

# Secure Mainframe Development in the Cloud (has Arrived )

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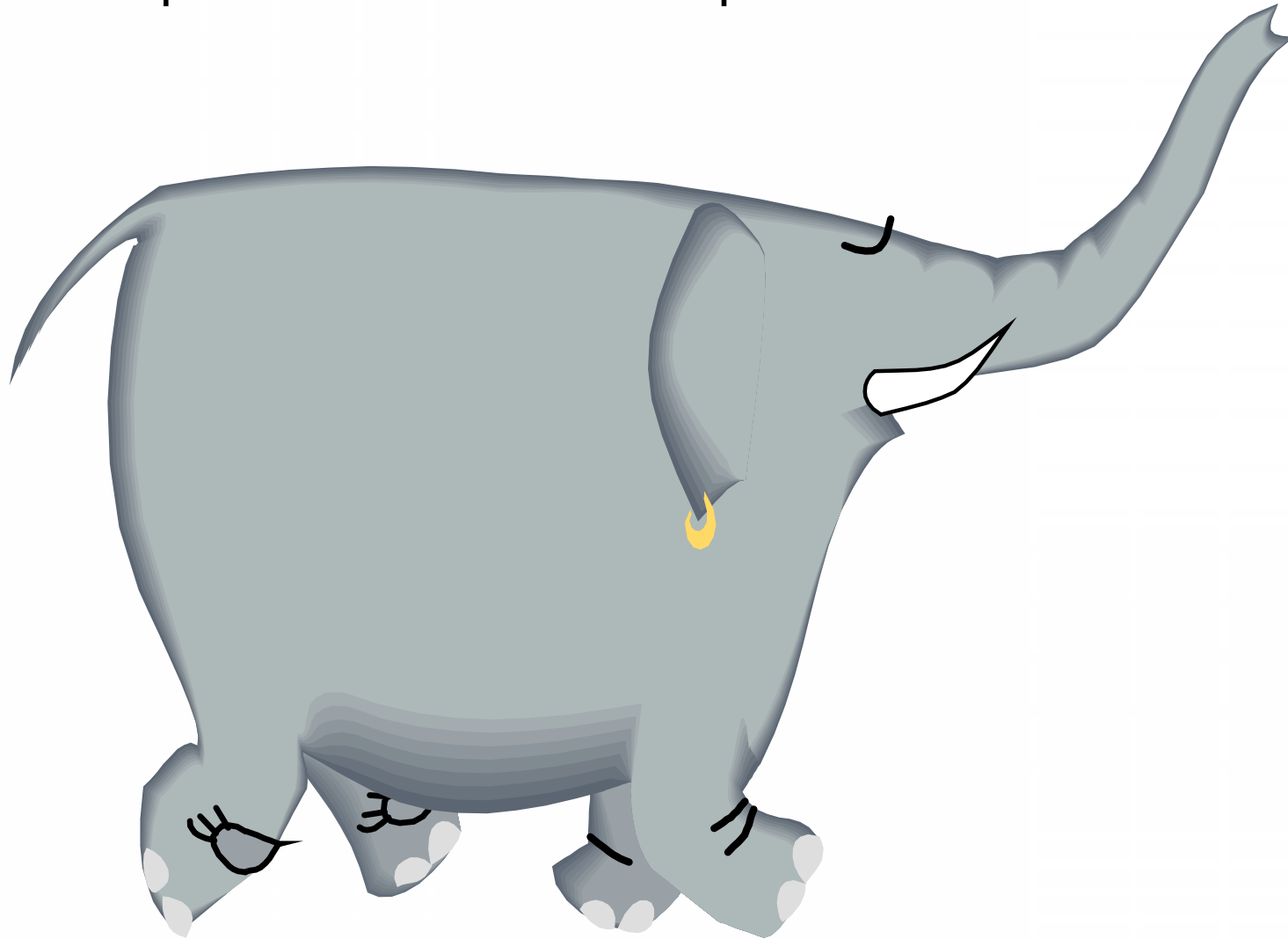
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## Agenda

