

# Container Runtime and Image Format Standards

*What it means to be “OCI-certified”*



KubeCon/CloudNativeCon  
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Jeff Borek, [@jeffborek](https://twitter.com/jeffborek)  
WW Program Director, Open Tech, IBM

Stephen Walli, [@stephenwalli](https://twitter.com/stephenwalli)  
Principal Program Manager, Microsoft



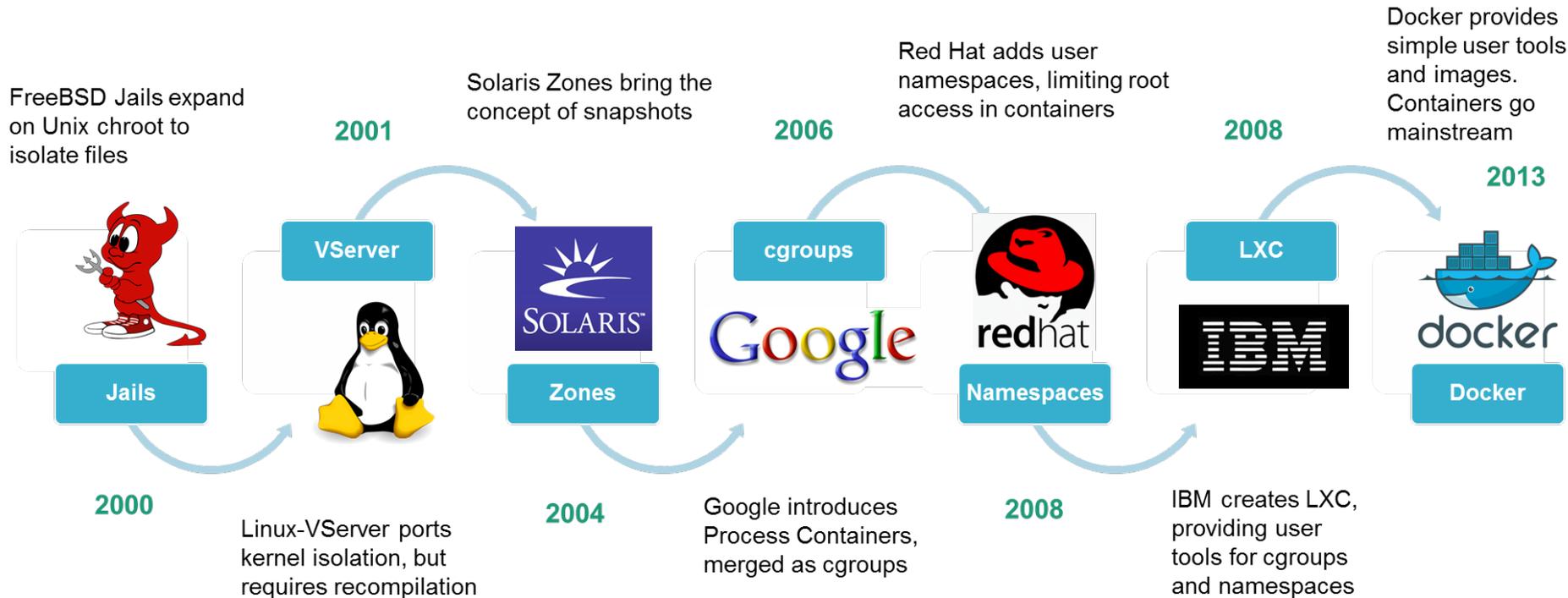
- Background deep-dive
- OCI Certification Program
- How you can get involved
- Q&A



**OPEN** CONTAINER  
INITIATIVE

# Background deep-dive

# Containers are not new. Many organic innovations from many independent organizations have brought them where we are today



# The Open Container Initiative (OCI)

a Collaborative Project of the Linux Foundation



*The OCI is a lightweight, open governance structure for the express purpose of creating open industry standards around container formats and runtime*

Announced June 22, 2015

## **A single, open container specification:**

- Not bound to higher level constructs such as a particular client or orchestration stack
- Not tightly associated with any particular commercial vendor or project
- Portable across a wide variety of operating systems, hardware, CPU architectures, public clouds, etc.

