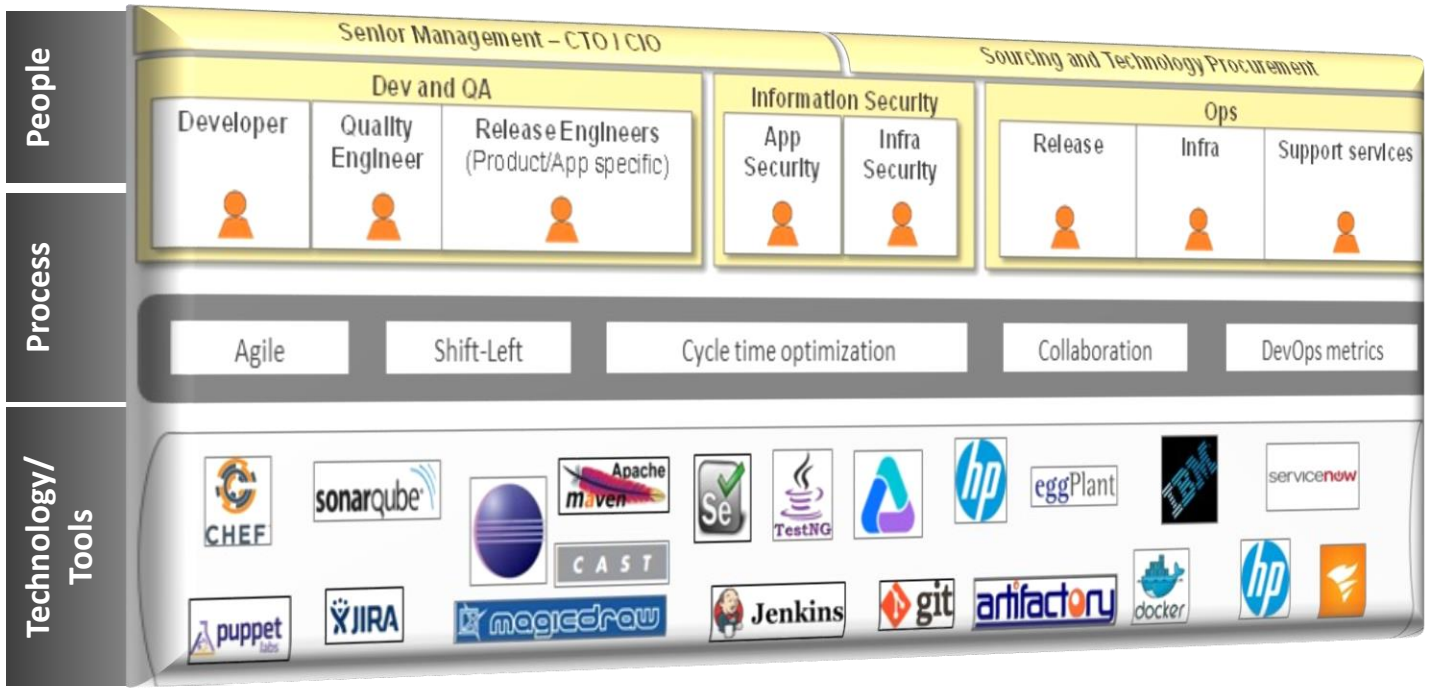
DevOps and IT Agility

DevOps CoE

November 2018

CoE Point of View

Requirements Engineering → Code Engineering → Quality Engineering → Build and Release Engineering → Environment Engineering → Service Ops Engineering



- **A set of six engineering principles**
- **Conforms to existing views and architecture frameworks**
- **Extends to emerging paradigms such as AI and cognitive computing**
- **Maps strategy to on-ground implementation**
- **Unique view vis-à-vis the IT industry**

Benefits

- **30%** faster Ops to Dev, and SDLC traceability
- **30%** faster code turnaround
- **40%** elimination of rework effort
- **50%** faster releases with **Zero downtime**
- **70%** faster IT cycle turnaround due to high resilience
- **30%** faster problem identification and resolution

Solutions Catalog

Immutable Blue-Green deployment on cloud based .Net application with automated DB deployment

DevOps 2.0 – DevOps orchestration using Robotic Process Automation

Multi-stack Deployment automation with XL Deploy

CI/CD for SFDC using Jenkins, Gearset, et al

Script-based (Puppet and Python) deployment automation

Deploying a package to SFDC environment using XL Deploy

Deployment using XL Deploy with REST API to Oracle WebLogic environment

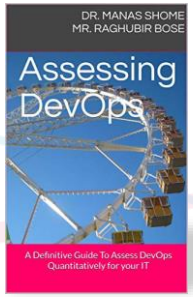
Magnum v1.0.1

Dockerized CI/CD for microservices (java) on immutable infrastructure

Magnum 1.0.3

Dockerized CI/CD (basic version) for PEGA

QODE: Quantitative Assessment Framework



Current Solution Backlog

- **Analytics** for DevOps infrastructure reliability
- **Ops to Dev** incorporating automated incident resolution using machine learning
- **Adaptive bots** for DevOps orchestration
- **Extending Magnum** for .NET and Guidewire

