



# TrueNAS SCALE

When TrueNAS Finally Swiped Right on Linux

# A Little About Me

**JOSHUA SMITH**



- Open Source Advocate for 15+ Years
- Worked on FreeBSD, PC-BSD, TrueOS, FreeNAS, TrueNAS Projects
- Have done Marketing, Documentation, Programming, Web Design at various projects
- Worked with iXsystems for a collective total of 12 years. Five as an open source and documentation developer and seven as a Marketing and Community Manager

# A Little About Me

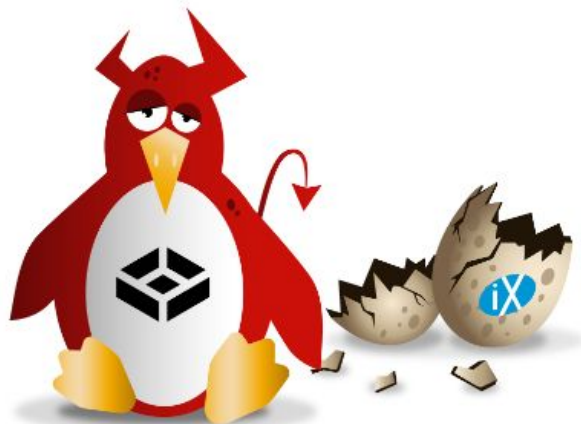
**JOSHUA SMITH**



- Have helped grow the TrueNAS Community to well over half a million active users per month.
- About ten of these Community Users don't have a sense of humor which makes it really fun to mess with them.
- April 1st is one of my favorite holidays.



# More About Me



## I love a good joke on the Community

Joshua, AKA JoshDW19, said of the conceptualization of our new community mascot: “It is time we realize the importance of representing both Linux and FreeBSD together as one. Imagine how the planeters would join forces back in the day and become Captain Planet. It’s kind of like that.” Marissa, the concept artist behind our new mascot (who tried to stay anonymous for unknown reasons) simply said: “Why...” and “Well, I guess it could be worse...” of the final product.

# Why Did TrueNAS Choose to Base on Linux?

## The Challenge iXsystems Faced As An Open Source Company

**iXsystems** is known for stewardship in Open Source and the production of secure, scalable, and cost-effective systems, built right here in the USA. But, customer requirements have quickly evolved and new, flexible, and universal storage solutions are needed to keep pace with data growth. Many of our customers began asking for expanded features along with the reliability of TrueNAS. Something that could provide the same security and reliability that they know with a more robust application experience, and the ability to scale out as their needs grow.

# Why Did TrueNAS Swipe Right on Linux?

FreeNAS (2005)



TrueNAS (2013)



Unification  
(2020)



TrueNAS

FreeNAS and TrueNAS were so similar that we gained significant efficiency by combining them into one image.

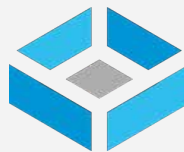
Enterprise



CORE

-FreeBSD

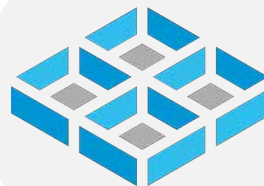
-Ideal for scaling *up*



SCALE

-Debian Linux

-Ideal for scaling *out*



# Why Did TrueNAS Swipe Right on Linux?

## The Definition of NAS

### Network-attached storage (NAS)

is data storage that connects to and is accessed through a network, instead of connecting directly to a computer. A NAS consists of computer hardware and an operating system so it can provide the intelligence needed for files to be easily shared .



# Why Did TrueNAS Swipe Right on Linux?

The Definition of NAS is Evolving





# Why Did TrueNAS Swipe Right on Linux?



Finally, I have  
storage you  
can **TRUST!**





# TrueNAS

SCALE

## Universal Storage and Apps

S

Scale-Out ZFS

C

Converged Infrastructure

A

Always Available Storage

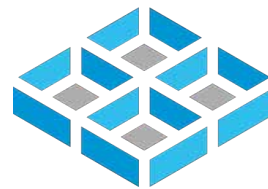
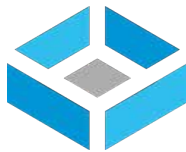
L

Linux Base & Containers

E

Easy to use

# What Makes CORE and SCALE Different?



	CORE	SCALE
Typical Use Cases	Simple & Reliable Storage	Scale-Out Storage w/ VMs & Containers
High Availability	None	Clustering
Scalability	Scale-up	Scale-up or Scale-out
Apps & Plugins	Jails Only	Apps in Linux Containers (Docker) or Pods (K8s)
Support	Community Supported	Community Supported
Hardware	Third Party & iXsystems	Third Party & iXsystems

# Why Did TrueNAS Swipe Right on Linux?



## Containerization

Containerization was a highly popular feature request for the last several years and though BSD has jails, the app ecosystem is significantly smaller than Linux.



