

Application Modernization

Using Open Source Tools to Kick Start
Modernization

Richard Hofmeister
App Dev SSA

When Business Makes Technical Decisions



We are moving *all* of our applications to the cloud. Everything written in the last 30 years needs to go.

—
John Doe
CTO, Acme Unlimited



I found a new platform that is more secure, and with the new mandate we need to migrate workload. How long will that take?

—
Burt Macklin
Business Leader, Acme Unlimited



We are moving *all* of our applications back on premise. That cloud bill was way more than we budgeted.

—
Mantis Toboggan
CFO, Acme Unlimited

Accelerate your journey to Kubernetes with the Konveyor Community

A community of people passionate about helping others modernize and migrate their applications to the hybrid cloud by **building tools to rehost, replatform, and refactor applications to run on Kubernetes & cloud-native technologies**



www.konveyor.io



Report 2022

State of Application Modernization

with the Konveyor Community



The State of Application Modernization Report 2022

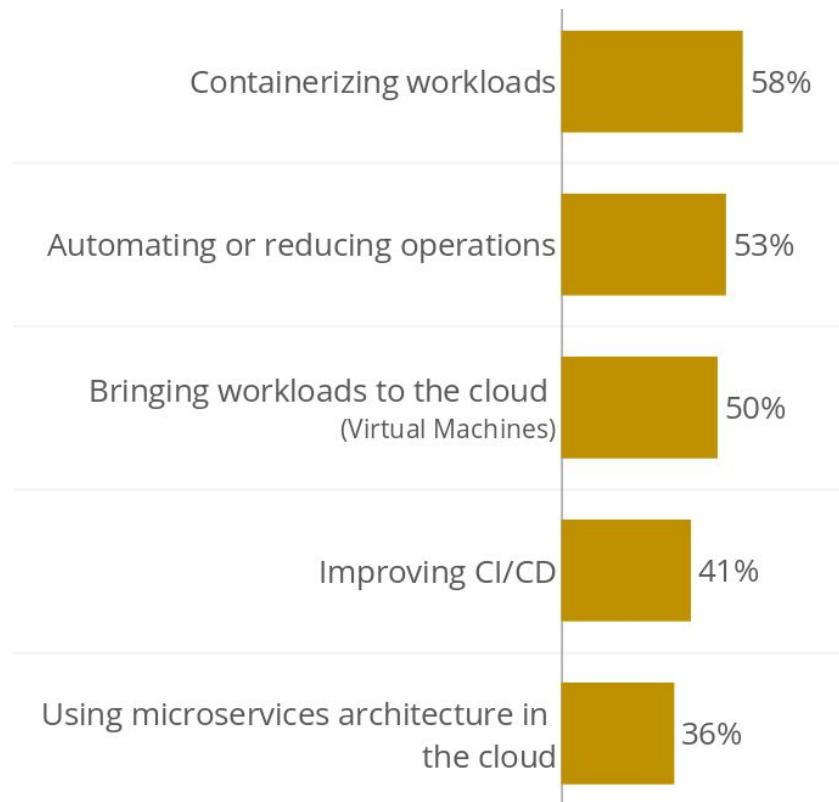
Learn why enterprises plan to modernize more than half of their existing applications to run on Kubernetes within the next year. And see how these 600 companies will approach the move, along with other key insights, to inform your modernization strategy.

View the report

konveyor.io/modernization-report

Application Modernization

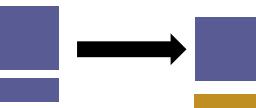
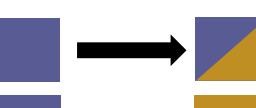
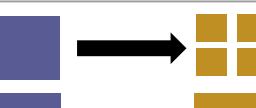
Ways companies define modernization



Top reasons for modernization

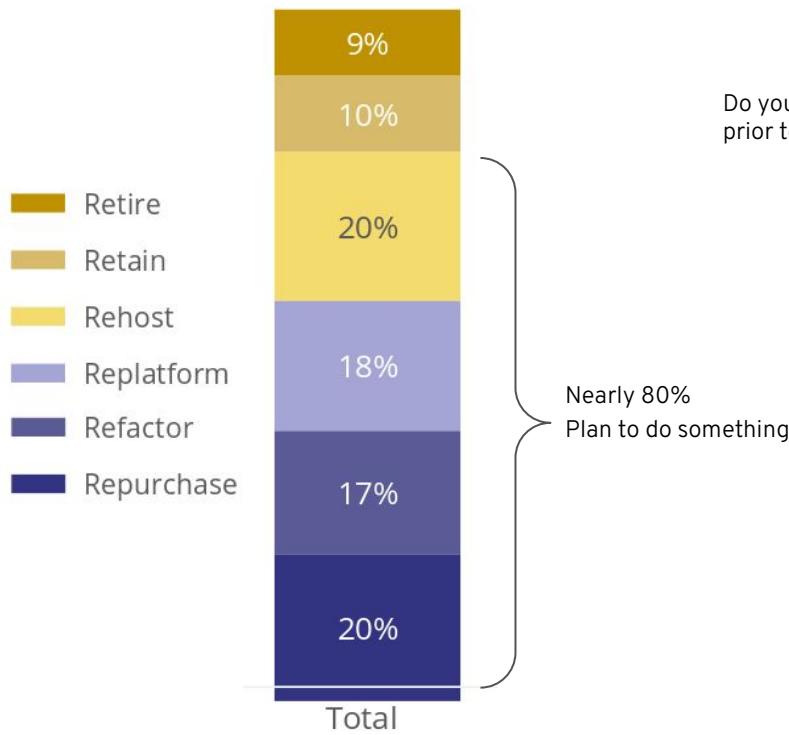


Modernization Strategies

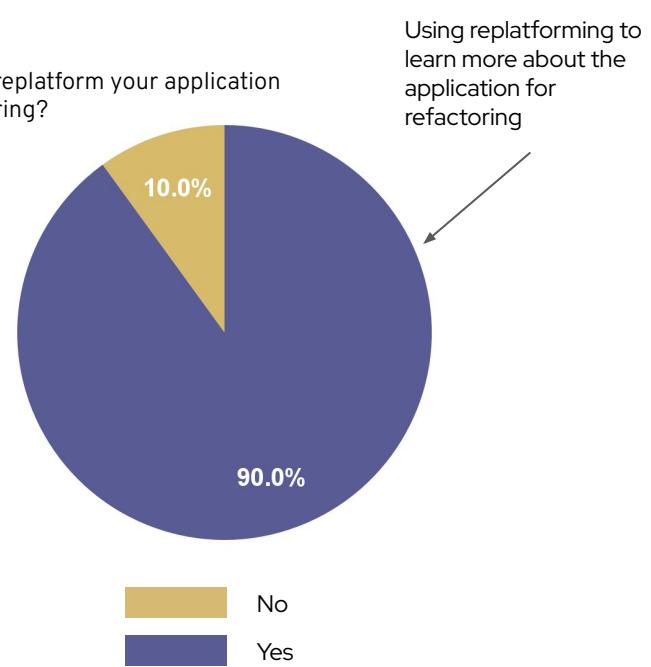
Action	Definition / Example	Diagram
Retire	Sunsetting the application.	
Retain	Continue running the application as-is.	
Rehost	Migrating an application as-is to a new platform. Example: Migrating virtual machines as is to a new virtualization platform.	
Replatform	Making optimizations to the application that do not require re-architecture or significant code changes in order to achieve business or technical benefits. Example: Migrating an application into a container in order to standardize application delivery and day-2 operations across application teams.	
Refactor	Changing how an application is developed and/or architected, typically to be more cloud-native Example: Strangling a monolith into microservices.	
Repurchase	Moving to SaaS or Replacing portions of an application with as a service offerings Example: Consuming Kafka as a Service within an existing application.	

How to Modernize?

