Improving Enterprise Application Development & Delivery with Cloud Computing

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WW Cloud Computing Client Engagement Team

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Introduction

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Why Agile Operations Cloud?

Definition:

An Agile Operations Cloud is a cloud service for rapid development of new applications by implementing the integration of development & operations ("DevOps").

An Agile Operations Cloud is agile from two perspectives:

1) Agile in Operations itself

2) Agile in translating developed artifacts into production

- The primary consumer of an "agile operations cloud service" are developers & testers.
- The cloud aspect of an Agile Operations Cloud is that developed application artifacts can be deployed rapidly & operated in a cloud environment.

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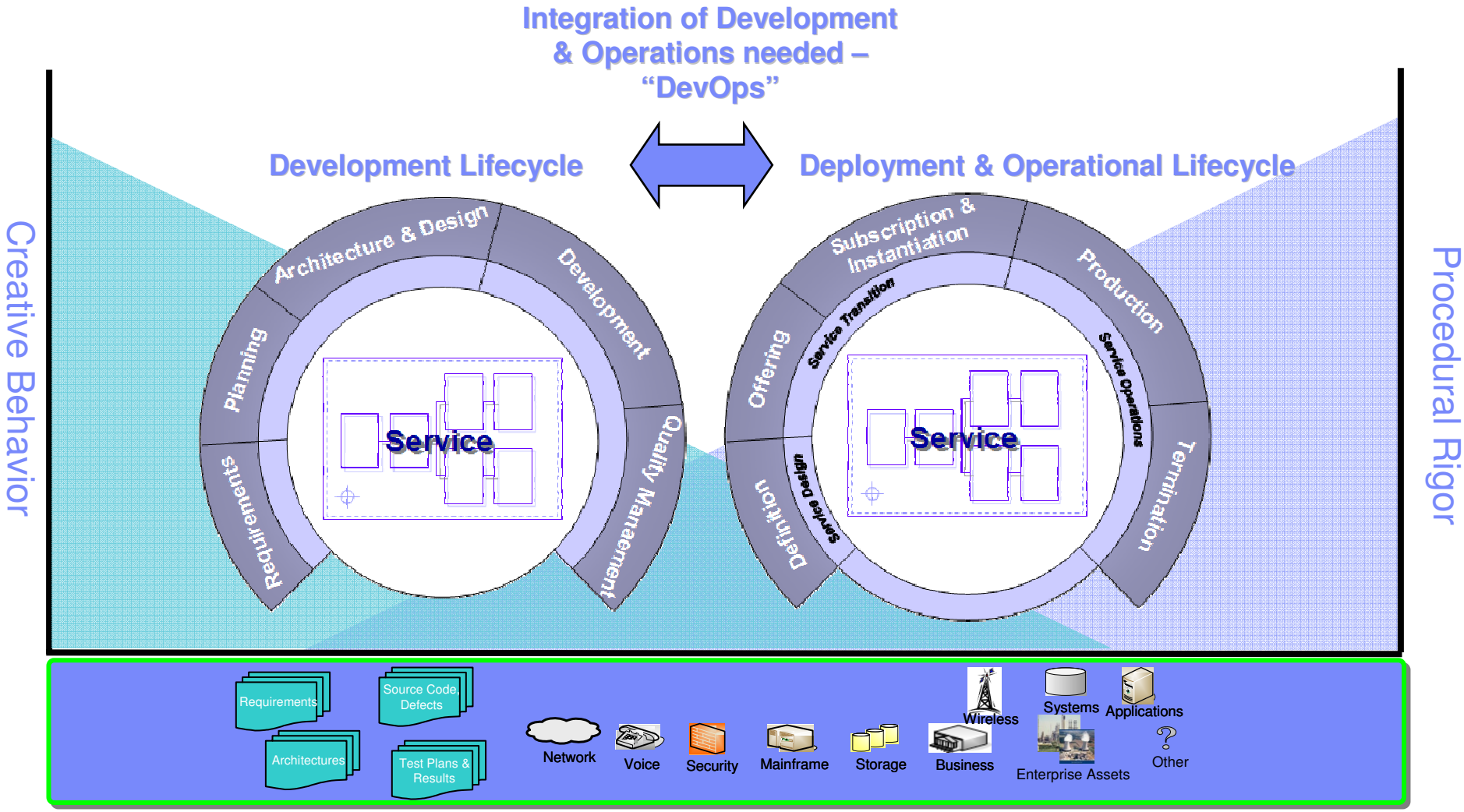
Deployment is a complex task

- **Development and Operations teams collaboration challenges**
  - Hand-off from development teams is inconsistent and manual
  - Application component requirements do not match IT infrastructure
- **Deployment requirements are difficult to validate**
  - Enterprise, Software & IT architects all use different formats
  - No standardization or templates for reuse
- **Complex series of steps**
  - Deployment engineers often execute manual steps
  - Not repeatable, prone to error
  - Automations are hard to build, maintain and reuse
  - Hard to tell what if the right things were installed

✓ 50% of applications put into production are later rolled back *(Gartner)*
✓ 60% - 80% of an average company's IT budget is spent on maintaining existing applications *(Intelligent Enterprise.com)*
✓ Software related downtime cost industries almost $300 billion annually *(CENTS - Comparative Economic Normalization Technology Study)*

Service Lifecycle Management & Automation



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Agile Operations Cloud Solution

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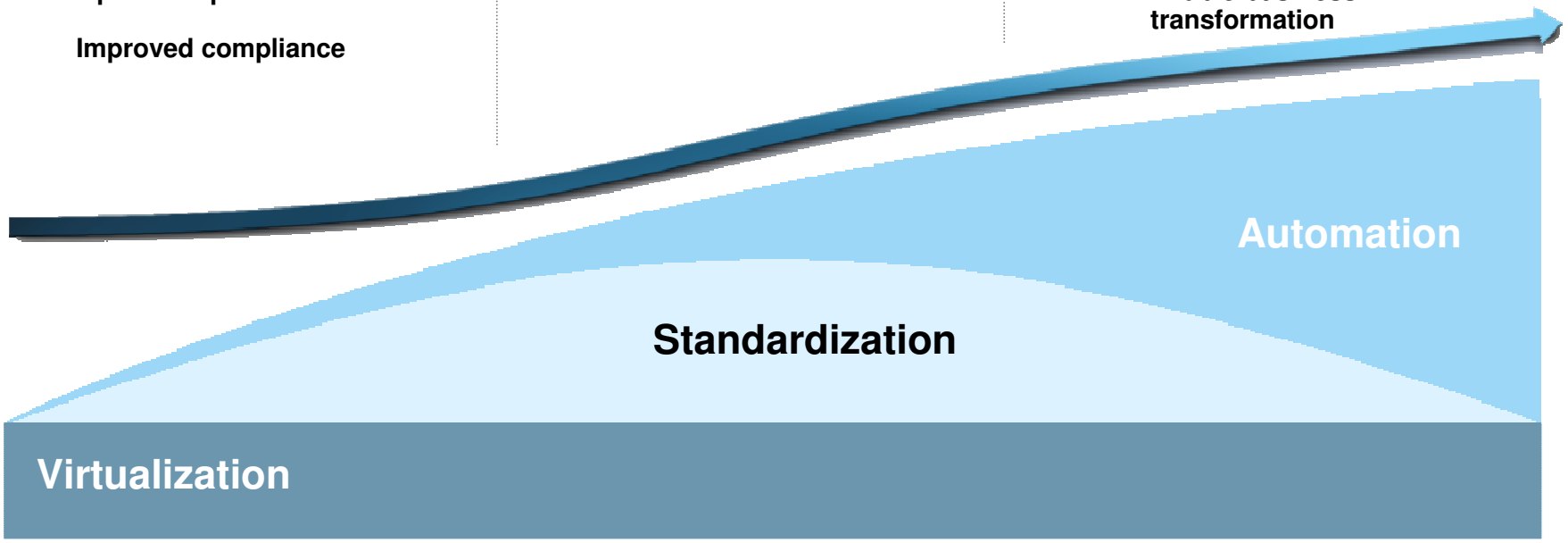
Cloud Based Operation offers

Evolving from changing the economics of IT… to becoming a catalyst for transformation.

Reduce costs of service delivery	Higher quality services	Accelerate business agility

Business Benefits

Lowered IT operating, capital and support costs	Easier to integrate	Faster delivery of custom cloud patterns
Optimized performance	Optimized security	Enable business transformation
Improved compliance		



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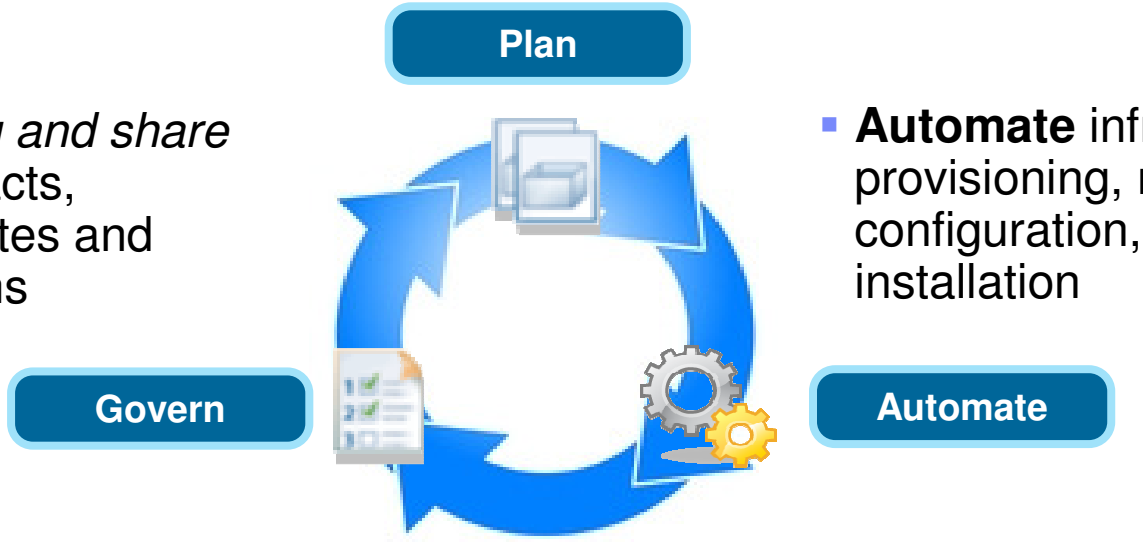
IBM Deployment Planning and Automation lifecycle

