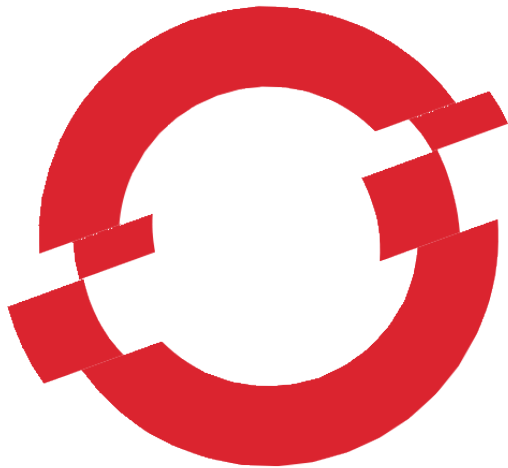


Puzzle Tech Talk 2013






OPENSIFT

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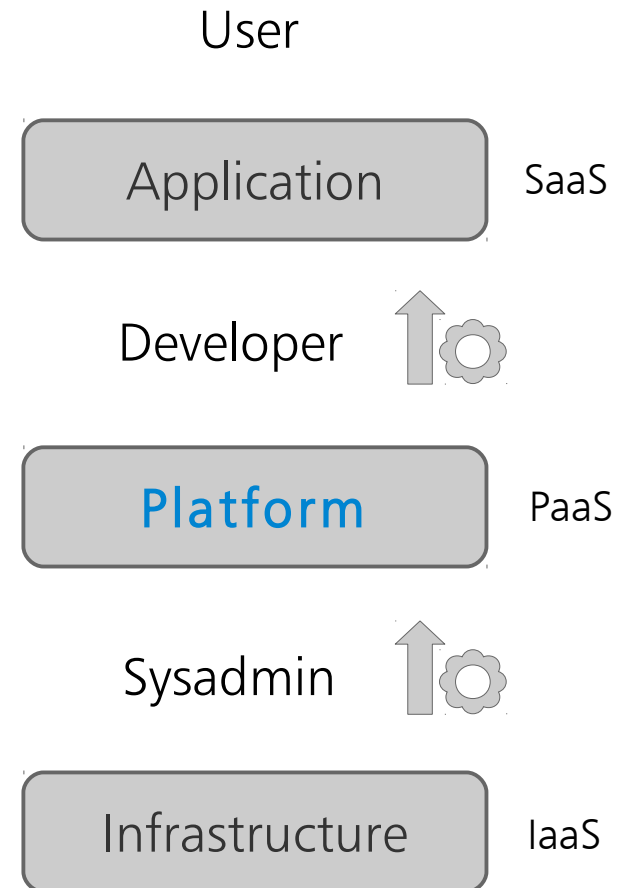
Overview

- What is PaaS? What is OpenShift?
- Local test installation 
- Create an application 
- Manage the application 
- Why would I want PaaS/OpenShift?
- Questions?
- Advanced topics
- Resources



Platform as a Service

- Provide tools and protocols to deploy and run your applications
- Easy to use
- Automation
- Scaling
- Integration with other systems