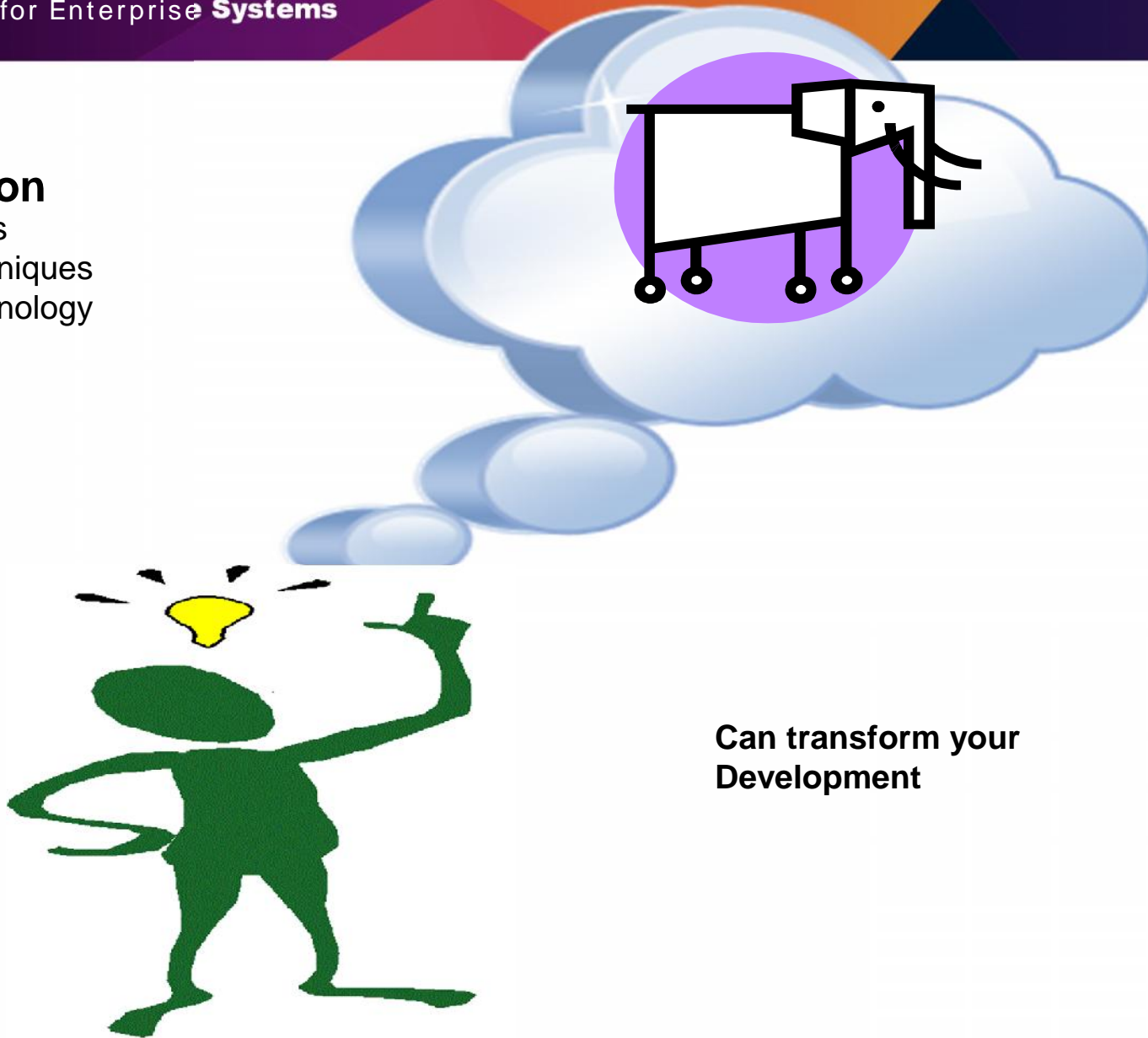
- Mainframe Cloud Challenges
- Cloud and what it offers to development organizations
- Managed DevOps
- System z Development and Testing Environments in the Cloud

