Top 8 Java EE deployment pitfalls

An easier life for Developers and IT operations!

Andrew Phillips

XebiaLabs

XDeployit

Once upon a time...

Deployit

Once upon a time...

Once upon a time...

Once upon a time...

```
    OPTS="$OPTS $1"
    if [ "$1" = "$MGR_FLAG_COLUMNS" ] ; then
        shift 1
        OPTS="$OPTS $1"
    fi
    shift 1
done

#### all remaining arguments ($*) are files to be compared
#### first, format each file with NROFF
COUNT=1
TMP=/usr/tmp/compare.$$
for X in $*   do
    nroff -man $X | col | ul -Tcrt > $TMP.$COUNT
    COUNT=`expr $COUNT + 1`
done

#### then, compare the files with cleardiff
cleardiff -quiet $OPTS $TMP.*
```

Once upon a time...

```
    OPTS="$OPTS $1"
    if [ "$1" = "$MGR_FLAG_COLUMNS" ] ; then
        shift 1
        OPTS="$OPTS $1"
    fi
    shift 1
done

#### all remaining arguments ($*) are files to be compared
#### first, format each file with NROFF
COUNT=1
TMP=/usr/tmp/compare.$$
for X in $* ; do
    nroff -man $X | col | ul -Tcrt > $TMP.$COUNT
    COUNT=`expr $COUNT + 1`
done

#### then, compare the files with cleardiff
cleardiff -quiet $OPTS $TMP.*
```

Who we are

- XebiaLabs
- Spin-off of Dutch IT architects Xebia
- Specialists in enterprise consultancy
- Lots of experience of both the development and operations sides of deployment

What's in a name?

- We're talking about **Java EE application deployment**
- *"What can be so hard about deploying an EAR file?"*

What's in a name?

- The scope and impact of a deployment is easy to underestimate
- Cuts across multiple departments and skill sets
- Lengthy, interdependent, time-constrained process

Pitfall #8

Failure to take deployment into account when designing infrastructure and middleware.

Solution:

- Involve middleware deployment people and developers in middleware and infrastructure projects.
- Design deployment into the architecture!

Pitfall #7

Failure to take deployment into account when designing and developing applications.

Solutions:

- Involve all operations departments in application projects: Java EE, DBAs, Unix, infra, etc.
- Start deploying after the first iteration.

Pitfall #6

Failure to develop against representative middleware.

Solutions:

- Let developers know which versions of JDKs, middleware, etc. is used.
- Allow developers to deploy against a representative middleware environment.

Pitfall #5

Reliance on deployment manuals.

Solution:

- Make deployment obvious: use best practices, standard features, etc.
- Prefer automation over documentation.

Pitfall #4

Failure to keep middleware environments in sync.

Solution:

- Don't allow manual changes to middleware environments.

Pitfall #3

Failure to keep an overview of the configurations of the middleware.

Solution:

- Keep a CMDB of your middleware configuration.

Pitfall #2

Failure to test deployments.

Solution:

- Do an end-to-end test after a deployment has been done.

Pitfall #1

Failure to (completely) automate deployments.

Solution:

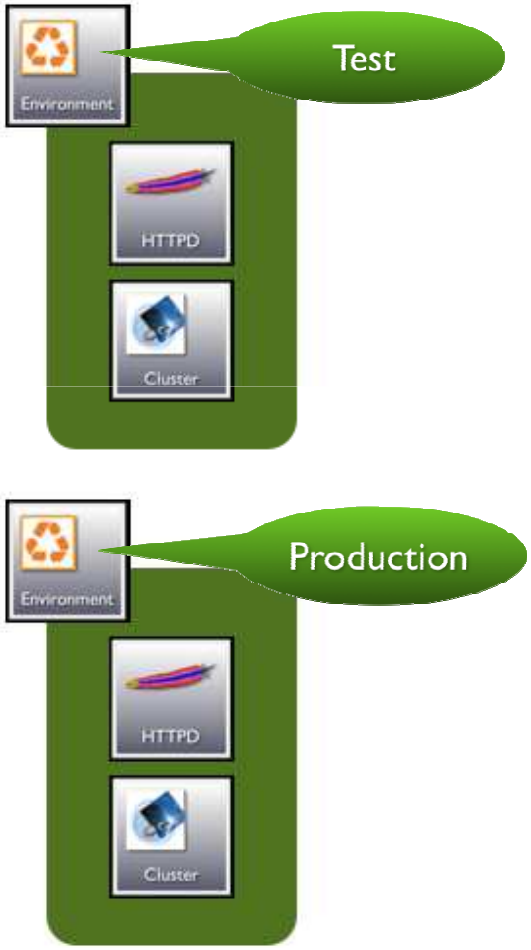
- Automate your deployments!

