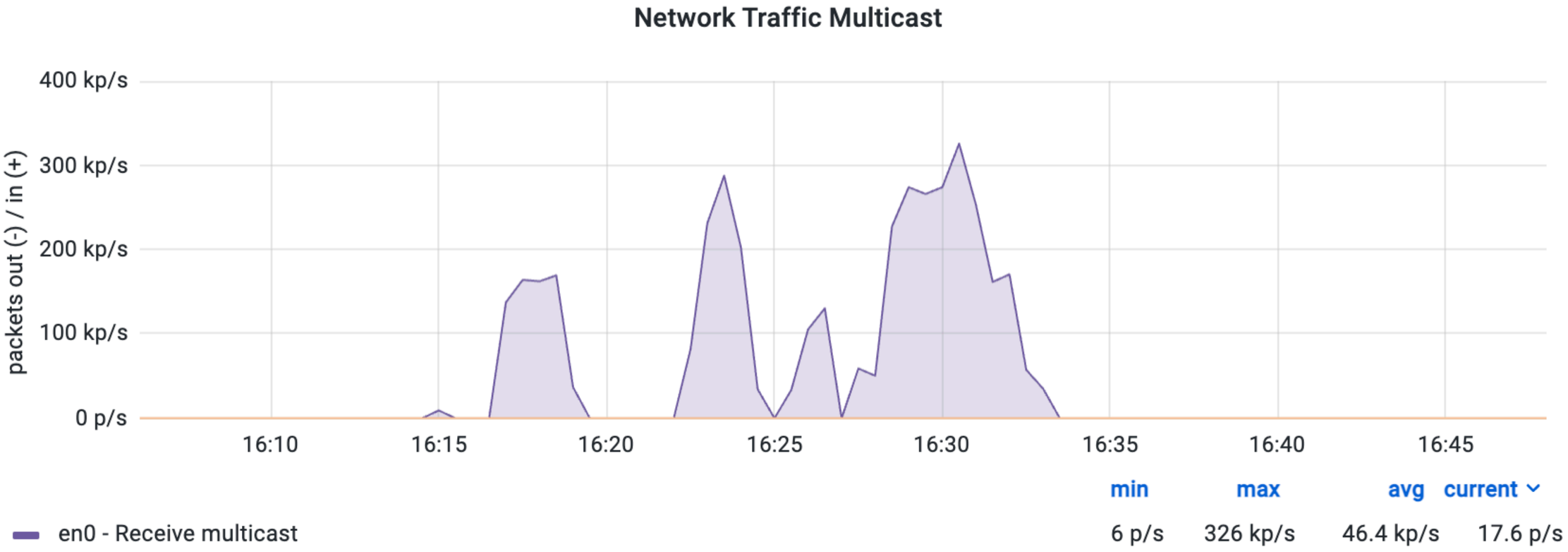

memory allocation
1.30 GiB
1.12 GiB
954 MiB
763 MiB
572 MiB
381 MiB
191 MiB
0 B
16:10
16:15
16:20
16:25
16:30
16:35
16:40
16:45
cl
mbuf_16kcl
bigcl
mbuf_cl
mbuf
mbuf_bigcl
16kcl


failure count
30000
20000
10000
0
16:10
16:15
16:20
16:25
16:30
16:35
16:40
16:45
mbuf
cl
bigcl
16kcl
mbuf_cl
mbuf_bigcl
mbuf_16kcl

```
$ sysctl \
kern.ipc.maxsockbuf=33554432
net.inet.tcp.sendspace=1048576
net.inet.tcp.recvspace=1048576
net.inet.tcp.win_scale_factor=8
net.inet.tcp.autorcvbufmax=33554432
net.inet.tcp.autosndbufmax=33554432


$ nvram boot-args="serverperfmode=1 ncl=1048576"
```


Network Traffic Basic
200 Mb/s
150 Mb/s
100 Mb/s
50 Mb/s
0 b/s
16:10
16:15
16:20
16:25
16:30
16:35
16:40
16:45
recv VHC128
recv XHC0
recv XHC1
recv XHC20
recv ap1
recv awdl0
recv bridge0
recv en0
recv en1

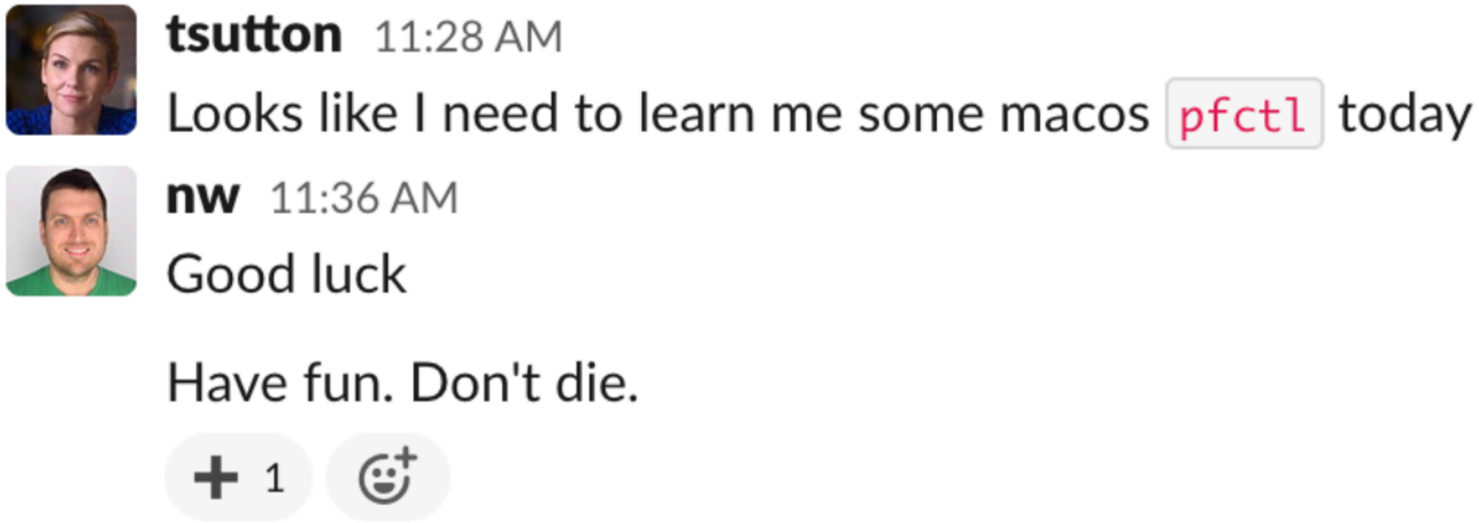

Network Traffic by Packets
400 kp/s
300 kp/s
200 kp/s
100 kp/s
0 p/s
packets out (-) / in (+)
16:10
16:15
16:20
16:25
16:30
16:35
16:40
16:45
min
max
avg
current
en0 - Receive
8.53 p/s
326 kp/s
46.4 kp/s
36.9 p/s


Network Traffic Multicast
400 kp/s
300 kp/s
200 kp/s
100 kp/s
0 p/s
packets out (-) / in (+)
16:10
16:15
16:20
16:25
16:30
16:35
16:40
16:45
min
max
avg
current
en0 - Receive multicast
6 p/s
326 kp/s
46.4 kp/s
17.6 p/s