 **LINUX FOUNDATION**

<http://www.OpenContainers.org/>



The goal of a standard container is to **encapsulate a software component** and **all of its dependencies** in a format that is self-describing and **portable**, so that **any compliant runtime** can run it **without extra dependencies**, regardless of the underlying machine and contents of the container.

1. Standard operations
2. Content-agnostic
3. Infrastructure-agnostic
4. Designed for automation
5. Industrial-grade delivery

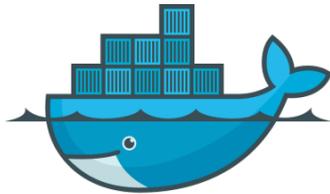
# The OCI aims to meld ecosystems towards an open standard



- Users should be able to:
  - Package their application once
  - Have it work with any container runtime
- The standard should fulfill requirements including:
  - Rigorous security
  - Large-scale, high availability production environments
- The standard should be vendor neutral and developed in the open



# Open Container Initiative – Early Ecosystem Alignment



docker

<https://github.com/docker/containerd>

<https://github.com/docker/docker/pull/26369>



Apache  
MESOS™

<https://issues.apache.org/jira/browse/MESOS-5011>



CLOUD NATIVE  
COMPUTING FOUNDATION



kubernetes

<https://github.com/kubernetes-incubator/crigo>



rkt

CoreOS

<https://github.com/coreos/rkt>



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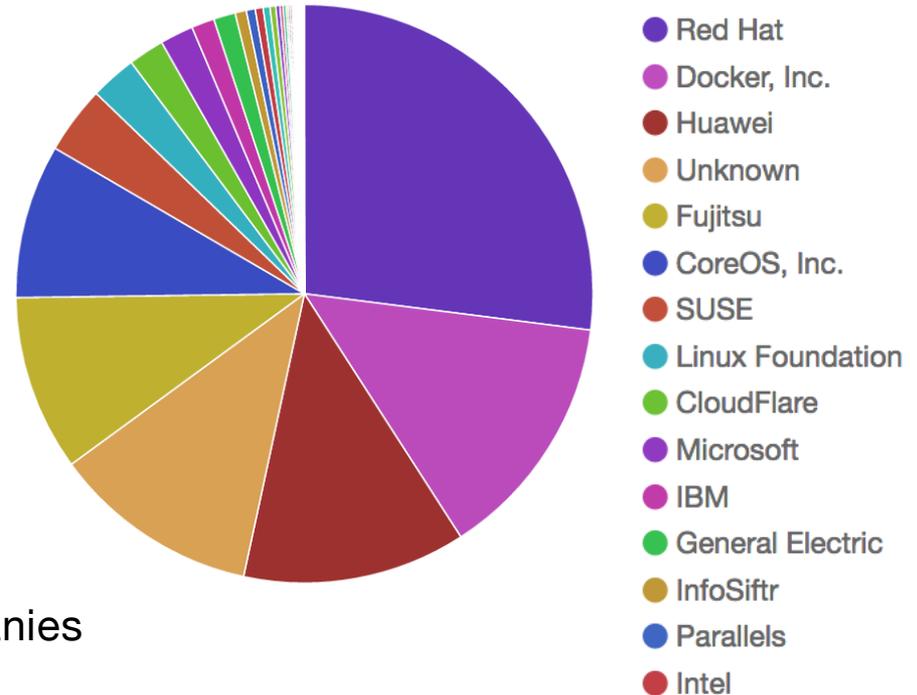
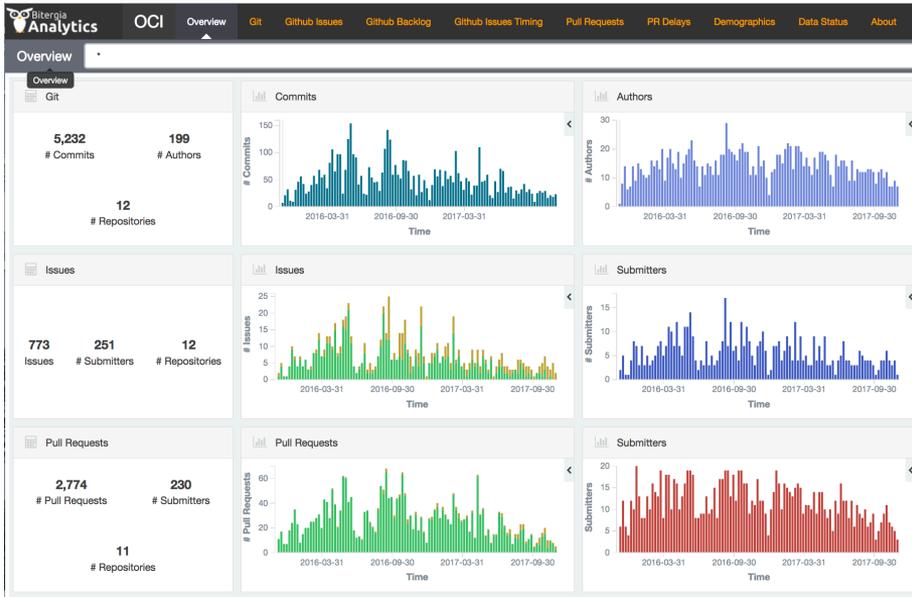
OCI Specs

