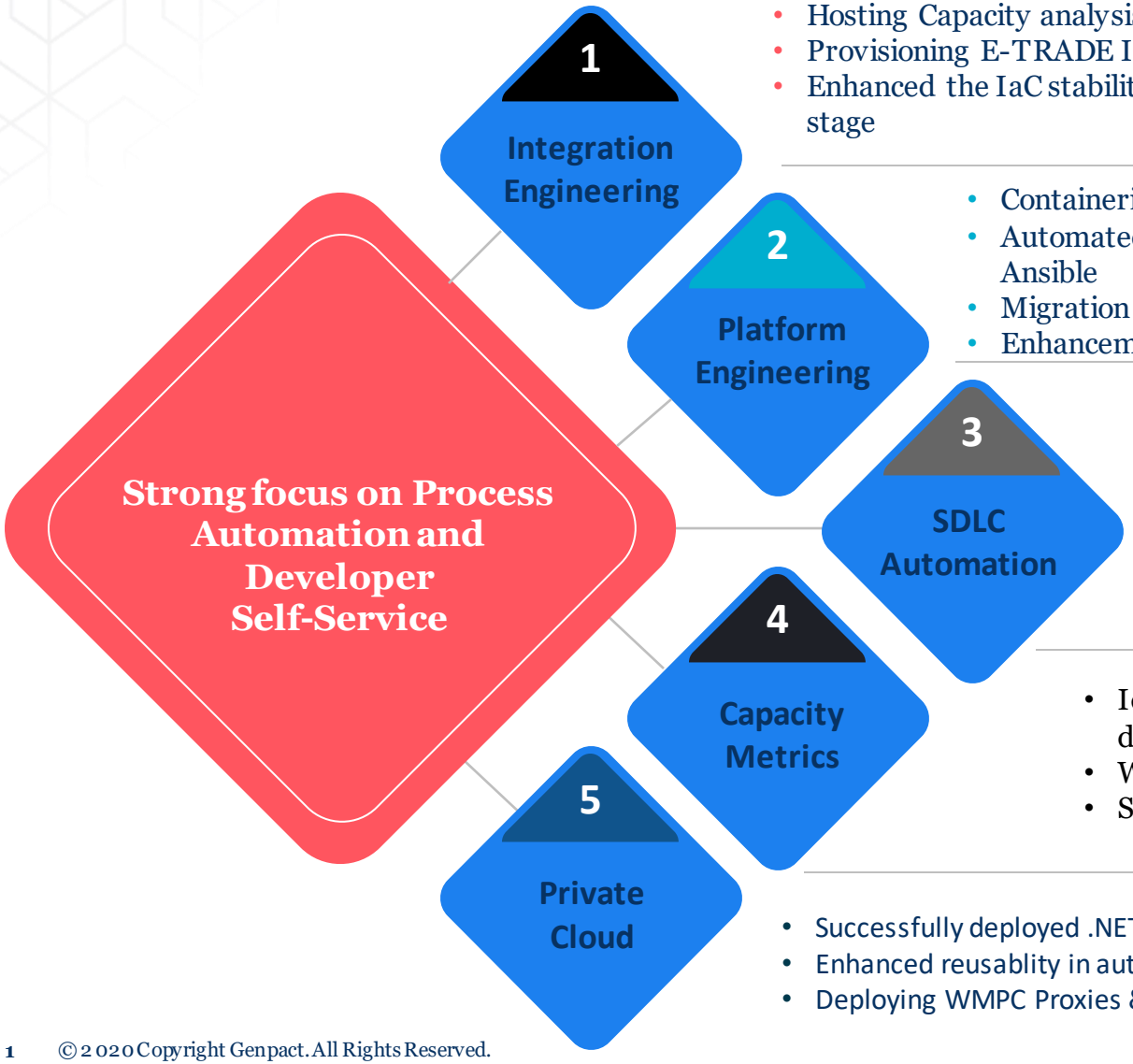
Summary of our engagement across key programs in CTS



- IAC infra projects setup & managing delivery of Infra deployments
- Bulk migration of apps from AQ6 to AQ7 hosts
- Hosting Capacity analysis, ordering & configuring new Linux AQ7 sets
- Provisioning E-TRADE Infra setup in WF+ & Zapp
- Enhanced the IaC stability by adding pre-validation checks against input yaml schema at CD stage

- Containerization of BPM/ODM & CI/CD enablement viz. Ansible, Train & TeamCity
- Automated Releases cutoff & activity creation for ODM Rule projects using Java, Ant Tasks & Ansible
- Migration of 11 ODM RuleProjects to 8.10.2 in non-prod & prod environments
- Enhancement in security setup for ODM RuleProjects using LDAP/ACL groups

- Support Hadoop based deployments through CDSS
- Integrate KPI & Metrics deployment dashboards
- SPA Wizard integration for Public cloud deployments
- Improved accuracy of application performance statistics calculation using Machine Learning