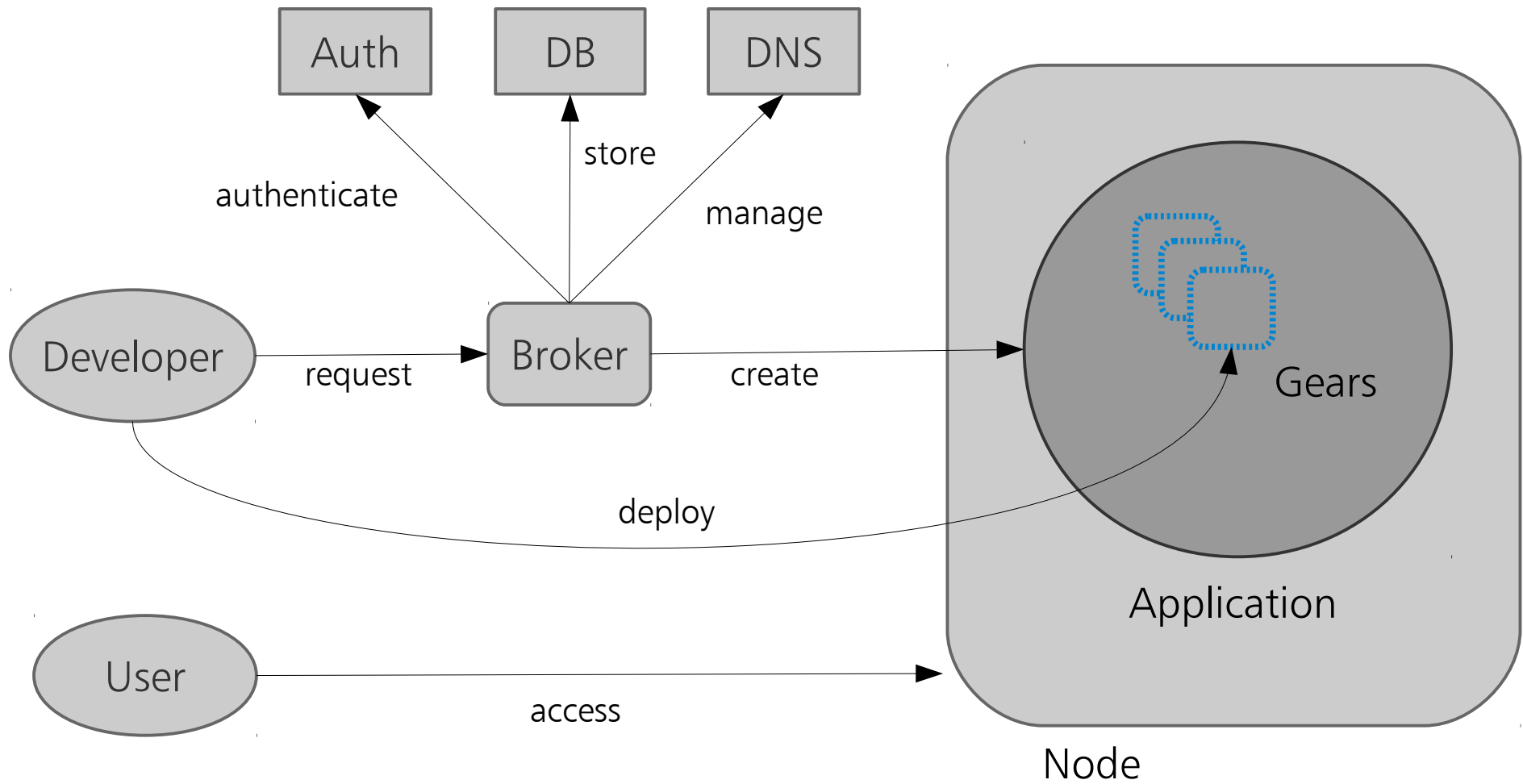


Openshift PaaS

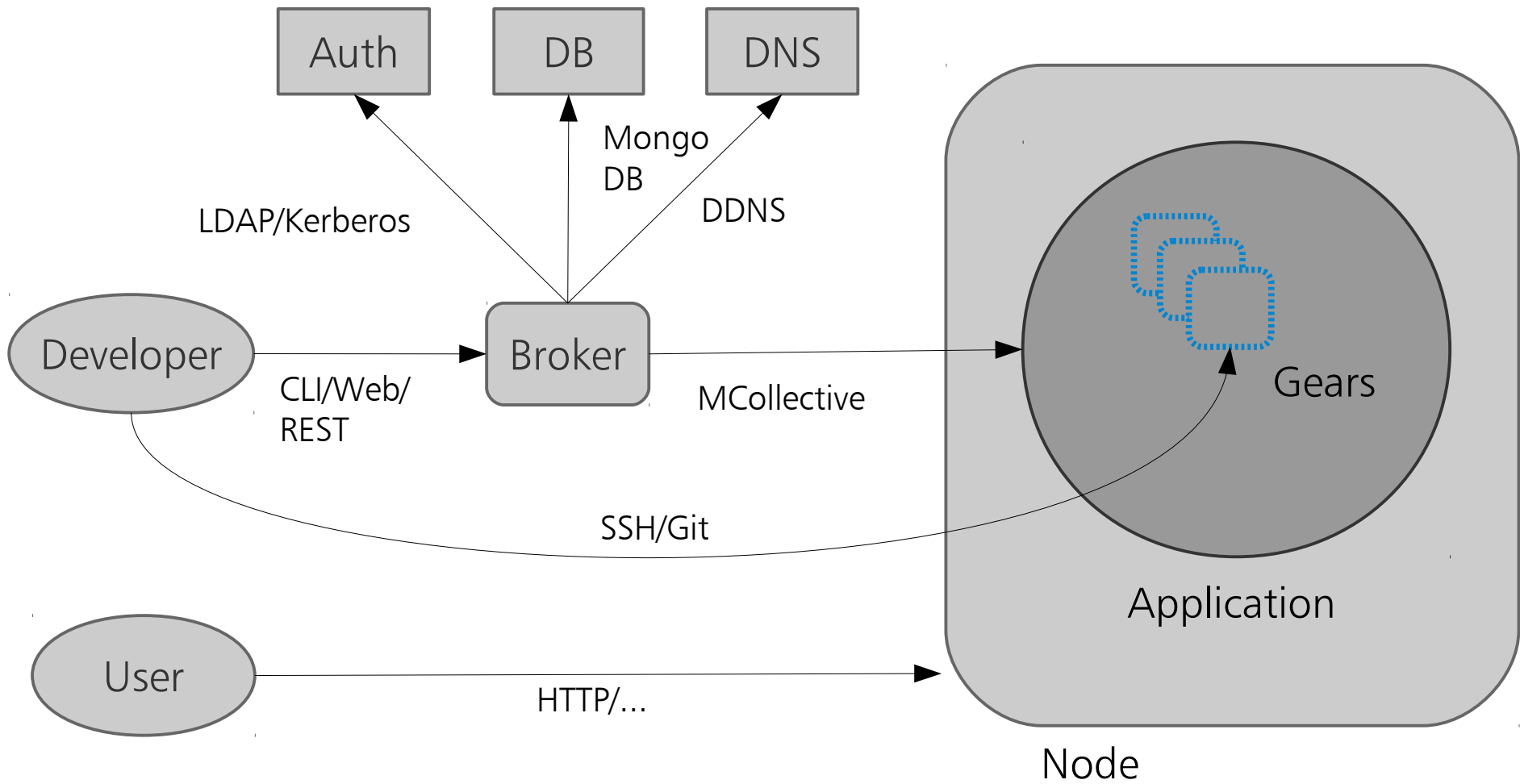
- From Red Hat
- Based on Red Hat Enterprise Linux
- Based on popular technologies
- Runs multiple software stacks
- Open source
- Upstream community