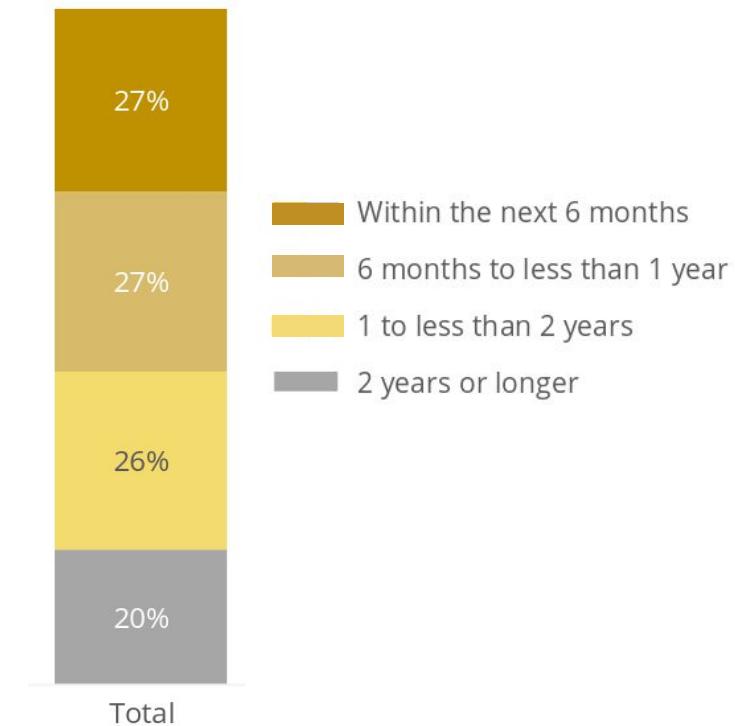
Strategies companies are planning to use



Replatforming prior to refactoring



Expected pace of modernization



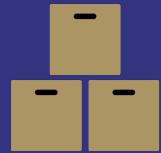
Existing
Application
& Infrastructure



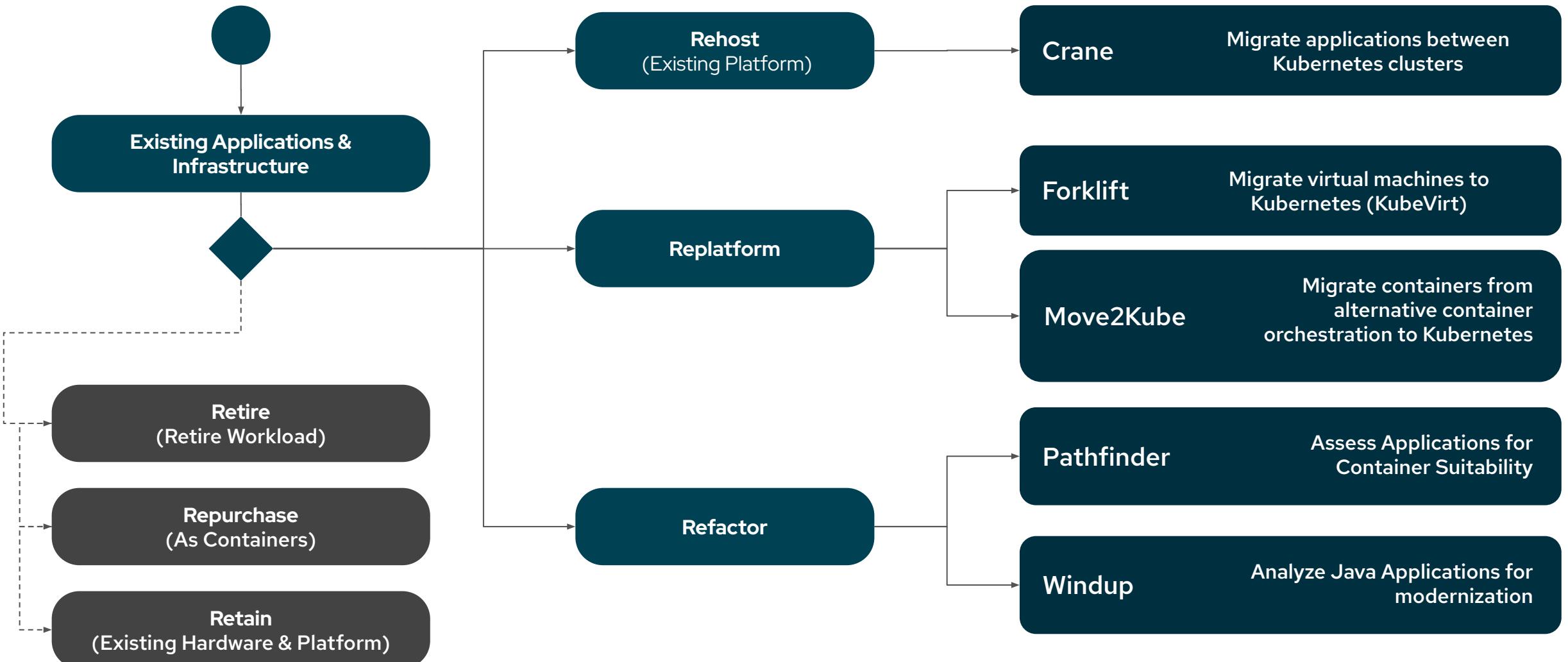
Rehost

Replatform

Refactor



Migrating to OpenShift with *Konveyor*

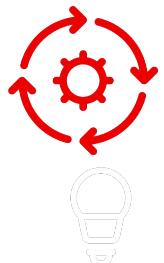


But what if my application requires a Virtual Machine?

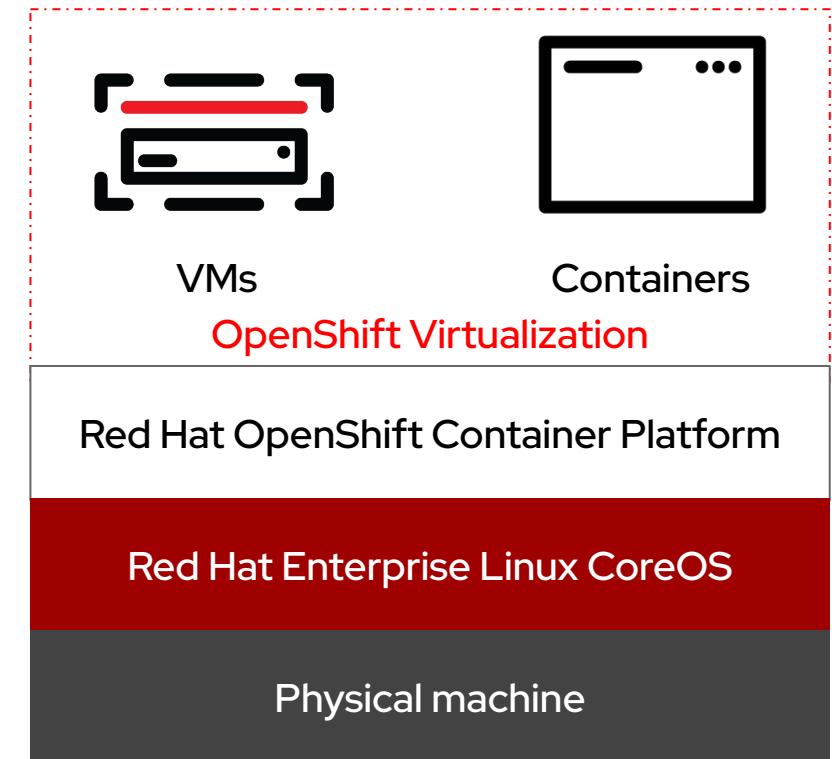
OpenShift 4.5 introduced the general availability of OpenShift Virtualization.



Enabling OpenShift Virtualization in a OpenShift cluster it allows users to deploy virtual machines in their projects side-by-side with their containerized applications.



OpenShift can deploy applications in virtual machines according to the same rules as applications running in containers.

