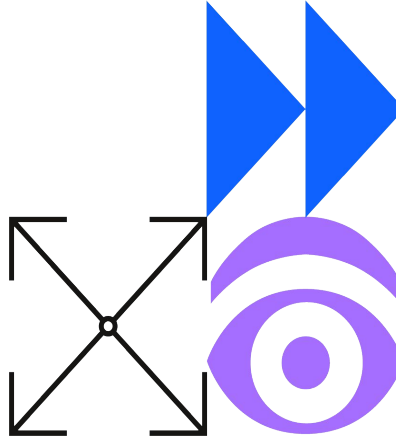


Open Source at IBM

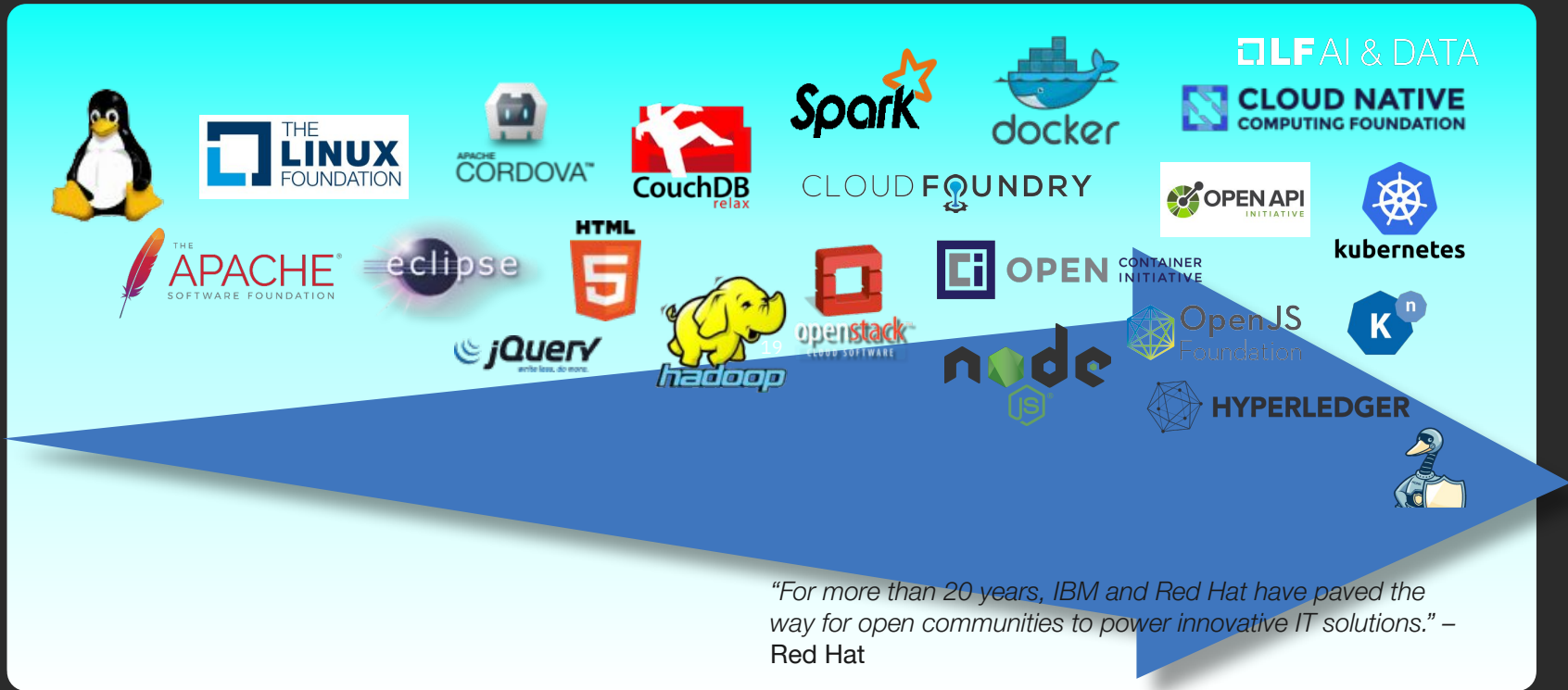
Bill Higgins

VP, watsonx Platform Engineering and Open Innovation
IBM Research



Technology Leaders Don't Just Consume Open Source

Long IBM history of actively fostering balanced community participation



IBM Seeks to Harmonize Open Source Consumption and Contribution

***The Harmonic Cycle** – Meaningful Contributions foster community trust, idea generation and encourages partner Contributions. This leads to continuous code improvement & feature acceleration which can be Consumed back by the enterprise.*

