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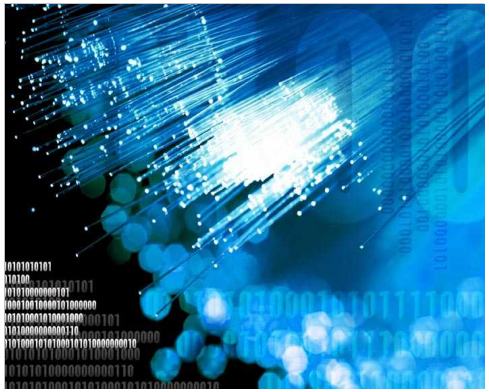

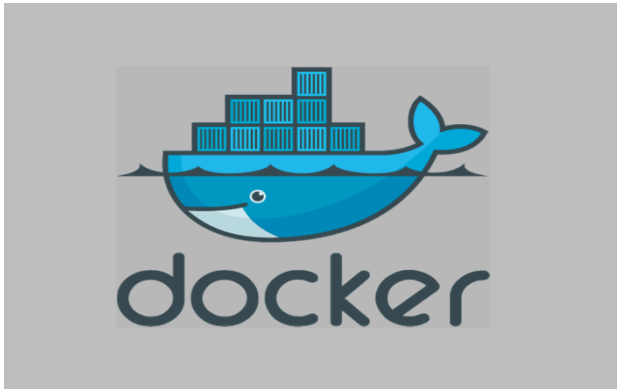

The Cloud and Dynamic Collaboration with Docker

Attn: Bruce G. Gale
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0932

U.S. DEPARTMENT OF ENERGY

NNSA National Nuclear Security Administration

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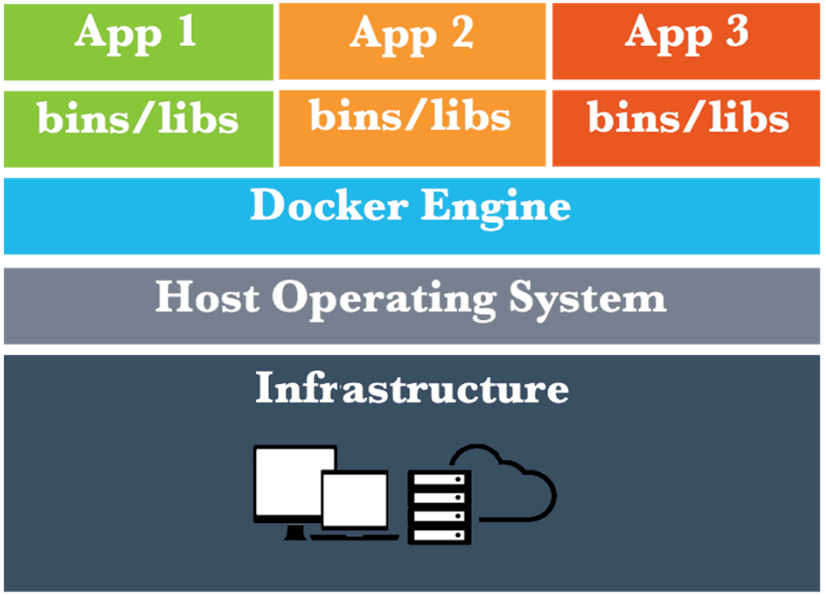
Introduction

- Sandia National Labs
  - Advanced Software Engineering
- Framework
  - COTS and;
  - Custom solutions

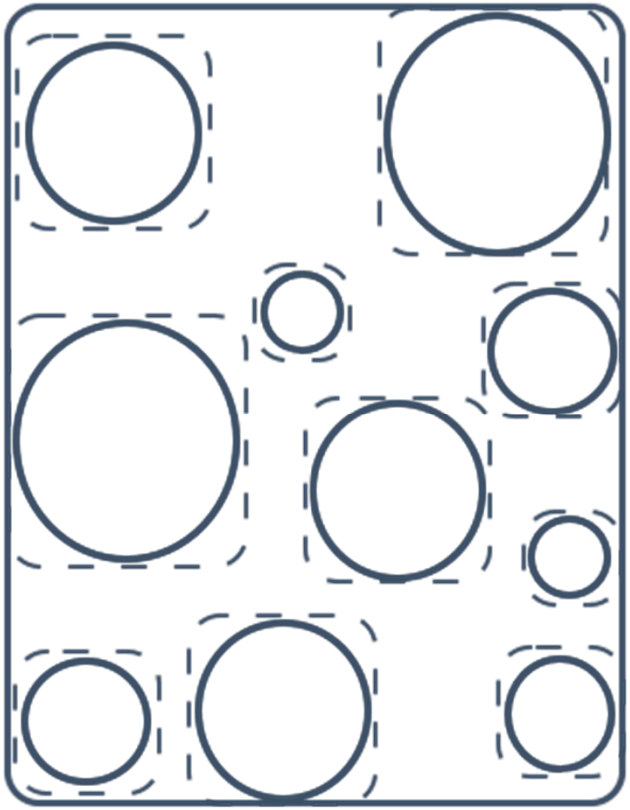
Docker? Docker!

