

# Our Transformation

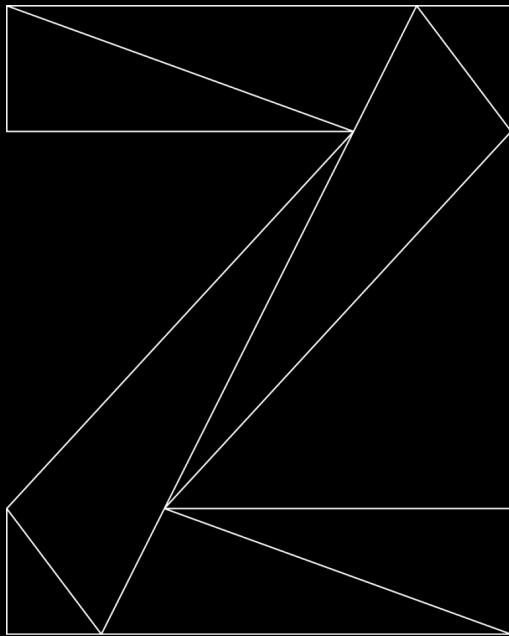
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# Our goal

- Bring a set of products together in a single development process for simplified customer use
- Simplified portal to get the right parts for the right users
- Faster delivery of capability across the product stack – monthly releases for all products



# What we had

- Separate development teams – with their own process and tools
- Separate release deliverables
- Separate schedules – varying releases months to year+
- These products represent all the modern IDEs for the z/OS® product stack – z/OS explorer is provided for all z/OS customers
- A few products had clients that needed to integrate but remain separate development processes

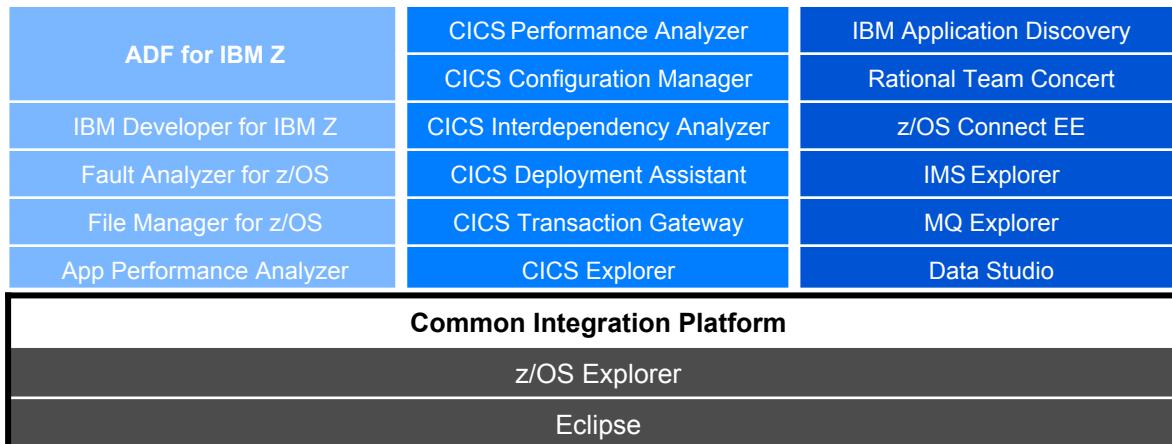
ADF for IBM Z®	CICS® Performance Analyzer	IBM Application Discovery
IBM Developer for IBM Z	CICS Configuration Manager	Rational Team Concert™
Fault Analyzer for z/OS	CICS Interdependency Analyzer	z/OS Connect EE
File Manager for z/OS	CICS Deployment Assistant	IMS™ Explorer
App Performance Analyzer	CICS Transaction Gateway	MQ Explorer
	CICS Explorer	Data Studio
z/OS Explorer		

# What we did

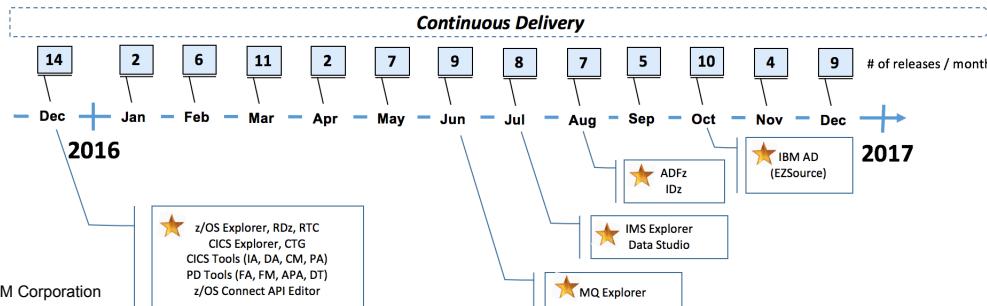
- Single pipeline for all development teams
- Automated testing framework
  - Stopped development other than critical PRMs to build automated tests
- Added products a few at a time to add the product, and the team into the “environment” and culture