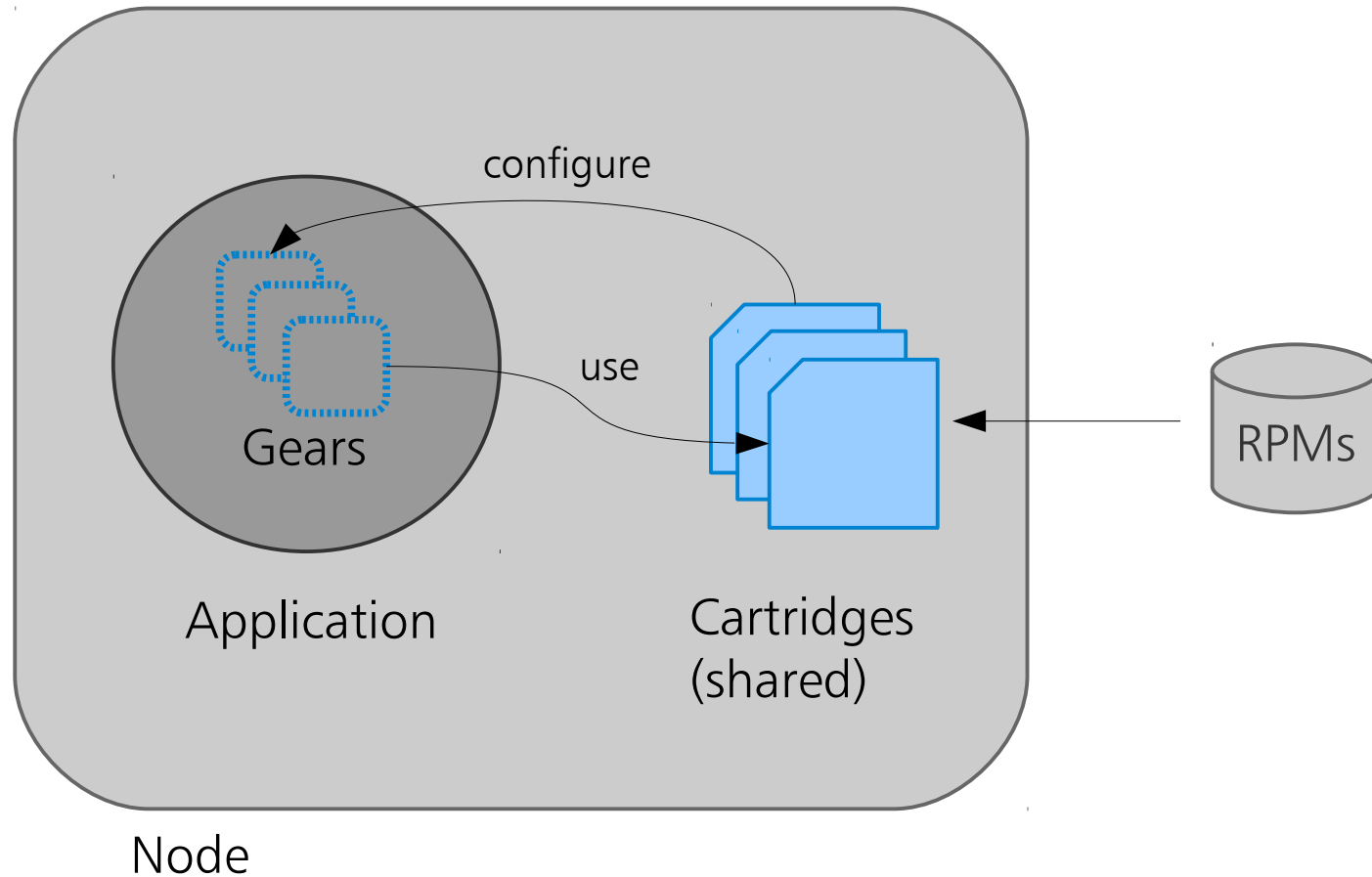
Architecture



Technologies



Cartridges

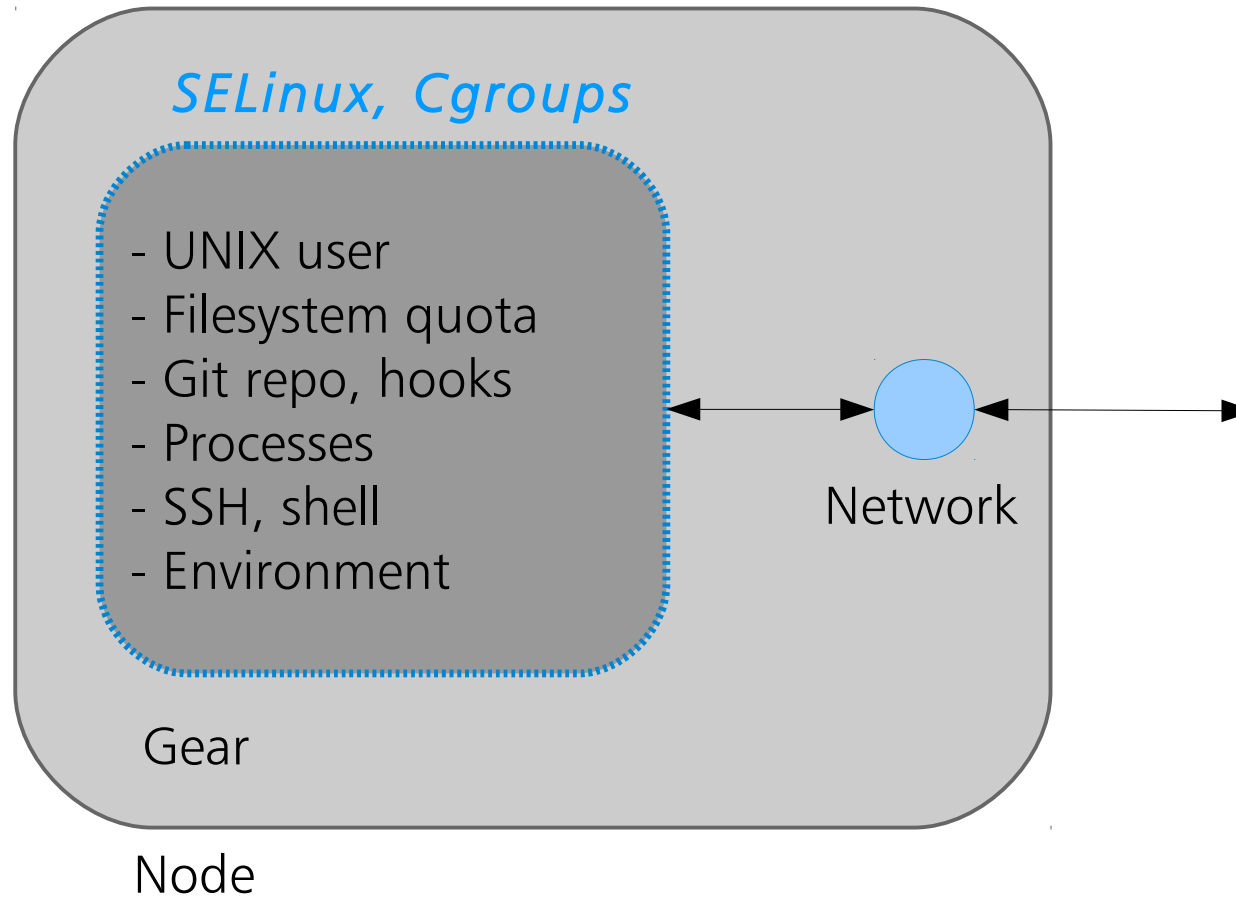


Cartridge Examples

- Web: Ruby, Java, Python, PHP, Perl, ...
- Database: MySQL, PostgreSQL, MongoDB, ...
- Utility: phpMyAdmin, Cron, DIY (do it yourself)
- Services ... ?



Gears



Application

- Name
- Dependencies (cartridges)
- Git repository
- Set of distributed gears
- <http://<app>-<namespace>.<domain>>



Try it

- Online: limited resources, price plans
- Private production system: Enterprise vs. Origin
- Local test installation: download & run, single server





Local Test Installation

- Preconditions: KVM, Browser, Git, rhc CLI