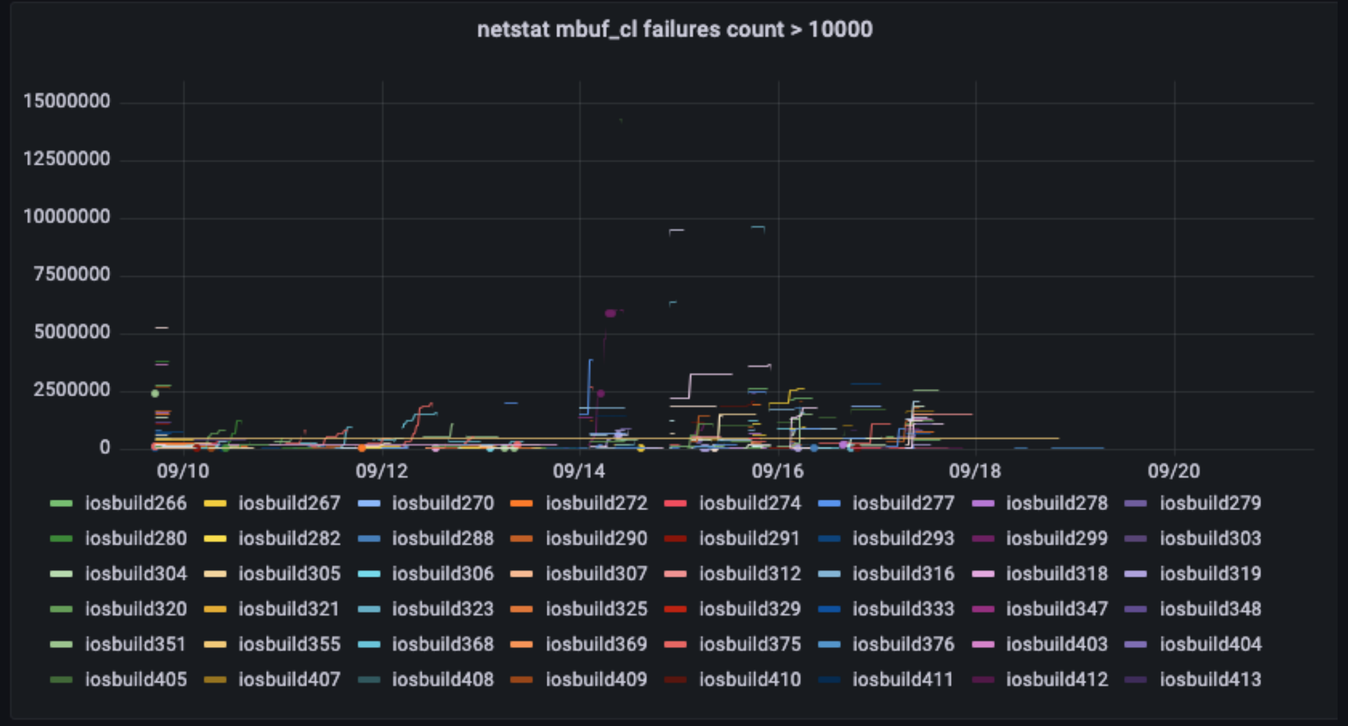
238	0.001149	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
239	0.001149	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
240	0.001150	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
241	0.001150	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
242	0.001150	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
243	0.001151	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
244	0.001151	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
245	0.001152	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
246	0.001152	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
247	0.001152	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
248	0.001294	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
249	0.001294	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
250	0.001295	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
251	0.001295	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
252	0.001296	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
253	0.001296	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
254	0.001296	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
255	0.001297	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
256	0.001297	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
257	0.001298	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
258	0.001298	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
259	0.001298	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14
260	0.001299	192.168.104.74	192.168.104.255	UDP	60	60601 → 3289 Len=14

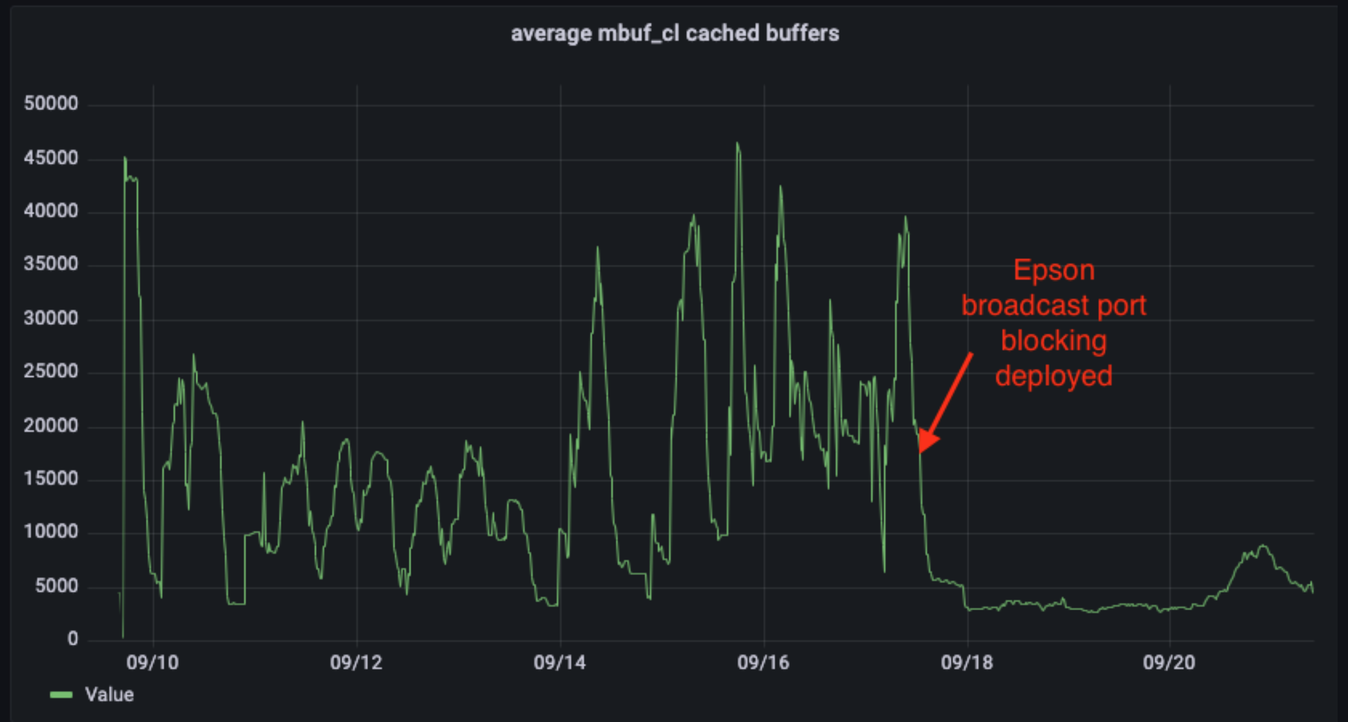
```
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
  Total Length: 42
  Identification: 0x848c (33932)
> Flags: 0x00
  Fragment Offset: 0
  Time to Live: 64
  Protocol: UDP (17)
  Header Checksum: 0xa39c [validation disabled]
  [Header checksum status: Unverified]
  Source Address: 192.168.104.74
  Destination Address: 192.168.104.255
> User Datagram Protocol, Src Port: 60601, Dst Port: 3289
v Data (14 bytes)
    Data: 4550534f4e510000000000000000
```

```
0000  ff ff ff ff ff ff 14 9d  99 7d f6 26 08 00 00    ·}·&··E·
0010  00 2a 84 8c 00 00 40 11  a3 9c c0 a8 68 4a a8    ·*····@·  ····hJ··
0020  68 ff ec b9 0c d9 00 16  cc a3 45 50 53 4f 51    h·····  ··EPSONQ
0030  00 00 00 00 00 00 00 00  00 00 00 00            ·····  ····
```

