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# Development Operations in the Cloud:

## A Use Case and Best Practices

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October 27, 2015



# Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

# Program Agenda

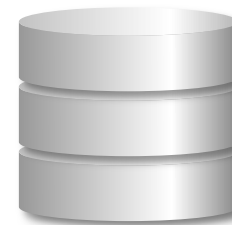
- 1 Challenges Facing Development Organizations
- 2 Oracle Cloud Ecosystem
- 3 Case Study: TGI-NET
- 4 Case Study: A Day in the Life of a Cloud Developer
- 5 Q&A

# Why Move to the Cloud?

**Better** applications  
developed **faster**  
**cheaper**

# Development Organization Challenges - Costs

- Acquire hardware and software
- Setup and install components
- Connect components
- Configure IDEs
- Maintain and upgrade versions
- Connect to deployment platform

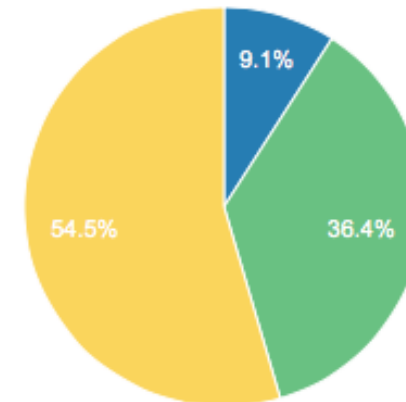


# Development Organization Challenges - Process

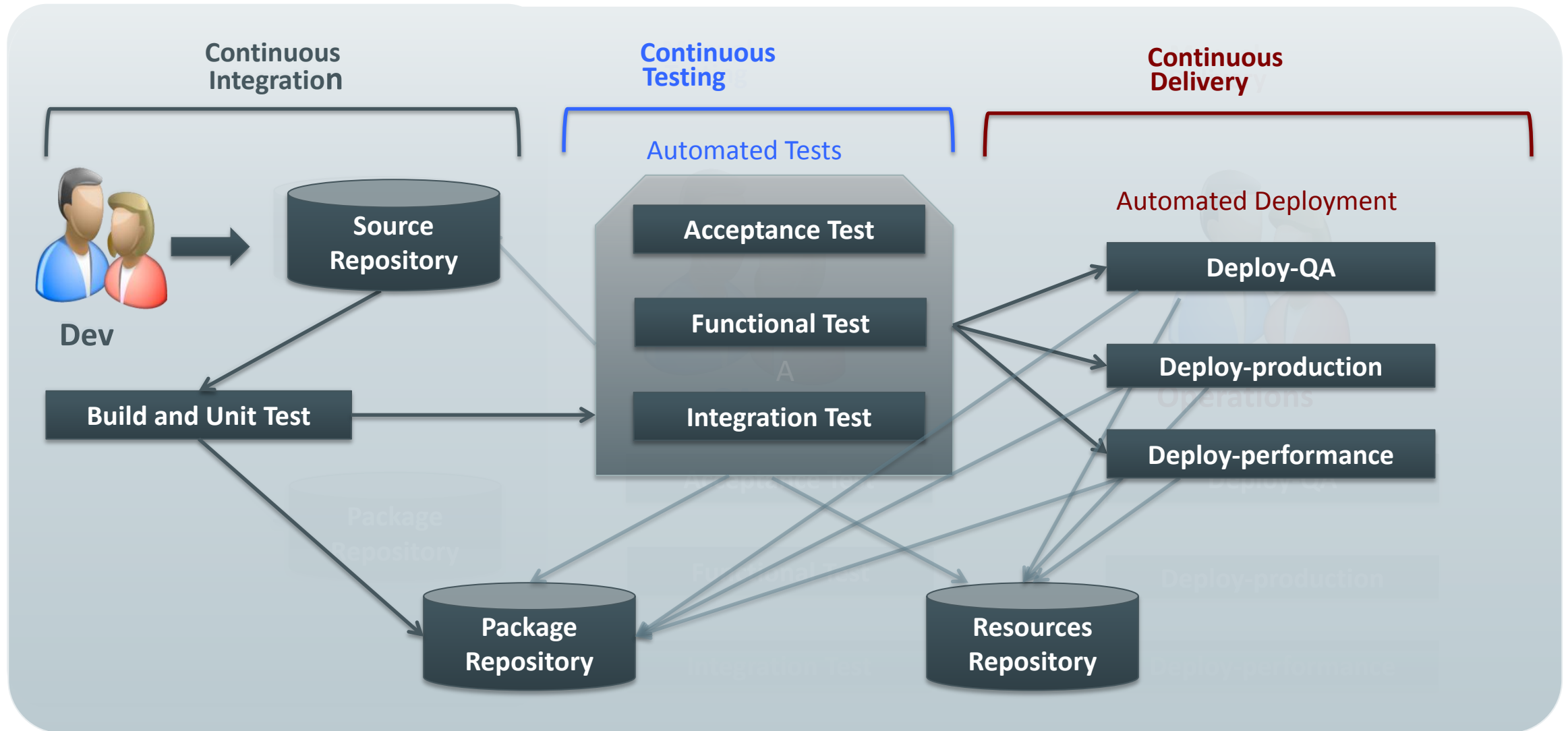
- Achieving build process agility
- Producing better applications
- Streamlining deployment
- Managing teams and developers
  - Tracking and reporting
  - Team communication
  - Workload management and prioritization