- **Plan** your desired deployment using discovered resources and standard configuration templates

- **Govern,** *catalog and share* application artifacts, standard templates and deployment plans



- **Automate** infrastructure provisioning, middleware configuration, and application installation

Speed the delivery of high quality applications to physical environments, virtual environments, and cloud environments

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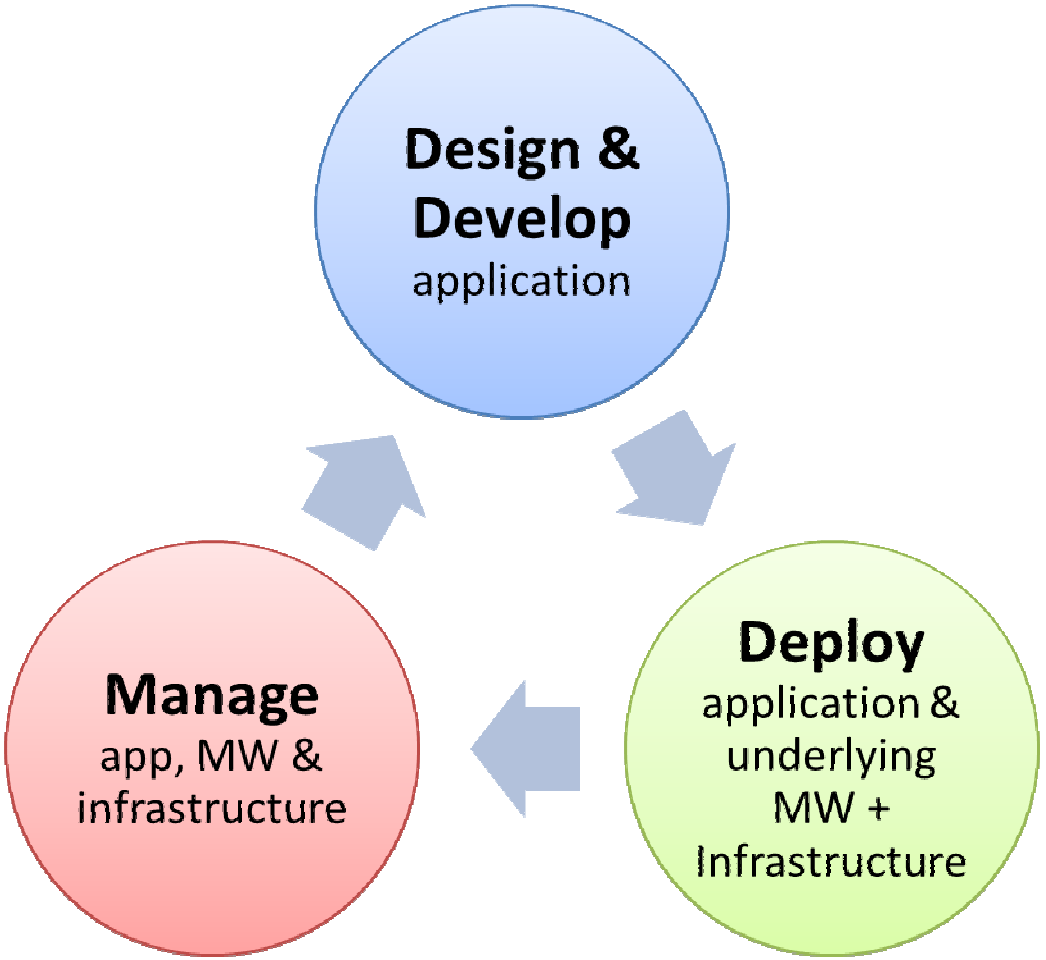
Lifecycle within an Agile Operations Cloud



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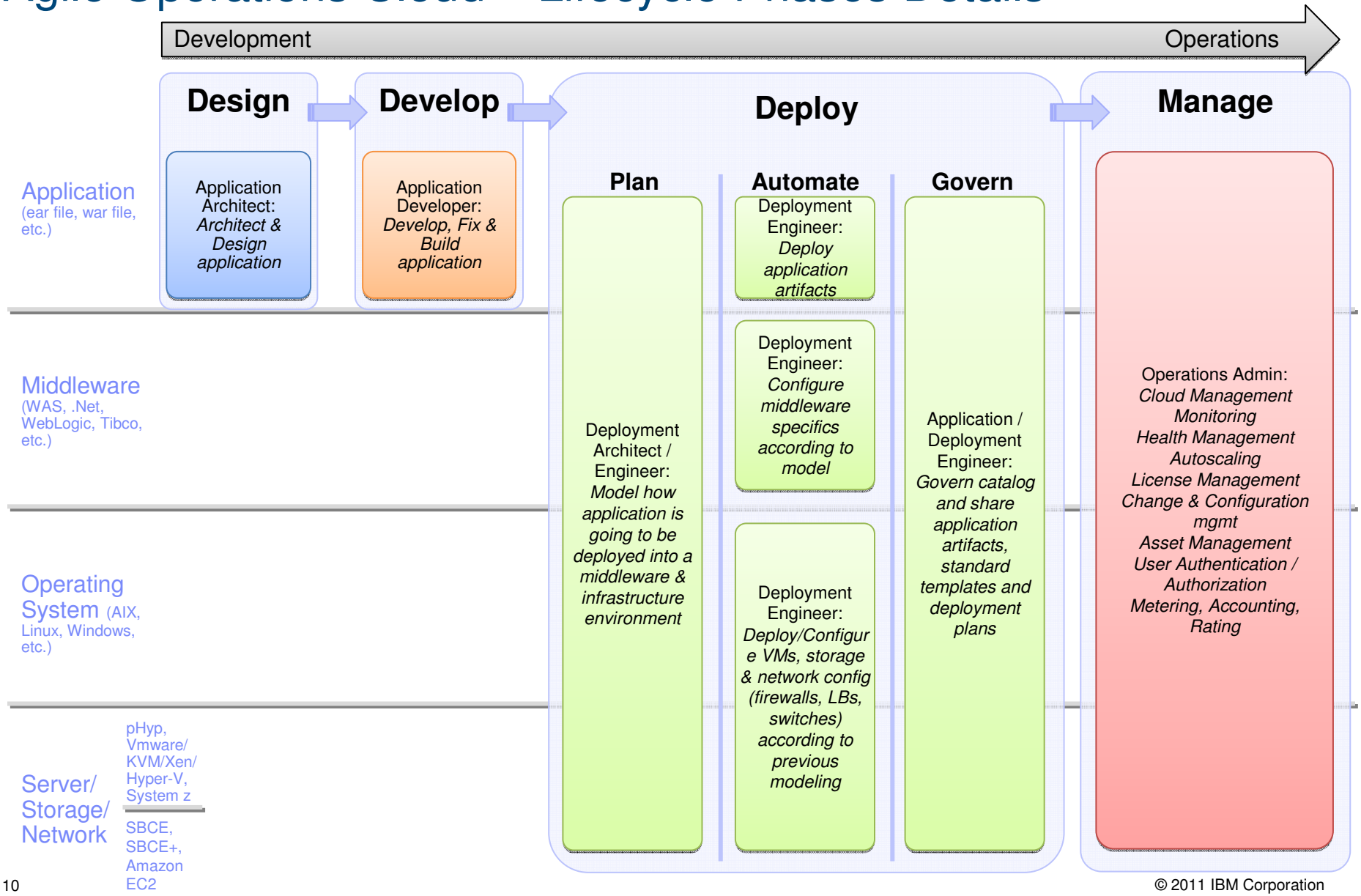
Agile Operations Cloud – Lifecycle Phases Details