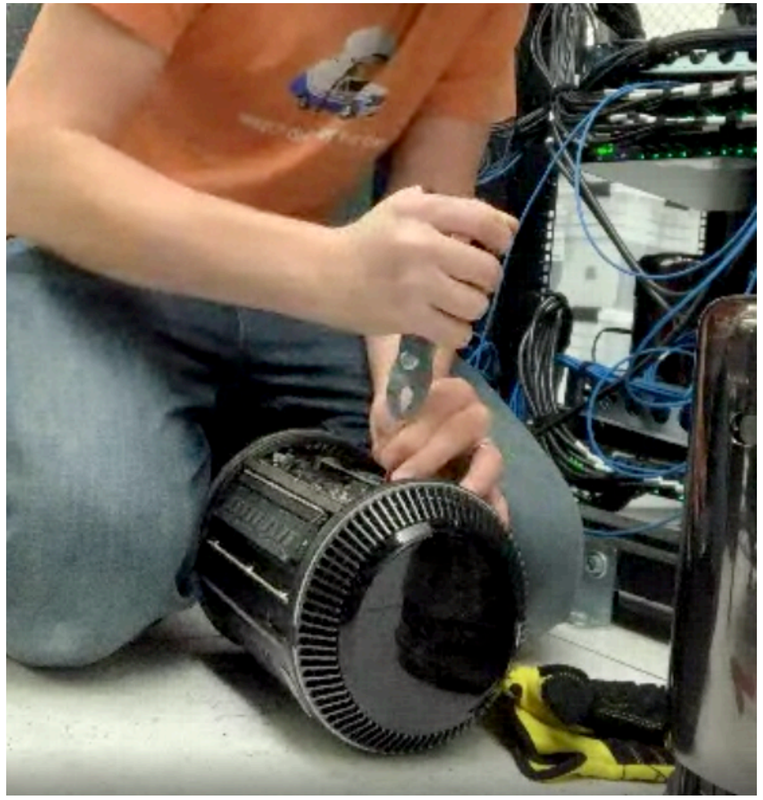


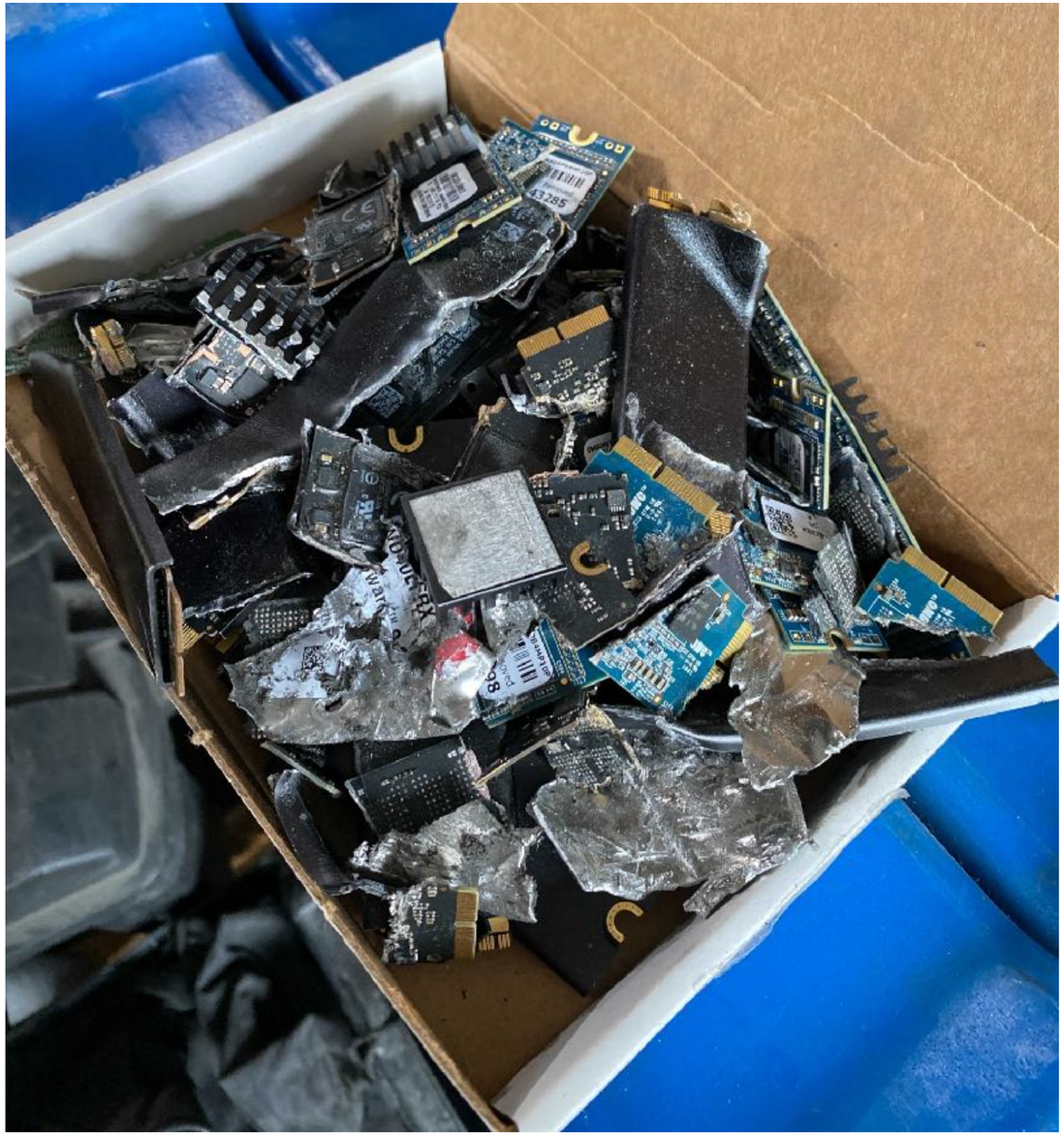

```
# /etc/pf.anchors/com.squareup.printers.rules
block out quick proto udp from any to any port = 3289

# run via a LaunchDaemon
/sbin/pfctl -f /etc/com.squareup.pf.conf -e

# /etc/com.squareup.pf.conf
anchor "com.squareup.pf"
load anchor "com.squareup.pf" from "/etc/pf.anchors/com.squareup.pf.rules"
```


netstat mbuf_cl failures count > 10000
15000000
12500000
10000000
7500000
5000000
2500000
0
09/10
09/12
09/14
09/16
09/18
09/20
iosbuild266 iosbuild267 iosbuild270 iosbuild272 iosbuild274 iosbuild277 iosbuild278 iosbuild279
iosbuild280 iosbuild282 iosbuild288 iosbuild290 iosbuild291 iosbuild293 iosbuild299 iosbuild303
iosbuild304 iosbuild305 iosbuild306 iosbuild307 iosbuild312 iosbuild316 iosbuild318 iosbuild319
iosbuild320 iosbuild321 iosbuild323 iosbuild325 iosbuild329 iosbuild333 iosbuild347 iosbuild348
iosbuild351 iosbuild355 iosbuild368 iosbuild369 iosbuild375 iosbuild376 iosbuild403 iosbuild404
iosbuild405 iosbuild407 iosbuild408 iosbuild409 iosbuild410 iosbuild411 iosbuild412 iosbuild413


average mbuf_cl cached buffers
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
09/10
09/12
09/14
09/16
09/18
09/20
Epson broadcast port blocking deployed
Value

AWS EC2 Mac

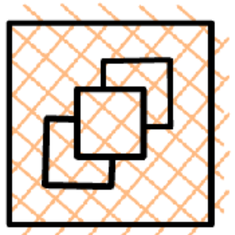




Certificate of Destruction

This Certificate of Destruction, herein referred to as "Certificate", releases all client liability henceforth and certifies client property, herein referred to as a "Property", was recycled and disposed of as contractually required. Forms of destruction can be data sanitization, shredding or demanufacturing

Expertise, infrastructure, and..