Commits By Author (60 Days)



# Modern DevOps

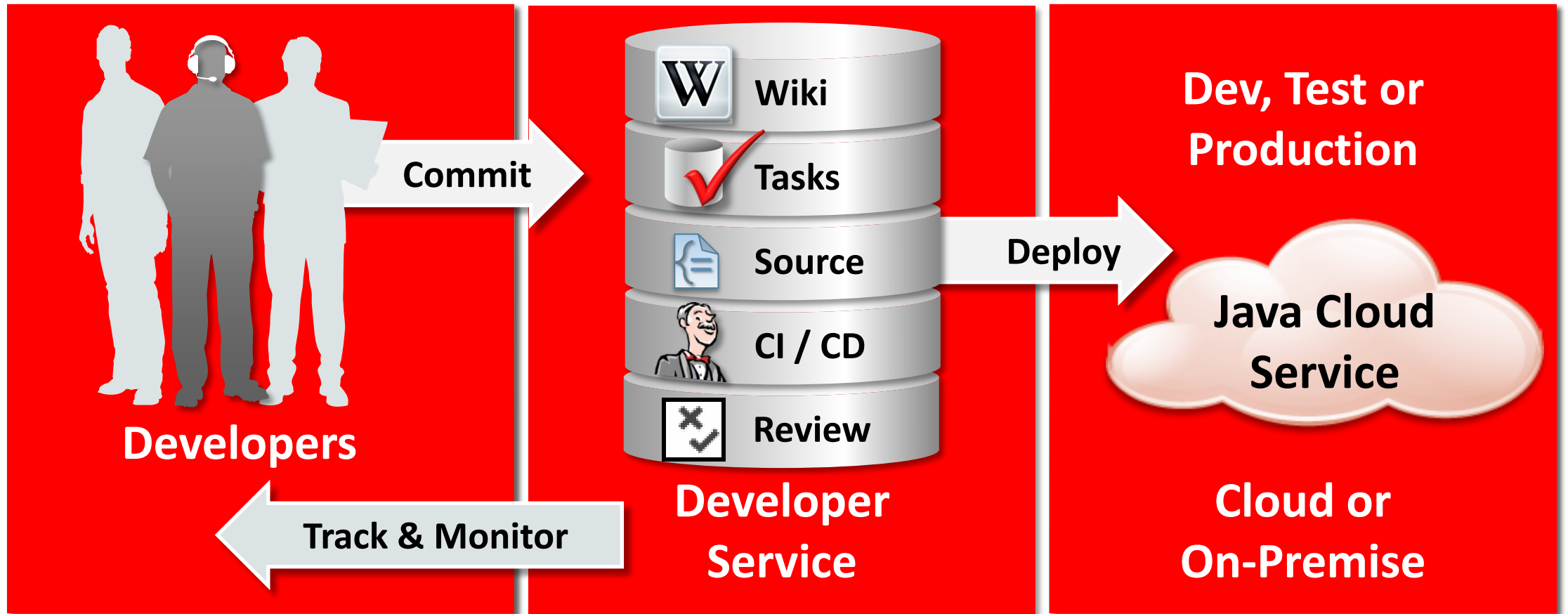




# The Ideal Solution

- Integrated ALM components
- Quick startup time and easy provisioning
- Minimal maintenance costs
- Informative tracking of development activities
- Seamless deployment
- Flexible Cloud or on-premise

# Developer Cloud Service: Bringing it All Together





# Developer Cloud Service: What It Is

- Development Platform provided as a Service
- Application Lifecycle Management
- Team Management



**Source Control  
Management**



**Issue Tracking**

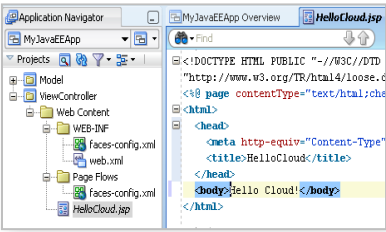


**Hudson Continuous  
Integration**



**Wiki Collaboration**

# Developer Cloud Service - Interfaces



JDeveloper,  
NetBeans  
and Eclipse



Web  
Dashboard



REST  
Interface



SSH to GIT



Mylyn



Partners



Developer Cloud Service

# Manage Your Projects

- Activity Stream
- Git Repositories
- Maven Repository
- Team Members

The screenshot displays the Oracle Developer Cloud Service interface. At the top, the Oracle logo and "Developer Cloud Service" are visible, along with the user name "alex.admin". The main navigation bar includes "Contacts" (with a dropdown arrow), a search bar containing "Search Not Available", and a secondary navigation bar with links for Home, Code, Merge Requests, Issues, Develop, Build, Deploy, Wiki, and Administration.

The activity stream on the left is titled "TUESDAY, APRIL 14" and shows a successful deployment of "Contacts" to "dcsdevteam/jcs1". Below this, a section titled "1 WEEK AGO" shows a similar deployment. Further down, there are four entries from "Alex Admin" regarding a "Sample merge request" (Review 21), with statuses like "Approved" and "Waiting for feedback from the team".