- Create VM, download VM image, boot
- Ensure/configure mDNS on client
- Use Browser or rhc tool
- Login, create token, upload SSH keys, create namespace





Create an Application

- Choose name and main cartridge
- Create application with console or CLI
- Checkout Git repository
- Basic commands





Add the Database

- Addon cartridge
- Check database
- Database server per application





Connect to Database

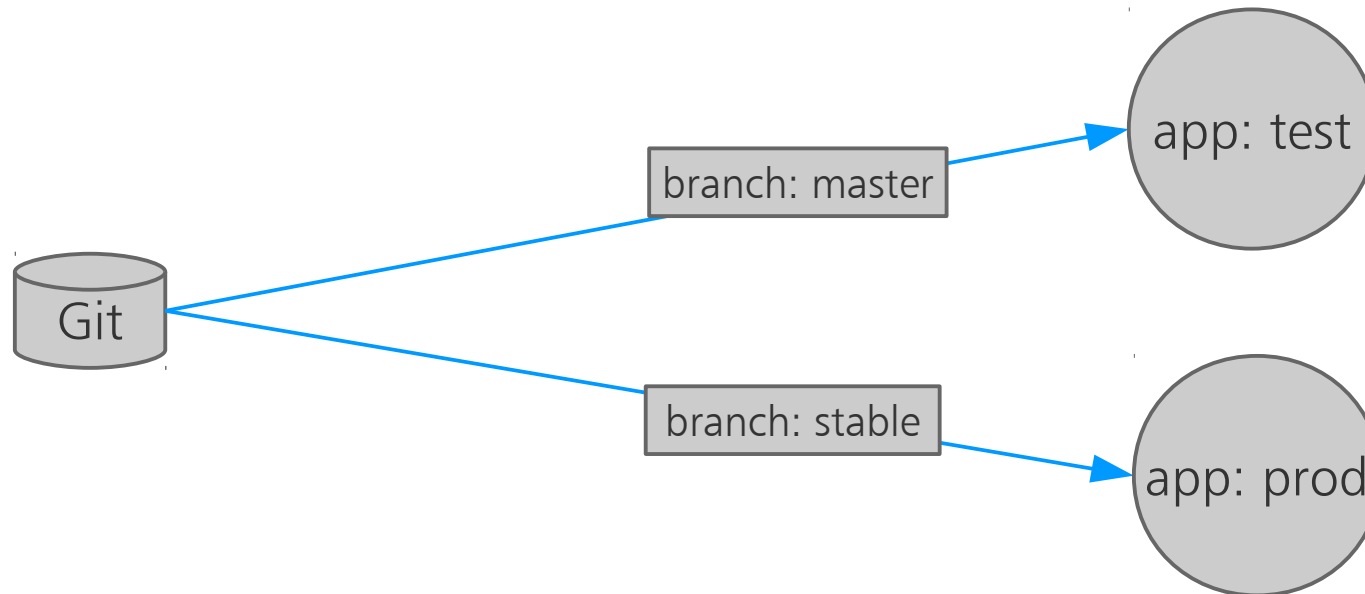
- Load rails example
- Read database credentials from environment
- Git push to redeploy
- Verify database





New Instance

- Create new applications at will within limits
- Deploy same source to multiple instances