Enter Deployit

- Deployit : our solution
- Based on our in-depth middleware knowledge and deployment experience
- “The seemingly impossible is possible!”

Things...

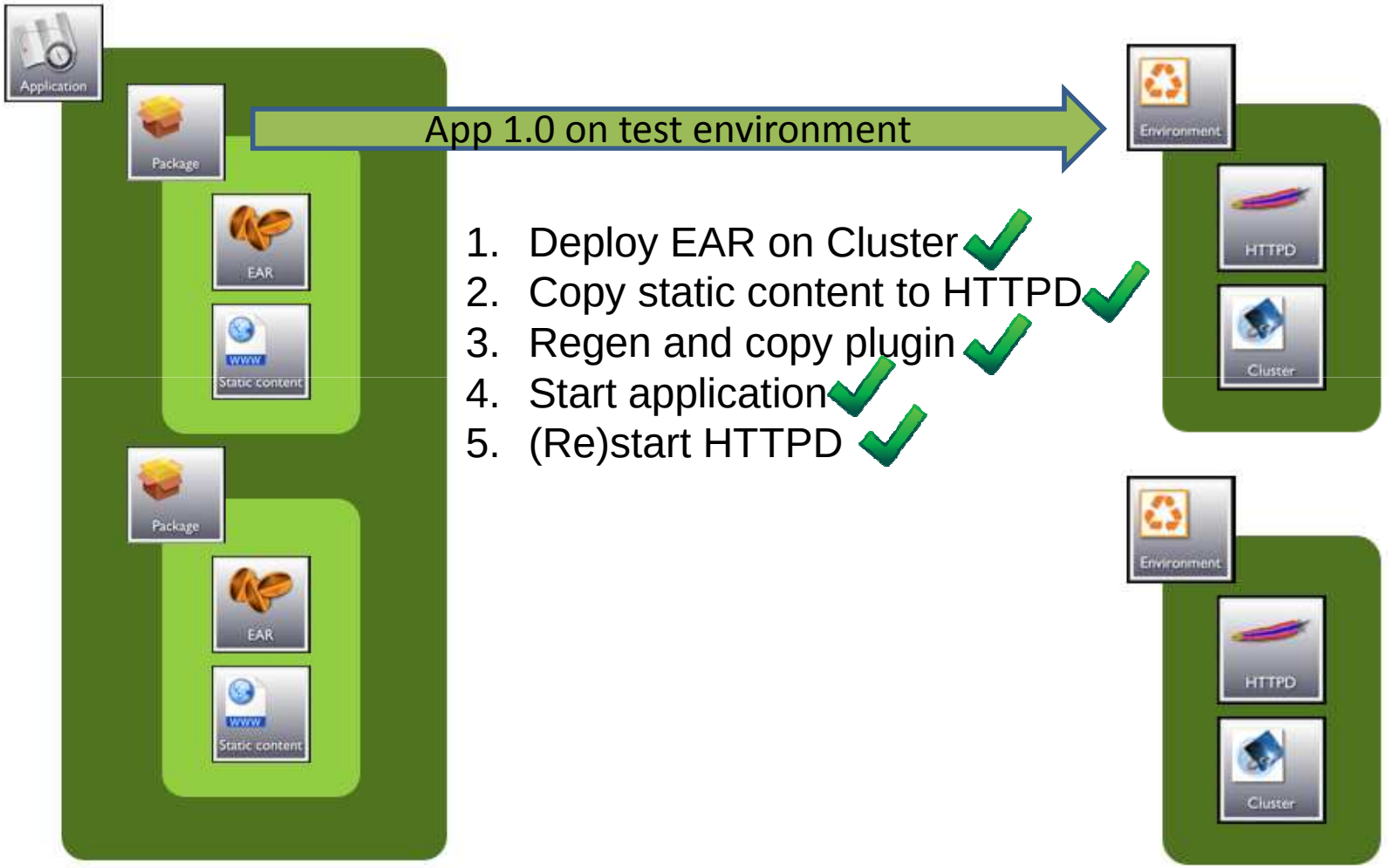
Application
1.0
Package
EAR
Static content
2.0
Package
EAR
Static content


