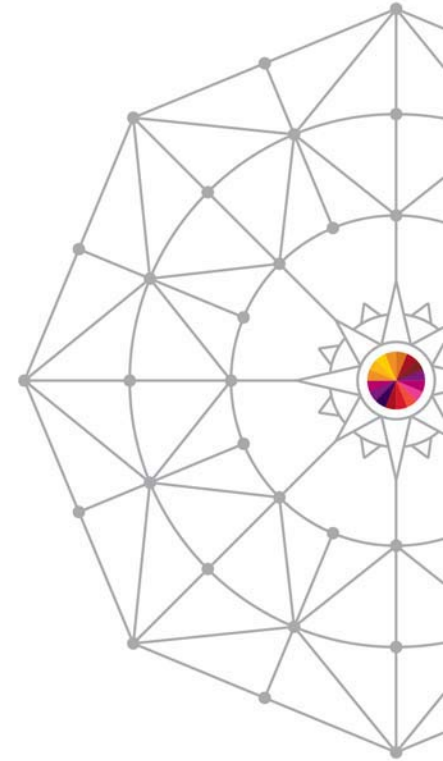


Modernizing CICS for Cloud

Matthew Webster, IBM



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Abstract

Everyone is talking about the Cloud and wondering how to integrate their existing CICS environment. The speaker is from the IBM Hursley lab and will give the audience insight on how to modernize CICS so that those applications can be part of your Cloud infrastructure.

CICS Cloud and CICS Tools Sessions

- Monday
 - **15855: Modernizing CICS for Cloud**
- Wednesday
 - **16056: DevOps: Multiplatform Application Deployment**
 - **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**

Modernizing CICS for Cloud

- Why do we want to get there?
- What will we get when we get there?
- How do we get there?

WHY DO WE WANT TO GET THERE?

Why “Modernize for CICS Cloud”?

- Operational efficiency
 - Fewer humans or humans doing more stuff: web services, Java, mobile, ...
 - Fewer more scalable server regions
 - Larger more variable workloads
 - **15884: Using Policies to Manage Critical CICS Resources**
- Service agility
 - More frequent application changes
 - New technology
 - **15882: Managing Multi-version Applications in CICS**
- DevOps
 - Don’t want to become the “The Department of No”*
 - **16056: DevOps: Multiplatform Application Deployment**

*“Cloud and DevOps: A Marriage Made in Heaven”, **Jeff Sussna**

WHAT WILL WE GET WHEN WE GET THERE?

What is a CICS Cloud NOT

- Marketing Hype
- Public Cloud
- ‘Our Own Thing’
- Finished!
 - **15883: CICS Futures Interactive Discussion**

What is a CICS Cloud

- CICS implementation of cloud principles

‘Pre-defined **application** architectures, and required **platform** services, that are deployed and managed by the system according to a set of **policies**.’

IBM PureSystems - Product Family overview homepage, Apr 2014

- Enabling creation of private CICS clouds

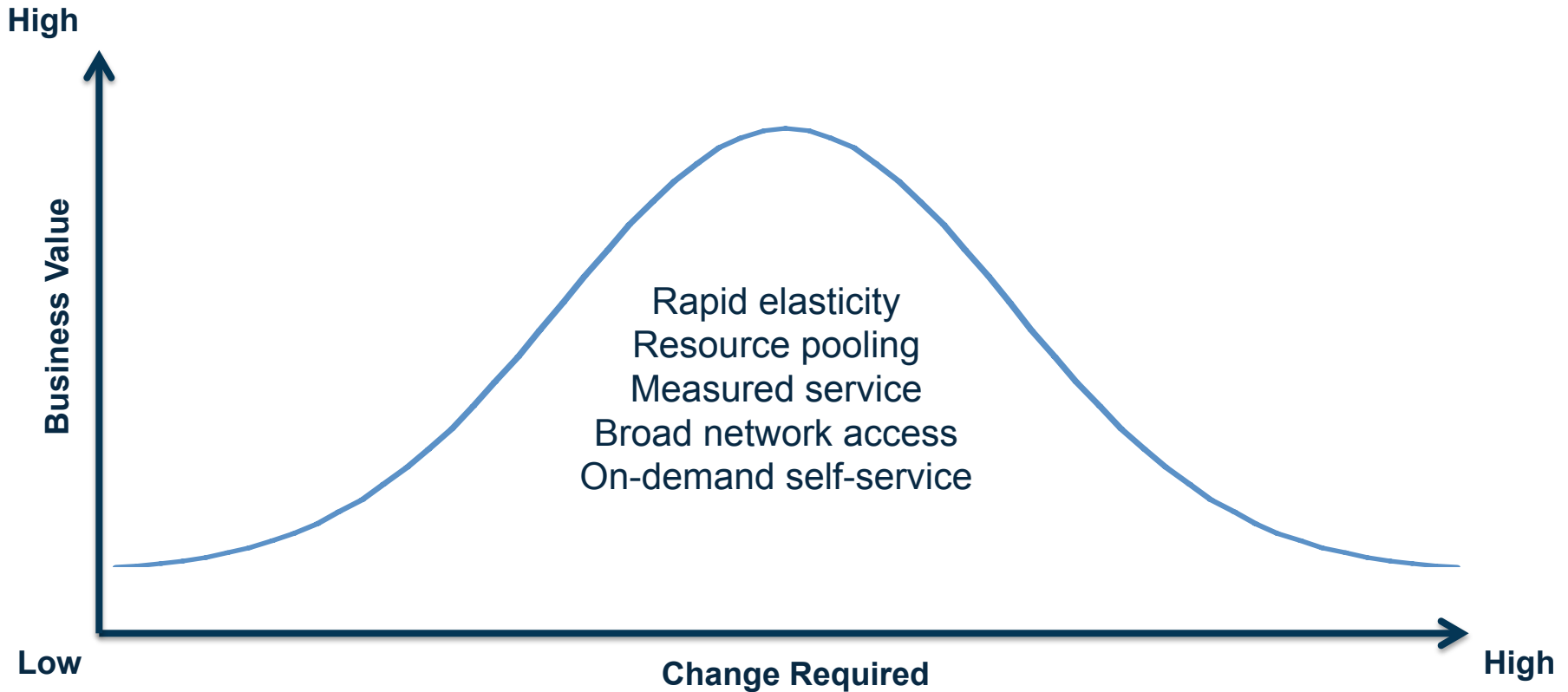
‘The cloud infrastructure is provisioned for exclusive use by a **single organization** comprising **multiple consumers** (e.g., business units)’