Monitor / Analyze

- Access logs
- Get infos
- Run any commands in shell

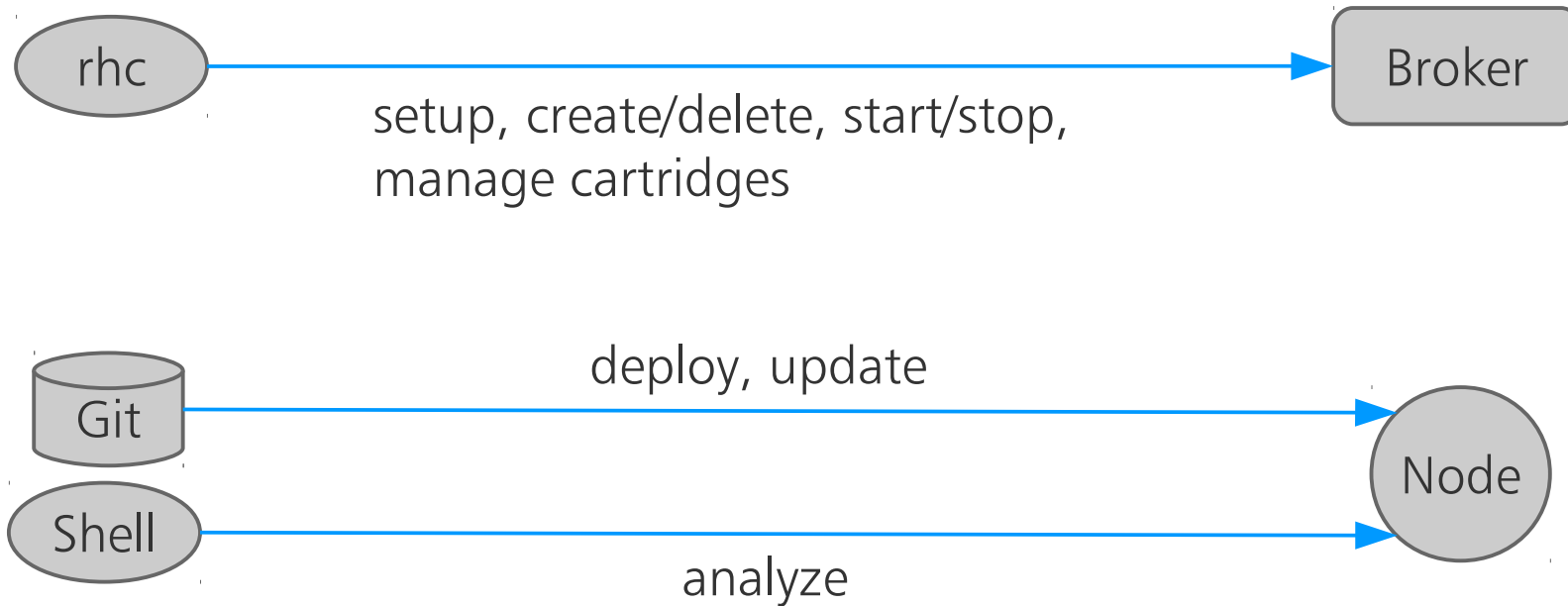


More

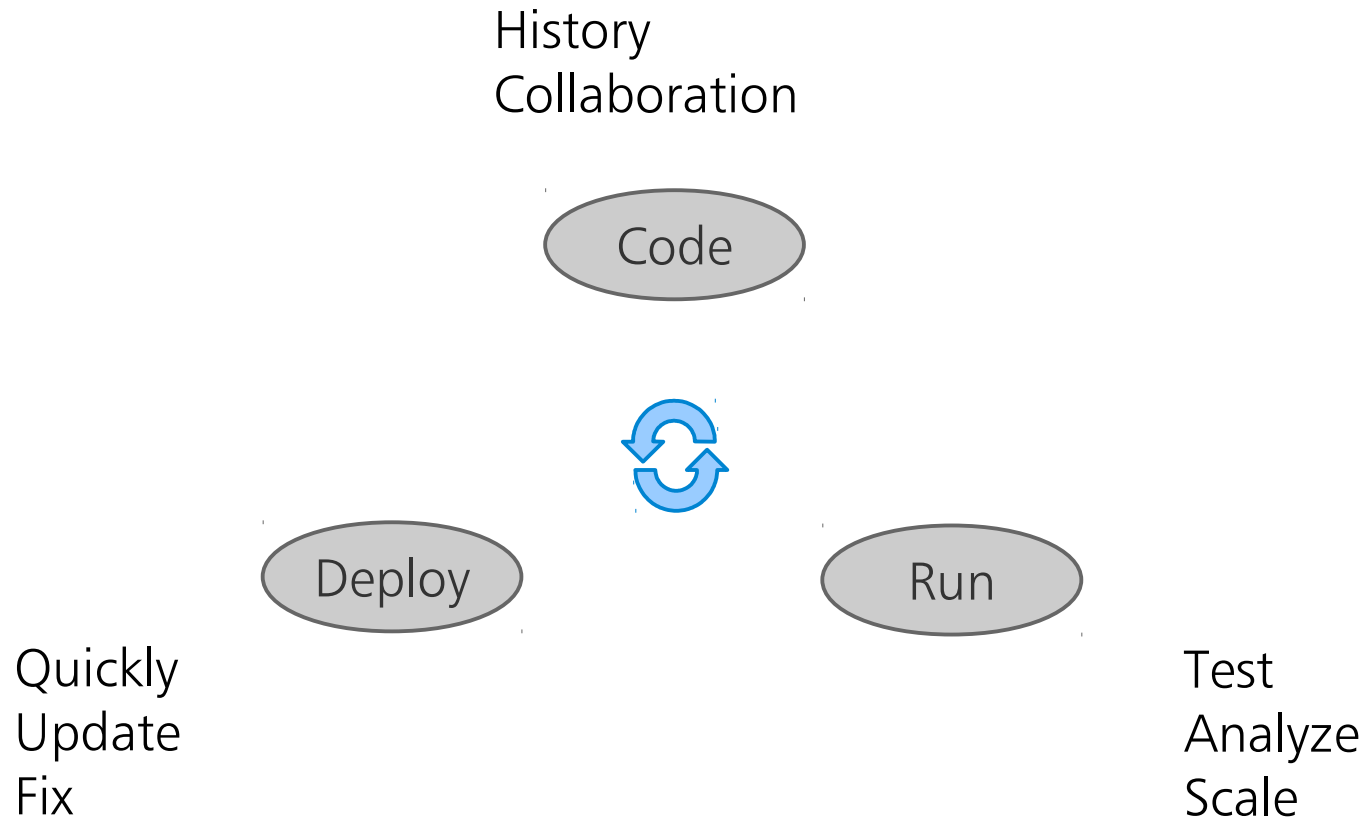
- Set environment variables: keys, passwords, etc.
- Install cartridge from URL
- Set DNS aliases and SSL certificates
- Set authorizations
- Snapshot, restore
- Forward ports
- Run SSH command on all gears
- ...