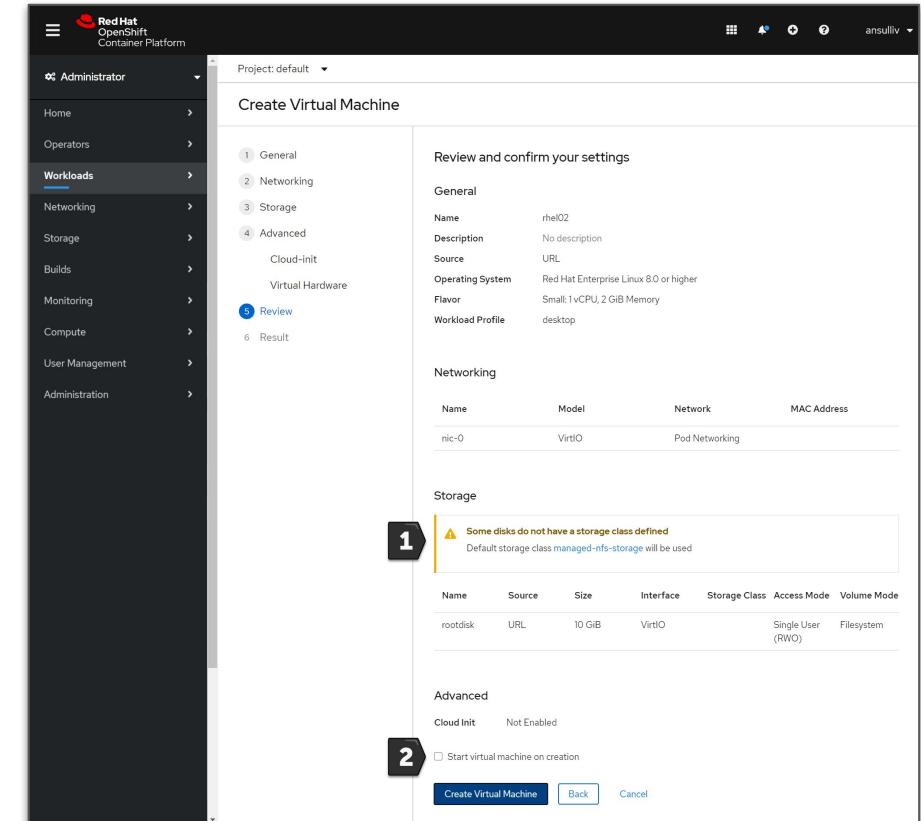
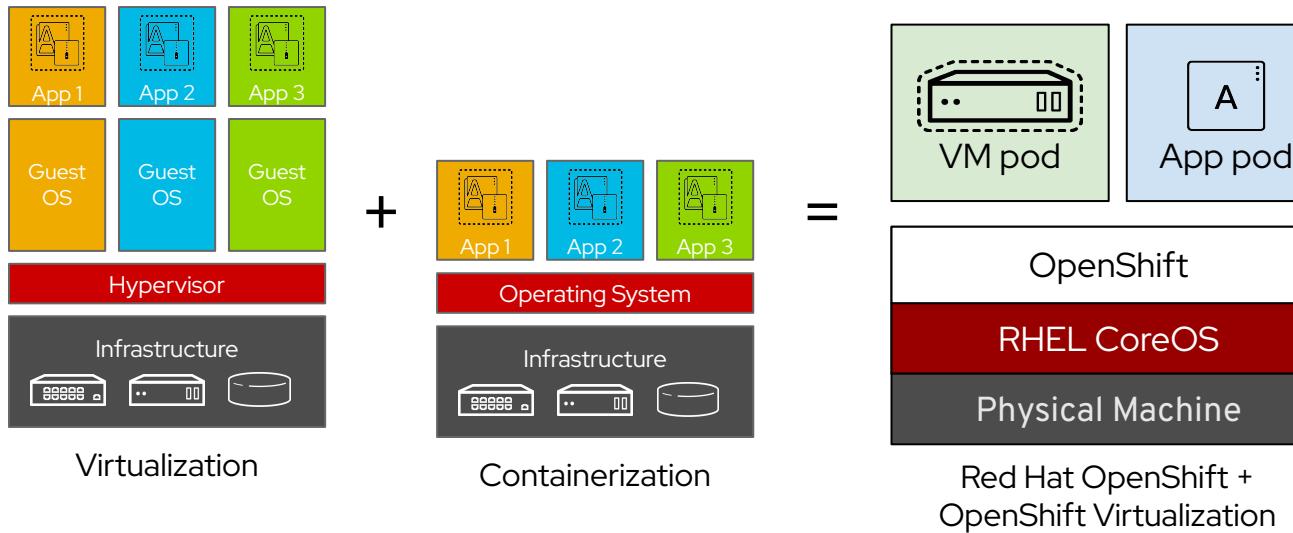


Isn't a Virtual Machine different from a container?

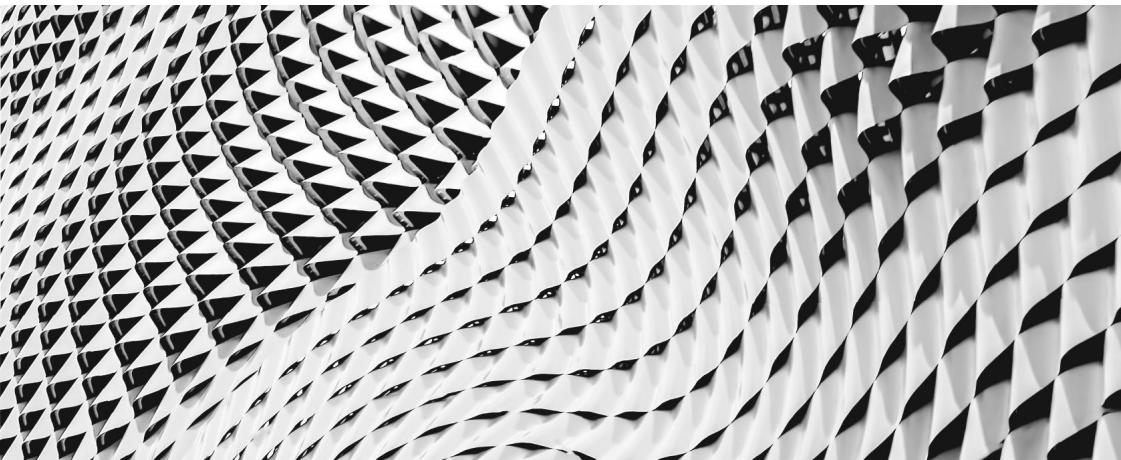
Technical facts:

- Containers are methods of process isolation
- A Virtual Machine is a process

Running a Virtual Machine inside a container platform is equal to running a Virtual Machine as a container.



Tackle to Access Applications



Assess, Prioritize, and Refactor Applications to Kubernetes



Streamline the modernization of your application portfolio to Kubernetes.

Through interrelated open source tools, Tackle gives you insight throughout the adoption process

Whether you're making decisions at the portfolio or application level.



Tackle Operator

Install Tackle in your Kubernetes cluster with almost no effort

 **Tackle Operator**
1.2.0 provided by Konveyor

[Uninstall](#)

Latest version
1.2.0

Capability level

- Basic Install
- Seamless Upgrades
- Full Lifecycle
- Deep Insights
- Auto Pilot

Source
Community

Provider
Konveyor

Repository
<https://github.com/konveyor/tackle-operator>

Container image
quay.io/konveyor/tackle-operator:1.2.0-native

- Can be installed in all Kubernetes distributions
- Available in operatorhub.io and OpenShift
- Requires Operator Lifecycle Manager on upstream Kubernetes distributions
- Provides a tackle CRD to provision all components
- Capability Level II



Application Inventory

Application Portfolio Management

The screenshot shows the 'Application inventory' page. The left sidebar has 'Application inventory' selected, along with 'Reports' and 'Controls'. The main area is titled 'Application inventory' and contains a table with the following data:

Name	Description	Business service	Assessment	Review	Tag count	Actions
Flexicard	Account Management for Credit Cards		Not started	Not started	3	Edit More
ForestAndTrees	'generic, interfaces, extract and reportin...	Finance and HR	Not started	Not started	4	Edit More
GeneralLedger	General Ledger	Finance and HR	Not started	Not started	4	Edit More
Haulier-BE	Insurance service of commercial vehicles	Motor Insurance	Completed	Completed	5	Edit More
Haulier-FE	User interface for commercial vehicle ins...	Motor Insurance	Completed	Completed	4	Edit More
HeadChef	Allocation of orders to restaurants for ful...	Food2Go	Not started	Not started	4	Edit More
Homesure	Home insurance - buildings and contents	Home Insurance	In-progress	Not started	5	Edit More
HomesureBTL	Insurance for Buy to Let properties	Home Insurance	Not started	Not started	4	Edit More
InventoryManagement	Inventory management	Finance and HR	Not started	Not started	5	Edit More

- Used to maintain a portfolio of applications
- It is the hub, and natural integration point for all Tackle projects in the future
- Through the use of tags extensible metadata can be added to describe and categorize the applications in multiple dimensions
- Applications can be linked to the business services that they support
- Application interdependencies can be defined and managed

Assessment Areas

Assessment questions cover the following application aspects



- Architectural Suitability
- Dependencies
- Application Resiliency
- Communication
- Compliance
- State Management
- Runtime Profile
- Observability



- Level of Ownership
- Service Discovery
- Deployment Complexity
- Application Testing
- Application Security
- Application Configuration
- Clustering
- Custom Questions



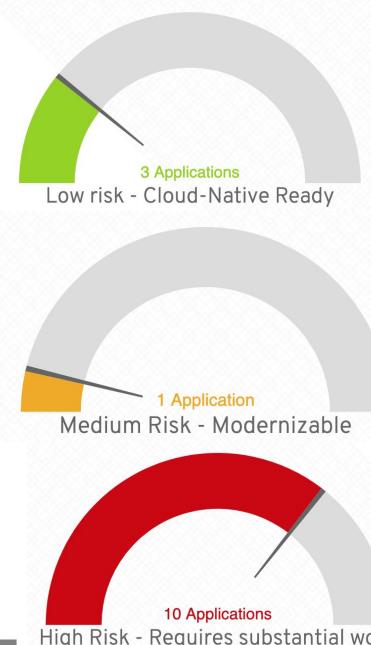
Application Assessment

Assess your Application Portfolio for containerization suitability

The screenshot shows the Sonatype TACKLE application interface. The left sidebar includes 'Application inventory', 'Reports' (selected), and 'Controls'. The main area has a header 'Reports' with a search bar. Below it is a section titled 'Current landscape' featuring four donut charts: 'Low risk' (3 of 55 applications), 'Medium risk' (1 of 55 applications), 'High risk' (10 of 55 applications), and 'Unassessed' (41 of 55 applications). The 'Adoption candidate distribution' section lists 55 selected applications with columns for 'Application name', 'Critically', 'Priority', 'Confidence', 'Effort', and 'Decision'. A 'Graph view' button is also present. The bottom of the screen shows navigation controls.