NIST Special Publication 800-145, Sept 2011

- Bringing Cloud benefits to CICS

CICS TS V5 delivers a **pattern based, policy managed, private CICS cloud** environment, **improving the agility** of CICS application deployments whilst **reducing the risk** of implementation errors.

The Business Value CICS Cloud adoption

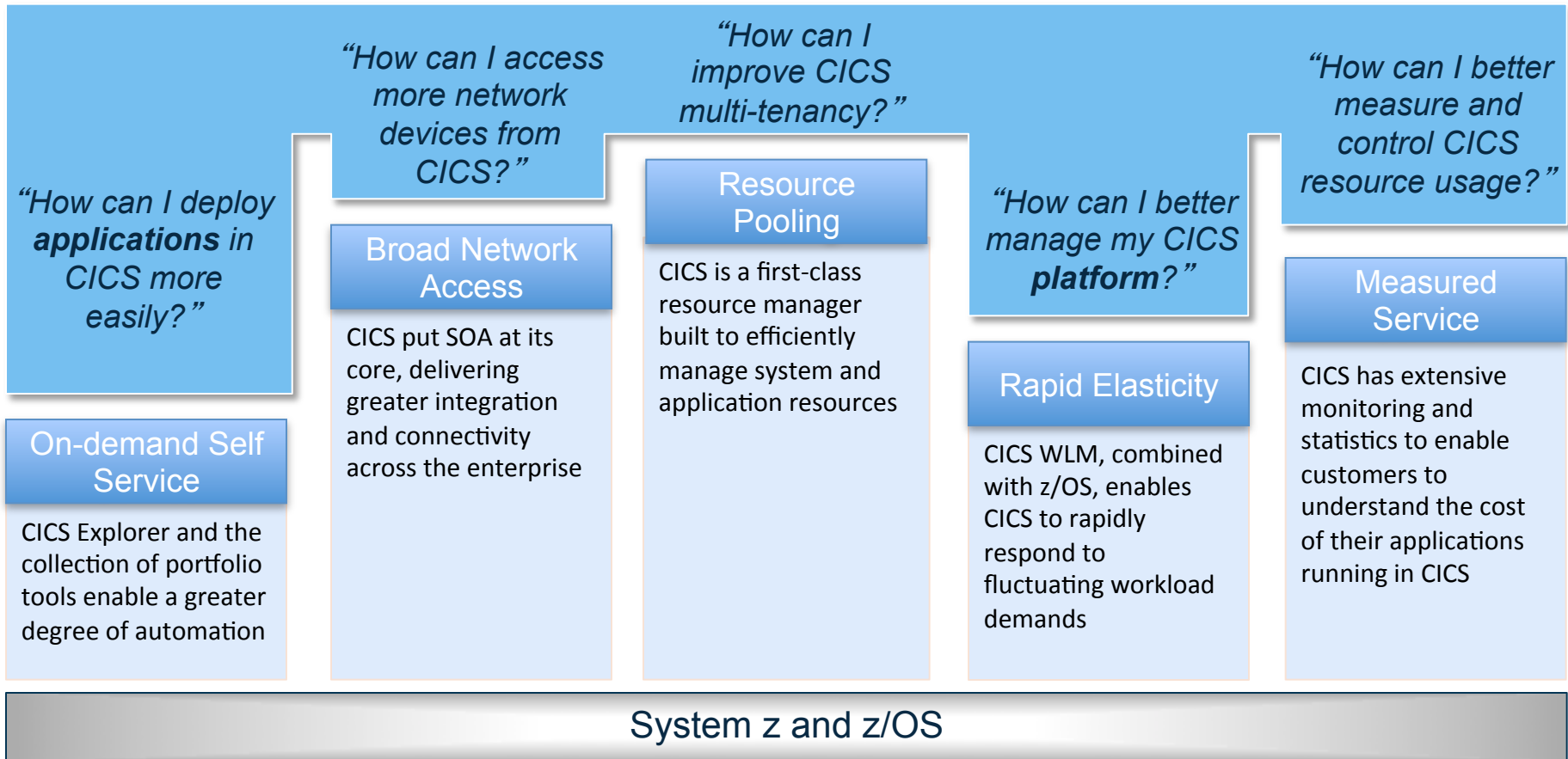


Small changes to existing CICS **applications** and **processes** can deliver **large value** from the CICS Cloud capabilities.