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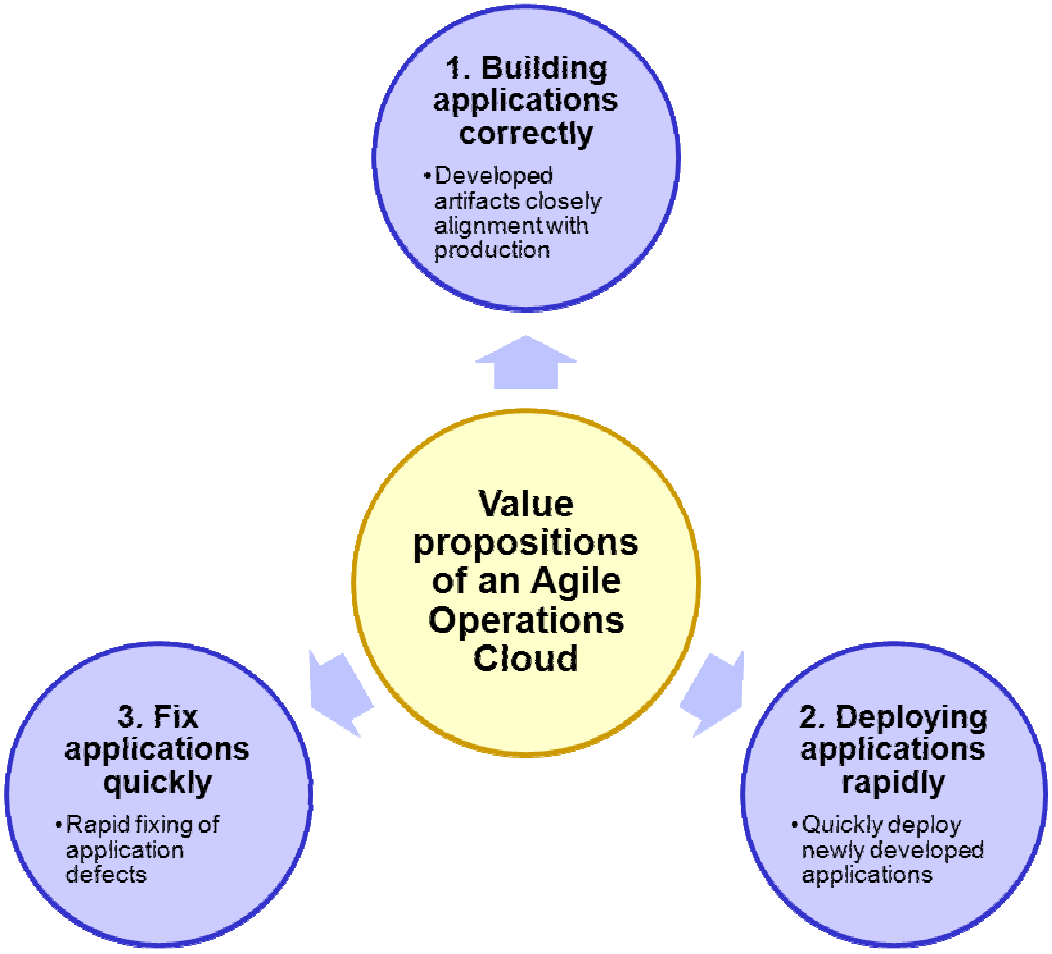
DevOps - specific value Propositions of an Agile Operations Cloud



These value propositions are achieved by the scenarios described on the following slides

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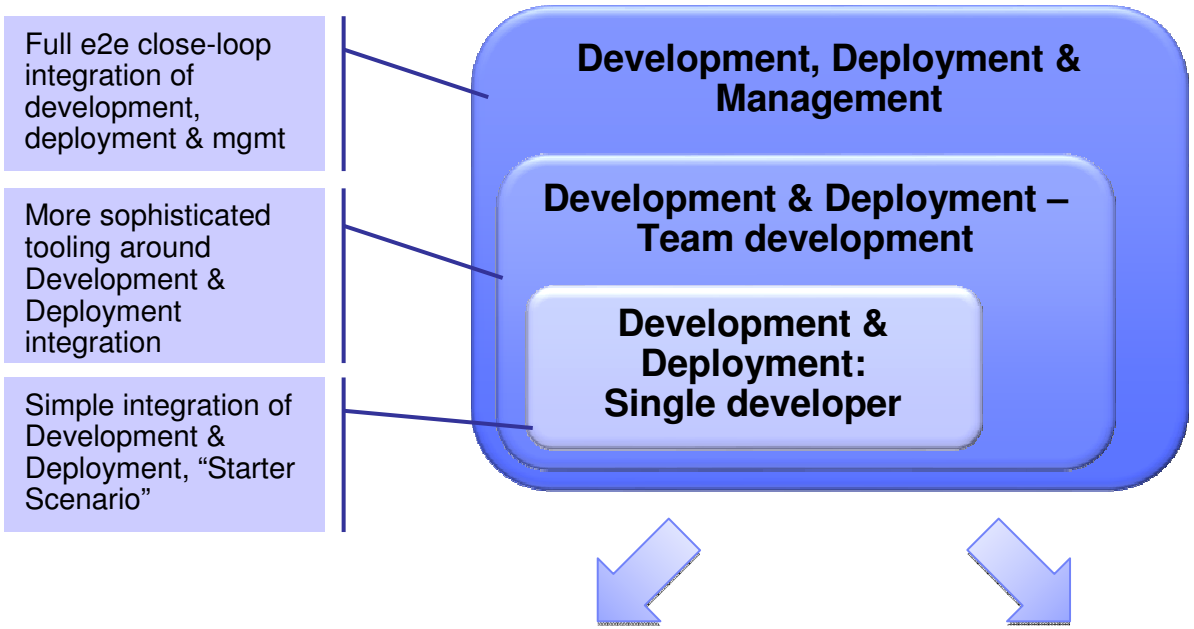
Agile Operations Cloud – Scenario Progression



Topology-based

- Allows starting from existing IT infrastructure & mgmt technology footprint and IT operations staff skills
- Allows phased approach introducing with little risk

Workload-based

- Change the in way organizations deploy & manage middleware
- Allows achieving reduced costs by hiding middleware complexities

Depending on the requirements & maturity of the current IT environment, either a topology- or workload-focused scenario is appropriate

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Agile Operations Cloud – Topology-based scenarios

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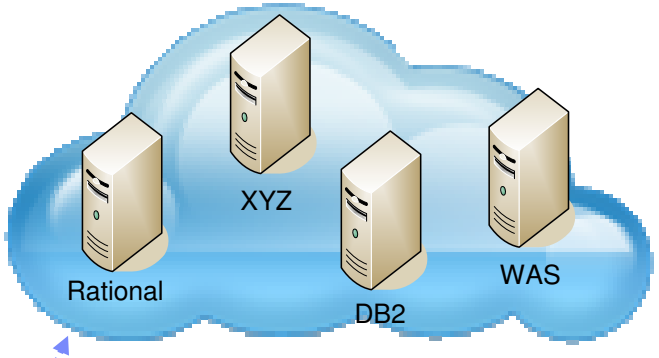
Development & Deployment Scenario – "Single Developer" (topology-based)

Development

Software Architect
Deployment Engineer

- Develop application artifacts
- Specify application and middleware deployments using standard service templates
- Generate application deployment automation and new service definitions



Deploy app

Eclipse

Provision infrastructure & Middleware

Tivoli Service Automation Manager (TSAM)

Tivoli Service Request Manager
Tivoli Provisioning Manager

Rational Software Architect (Deployment Planning)

Populate TSAM with RSA patterns

User selects service to instantiate

Operations

Tester and/or Production Deployer,

- Make service requests for test or production rollout that provisions the environment with the configured application
- Operationally manage deployments

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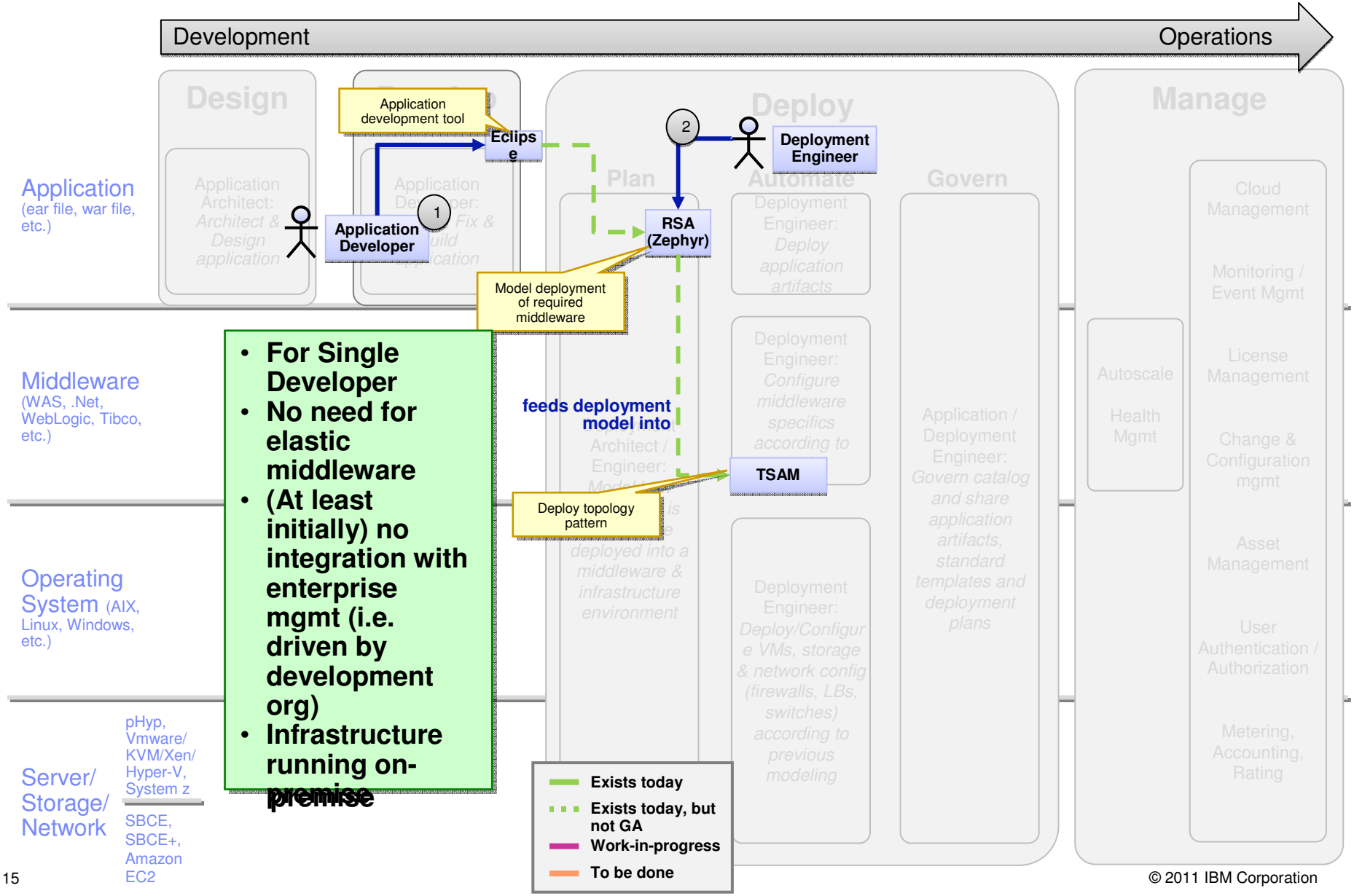
Details: Development & Deployment Scenario – "Single Developer" (topology-based)