# IBM Explorer for z/OS Aqua 2016



## IBM Z Continuous Integration & Delivery



### Facts & Figures

- 94 releases, 17 products, 13 deploys
- Major Release: 12-18 to 3-5 mths
- FixPak: 4-6 mths to 1 mth
- 30% build time improvement
- 80% deploy time improvement
- Single build, test, deploy infrastructure
- Single product repository
- Single customer-facing dW site

**Delivered!**

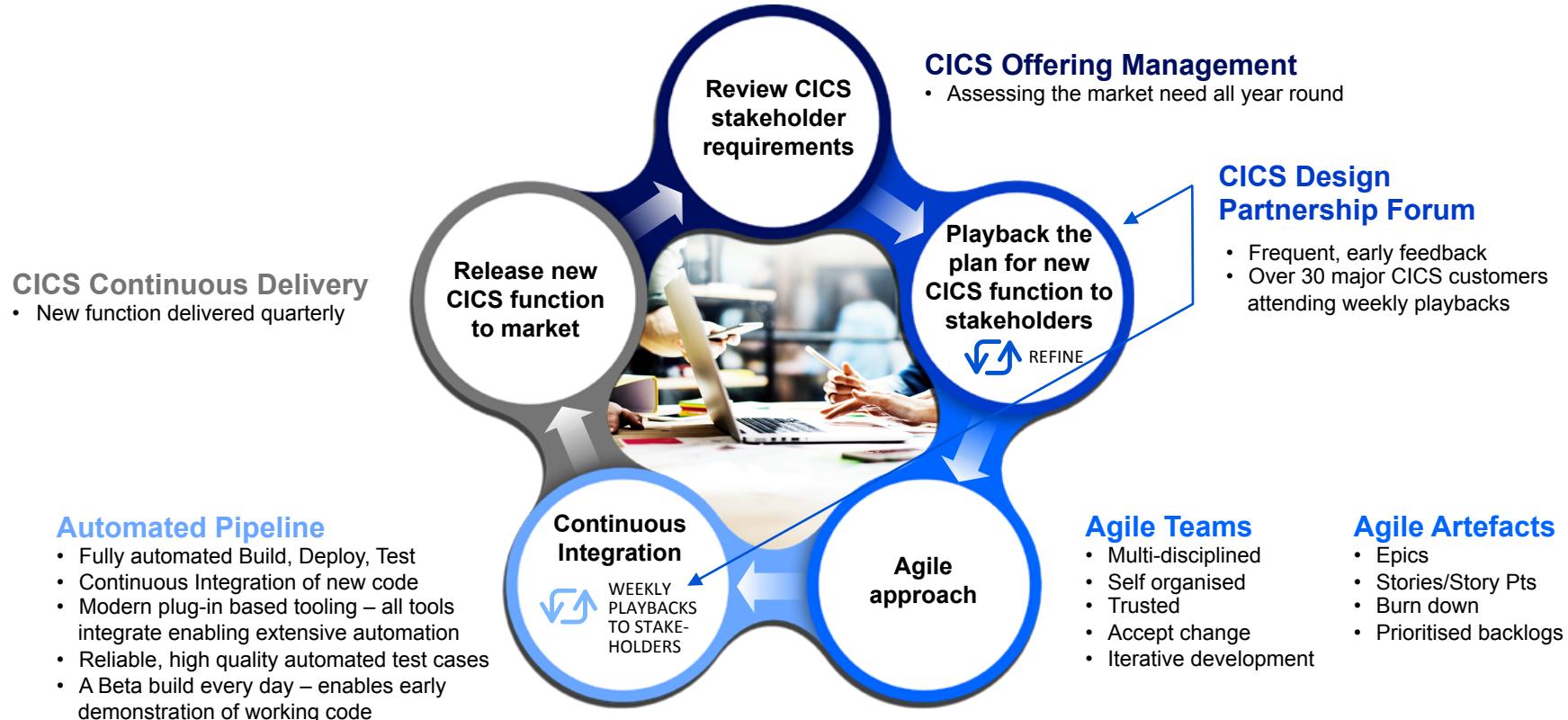
# Critical success factors



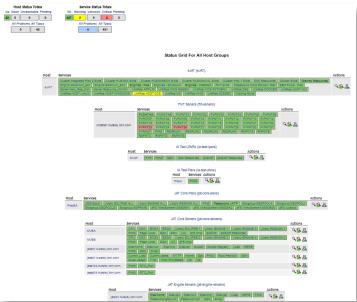
- Learned from those that had already transitioned
  - CICS team started in 2005 with transition
- Spent the time to work across teams
- Appropriate retrospectives to improve process and improve team collaboration
- Management support for time to improve
- Continue to release monthly and add new products

# CICS end-to-end DevOps development

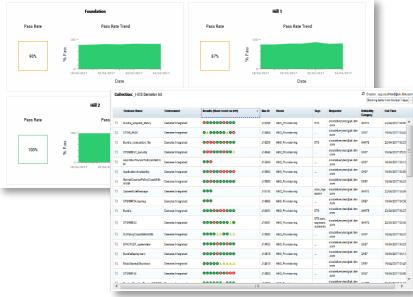
## Applying design thinking and continuous integration