## Diversity

Diversity of solutions gave the TrueNAS SCALE developers options when it came to containerization orchestration tools.



## Apps / Jails

Jails on TrueNAS CORE were getting long in the tooth and difficult to support. Meanwhile, the ease of implementing an app store like experience with containers became much easier with Linux.



# Why Did TrueNAS Swipe Right on Linux?



## Scaling Out

Scaling Out wasn't an option with FreeBSD so we had to start looking to Linux for solutions on clustering. SCALE allows for scale-out SMB.



## High Availability

High Availability in FreeBSD doesn't allow active-active availability, which means that to achieve higher uptime, we needed an additional solution.



## Dynamic Development

Dynamic Development of the base OS is very good with Linux, and allows us to draw on more drivers and features that may not be available in FreeBSD.

# Why Did TrueNAS Swipe Right on Linux?



## Growing the TrueNAS Community

Linux appeals to a broad group of people in the Open Source community, allowing us to spread the word about TrueNAS to more individuals.



## Widespread Adoption

Linux has a wide appeal commercially and allows us to compete in an additional market that we wouldn't reach otherwise.



## Technologies and Resource Management

Linux offers a comprehensive mix of technologies that allowed us to build the right solution. This technology also allows us to resource manage appropriately for a multi-node infrastructure.

# Core Technologies

**TrueNAS**  
Software Infrastructure

01

05

**MiniO**  
Simple & Scalable Object Storage

**Debian**  
Linux Kernel

02

06

**Kubernetes & Native Docker**  
Containers and Apps

**OpenZFS**  
Snapshots and Self-Healing

03

07

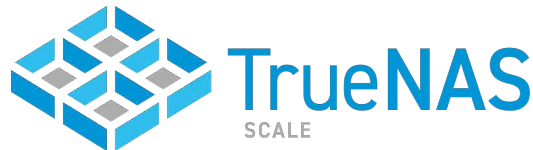
**S3 API**  
Cloud Storage Interface

**Gluster**  
Scale Out

04

08

**KVM**  
Virtual Machines



# TrueNAS SCALE is Open Source

## Open Storage

SMB, NFS, iSCSI, S3 API  
OpenZFS, Gluster, MiniO

## Open Virtualization

Kubernetes  
Debian, KVM

## Open APIs

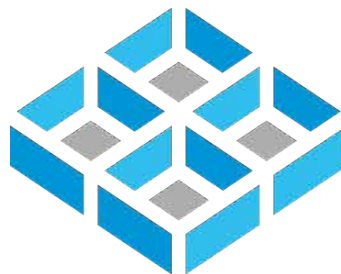
REST & Websocket APIs  
Kubernetes, Helm Charts