The Essential Characteristics of Cloud Computing



Question : How can you apply the 5 essential cloud characteristics to CICS?



(Hint : Adding more CICS regions is probably not the best answer!)



Capabilities of CICS cloud

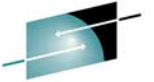
- ▶ **On-demand self service**
Because CICS applications are self-contained and self-describing, they can be moved through the lifecycle more quickly and reliably, with less human interaction.
- ▶ **Measured service**
You can now **define a policy to trigger an action** when an application consumes more resources than it is entitled to, helping to **manage critical resources** and better **control application costs**.
- ▶ **Resource Pooling**
Application packaging helps you consolidate onto fewer regions by providing private program definitions

HOW DO WE GET THERE?

Topics

- CICSplex SM
- CICS Explorer
- CICS bundles
- zFS
- CICS Monitoring
- SCM
- CICS Tools
- Dynamic Library resources

Best Practices for CICS Systems Management



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High Availability
(HA)

Real-time Analysis
(RTA)

Business
Application
Services (BAS)

Workload
Management
(WLM)

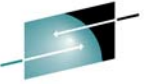
System
Management
Single Server
(SMSS)

Single System
Image (SSI)

Standalone
Regions

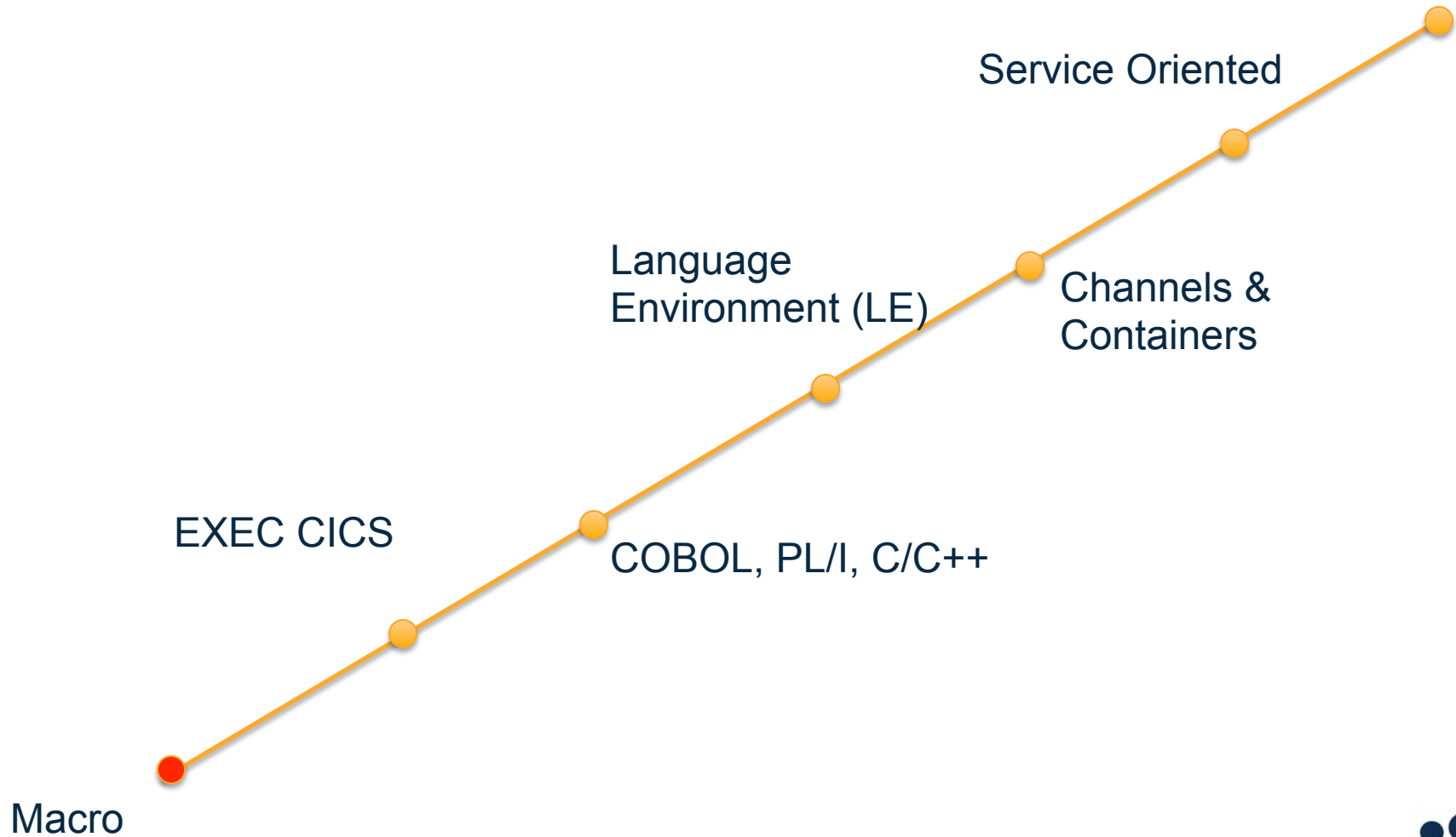


Application Environment Maturity Roadmap



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Cloud?