- A questionnaire based tool that assesses the suitability of applications for deployment in containers within an enterprise Kubernetes platform
- The reports provide information about the suitability of the applications for containerization, highlighting risks and producing an adoption plan informed by effort, priority and dependencies

CURRENT LANDSCAPE



Pathfinder

Logged in as Admin (Logout)

Italian Bank Assessments Applications Members

CONSUMER APP PORTAL ASSESSMENT

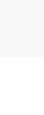
Application Details

1. Does the application development team understand and actively develop the application? !

- Unknown
- External 3rd party or COTS application
- In maintenance mode, no app SME knowledge, poor documentation
- Maintenance mode, SME knowledge available
- Actively developed, SME knowledge available
- New Greenfield application

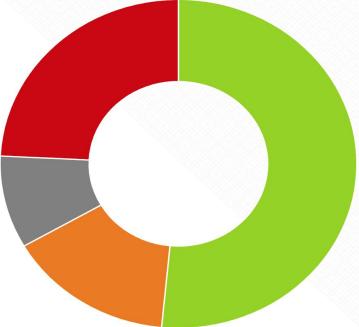
2. How is the application supported in Production? !

- Unknown
- Application production support outsourced to 3rd party support provider. Ticket driven escalation process, no inhouse support resources.
- Production support provided by separate internal team, little interaction with development team.
- Multiple teams support the application using an established escalation model
- SRE based approach with knowledgeable and experienced operations team
- Pure DevOps model, the team that builds it is responsible for running it in Production



Italian Bank Assessments Applications Members

ARCHITECT REVIEW



CONSUMER APP PORTAL

Application Description:

No description provided

Assessment Notes:

Currently under development, still a work in progress.

Please use this section to provide your assessment of the possible migration/modernisation plan and an effort estimation.

Proposed Action	Effort Estimate	Business Criticality	Work Priority
Re-host	Large	8	8

Submit Review

Question ▲

Are 3rd party/Vendor components supported in containers?

Not recommended to run component in containers

RED

Dependencies - (Incoming/Northbound)

No dependent systems

GREEN

Dependencies - (Outgoing/Southbound)

Limited processing available if dependencies are unavailable

GREEN

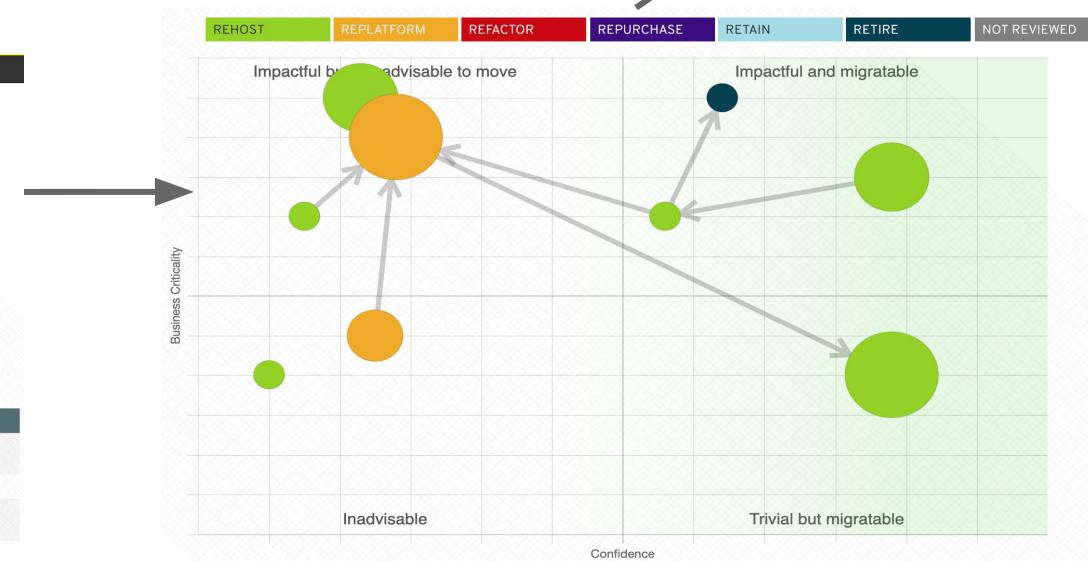
Pathfinder

Pathfinder is an application assessment which can quickly assist a customer with creating a strategy for containerisation of their applications.

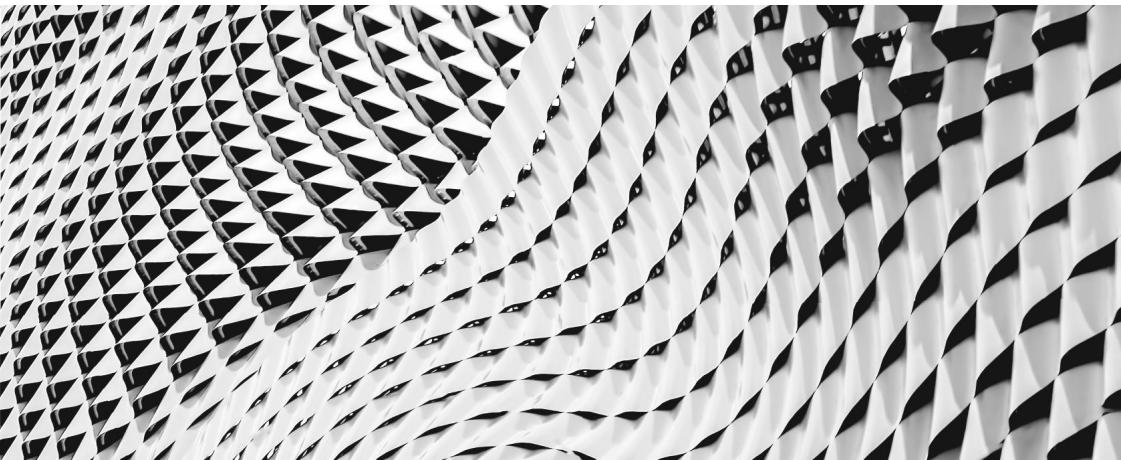
Username:

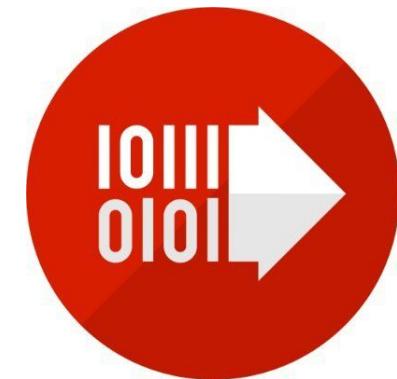
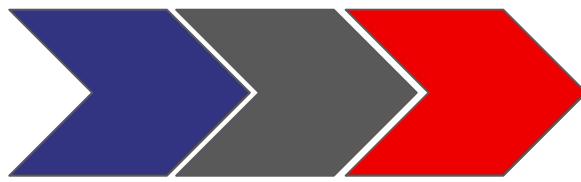
Password:

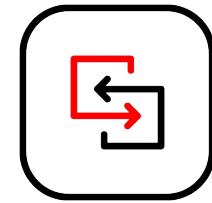
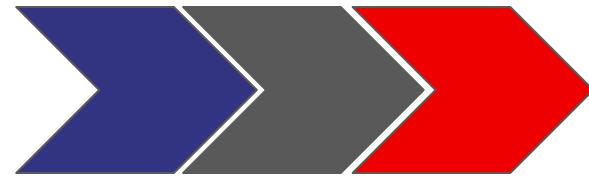
Submit



MTA to Analyze Applications







Migration Toolkit
for Applications

Migration Toolkit for Applications

The tools, reports, and knowledge that help developers accelerate application modernization and migration projects.

[Download](#)

[Overview](#) [Download](#) [Getting started](#)

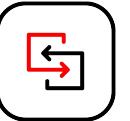
[Use cases and migration paths](#)

Migration Toolkit for Applications overview

Modernize and migrate applications and move to cloud and containers

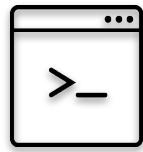
The Migration Toolkit for Applications (MTA) is an assembly of tools that support large-scale Java application modernization and migration projects across a broad range of transformations and use cases. It accelerates application code analysis, supports effort estimation, accelerates code migration, and helps you move applications to the cloud and containers.





Migration Toolkit for Applications

Other distributions



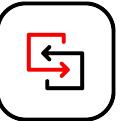
Command line
interface



IDE
plugins



Maven
plugin

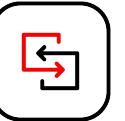


Command Line Interface

Features

- Great for larger / automated analyses
- Easy to script
- Typical Use Case
 - Create a folder structure where your artifacts are stored
 - Have a script run through all
 - Move the resulting reports to a simple Web Server for consumption

```
$ <MTA_HOME>/bin/mta-cli --input /path/to/jee-example-app-1.0.0.ear --output  
/path/to/report-output/ --source eap:5 --target eap:7 --packages com.acme  
org.apache
```



Maven Plugin

Features

- For teams who want to continuously evaluate Migration efforts with each build iteration
- Easy to add to your CI/CD or build processes
 - CLI - add a step in your pipeline
 - Maven Plugin - Integrate into your Maven build

IDE Plugins



Task list, inline hints, support for code changes

The screenshot shows an IDE interface with a Java file named `BookingServiceImpl.java`. The code implements a `SessionBean` and uses various imports from the `com.rhc.booking` package. A specific annotation at line 33, `@WLInitParam(value="insurance")`, has a context menu open. The menu items are:

- Create annotation 'WLInitParam'
- Change to 'WebParam' (javax.jws)** (highlighted)
- Rename in file (⌘+2 R)
- Copy to Criteria Editor
- Fix project setup...