**Is your development stuck at the same old slow pace?**



## Innovation

Latest Ideas  
Latest Techniques  
Latest Technology



Can transform your  
Development

## Key business benefits from Cloud managed services



Lower costs



Improved responsiveness



Optimized resources

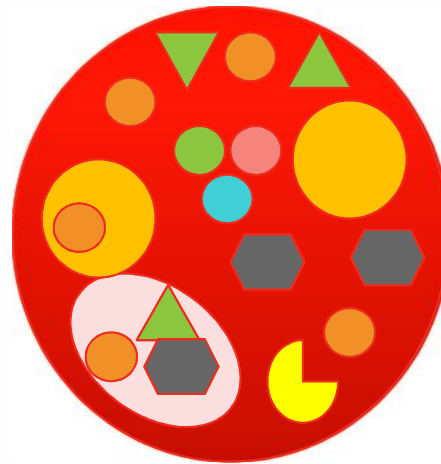


Best use of development skills

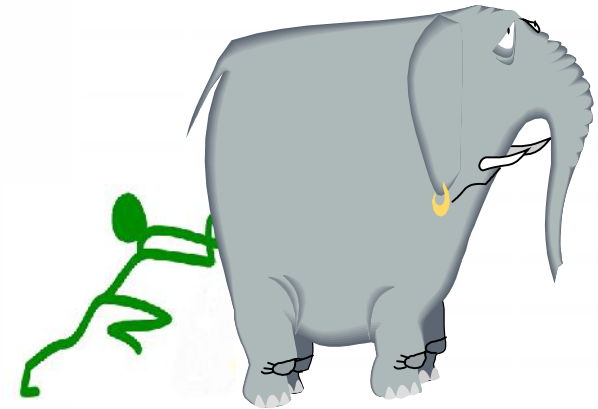
# Mainframe Cloud Challenges



- Security



- Complexity



- Size
- Legacy

**make it very difficult to move to the cloud**



## The Security Challenge



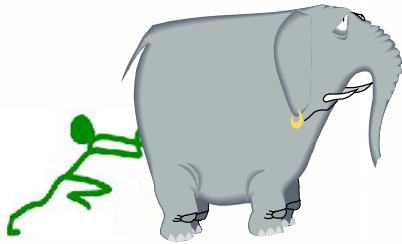
Single tenant



Private



Local



## The Size and Legacy Challenges



Storage

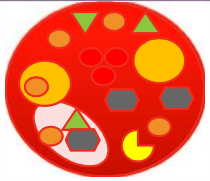


Cloning and Provisioning



Existing and New Tooling





## The Complexity Challenge



True Environment

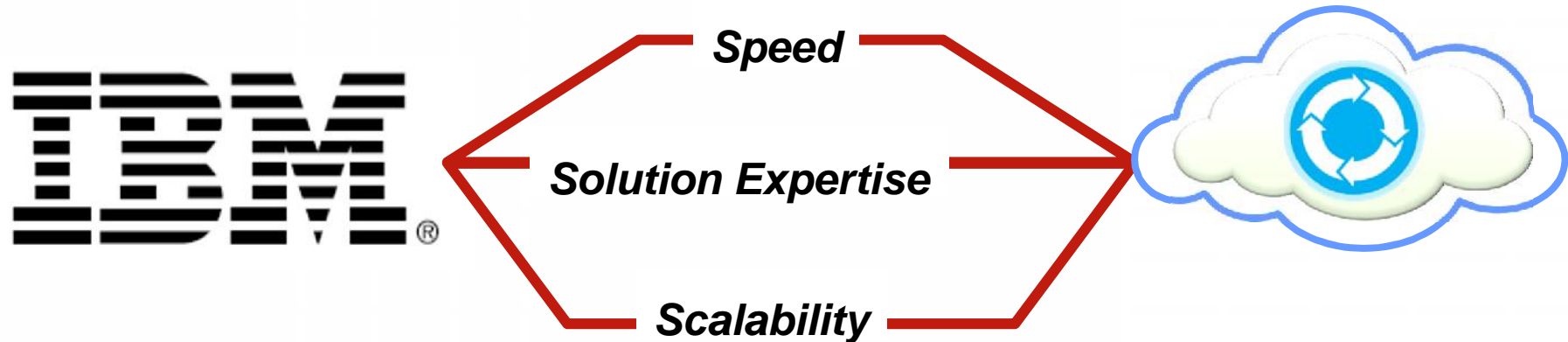






Environment Expertise



Cloud Platform Expertise

## Key business benefits from cloud managed services



-  Lower costs
-  Improved responsiveness
-  Optimized resources
-  Best use of development skills

Consider the *significant business value\** companies gain by using IBM managed services:

**224%** three-year return on investment

**88%** reduction in server and network downtime

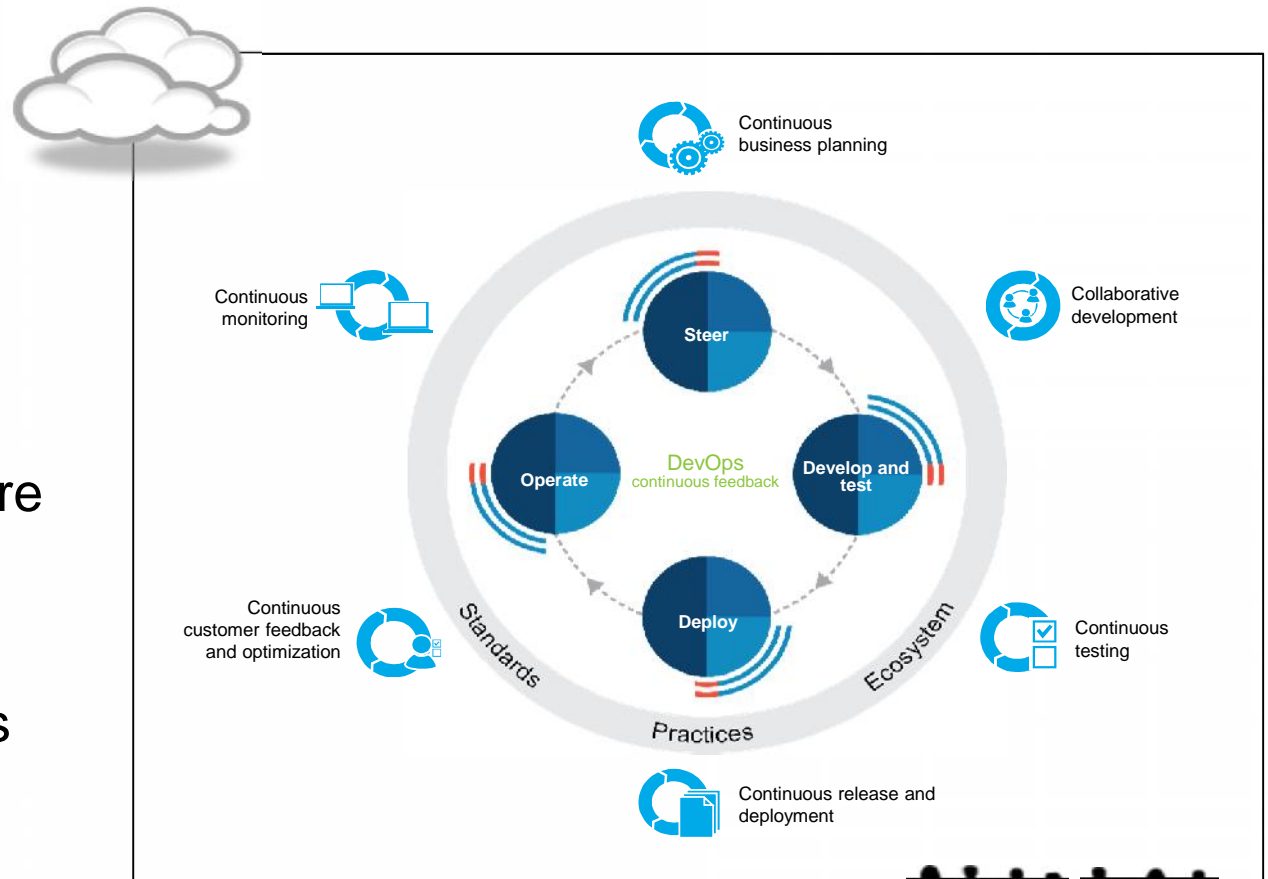
**42%** increase in IT staff productivity