Environment
Test
HTTPD
Cluster
Environment
Production
HTTPD
Cluster

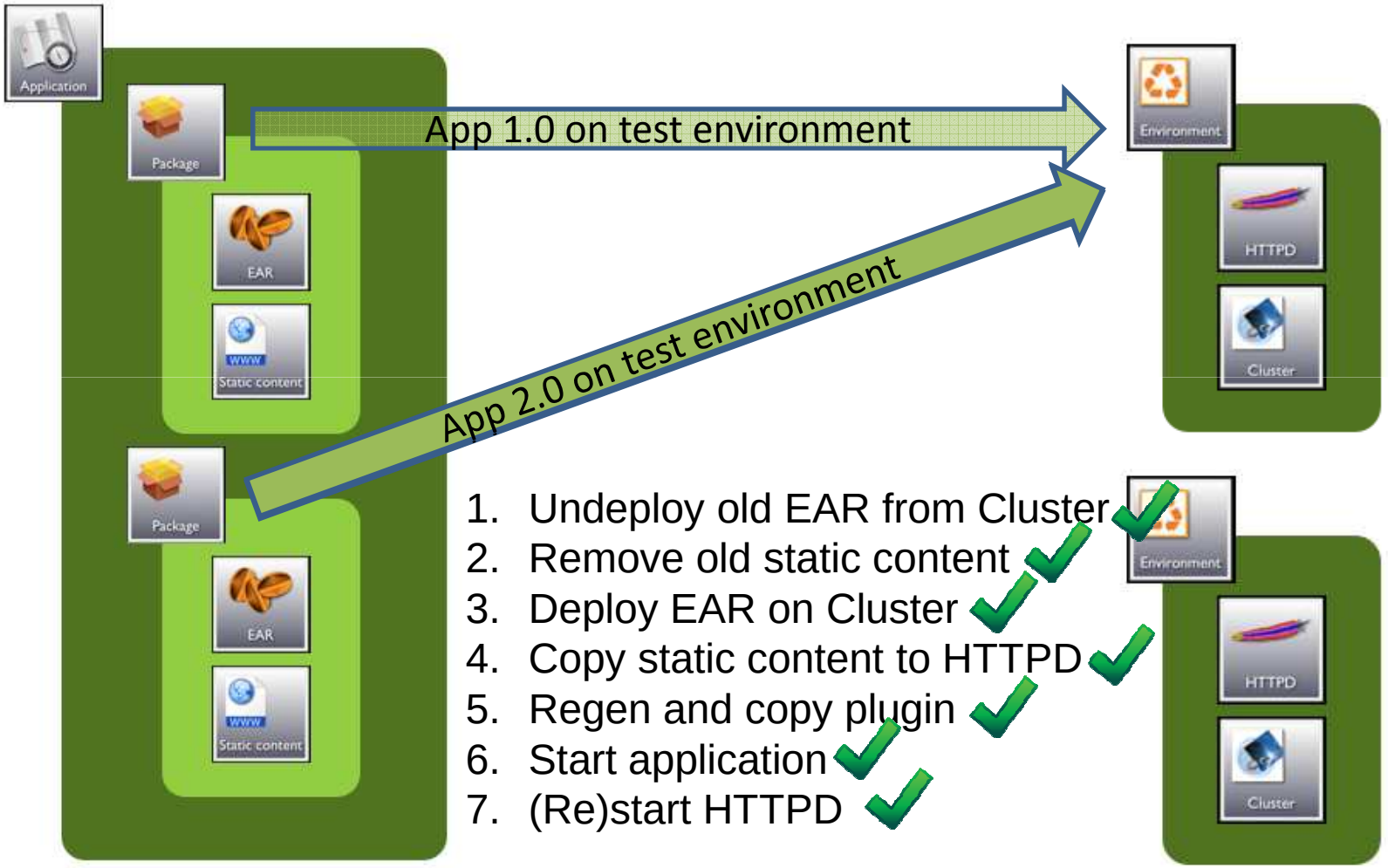
Configuration Management

- CMDB stores *Configuration Items*
- Stores relations between those items
- Keeps a history of changes