What does a CICS cloud look like?



Complete your session evaluations online at www.SHARE.org/Pittsburgh-Eval



What does a CICS cloud look like?

Take your existing setup

What does a CICS cloud look like?

Define a subset to be your platform

Platform P		

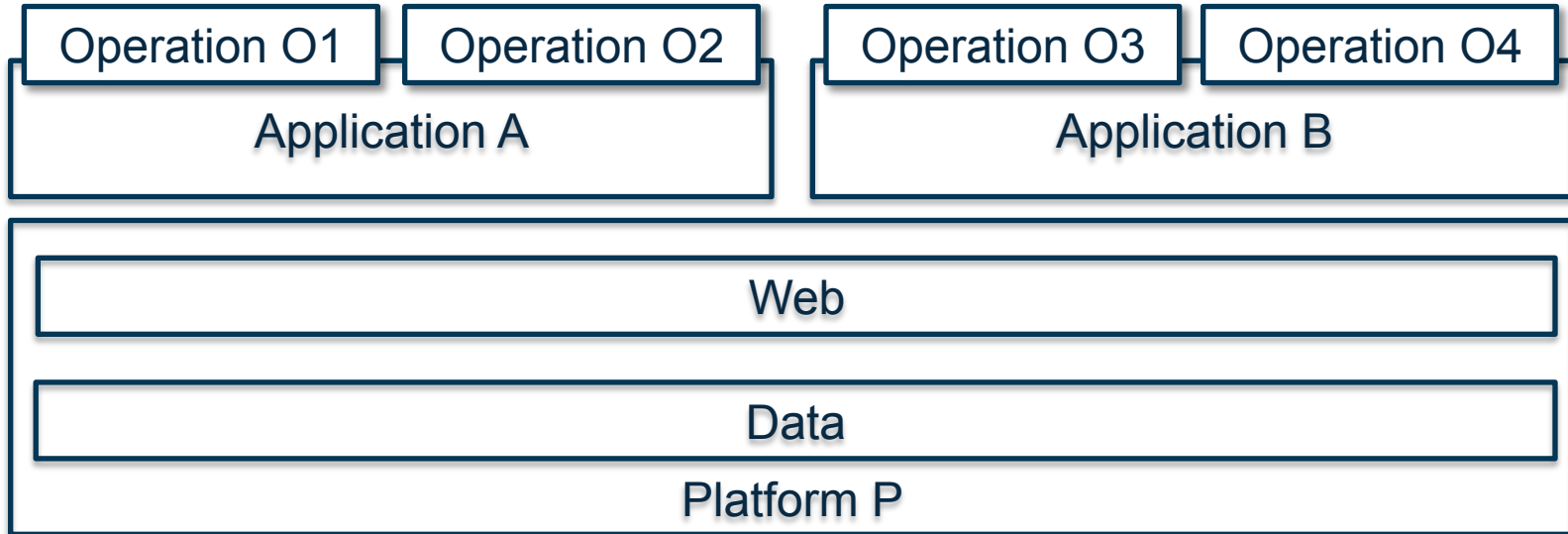
What does a CICS cloud look like?

Regions should be clones so they can be treated as a single type



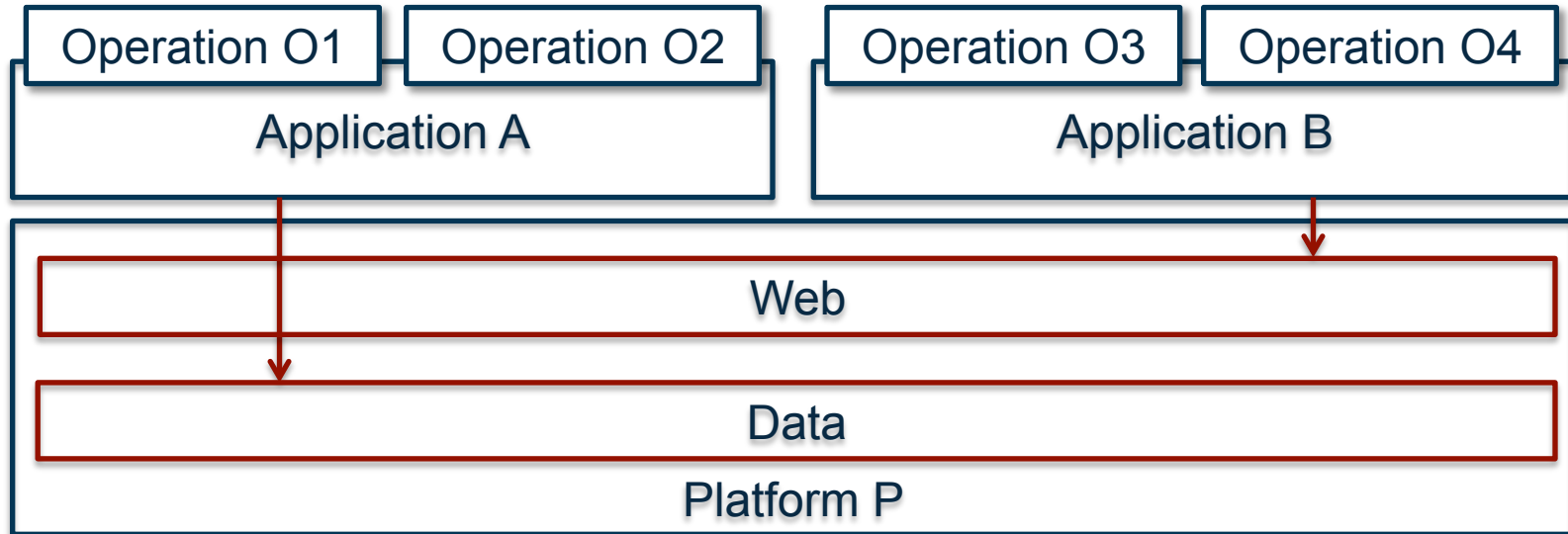
What does a CICS cloud look like?