CLOUD FOUNDRY  
FOUNDATION

FOUNDATION

<https://github.com/cloudfoundry/garden-runc-release>

# Contributors to the Open Container Initiative

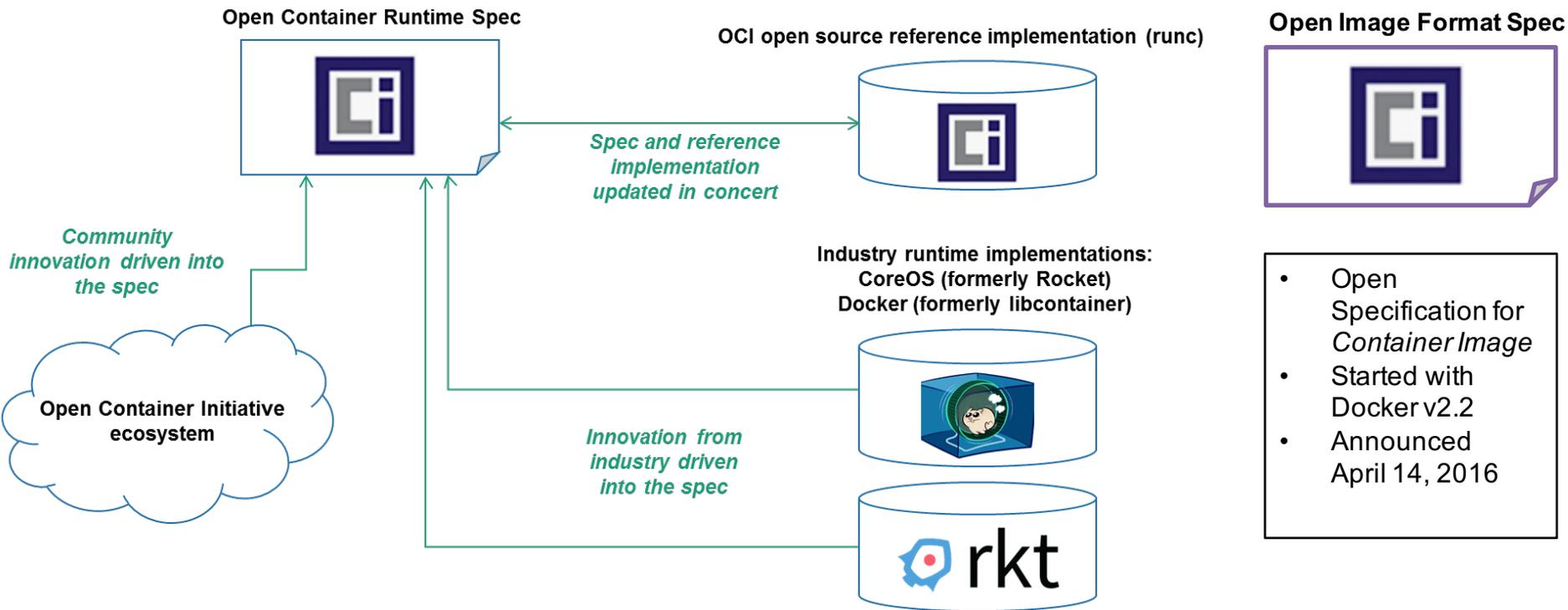


- The top 15 groups contributing to the OCI represent a broad and diverse group of companies