...and actions

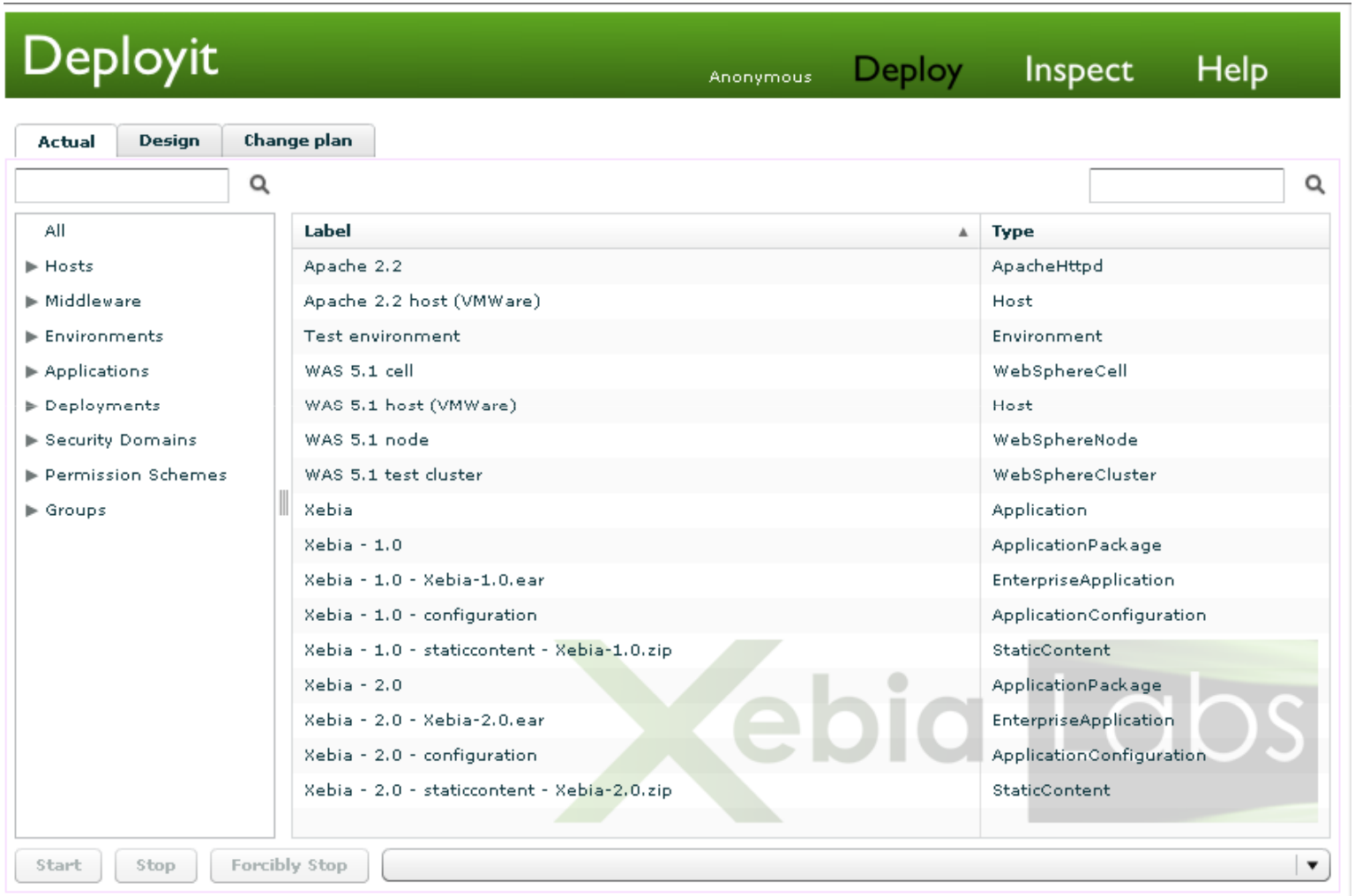

Application
Package
EAR
Static content
Package
EAR
Static content
App 1.0 on test environment
1. Deploy EAR on Cluster
2. Copy static content to HTTPD
3. Regen and copy plugin
4. Start application
5. (Re)start HTTPD
Environment
HTTPD
Cluster
Environment
HTTPD
Cluster

