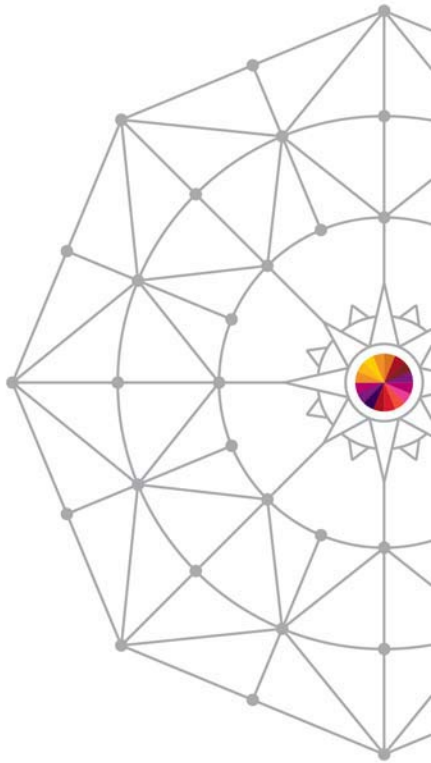
15882: Managing Multi-version Applications in CICS

Matthew Webster, IBM



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Abstract

CICS V5.2 Introduces great new features that help you manage the application lifecycle, including the transition from the current version of an application to a new version of an application - think newcopy, but smarter. The CICS Application and Platform capabilities introduced in CICS V5 offer features that help you manage applications as a single entity, reducing the risk associated with application updates, and providing you with capabilities to roll back to an earlier version of an application if things don't go to plan. Come to this session to understand how the multi-version capabilities in CICS TS V5.2 can help you better control application changes in your organization.

CICS Cloud and CICS Tools Sessions

- Monday
  - **15855: Modernizing CICS for Cloud**
- Wednesday
  - **15552: Modernizing CICS - Hands-on Lab Parts 1 & 2**
  - **15882: Managing Multi-version Applications in CICS**
- Thursday
  - **15883: CICS Futures Interactive Discussion**
  - **15884: Using Policies to Manage Critical CICS Resources**
  - **15559: CICS Question Box and Pot Luck**

Why do I need Application Multi-versioning?

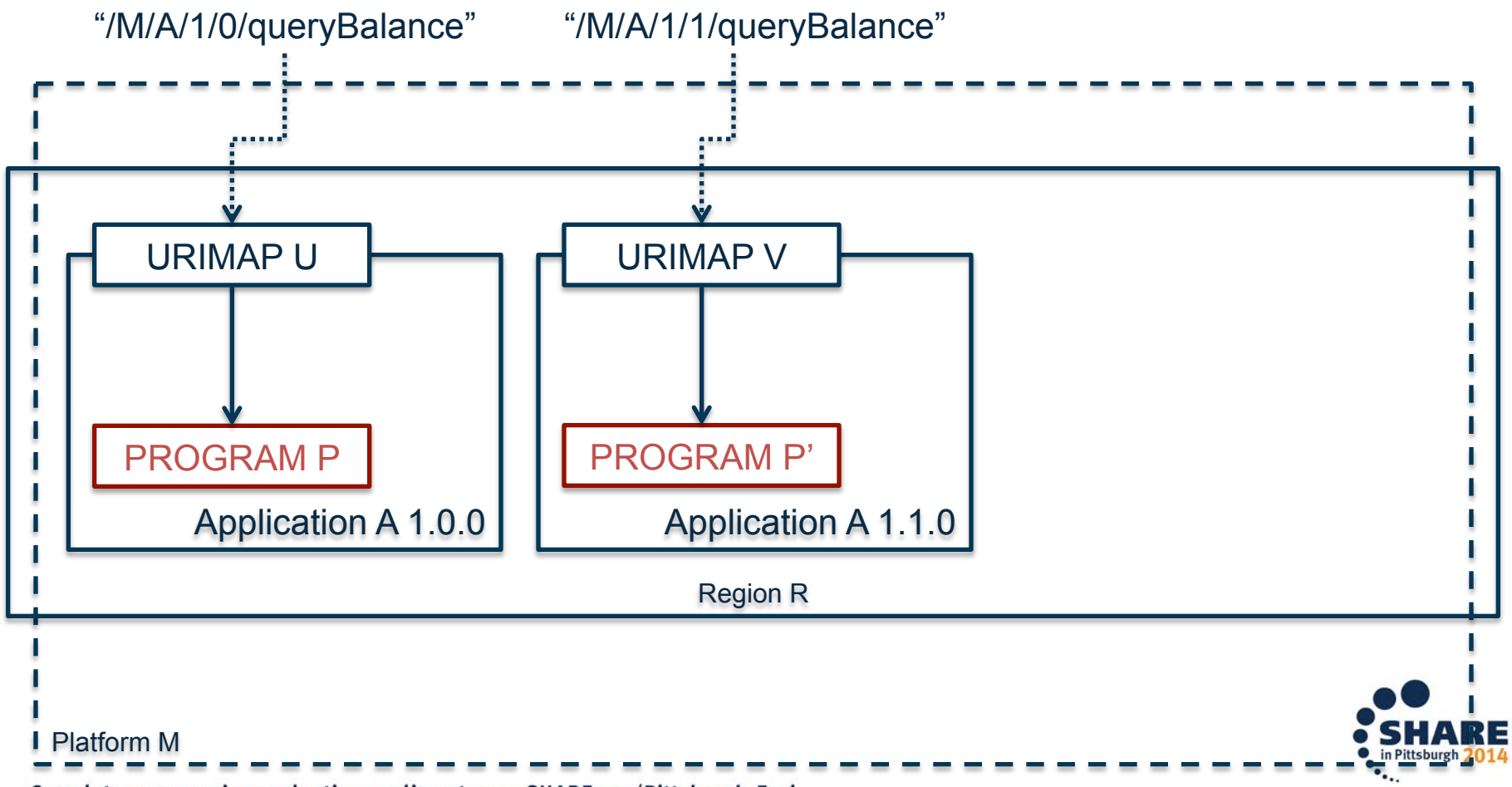
- Agile methodologies allow developers to increase the rate of change of applications in response to business needs
- IT operations needs to respond by deploying applications into production more frequently while reducing cost and maintaining reliability
- Multi-versioning allows you to deploy new applications, application features or bug fixes while minimizing any impact to existing users or requiring additional infrastructure

SCENARIOS

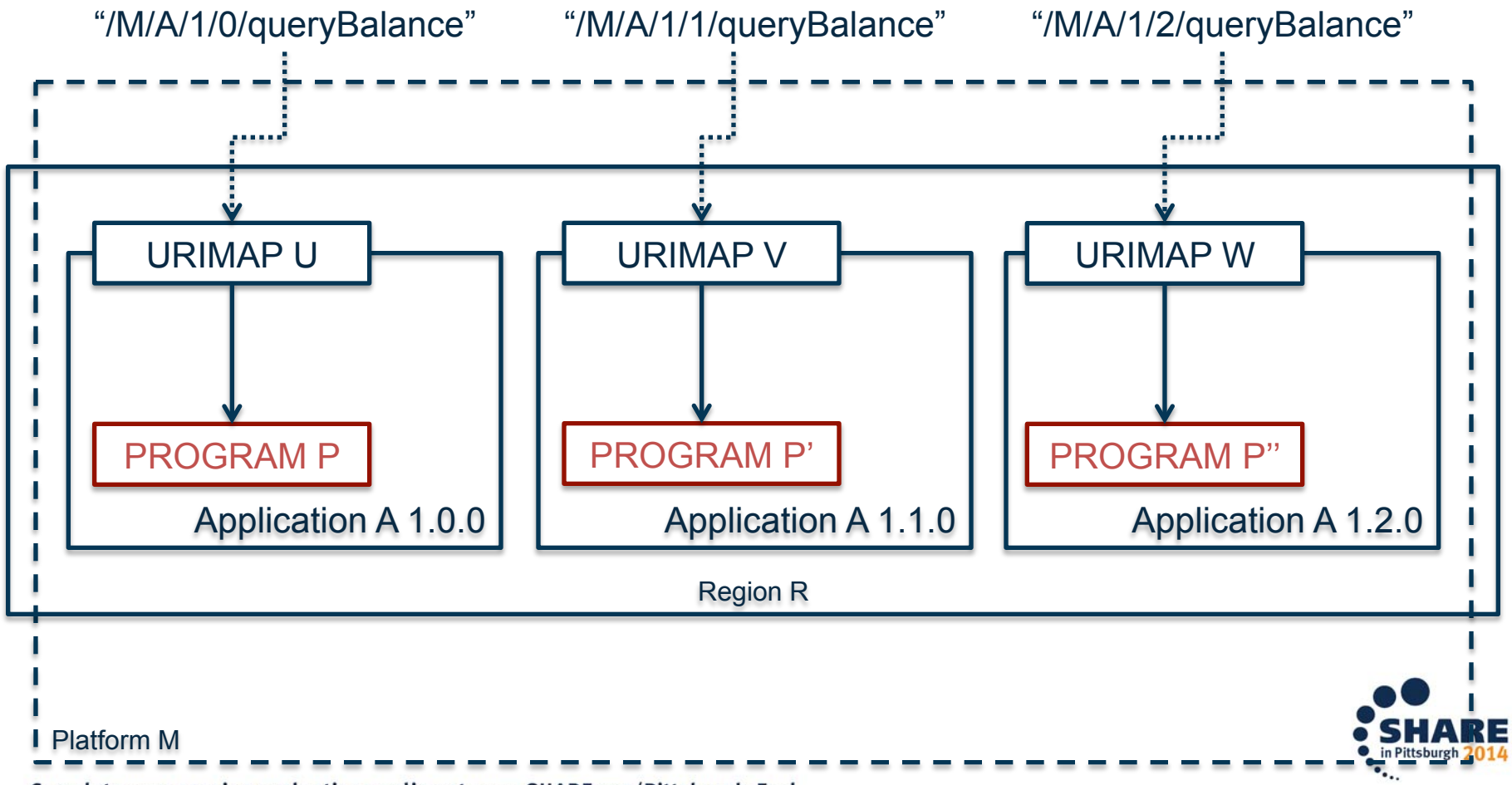
Web Scenario: New Features

"The mobile guys need a new feature but I'm concerned about the potential performance impact for the existing high volume web site. This is a pilot so I really don't want to spin up new regions just to support a few users. I'm also still trying to move the back office users off an old version of the application."