**24%** reduction in IT infrastructure costs

*\*According to the 2014 IDC/IBM study, "Business Value of Managed Services"*

## IBM Cloud Managed DevOps : The core DevOps solution on a virtual private cloud, without the setup and maintenance costs

- Provides the core DevOps solution, customized and configured for each client
- On a scalable IBM SoftLayer Infrastructure
- Provides 99.9% availability (SLO)
- IBM Systems services solution

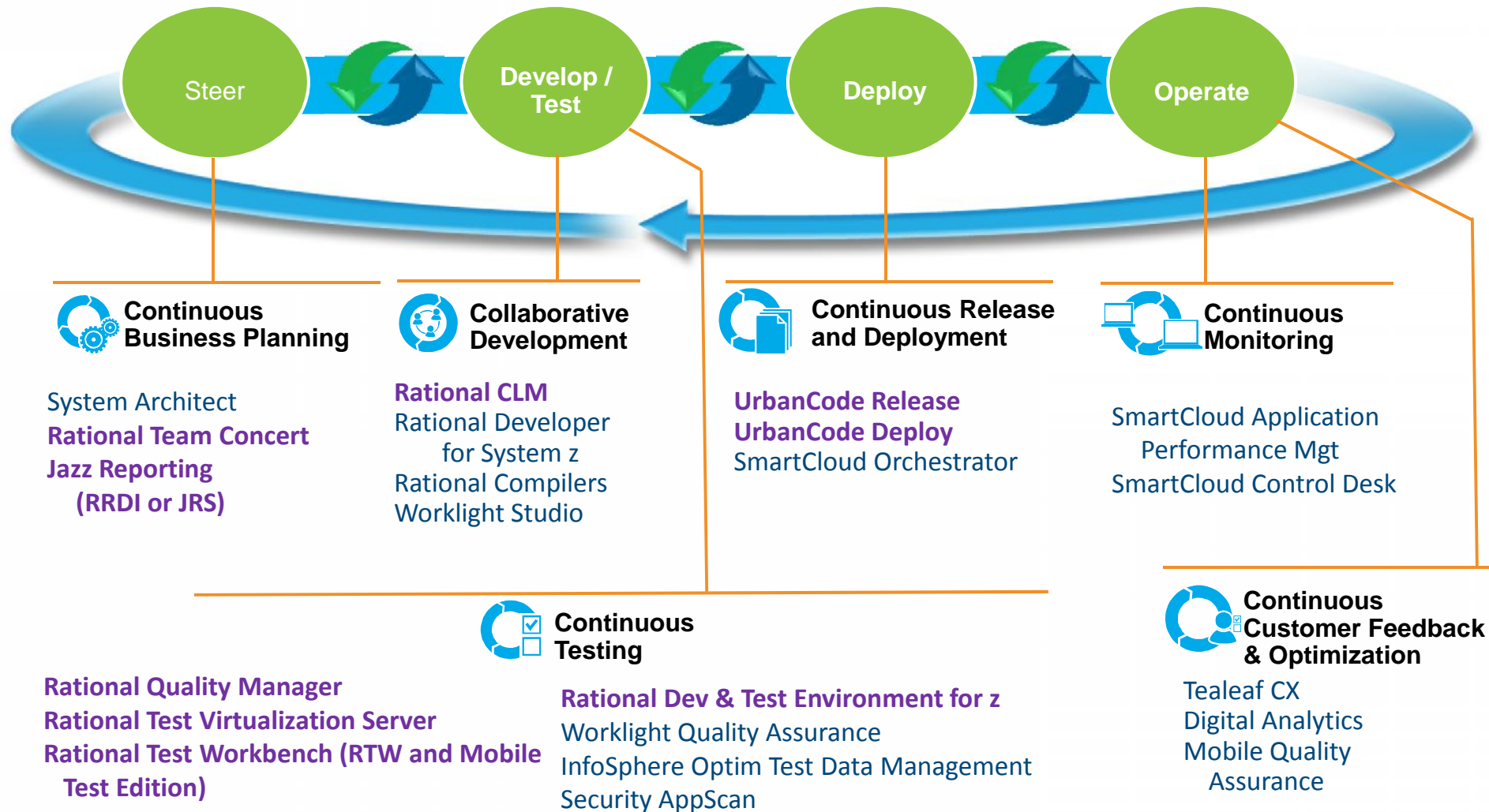


IBM SoftLayer Infrastructure

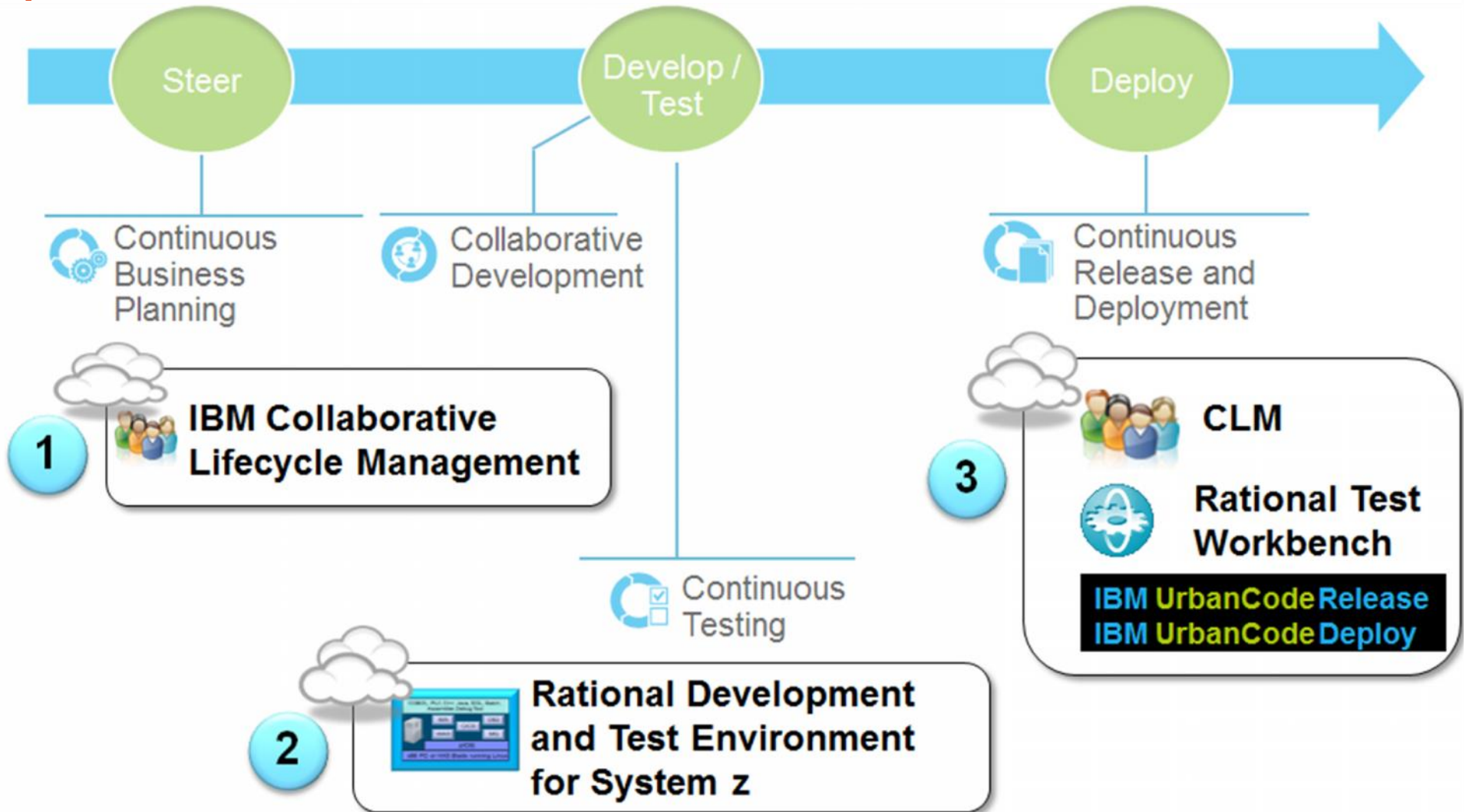


IBM Systems Services

# IBM Cloud Managed DevOps includes these IBM DevOps tools

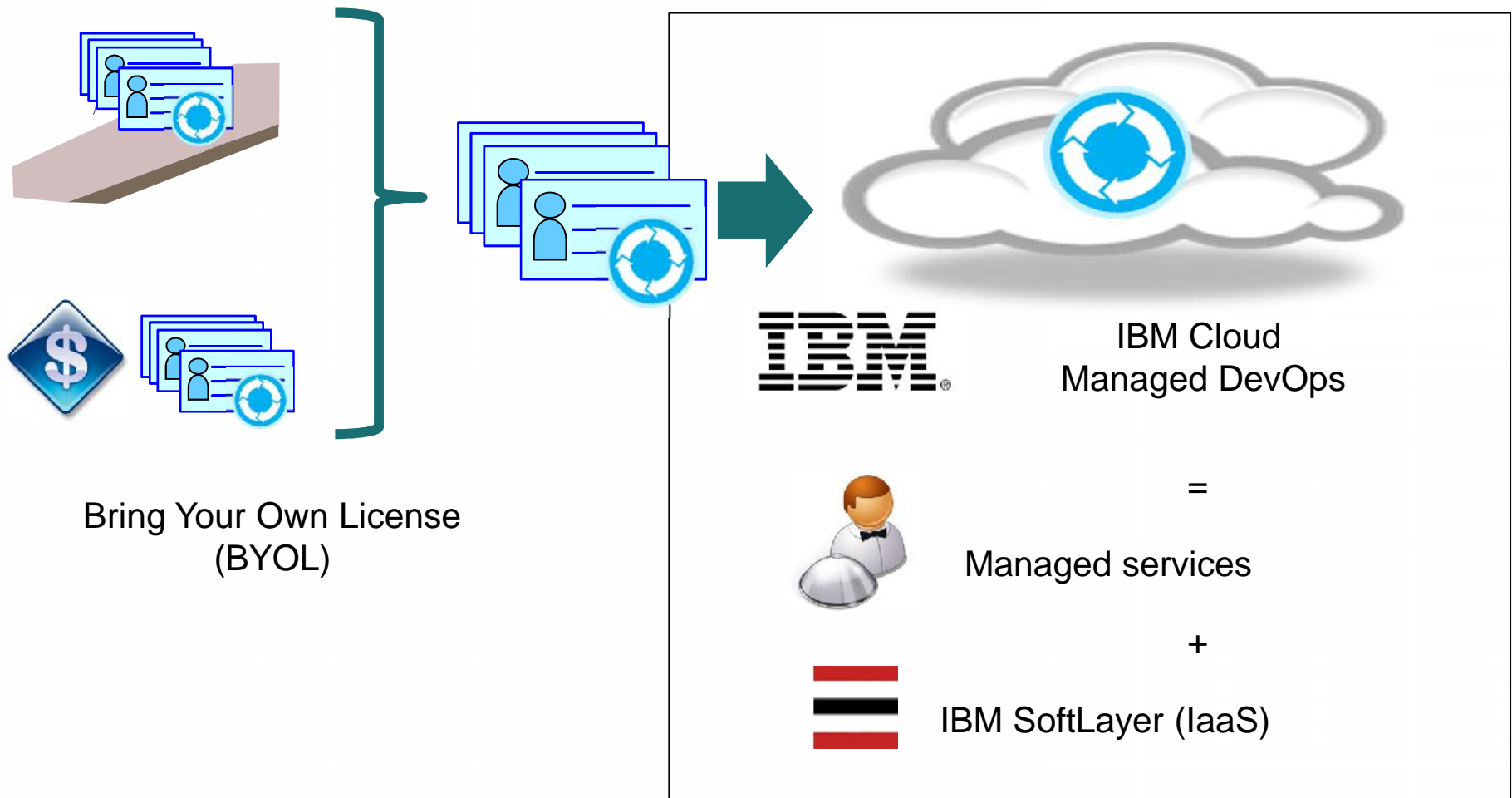


Pay only for the tools you use, follow your own DevOps adoption path.



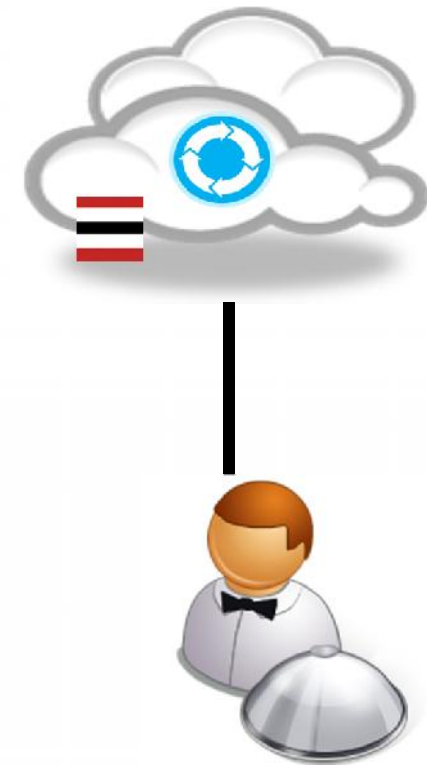