The code editor shows the following snippet with the `WebParam` proposal highlighted:

```
...  
import javax.ejb.SessionBean;  
import javax.ejb.SessionContext;  
import javax.jws.WebParam;  
import javax.naming.Context;  
...  
@WebParam(value="insurance")  
private String type;  
...
```

At the bottom left, there is an "Issue Detail" button with the message "No details available". At the bottom right, there is a note: "Press 'Tab' from proposal table or click for focus".

The screenshot shows a Visual Studio Code interface with two tabs open: `OrderManagementApplicationInitializer.java` and `PersistenceConfig.java`. The `PersistenceConfig.java` tab is active, displaying Java code for a persistence configuration. A red box highlights the following code block:

```
    @Bean
    public LocalContainerEntityManagerFactoryBean entityManagerFactory() {
        final LocalContainerEntityManagerFactoryBean em = new LocalContainerEntityManagerFactoryBean();
        em.setDataSource(dataSource());
        em.setPackagesToScan("io.konyvor.demo.ordermanagement.model");
        em.setPersistenceProvider(new HibernateJpaVendorAdapter());
        em.setJpaProperties(additionalProperties());

        return em;
    }

    @Bean
    public DataSource dataSource() {
        ApplicationConfiguration config = new ApplicationConfiguration();
        final DriverManagerDataSource dataSource = new DriverManagerDataSource();
        dataSource.setDriverClassName(config.getProperty("jdbc.driver"));
        dataSource.setDriverClassName(config.getProperty("jdbc.url"));
        dataSource.setUsername(config.getProperty("jdbc.user"));
        dataSource.setPassword(config.getProperty("jdbc.password"));

        return dataSource;
    }

    @Bean
    public PlatformTransactionManager transactionManager() {
        final JpaTransactionManager transactionManager = new JpaTransactionManager();
        transactionManager.setEntityManagerFactory(entityManagerFactory());
        return transactionManager;
    }

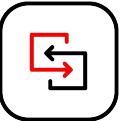
    @Bean
    public PersistenceExceptionTranslationPostProcessor exceptionTranslator() {
        return new PersistenceExceptionTranslationPostProcessor();
    }
```

The status bar at the bottom indicates the project is named "konyvor-legacy" and the version is "3.0.2".

Eclipse(Che, CodeReady Studio) / VS Code / IntelliJ

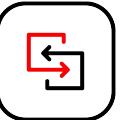


Migration paths Matrix



Source Platform	Targets								
	Migration to JBoss EAP 7	Cloud Readiness	OpenJDK 8 & 11	Jakarta EE 9	Camel 3	Spring Boot in Red Hat Runtimes	Quarkus	Open Liberty	
Oracle WebLogic Server	✓	✓	✓	-	-	-	-	-	-
IBM WebSphere Application Server	✓	✓	✓	-	-	-	-	✓	
JBoss EAP 4	✗ [1]	✓	✓	-	-	-	-	-	
JBoss EAP 5	✓	✓	✓	-	-	-	-	-	
JBoss EAP 6	✓	✓	✓	-	-	-	-	-	
JBoss EAP 7	✓	✓	✓	-	-	-	-	-	
Thorntail	✓ [2]	-	-	-	-	-	-	-	
Oracle JDK	-	✓	✓	-	-	-	-	-	
Camel 2	-	✓	✓	-	✓	-	-	-	
Spring Boot	-	✓	✓	✓	-	✓	✓	-	
Any Java application	-	✓	✓	-	-	-	-	-	
Any Java EE application	-	-	-	✓	-	-	-	-	





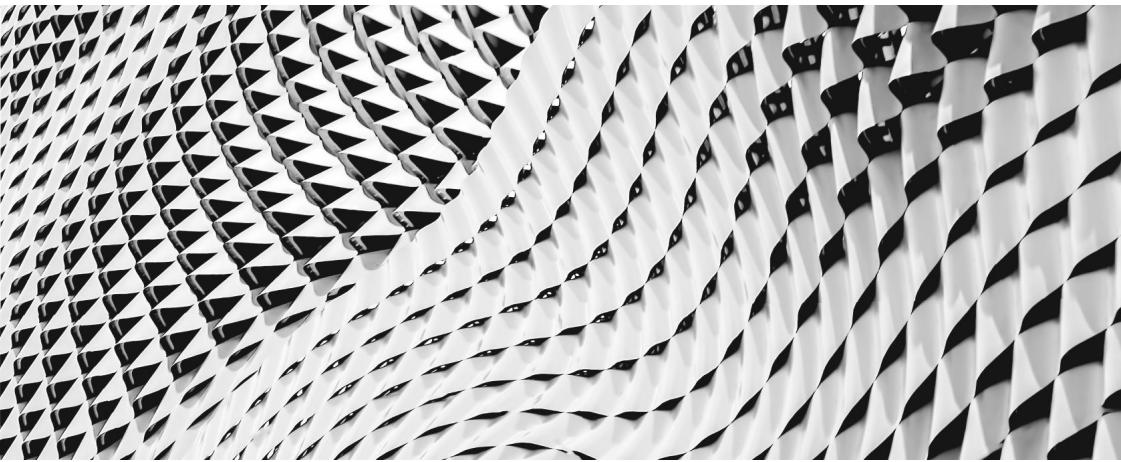
Advanced Usage

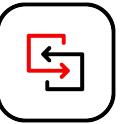
Build your own rules

- For your own Frameworks
 - “If you encounter this - here is how you migrate”
- Also great for large engagements, once you have built your “cookbook”
- Provide your internal guidance and link directly to your documentation

```
<rule id="cookbook-eap7-02000" xmlns="http://windup.jboss.org/schema/jboss-ruleset">
    <when>
        <javaclass references="weblogic.utils.StringUtils.*"/>
    </when>
    <perform>
        <hint category-id="mandatory" effort="1" title="WebLogic StringUtils usage">
            <message>Replace with the `StringUtils` class from Apache Commons.</message>
            <link href="https://commons.apache.org/proper/commons-lang/" title="Apache Commons Lang"/>
            <message>Also, check the wiki for an example in conjunction with our XYZ-SUPERFRAMEWORK</message>
            <link href="https://our.internal.wiki/migration(StringUtils)" title="StringUtils usage and"/>
            <tag>weblogic</tag>
        </hint>
    </perform>
</rule>
```

DEMO - MTA





Operator

Install MTA in your OpenShift cluster with almost no effort

- Available in OperatorHub
- Provides a tackle CRD to provision all components
- Capability Level II

The screenshot shows the Red Hat OpenShift OperatorHub interface. On the left, a sidebar lists various operator categories like Home, Operators, OperatorHub, Workloads, Networking, Storage, Builds, Pipelines, Monitoring, Compute, User Management, and Administration. The main area displays a list of operators under the 'Migration' category. One operator, 'Migration Toolkit for Applications Operator', is highlighted and shown in more detail on the right. The details page includes sections for 'Latest version' (0.0.10), 'Capability level' (Basic install), 'Description' (This is a community provided Operator. These are Operators which have not been vetted or verified by Red Hat. Community Operators should be used with caution because their stability is unknown. Red Hat provides no support for community Operators.), 'Source' (Community), 'Provider' (Red Hat), 'Repository' (https://github.com/redhat-apps/windup-operator), 'Container image' (quay.io/windup/windup-operator-native:0.0.10), 'Created at' (Apr 27, 2022, 2:00 AM), and 'Support' (https://issues.redhat.com/projects/WNDUP).

