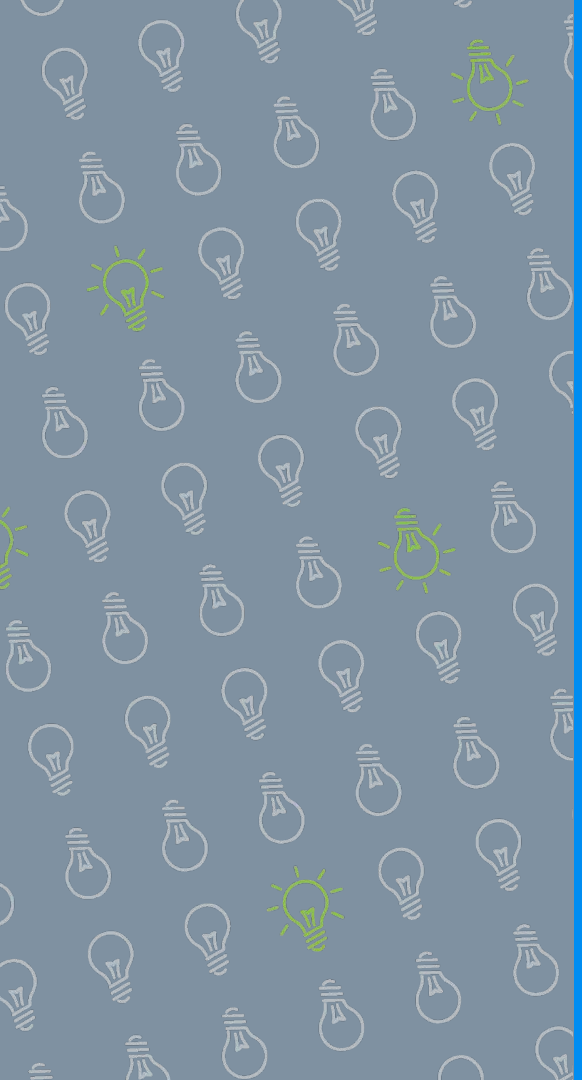
ZADARA SUMMIT 2018

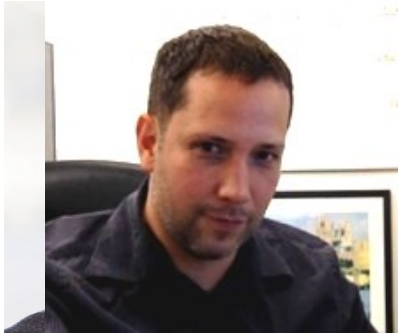
INNOVATE NOW



ZADARA®

Smarter Storage with Containerized Applications

Always Aligned with your Changing World



Gabriel Lopez

Solutions Architect, Zadara Storage

Accumulated years of experience in advanced software design and development as well as management roles in government and civilian capacities.

Currently working on new storage-oriented projects directed toward general business automation, enterprise resource planning, and international cloud-based service oriented architectures.

Smarter Storage with Containerized Applications

- Converged Infrastructure
- Docker
- Docker + Zadara
- Use Cases and Example
- Conclusion

Converged Infrastructure

Definition:

(Hyper) Converged Infrastructure

Operates by grouping multiple information technology (IT) components into a single, optimized computing package.

-Wikipedia

Convergence - Combining for ease of use

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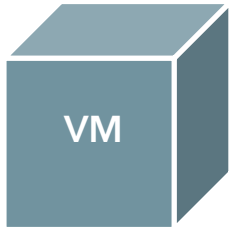

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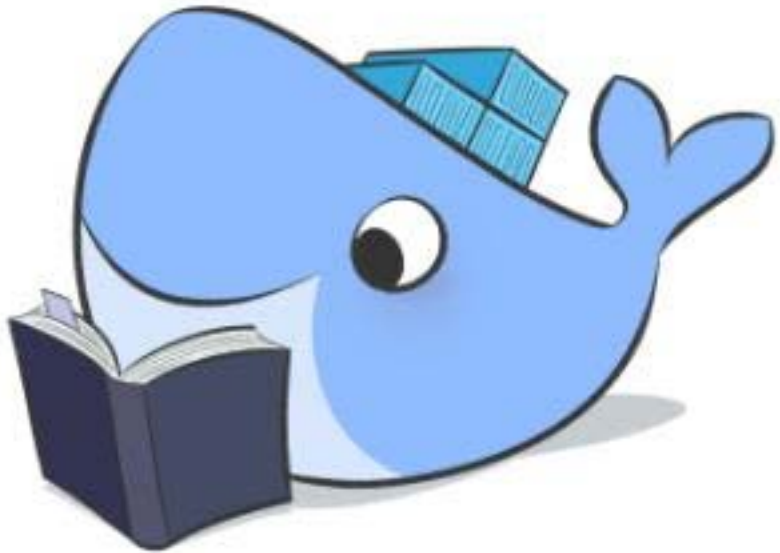
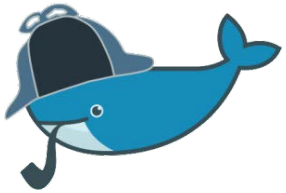
Elastic **Unified**

Convergence – Can we do better?

Well we can definitely do different (and probably better too)!