EC2


IAM


Lambda


S3 Bucket


VPC


Secrets Manager


CloudWatch


System Manager

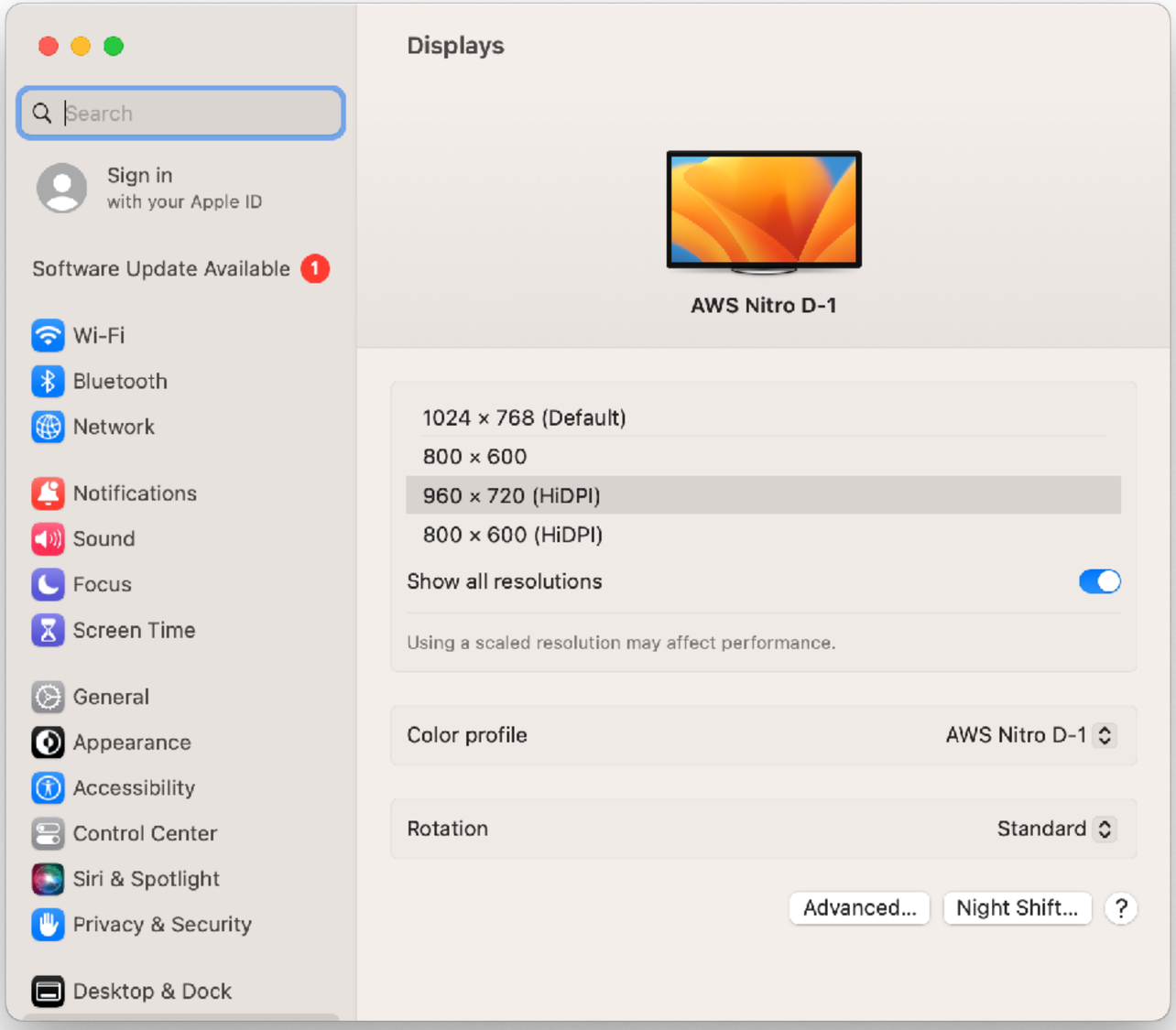
	Instance Family	vCPUs	Physical Cores	On-Demand Hourly Cost
○	mac2	12	8	0.65
○	mac1	12	6	1.083