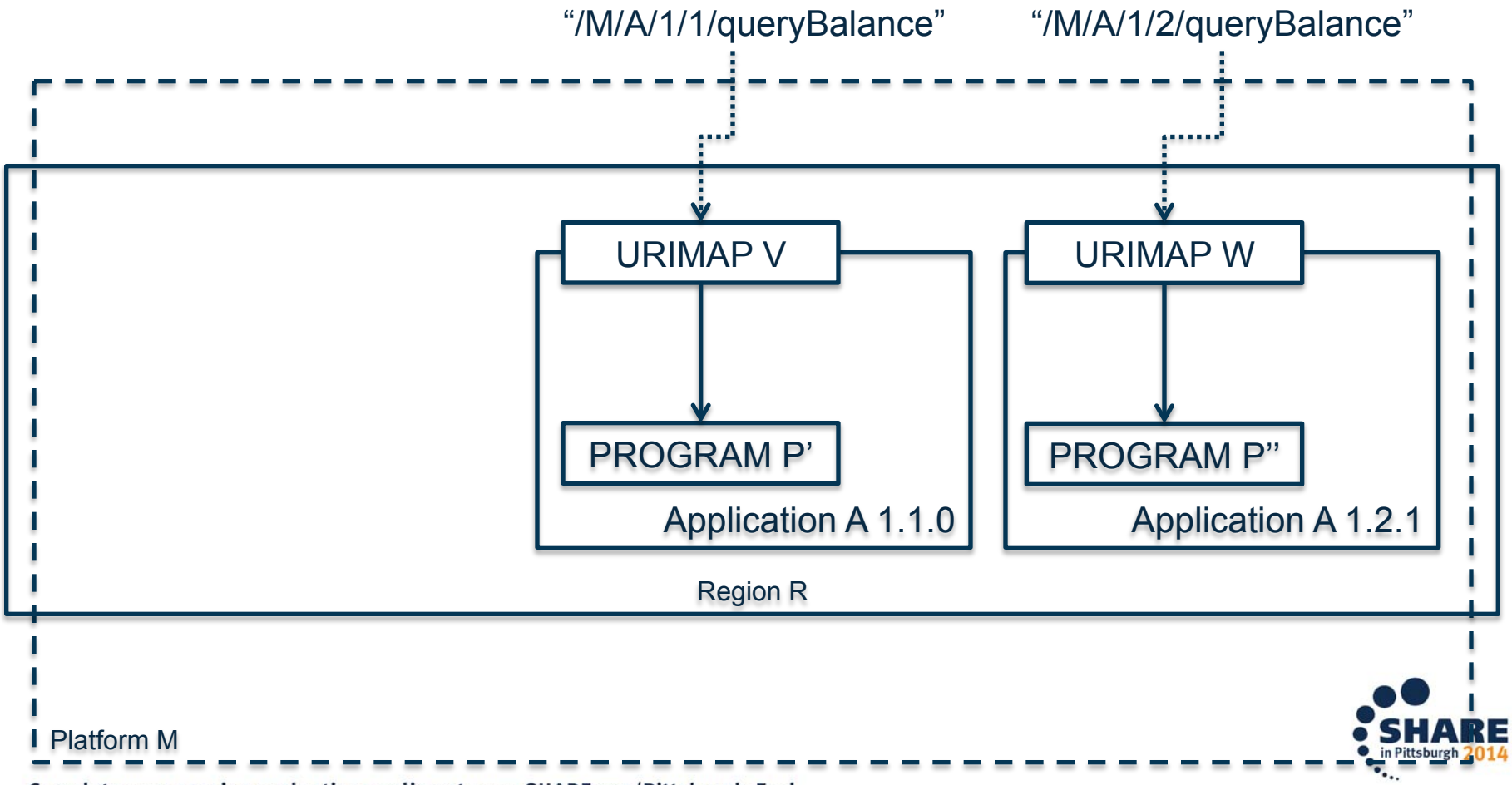
Application versions 1.0.0 & 1.1.0 are hosted on the same Region(s)



Can simply add version 1.2.0 without affecting the users of versions 1.0.0 and 1.1.0



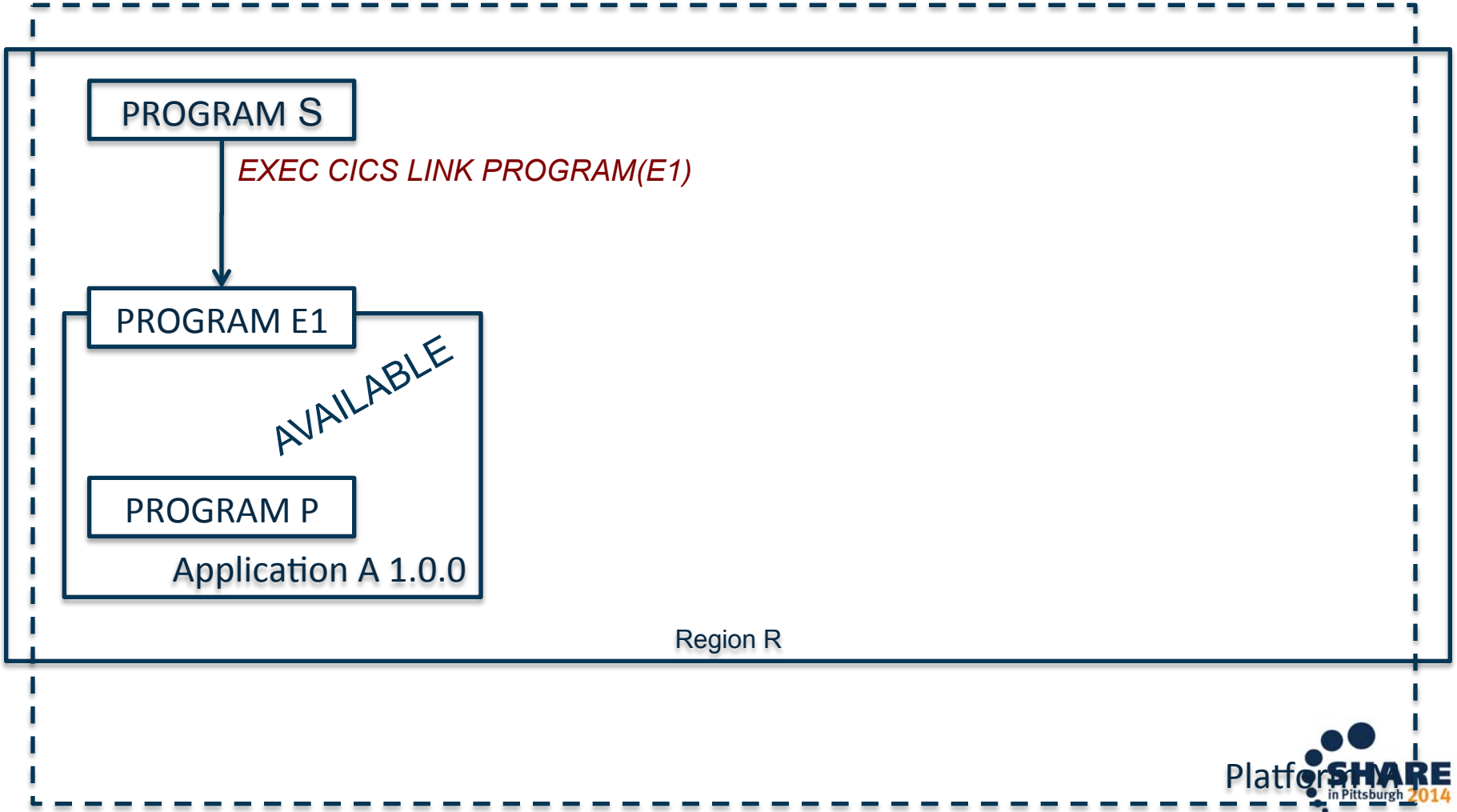
Can eventually retire version 1.0.0 when users have moved to a higher version (by looking at Monitoring data)



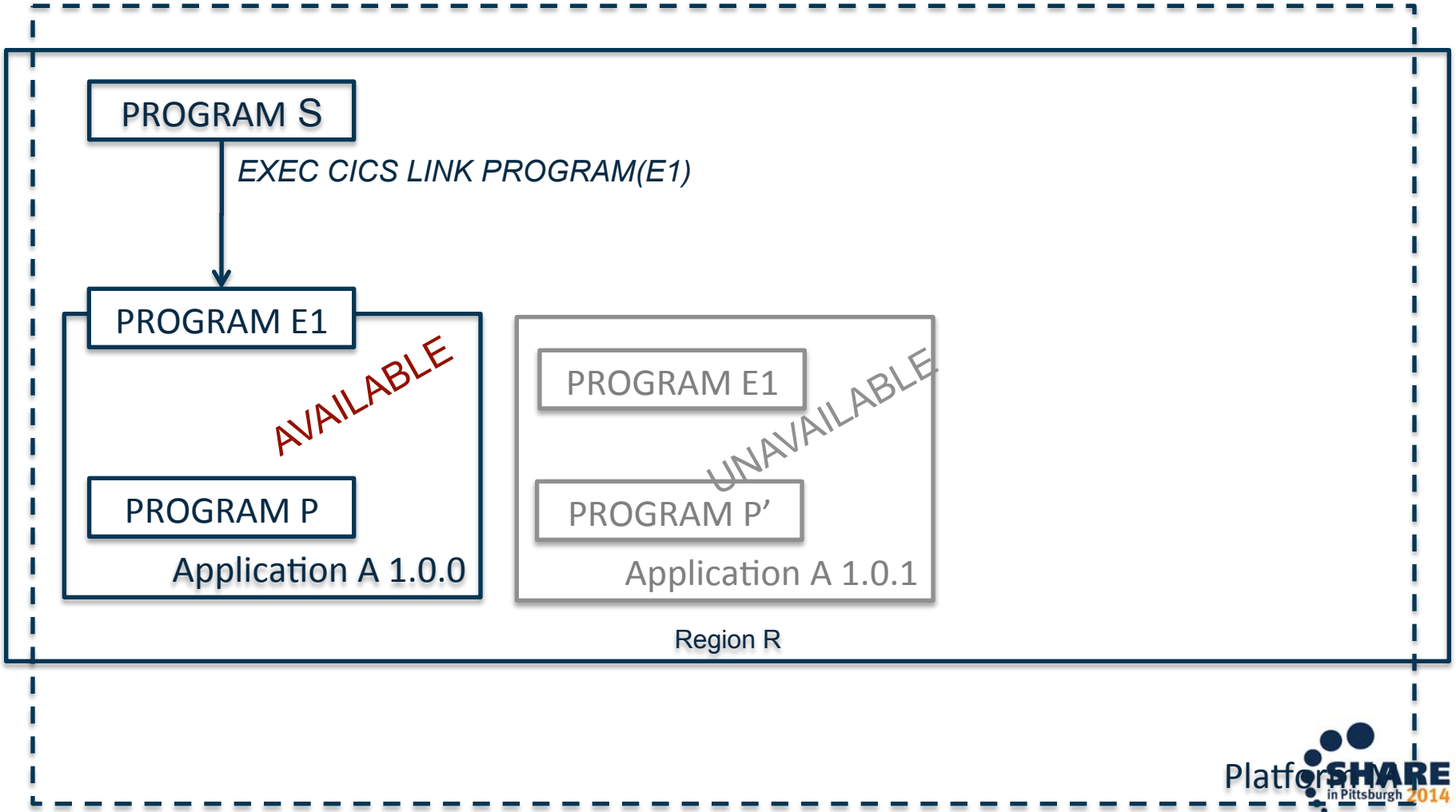
Traditional 3270 Scenario: Bug Fix

"I need to apply a hot fix to an application in production but I want to use the same process that I use for my weekly updates so I get an audit trail and correct monitoring data. I really want to make sure it's installed correctly before making it live while the existing version is still being used. Also if the update makes things worse I want to rollback the change as quickly as possible"