## Open Source

BSD, MIT and GPL licenses  
GitHub, Jenkins, Hugo Docs,  
Community

**10,000+ Developers and Testers**

500,000+ of Community members



**TrueNAS**  
SCALE



# TrueNAS SCALE Provides



Ease to Use



Reliability of Linux +  
ZFS



Patch Management



Community and  
Professional Support  
Available



Proven Platform of  
TrueNAS



Simple Upgrades

# Additional Features



Web GUI &  
WebUI Updates



Hundreds of  
QA Cycles &  
Thousands of  
Tests



Improved Version  
Control



24/7 US-Based  
Enterprise Support  
for Business



A Community of  
500,000+



Open Project  
Management



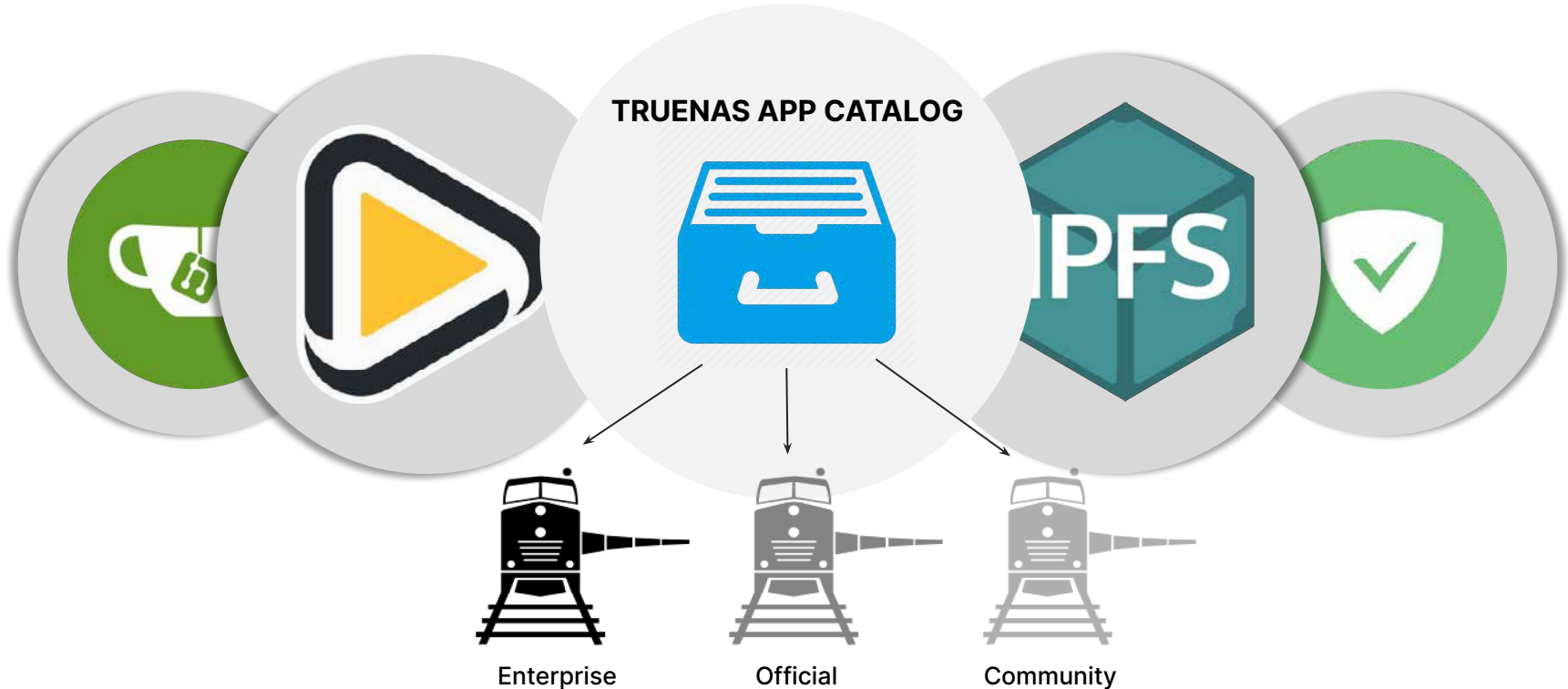
Rest API & CLI



TrueCommand  
Multi-system  
Management

# TrueNAS App Catalogs and Trains

Well organized Kubernetes Apps for operating in any environment.








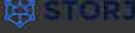










# TrueNAS Apps

**Applications**

Search Available Applications... Refresh All Catalogs Settings Launch Docker Image

Installed Applications Available Applications Manage Catalogs Manage Docker Images