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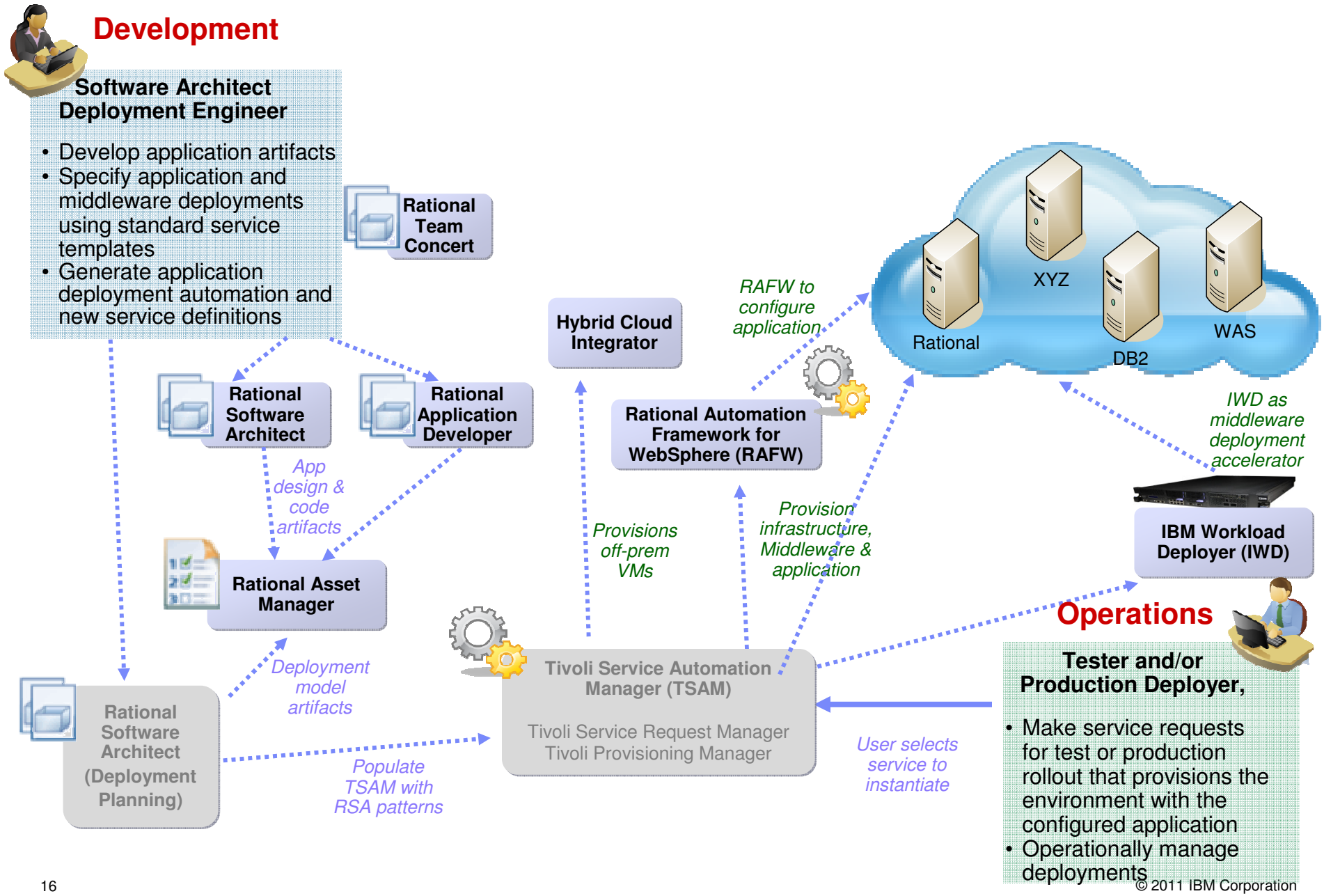
Development & Deployment Scenario – "Team Development" (topology-based)



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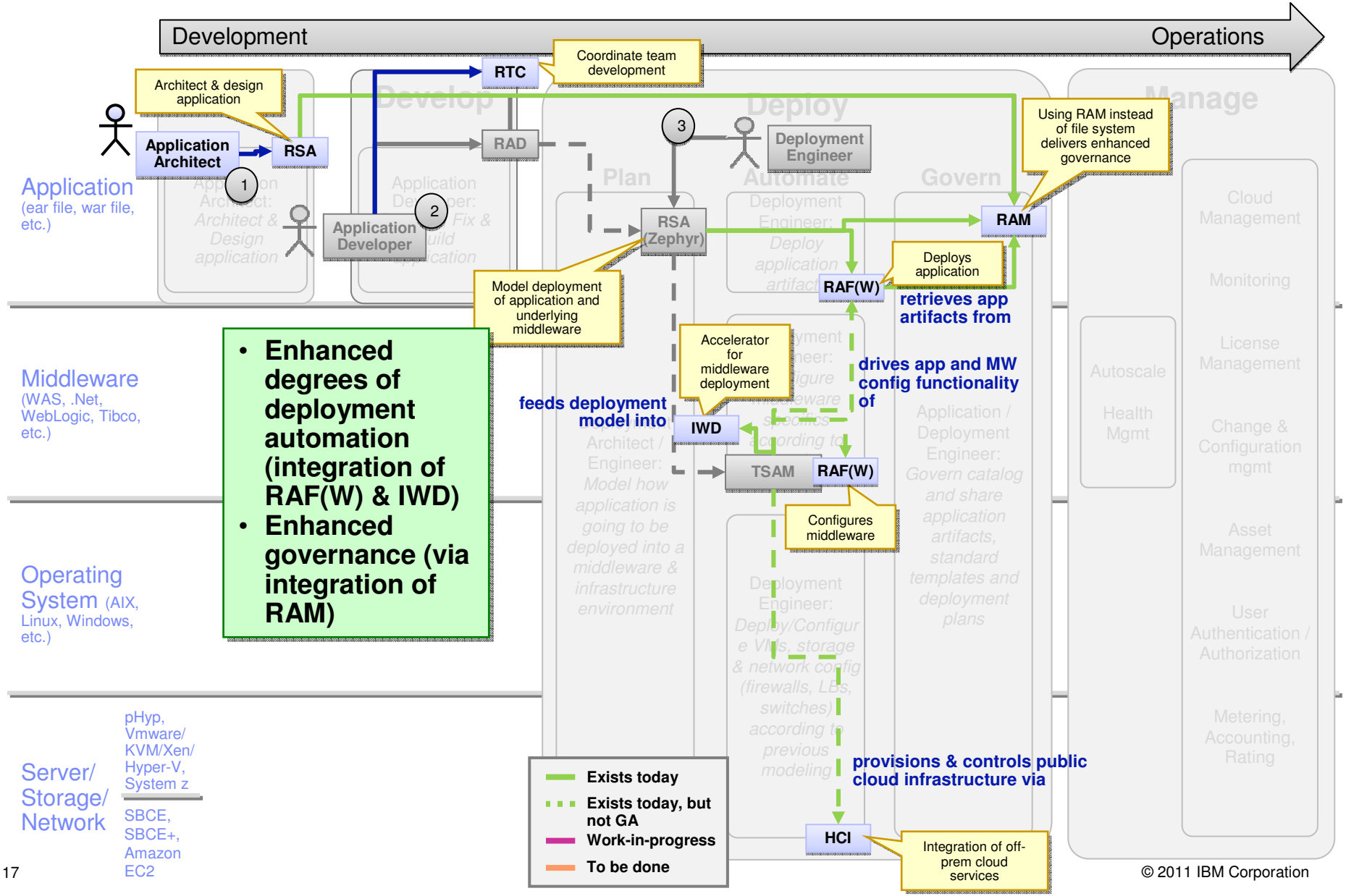

- **Enhanced degrees of deployment automation (integration of RAF(W) & IWD)**
- **Enhanced governance (via integration of RAM)**