Application Analysis

Issue type analysis and support for effort estimation



Migration Toolkit for Applications

Dashboard duplicate-ear-test-1.ear

Incidents by Category

Category	Incidents	Total Story Points
mandatory	55	95
optional	7	1
potential	38	0
cloud-mandatory	6	16
cloud-optional	0	0
information	17	0

Incidents and Story Points

Mandatory Incidents by Type

Type	Incidents	Total Story Points
Info	10	50
Trivial	0	0

Mandatory Incidents and Story Points

Technologies

- WebLogic EJB XML
- WebLogic Web XML
- Apache Log4J (embedded)
- EAR
- EJB XML 2.1
- Ehcache (embedded)
- Hibernate (embedded)
- JTA
- Manifest
- Maven XML
- Message (MDB)
- Properties
- Servlet
- Stateless (SLSB)
- Web XML 2.4

Migration Toolkit for Applications

Application List

Runtime labels legend Supported (green) Partially supported (orange) Unsuited (red) Neutral (grey)

application-with-dependencies.ear JBoss EAP JWS

Number of incidents: 0

Number of incidents: 2

Number of incidents: 2

Number of incidents: Total

duplicate-ear-test-1.ear JBoss EAP JWS

Number of incidents: 112

Number of incidents: 15

Number of incidents: in shared archives

only in this app

Number of incidents: 97

Number of incidents: 55 Migration Mandatory

Number of incidents: 7 Migration Optional

Number of incidents: 38 Migration Potential

Number of incidents: 6 Cloud Mandatory

Number of incidents: 17 Information

Technologies

- WebLogic EJB XML
- WebLogic Web XML
- Apache Log4J (embedded)
- EAR
- EJB XML 2.1
- Ehcache (embedded)
- Hibernate (embedded)
- JTA
- Manifest
- Maven XML
- Message (MDB)
- Properties
- Servlet
- Stateless (SLSB)
- Web XML 2.4

Application Analysis

Issue identification and guidance for developers



AdditionWithSecurity-EA x +

localhost:8080/mta-web/api/static-report/3/reports/migration_issues.15.html

Search

MIGRATION TOOLKIT FOR APPLICATIONS

Red Hat

All Applications Dashboard Issues Application Details Technologies Dependencies Graph Dependencies Tattletale Spring Beans Ignored Files About Send Feedback

Issues

AdditionWithSecurity-EAR-0.01.ear

Migration Mandatory

Issue by Category	Incidents Found	Story Points per Incident	Level of Effort	Total Story Points
Windows file system path	9	1	Trivial change or 1-1 library swap	9
JMX MBean object name (java.management.ObjectName)	2	1	Trivial change or 1-1 library swap	2
WebLogic T3 JNDI binding	1	3	Complex change with documented solution	3

File

Incidents Found	Hint
1	<p>Issue Detail: WebLogic T3 JNDI binding</p> <p>Show Rule</p> <p>Weblogic's implementation of the RMI specification uses a proprietary protocol known as T3. T3S is the version of the protocol over SSL. <code>t3://</code> and <code>t3s://</code> URLs are used to configure a JNDI InitialContext within WebLogic.</p> <p>The equivalent functionality needs to be configured in JBoss EAP 7. This could be done either by using standard Java EE JNDI names or by using a WebLogic proprietary library if the connectivity to WebLogic server is still required.</p> <ul style="list-style-type: none">Oracle WebLogic RMI with T3Invoking EJBs deployed on WebLogic from EAP6

WS-Security WSPasswordCallback's package changed	1	1	Trivial change or 1-1 library swap	1
JAX-WS 2.2 Requirements for WebServiceRef	1	1	Trivial change or 1-1 library swap	1
WebLogic web application descriptor (weblogic.xml)	1	3	Complex change with documented solution	3
WebLogic EAR application descriptor (weblogic.xml)	1	1	Trivial change or 1-1 library swap	1

Source Report

sample-apps/jee-example-weblogic/jee-example-services/src/main/resources/META-INF/weblogic-ejb-jar.xml

Information

Technologies

WebLogic EJB XML database configuration weblogic ejb

Automatically Translated Files

- JBoss EJB XML Descriptor - Generated by Migration Toolkit for Applications by Red Hat

Story Points

9

01. <?xml version="1.0" encoding="UTF-8"?>

02. <weblogic-ejb-jar xmlns="http://www.bea.com/ns/weblogic/90" xmlns:j2ee="http://java.sun.com/xml/ns/j2ee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.bea.com/ns/weblogic/90 http://www.bea.com/ns/weblogic/90/weblogic-ejb-jar.xsd">

03. xsi:schemaLocation="http://www.bea.com/ns/weblogic/90 http://www.bea.com/ns/weblogic/90/weblogic-ejb-jar.xsd">

WebLogic EJB XML (weblogic-ejb-jar.xml)

The elements of proprietary weblogic-ejb-jar.xml descriptor need to be mapped to the jboss-ejb3.xml one according to the attached knowledge article.

- Migrate the weblogic-ejb-jar.xml

04. <weblogic-enterprise-bean>

05. <ejb-name>ItemLookupBean</ejb-name>

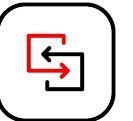
06. <stateless-session-descriptor>

07. </stateless-session-descriptor>

08. <transaction-descriptor>

09. <trans-timeout-seconds>180</trans-timeout-seconds>

WebLogic EJB XML (weblogic-ejb-jar.xml) trans-timeout-seconds



Application Analysis

Dependencies identification

TACKLE ANALYSIS

All Applications Dashboard Issues Application Details Technologies Dependencies JPA Hard-coded IP Addresses Ignored Files About Send Feedback

Dependencies

customers-tomcat-0.0.1-SNAPSHOT.war

log4j-api-2.14.1.jar

Maven coordinates: org.apache.logging.log4j:log4j-api:2.14.1
SHA1 hash: cd8858fbde69f46bce8db1152c18a43328aae78
Version: 2.14.1
Organization: Apache
Found at path: customers-tomcat-0.0.1-SNAPSHOT.war/WEB-INF/lib/log4j-api-2.14.1.jar

log4j-to-slf4j-2.14.1.jar

Maven coordinates: org.apache.logging.log4j:log4j-to-slf4j:2.14.1
SHA1 hash: ce8a6ea3f50a4304749828ce68e7478cafbc8039
Version: 2.14.1
Organization: Apache
Found at path: customers-tomcat-0.0.1-SNAPSHOT.war/WEB-INF/lib/log4j-to-slf4j-2.14.1.jar

tomcat-juli-9.0.46.jar

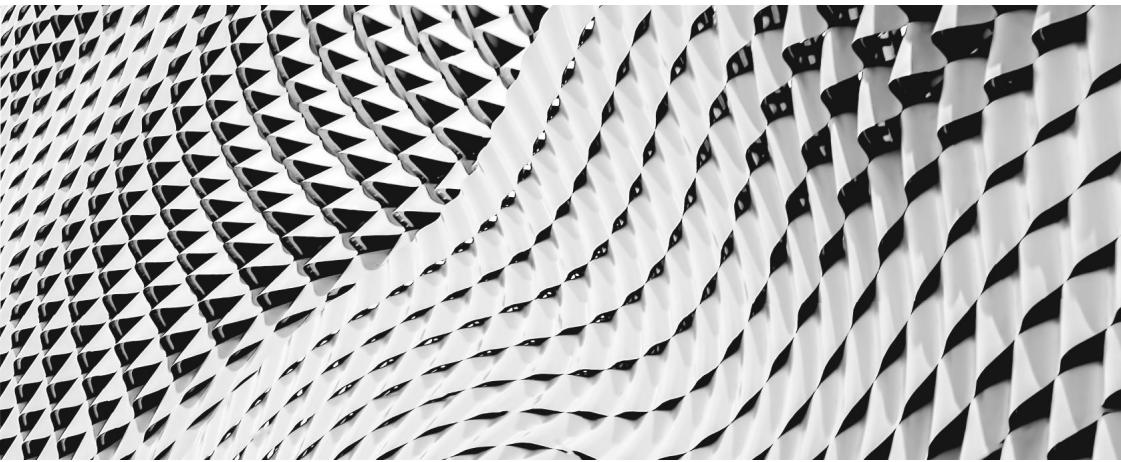
SHA1 hash: 409b519751e104eab51b4347a0d27bf86a4f3bb1
Version: 9.0.46
Organization: Apache Software Foundation
Found at path: customers-tomcat-0.0.1-SNAPSHOT.war/WEB-INF/lib/tomcat-juli-9.0.46.jar

tomcat-jdbc-9.0.46.jar

SHA1 hash: 385cb6cb1f6b26c881cd5c1c6ade5f180712fdc
Organization: Apache Software Foundation
Found at path: customers-tomcat-0.0.1-SNAPSHOT.war/WEB-INF/lib/tomcat-jdbc-9.0.46.jar

aspectjrt-1.9.6.jar

Why?





By 2027, 85% of the workload placements made until 2022 will no longer be optimal, highlighting the evolving need for application mobility and portability.