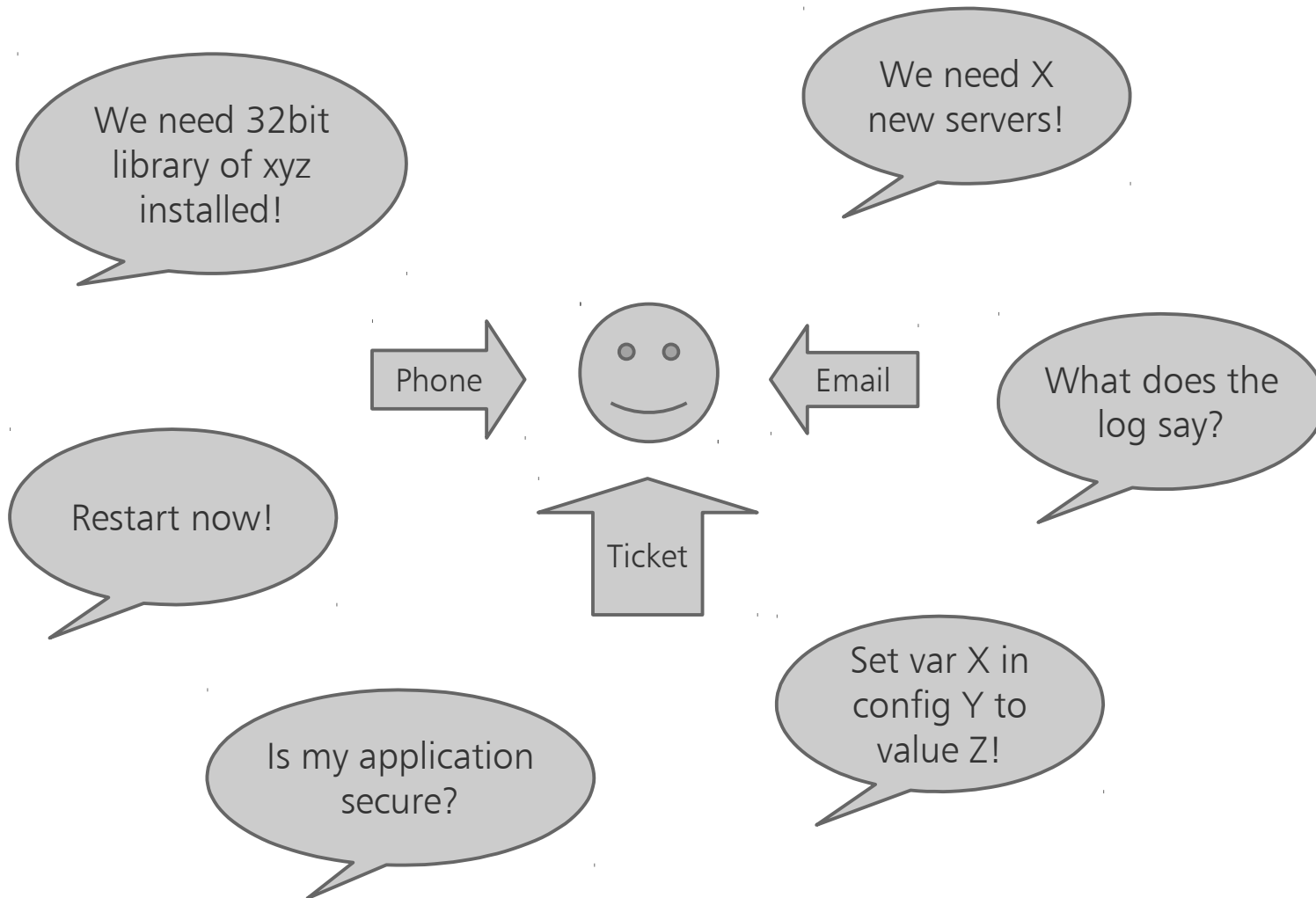
Developer Tasks



Developer View



Sysadmin View



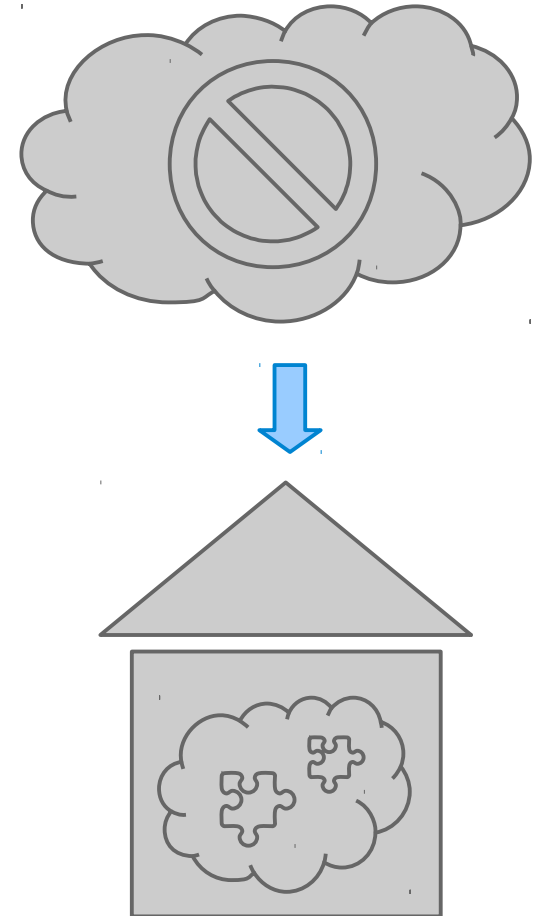
Developer vs. Operator

- Better interface between Developer and Operator
- Developer gains access
- Access is controlled and limited
- Less communication overhead