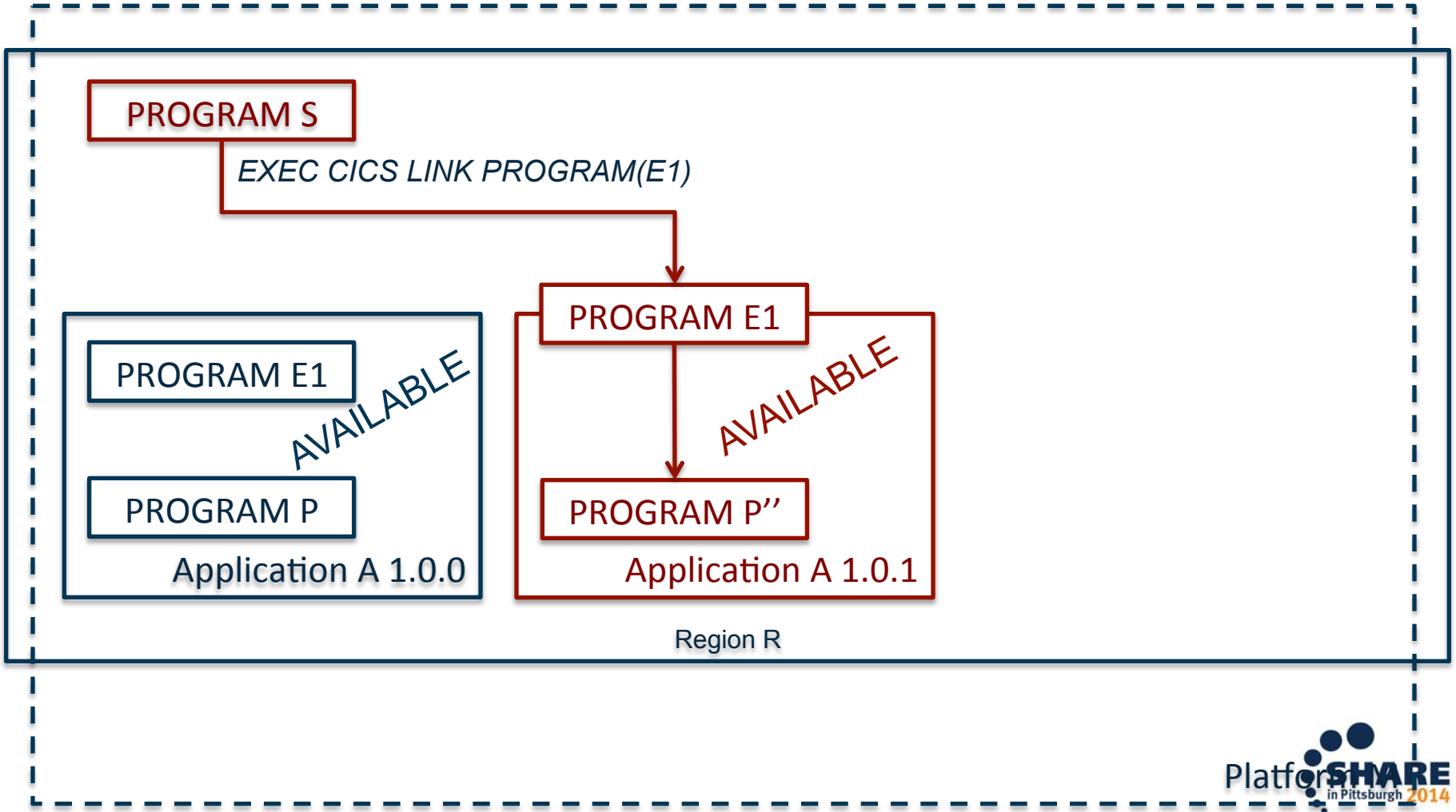
Application version 1.0.0 has a bug



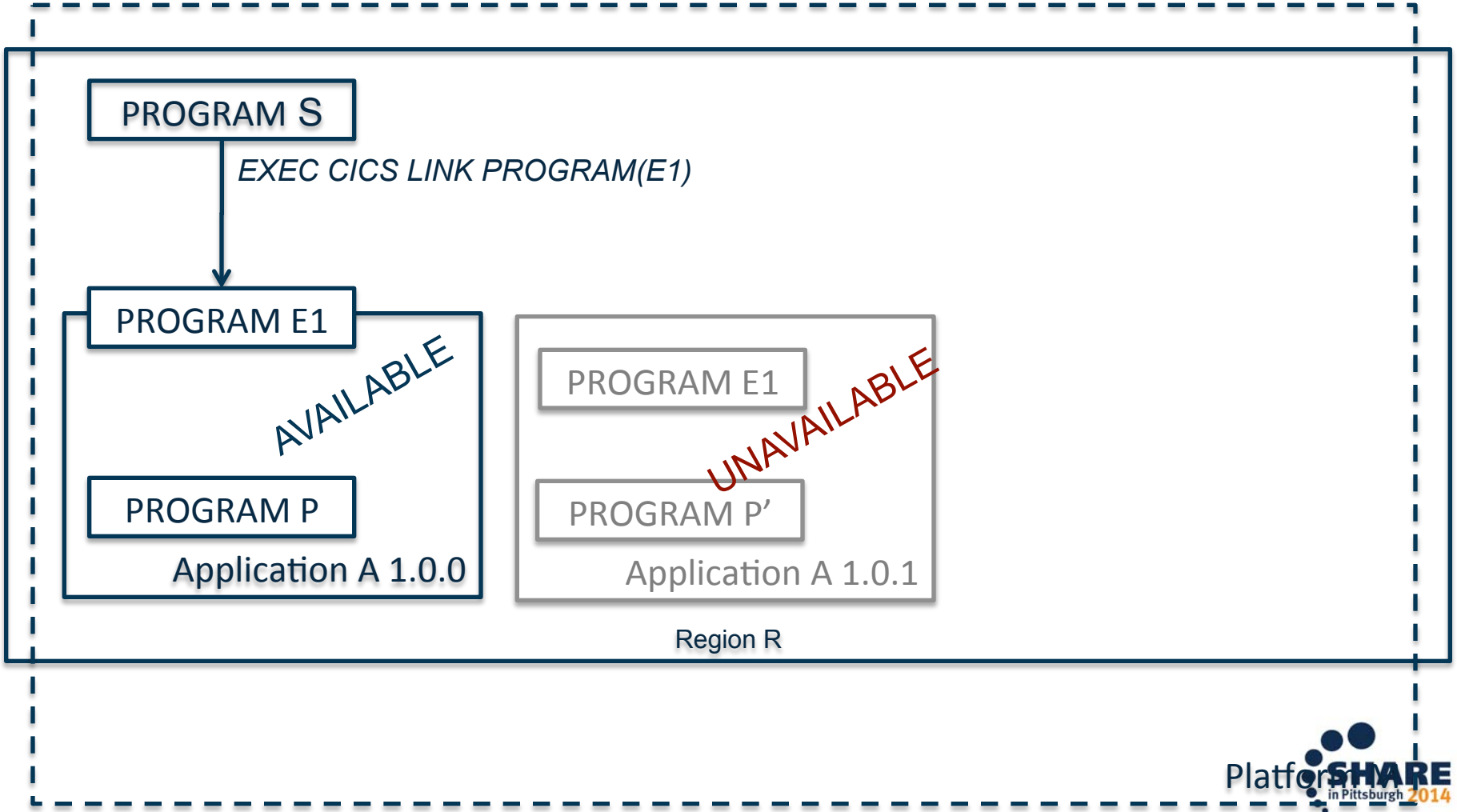
INSTALL and ENABLE version 1.0.1 but requests still go to version 1.0.0



Make application version 1.0.1 AVAILABLE so it receives new requests



If there is a problem make version 1.0.1 UNAVAILABLE to rollback to version 1.0.0