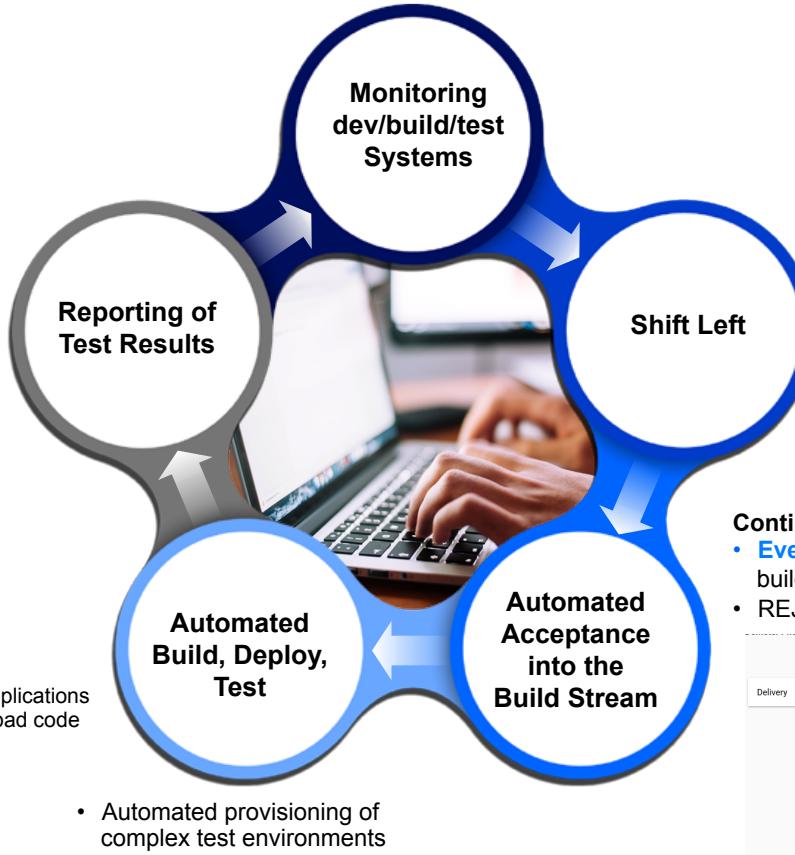
# Continuous integration working for CICS on z/OS



- Extensive monitoring of systems ensures highly reliable dev/test systems
  - Essential for Continuous Integration



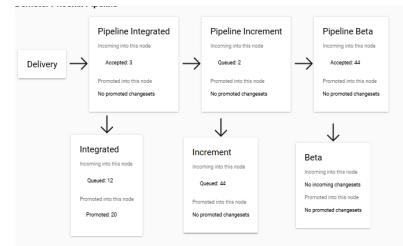
- High quality, extensive automated regression test applications
- High pass rate as 'shift left' prevented promotion of bad code
- Priority given to resolving pipeline failures (rare)
- 'Beta quality' builds created daily**
  - Enables early stakeholder feedback – essential for Agile



- On Demand** locally build, deploy, validate new code.
- Parallel testing on z/OS enables rapid feedback to developers (< 30minutes)
- Defects identified and resolved before entering pipeline

## Continuous Integration

- Every 30 minutes** Jenkins 'pulls' code into the build pipeline **only if 'shift left'** tests pass.
- REJECT code that is breaking build/tests.



# Additional support for teams

- Developed a CI/CD Community to share best practices
- Slack channel for communication
  - Specific slack channels for support of parts of the tool chain
- Golden Topology for traditional z/OS products



# Quotes from the teams



- A network of 30 change leaders from 16 z System products have identified a golden topology of tools to implement agile build/test processes. The tools are designed to integrate, enabling extensive automation for fast and cost effective build/test.
- “Using UrbanCode™ to deploy test systems has reduced the time to install each server from 3 days down to 30 minutes, and for our component, from 1.5 days down to just 10 minutes! With UCD's scheduling capability, multiple servers are updated at 2 am every morning leaving systems ready for testing by 2:10 am. This massive improvement in efficiency, repeatability, and automation brings developers meaningful testing feedback far earlier in the process.”

- CICS has automated its testing of doc builds (using JAT). Tests validate the installation and web links of 38 collections of doc across 10 platforms. Testing of just one collection on 4 platforms is reduced from 2 days to 20 minutes.
- For increased agility, CICS has built an automated, plug-in based test framework (JAT) that integrates with RTC, Jenkins, UrbanCode Deploy etc. Designed as non-product specific, JAT is now used by 6 products with a further 6 prototyping/interested.
- CICS Operational Insights (“OI”) is an experimental Z Systems SaaS offering that is Continuously Delivering new capability. CICS OI has built a best of breed Continuous Delivery pipeline using RTC, Jenkins and Docker that enables the team to rapidly extend and test the offering whilst ensuring existing capability remains functional.

# Here's the help I am looking for

- Development teams still believe DevOps does not apply to traditional z/OS applications or Systems of Record – everyone needs to help push this cultural change
- Two Speed IT is still talked about – two speed IT does not work, and there is no reason Systems of Record can't or should not move as fast