## IBM Cloud Managed DevOps provides infrastructure and services for licensed IBM products (BYOL)



## Featured managed services with IBM Cloud Managed DevOps:

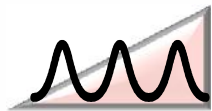
- Monthly Billing
- Full custom Installation and configuration
- Ongoing maintenance
  - Install optional upgrades 2x/year
    - With 1 month of availability for testing
  - OS support and maintenance
- Ongoing monitoring and recovery
  - Daily back-ups
  - Disaster Recovery
  - Security monitoring
  - Performance monitoring
- Customer success and support
  - Options that fit your needs
- Add-on services available:
  - Additional environments
  - Additional tools and integrations



Managed  
Services



## IBM Cloud Managed DevOps service



Elasticity and scalability



Utility billing



Secure platform



Shorter time to value



Ongoing maintenance



User experience same as on-premise solution



***Lower total cost of ownership***  
***Business agility***

## Base and Add-on Features (1 of 2)

Feature	Base	Add-On
<b>Security Compliance</b>		
IPSEC site-to-site VPN connection	✓	
Use of customer LDAP for CLM user authentication*	✓	
Choice of data center	✓	
Dedicated IT infrastructure		✓
FISMA compliance		✓
<b>Hosted image set-up</b>		
Solution deployment architecture to address customer needs	✓	
Creation & provisioning hosted image	✓	
Lifecycle customization (CLM)		✓
Specific integrations with customer dev/test tools		✓
Application and data migration		✓
<b>Setup services</b>		
IES Network connectivity - Transparent server access	✓	
Use of Dedicated Managed Service Provider LDAP for user authentication (if applicable)	✓	
User on-boarding assistance	✓	
Project startup assistance	✓	
Training & Mentoring		✓