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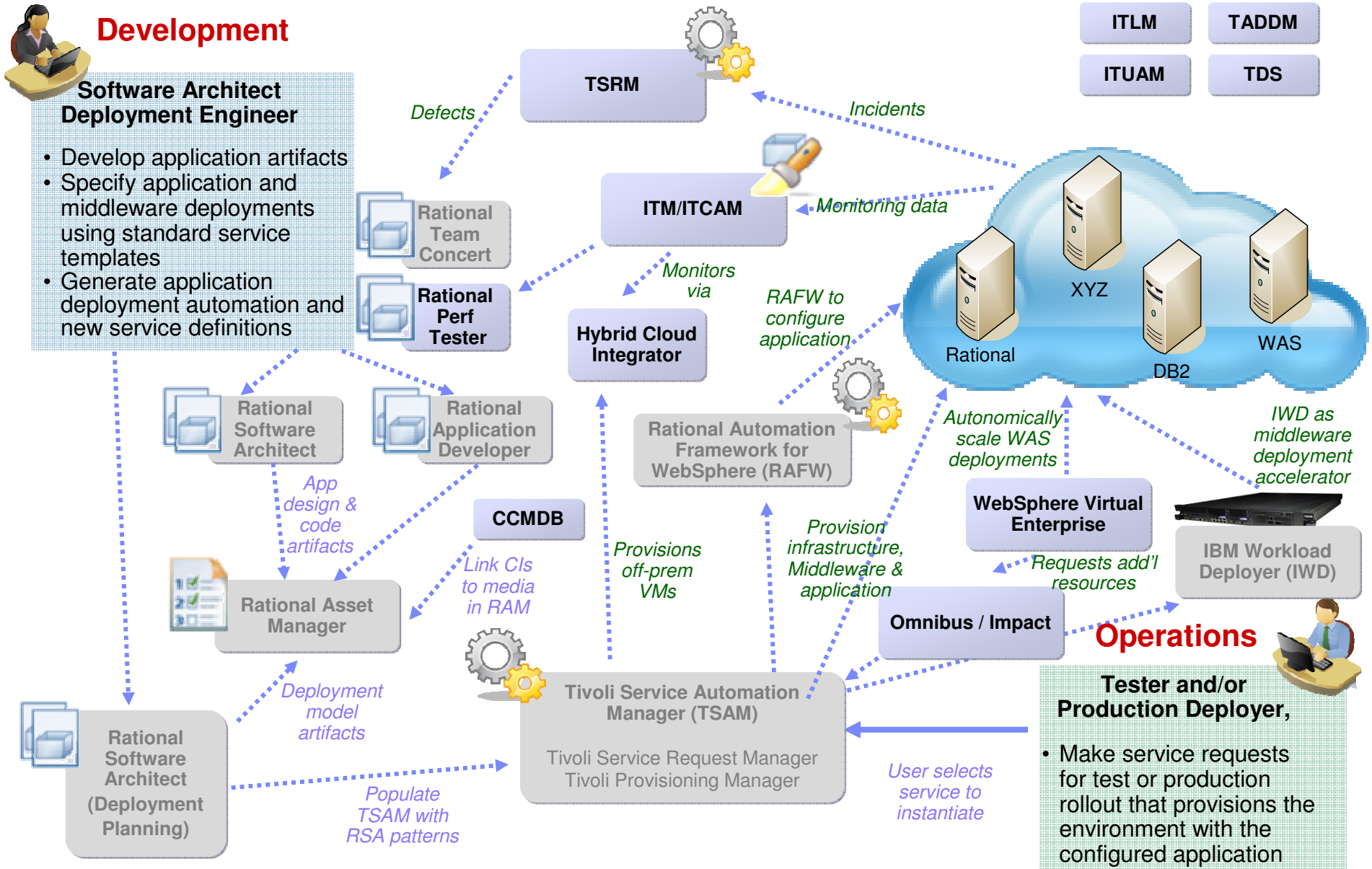
Development, Deployment & Management Scenario (topology-based)



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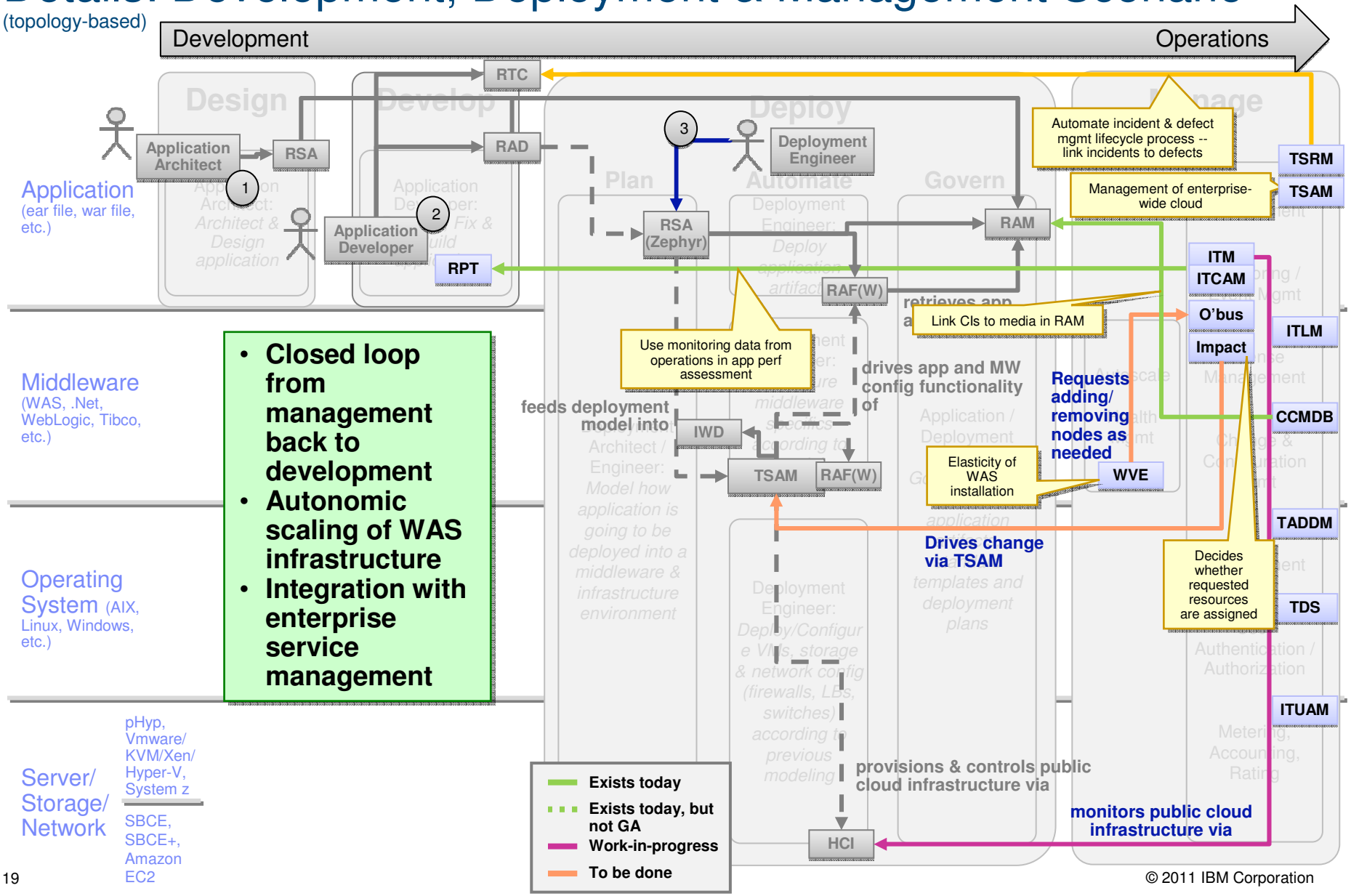
Details: Development, Deployment & Management Scenario

(topology-based)



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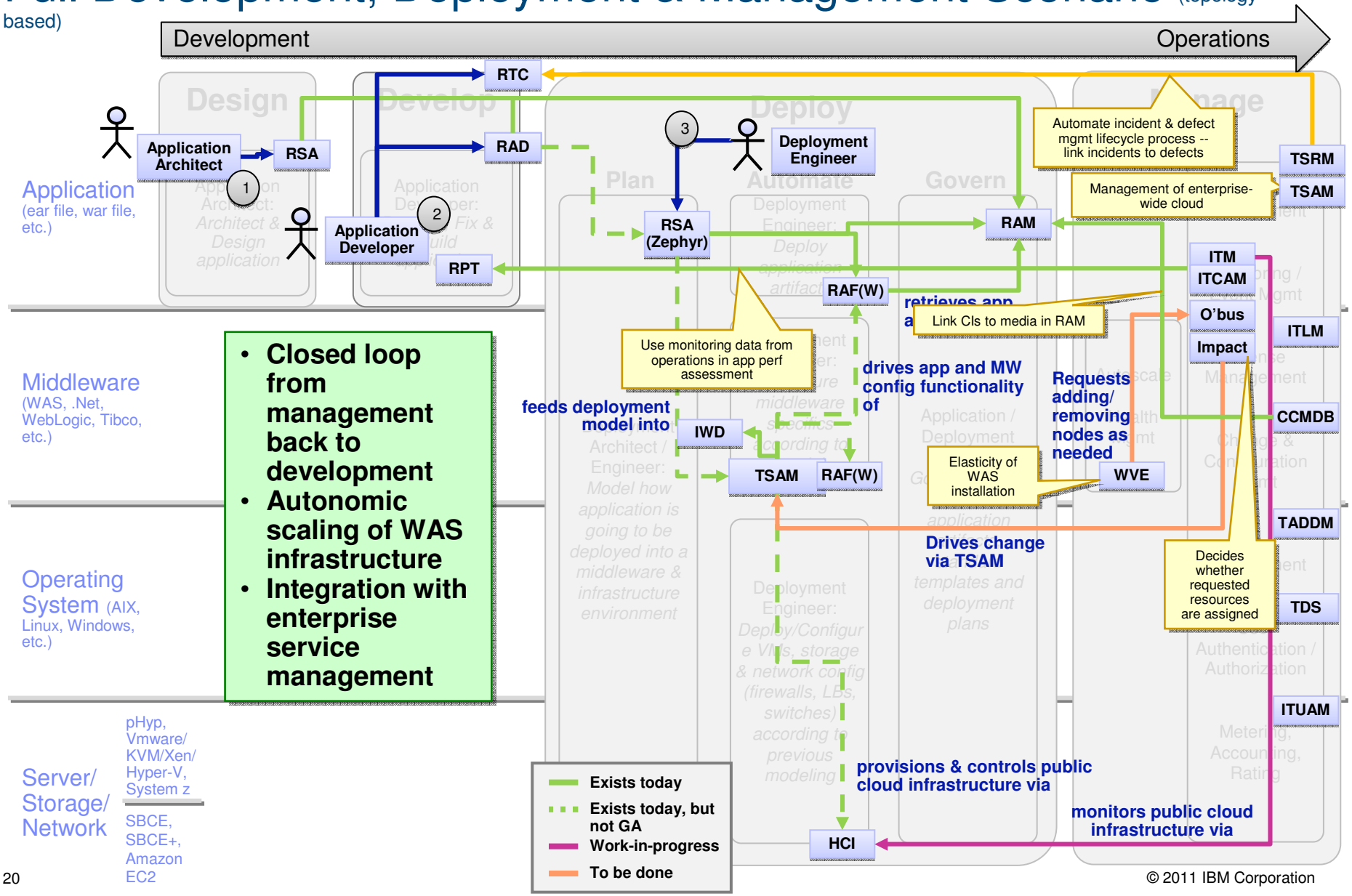
Full Development, Deployment & Management Scenario (topology-based)