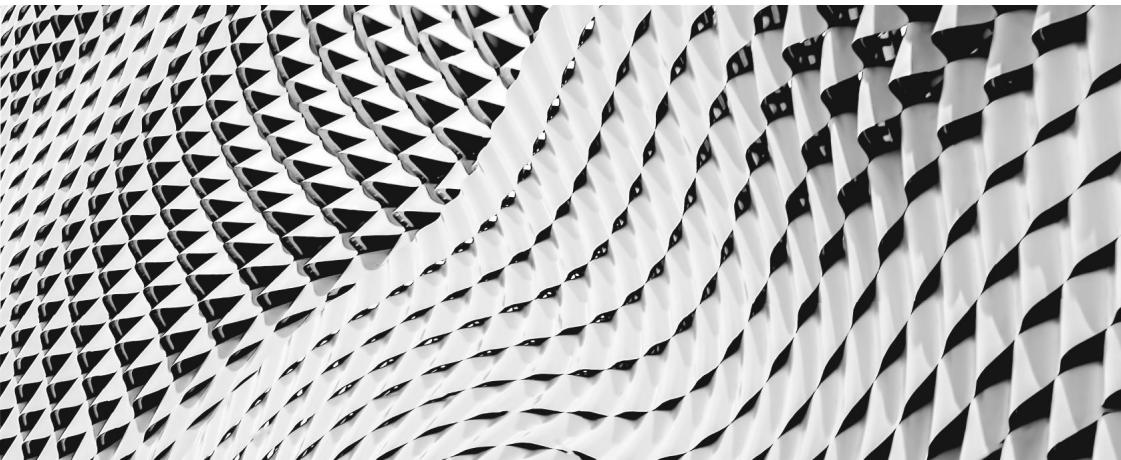
- *Gartner, Workload Placement in Hybrid IT — Making Great Decisions About What, Where, When and Why, Henrique Cecci, David Cappuccio, 2 May 2022

Never-Ending Modernization

Preparing for the Journey, not the destination

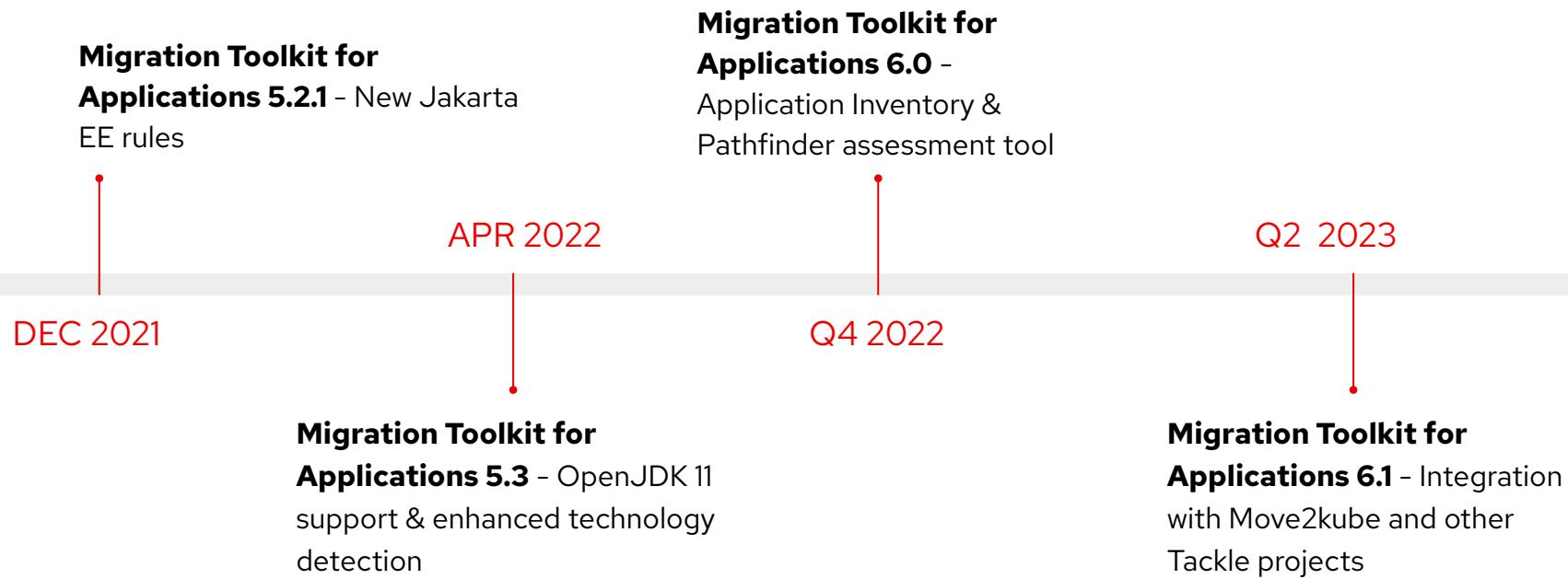
- ▶ Java Migration from 8 > 11 > 17 and beyond
- ▶ Preparing workloads to move to the cloud and back
- ▶ Standardizing Platforms
- ▶ Tracking applications as new versions release
- ▶ Justifying and prioritizing legacy modernization
- ▶ Sprint Planning and Resource Allocation

MTA Roadmap



Red Hat Modernization and Migration Solutions

Roadmap Timeline



Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



[linkedin.com/company/red-hat](https://www.linkedin.com/company/red-hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)

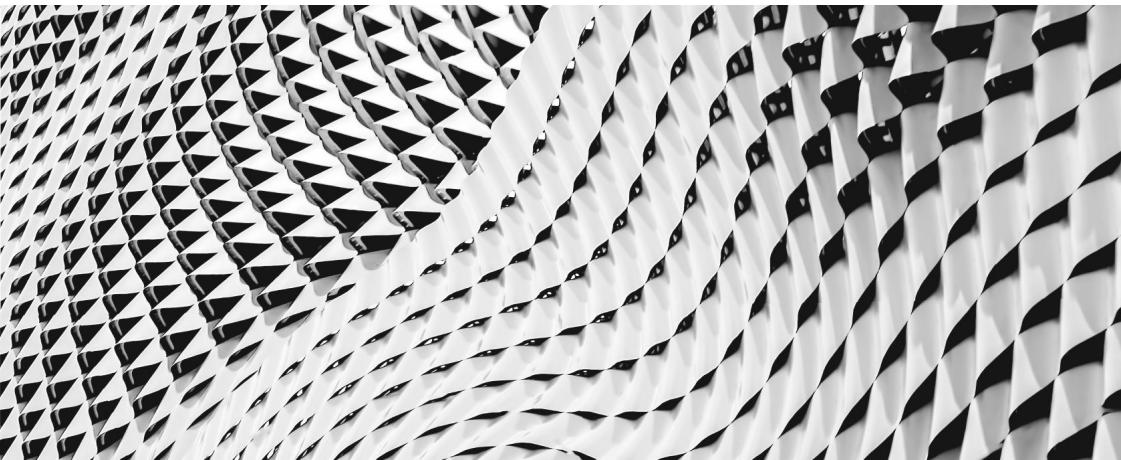


[facebook.com/redhatinc](https://www.facebook.com/redhatinc)