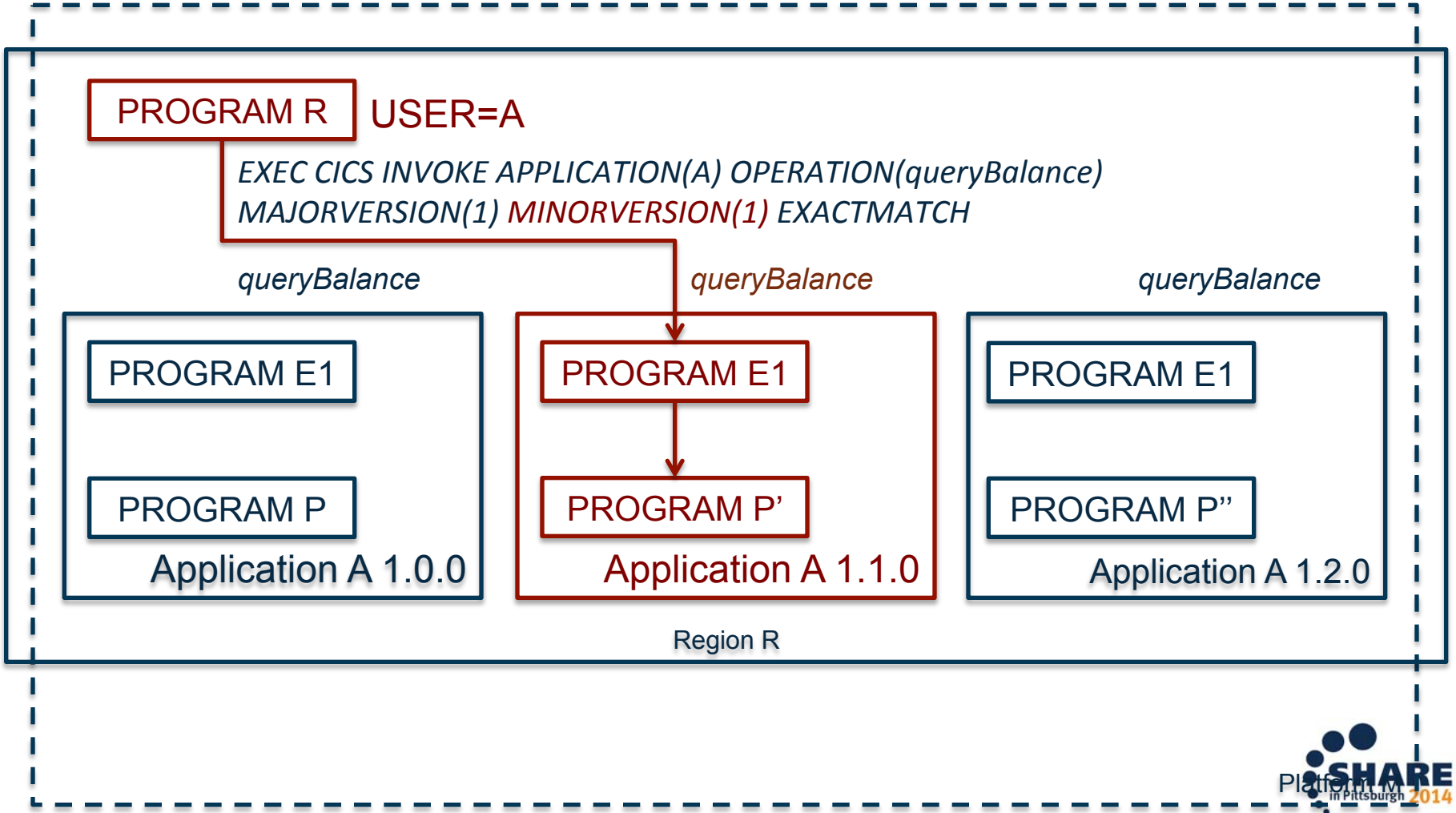


DEMO

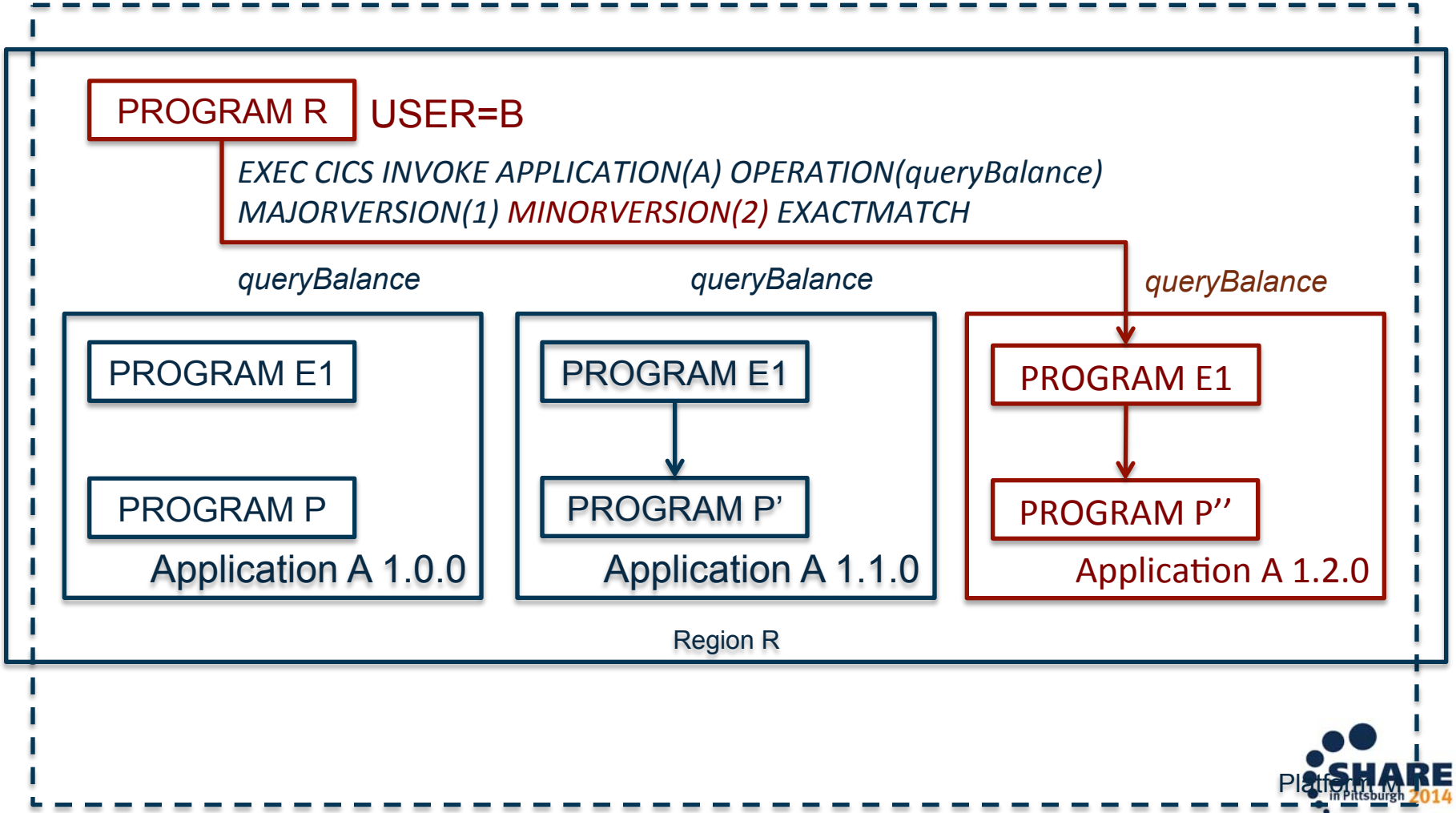
MQ Scenario: Phase In

"When rolling out a new version of an application I want to initially give access to just 10% of my users. That way I can reduce the impact of any potential problems related to either the new features or to the platform because of performance. The requests arrive over MQ so I want to use origin data to route each one to the appropriate application version"

Most users get application version 1.1.0



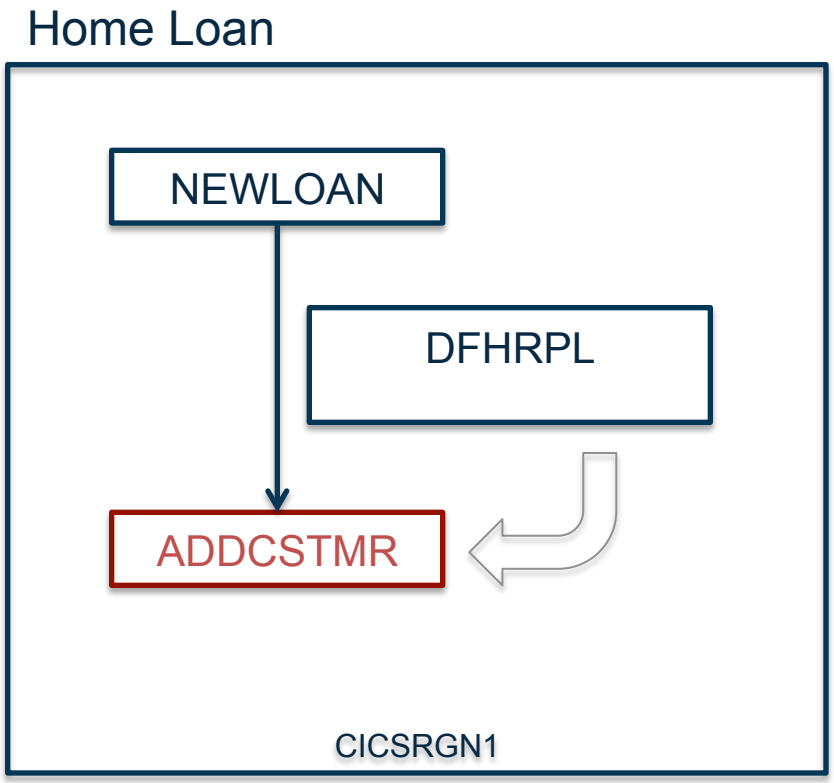
“Early access” users get the latest application version 1.2.0



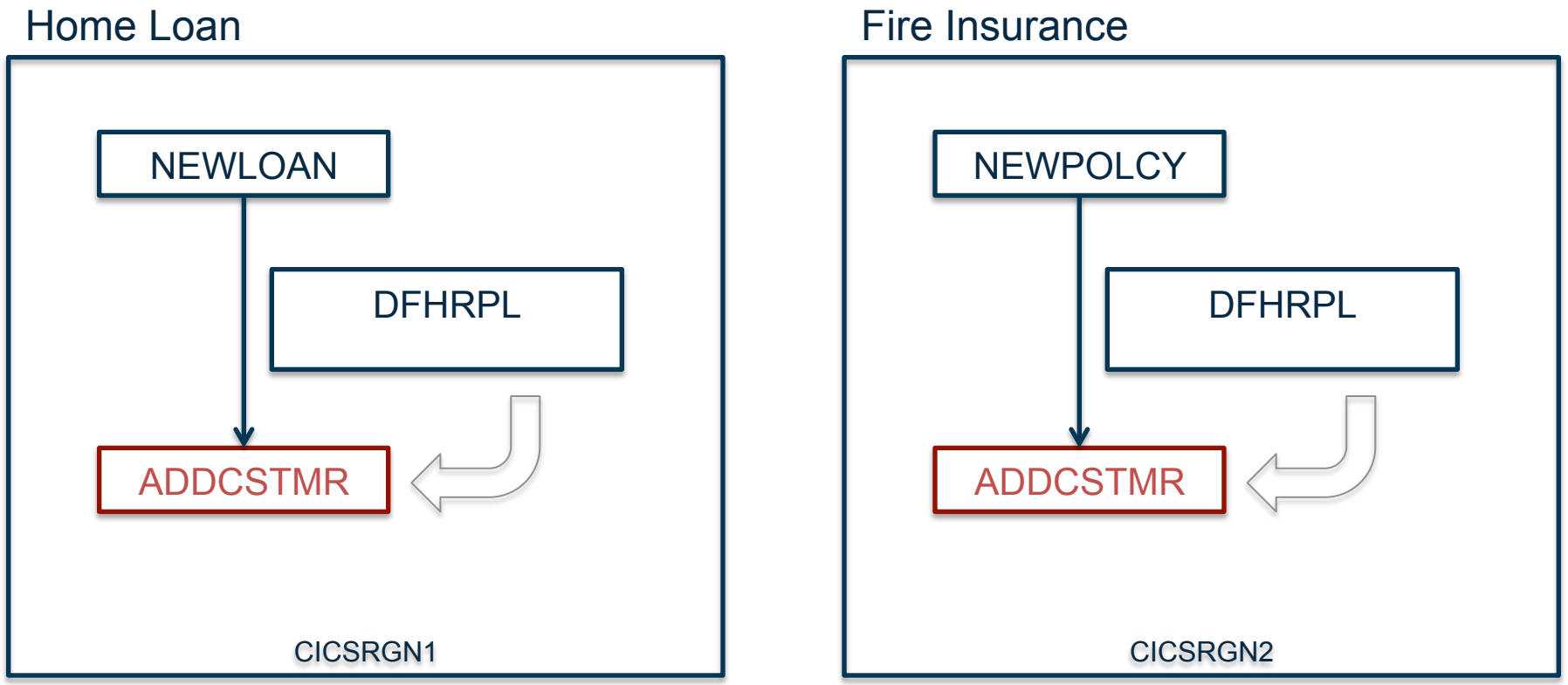
Server Consolidation Scenario

"I have two applications (one of which was developed by a company we acquired) that currently run on different sets of CICS regions. I'd like to take advantage of the recent scalability improvements especially being able to increase MAXTASK. However, I know that there PROGRAM name clashes which prevent these applications from being hosted together."

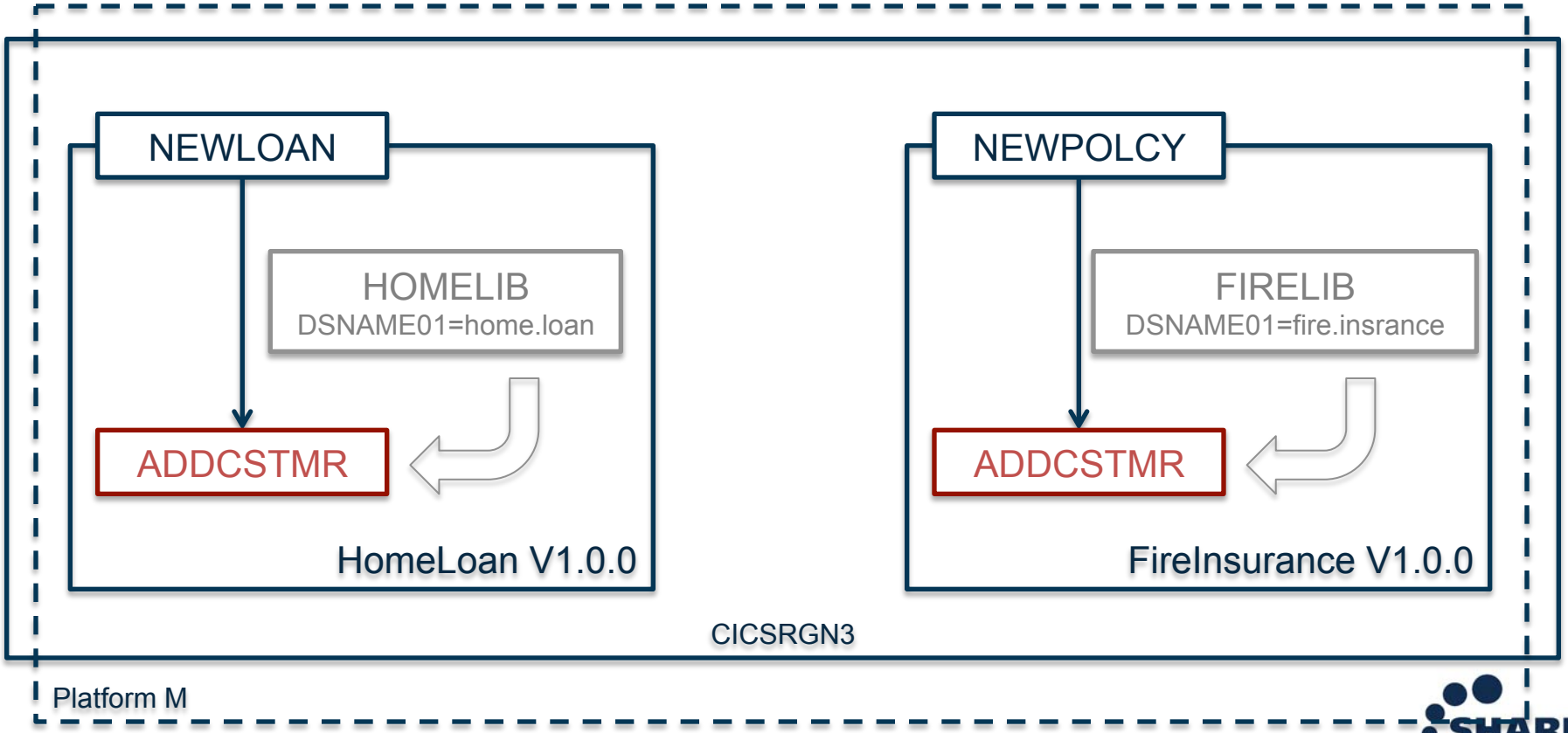
The Home Loan application has an ADDCSTMR program