- **Closed loop from management back to development**
- **Autonomic scaling of WAS infrastructure**
- **Integration with enterprise service management**

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Agile Operations Cloud – Workload-based scenarios

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Development & Deployment Scenario – "Single Developer" (workload-based)

Development

Software Architect
Deployment Engineer

- Develop application artifacts
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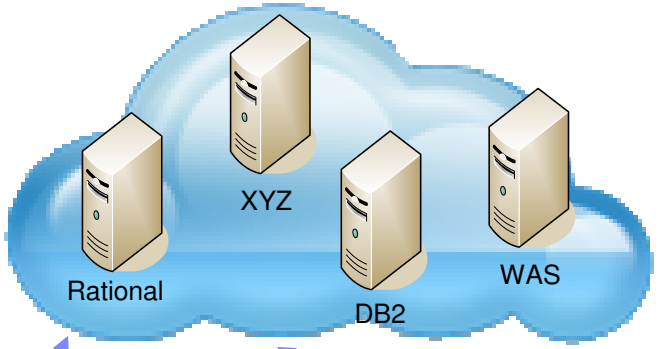
- Generate application deployment automation and new service definitions

Deploys app stored on filesystem



Retrieves app artifacts for deployment

Rational Application Developer

IWD for workload deployment & management

IBM Workload Deployer (IWD)

Provisions VMs

File system

User selects service to instantiate

"On-Ramp"

Provision VMs

Operations

Tester and/or Production Deployer,

- Make service requests for test or production rollout that provisions the environment with the configured application
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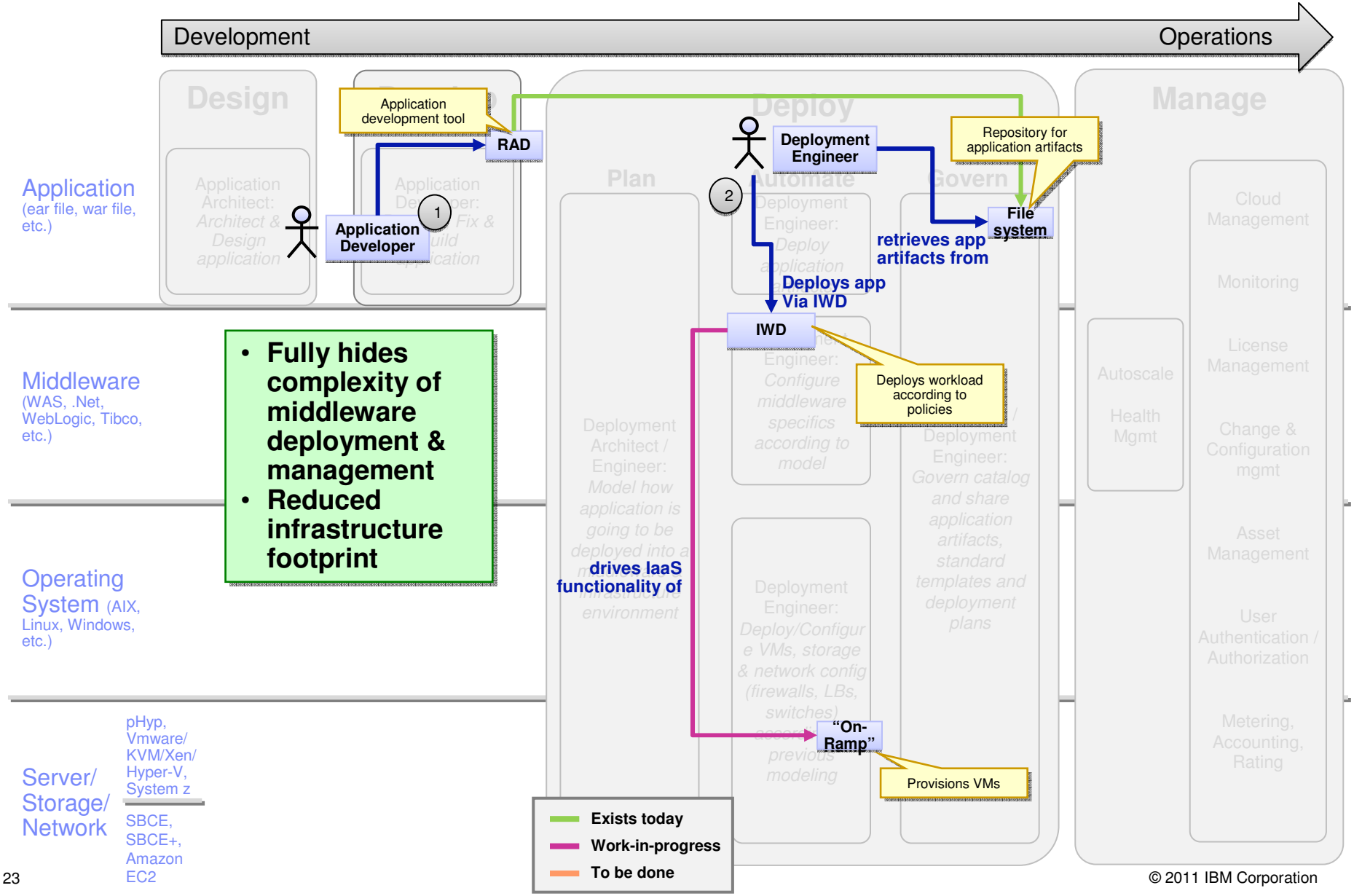
Details: Development & Deployment Scenario – "Single Developer" (workload-based)



- **Fully hides complexity of middleware deployment & management**
- **Reduced infrastructure footprint**

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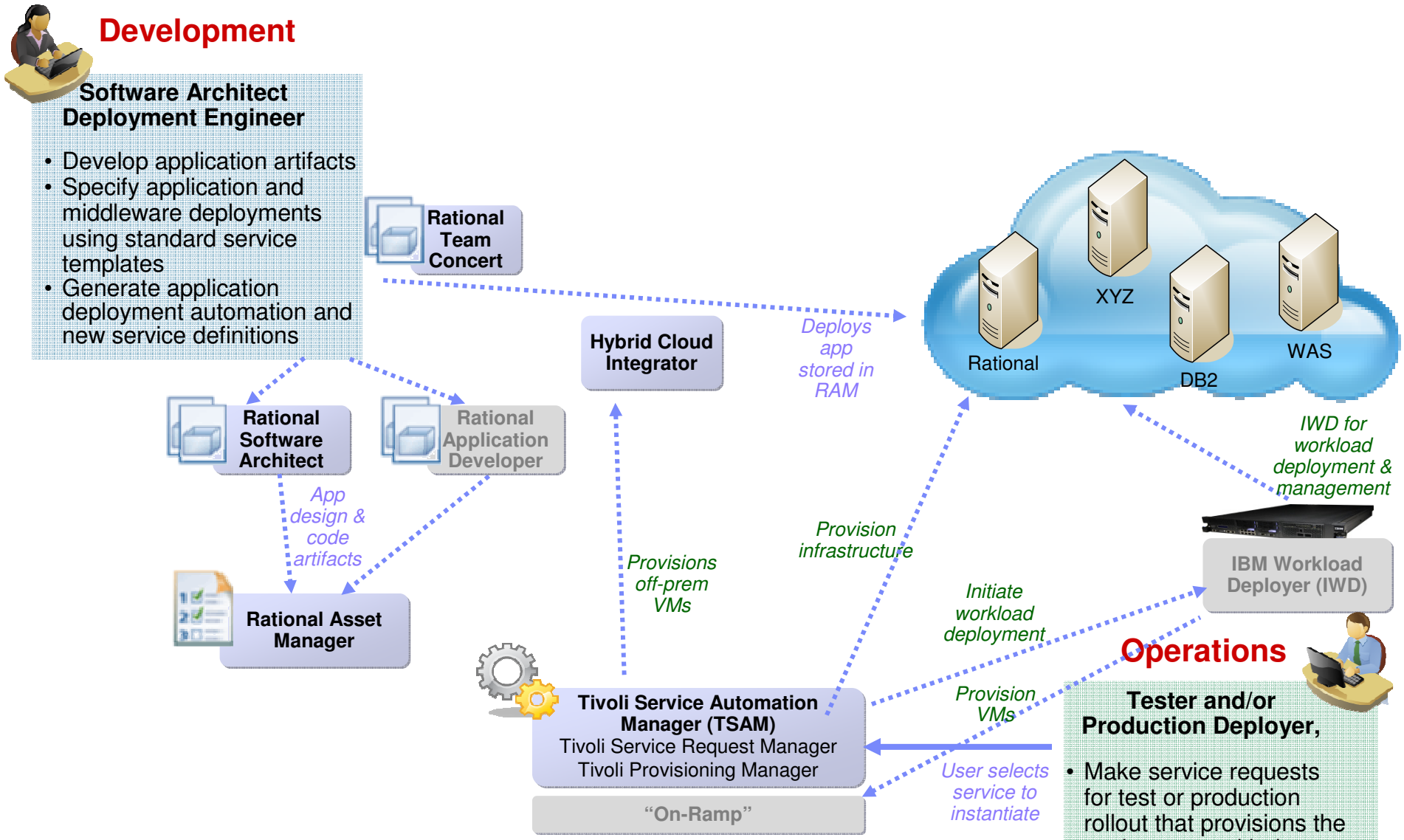
Development & Deployment Scenario – "Team Development" (workload-based)