...and actions

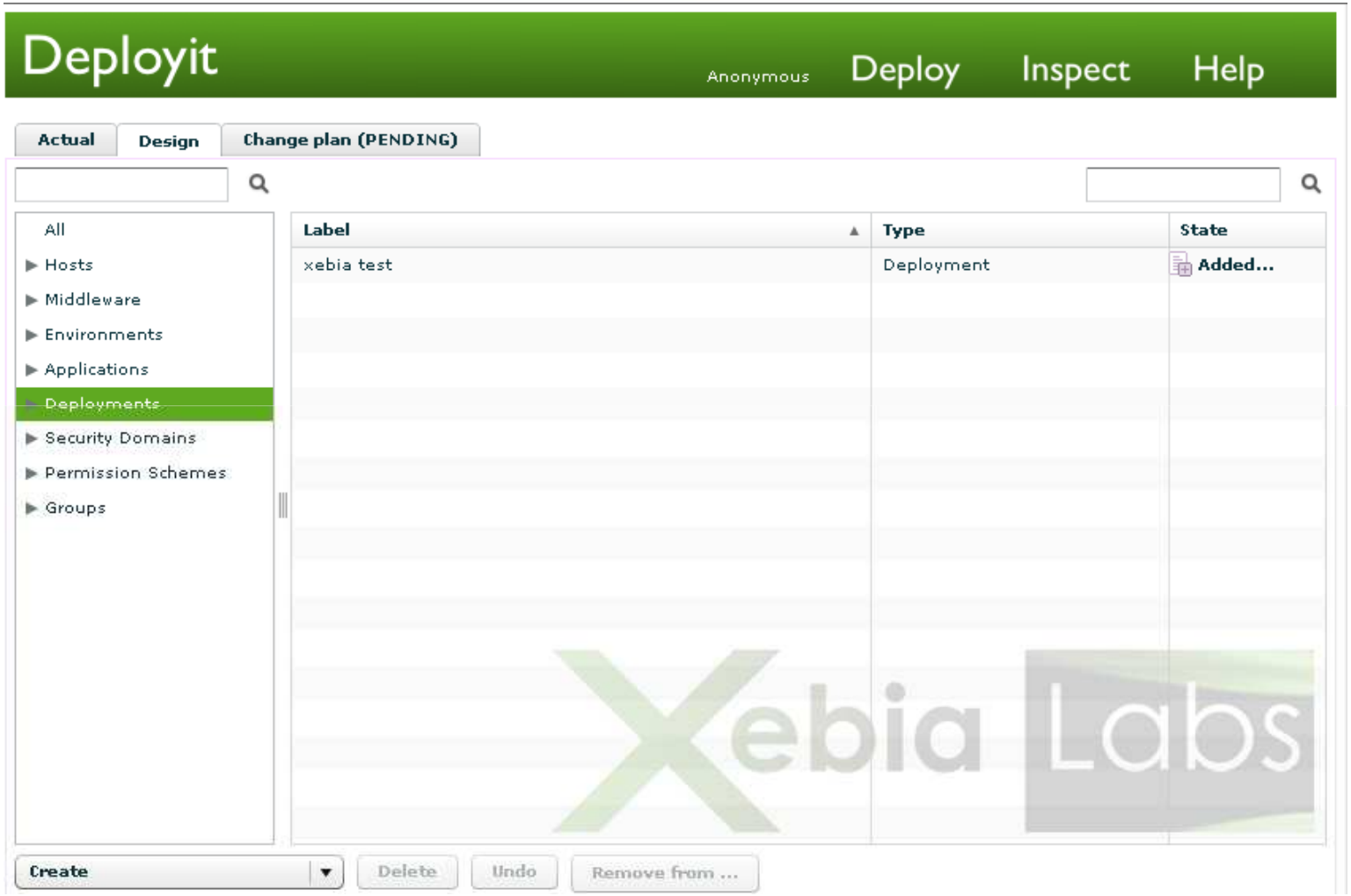


1. Undeploy old EAR from Cluster
2. Remove old static content
3. Deploy EAR on Cluster
4. Copy static content to HTTPD
5. Regen and copy plugin
6. Start application
7. (Re)start HTTPD

Actual view


Deployit
Anonymous
Deploy
Inspect
Help
Actual
Design
Change plan
All
Hosts
Middleware
Environments
Applications
Deployments
Security Domains
Permission Schemes
Groups
Label
Type
Apache 2.2
ApacheHttpd
Apache 2.2 host (VMWare)
Host
Test environment
Environment
WAS 5.1 cell
WebSphereCell
WAS 5.1 host (VMWare)
Host
WAS 5.1 node
WebSphereNode
WAS 5.1 test cluster
WebSphereCluster
Xebia
Application
Xebia - 1.0
ApplicationPackage
Xebia - 1.0 - Xebia-1.0.ear
EnterpriseApplication
Xebia - 1.0 - configuration
ApplicationConfiguration
Xebia - 1.0 - staticcontent - Xebia-1.0.zip
StaticContent
Xebia - 2.0
ApplicationPackage
Xebia - 2.0 - Xebia-2.0.ear
EnterpriseApplication
Xebia - 2.0 - configuration
ApplicationConfiguration
Xebia - 2.0 - staticcontent - Xebia-2.0.zip
StaticContent
Start
Stop
Forcibly Stop