The right-hand panel is titled "REPOSITORIES" and features a "+ New Repository" button. It includes a search bar for "Filter Repositories" and lists two Git repositories: "contacts.git" and "hw.git", both hosted on "http://alex.admin@ucf2c-dcs-callahan-h". Below these, a "Maven" repository is listed with its URL: "http://ucf2c-dcs-callahan-hub1.opcdeveloper.oracleinternalucf2c.oraclecorp.dev/s/qa-dev\_contacts/maven/".

# Version Your Code With Git

- Automatically provisioned
- Connect from any IDE
- Command line accessible
- Integrate with GitHub

The screenshot displays the Oracle Developer Cloud Service interface for a repository named 'contacts.git'. The top navigation bar includes 'Home', 'Code', 'Merge Requests', 'Issues', 'Develop', 'Build', 'Deploy', 'Wiki', and 'Administration'. A search bar labeled 'Search Code' is present in the top right. Below the navigation, the repository name 'contacts.git' and a 'NewBranch' dropdown are visible. A context menu is open over the repository, showing options for 'Branch' and 'Tag', each with 'Create', 'Rename', and 'Delete' actions. Below the menu, there are tabs for 'Files' and 'Commits'. The main content area shows a list of files and folders with their commit history:

File/Folder	Commit	Author	Time
.settings	Initial Commit	Alex	2015 12:36 AM -0500
src / main	Removed the method	Don	2015 1:55 AM -0500
.gitignore	Initial Commit	Alex	January 12, 2015 12:36 AM -0500
nb-configuration.xml	Initial Commit	Alex	January 12, 2015 12:36 AM -0500
pom.xml	Initial Commit	Alex	January 12, 2015 12:36 AM -0500