Consume Internally

Today, many IBM solutions are built on Open Source software, some as much as 75%



Contribute Externally

IBM strives to be a “good neighbor,” helping where needed and delivering innovation back to the community community (Over 4,500 Active Contributors and 600 Maintainers)

IBM Open Source Contributions



Kabanero



Qiskit



OpenJ9

Open Liberty



Razee

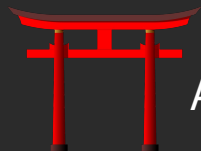


Hyperledger

FABRIC



Elyra



Apache Toree

IBM Plex[®]



Open Horizon

CARBON DESIGN SYSTEM



Open Power[™]

AI Fairness 360

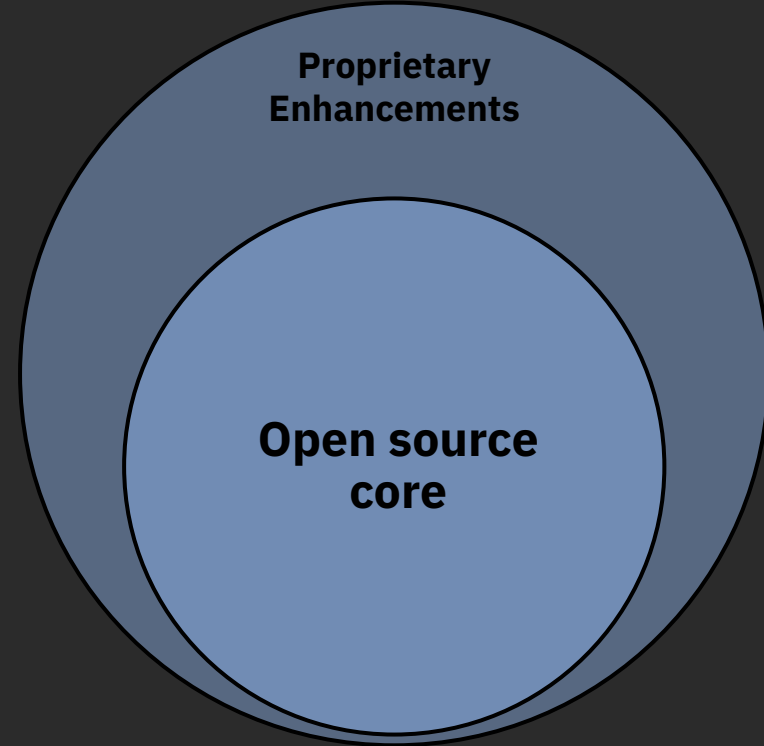
AI Explainability 360

AI Robustness Toolkit

Apache SystemML[™]

Why IBM is all-in on Open Source

1. **Speed of innovation and higher quality code through the community model**
2. **Open Source provides open APIs**
3. **Clients want interoperability and freedom from vendor lock-in**
4. **Delivering solutions based on open source attracts top development talent**
5. **Leveraging an open source code base allows you to focus more resources on differentiating enhancements.**
6. **Open Source ecosystems create larger market opportunities.**



What are the potential benefits to enterprise companies?

Open Source = Improved Speed, Cost Savings, and Choice

1

Speed of innovation through the community model

The code your company needs and are asking your developers to write has probably already been written and is available in an open source community.

2

Potential Cost Savings in Development, Documentation, Bug Fixes and Testing

Although these benefits exist, open source integration and maintenance is not free. Many start down the path to open source and then realize they need help.

3

Enterprise companies want interoperability and freedom from vendor lock-in

As well as supporting hybrid and multi-Cloud deployments successfully

"Enterprise open source is inventing the future of software ." - Red Hat blog April 2019

Why does open source matter to software developers?

Open Source = Skills, Support, and Stature

1

Easy access to key open technologies accelerates the speed at which developers can do their jobs and learn from others

2

The open source community helps developers grow through an ecosystem of support

3

Developers get the chance to “show off” their skills and build their eminence. Open source communities are the premiere social communities for developers

Open source is free – as in puppies



Open source is free, free as in puppies. You might get a free puppy from the shelter, but it is now your responsibility.

