

NAS

NETWORK ATTACHED STORAGE

BACKUPS ARE IMPORTANT

TODAY MOST PEOPLE USE THE CLOUD

- APPLE ICLOUD
- MICROSOFT ONEDRIVE
- GOOGLE DRIVE



There is no cloud
it's just someone else's computer

MY OLD WAY



NETWORK ATTACHED STORAGE

RAID

- REDUNDANT
- ARRAY
- INEXPENSIVE
- DISKS

RAID 0 - STRIPING

- ONE DRIVE FAILS ALL DATA IS LOST
- FASTER READS

RAID 1 - MIRRORING

- PAIRS OF DRIVES DUPLICATE DATA
- FASTER READS

RAID 5 - CHECKSUM

- SETS OF THREE OR MORE DRIVES
- ONE IS A CHECKSUM, ALLOWING FOR SINGLE DRIVE FAILURE
- FAST READS ESPECIALLY OF LARGE FILES
- SLOWER WRITES, ESPECIALLY OF RANDOM SECTORS

RAID 6

- LIKE RAID 5, BUT WITH TWO CHECKSUM DRIVES
- ALLOWS FOR ANY TWO DRIVES TO FAIL

RAID 10

- 4 OR MORE DRIVES IN PAIRS
- COMBINES RAID 1 AND RAID 0
- ALLOWS ONE DRIVE OF EACH PAIR TO FAIL
- FASTEST OF ALL RAID5

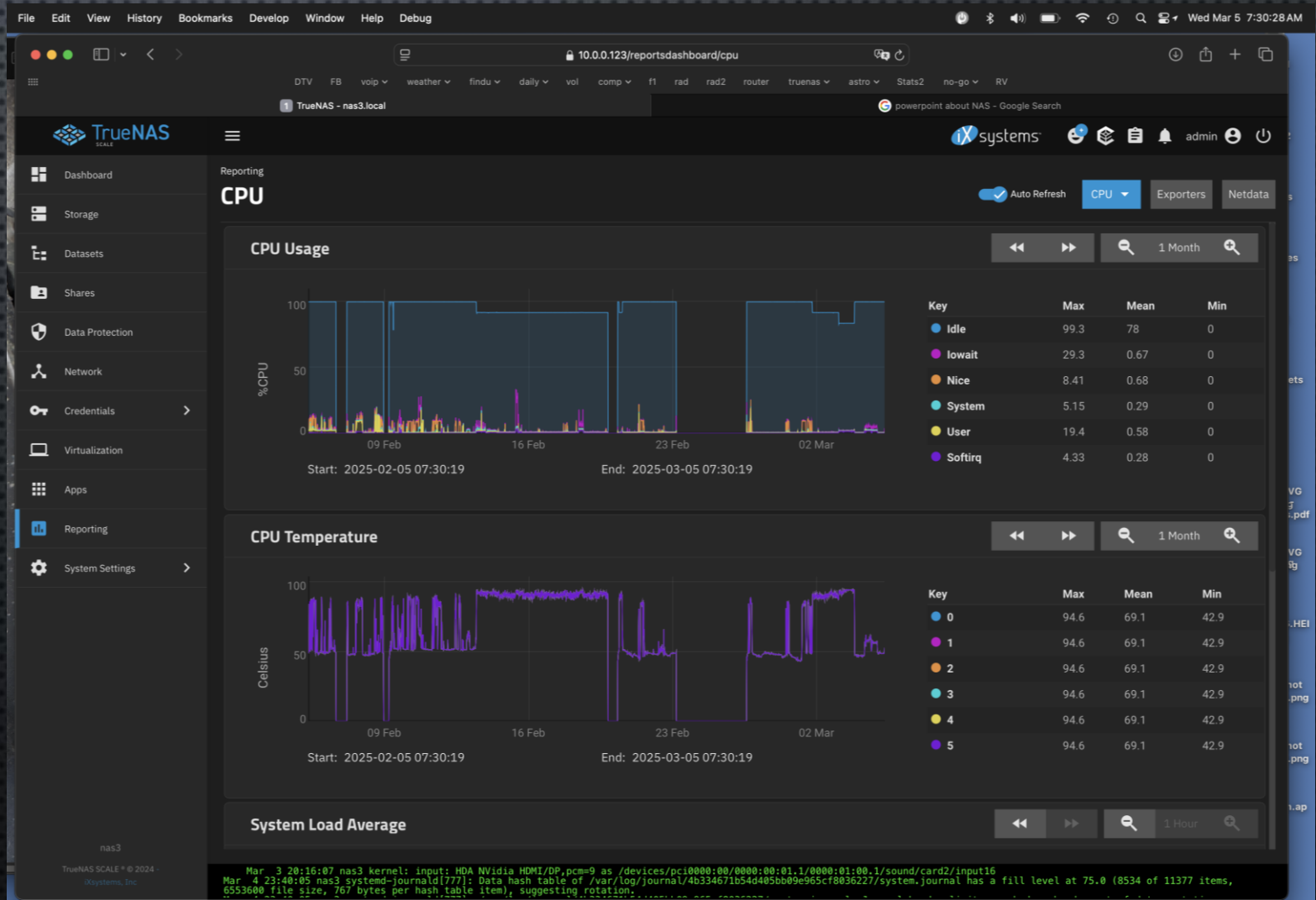
SOFTWARE – TRUENAS SCALE

The screenshot displays the TrueNAS SCALE dashboard interface. The top navigation bar includes the TrueNAS logo, a menu icon, and the version number 'TrueNAS - 10.0.0.123'. A notification for updates is visible in the top right corner. The dashboard is divided into several sections:

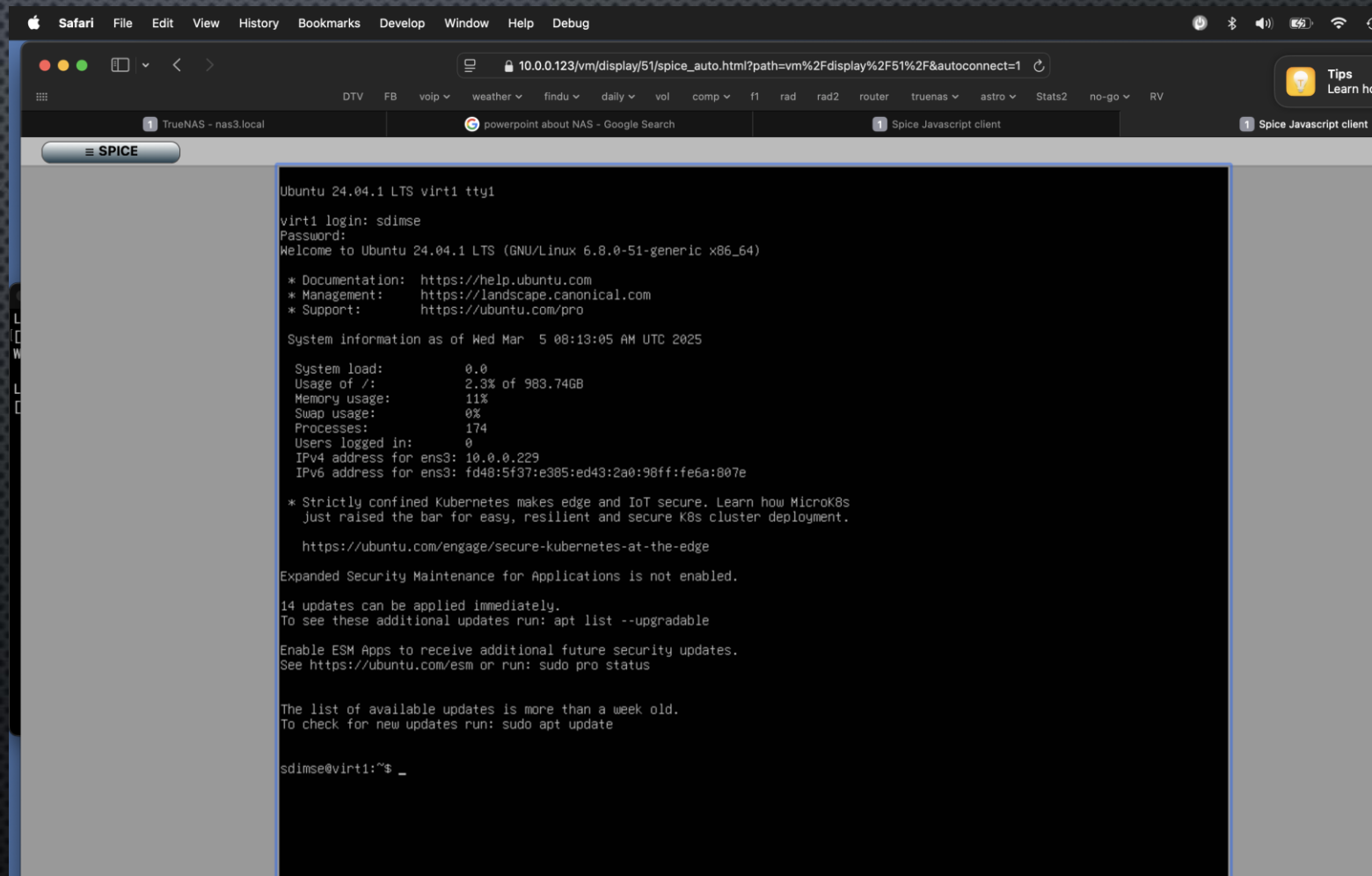
- CPU:** AMD Ryzen 5 7600X 6-Core Processor. Cores: 6 cores (12 threads). Highest Usage: 1% (6 threads at 1%). Hottest: 52°C (All Cores). A bar chart shows 'Stats Per Thread' for threads 0 through 11.
- Network:** eno1. LINK STATE UP. In: 311.5 kb/s, Out: 7.05 Mb/s. Media Type: Ethernet, Media Subtype: 2500Mb/s Twisted Pair, IP Address: 10.0.0.123/24 (+2). A line graph shows 'Incoming [eno1]' and 'Outgoing [eno1]' traffic over time.
- Storage:** Overview of storage pools:
 - pool1:** Pool Status: ONLINE, Used Space: 8.17 TiB of 14.42 TiB, Disks with Errors: 0 of 2, Last Scrub.
 - nvme:** Pool Status: ONLINE, Used Space: 1.08 TiB of 1.76 TiB, Disks with Errors: 0 of 1, Last Scrub.
 - TB4:** Pool Status: ONLINE, Used Space: 3.73 MiB of 3.51 TiB (0%), Disks with Errors: 0 of 1, Last Scrub.
 - Pool2:** Pool Status: ONLINE, Used Space: 7.29 TiB of 21.01 TiB, Disks with Errors: 0 of 4, Last Scrub.
- Memory:** 30.5 GiB total available. Breakdown: Free: 13.7 GiB, ZFS Cache: 11.6 GiB, Services: 5.1 GiB. A donut chart visualizes this distribution.