# Review Peers Code

- Create Code Reviews
- Invite Team Members
- Collaborate on Reviews
- Accept / Reject / Iterate Reviews
- Comment on Code
- Merge Code
- Merge Conflict Resolution

The screenshot displays the Oracle Developer Cloud Service interface. At the top, the Oracle logo and 'Developer Cloud Service' are visible, along with the user 'alex.admin'. The main navigation bar includes 'Contacts', 'Home', 'Code', 'Merge Requests', 'Issues', 'Develop', 'Build', 'Deploy', 'Wiki', and 'Administration'. A search bar for 'Search Requests' is also present.

The 'Merge Requests' section is active, showing a table of requests under 'My Requests'.

ID	Summary	Status
21	Sample merge request	OPEN
3	Review the code	COMPLETED

Below the table, there is a pagination control showing 'Page 1 (0-0)' and navigation arrows.

A modal window titled 'Sample merge request' is open, showing details for request 006. It indicates that 'Alex Admin' wants to merge 0+ commits to the 'master' branch from branch '006'. The modal includes options to 'Close after merge is complete' and 'Squash commits', both of which are checked. There are tabs for 'Write', 'Preview', and 'Markdown Reference'. The 'Write' tab is active, showing a text area with the text 'Merge to master'. 'OK' and 'Cancel' buttons are at the bottom right.

# Track Project Issues

- Track Requirements/Bugs/ERs
- Assign to team members
- Integration with MyLyn in IDEs

The screenshot shows the Oracle Developer Cloud Service interface for tracking issues. The top navigation bar includes 'Home', 'Code', 'Merge Requests', 'Issues', 'Develop', 'Build', 'Deploy', 'Wiki', and 'Administration'. The 'Issues' section is active, displaying a table of issues under the 'Recently changed' filter. The table has columns for ID, Summary, Component, Status, and Owner. Three issues are listed: ID 41 (Create web methods for CRUD), ID 2 (Update the index.jsp file and ad), and ID 1 (Create a branch and push all inc). Below the table, there are navigation controls for page size (20) and page number (1 of 1).

On the right, the Eclipse IDE's 'Outline' view is shown, displaying a tree structure of project elements. A red arrow points from the text 'Eclipse Issue View' to the 'Outline' view, which lists the same issues as the Oracle Developer Cloud Service interface, including '41: Create web methods for CRUD'.

ID	Summary	Component	Status	Owner
41	Create web methods for CRUD			
2	Update the index.jsp file and ad			
1	Create a branch and push all inc			

Eclipse Issue View →



# Automate Project Builds

- Maven
- Ant
- Gradle
- Event based automation

The screenshot shows the Oracle Developer Cloud Service interface for a project named 'BasicADF'. The top navigation bar includes 'Home', 'Code', 'Merge Requests', 'Issues', 'Build', 'Deploy', 'Wiki', and 'Administration'. The 'Build' section is active, showing 'Jobs Overview' for 'ADFSampleBuild'. There are buttons for 'Build Now', 'Configure', 'Disable', and 'Delete'. The 'Description' section is empty. The 'Permalinks' section shows 'Last | Successful | Failed | Completed | Unsuccessful | Stable'. The 'Notifications' section is set to 'On' with a 'CC me' button. The 'Build History' table shows a list of builds with their status, ID, time, duration, and console link. The 'Artifacts of Last Successful Build' section lists files like 'ojdeploy-build.xml' and 'sampleADF\_ViewController\_webapp1.war'. The 'Build Trend' chart shows build duration in seconds for successful and failed builds.