- Share the OS kernel
- Docker Engine
- Layered filesystems
- Isolated processes



Microservices Architecture

- Application decomposition
- Encapsulation of microservices
- Efficient distribution across partnerships



Continuous Integration

- Microservices developed within Docker containers
  - The bins/libs provided within base image
  - Deployed to industry through Docker repositories
- Integration test tools utilized on independent repos building against Docker base image
  - Jenkins, Maven, etc.
- Providing more effective test coverage with industry partners

Bridging the Dev/Ops gap

Sandia National Laboratories

Developers

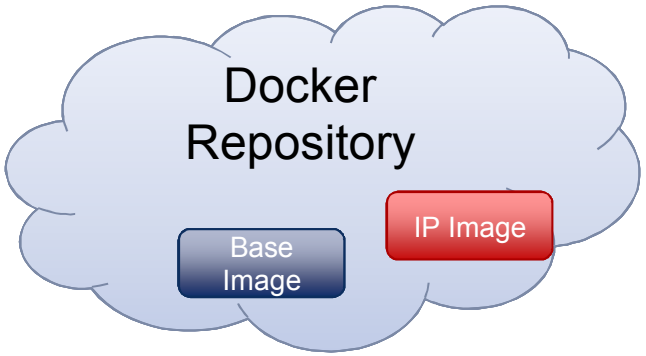
- Build within containers
- Provides consistency of environment configuration
- What runs on one dev machine will run on any dev machine

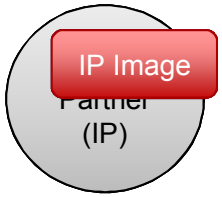
Ops Engineers

- deploy outside containers
- Reduce discrepancies between dev and ops env
- What runs in test also runs in ops

Team Collaboration

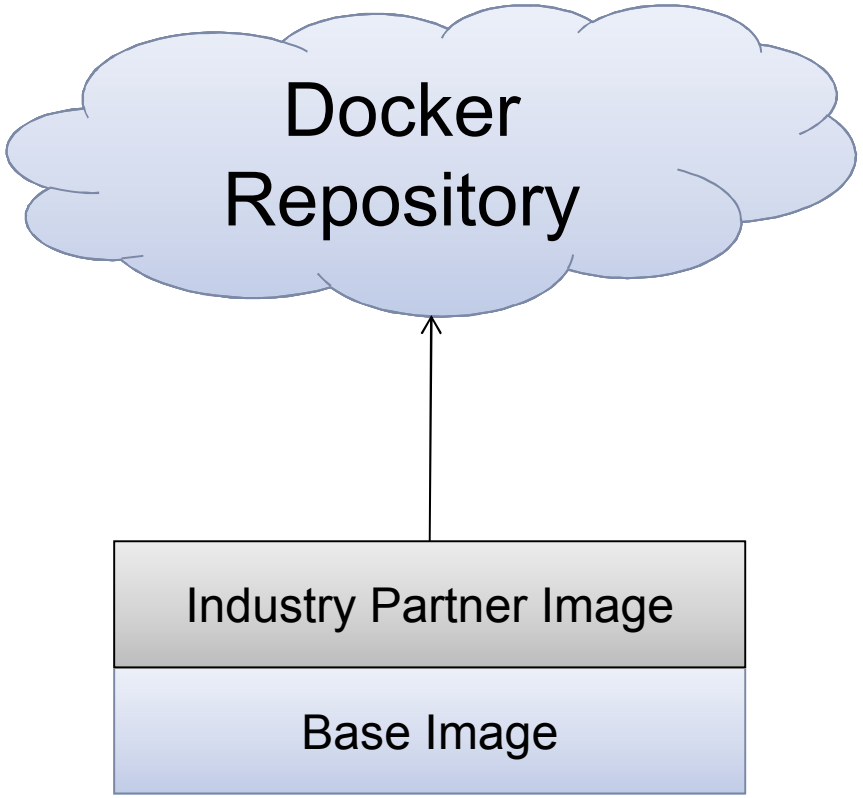
- Base Docker Images
- Industry partners
- IP Images stored





Putting it all together

- Docker Hub
  - Public/Private registry
- Docker images
  - Base image
  - Layer on Industry Partner image
  - Push new image



Questions

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Newman, Sam. *Building Microservices.* (San Francisco: O'Reilly Media, 2015).

Bridging the Dev/Ops Gap:

http://12factor.net