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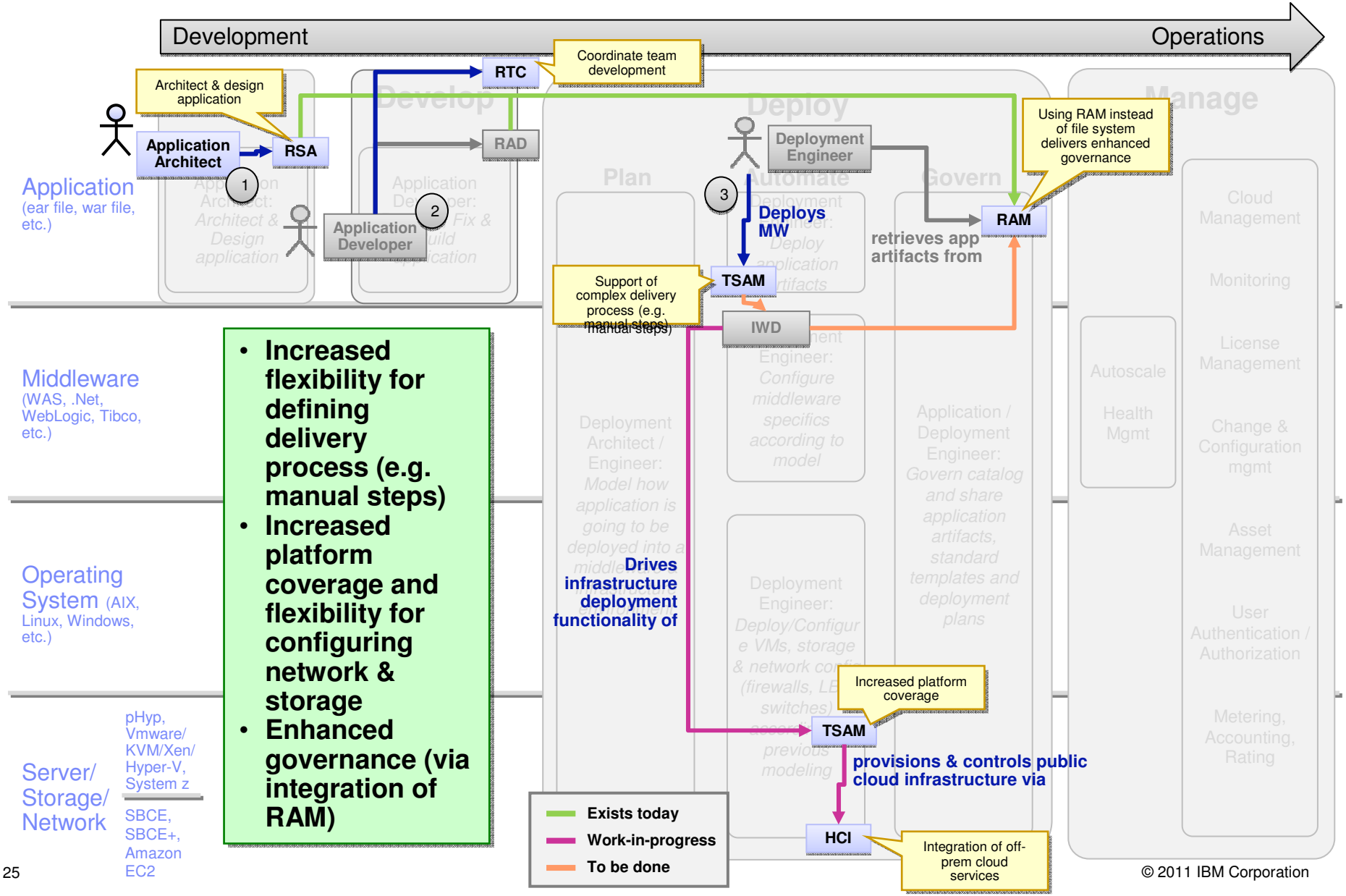

- **Increased flexibility for defining delivery process (e.g. manual steps)**
- **Increased platform coverage and flexibility for configuring network & storage**
- **Enhanced governance (via integration of RAM)**

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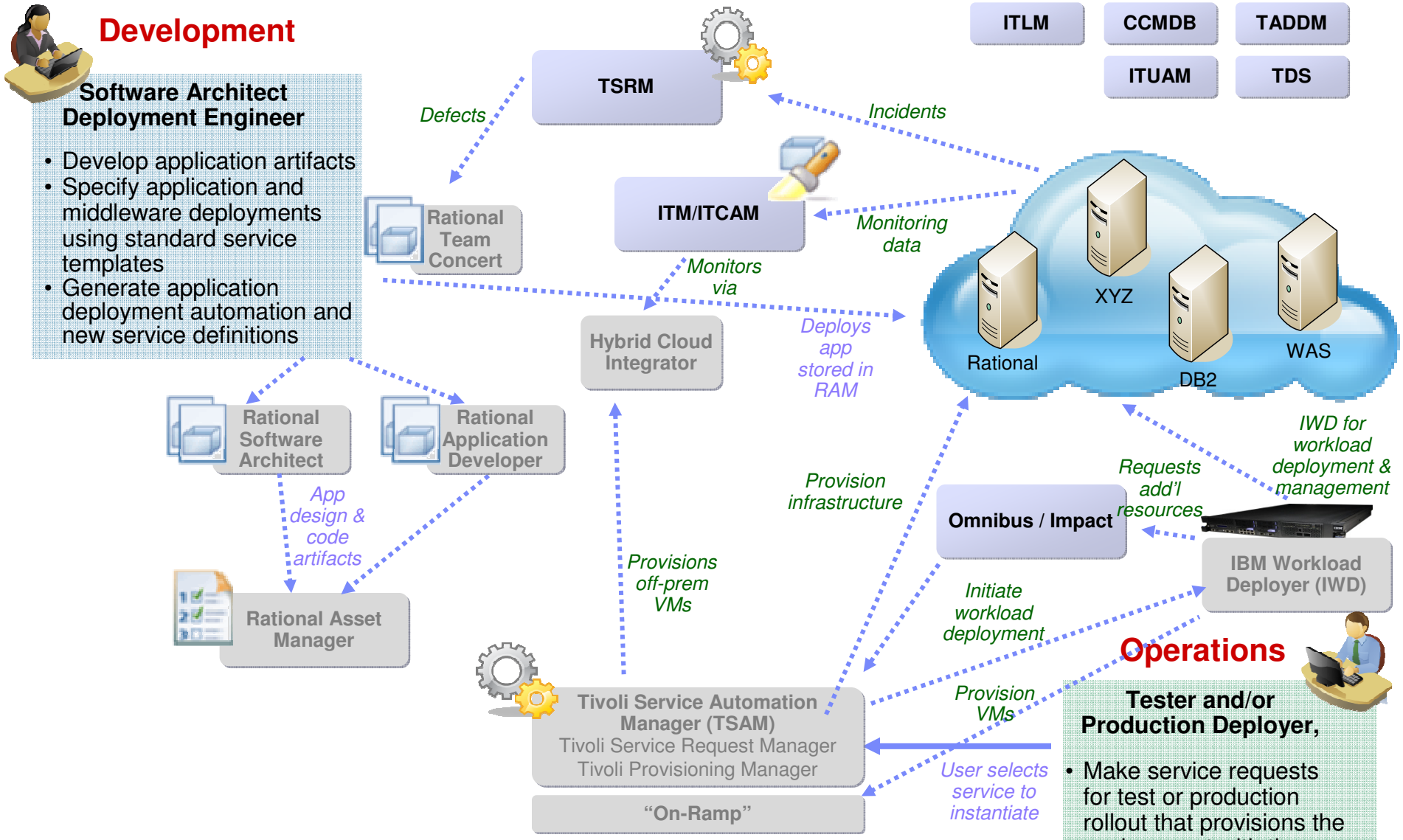
Development, Deployment & Management Scenario (workload-based)