Unfortunately the Fire Insurance application also has an ADDCSTMR program so must be kept separate



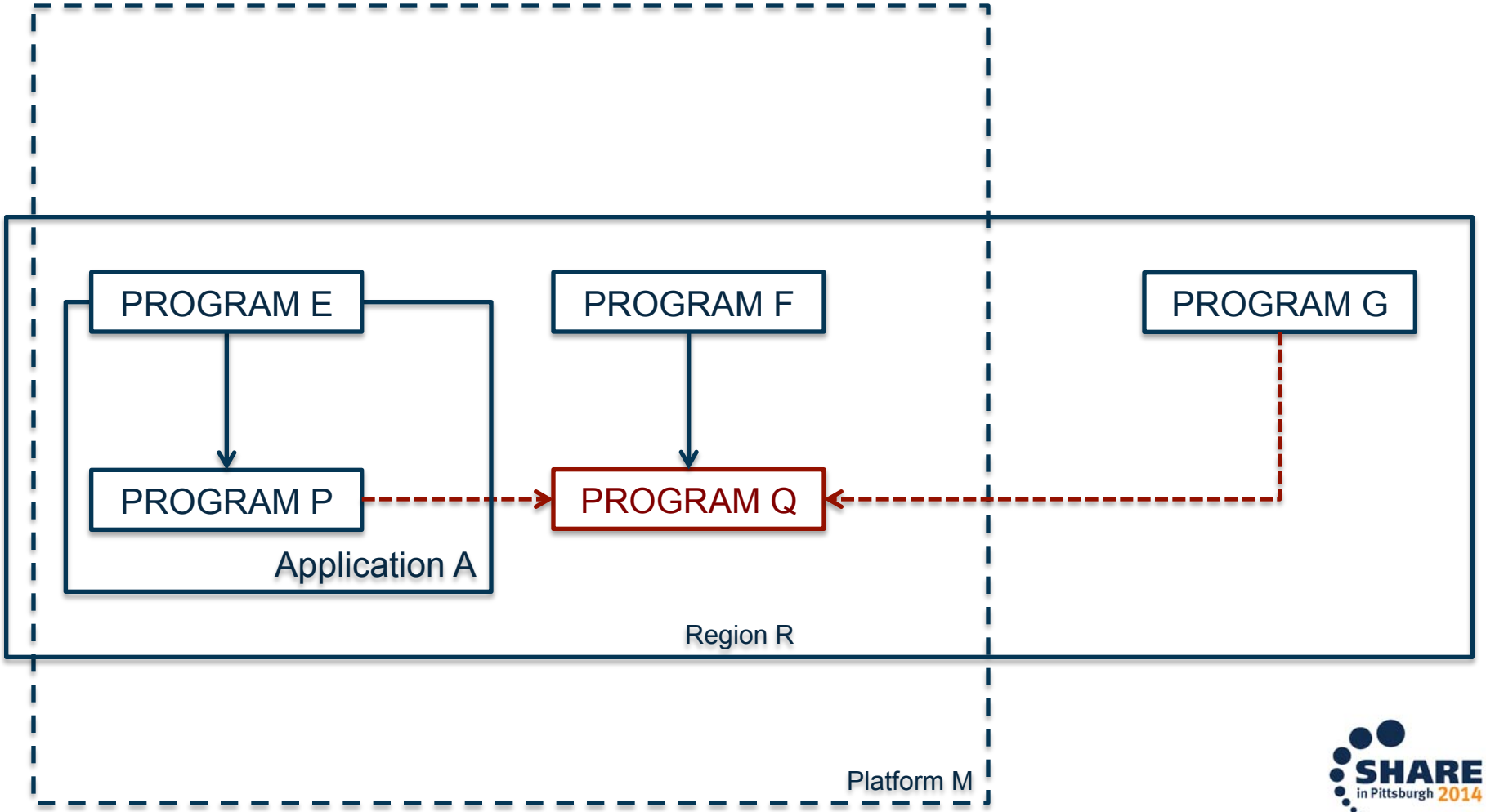
HomeLoan and FireInsurance both with ADDCSTMR installed into the same Region(s)



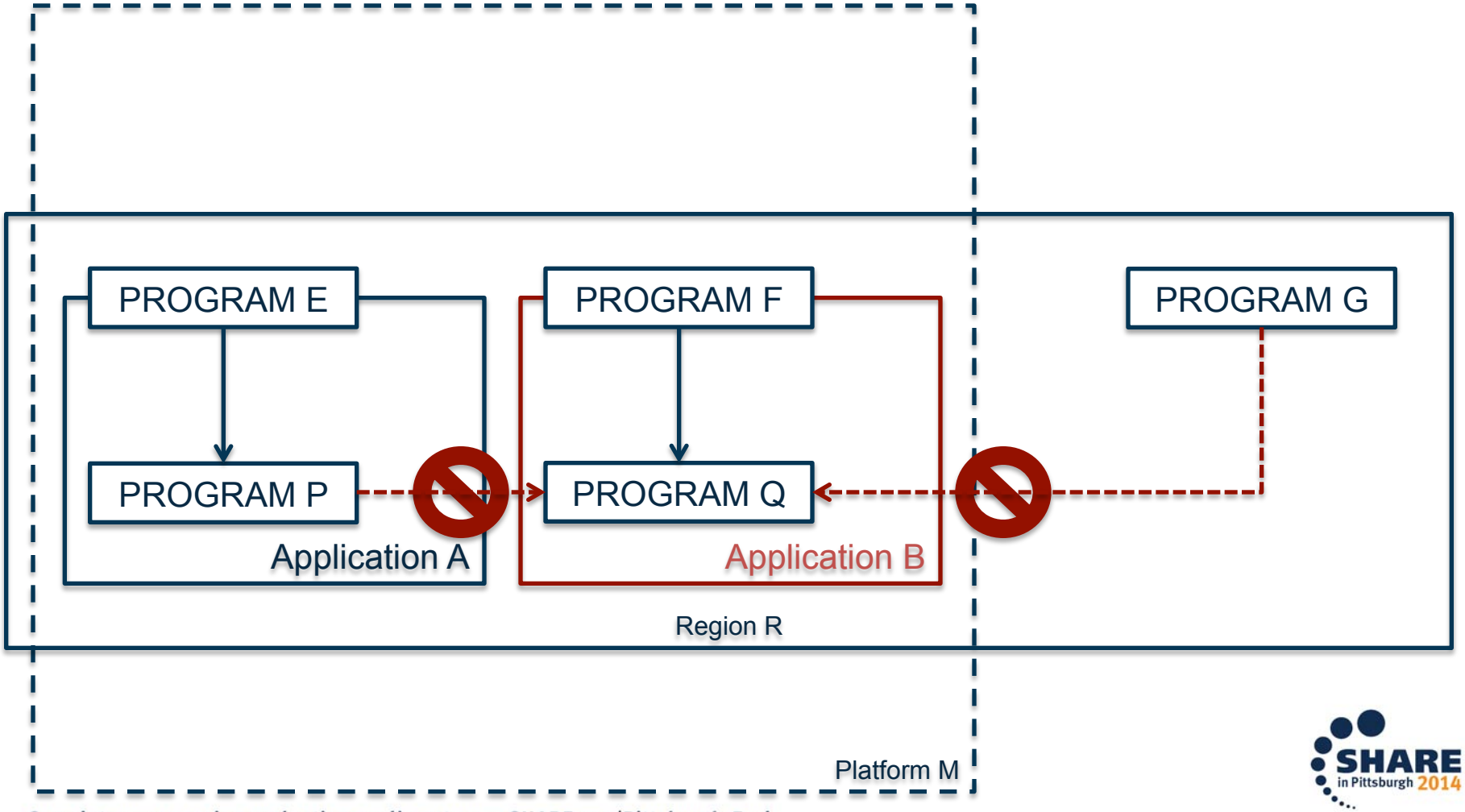
Application Architecture

"We have spent a lot of time using CICS Interdependency Analyzer (IA) to understand the call structure of one of our applications. This has enabled us to add more validation logic to avoid ABENDs when a copybook changes and someone hasn't recompiled all the right modules. But now we need to ensure no one bypasses these new checks."

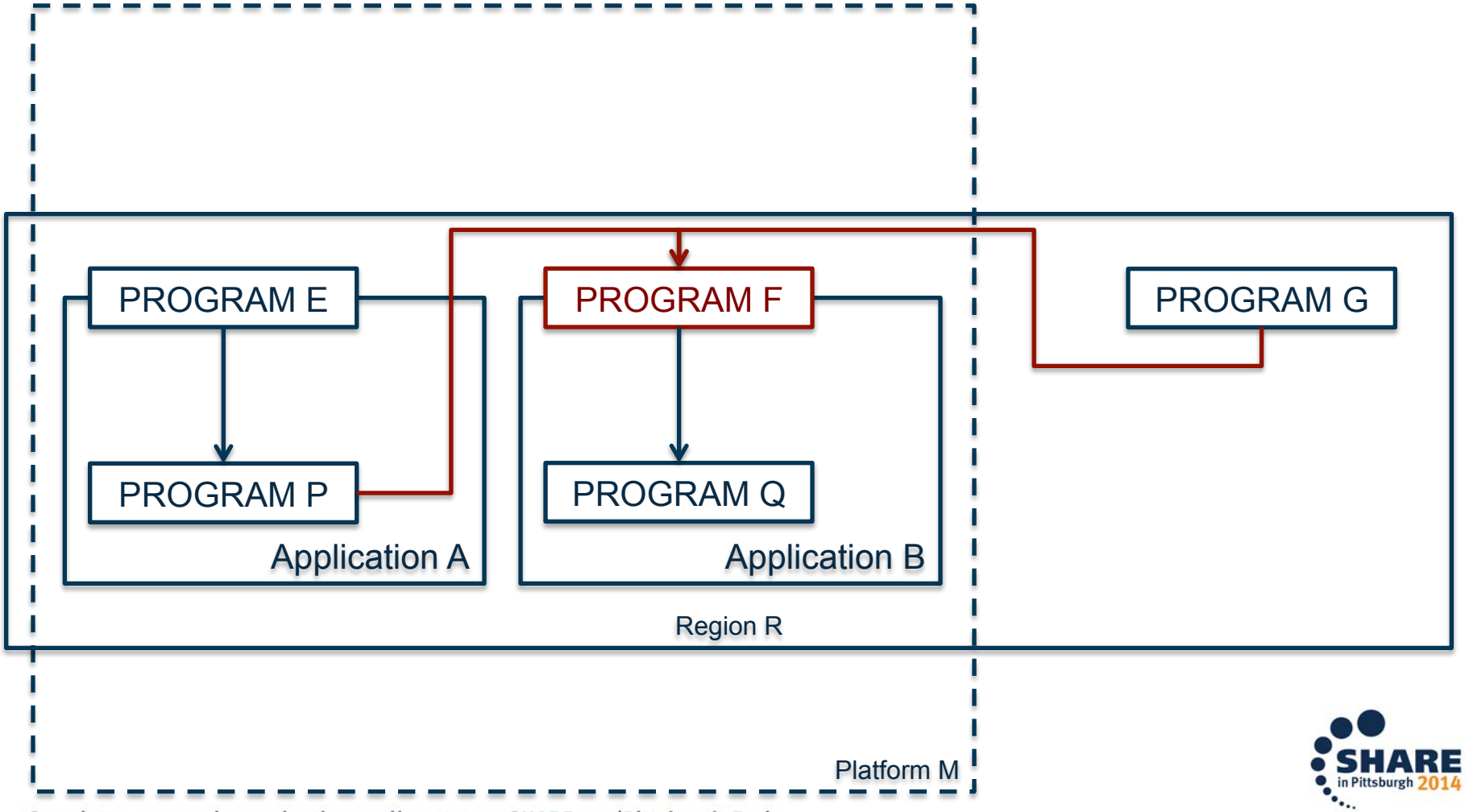
Any PROGRAM in the Region can LINK to PROGRAM Q avoiding the checks in PROGRAM F