Similarly, with open source, you need to:

- ❖ **Ensure currency with upstream**
- ❖ **Remediate defects and vulnerabilities as they are discovered**
- ❖ **Beware of creating your own fork**
- ❖ **Ideally, contribute fixes and improvements upstream**

Open is great but, there's risk – *choose wisely*



Is the project under open governance?

Is the license really an open source license?

Does the code even **have** a license?

Check for OpenSSF Best Practices Badge ([link](#))

Check the OpenSSF Audit Program if the project is under LF governance ([link](#))

Vet the project using a tool such as OpenSSF's [scorecard](#)

Are there languishing PRs or Issues?

Does it have regular releases?

Does it have a large ecosystem of usage?

Does it have multiple vendors contributing to it?

There is a Better Way: Open Governance

Open Source
Development

Responsible
Licensing

Accessible Commit
Process

Diverse
Ecosystem

Participative
Community

Open
Governance



Culture

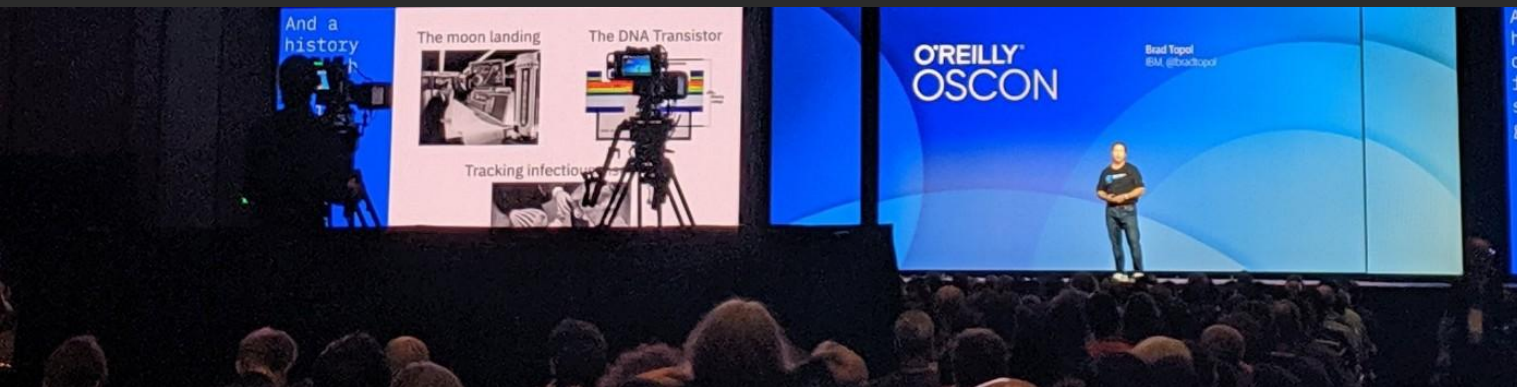


Community



Code

Open Source Eminence Example – Keynotes and Conferences

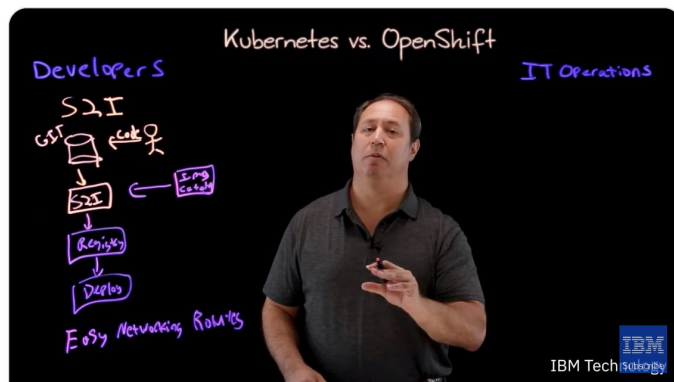


Link



An Overview of Kubernetes Operators and the Operator SDK
YouTube

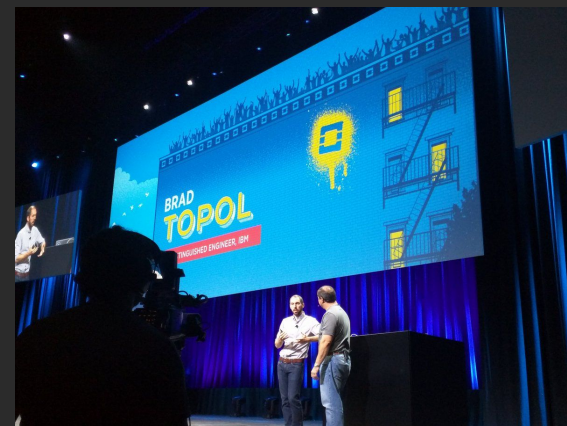
Brad Topol, Ph.D., IBM
An Overview of Kubernetes Operators and the Operator SDK
All Things Open 2021