## Base and Add-on Features (2 of 2)

Feature	Base	Add-On
<b>License Key Management (RD&amp;T only)</b>		
Connect to customer license server	✓	
Host license key server		✓
<b>Infrastructure &amp; CLM hosted image support</b>		
24x5 support	✓	
Availability SLO - 99.9%	✓	
Monitoring services and gathering metrics for capacity planning	✓	
Disaster recovery	✓	
Patch and upgrade installation	✓	
Daily back-up	✓	
Project and User administration	✓	
24x7 support	sev 1 outages	✓
<b>Client Success Management</b>		
Client Success Management	✓	
Dedicated Client Success Management		✓

## Base and Add-on Features for RD&T

Feature	Base	Add-On
<b>z/OS Management Services</b>		
Support customer admin requests, configuration changes and security implementations on-demand from the customer	✓	
z/OS upgrades for AD/CD and new releases, as required or requested by customer	✓	
Installation, upgrading, and patching non-IBM software		✓
Setup and implementation of tape management ( DFSMSrmm and DFSMShsm)		✓
Sysplex Implementation		✓
Storage management and administration (DFSMSdfp and DFSMSdss)	✓	
Initial investigation of z/OS and AD/CD issues	✓	
Ongoing problem management of z/OS and AD/CD issues		✓
Recreation/replication of issues on System z hardware		✓
z/OS PTF support	✓	
Problem management/resolution for non-IBM software		✓
How-To Support via email	✓	
24x5 service	✓	
24x7 service		✓





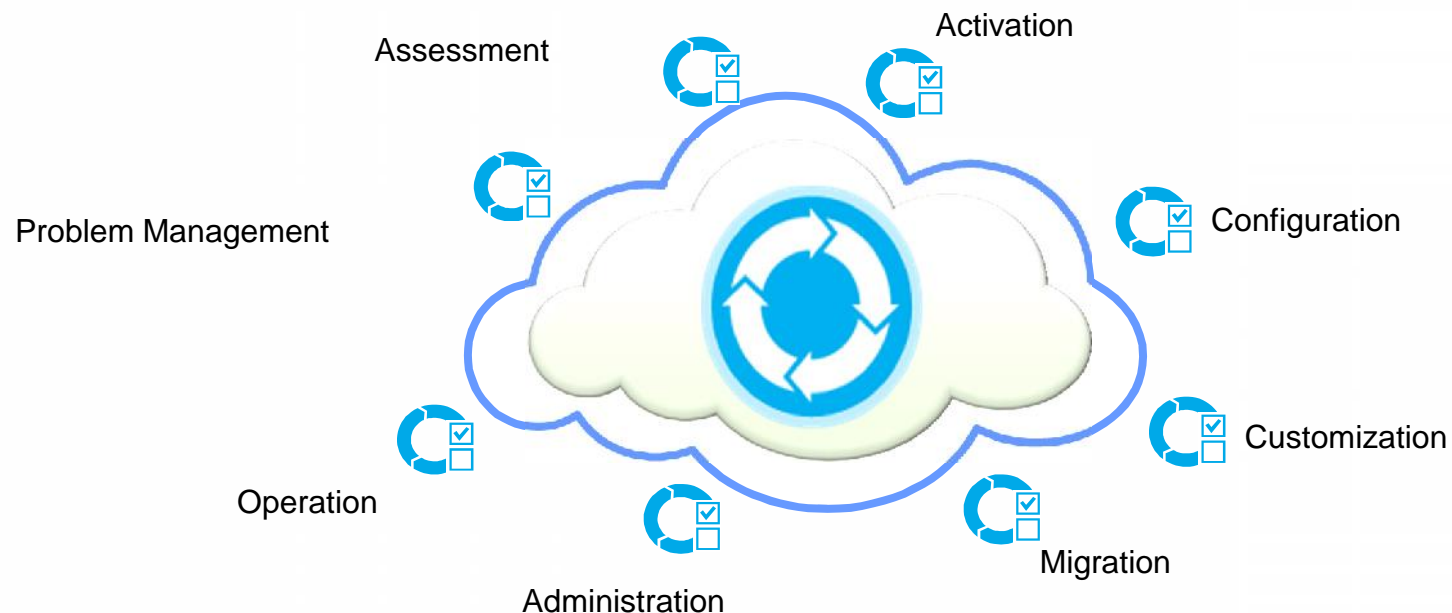
## Best of all Worlds

- Rational RD&T as a Managed Service offers quick time to value with expert provisioning and ongoing management;
- It's your environment, you decide what to manage and how to manage it;
- The RD&T Managed Service provides routine support and operation with additional assistance available if required, on-demand;
- Worldwide coverage and availability.



## Full Range of Managed Services

- The same services you would want for an in-house mainframe are available to you in the cloud, with the big benefit of having peace-of-mind;





## Base RD&T Implementation Service

### Most current z/OS ADCD

- Activated with the ITC “Golden Image” modifications for improved operation (SMS,TSO, USS / OMVS);
- Default TSO userids added to RACF with basic options (TSO, SDSF, OMVS); Custom TSO userids available via value-add;
- Subsystem activation based on your needs (CICS, DB2, MQseries, HTTP, IMS); Default IBM ADCD configuration;
- zOS upgrades as required / requested by you;
- zOS PTF support for existing APARs;
- Help Desk & Technical Support.