- Continuous deployment



The Private Cloud

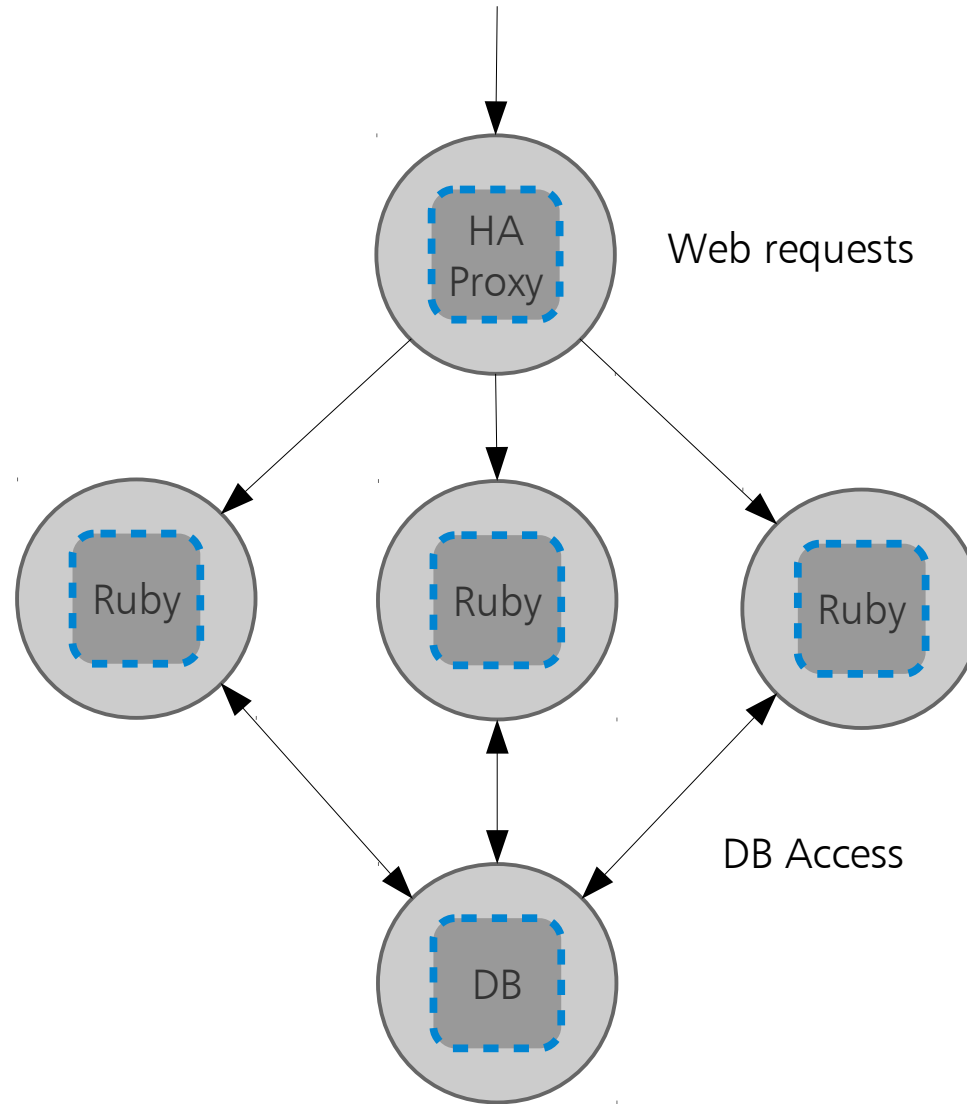
- Public PaaS are closed
- Build your own, customize, know how it works
- Own the data
- Provide PaaS/SaaS
- No provider lock-in
- Minimal technology lock-in



Common Questions ...