Status	Build	Time	Duration	Console
✓	#8	Yesterday at 7:36 PM -0700	40 s 139 ms	▶
✓	#7	February 20 2015 2:15 PM -0800	53 s 286 ms	▶
✓	#6	February 5 2015 2:37 PM -0800	52 s 772 ms	▶
✓	#5	February 5 2015 2:32 PM -0800	34 s 688 ms	▶
✗	#4	January 30 2015 2:35 PM -0800	34 s 351 ms	▶
✗	#3	January 30 2015 2:30 PM -0800	31 s 128 ms	▶
✗	#2	January 30 2015 12:08 PM -0800	33 s 210 ms	▶

The screenshot shows the 'Build' configuration interface. It includes sections for 'Build Triggers', 'Build Environment', and 'Build'. The 'Build' section is expanded to show 'Build steps' and 'Invoke Ant'. The 'Targets' field contains 'deploy', the 'Build File' field contains 'build.xml', and the 'Properties' field is empty. An 'Add Build Step' dropdown menu is open, showing options: 'Execute shell', 'Invoke Ant', 'Invoke Maven 2 (Legacy)', and 'Invoke Maven 3'.

# Continuous Integration / Continuous Delivery

- Build status by job
- Create new jobs
- View build history
- Save views
- Executor active view

ORACLE Developer Cloud Service alex.admin

Contacts

Search Jobs...

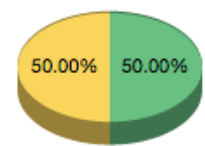
Home Code Merge Requests Issues Develop **Build** Deploy Wiki Administration

### Jobs Overview

**Build Queue**

View Build History

**Job Statistics**



50.00% 50.00%

Success Pending

New Job All Jobs All Successful Jobs All Failed Jobs All Unstable Jobs

Status	Weather	Job	Last Success	Last Failure	Duration	Actions
✓	☀	hw	January 21, 2015 12:42 AM -0500	N/A	1 min 38 s	🔍 ⚙️ ✉️
🕒		Sample_Maven_Build	N/A	N/A	N/A	🔍 ⚙️ ✉️

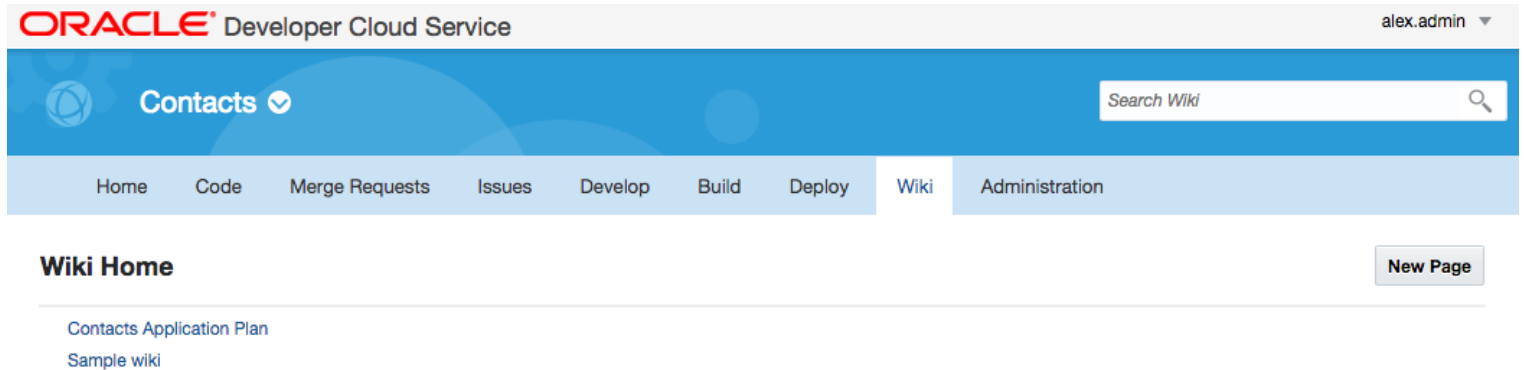
# Simplified Application Deployment

- Create deployment configurations
- Start/Stop a deployment
- Redeploy/Un-deploy applications
- In the cloud or on-premise deployment