PROGRAM Q is now private to Application B



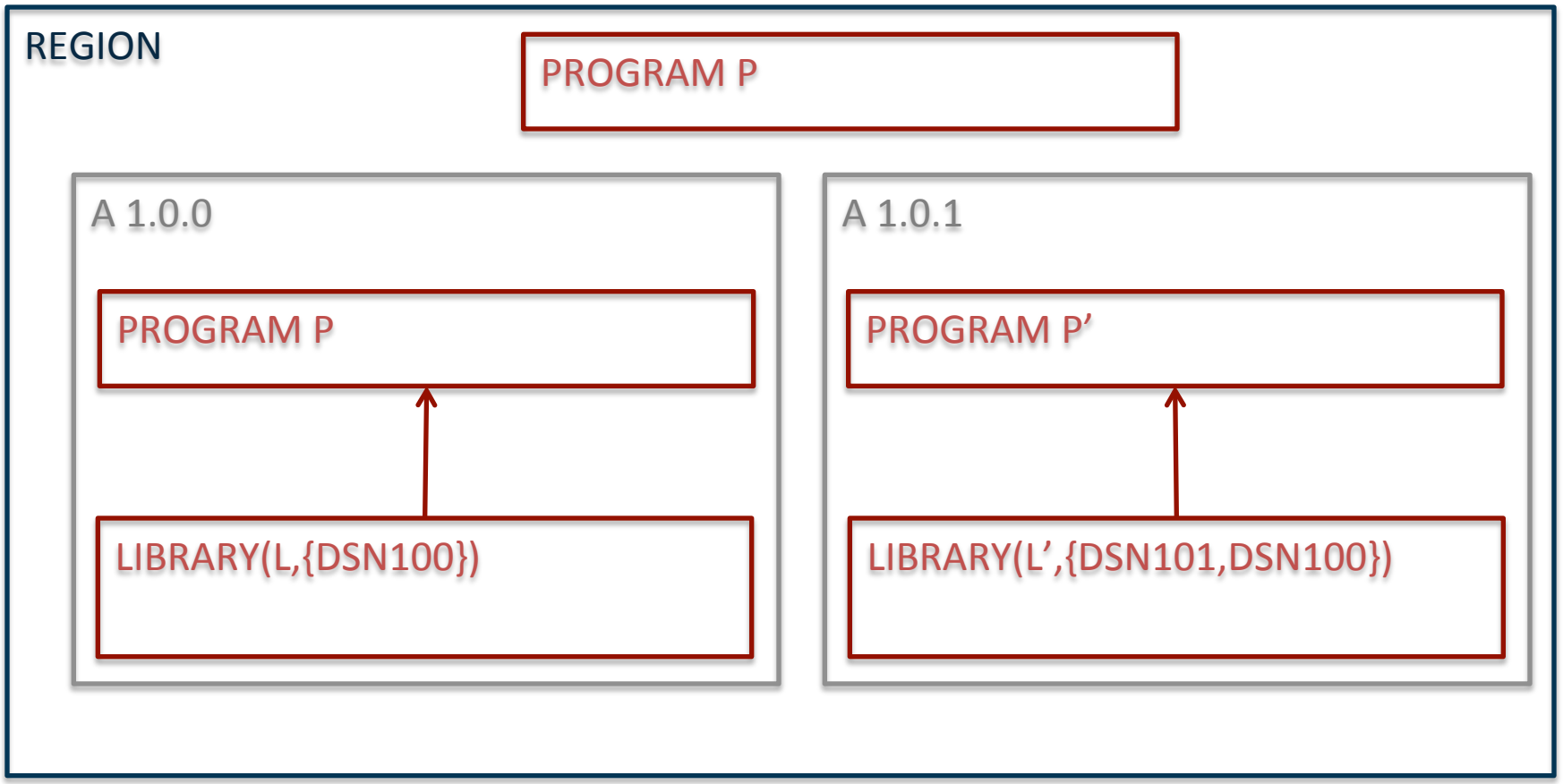
Must LINK through entry point PROGRAM F



Application Multi-versioning

- **Entry Points**
  - PROGRAM, URIMAP
- **Resources**
  - LIBRARY, PROGRAM, POLICY
- **Capability**
  - Provide end user access to two or more versions of an application hosted on the same platform by using the new private **PROGRAM** and **LIBRARY** resources
  - Quickly switch back and forth between two different versions of an application using the **AVAILABLE | UNAVAILABLE** state
  - Route requests from users to different versions of an application using the new **INVOKE APPLICATION API**

LIBRARY Resources not added to global search order



AVAILABLE | UNAVAILABLE application status

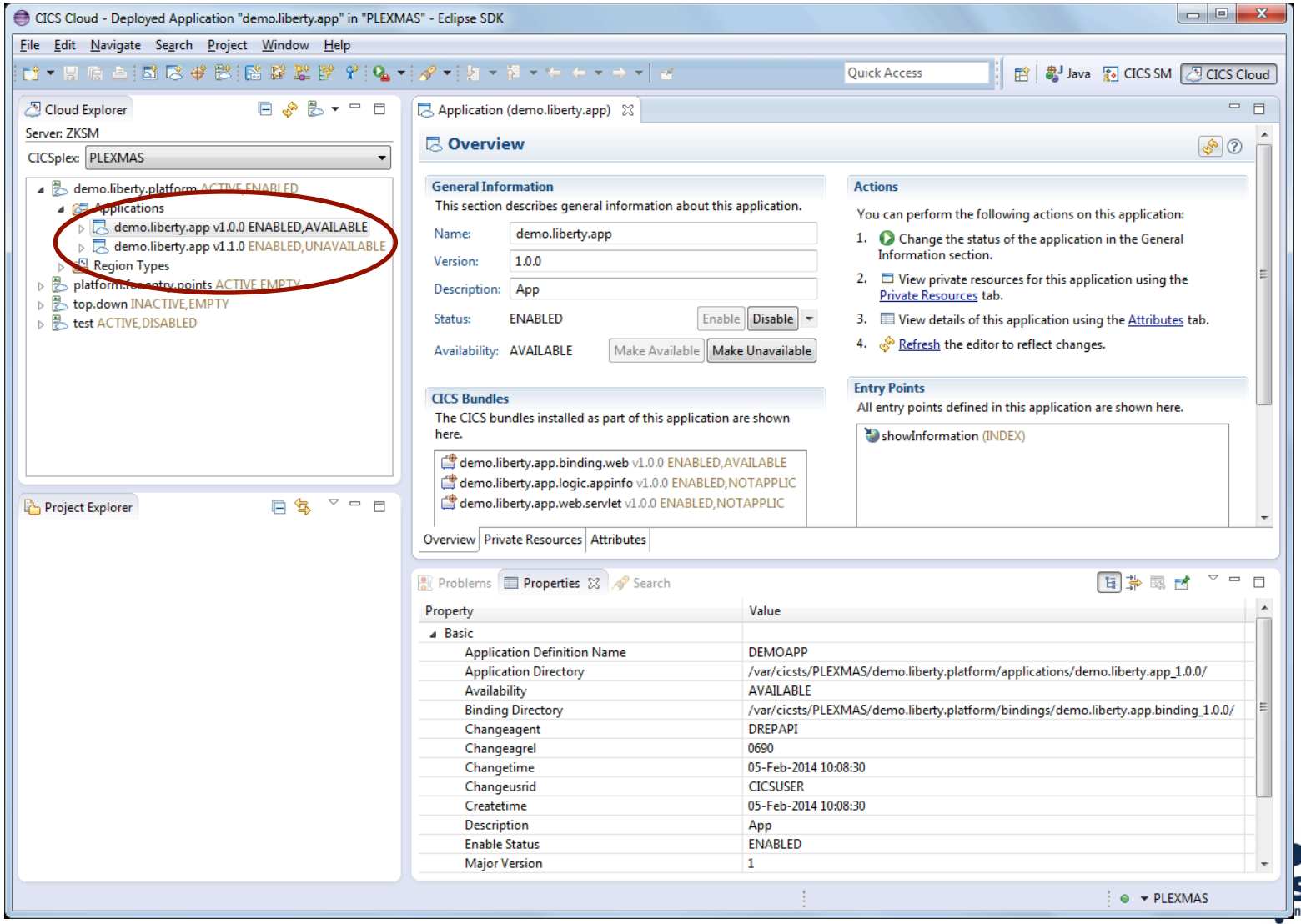
- New AVAILABLE | UNAVAILABLE state
  - CICS application
  - CICS bundle
  - URIMAP entry point
- UNAVAILABLE
  - “Close the door”
  - Existing tasks complete normally
  - No new requests
- AVAILABLE
  - “Open the door”
  - Measure resource usage
  - Enforce policy
  - Control access (for packaged resources)

EXEC CICS INVOKE APPLICATION

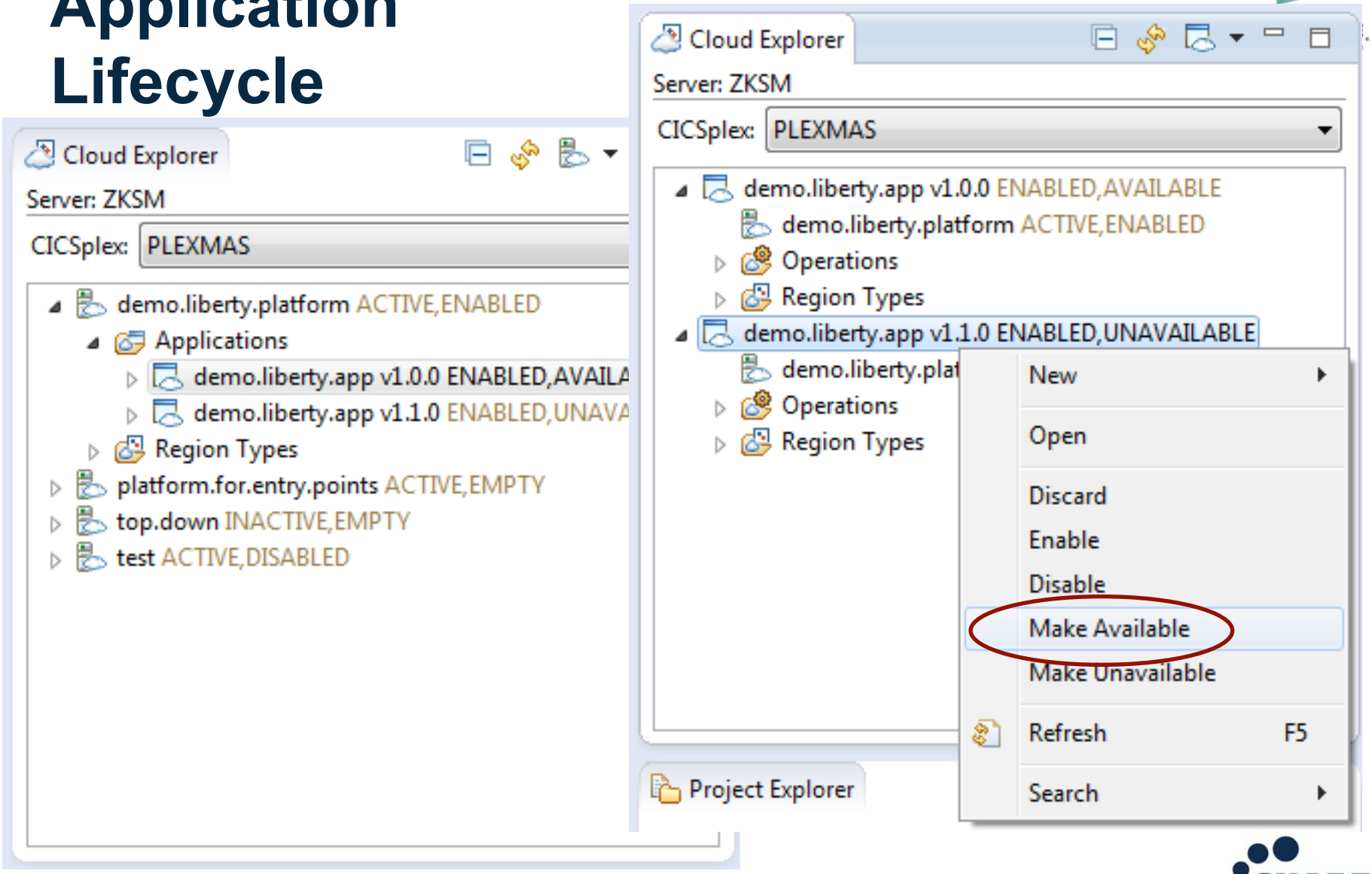
- EXEC CICS **LINK PROGRAM()**
- EXEC CICS **INVOKE APPLICATION()**
  - **OPERATION()**
  - OPERATION() **MAJORVERSION() MINORVERSION() MINIMUM**
  - OPERATION() MAJORVERSION() MINORVERSION() **EXACTMATCH PLATFORM()**
- JCICS **Application.invoke()**