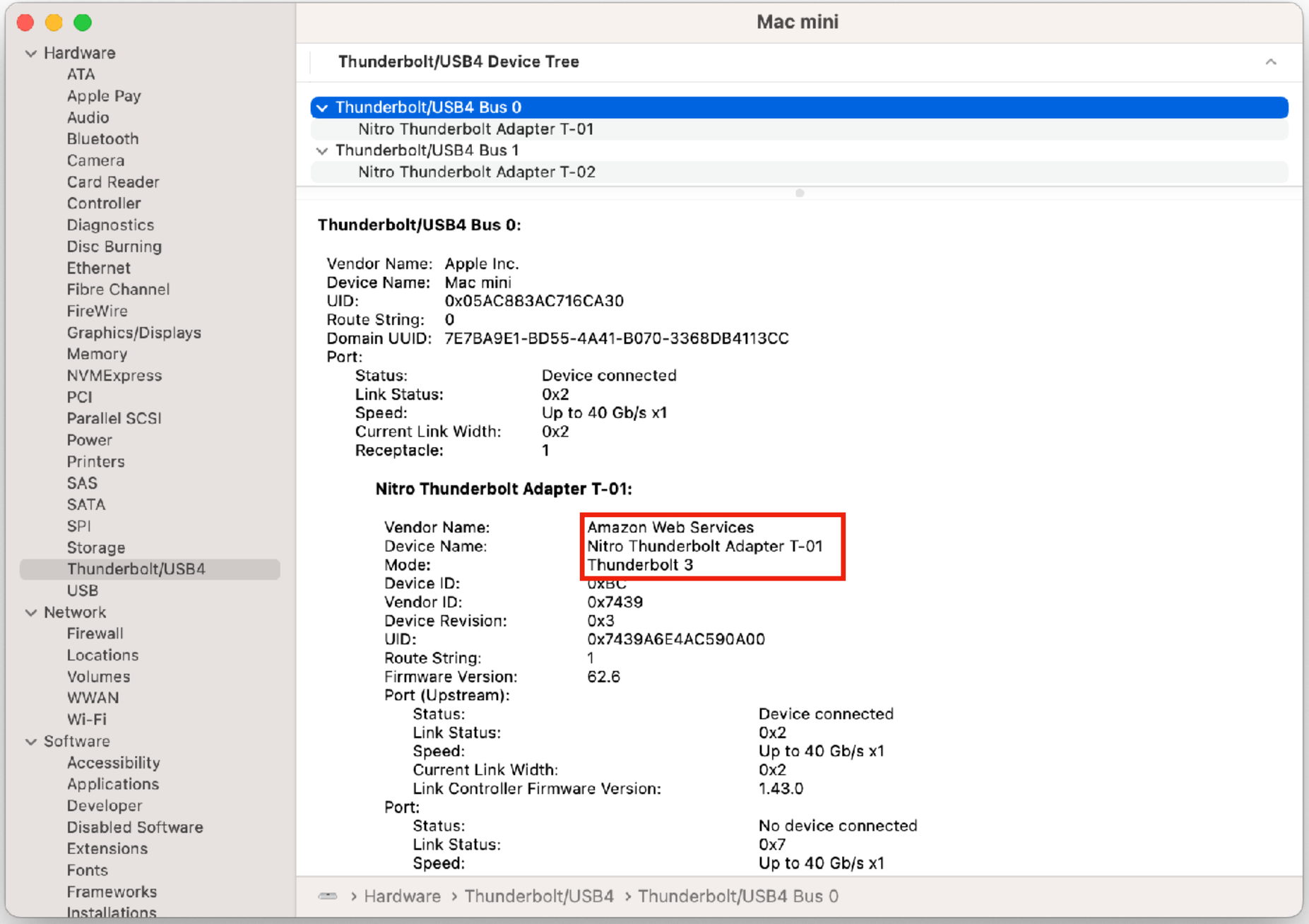
Note

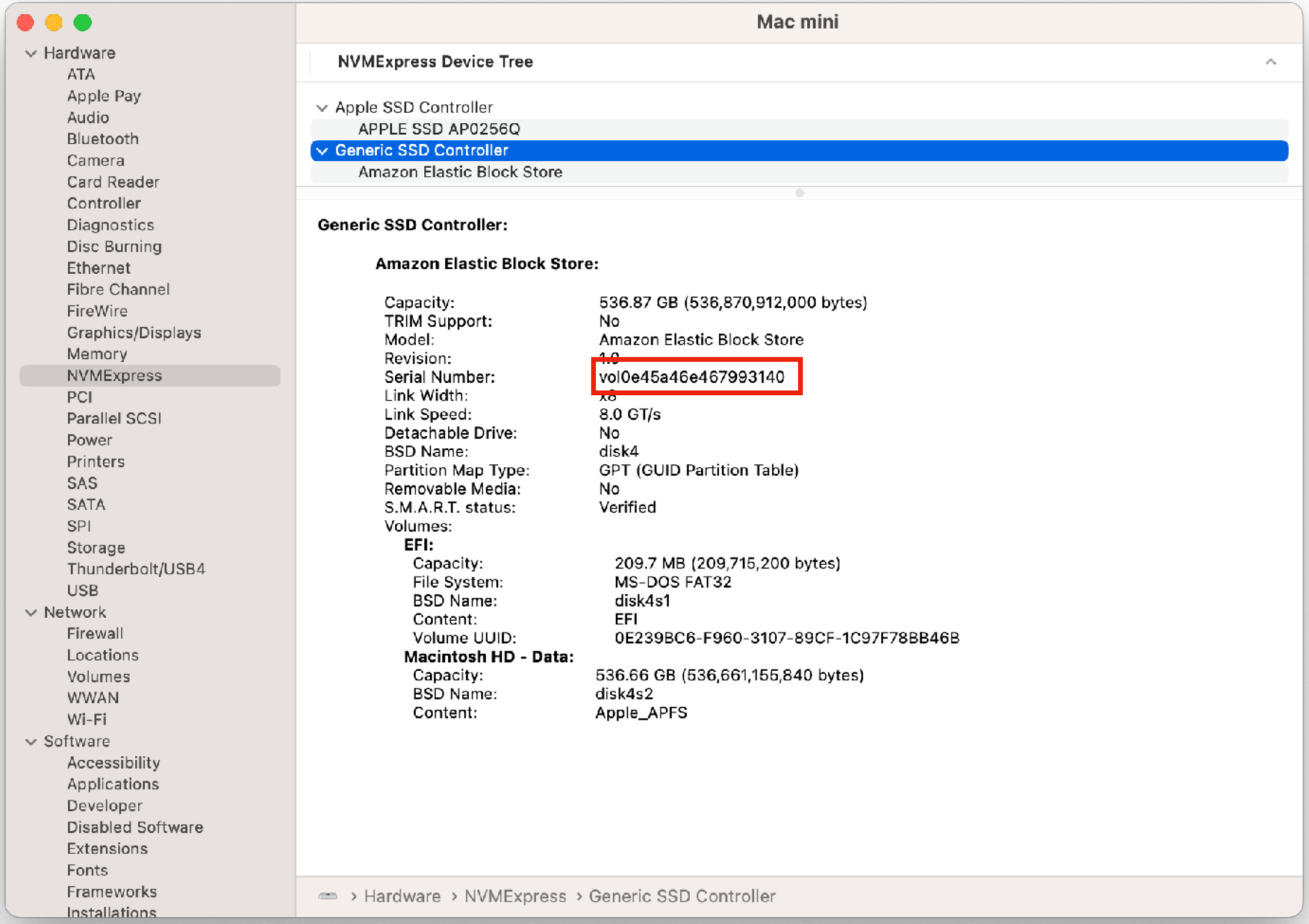
The **unit of billing** is the **dedicated host**. The instances running on that host have no additional charge.

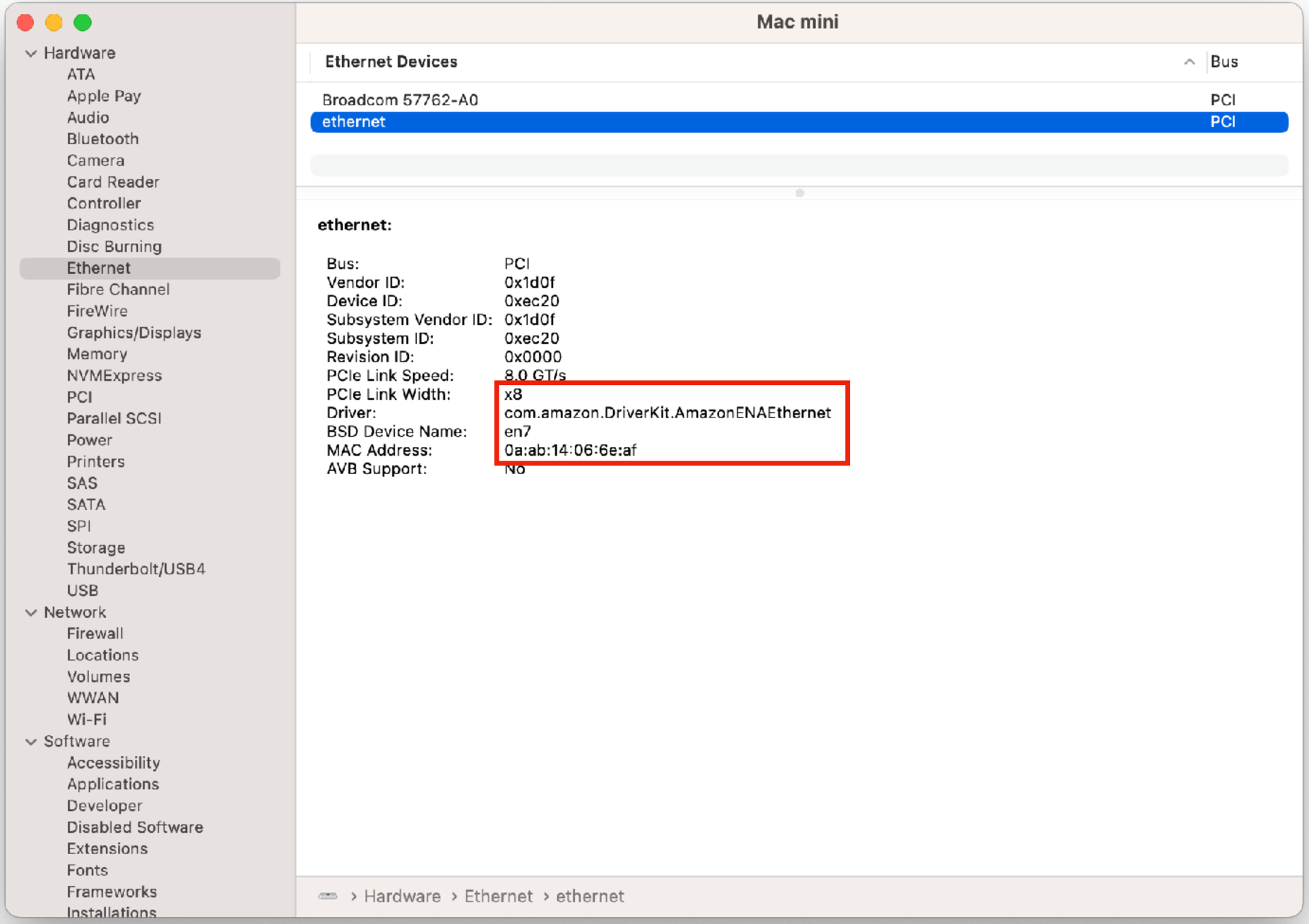
https://calculator.aws/#/createCalculator/EC2DedicatedHosts