The screenshot displays the Oracle Developer Cloud Service interface. At the top, the Oracle logo and "Developer Cloud Service" are visible, along with the user name "alex.admin". A navigation bar includes "Contacts" and a search box labeled "Search Deployments". Below this, a secondary navigation bar lists "Home", "Code", "Merge Requests", "Issues", "Develop", "Build", "Deploy", "Wiki", and "Administration". The main content area is titled "Deployments" and features a "New Configuration" button. On the left, a "Contacts" panel shows details for a Java Service: "dcsdevteam / jcs1", Configuration: "Contacts", Job / Build: "hw / On Demand", and Artifact: "target/helloworld.war". A status message indicates "Last deployment succeeded -- Tuesday at 5:30 PM -0400." On the right, the "Contacts: History" section lists three successful events: "Deployment Succeeded" (hw / 1 / target/helloworld.war, logs: virus-scan, whitelist, wls-appc, cloud-appc, redeploy, Tuesday at 5:30 PM -0400 by Alex Admin), "Deployment Succeeded" (hw / 1 / target/helloworld.war, logs: whitelist, wls-appc, cloud-appc, deploy, virus-scan, April 9, 2015 6:08 PM -0400 by Alex Admin), and "Create Succeeded" (hw / 1 / target/helloworld.war, April 9, 2015 6:06 PM -0400 by Alex Admin).

# Share Information Through Wikis

- Create a new project wiki
- Collaboration through project specific wiki
- Content management
- Wiki markup of choice



The screenshot displays the Oracle Developer Cloud Service Wiki interface. At the top, the Oracle logo and 'Developer Cloud Service' are visible, along with the user 'alex.admin'. The main header is blue and features the 'Contacts' project name with a dropdown arrow. A search bar labeled 'Search Wiki' is positioned on the right. Below the header is a navigation menu with links for Home, Code, Merge Requests, Issues, Develop, Build, Deploy, Wiki (highlighted), and Administration. The main content area is titled 'Wiki Home' and includes a 'New Page' button. Underneath, there are links for 'Contacts Application Plan' and 'Sample wiki'.

# Administer Your Projects

- Manage Project Properties
- Analyze Usage Data
- Customize Issue Tracking
- Configure Git Repositories
  - Hosted & External
- Manage Branches
  - Administrators & Restrictions
- Create Connections to External Web Services
- Connect to Syndication Services

The screenshot shows the Oracle Developer Cloud Service Administration interface. At the top, the Oracle logo and 'Developer Cloud Service' are visible, along with a user profile 'alex.admin'. Below this is a navigation bar with 'Contacts' and a search box containing 'Search Not Available'. A secondary navigation bar includes links for Home, Code, Merge Requests, Issues, Develop, Build, Deploy, Wiki, and Administration (which is highlighted). The main content area features seven administrative tiles:

- PROPERTIES**: Project name and description, markup language, security.
- USAGE METRICS**: View disk space usage for Source, Issues and Builds.
- ISSUE TRACKING**: Customize Issue Tracking fields and metadata.
- REPOSITORIES**: Configure Hosted and External Repositories.
- BRANCHES**: Manage branch reviewers, administrators and restrictions.
- WEBHOOKS**: Create connections to external web services.
- RSS/ATOM FEEDS**: Connect to syndication services.

# Developer Cloud Service

## Simplify Development

- Automated Provisioned Env
- Preconfigured & Integrated
- Automated Builds & Deployments
- Web based administration

## Collaborate & Manage

- Integrated team source repository
- Continuous integration with breakage notifications
- Task/Defect tracking with activity stream and notifications

## Deploy Automatically

- Deploy into Java Cloud Service automatically
- Workflow ensures build & test

## Integrated With IDEs

- JDeveloper
- Eclipse
- NetBeans

# Developer Cloud Service



## DEMO



**Source Control Management**



**Issue Tracking**



**Continuous Integration**



**Wiki Collaboration**



# A Customer's Use case and Best practice

TG Information Network Co.,Ltd. (Tokyo Gas Group)

Tatsuya Nakamura



# Safe Harbor Statement

This presentation is not an official announcement of TGI-Net adopting Oracle Developer Cloud Service(DevCS).

We are currently investigating various cloud services for our enterprise system, and DevCS is one part of our investigation.

The following contents are based on the investigation, And are the composition of possibilities found through research.