The bottom of the screen shows a terminal window with system logs, including a message about a journal file fill level: 'Mar 4 23:40:05 nas3 systemd-journald[777]: Data hash table of /var/log/journal/4b334671b54d405bb09e965cf8036227/system.journal has a fill level at 75.0 (8534 of 11377 items, 6553600 file size, 767 bytes per hash table item), suggesting rotation.'

MONITORING



VIRTUALIZATION



The image shows a web browser window displaying a terminal session for a virtual machine. The browser's address bar shows the URL `10.0.0.123/vm/display/51/spice_auto.html?path=vm%2Fdisplay%2F51%2F&autoconnect=1`. The browser's tab bar includes tabs for "TrueNAS - nas3.local", "powerpoint about NAS - Google Search", and "Spice Javascript client". The terminal window, titled "SPICE", shows the following output:

```
Ubuntu 24.04.1 LTS virt1 tty1
virt1 login: sdimse
Password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-51-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Mar  5 08:13:05 AM UTC 2025

System load:          0.0
Usage of /:           2.3% of 983.74GB
Memory usage:        11%
Swap usage:          0%
Processes:           174
Users logged in:     0
IPv4 address for ens3: 10.0.0.229
IPv6 address for ens3: fd48:5f37:e385:ed43:2a0:98ff:fe6a:807e

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   Just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

14 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

sdimse@virt1:~$ _
```

CONTAINERS - JELLYFIN

The screenshot displays the Jellyfin web interface in a Safari browser window. The browser's address bar shows the URL `10.0.0.123:30013/web/#/tv.html?topParentId=3148cf0701708325a446ec1751b2b64e&coll...`. The page title is "TV Series". The interface features a navigation bar with tabs for "Shows", "Suggestions", "Upcoming", "Genres", "TV Networks", and "Episodes". The main content area is a grid of 24 TV series covers, each with a title and release years. The covers include:

- Good Eats (1999 - 2021)
- Hawaii Five-O (1968 - 1980)
- In the Heat of the Night (1988 - 1995)
- Key West (1993)
- M*A*S*H (1972 - 1983)
- Married... with Children (1987 - 1997)
- The Marvelous Mrs. M... (2017 - 2023)
- Max Headroom (1987 - 1998)
- Medical Center (1969 - 1976)
- Miami Vice (1984 - 1989)
- Mission: Impossible (1966 - 1973)
- Naked City (1958 - 1963)
- The National Parks: A... (2009)
- The New Yankee Work... (1989 - 2009)
- Newhart (1990 - 1992)
- Only Murders in the Building (2021 - 2024)
- Pepper Minton (2021 - 2024)
- Police Woman (1968 - 1975)

On the right side of the browser window, a vertical sidebar contains a search index with letters A through Z and file names such as ".pdf", ".HEI", ".png", and ".ap".

Tips Learn how to take a quick look.

Star Trek - S1:E28 - The City on the Edge of Forever (1967)



31:06 32:24 -19:21

Video player controls including play/pause, volume, and settings icons.

- Blaze2
- 3d files
- laser files
- GRCA
- hour sheets
- untitled folder
- K4LFX SVG couns...ts.pdf
- K4LFX SVG large.pdf
- Stellarium.apdf