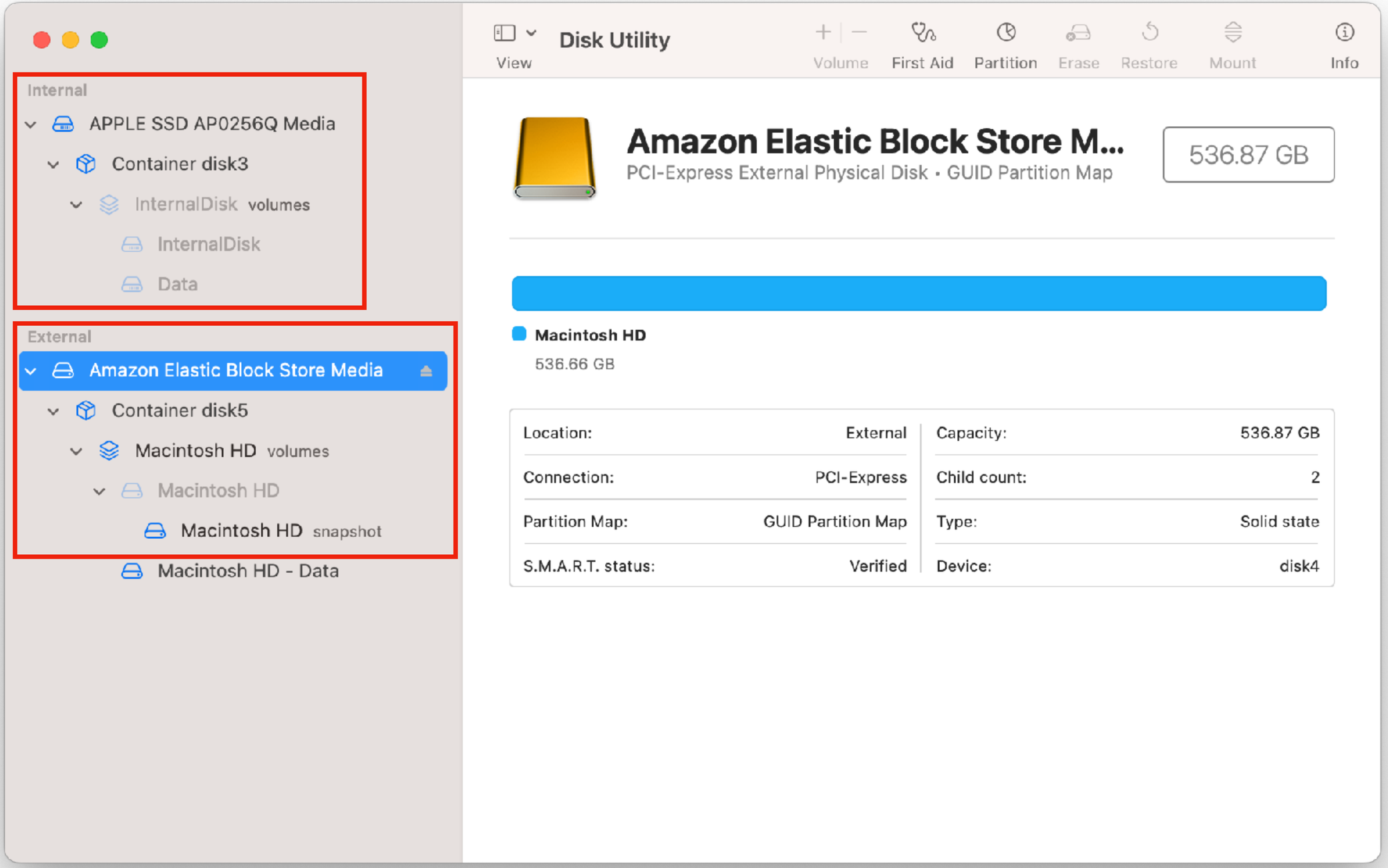
https://github.com/aws-samples/amazon-ec2-mac-getting-started


Search
Sign in
with your Apple ID
Software Update Available
1
Wi-Fi
Bluetooth
Network
Notifications
Sound
Focus
Screen Time
General
Appearance
Accessibility
Control Center
Siri & Spotlight
Privacy & Security
Desktop & Dock
Displays
AWS Nitro D-1
1024 × 768 (Default)
800 × 600
960 × 720 (HiDPI)
800 × 600 (HiDPI)
Show all resolutions
Using a scaled resolution may affect performance.
Color profile
AWS Nitro D-1
Rotation
Standard
Advanced...
Night Shift...
?


Mac mini
Hardware
ATA
Apple Pay
Audio
Bluetooth
Camera
Card Reader
Controller
Diagnostics
Disc Burning
Ethernet
Fibre Channel
FireWire
Graphics/Displays
Memory
NVMExpress
PCI
Parallel SCSI
Power
Printers
SAS
SATA
SPI
Storage
Thunderbolt/USB4
USB
Network
Firewall
Locations
Volumes
WWAN
Wi-Fi
Software
Accessibility
Applications
Developer
Disabled Software
Extensions
Fonts
Frameworks
Installations
Thunderbolt/USB4 Device Tree
Thunderbolt/USB4 Bus 0
Nitro Thunderbolt Adapter T-01
Thunderbolt/USB4 Bus 1
Nitro Thunderbolt Adapter T-02
Thunderbolt/USB4 Bus 0:
Vendor Name: Apple Inc.
Device Name: Mac mini
UID: 0x05AC883AC716CA30
Route String: 0
Domain UUID: 7E7BA9E1-BD55-4A41-B070-3368DB4113CC
Port:
Status: Device connected
Link Status: 0x2
Speed: Up to 40 Gb/s x1
Current Link Width: 0x2
Receptacle: 1
Nitro Thunderbolt Adapter T-01:
Vendor Name: Amazon Web Services
Device Name: Nitro Thunderbolt Adapter T-01
Mode: Thunderbolt 3
Device ID: 0xBC
Vendor ID: 0x7439
Device Revision: 0x3
UID: 0x7439A6E4AC590A00
Route String: 1
Firmware Version: 62.6
Port (Upstream):
Status: Device connected
Link Status: 0x2
Speed: Up to 40 Gb/s x1
Current Link Width: 0x2
Link Controller Firmware Version: 1.43.0
Port:
Status: No device connected
Link Status: 0x7
Speed: Up to 40 Gb/s x1
› Hardware › Thunderbolt/USB4 › Thunderbolt/USB4 Bus 0


Mac mini
Hardware
ATA
Apple Pay
Audio
Bluetooth
Camera
Card Reader
Controller
Diagnostics
Disc Burning
Ethernet
Fibre Channel
FireWire
Graphics/Displays
Memory
NVMExpress
PCI
Parallel SCSI
Power
Printers
SAS
SATA
SPI
Storage
Thunderbolt/USB4
USB
Network
Firewall
Locations
Volumes
WWAN
Wi-Fi
Software
Accessibility
Applications
Developer
Disabled Software
Extensions
Fonts
Frameworks
Installations
NVMExpress Device Tree
Apple SSD Controller
APPLE SSD AP0256Q
Generic SSD Controller
Amazon Elastic Block Store
Generic SSD Controller:
Amazon Elastic Block Store:
Capacity: 536.87 GB (536,870,912,000 bytes)
TRIM Support: No
Model: Amazon Elastic Block Store
Revision: 1.0
Serial Number: vol0e45a46e467993140
Link Width: x8
Link Speed: 8.0 GT/s
Detachable Drive: No
BSD Name: disk4
Partition Map Type: GPT (GUID Partition Table)
Removable Media: No
S.M.A.R.T. status: Verified
Volumes:
EFI:
Capacity: 209.7 MB (209,715,200 bytes)
File System: MS-DOS FAT32
BSD Name: disk4s1
Content: EFI
Volume UUID: 0E239BC6-F960-3107-89CF-1C97F78BB46B
Macintosh HD - Data:
Capacity: 536.66 GB (536,661,155,840 bytes)
BSD Name: disk4s2
Content: Apple_APFS
Hardware › NVMExpress › Generic SSD Controller


Mac mini
Hardware
ATA
Apple Pay
Audio
Bluetooth
Camera
Card Reader
Controller
Diagnostics
Disc Burning
Ethernet
Fibre Channel
FireWire
Graphics/Displays
Memory
NVMExpress
PCI
Parallel SCSI
Power
Printers
SAS
SATA
SPI
Storage
Thunderbolt/USB4
USB
Network
Firewall
Locations
Volumes
WWAN
Wi-Fi
Software
Accessibility
Applications
Developer
Disabled Software
Extensions
Fonts
Frameworks
Installations
Ethernet Devices
Bus
Broadcom 57762-A0
PCI
ethernet
PCI
ethernet:
Bus: PCI
Vendor ID: 0x1d0f
Device ID: 0xec20
Subsystem Vendor ID: 0x1d0f
Subsystem ID: 0xec20
Revision ID: 0x0000
PCIe Link Speed: 8.0 GT/s
PCIe Link Width: x8
Driver: com.amazon.DriverKit.AmazonENAEthernet
BSD Device Name: en7
MAC Address: 0a:ab:14:06:6e:af
AVB Support: No
› Hardware › Ethernet › ethernet


Disk Utility
View
Volume
First Aid
Partition
Erase
Restore
Mount
Info
Internal
APPLE SSD AP0256Q Media
Container disk3
InternalDisk volumes
InternalDisk
Data
External
Amazon Elastic Block Store Media
Container disk5
Macintosh HD volumes
Macintosh HD
Macintosh HD snapshot
Macintosh HD - Data
Amazon Elastic Block Store M...
PCI-Express External Physical Disk • GUID Partition Map
536.87 GB
Macintosh HD
536.66 GB
Location: External
Capacity: 536.87 GB
Connection: PCI-Express
Child count: 2
Partition Map: GUID Partition Map
Type: Solid state
S.M.A.R.T. status: Verified
Device: disk4

Empty EBS volumes receive their maximum performance the moment that they are created and do not require initialization (formerly known as pre-warming).