# Profile



## ◆ Tatsuya Nakamura

- ✓ Systems Architect
- ✓ Application Architecture Group, IT Architecture Planning Department
- ✓ TG Information Network Co.,Ltd. (Tokyo Gas Group)
  - Tokyo Gas is a #1 largest city gas company in Japan.
  - Tokyo Gas has 11 Million customers.

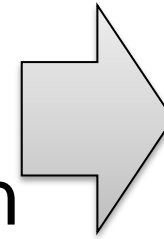
## ◆ My role

- ✓ Planning & designing of All Tokyo Gas system architecture & development as Systems Architect
  - ✓ Policy: “ High quality” and “easy to develop”
- ✓ Research & Development of new Technology for Tokyo Gas
  - ✓ Cloud ,UI/UX and more...

# Why we're looking at DevOps in the Cloud

## Background

- ◆ New demands on energy industry
  - ✓ Retail liberalization of energy is coming within 2 years
  - ✓ More quickly deploy new attractive services
  - ✓ More quickly procure resources
- ◆ Old-fashioned dev methodologies still remain
  - ✓ Development on-premise with dev tools requiring manual set up
  - ✓ Developers often stick to old tools they get used to (SVN, etc)
  - ✓ Lots of manual work still remain



**Need  
modernization!**

**Need more  
speed / less  
lead time**

**Need more apps  
for various  
services**

# Best practice concept

## ◆ Modernizing

- ✓ Standardization on “modern” tools

## ◆ Continuous Integration

- ✓ Build, Test, Deploy Automation through modern tools instead of a manual process, to reduce time, reduce manpower, and reduce failures

## ◆ Governance

- ✓ Encourage developers to conform to the new standard
- ✓ Easy to use is key factor for easy expansion

# Oracle Developer Cloud Service

## As a Solution for our issues

- ◆ Simply use DevOps solution in the Cloud
  - ✓ Easy to expand to all developers
  - ✓ Effective for reducing lead time as well as manpower
  - ✓ Nice for agile development
  - ✓ Don't need operators
- ◆ Less initial cost
  - ✓ No acquisition of hardware
  - ✓ No acquisition or configuration of software

# Oracle Developer Cloud Service

*We tried setting up a complete development platform on-premise but it wasn't easy.*

*With Oracle Developer Cloud Service everything was pre-configured and available in minutes.*

# Target projects of DevCS

## Where Developer Cloud is needed?

■Characteristic of development projects in TGI-Net

	Traditional style	New practice for Liberalization
Lead time	1 year or more	<u>Near-zero</u>
Dev period	Year(s)	<u>Month, or Weeks</u> (Continuous Delivery)

Developer Cloud is required in this area

- ❑ DevOps Solution with less lead time
- ❑ Agility and productivity of app development
- ❑ Continuous Delivery

# Wrap up

The latest development environment  
for the enterprise in the Cloud!!



- ◆ Environment provisioned in seconds with the latest DevOps tools
- ◆ Don't need operators. This is Oracle's Service!
- ◆ Significantly reduce initial cost

Anyone can get  
Modern DevOps environment with DevCS



# Thank you!





# Case Study: A day in the life of the Developer Cloud Service Team

Jeffrey Stephenson

# Case Study: Developer Cloud Service Team

- Developer Cloud Service is developed on Developer Cloud Service
  - One Developer Cloud Service Project
  - 33 git repositories, 1 binary repository
  - 165 project members, 50 active contributors
  - 200 commits a week
  - 50 builds a day
  - 16555 issues
  - 200 wiki pages

# Day In The Life of a Developer Service Developer

- Receives notifications of new/updated issues
- Queries open assigned issues in current sprint
- Creates a topic/feature branch for an issue
  - `git checkout -b issue_16555`
  - fix bug/implement new feature -- using IDE of choice – Eclipse, Netbeans, JDeveloper
  - `git add -A` (stages changed files)
  - `git commit -m "Issue 16555: Implement new feature xxxx"`
  - `git push origin issue_16555`
- Submits merge request for review
  - Notified of comments from reviewers – may need to push additional commits to branch
  - Notified of merge into target branch or rejection