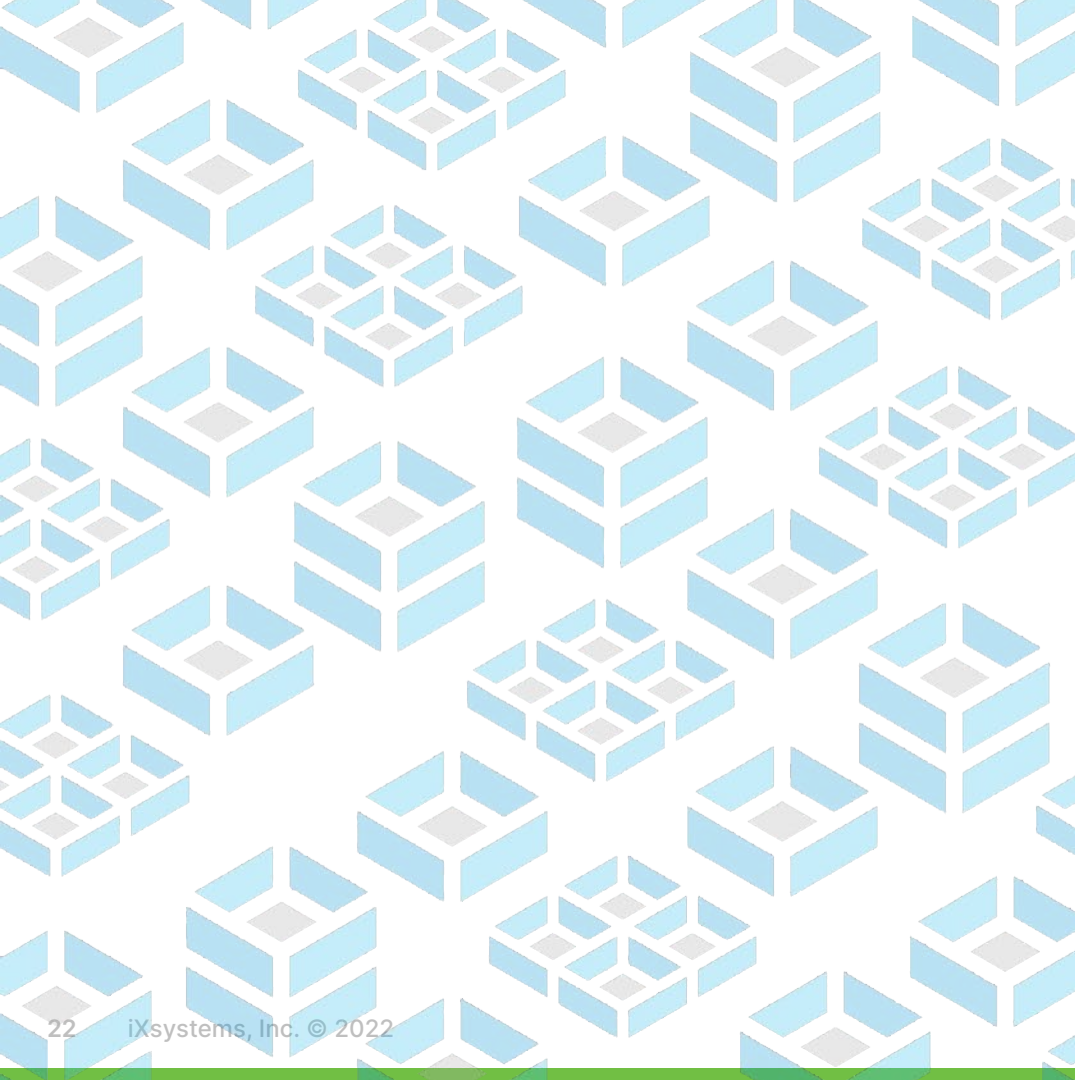
 Official Charts Install	<b>netdata</b> v1.36.1_1.0.11 Install	 Official Charts Install	<b>qbittorrent</b> 4.4.3_1.0.7 Install	 Official Charts Install	<b>ipfs</b> v0.15.0_1.2.9 Install	 Official Charts Install	<b>machinaris</b> v0.8.1_1.1.12 Install
 Official Charts Install	<b>emby</b> 4.7.6.0_1.0.11 Install	 Official Charts Install	<b>collabora</b> 21.11.4.1.1_1.2.6 Install	 Official Charts Install	<b>chia</b> v1.5.1_1.3.34 Install	 Official Charts Install	<b>storj</b> 1.17.5_1.0.0 Install
 Official Charts Install	<b>syncthing</b> 1.20.4_1.0.11 Install	 Official Charts Install	<b>pihole</b> 2022.04.3_1.0.6 Install	 Official Charts Install	<b>diskoverdata</b> 2.0.1_1.0.4 Install	 Official Charts Install	<b>minio</b> 2022-08-26_1.6.46 Install
 Official Charts Install	<b>nextcloud</b> 24.0.4_1.6.8 Install	 Official Charts Install	<b>plex</b> 1.28.2.6151_1.7.20 Install	 Official Charts Install	<b>photoprism</b> 20220121_1.0.6 Install	 Official Charts Install	<b>home-assistant</b> 2022.8.7_1.0.30 Install

“Wait, is TrueNAS  
CORE going away?!”

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NOPE!

iXsystems is supporting both projects simultaneously and both offer important pros and cons. In this talk, we focus more on Linux.



# “Is There a Reason I Should Choose CORE Over SCALE?”

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## It Depends

Are you only planning on utilizing one system? Are you planning to utilize apps on your NAS? If you don't need some of these features, TrueNAS CORE is a very mature storage platform and is legendary for its ability to protect data.