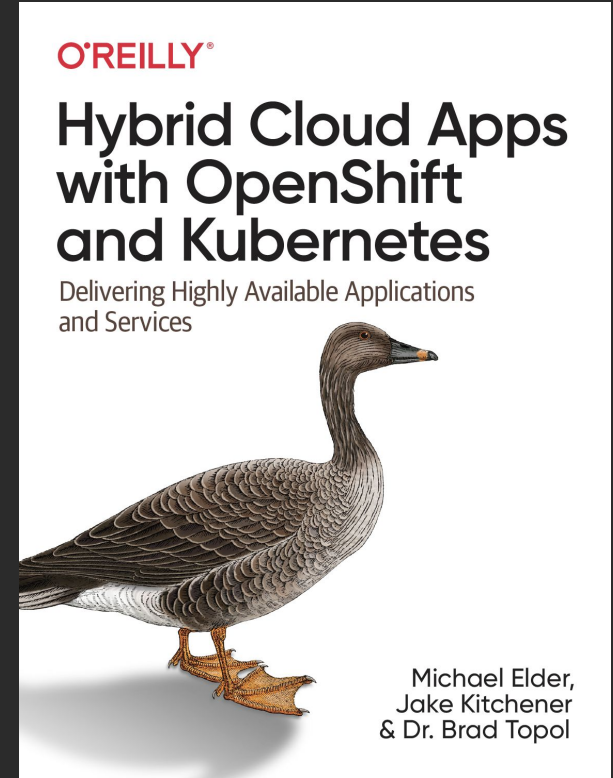
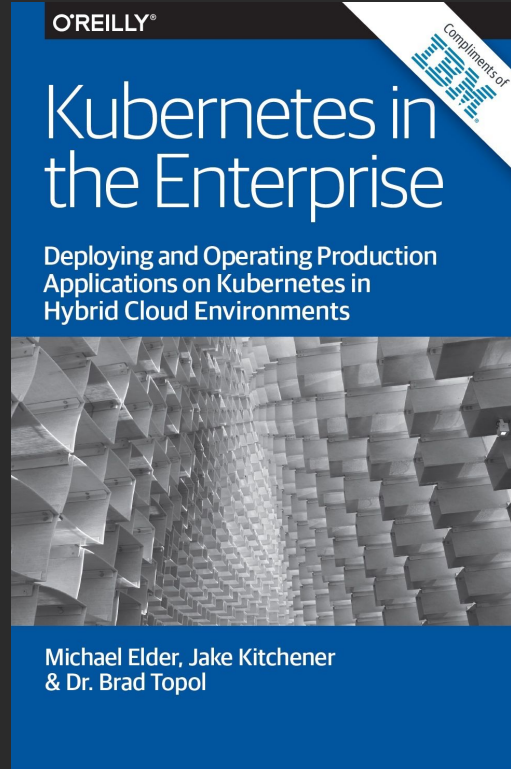
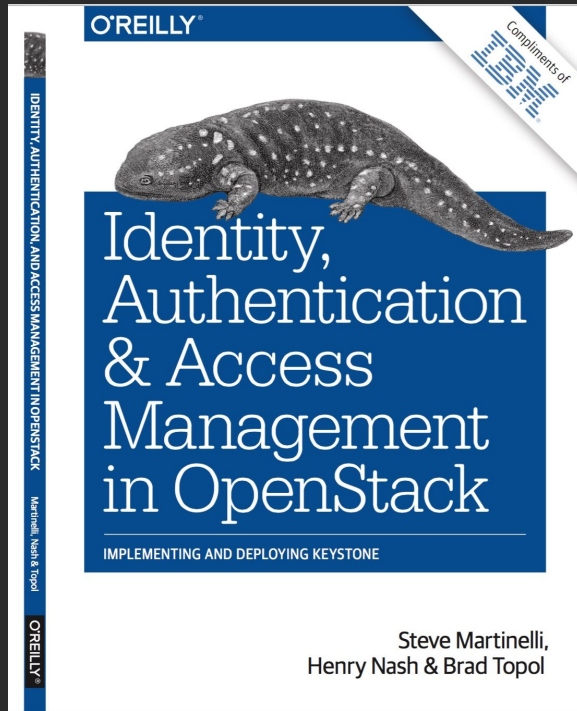
youtube.com

