Cloud development using Eclipse and Node.js

Eclipse Con Europe 2014
Eclipse and The Cloud?

What Role Does Eclipse Play in the Cloud?

- Does Eclipse Work with the Cloud?
- Does Eclipse provide benefits in the Cloud?
- Is Eclipse used in the Cloud? Where?
- Can Eclipse be used to develop and run apps in the Cloud? Where? How?

Agenda
- A short overview of Eclipse and the Cloud
- A Cloud solution to develop, deploy, run and monitor apps in the cloud: Eclipse, IBM DevOps Services and Bluemix
  - Getting started to use Eclipse in the cloud to develop Node.js applications for the cloud and get them deployed
Eclipse and the Cloud

Eclipse is very prominent in the Cloud

- **Eclipse Orion** – [https://orionhub.org](https://orionhub.org) developed using Eclipse Orion by 79 contributors
  - Provided in the Cloud, used to create solutions to be hosted in the Cloud
  - 34522+ registered users, up to 200 active users per day
  - Usage picking up: IBM, SAP, Flux project to bring desktop tooling into the Cloud,…

- Eclipse as platform for services in the Cloud
  - Eclipse is the extensible platform that runs the IBM Jazz products providing collaborative application lifecycle management solutions with
    - Web based clients
    - Eclipse based clients
    - Other clients
Example: Eclipse in the Cloud – IBM DevOps Services

- **IBM DevOps Services** – Software Development Environment as a Service
  - **Eclipse Orion** for source editing in the Web
  - **Rational Team Concert**
    - IBM Jazz Agile Change Management and Planning
    - IBM Jazz SCM system to version control code on the local machine
  - Alternatively integrated GIT SCM system to version control code on the cloud and the local machine
  - **DevOps** integration to **BlueMix** to deploy and run cloud services
IBM BlueMix™ – Run your Apps in the Cloud
Register Today at bluemix.net

Run Your Apps
The developer can chose any language runtime or bring their own. Just upload your code and go.

DevOps
Development, monitoring, deployment and logging tools allow the developer to run the entire application

APIs and Services
A catalog of open source, IBM and third party APIs services allow a developer to stitch together an application in minutes.

Cloud Integration
Build hybrid environments. Connect to on-premises systems of record plus other public and private clouds. Expose your own APIs to your developers.

Flexible Pricing
Pay as you go and subscription models offer choice and flexibility
Eclipse for Node.js development – Setup Local Environment

- Follow [http://www.nodeclipse.org/updates/](http://www.nodeclipse.org/updates/) to install Node.js (10 minutes)

- Download Eclipse and extract it (8 minutes)

- Follow [http://www.nodeclipse.org/updates/](http://www.nodeclipse.org/updates/) to install Node.JS into Eclipse
  - There are various flavors to choose from e.g. Eclipse Marketplace (5 minutes)

- You are now ready to develop, run and debug your Node.js application in Eclipse (less than half an hour)

- To use Eclipse for local work tracking, -management, -planning and software versioning, download and install the [Rational Team Concert 5.0.1 P2 Install](http://example.com) (10 minutes)
Getting Started with Bluemix – First App in the Cloud

- Open [https://ace.ng.bluemix.net/](https://ace.ng.bluemix.net/)

- Create an IBM ID for Bluemix and DevOps Services and sign in

- Create your first cloud application
  - On the dashboard click the **Create An App** tile
    - Select SDK for Node.js Runtime – as example, there is more
    - Provide a name for the app and finish the creation process
    - The Application gets deployed and runs on the **Bluemix** cloud
  - Open the application using the route created (less than 10 minutes) example: [http://rsjazztest2.mybluemix.net/](http://rsjazztest2.mybluemix.net/)

- Install **Cloud Foundry** and get the app code
  - Use the link **View Guide** to
    - Download and install Cloud Foundry [command-line tool](http://cloudfoundry.org/downloads.html)
    - Download the application example code
  - Approximately 5 minutes
Getting Started with Bluemix – Deploy the App

- Unpack the downloaded example code
  - Review the code – note the files that make the application work on Bluemix
    - Manifest.yml
    - Package.json
- Open a command line shell and change to the folder containing the app code
- Deploy the code with Cloud Foundry using the command line tool commands
  ```
cf login -a https://api.ng.bluemix.net -o <your IBM ID> -s dev
cf push RSJazzTest2 -p ./ -m 512M
  ```
  - Check the dashboard as the app gets redeployed and started
  - Click on the route to call the application http://rsjazztest2.mybluemix.net/
  - Success – the application is running again deployed from your local machine in less than 5 minutes
- Could one use Eclipse as well? Remember, Node.js is already installed.
Getting Started with Bluemix – Deploy from Eclipse

- Use Eclipse to develop your app
  - Create a Node.js project
  - Copy the files from the example into that project
  - Review the file package.json and install the packages
    - E.g. **express** and **jade** in the correct version
  - You can debug and run the application from Eclipse
  - You can use the Cloud Foundry command line to deploy in the Cloud

- To use Eclipse to deploy you can install
  - The [Cloud Foundry Integration for Eclipse](#)
  - The [IBM Eclipse Tools for Bluemix](#)
  - Run on Server deploys in the Cloud on Bluemix
Getting Started with IBM DevOps – Track & Plan Work

- Create your own project using IBM DevOps Services
  - Work items and planning (Rational Team concert)
  - GIT or Jazz SCM – choose the SCM you like
- Configure the Eclipse client (invitation that configures the client)
- Use the chosen SCM system to load the initial code
- Add your application code
- Code away in Eclipse; A matter of minutes
  - Manage and plan your work
  - Build, deploy, run and manage on Bluemix
NEXT STEPS:

• Visit IBM’s booth, #15 to learn more about IBM Bluemix, DevOps and Liberty Build pack in the Eclipse environment.

• Visit [ibm.com/developerworks/cloud/bluemix/](http://ibm.com/developerworks/cloud/bluemix/) to
  - Register for free trials of IBM Bluemix and DevOps Services
  - Access tutorials, sample apps and code
  - Connect with IBM Bluemix developers in the Bluemix Developers Center
Optional – What Makes an App Run on Bluemix?

- **Bluemix** provides Buildpacks with Runtimes (e.g. Node.js), Services, Boilerplates (Runtime and Services) and Starters (Example apps with Boilerplates) see Architecture
  - Bluemix allows adding your own Runtimes and Buildpacks (Cloud Foundry)

- Buildpack and Runtime require some information about the application to launch it
  - Stored in manifest.yml
    - Name, host, startup command, path, space, memory, instances

- Buildpack requires special information for Node.js
  - Stored in package.json
    - Version, required dependencies,....

- App can get data from environment
  - Use services to store information for seamless access

```javascript
// The IP address of the Cloud Foundry DEA (Droplet Execution Agent) that hosts this application:
var host = (process.env.VCAP_APP_HOST || 'localhost');
// The port on the DEA for communication with the application:
var port = (process.env.VCAP_APP_PORT || 3000);

// Start server
console.log('Start app on port ' + port);
app.listen(port, host);
console.log('App started on port ' + port);
```
Developers are joining Bluemix™ to.....

1. Rapidly bring products and services to market at lower cost
2. Continuously deliver new functionality to their applications
3. Extend existing investments in IT infrastructure

With on-demand services and infrastructure, developers can go from 0 to running code in a matter of minutes.

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Codename: BlueMix is now open.
A platform where developers can act like kids in a sandbox - except this box is enterprise-grade.

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