# “Who the Heck is iXsystems?”

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iXsystems started and still works with many Open Source projects. They're a computer server and storage manufacturer that competes with Dell, NetApp, and Pure Storage. They provide high quality systems at competitive prices with our manufacturing facility in San Jose, California and our growing team of Support Professionals and Developers out of Tennessee.







## “How’s the Community Reception?”

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# It’s Been Good

We aren’t seeing a lot of tribal behavior or concern. The overwhelming majority are most interested in an open source product that works.



# TrueNAS SCALE For Business



**User Type**

**ENTERPRISE**

**Developer**

N/A

**Tester**

TrueNAS 13.0-U4

Bluefin 22.12.2

**Early Adopter**

TrueNAS 13.0-U4

Bluefin 22.12.2

**General**

TrueNAS 13.0-U4

COMING SOON

**Conservative**

TrueNAS 13.0-U4

**Mission Critical**

TrueNAS 13.0-U4

# Important Links and Resources

[Download](#) TrueNAS SCALE

[Learn More](#) About TrueNAS SCALE

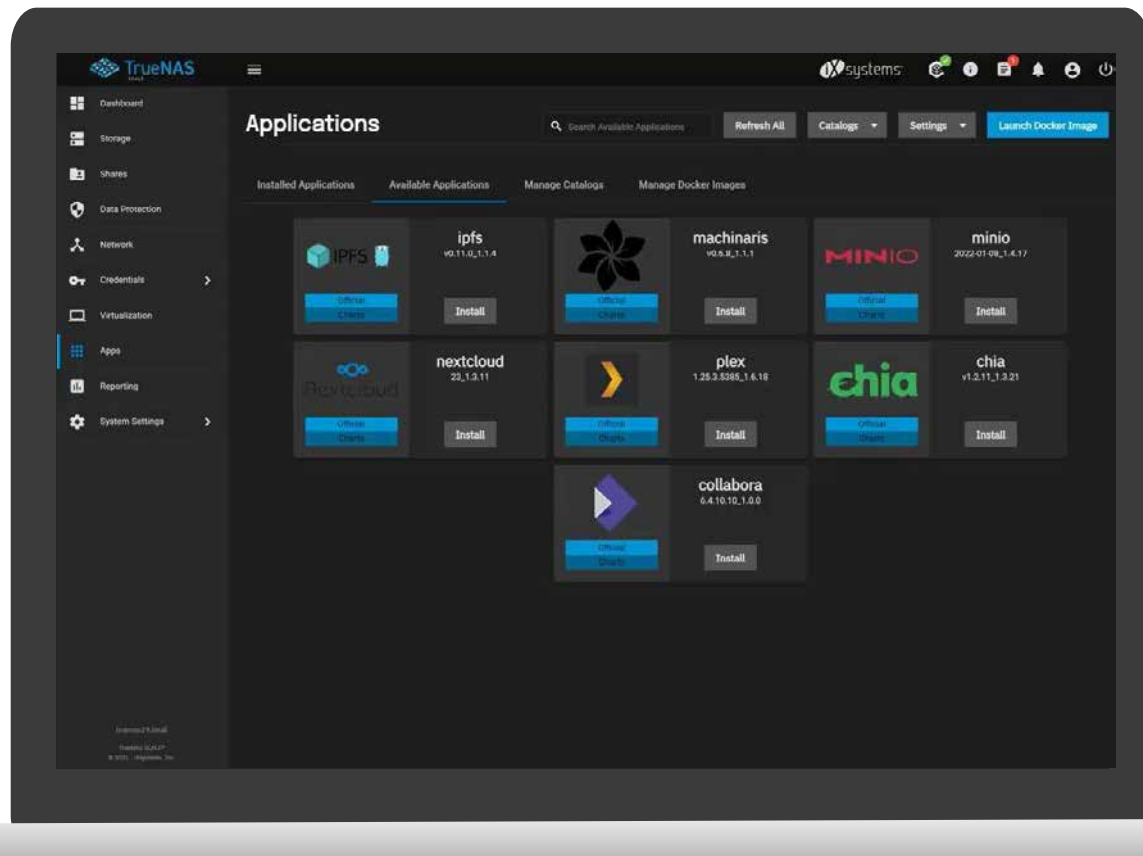
TrueNAS SCALE [Documentation](#)

TrueNAS SCALE [Introduction Video](#)

TrueNAS SCALE [Datasheet](#)







# QUESTIONS

# Thank You