We need to solve the following



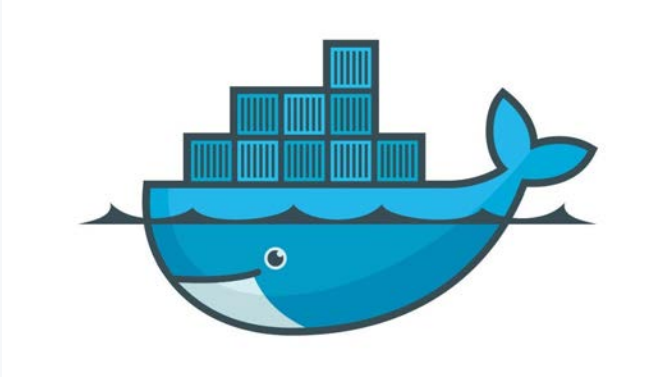
Problem Solution

- ✅ Portability!
- ✅ Scalable!
- ✅ Uniformity!
- ✅ Efficient!

Problem

- ✅ Portability?
- ✅ Scalable?
- ✅ Uniformity?
- ✅ Efficient?

Cue Docker!



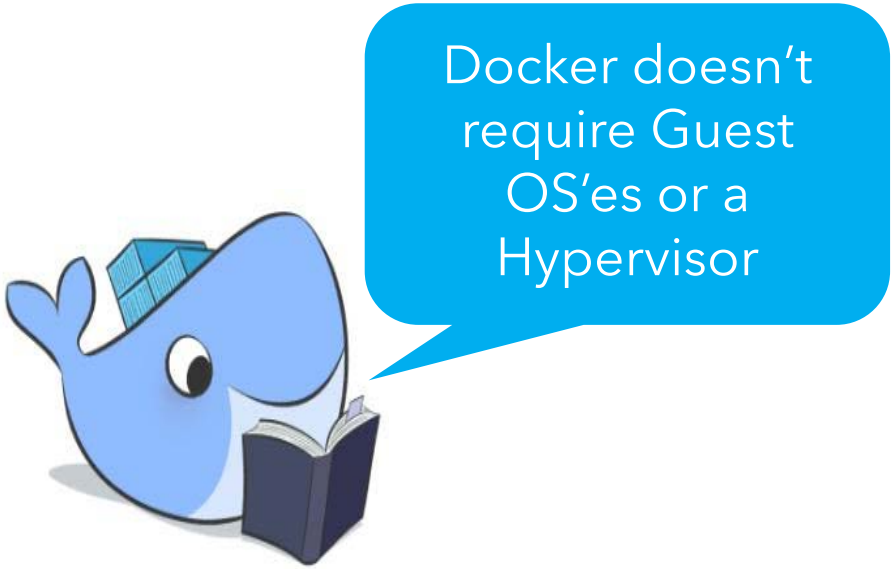
What is Docker?

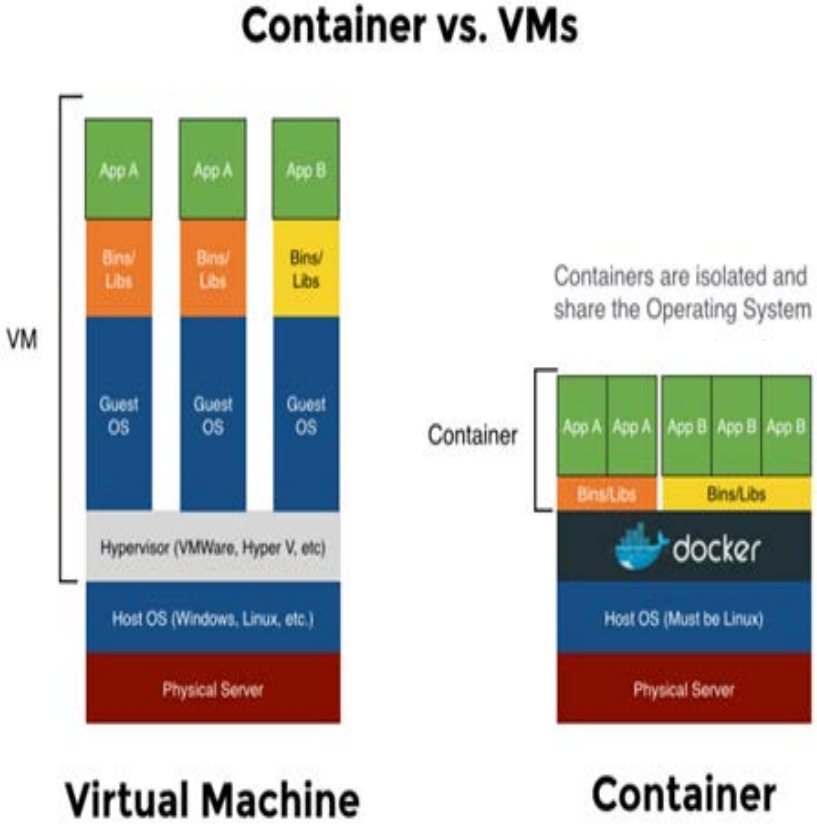
Docker is a computer program that performs operating-system level virtualization also known as containerization.

-Wikipedia

Docker 101 - Architecture

Wait what about VM's!?!?!