CICS CLOUD EXPLORER

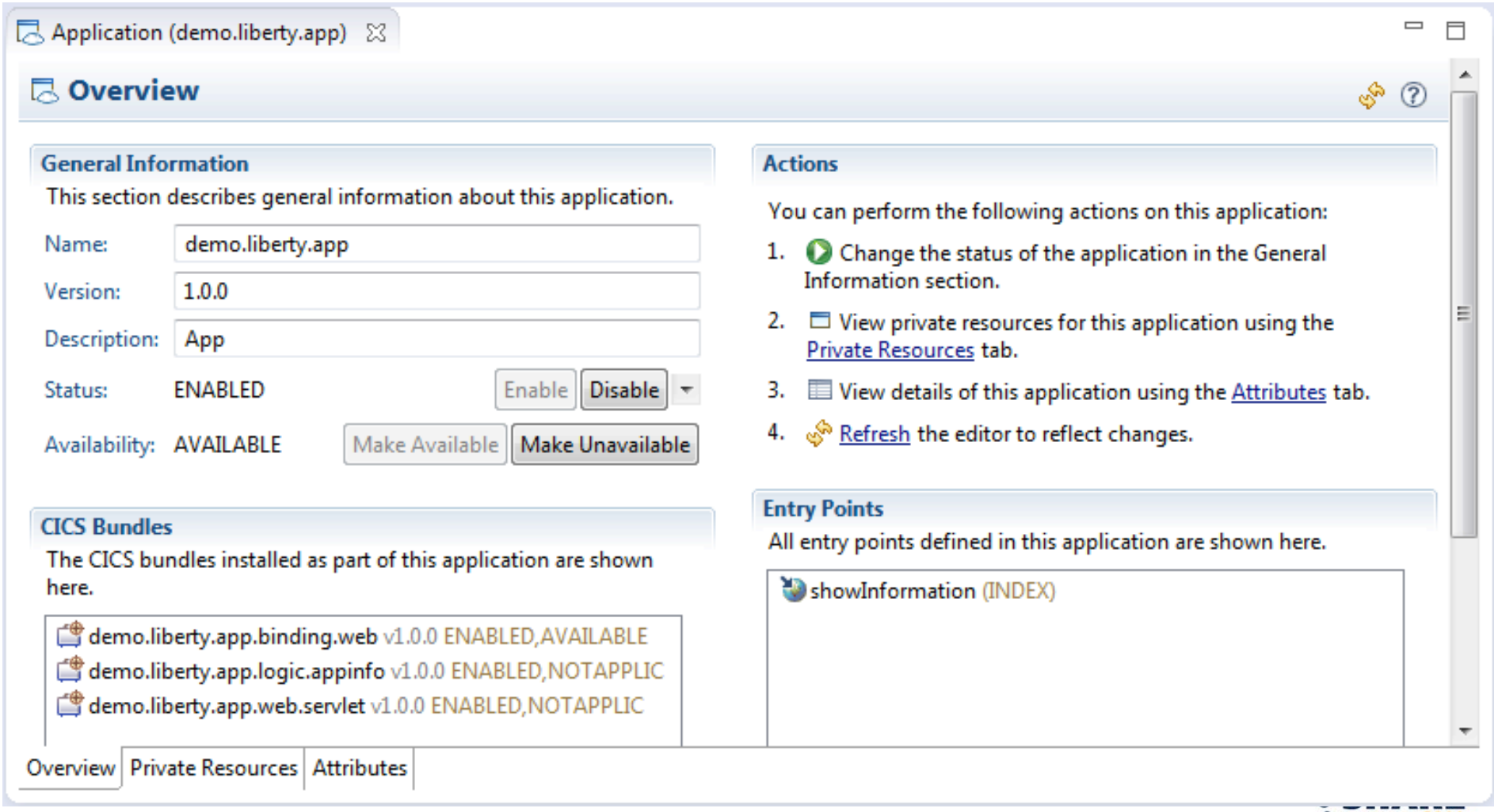
Managing Multi-Versioned Applications



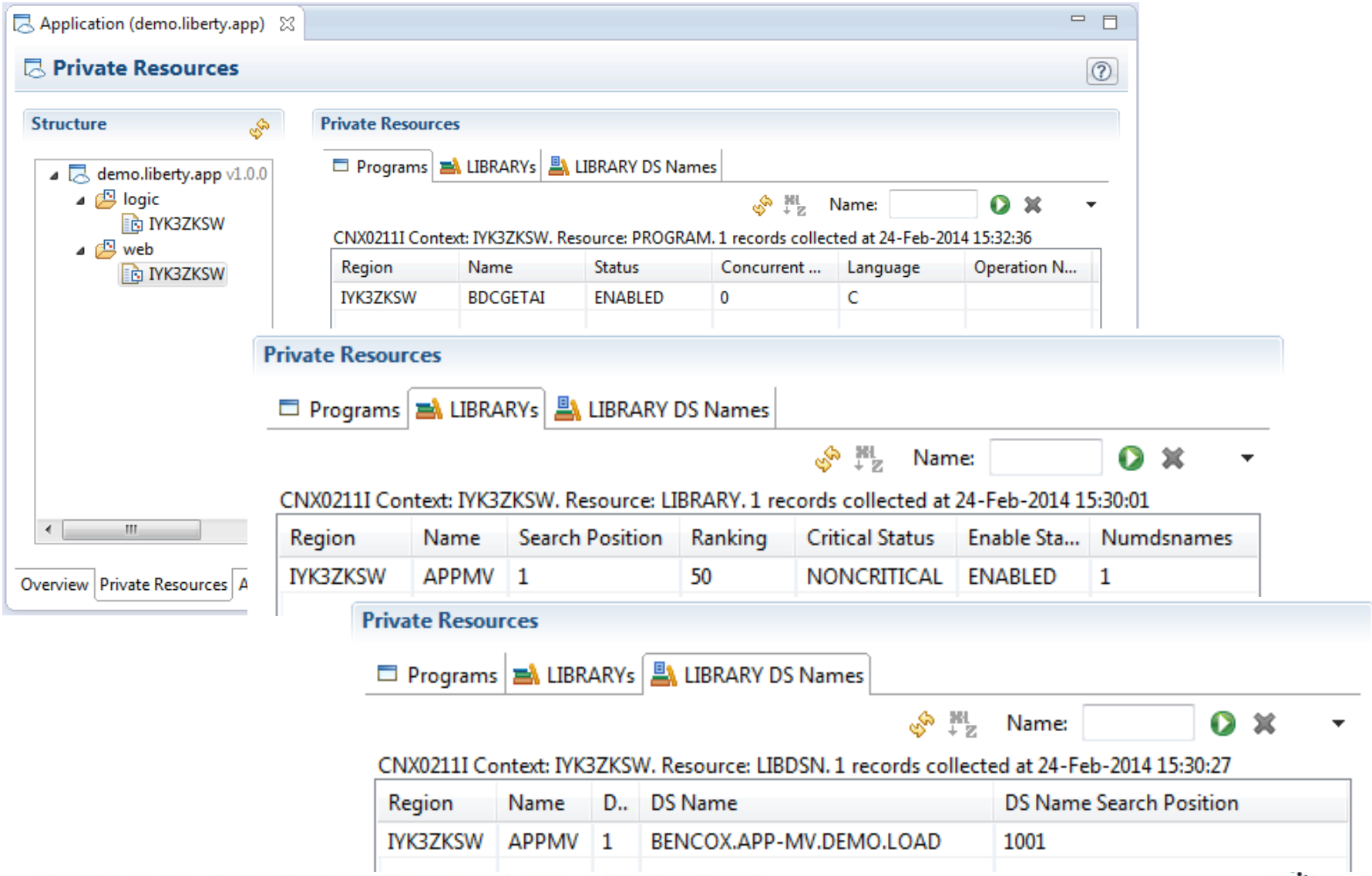
Application Lifecycle



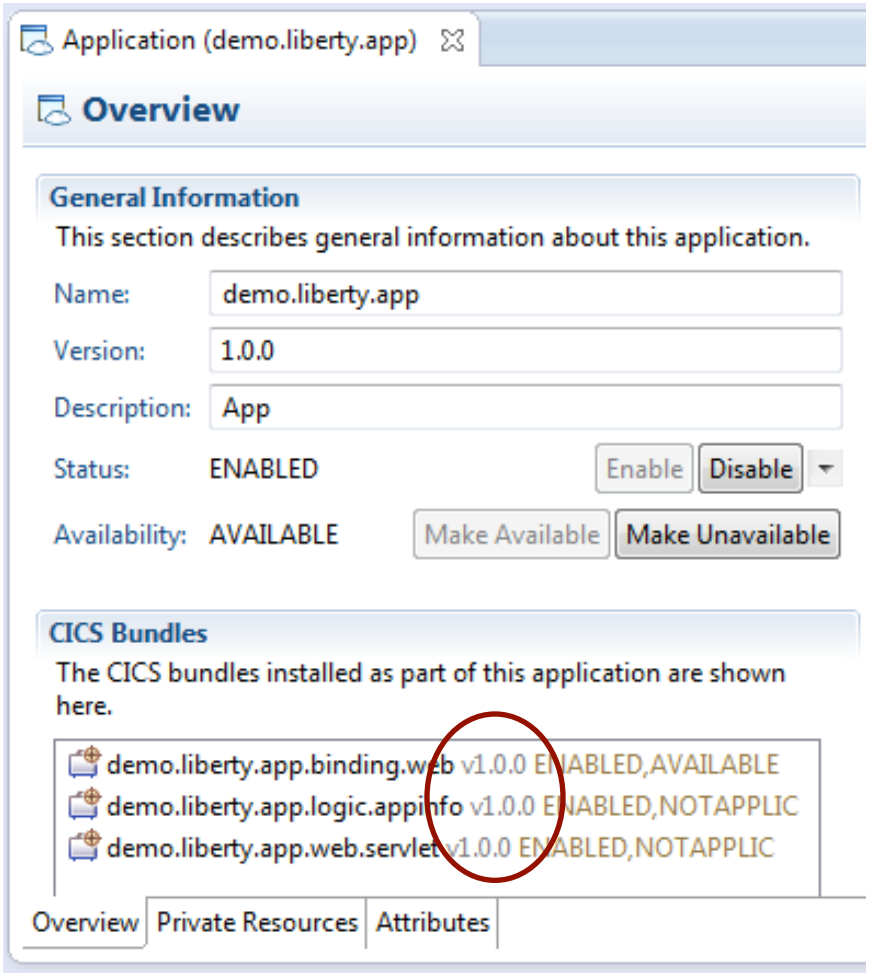
New *Online* Application Editor

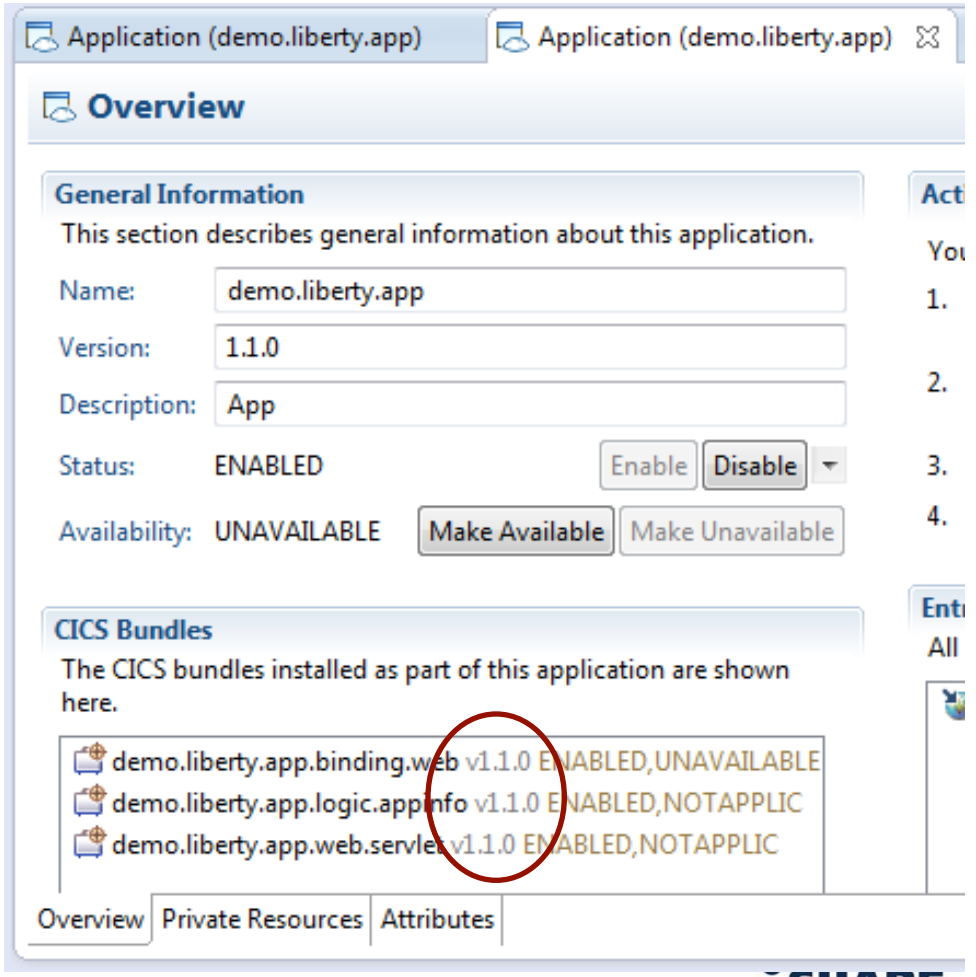


Private Resources

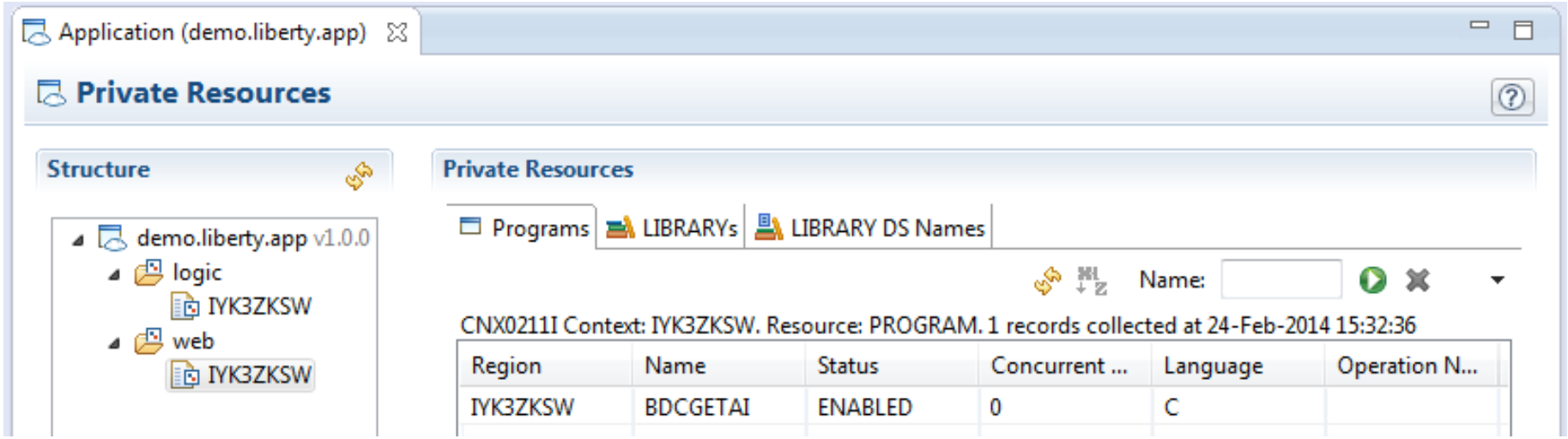


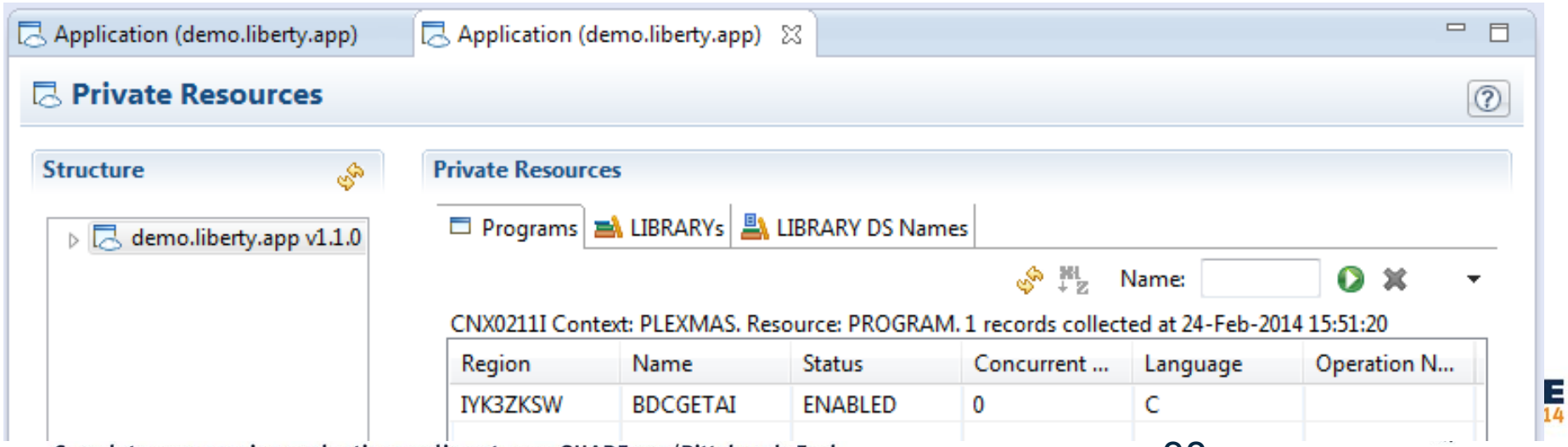
Application demo.liberty.app 1.0.0 vs. 1.1.0: BUNDLE





Application demo.liberty.app 1.0.0 vs. 1.1.0: PROGRAM





Application demo.liberty.app 1.0.0 vs.

Private Resources

Programs | LIBRARYs | LIBRARY DS Names

Name:

CNX0211I Context: IYK3ZKSW. Resource: LIBRARY. 1 records collected at 24-Feb-2014 15:30:01

Region	Name	Search Position	Ranking	Critical Status	Enable Sta...	Numdsnames
IYK3ZKSW	APPMV	1	50	NONCRITICAL	ENABLED	1

Programs | LIBRARYs | LIBRARY DS Names

Name:

CNX0211I Context: IYK3ZKSW. Resource: LIBDSN. 1 records collected at 24-Feb-2014 15:30:27

Region	Name	D..	DS Name	DS Name Search Position
IYK3ZKSW	APPMV	1	BENCOX.APP-MV.DEMO.LOAD	1001

Private Resources

Programs | LIBRARYs | LIBRARY DS Names

Name:

CNX0211I Context: PLEXMAS. Resource: LIBRARY. 1 records collected at 24-Feb-2014 16:04:01

Region	Name	Search Position	Ranking	Critical Status	Enable Sta...	Numdsnames
IYK3ZKSW	APPMV	1	50	NONCRITICAL	ENABLED	1

Programs | LIBRARYs | LIBRARY DS Names

Name:

CNX0211I Context: PLEXMAS. Resource: LIBDSN. 1 records collected at 24-Feb-2014 15:51:25