Kubernetes vs. OpenShift

Learn more about Kubernetes → <https://ibm.biz/learnhub-kubernetes>
Red Hat OpenShift on IBM Cloud → <https://ibm.biz/OpenShift-on-Cloud>
Check out the ...



Open Source Eminence Example – Books



Earning our stripes



Code



Build expertise



Fix bugs



**Do the
dirty work**



**Foster open
policies**



**Build
community**



**Extend the
ecosystem**



**Consume the
technology**

Community Etiquette

Be Nice and Courteous

If the community views you as rude or arrogant they will go out of their way to ignore you.

Don't be a talker- be a doer and a good observer first

Open source communities respect your ability to contribute code and documentation improvements.

Community Etiquette

Don't flaunt your title or education

All the community cares about is your ability to be a hands-on contributor.

Get a mentor in the community. Let them put you to work

The experienced contributor will be more willing to answer your questions and do code reviews of your work if you help them out.

Community Etiquette

Don't be a drive-by committer

Communities expect a significant, ongoing commitment. Don't dump in code for a feature you want and leave.

Start small, build trust

You need to contribute small changes for a long time before you will be trusted to make large changes.

Community Etiquette

Don't forget tests

Expect to submit unit tests with your code patch and understand the testing frameworks used in the community.

Code as the foundation of your reputation

When you contribute, the clear expectation is that you have the rights to contribute the code and that it is an original work, unless properly attributed to the author.

Community Etiquette

Know the license and stick to the rules

IBM prefers to contribute under permissive licenses such as the Apache v2, MIT, EPL, and BSD licenses. GPL, AGPL and other restrictive licenses can cause risks and require special consideration.

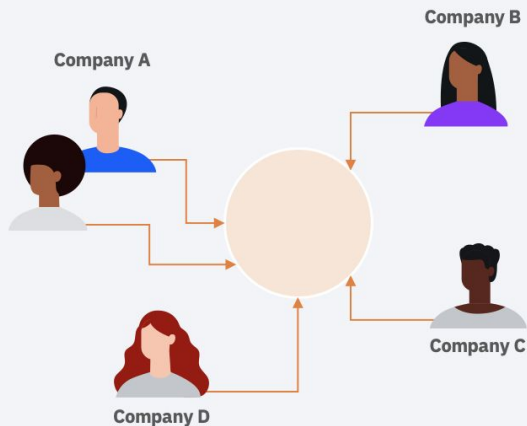
Be authentic

Being authentic means sharing the code and responsibility. All your code development from commits, to issues, to automated test cases — will happen in the open.

Inner Source

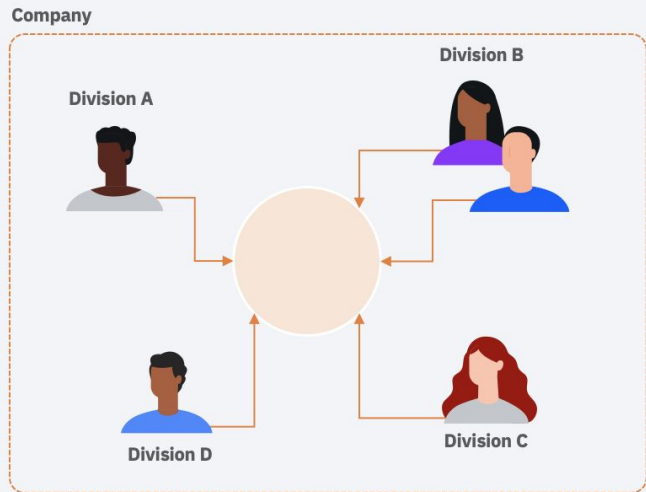
Open Source

... any IP designed to be publicly accessible for use, extension, or modification.



Inner Source

... adapts the principles and practices of open source projects and adapts them to development within a company.



Thank You!

Bill Higgins

VP, watsonx Platform Engineering and Open
Innovation

IBM Research