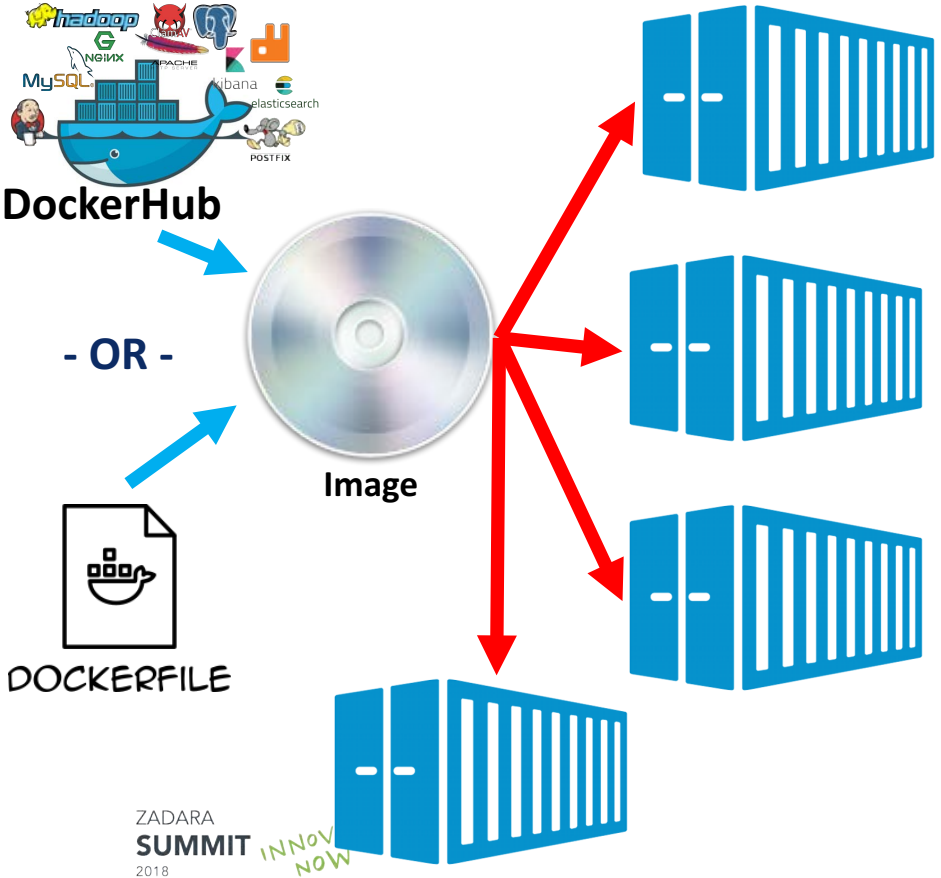




Docker containers give you of all the properties of a VM without the overhead of an actual Guest OS since the OS/Kernel is shared:

- ✓**Networking**
- ✓**Independent File System**
- ✓**Installed Dependencies**
- ✓**Storage Access**
- ✓**Virtual Storage**
- ✓**Cloning**

Docker 101 - How Does it Work?



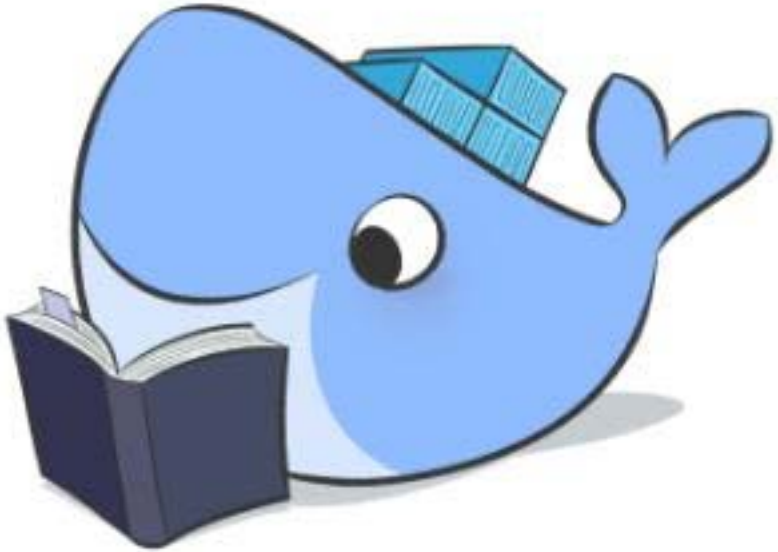
- Create an Image or pull one from Docker hub
- Deploy as many containers your host or cluster of hosts can handle
- Exposed environmental variables for super quick deployment configuration

Docker 101 – Common Design/Deploy Patterns

- De-couple! One container image per service
- Ephemeral! A container should be re-spawn-able at any time
- Build image as compact as possible (alpine 30x smaller than debian)
- Identical / uniform dev and production containers
- Scale up and down as needed
- Collect your Logs!

We Love Docker!

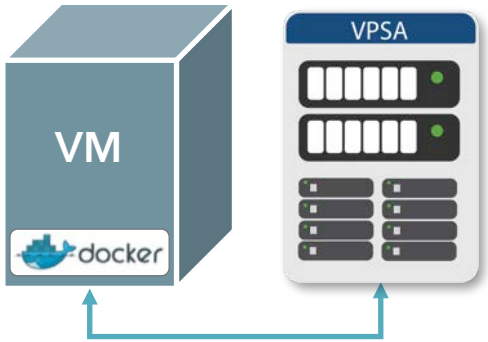
I think we'll adopt!