For volumes that were created from snapshots, the storage blocks must be pulled down from Amazon S3 and written to the volume before you can access them. This preliminary action takes time and can cause a significant increase in the latency of I/O operations the first time each block is accessed. Volume performance is achieved after all blocks have been downloaded and written to the volume.

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ebs-initialize.html

https://aws.amazon.com/blogs/storage/addressing-i-o-latency-when-restoring-amazon-ebs-volumes-from-ebs-snapshots/

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ebs-fast-snapshot-restore.html

Considerations

The following considerations apply to Mac instances:

- Mac instances are available only as bare metal instances on Dedicated Hosts, with a minimum allocation period of 24 hours before you can release the Dedicated Host. You can launch one Mac instance per Dedicated Host. You can share the Dedicated Host with the AWS accounts or organizational units within your AWS organization, or the entire AWS organization.
- Mac instances are available only as On-Demand Instances. They are not available as Spot Instances or Reserved Instances. You can save money on Mac instances by purchasing a Savings Plan.

- AWS does not manage or support the internal SSD on the Apple hardware. We strongly recommend that you use Amazon EBS volumes instead. EBS volumes provide the same elasticity, availability, and durability benefits on Mac instances as they do on any other EC2 instance.

- When you stop or terminate a Mac instance, a scrubbing workflow is performed on the Dedicated Host. For more information, see Stop and terminate your Mac instance.

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-mac-instances.html#mac-instance-stop

Brian Stucki 
@brianstucki

Apple Inc wrote me a love letter and disguised it as a Software License Agreement. You'll want to share this with the developers in your life...

macstadium.com
Developers, Big Sur, and Vindication | MacStadium Blog
Apple has updated the macOS software license agreement for Big Sur, going from 15 sections to 16 sections. This ...

4:59 PM · Nov 11, 2020

3. Leasing for Permitted Developer Services.

A. Leasing. You may lease or sublease a validly licensed version of the Apple Software in its entirety to an individual or organization (each, a "Lessee") provided that all of the following conditions are met:

(i) the leased Apple Software must be used for the sole purpose of providing Permitted Developer Services and each Lessee must review and agree to be bound by the terms of this License;

(ii) each lease period must be for a minimum period of twenty-four (24) consecutive hours;

(iii) during the lease period, the End User Lessee must have sole and exclusive use and control of the Apple Software and the Apple-branded hardware on which it is installed, except that you, as the party leasing the Apple Software ("Lessor"), may provide administrative support for the Apple Software; and

https://twitter.com/brianstucki/status/1326645639741022209

https://www.apple.com/legal/sla/docs/macOSVentura.pdf

Dedicated Hosts (39)

Dedicated Host Reservations | Config recording Off | Actions | Allocate Dedicated Host

Search

1 2

Name	Host ID	Availability Zone	Availability Zone ID	State	vCPU utilization	Instance family	Instance type
	h-029ac54f7ccd575c1	us-west-2d	usw2-az4	Available	8/8 100%	mac2	mac2.metal
	h-02caebd1c25f3ac8d	us-west-2d	usw2-az4	Available	8/8 100%	mac2	mac2.metal
	h-02f097e3b1c42083d	us-west-2d	usw2-az4	Available	8/8 100%	mac2	mac2.metal
	h-0321b7a50b5cace98	us-west-2d	usw2-az4	Available	8/8 100%	mac2	mac2.metal
	h-0329f27ec212acc53	us-west-2c	usw2-az3	Released	–	mac2	mac2.metal
	h-03583072bfac33a7d	us-west-2c	usw2-az3	Available	8/8 100%	mac2	mac2.metal
	h-03dfd408d36318e38	us-west-2c	usw2-az3	Available	8/8 100%	mac2	mac2.metal
	h-04f2f67cf833837c2	us-west-2c	usw2-az3	Available	8/8 100%	mac2	mac2.metal
	h-051d00feafa474941	us-west-2c	usw2-az3	Released	–	mac2	mac2.metal
	h-05beb3d2579568c4d	us-west-2c	usw2-az3	Available	8/8 100%	mac2	mac2.metal

mac-workers-hrg-tf

Edit | Delete

Host resource group settings

Host resource group details

Name
mac-workers-hrg-tf

Description
-

Owner account

ARN
arn:aws:resource-groups:us-west-2: group/mac-workers-hrg-tf

EC2 Dedicated Host management settings

Allocate hosts automatically
True

Release hosts automatically
True

Recover hosts automatically
False

Additional settings

Allows any host based self-managed license
False

Supported instance families
mac2

Associated self-managed licenses | Dedicated Hosts | Tags

Self-managed licenses set (1)

Self-managed licenses are associated as a set, not on an individual basis. To manage configurations visit Self-managed licenses.

Filter by self-managed license properties

1

Self-managed license name	Status	License type	in use	Account ID
mac-workers-lm-tf	available	Core	280 of 1600	

```
19:31:43  ==> amazon-ebs.macos: Prevalidating any provided VPC information
19:31:43  ==> amazon-ebs.macos: Prevalidating AMI Name: macos-base-13.4-1686526302
19:31:43      amazon-ebs.macos: Found Image ID: ami-09f373f534922f54c
19:31:43      amazon-ebs.macos: Found Subnet ID: subnet-0460908736a4cce17
19:31:44  ==> amazon-ebs.macos: Creating temporary keypair: packer_6486595e-111a-ab12-4ede-bfe7a614dc02
19:31:44  ==> amazon-ebs.macos: Creating temporary security group for this instance: packer_64865960-f472-67
19:31:45  ==> amazon-ebs.macos: Launching a source AWS instance...
19:31:47      amazon-ebs.macos: Instance ID: i-01714abc3fec937da
19:31:47  ==> amazon-ebs.macos: Waiting for instance (i-01714abc3fec937da) to become ready...
19:32:55  ==> amazon-ebs.macos: Waiting 4m0s before establishing the SSM session...
19:37:01  ==> amazon-ebs.macos: Using SSH communicator to connect: localhost
19:37:01  ==> amazon-ebs.macos: Waiting for SSH to become available...
19:37:01      amazon-ebs.macos: Starting portForwarding session "packer-build-0c7ee4928c3a38f0f".
19:37:01      amazon-ebs.macos: Starting session with SessionId: packer-build-0c7ee4928c3a38f0f
19:37:01      amazon-ebs.macos: Port 8611 opened for sessionId packer-build-0c7ee4928c3a38f0f.
19:37:01      amazon-ebs.macos: Waiting for connections...
19:37:01      amazon-ebs.macos: Connection accepted for session [packer-build-0c7ee4928c3a38f0f]
19:37:01  ==> amazon-ebs.macos: Connected to SSH!
```