## Value-Add RD&T Services

### Customization

- CICS, IMS, DB2, TSO
  - User definitions, DB and file definitions;
- Data migration (most popular, most desired) service;
- Third-party software installation (licensed as required)
  - Landmark, CompuWare, SyncSort, Tone .....
- Sysplex
- JES3



## Not All Tasks Created Equal

### Data Migration

- Full Volume Migration using ADRDSSU
  - With USERCAT – highly recommended
- File Migration using ADRDSSU
  - Identify all HLQs in advance
- File Migration using ADRDSSU to Optical Media (DVD-ROM)
  - Dumped to disk, copied to media via FTP
- Acceptable Media
  - 3490E, 3590, 3592 cartridges
  - DVD-ROM



## Typical Customer Size

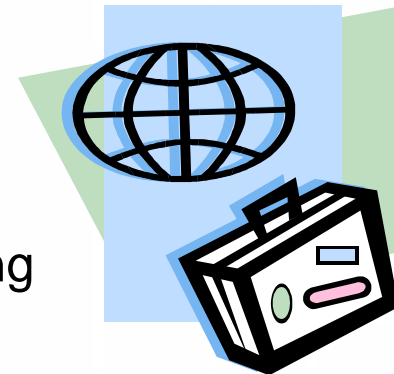
- **Small** (typically one – two days setup)
  - Traditional batch and green screen development process
  - Legacy oriented



- **Medium** (typically 1 – 2 weeks)
  - One database environment (DB2, Informix, Oracle)
  - One transaction processing system (CICS, IMS)
  - RDz integration with legacy development process



- **Large** (typically 3 – 4 weeks)
  - Sysplex with multiple guests
  - JES3 Enclaves
  - More users, more data, more of everything



## Case Study – Full System Migration

- U.S. Air Force – Wright-Patterson AFB

RD&T implementation to move development, test, and training from a constrained production System z; ★ *by the numbers* ★:

- 2 - ITC Staff members assigned to the project;
- 3 - Days spent planning;
- 4 - Days allocated for the project implementation onsite;
- 12 - Third party software applications activated including products from CA® Technologies, Cincom®, Compuware®, FDR®, Landmark®, Serena®, and Syncsort®;
- 29 - Hours total time on customer site;
- 32 - Spare/Empty 3390-54 volumes for growth;
- 61 - 3390 volumes of z/OS system data;
- 98 - 3390 volumes of customer data;
- 159 - Logical volumes migrated from an IBM DS6800 via FTP using a dedicated OSA port on the z114 in three and a half hours.



## Case Study – ROI & Lessons Learned

- Customer was able to move a considerable amount of workload from a soon to be upgraded System z to Rational;
- Migration allowed development, test and training activities to proceed without negative affect from the metal upgrade;
- First year savings was estimated to total \$482,000;
- ROI was experienced in 6 months;
- A total of 50 users were defined in RACF, but only a portion of those users active at any one time;
- Data synchronization performed via a combination of an automated FTP and a manual process;
- Success was due in part to customer being actively involved and available throughout each task;
- The need for access to customer technical staff was critical.

## Assessment Process – Information Gathering

- Customer Identification and Goal Description;
- Existing or New Environment Details;
  - What tools used; how is processing performed;
  - IODF / IOCDs review
- Metric data for existing application environment;
  - Users, apps, libraries, storage .....
- IBM products in use and configurations;
  - CICS, IMS, DB2, RDz, MQseries .....
- Third-party products in use and configurations;
- Connectivity access methods in use;
  - TCPIP, HTML,FTP, TN3270, DDF .....
- TSO and OMVS requirements;
  - Users, storage, special requirements
- Security requirements;
  - FISMA, HIPAA, DIACAP, ISO/IEC, FedRAMP



## Assessment Process – Data Analysis and Modeling

- Metrics Reduction and Nodal Definition;
- Proforma Design and Functional Requirements;
  - CPU and memory;
  - Storage provisioning;
  - Networking;
  - User requirements for TSO, USS, DB2, CICS, IMS ....
- Manpower Requirements;
  - Customer tasks and staffing estimates;
  - Project schedule and milestones;
- Additional Requirements;
  - Customization costs, migration costs, value-add requests;
  - Operational costs, Administration Costs, Support Costs;
  - Data Synchronization;





## Assessment Process – Report Publication

- Four to eight days for full assessment;
- Report will describe preliminary requirements, costs associated with each, schedule, manpower;
- Options for customer consideration.





## Learning Resources

- [RD&T Product Page](#)
- [RD&T Video](#)
- [How to create your own mainframe application development sandbox with RD&T](#)
- [z/OS Continuous Integration dW article](#)
- DevOps for the Enterprise tech talks: <http://bit.ly/1b4wl18>
- [RD&T Product Documentation, including zPDT Redbooks](#)
- [RD&T Hub](#)
- Request your test drive today:  
[http://www.ibm.com/developerworks/downloads/rdtsandbox\\_systemz/index.html](http://www.ibm.com/developerworks/downloads/rdtsandbox_systemz/index.html)



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