Docker + Zadara (ZCS)

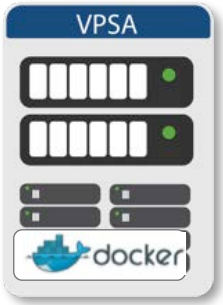
Zadara Container Services (ZCS)

Before:



- Docker Apps run on VM
- Network Latency

After:

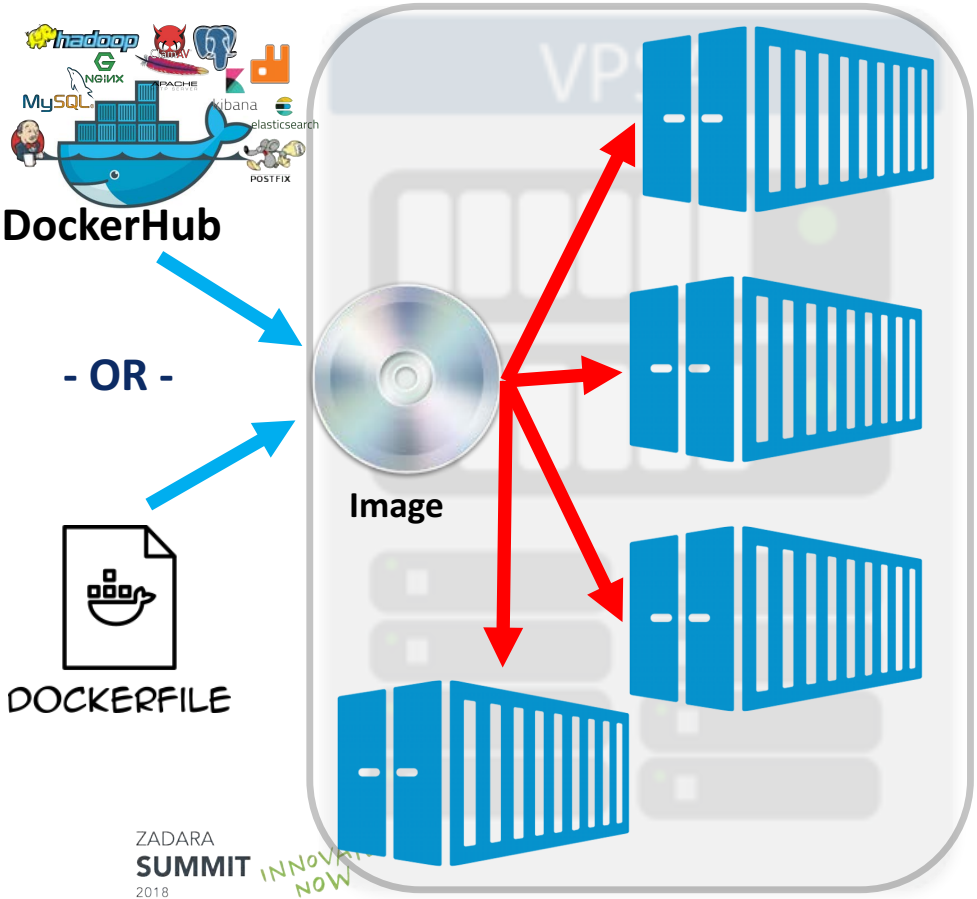


Upload your own image or pull from Docker hub Directly!!!

- Docker Apps run within VPSA
- Zero Latency, High throughput
- No transfer charges
- Automation
- Free up host CPU cycles

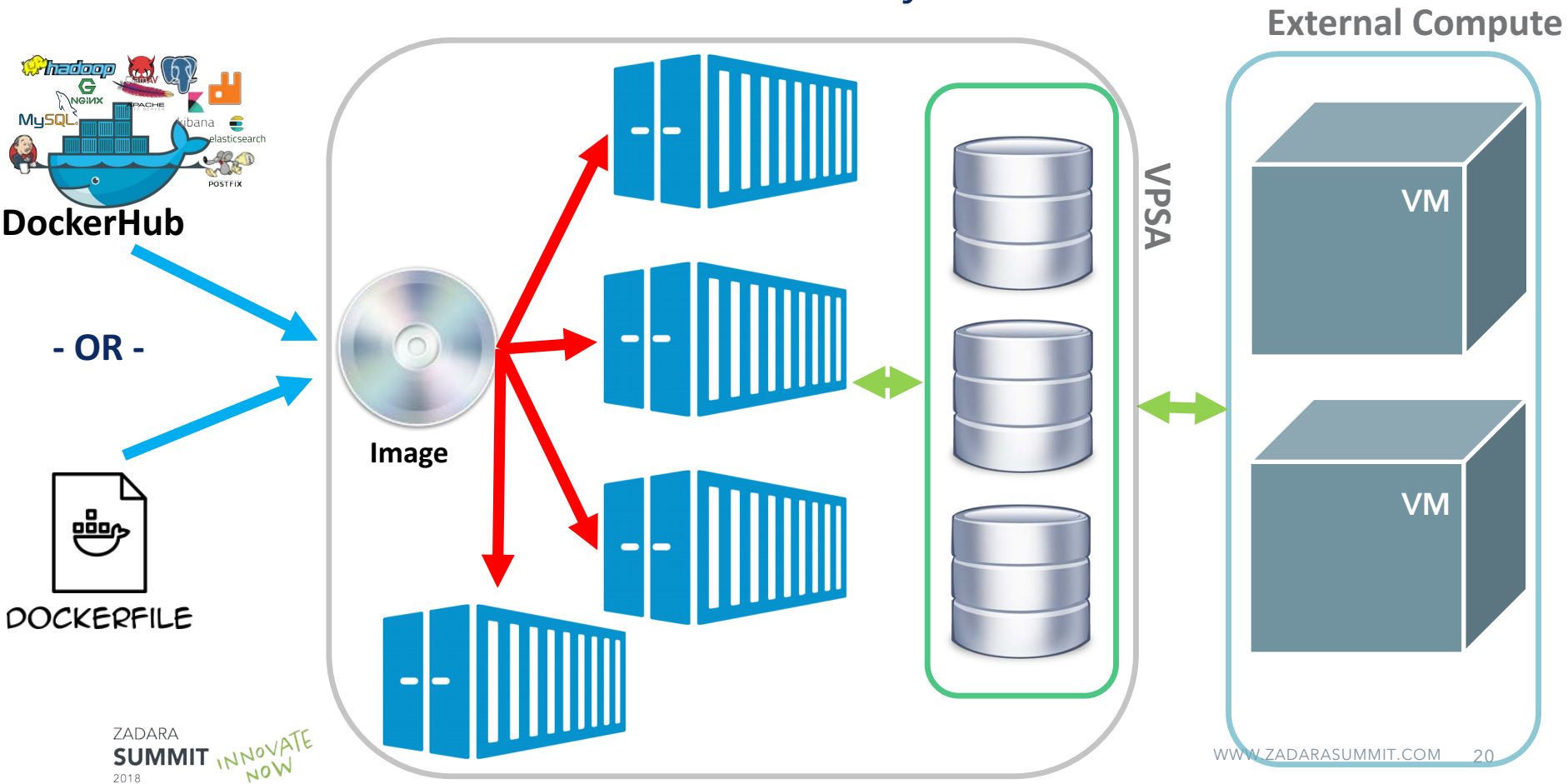
Run tasks within storage for high-performance