# Day In The Life of a Developer Service Developer (cont.)

- Merging Automatically Triggers Build
  - Builds code to produce new binaries
  - Runs unit tests
  - Deploys binaries to project maven repo
  - Developers are notified of build failures
- Twice daily scheduled build promotes latest successful builds to staging area
  - Failed deployment notifies developers
  - Successful deployment notifies QA team
  - QA verifies closed issue in staging area
  - Automatically triggers automated selenium testing

# Day In The Life of a Developer Service Manager

- Issue management
  - Assign new issues into sprints
  - Track open issues in current sprint
- Merge requests
  - Review merge requests
- Promote releases from staging area to production
  - Create release branches
  - Use “Protected Branches” feature to lock release branches to avoid unapproved merges
  - Trigger build job to deploy release branch to pre-production staging area
  - Automatically runs automated test suite against pre-production area
  - Trigger build job to promote to production deployment
- I read the activity stream at the end of every day to review the day’s activities

# Day In The Life of a Developer Service Manager (cont.)

## – Monitoring

- Oracle Enterprise Manager agents on VMs
- Elastic Search/Logstash/Kibana centralized log management and analysis
- But we also have build jobs that continuously run automated tests against the live service

## – Working with partners/contractors

- Create a separate project – add the partner/contractor to the team for that project
- Spin up new VMs to serve as a staging area for projects
- Monitor the partner/contractor's activity to ensure progress is being made
- Remove access at the end of the engagement, keep the fully working development environment
- Totally self-service – requires no IT guys, no access to company intranet

# Summary: Benefits of Cloud Hosted Development

## – Self Service

- Spin up new projects in a minute
- No IT team, no hardware to purchase and manage
- Securely access from anywhere -- how secure are your on premise tools?

## – Track Everything in one system!

- Commit history
- Merge request history
- Build history
- Deployment history
- Issue history
- Activity Stream

## – Scales elastically – spin up as many staging environments as you need, pay for what you use



# Developer Cloud Service Value Proposition

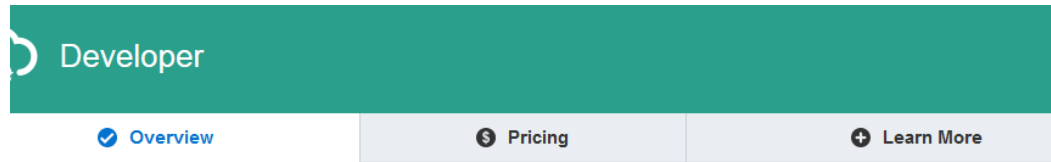
- Eliminate setup and startup time
- Reduce maintenance costs
- Leverage integrated ALM solution
- Extend code accessibility
- Improve team collaboration
- Simplify team management
- Streamline cloud deployment
- Produce better applications faster



# Questions?

# Get Started Today

[cloud.oracle.com/developer\\_service](https://cloud.oracle.com/developer_service)



## A Platform as a Service Development Environment for the Enterprise

Simplify development with an automatically provisioned development platform that supports the complete development lifecycle

[View eBook](#)

### Develop

Develop your applications on a development platform securely hosted in the cloud

### Deploy

Deploy your applications to Oracle Java Cloud Service or your on-premise infrastructure

### Collaborate

Integrated tools to manage and track tasks, build, and test your code, and generate documentation

- Tutorials
- Videos
- eBook
- Whitepapers
- Documentation
- Forums

# Learn More

What	When	Where
HOL - Improved Development Lifecycle, Team Collaboration, and DevOps in the Cloud	Mon, 5:00	Hotel Nikko – Mendocino I/II
Oracle Cloud Platform for Rapid Applications Development and Integration in the Cloud	Tue, 12:15	Moscone South 302
Development Operations in the Cloud: A Use Case and Best Practices	Tue, 5:30	Parc 55 – Powell I/II
HOL - Improved Development Lifecycle, Team Collaboration, and DevOps in the Cloud	Wed, 2:45	Hotel Nikko – Mendocino I/II
DevOps for Mobile in the Cloud	Thu, 12:00	Moscone South 304



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