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/replace-root.html

Network

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

Availability Zones and subnets

Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets

us-west-2a | subnet-08e48f2271a82b02e
10.132.62.0/25

us-west-2b | subnet-0206a72ca51ccbc08
10.132.61.0/25

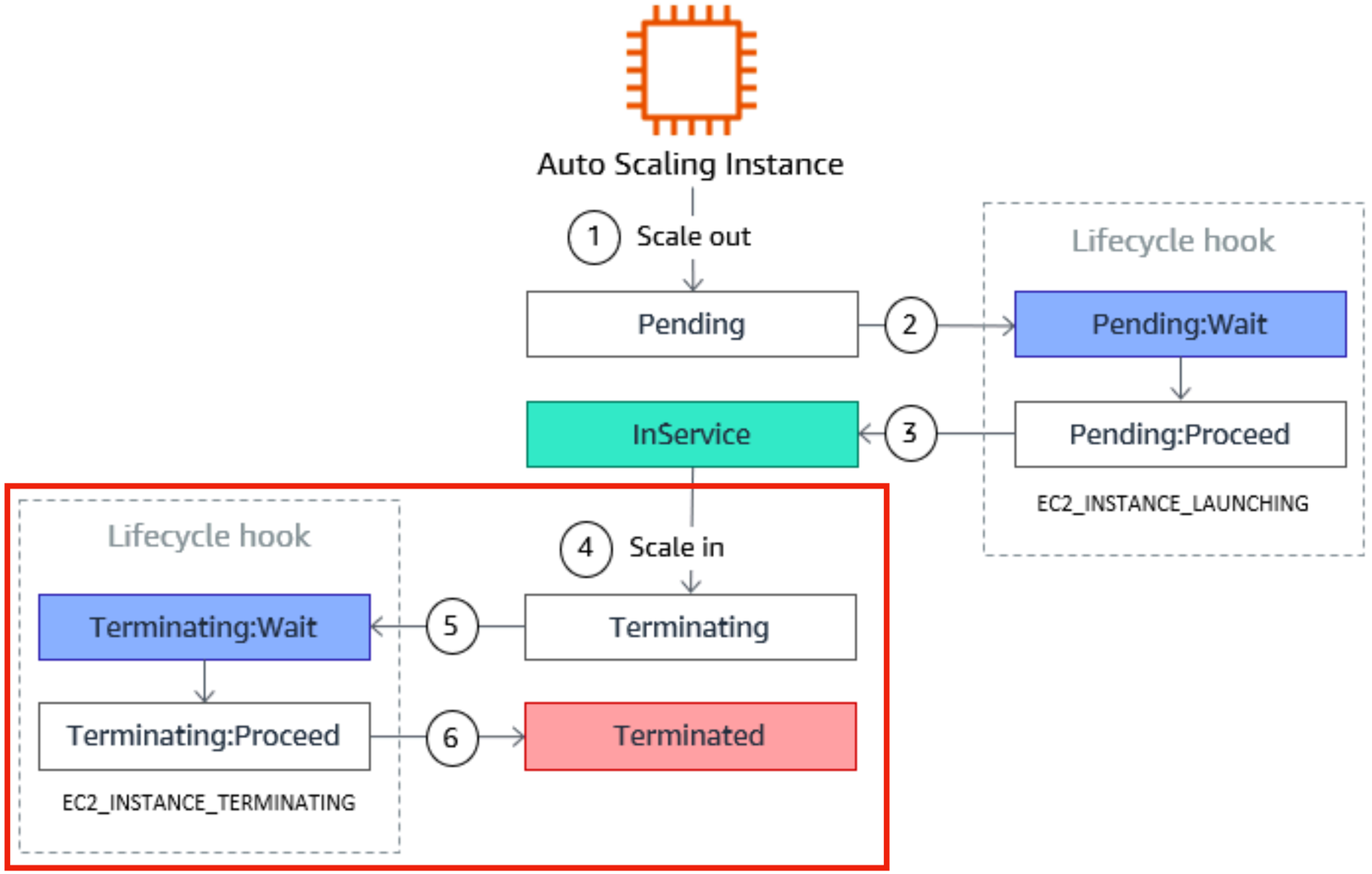
us-west-2c | subnet-0435275a881120ddb
10.132.62.128/25

us-west-2d | subnet-01c6df7e09572ad29
10.132.61.128/25

Create a subnet

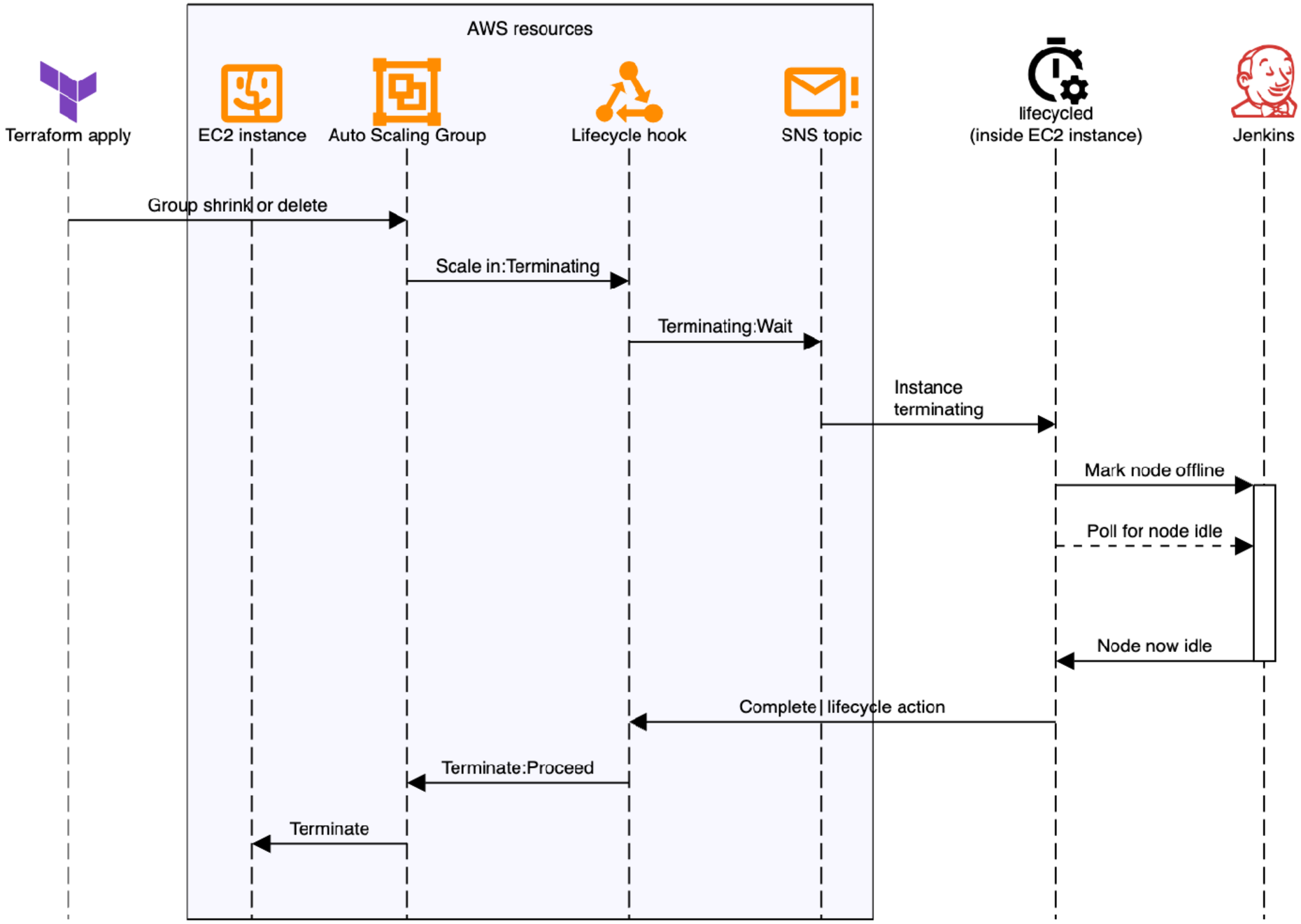
https://us-west-2.console.aws.amazon.com/ec2/home?region=us-west-2#AutoScalingGroups:

Auto Scaling Lifecycle hooks



https://docs.aws.amazon.com/autoscaling/ec2/userguide/lifecycle-hooks-overview.html

Worker scale-in sequence



Thank you!

@timsutton

@tvsutton

https://macops.ca/macdevopsyvr-2023