ZCS – Docker overlay on VPSA

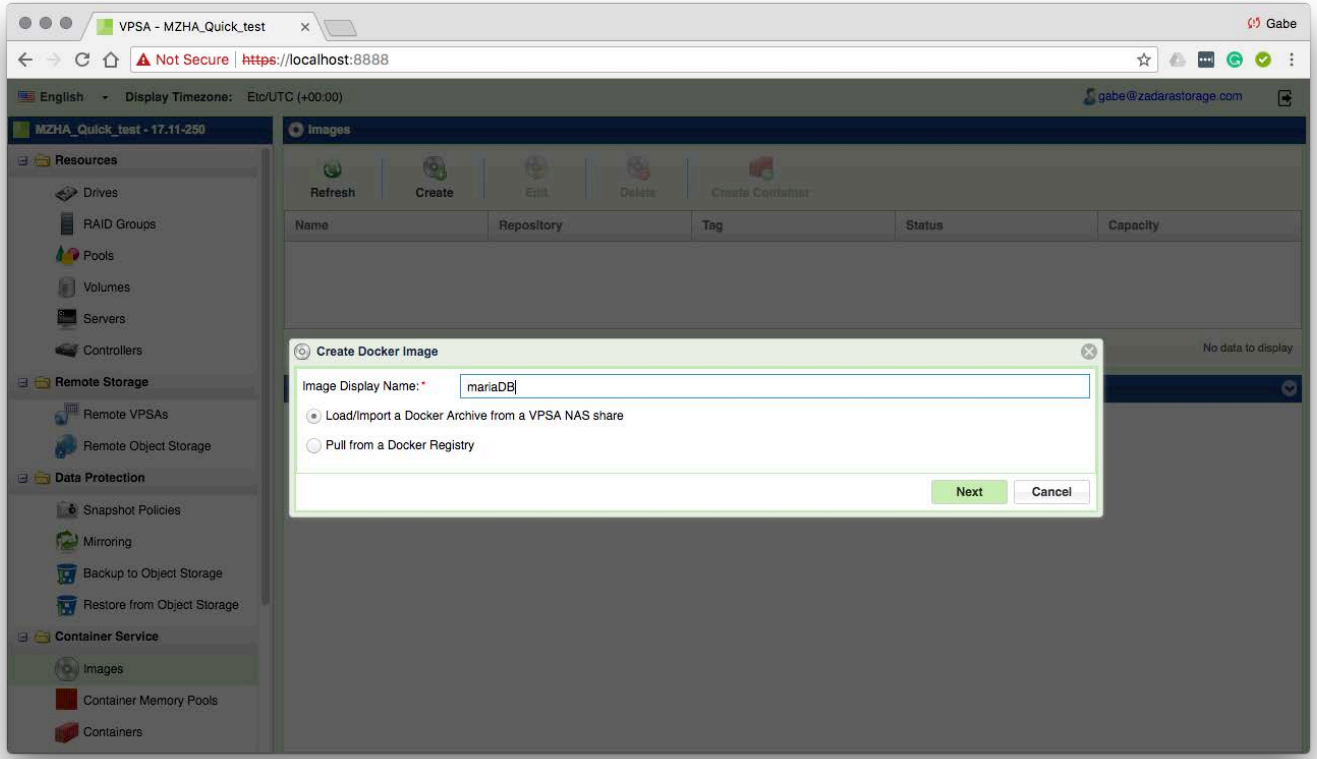


- Pull from DockerHub directly or upload your own Images!
- Deploy as many containers your ZCS Engine can handle, (increase engine as needed)
- All in GUI or orchestrate-able via the Zadara API
- Accesses same Zadara NAS shares available to traditional compute
- Offer services right out of the Array