- View the OCI dashboard: <http://oci.biterg.io/>

As of 4 December, 2017

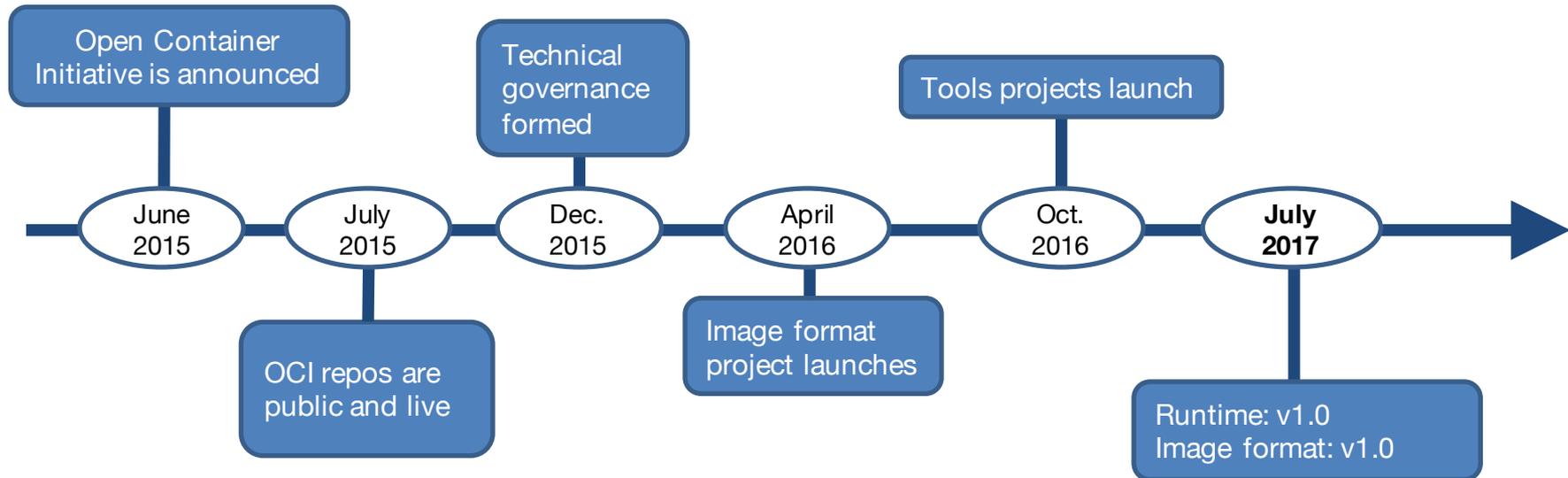
The OCI includes: (a) container specifications, (b) open source tools, and (c) an open source reference implementation



# Open Container Initiative: Milestones over the last 2+ years



Mission: Develop and promote a set of common, minimal, open standards and specifications around container technology (backed by a certification program)



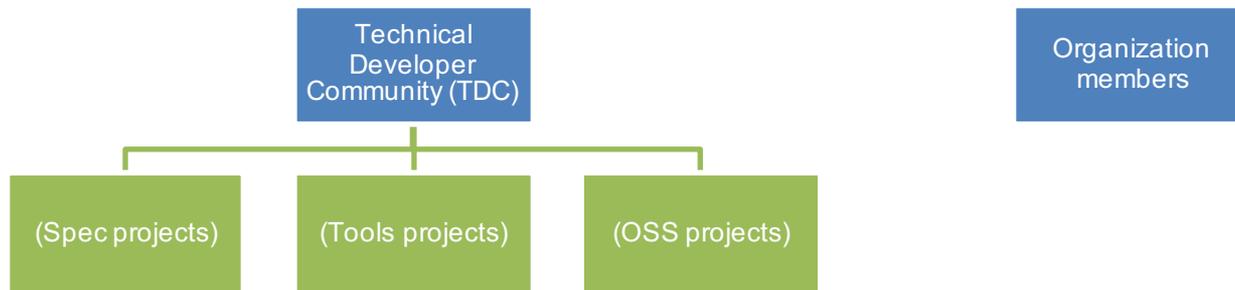
# How is OCI Organized



Technical  
Developer  
Community (TDC)