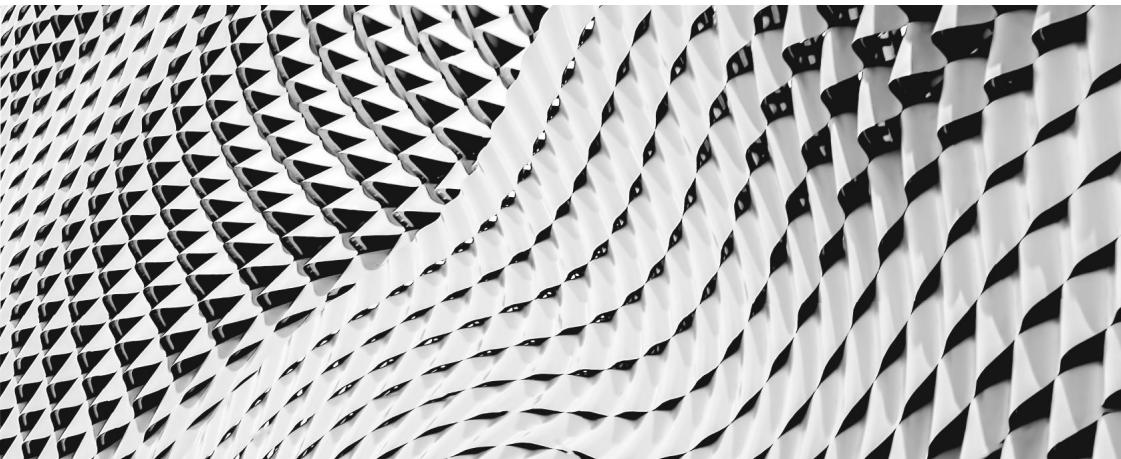


twitter.com/RedHat

Appendix



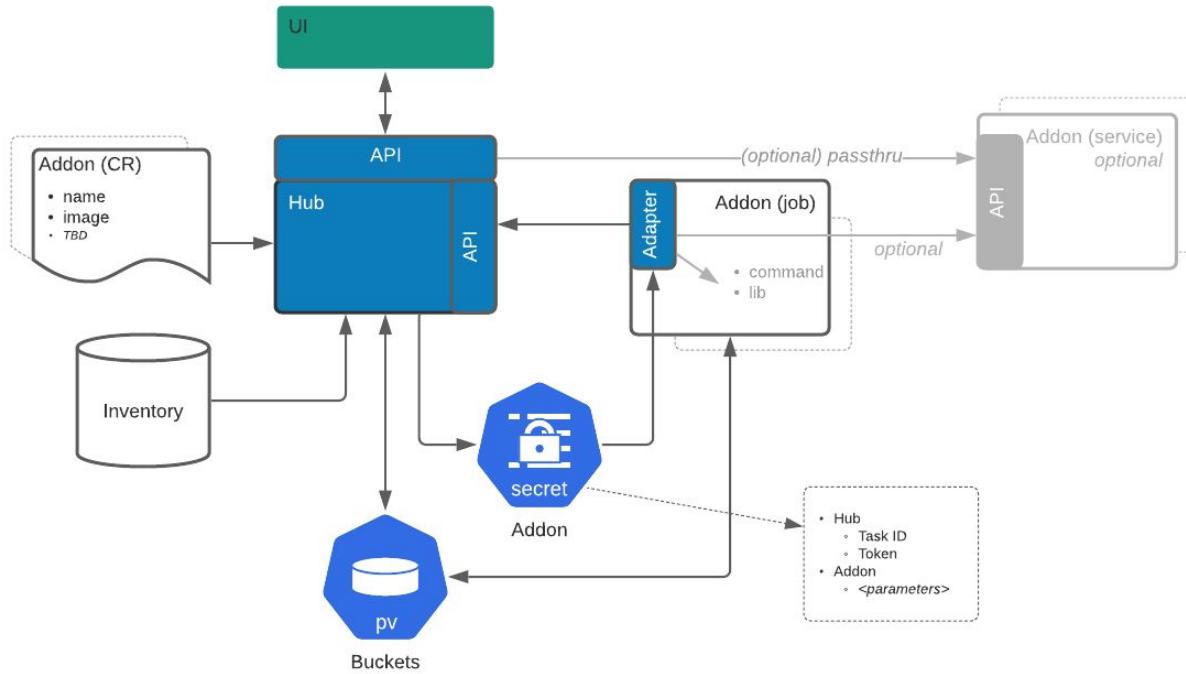
What's New in Tackle 2.0





Hub and Spoke Architecture

Complete rearchitecture to simplify integration and improve scalability



- Tackle Hub as the central component to store application data
- Addons enrich application data or integrate with external systems to act on application source
- Refactored backend and Kubernetes native approach to improve scalability



Tackle Operator

Manage and upgrade your Tackle instances

- Completely reimplemented operator
- Available for all Kubernetes distributions
- Capability Level II, allowing seamless upgrades
- Enhanced configuration management
 - Enable authless deployment
 - Manage volume sizes
 - Configure storage classes
- Manages two CRs now: tackle and addon

The screenshot shows the OperatorHub.io interface for the Tackle Operator. At the top, there's a search bar and a 'Contribute' button. Below the header, the Tackle Operator logo is displayed, followed by its name and a brief description: 'Tackle contains tools that support the modernization and migration of applications to Kubernetes and OpenShift'. A breadcrumb navigation shows 'Home > Tackle Operator'. On the right side, there's a large 'Install' button. To the left of the main content area, there are dropdown menus for 'CHANNEL' (set to 'stable-v2.0'), 'VERSION' (set to '2.0.0 (Current)'), and 'MIN K8S VERSION' (set to '1.22.0'). On the far right, there are sections for 'CAPABILITY LEVEL' (listing 'Basic Install' and 'Seamless Upgrades' with checkboxes), 'PROVIDER' (set to 'Konveyor'), 'LINKS' (links to 'Konveyor Tackle Documentation' and 'Konveyor Tackle Operator'), and 'REPOSITORY' (link to 'https://github.com/konveyor/tackle2-operator'). The main content area contains sections for 'Tackle Operator', 'Install', 'Documentation', 'Getting help', 'Contributing', and 'You can contribute by:'.



Administrator Perspective

New perspective to manage the toolkit

The screenshot shows the Konveyor Tackle interface with a dark theme. On the left is a sidebar with navigation links: 'Administrator', 'Credentials', 'Repositories' (with sub-options 'Git', 'Subversion', 'Maven'), and 'Proxy'. The main area is titled 'Credentials' and lists two entries:

Name	Description	Type	Created by
GitHub		Source Control	
Maven		Maven Settings File	

At the bottom of the list are 'Edit' and 'Delete' buttons for each row.

- Dedicated perspective to manage tool-wide configuration.
- Similar approach and design to the OpenShift Administrator Perspective.
- Enforces enhanced RBAC with three new differentiated personas:
 - Administrator
 - Architect
 - Migrator



Integration with repositories

Get source code and binaries from repositories

- Integration with source code and binaries repositories:
 - Git
 - Subversion
 - Maven Artifact repositories

A screenshot of the Konveyor TACKLE application interface. On the left, there's a sidebar with 'Developer' selected, showing 'Application inventory' with a list of services: Customers, Orders, Inventory, Gateway, RetailFrontend, Payroll, PurchaseOrders, Flexocard, AccountsReceivable, and OrangeHRM. To the right, a modal window titled 'Update application' is open, showing details for the 'Customers' service. It includes fields for 'Name' (Customers), 'Description' (Legacy Customers management service), 'Business service' (Retail), 'Tags' (Oracle, Java, RHEL 8), and a 'Comments' section. Below this, under 'Source code', it shows a 'Repository type' of 'Git' with a 'Source Repository' URL of 'https://github.com/konveyor/tackle-testapp.git', a 'Branch' of 'main', and a 'Root path'. Under 'Binary', it shows a 'Group' of 'io.konveyor.demo', an 'Artifact' of 'customers-tomcat', a 'Version' of '0.01-SNAPSHOT', and a 'Packaging' of 'war'. At the bottom of the modal, there are tabs for 'Assessment', 'Review', and 'Tag count'. The background shows a table with rows for various assessment and review status counts.



Credentials Management

Manage and assign credentials securely

New credential

Name *

Corporate Repo

Description

Type *

Source Control

Source Control

Maven Settings File

Proxy

Password *

Create Cancel

- Secure store for multiple credential types:
 - Source control
 - Maven settings files
 - Proxy
- Credentials are managed by administrators and assigned by architects to applications.



Proxy integration

Allow the use of proxies to connect to external systems

- HTTP and HTTPS proxy configuration in the UI/UX.
- Used to interact with external systems like repositories.

A screenshot of the Red Hat JBoss TACKLE web interface. The left sidebar shows navigation options: Administrator, Credentials, Repositories (Git, Subversion, Maven), and Proxy (which is selected). The main content area is titled "Proxy configuration" and "Manage connections to proxy servers". It contains sections for "HTTP proxy" and "HTTPS proxy". Under "HTTP proxy", there is a field for "HTTP proxy host" and a dropdown for "HTTP proxy port" set to 8080. There is also a checkbox for "HTTP proxy credentials". Under "HTTPS proxy", there is a field for "HTTPS proxy host" and a dropdown for "HTTPS proxy port" set to 8080. There is also a checkbox for "HTTPS proxy credentials" and a dropdown for "HTTPS proxy credentials" set to "Test". At the bottom, there is a section for "Excluded" with a field containing "* corporate.com".

Proxy configuration
Manage connections to proxy servers

HTTP proxy

HTTP proxy host *

HTTP proxy port *
8080

HTTP proxy credentials

HTTPS proxy

HTTPS proxy host *

HTTPS proxy port *
8080

HTTPS proxy credentials

HTTPS proxy credentials *
Test

Excluded

* corporate.com



Application Analysis

Get precise data about your Application Portfolio and estimate migration cost

A screenshot of the Konveyor TACKLE application analysis interface. The main window shows a list of migration tasks: 'Completed' (5), 'Not started' (3), 'Not started' (3), 'Not started' (2), 'Not started' (4). A modal dialog titled 'Set targets' is open, showing three options: 'Application server migration to JBoss EAP 7', 'Containerization', and 'Quarkus'. The 'Quarkus' section includes a sub-description: 'Rules to support the migration of Spring Boot applications to Quarkus.' Navigation buttons 'Next' and 'Back' are at the bottom of the modal, along with a 'Cancel' button.

- Analyzes application source code and binaries and helps estimating the migration effort for different targets or paths
- Decompiles and analyzes Java applications executing an extensible set of rules to identify issues
- Support numerous migration paths and creates a rich set of reports



Application Analysis

Integration with Windup

- Execute application analysis from the application inventory.
- Leverage the integration with repositories to streamline the user experience.
- Oriented to bulk analysis.
- Enhanced inventory view with dedicated tabs to assessment and analysis data.

Name	Description	Business service	Analysis	Tag count
Customers	Legacy Customers management service	Retail	Completed	5
Orders	Orders Service	Retail	Not started	3
Inventory	Inventory service	Retail	Not started	3
Gateway	API Gateway	Retail	Not started	3
RetailFrontend	Frontend for the Retail application	Retail	Not started	2



Application Analysis

New analysis modes

Analysis	Tag count
Completed	5
Not started	3
Not started	3
Not started	3
Not started	2
Not started	4

- Multiple analysis modes:
 - Source
 - Binary
 - Source + dependencies (parses POM to gather dependencies)
 - Upload a binary from local workstation



Application Analysis

Analysis scope selection

- Simplified user experience to configure the analysis scope.
- Possibility to force the analysis of known Open Source libraries.
- Predetermined analysis scopes or manual selection of packages to analyze.