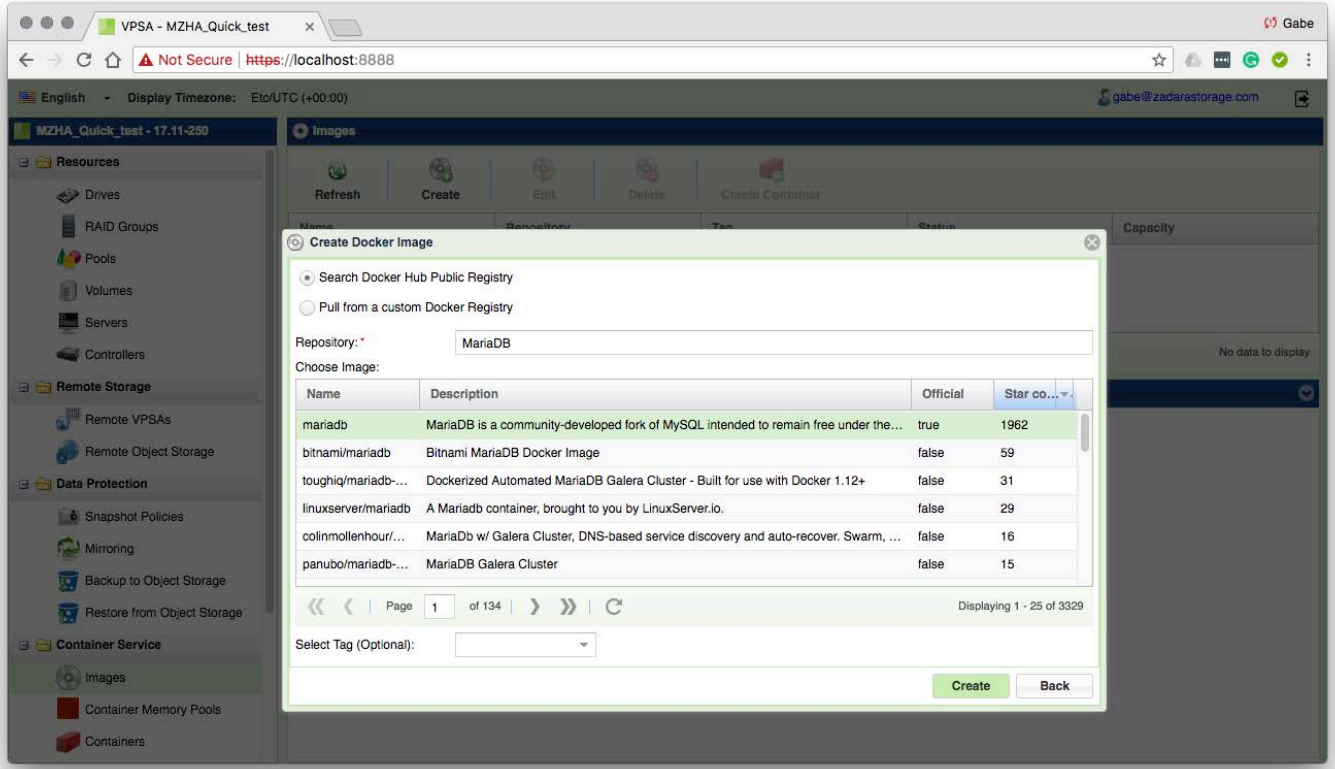
ZCS – Docker overlay on VPSA



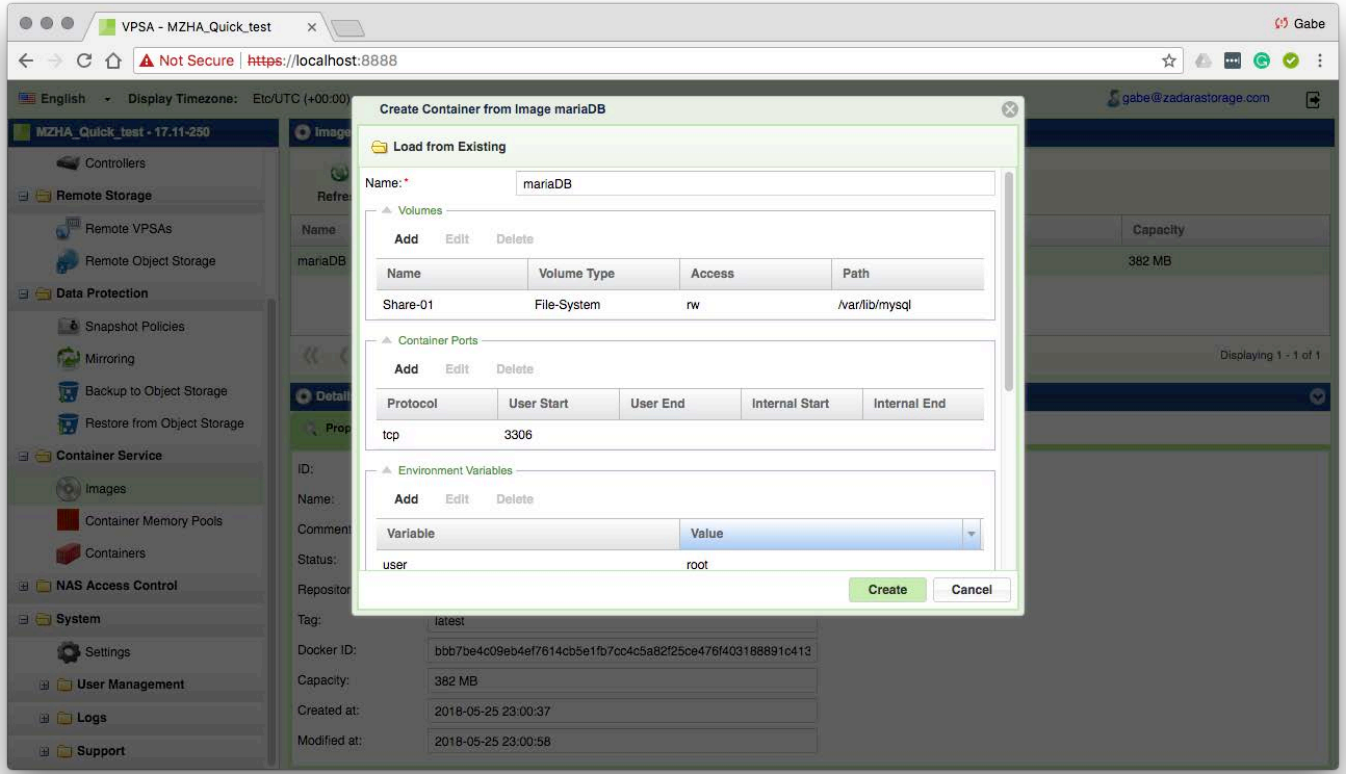
ZCS – In action



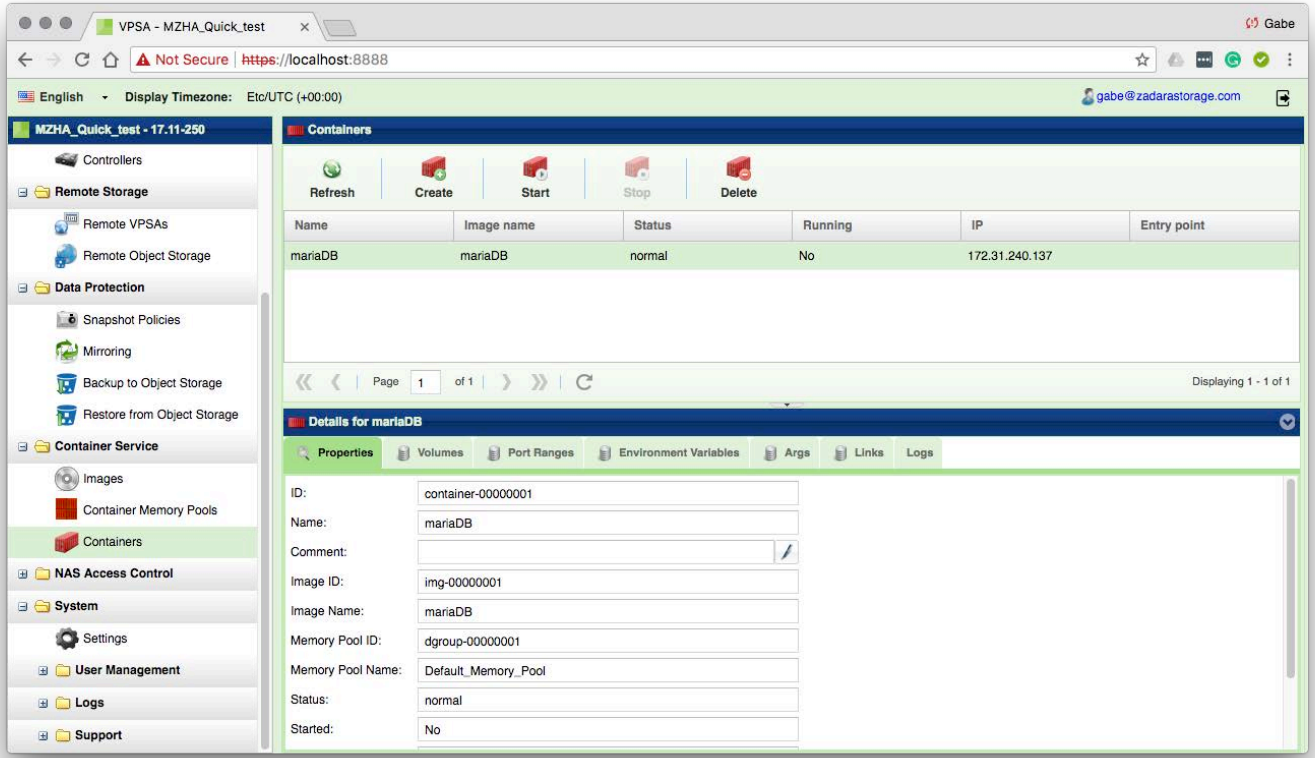
ZCS – In action



ZCS – In action



ZCS – In action



Zadara Container Services (ZCS) Uses

Organize and Discover

- NAS Indexing / search / notifications
- Data Classification
- Low-latency OLTP tasks
- Hadoop / Map Reduce

Manipulate

- Transcoding / data transformation
- Compress

Protect

- Data governance / auditing of NAS share
- Secure file transfer
- Anti-virus scanning

Share

- WebDAV/FTP server

ZCS Use Cases and Examples

"We've got a container for that!"