Define your applications based on end-user value



What does a CICS cloud look like?

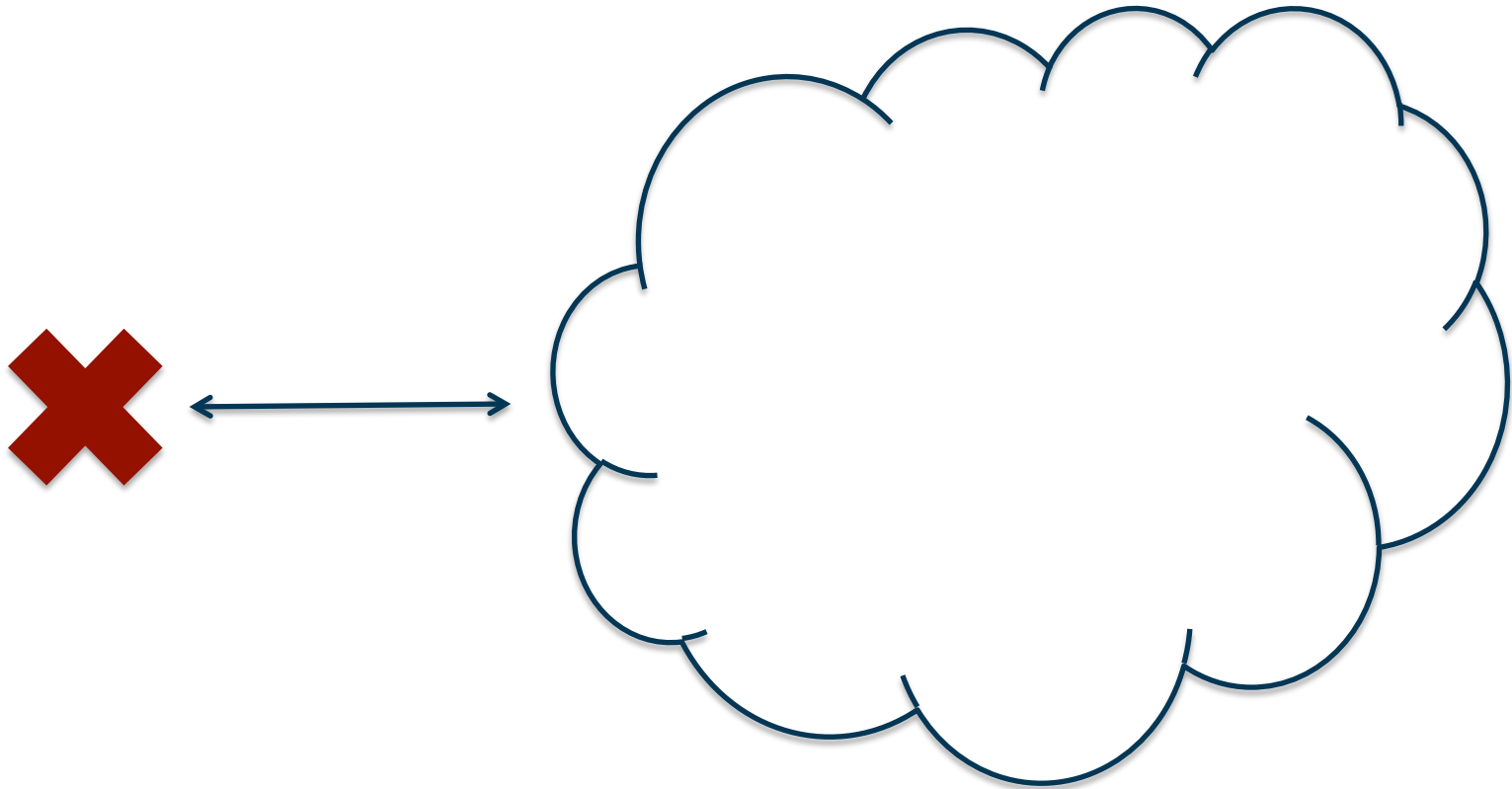
Declare your dependencies



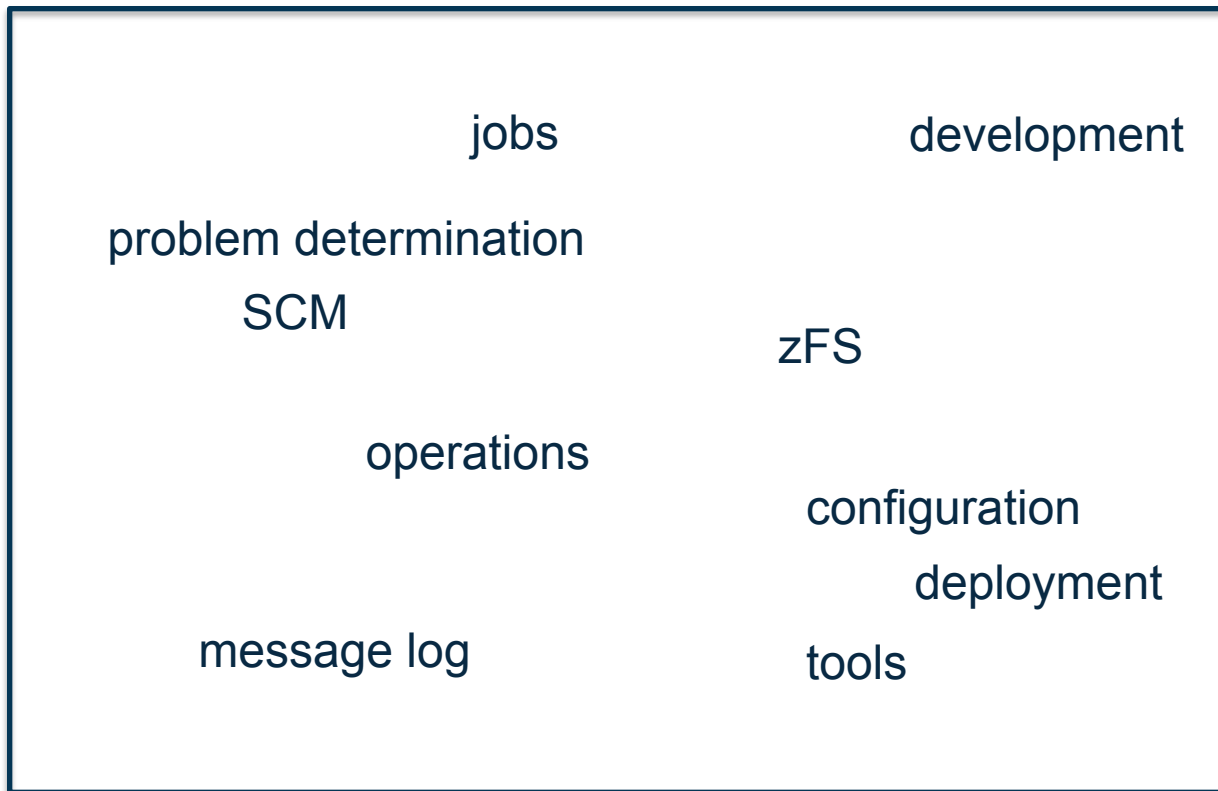
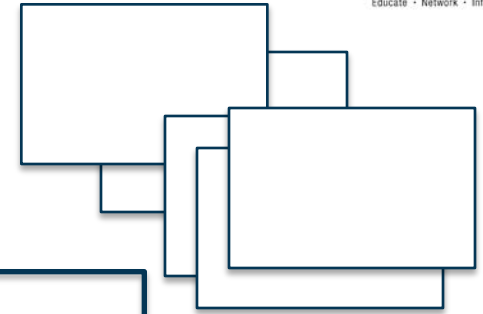
What does a CICS cloud look like?

- Accurate measurement of resource consumption using CICS monitoring for operational efficiency
- Clearer understanding of applications without repackaging supporting service agility
- Automated enforcement of threshold policy throughout the application lifecycle as part of DevOps