QODE: Quantitatively Optimized DevOps Evaluation

Data Capture on As-Is IT Landscape

Customer Objectives

Customer Pain Areas

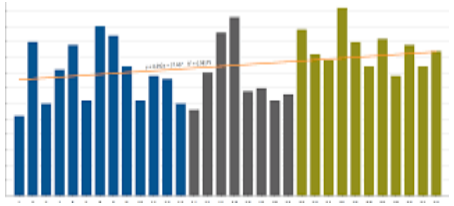
- Challenges for Dev
- Challenges for QA
- Challenges for Ops
  - Infra and release
  - Services support

IT Prerogatives

- Support business changes faster
- Standardize IT portfolio
- IT agility
- Reduce IT costs

Key Benefits Prediction

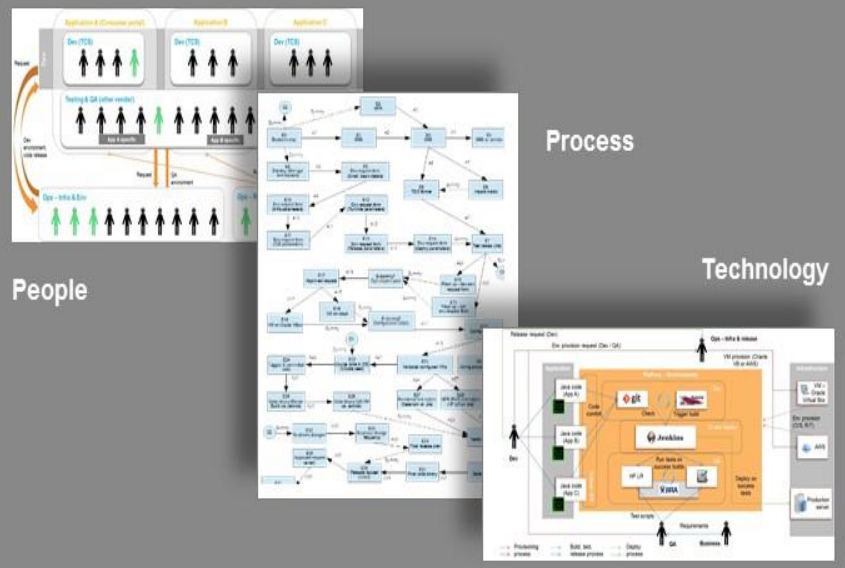
Metrics Driven



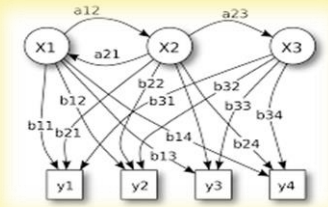
Detailed Implementation Stories with Timelines

Task	Prepone	Postpone	Delete	Modify	Add
Create SRS from BRS					
Request dev env in ServiceNow					
Request QA env in ServiceNow					
Templatize test cases in TDD					
Translate TDD test cases to scripts via Jira using workflow					
Approve env request manually					
Spin up Oracle VBox VM (manual scripts/ GUI)					
Spin up on-cloud VM (manual scripts/ GUI)					
Auto-spin up and configure VM on Oracle VBox or cloud					
Validate env with dev/QA team					
Store config scripts in NEXUS					
Auto script conversion for functional tests					
Auto script conversion for NFR tests					
Release request in ServiceNow					
Approve release request in email					
Auto-release thru Octopus Deploy					