Organization  
members

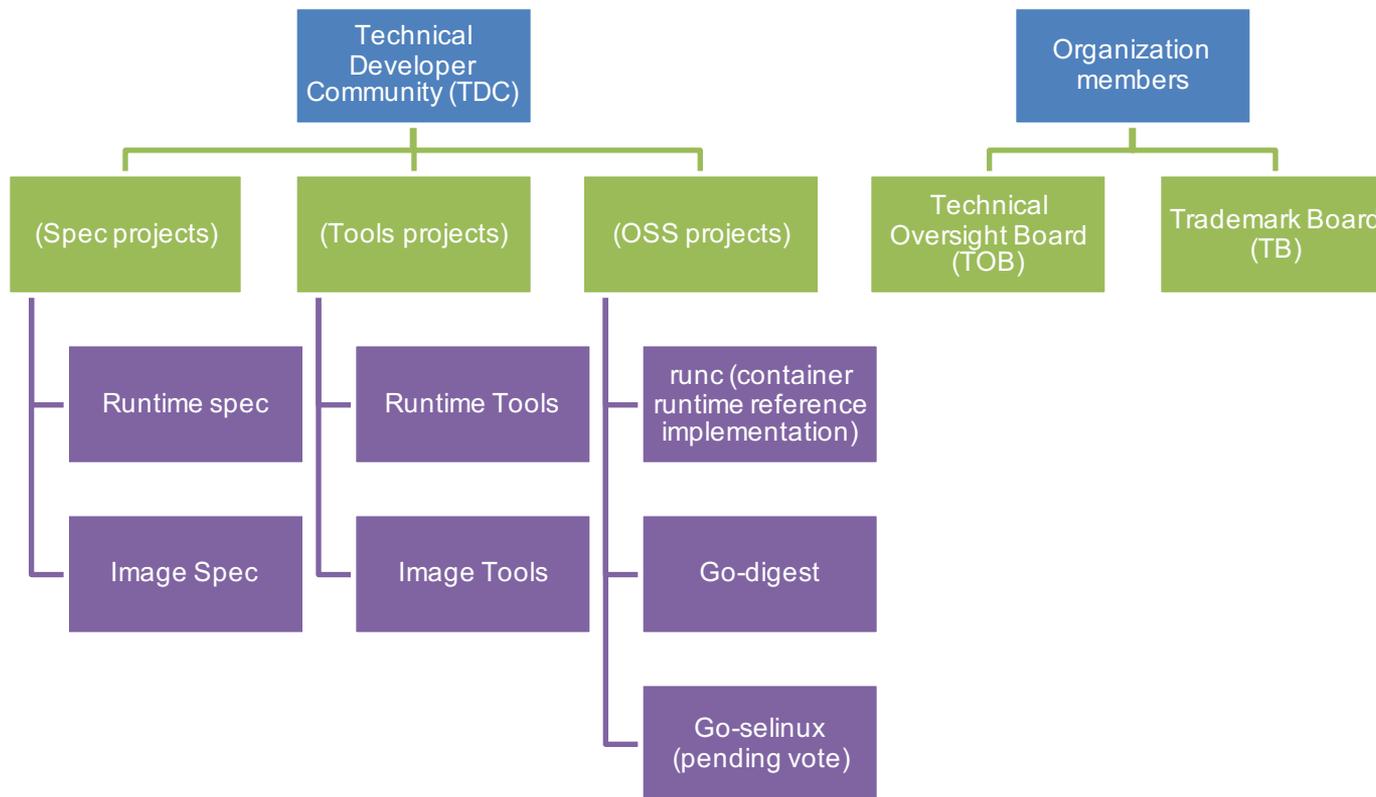
# How is OCI Organized



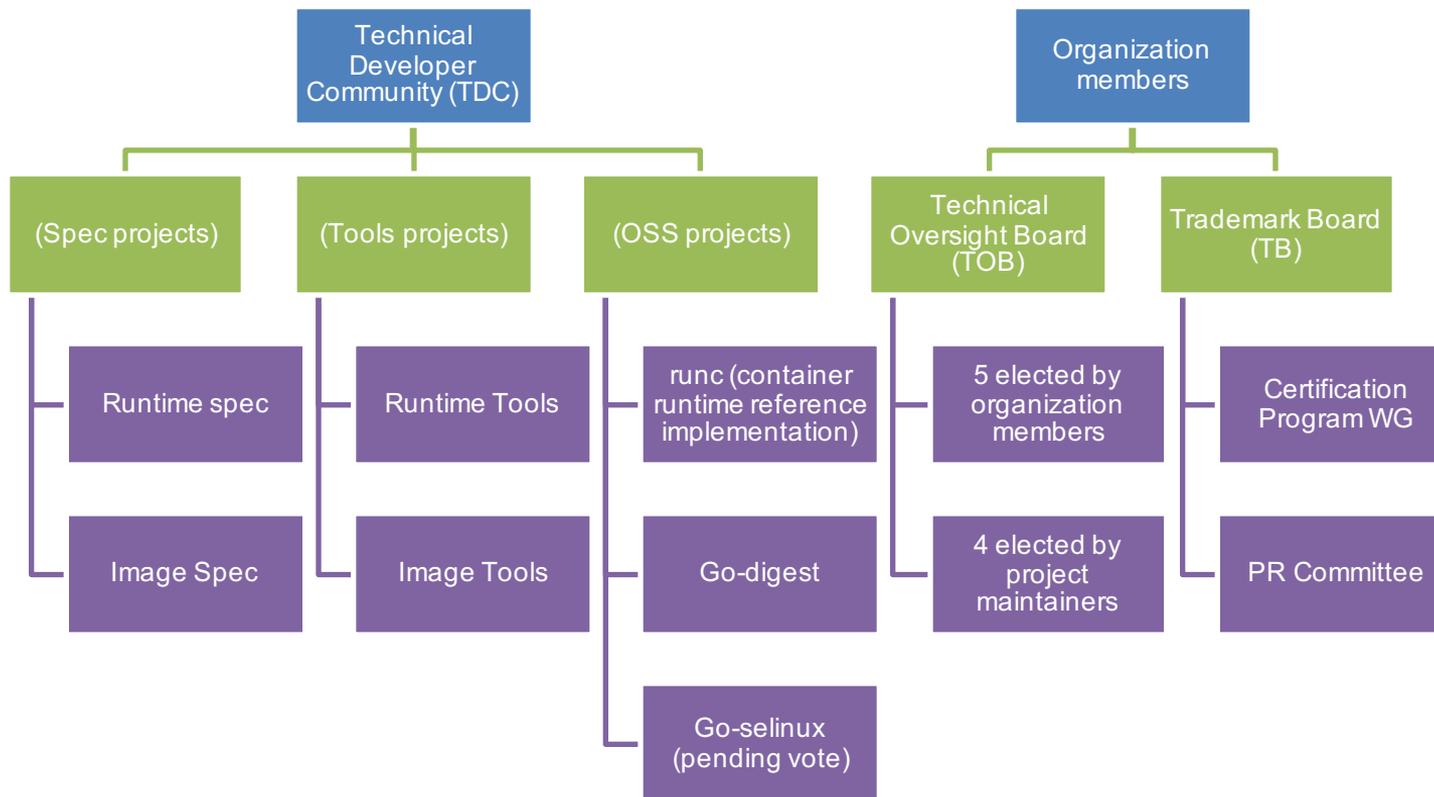
# How is OCI Organized



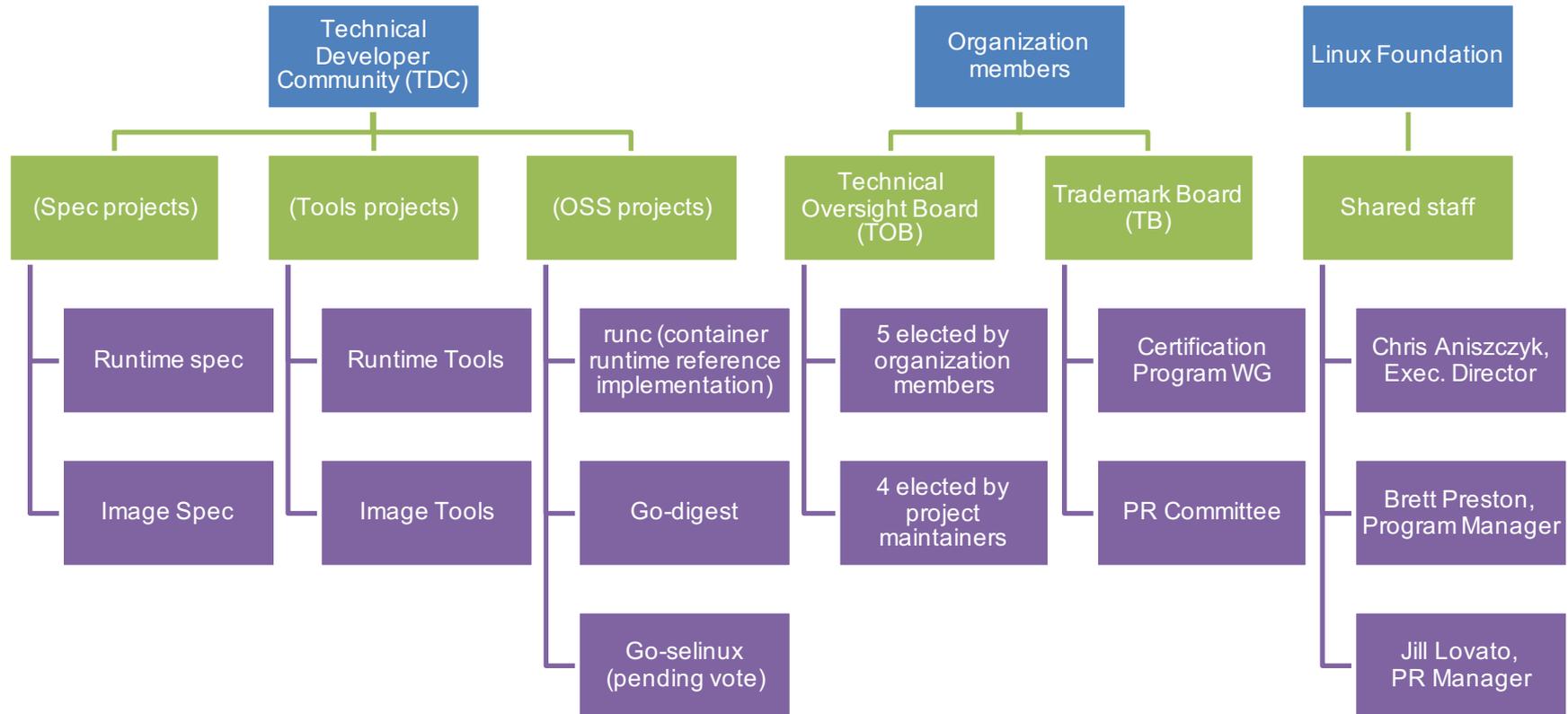
# How is OCI Organized



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Certification Program



Two product certifications:

- **OCI Certified Runtime**  
Meets all MUST / REQUIRED provisions from Runtime spec
- **OCI Certified Image**  
Meets all MUST / REQUIRED provisions from Image Format spec

Trademarks reserved (or being reserved) by the OCI Trademark Board:

- OCI
- Open Container Initiative
- Open Container Format
- OCI Certified

# What would this mean for users?



- OCI Certified Runtime –
- OCI Certified Image -

# OCI Certification Program Steps (DRAFT)



1. Apply

2. Test

3. Publish  
Results

4. Peer  
Verification

5. Certify

6. Promote

# 1. Apply



- Organization name and website
- Intended certification program (runtime or image)
- Product name and website
- Primary and secondary contact
- Approximate intended date to publish test results



### Test your product

- OCI Runtime Tools:
- OCI Image Tools:

### 3. Publish Results



Publish your **step-by-step test process** and results

The proposed location for publishing test process and results is GitHub

## 4. Peer Review



One or more members of the OCI Certification Program Working Group will attempt to reproduce the test results for your product and may contact you with questions

## 5. Certify



The OCI Certification Program will issue  
an official certificate of approval

(proposed to be published online)

## 6. Promote



Promote your OCI Certified product using OCI marks



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Get Involved

# Open Container Initiative (OCI) – Get Involved



GitHub: <http://github.com/OpenContainers>

- Runtime spec and Image spec
- Runtime tools and Image tools
- runc (open source runtime reference implementation)

Developer Community:

- <http://www.OpenContainers.org/>
- #OpenContainers on freenode IRC
- [dev+subscribe@OpenContainers.org](mailto:dev+subscribe@OpenContainers.org)



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Open Q&A



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Thank You

<https://www.OpenContainers.org/>