CICSplex SM

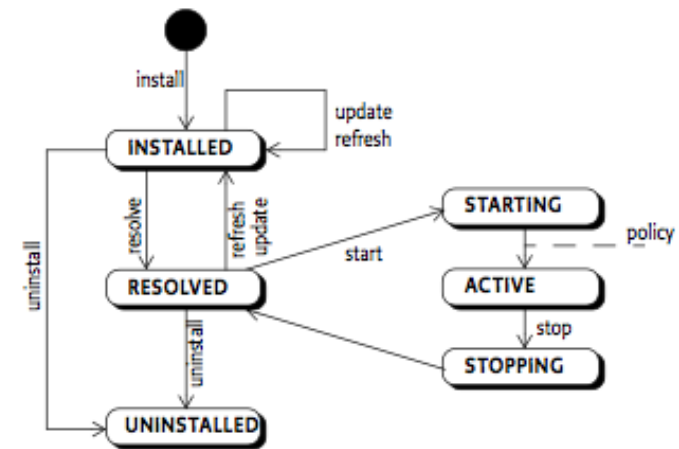


CICS Explorer

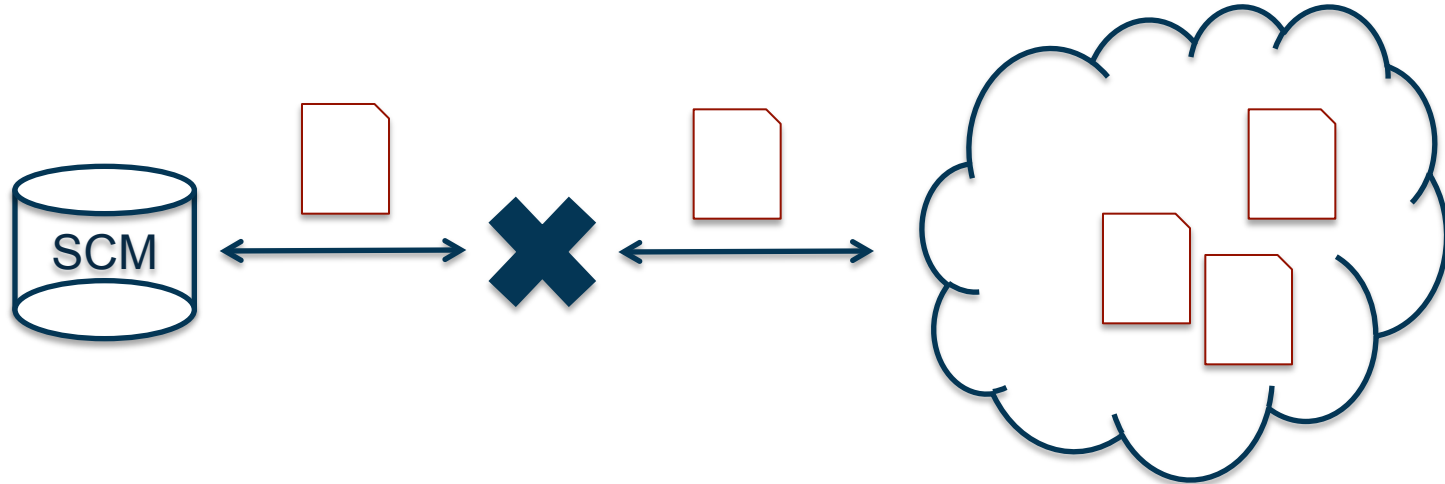


CICS bundles, a short history

- Introduced in CICS V4.1
 - Manages the lifecycle of a collection of XML documents)
- Exploited in V4.2 for OSGi bundles
 - Drives an existing well formed resource lifecycle
- Further exploited in V5 as an application component or platform service
 - Manages dependencies
 - Defines traditional resources e.g. PROGRAM, TCPIP SERVICE
 - Manages lifecycle of configuration e.g. JVM server profile
 - Added ID and version
 - Private resources (application multi-versioning)



CICS bundles: “On-demand self service”



- Like a resource group ensures resources are installed together but also
 - Manages their collective state at runtime
 - Ensures they are discarded together
 - Keeps them together during development, deployment and promotion (using SCM)

zFS, zFS, zFS: “Broad network access”

- CICS has been exploiting zFS since we supported Java (CICS/ESA V4.1?)
- Required by web services since V3 and events since V4
- Fully embraced by CICS cloud enablement (only APPLDEF and PLATDEF required) in V5
- JVMSERVER, PIPELINE, WEBSERVICE in V5.2
- SSL cipher suite specification file in V5.2
- Architected layout for both traditional CICS and CICS cloud
- SHARE sessions
 - **15395: Managing CICS Resources in a UNIX File System (SHARE 2014 in Anaheim)**
 - **13023: Everything You Wanted to Know About zFS Sysplex Sharing (SHARE 2013 in San Francisco)**

CICS Monitoring: “Measured Service”

- Records applid, tranid, resource consumption, errors
- What about “application”?
- Application context
 - Platform
 - Application
 - Version (Major.Minor.Micro)
 - Operation
- Flowed over MRO and IPIC
- Exploited by tools like CICS PA

Dynamic Library resources

- Introduced in V3 to allow an application to updated without restarting CICS
- Defined using a CICS bundle in V5.1 to provide a robust application lifecycle for both defined and autoinstalled PROGRAM resources
- Private PROGRAM resources in V5.2

Source Code Management (SCM)

- I am sure you all use SCM for application code but what about automation & configuration?
- “Configuration as code” DevOps practice
- CICS bundle projects allow version control for definitions that are part of an application
- CICS bundle projects allow version control for configuration of a platform
- Creates an audit trail of change and allows rollback to a previous version