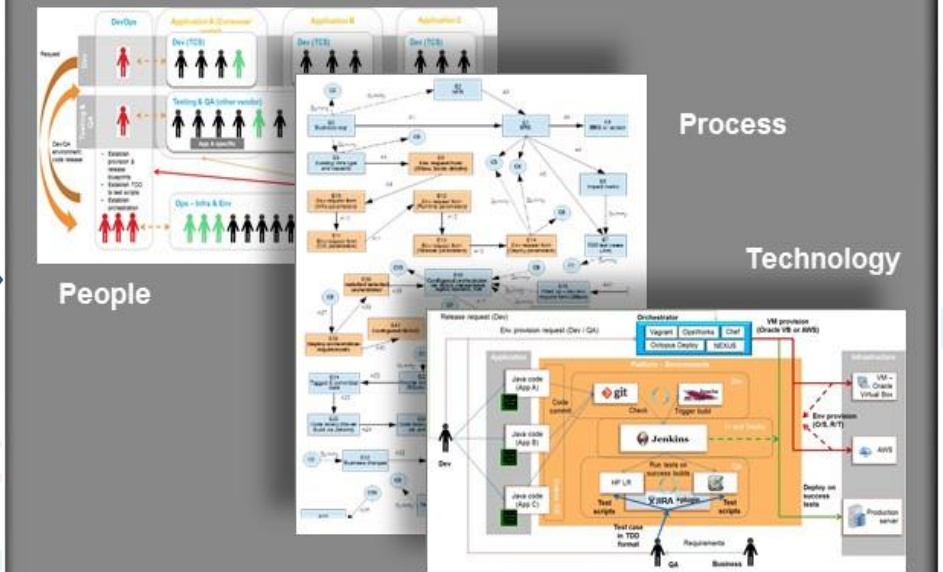
As-Is Architectures



Quantitative Algorithms Sandbox



To-Be Architectures

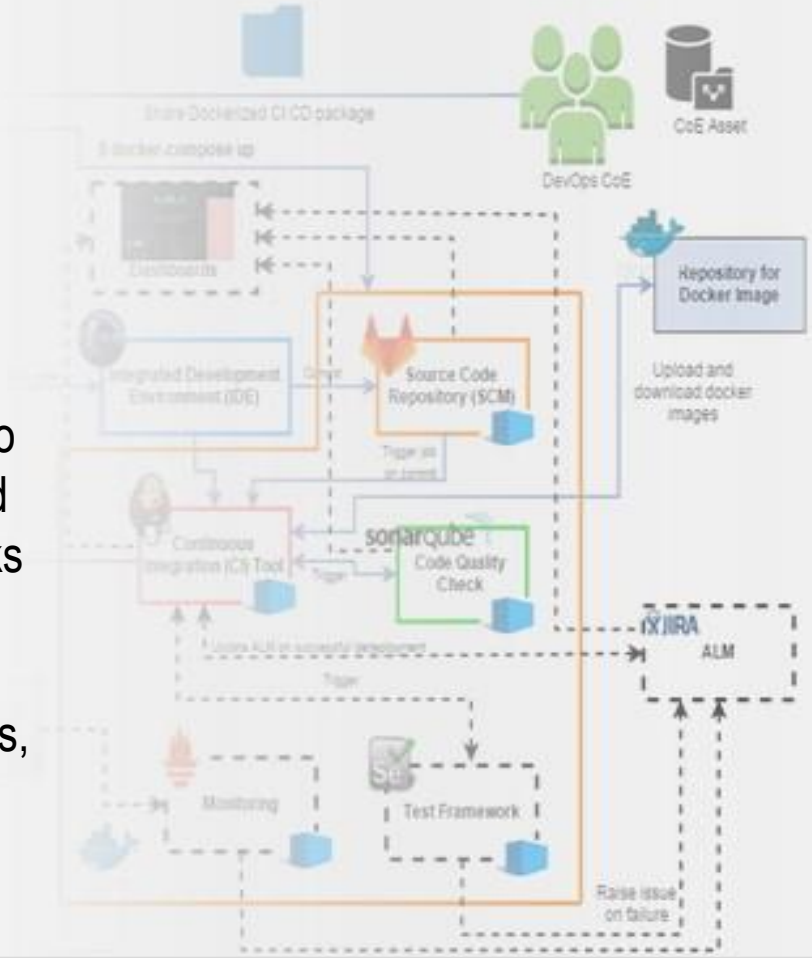


Solution Asset: Magnum v1.0.3

Technology Support:	Java/J2EE*	Microsoft .NET	Guidewire	PEGA*	Mainframe | AS/400	Mobile and IoT

What is Magnum?

- Engineering offering of TCS' DevOps CoE
- Maintained code to integrate Dev and Ops to quickly build DevOps led infrastructure frameworks
- Extensible by design – across technology stacks, across DevOps engineering practices



30 min. to generate a base development infrastructure

80% reduction in operations cost

70% reduction in developer rework time

Zero downtime for deployments

In-built integration to ALM & monitoring tools

Reduced CoQ; embedded quality engineering

Platform Support:	AWS*	Azure	GCP	PCF	OpenShift	OpenStack	Bare-metal	VMWare

* Current implementation

Success Stories

1. Large US-based bank	2. Large Australian bank	3. Large US-based financial firm
○ **Longer release cycles** impacting time to market for credit card division ○ **People issues with migration** from mainframe text console to GUI based	○ **Multiple points of truth** with multiple sources of data ▪ Data integrity issues ○ **Long cycle time** for data based decision making	○ **Error-prone and slow deployments** ▪ SLA slippages ▪ Manual and semi-manual processes ▪ Multiple stack dependencies
➢ **Continuous integration in mainframe** with IBM RDz Explorer (with IBM RTC and ChangeMan) ➢ Code development in Windows ➢ Actual deployment in M/F backend	➢ **Single view through integration of multiple data systems** ➢ Data lake supporting Big Data ➢ Container based infrastructure (Docker and Puppet based)	➢ **Unified deployment** for multiple stacks using IBM UrbanCode Deploy ➢ Java, .NET, Dweb, SQL, SQL+, Oracle, Sybase, TIBCO, IBM Cognos, Mesh, Control-M ➢ **Dev driven Ops** for deployments
8% effort savings in development **33%** faster time to market (9 to 6 months)	**20%+** reduction in bad data incidents **Faster time to market** using integrated analytics	**50%** reduction in deployment cycle time **Flexible** new deployment configuration **200%** RoI for SDLC cycles

Thank You