Scaling

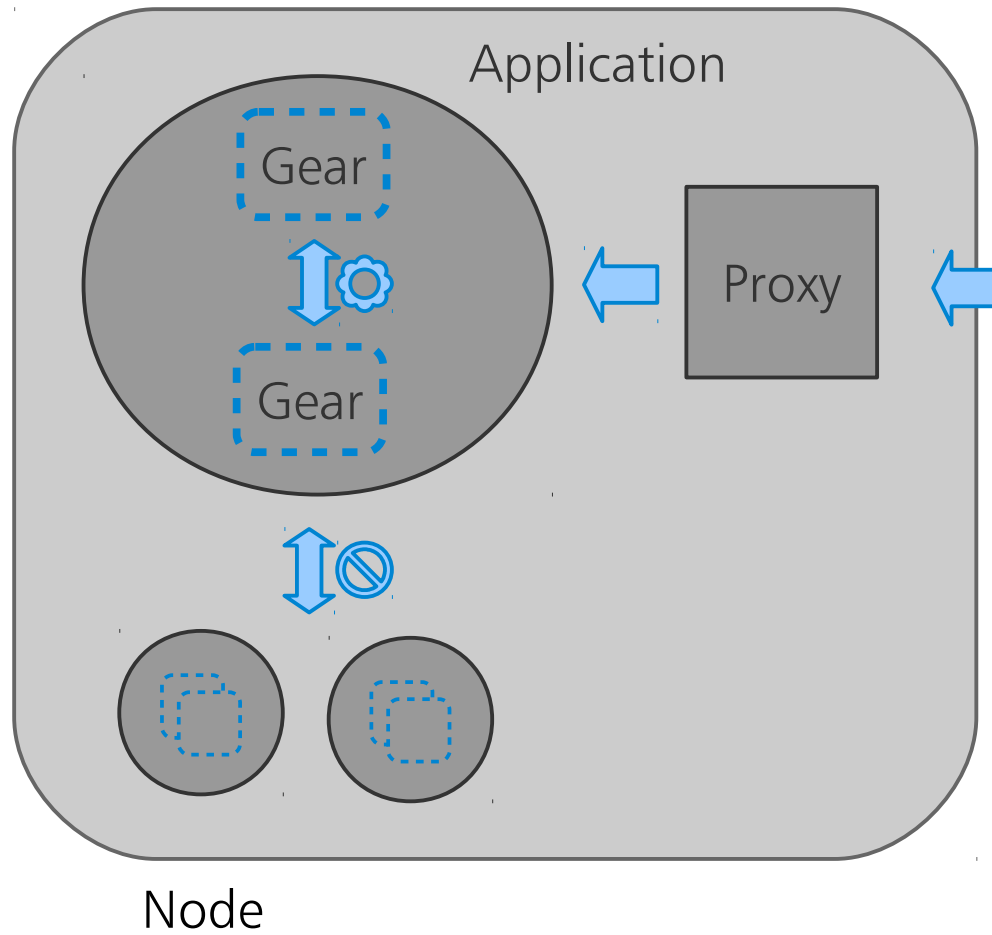


High Availability

- Platform vs. Applications
- Nodes and broker are independent
- Need redundant load balancer in front
- Are DNS, LDAP/Kerberos already HA?
- Mitigate node failure with virtualization
- Database is the key
- *There is no magic that will make any application HA!*
- *“HA Apps”* is work in progress



Security



Resources

- <https://www.openshift.com/>
Docs, Mail, Forum, Blog, Twitter, G+, IRC, ...
- <https://github.com/openshift>
Server, Client tools, Cartridges, Examples, Puppet modules, Kickstarts, Scripts, ...



Thank you!



Community / Private / Public

- OpenShift *Origin*: The Open Source Project
- OpenShift *Enterprise*: Run your Private Cloud
- OpenShift *Online*: Run in Public Cloud

- Try out everything on *Origin*
- Get *Enterprise* Support
- Start quickly *Online*



O p e n Shift

- Complete source code on Github
- Add your own functionality with cartridges
- Collaborate with others
- Run across multiple clouds
- Lots of 3rd party cartridges and manuals
- Build your own SaaS on top



rhc CLI

```
$ sudo gem install rhc

$ rhc setup
(Couple of questions: Server, Username, Password)

$ rhc app create myapp php-5.3
Password: (Enter your account password)

$ cd myapp
$ vim php/index.php
(Make a change... :x)
$ git commit -a -m "My first change"
$ git push

(Access myapp-mynamespace.example.com)
```



OpenShift Console

The screenshot shows the 'CREATE AN APPLICATION' page in the OpenShift console. At the top, there is a navigation bar with 'My Applications', 'Create Application' (highlighted), 'Help', 'Settings', and 'My Account'. Below the navigation bar, the main content area is titled 'CREATE AN APPLICATION' and features a three-step progress indicator: 1. Choose a type of application (highlighted in red), 2. Configure and deploy the application, and 3. Next steps. The first step includes a description: 'Choose a web programming cartridge or kick the tires with a quickstart. After you create the application you can add cartridges to enable additional capabilities like databases, metrics, and continuous build support with Jenkins.' Below this is a search bar with the text 'Search by keyword or tag' and a 'Browse by tag...' dropdown menu. To the right, there are two options: 'Cartridge' (described as a managed runtime that receives security updates and upgrades automatically) and 'QuickStart' (described as a quick way to try out a new technology with code and libraries preconfigured, where the user is responsible for updating core libraries for security updates). Below these options is a 'Featured' section with two featured items: 'JBoss Enterprise Application Platform 6.0' (marked with a green '\$' icon) and 'Zend Server 5.6'. The JBoss item includes a description, a URL, and 'OpenShift maintained' status. The Zend Server item includes a description, a URL, and 'OpenShift maintained' status. At the bottom of the featured section, there are links for 'Instant App' and 'Java' with '(see all)' links.