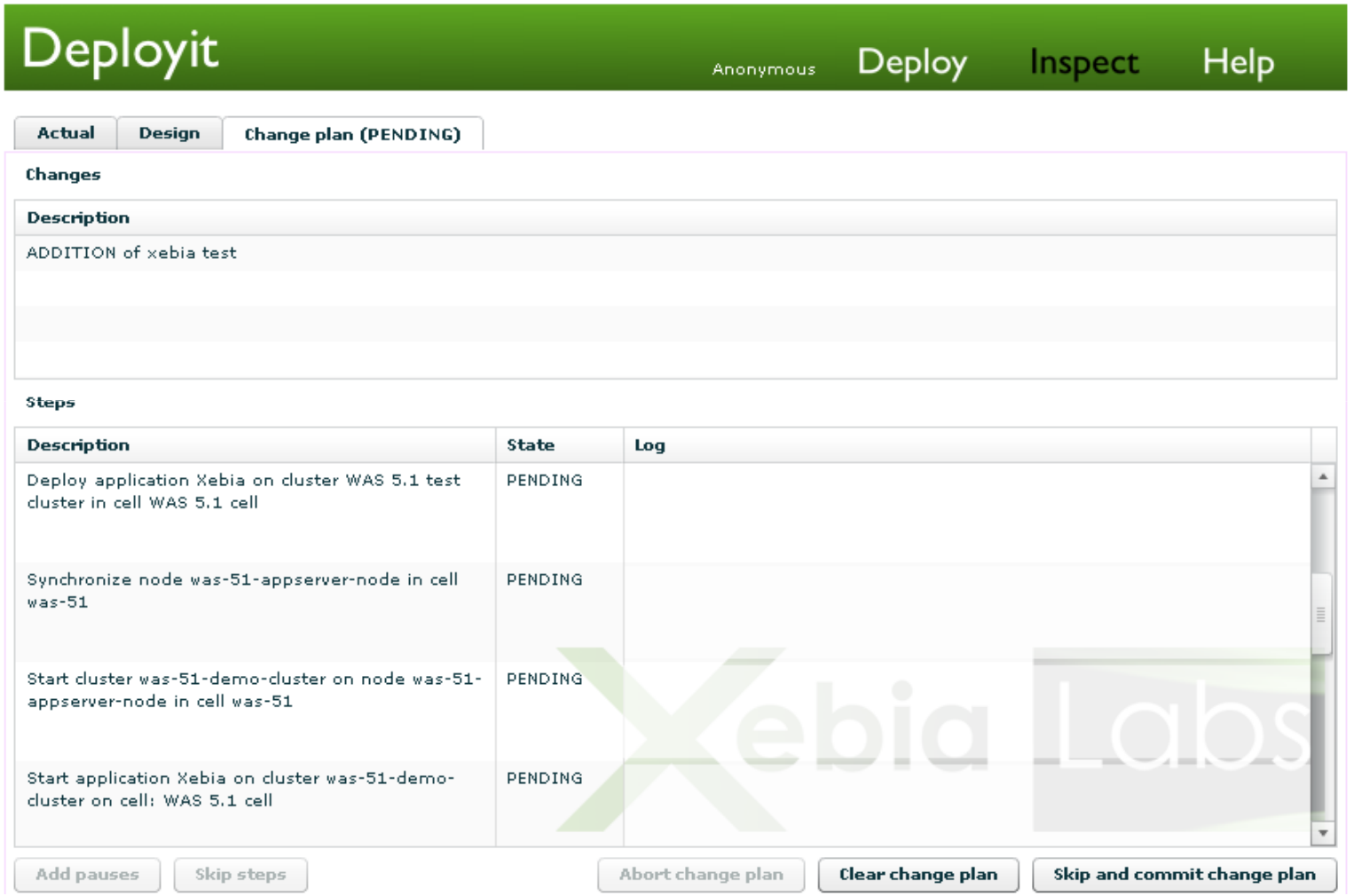
Design view


Deployit
Anonymous
Deploy
Inspect
Help
Actual
Design
Change plan (PENDING)
All
Hosts
Middleware
Environments
Applications
Deployments
Security Domains
Permission Schemes
Groups
Label
Type
State
xebia test
Deployment
Added...
Create
Delete
Undo
Remove from ...
Xebia Labs

Change Management

- *Change plan* is a set of changes that go together
- *Steps* make those changes happen in the middleware environment and are automatically determined
- Steps show what middleware actions will be taken
  - On a level that a middleware administrator can understand

Steps


Deployit
Anonymous
Deploy
Inspect
Help
Actual
Design
Change plan (PENDING)
Changes
Description
ADDITION of xebia test
Steps
Description
State
Log
Deploy application Xebia on cluster WAS 5.1 test cluster in cell WAS 5.1 cell
PENDING
Synchronize node was-51-appserver-node in cell was-51
PENDING
Start cluster was-51-demo-cluster on node was-51-appserver-node in cell was-51
PENDING
Start application Xebia on cluster was-51-demo-cluster on cell: WAS 5.1 cell
PENDING
Add pauses
Skip steps
Abort change plan
Clear change plan
Skip and commit change plan

Conclusion

- Deployments are hard, but not impossible to get under control
- Technical and process-related pitfalls are common
- Suitable deployment automation products can address and overcome these problems

Q&A

Questions?

Fin

http://www.xebialabs.com

…or drop by booth 7!