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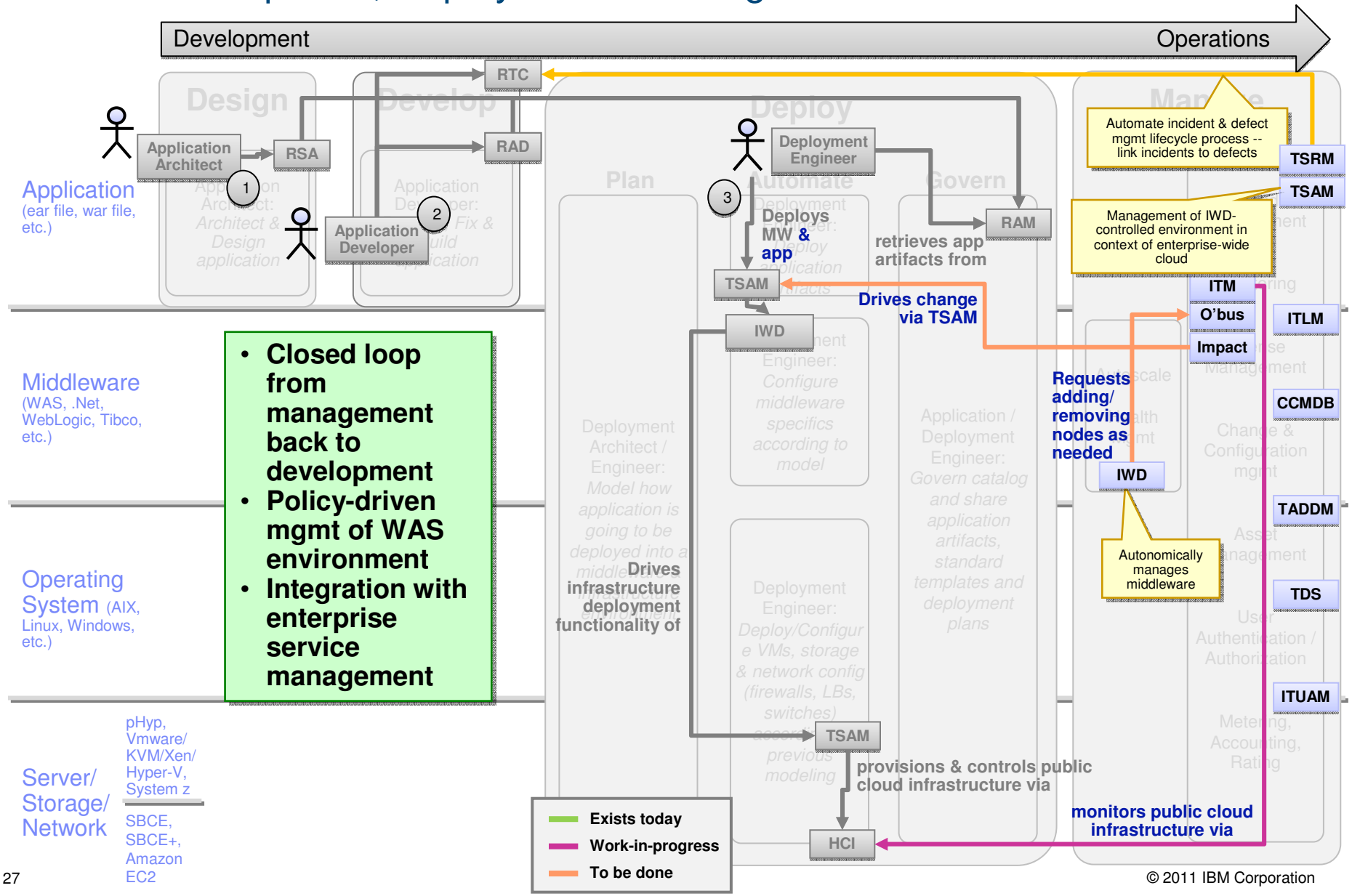

- **Closed loop from management back to development**
- **Policy-driven mgmt of WAS environment**
- **Integration with enterprise service management**

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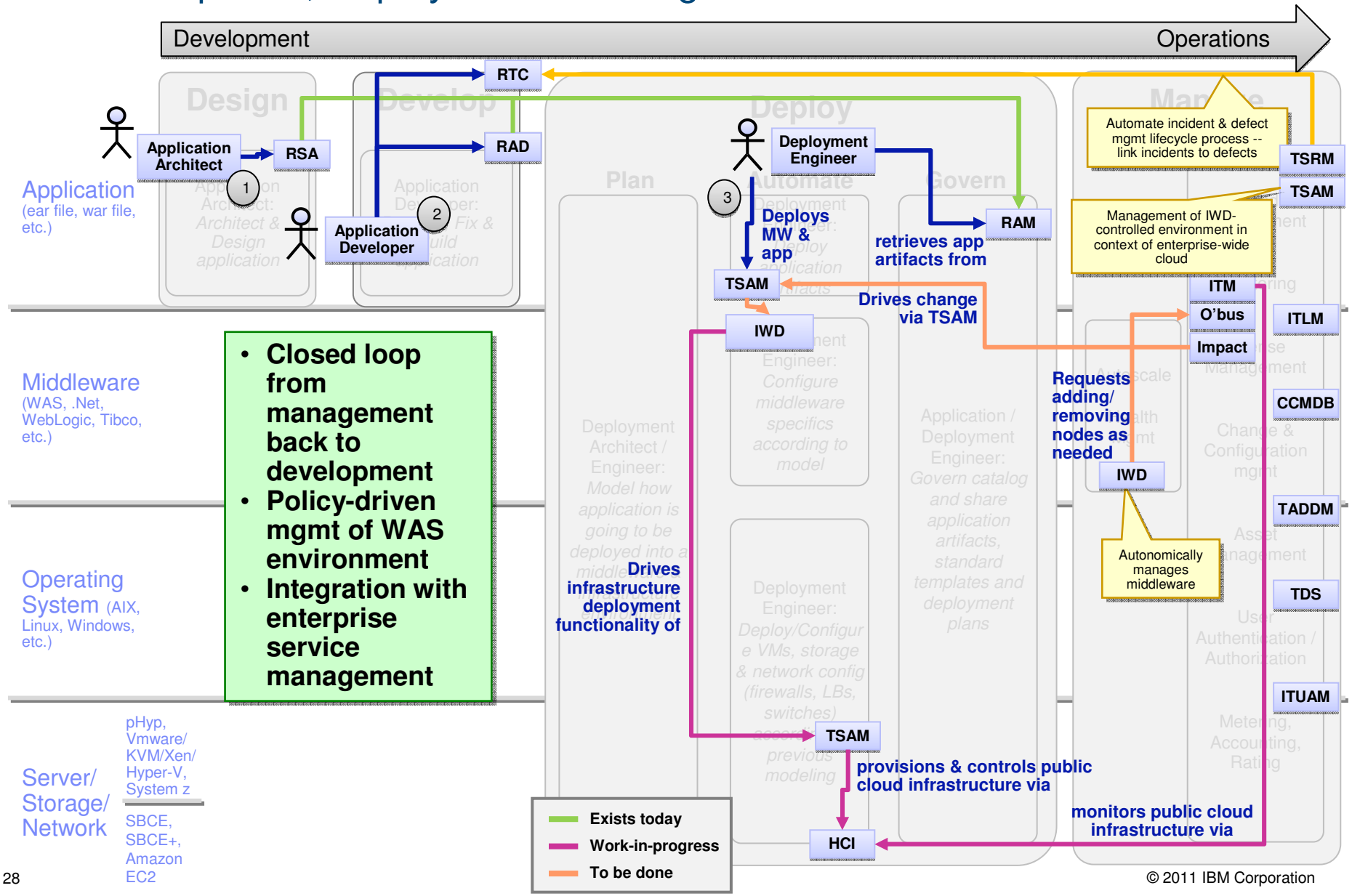
Full Development, Deployment & Management Scenario (workload-based)



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Summary

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Agile Operation Cloud solution address

- **Development and Operations teams collaboration challenges**
  - Hand-off from development teams is inconsistent and manual
  - Application component requirements do not match IT infrastructure
- **Deployment requirements are difficult to validate**
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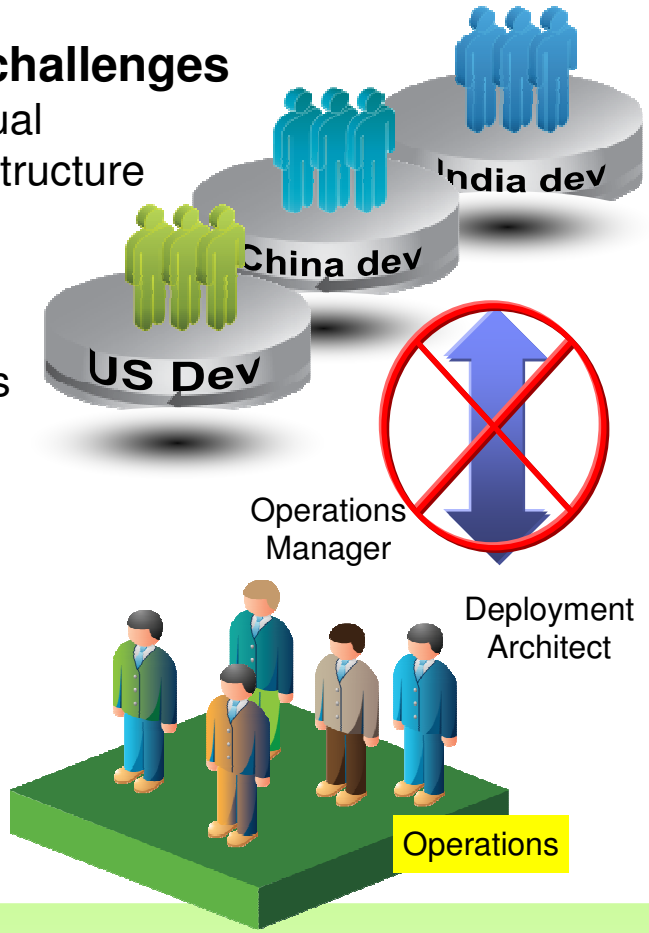

Question???

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