The nice things to notice about our ZCS

Nice Things

- Quick prototyping
- New/Special functionality
- Administrative tasking
- Hot fixing
- Uniform build and deployment
- Testing
- CI/CD ready

ZCS Examples

Clam AV

- **Problem:** Need a way to provide customers AV.
- **Solution:** Clam AV – A mature antivirus solution that is designed to protect windows, linux and mac. Virus signatures are updated frequently by ClamAV. Can provide on-demand and manual scanning.
- **Results:** Ability to provide on-demand scanning as well as manual scanning for really large quantities of files.

Functional Requirement:

Customer Need, Feature Prototype

ZCS Examples

Zadara Capmon

- **Problem:** Need capacity monitoring for VPSA
- **Solution:** Still a work in progress, but created a Grafana and InfluxDB instances and provides a python script to permit volume metrics to be gleaned from a target VPSA.
- **Results:** Active capacity monitoring

Functional Requirement:

Customer Need, Feature Prototype

ZCS Examples

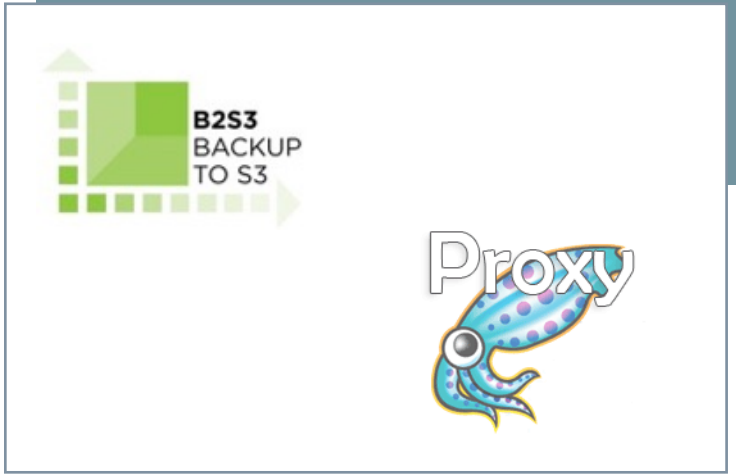
B2O Restore

- **Problem**: Need a quick universal restore tool.
- **Solution**: Zadara proprietary restore utility Dockerized. Mounts a volume which can access to object-store-based backups
- **Results**: Customers get quick access to restores ease.

Functional Requirement:

Customer Need, Administrative

ZCS Examples



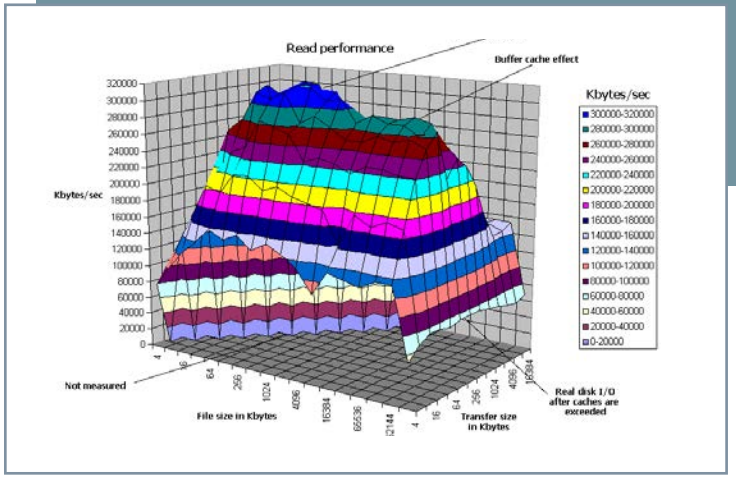
B2O Proxy

- **Problem:** Need to avoid going over public WAN to backup to AWS S3 in same region.
- **Solution:** Squid Proxy is a useful general purpose proxy built as Linux service.
- **Results:** Access for Zadara object storage to backup bypassing unnecessary charged ingress/egress activity and provides a good general NAT when needed.

Functional Requirement:

Customer Need

ZCS Examples



IO Zone

- **Problem:** Need for VPSA performance analytics.
- **Solution:** IOZone is a great utility to test IO performance and provide solid benchmarking.
- **Results:** Performance awareness tool also useful for debugging performance issues.

Functional Requirement:

Customer Need, Feature Prototype

ZCS Examples

OwnCloud

- **Problem**: Need for cloud-based RBAC file access with client syncing and remote mounting.
- **Solution**: OwnCloud is a mature open source project that provides very tailorable file shares and access to CIFS shares and mounted storage.
- **Results**: Customer's users get on-demand access anywhere with a fully sync-able and remote-mountable suite.

Functional Requirement:

Customer Need

ZCS Examples

Zadara AutoExpander

- **Problem**: Need dynamic expansion for VPSA's. Very large global customer looking to simplify growth.
- **Solution**: Custom-built tool using Zadara API's to create growth elasticity at various thresholds as well as notifications.
- **Results**: Customer saves time and energy letting growth happen dynamically and being informed of the changes.

Functional Requirement:

Customer Need, Feature Prototype

Zadara Docker Reference

https://github.com/zadarastorage/dockerfiles


ANY
QUESTIONS
?

THANK YOU!

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