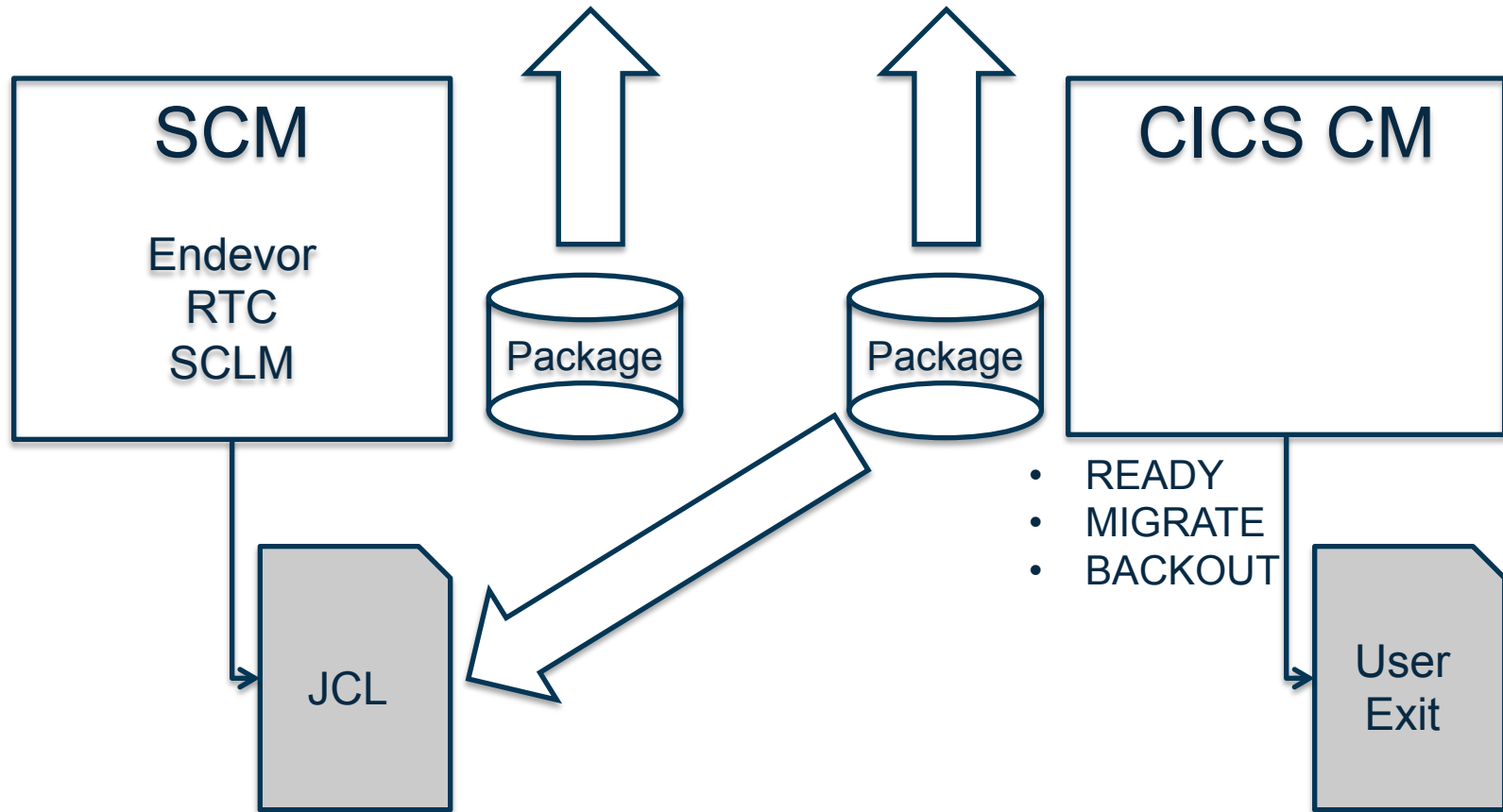
CICS Configuration Manager Highlights

- Single point of control for CICS resource definitions including
 - Create, Update, Delete, Copy, Replicate
- Provides the ability to “change manage” definitional change through the various user environments (e.g. Development, Test, Production)
- Provides audit, back-out and change authorization capabilities

CICS CM: “DevOps”

1. Integrate CM with batch

2. Drive SCM from CM



Where do I start?

- CICSplex SM Single System Image (SSI)
- Explorer
- LIBRARY

- Platform (existing topology)
- Application (entry points & dependencies)
- Policy

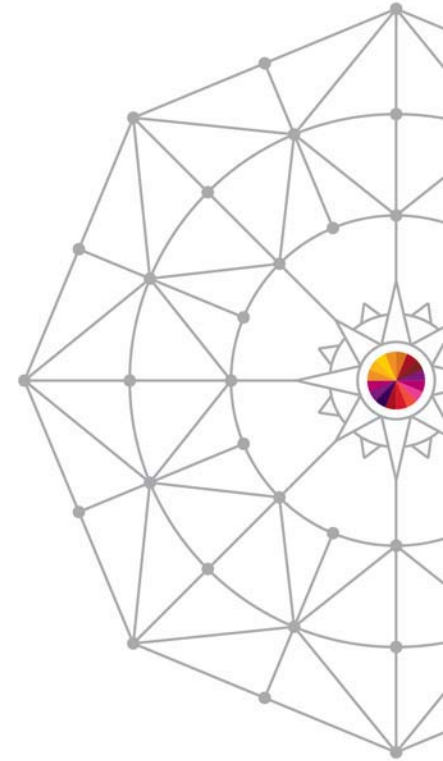
QUESTIONS?

More Information

- **Blog**
<https://www.ibm.com/developerworks/community/blogs/ChrisHodgins/?lang=en>
 - *CICS cloud Q&A*
 - *CICSplexed and Confused? Part 1, 2, 3, ...*
- **Demos**
<http://www.ibm.com/software/http/cics/tserver/v51/library/demos.html>
 - *Creating a CICS Platform for cloud enablement that defines a new topology*
 - *Creating a CICS Platform for cloud enablement from an existing topology*
 - *Creating a CICS Application for a Cloud Environment*
- **Podcasts**
<http://www.ibm.com/software/os/systemz/podcasts/websphereonz/>
 - *CICS V5.2 – Overview*
- **Scenarios**
https://www-01.ibm.com/support/knowledgecenter/#/SSGMCP_5.1.0/com.ibm.cics.ts.scenarios.doc/topics/Scenarios.html
 - *Creating a CICS topology that is managed by CICSplex System Manager*
 - *Deploying an application to a platform*
 - *Creating and deploying policies*

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