Region	Name	DS Number	DS Name	DS Name Search Position
IYK3ZKSW	APPMV	1	BENCOX.APP-MV.DEMO.LOAD2	1001

Summary

- Deploy new applications, application features or bug fixes while minimizing any impact to existing users or requiring additional infrastructure
- Implement the different scenarios using private PROGRAM and LIBRARY resources, the AVAILABLE | UNAVAILABLE application status, and INVOKE APPLICATION API
- Manage multi-versioned applications in Explorer with the new online editor

QUESTIONS?

More Information

- **Blog**
  https://www.ibm.com/developerworks/mydeveloperworks/blogs/cicsdev/tags/blog?lang=en
  - *What is CICS Application Multi-versioning?*
  - *How can I phase in the new version of a CICS Application?*

- **Demos**
  http://www.ibm.com/software/htp/cics/tserver/v52/library/demos.html
  - *Provisioning application updates with no loss of service*
  - *Hosting two versions of a CICS application concurrently on the same platform*

- **Podcasts**
  http://www.ibm.com/software/os/systemz/podcasts/websphereonz/
  - *CICS V5.2 - Multi-Versioning*

- **Scenarios**
  https://www-01.ibm.com/support/knowledgecenter/#!/SSGMCP_5.1.0/com.ibm.cics.ts.scenarios.doc/topics/Scenarios.html
  - *Updating an application on a platform*
  - *Hosting two versions of a CICS application concurrently on the same platform*

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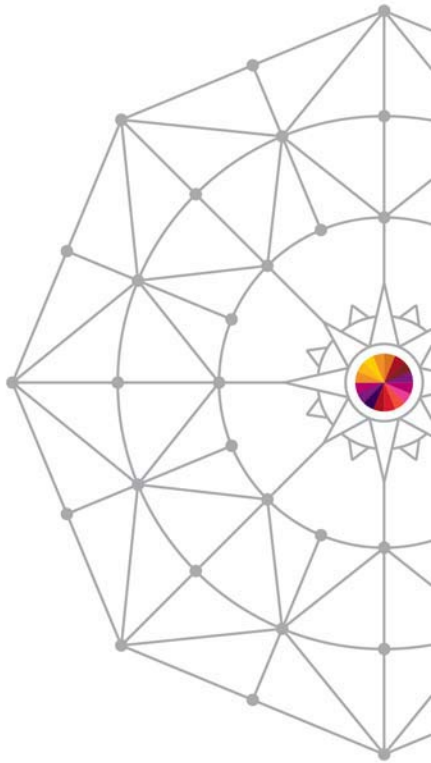

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