- Identify web farm server sets which are underutilized, can be reserved for new site deployment
- Webfarm/Windeploy servers utilization report
- Site to server mapping data for reference

- Successfully deployed .NETCore, Java Spring apps on Treadmill platform using “EOD” Blueprint templates
- Enhanced reusablity in automation script by embedding logic for deploying Batch Jobs as Docker containers
- Deploying WMPC Proxies & Swagger endpoints using APIGEE CI/CD Automation (viz. /apiproxy json templates)

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SRE Journey – DevOps to SRE

*- Several **opportunities** to enhance SRE Best Practices in DevOps framework*

Plan	Code,Build, Test	Deploy, Release	Monitor	Operate
➢ Support & maintain-ability are an afterthought ➢ Rules on Production mgmt. engagement are not clear ➢ Lack of consistency on collaboration b/w Dev, QA & Prod environments ➢ Lack of best practices on intutive & predictive monitoring approaches	➢ Monitoring as Code is not adopted ➢ Resiliency testing not fully covered ➢ Limited & late feedback to Dev teams from QA/PM ➢ No Continuous Deployment for Capacity,QA & Platform automation configs ➢ No AI/ML driven Hygiene playbook(e.g., upgrade of components to latest ver.) as part of daily work	➢ Prod mgmt. Functions engaged late into the lifecycle ➢ Limited Proactive & predictive Post-Deploy Validations/checkouts ➢ Backouts not systematically tested ➢ Less intuitive Analytics Dashboards	➢ Runbook automations not fully implemented in vertical functions/PAGs ➢ During Incident mgmt, Event Correlation is less mature ➢ Post-mortem practices are not covered ➢ Very limited use of Synthetic transaction testing (like healthchecks)	➢ Limited operational reliablity assurance & validations ➢ Less Aggregations , Trends & Patterns based Analysis for intrumenting Prod level monitoring & measuring key-metrics ➢ No AI/ML infused Alerts Handling ecosystem ➢ Limited Operational Dashboards & data models for Ingestion & ETL Transformation

End to End | **Artifical Intelligent** | **Automated** | **Agile** | **Machine Learning** | **Business 4.0 Ecosystem**

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SRE Journey – SRE Accelerators on top of current ecosystem

*- SRE Model **enabling Prod mgmt** best practices through SDLC Lifecycle*

Plan → Code,Build, Test → Deploy, Release → Monitor → Operate

Define SLOs like a user

Define minimal monitoring & recoverability requirement

Fail sanely (Sanitize & validate inputs)

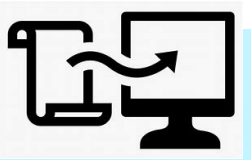
Resiliency Testing

Prod level monitoring for non-prod envs

Platform/Capacity configs automated deployments

Monitoring thru tools tracking SLIs metrcis & pre-defined implied actions

Overloads & failure analysis



Blameless Post-mortem focusing on Process & Tech

Operational Work (<50% efforts on operational tasks)

- **Implanting "Monitoring-As-a-Code"** for annotating rollout of the SRE functions, scripts & configs viz. Devops (CI/CD) pipelines. These AIOps SRE artifacts & manifests will drive the Testing Framework, Platform, Operational Support etc. automations viz. AI/ML written intelliGen Ansible Playbooks, Flask-API/Microservices, QA load & regression workflows, Data analytics dashboards (data-models/Streamsets)

- **Embedding (AI/ML-driven) SRE accelerators as Horizontal functions** - Spawning SRE coverage across the PAGs/Lifecycle management to build SRE ecosystem viz. Integrated Incident mgmt wireframes, Proactive Monitoring, Predictive Alerts analysis & Dynamic setup of alert Thresholds (Plant healthchecks, RFB checkouts & Hygiene items viz. RPA/RBA/Halo-Cache rules engine)

End to End | **Artifical Intelligent** | **Automated** | **Agile** | **Machine Learning** | **Business 4.0 Ecosystem**

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SRE/DevOps Tools Landscape

Continuous Integration

Build & Deploy	CI Server	Unit Testing	Code Quality
Nant, Apache Ant, maven	TeamCity, Jenkins, Bamboo	N unit, JUnit	clover, JSLint, sonarqube

Testing

Automated Acceptance	NFR Testing
FitNesse, Cucumber, Se	NEOLOAD, Apache JMeter, Nessus, loadUI, WEBLOAD, AppScan, acunetix, Loadrunner

Version Control

Source Control	Binary Management
mercurial, PERFORCE, IBM Rational, git	archiva, nexus, artifactory

Productivity Add On: github, Stash, Bitbucket

Configuration Management & Environment Provisioning

Source Control
Binary Management
Productivity Add On

SALTSTACK, CFEngine, ANSIBLE, CHEF, puppet labs, docker

Monitoring & Alerts

Application & Infra Monitoring	Log Monitoring
dynatrace, ZABBIX, Nagios, ruxit, New Relic, DATADOG	logentries, loggly, splunk, papertrail

Project & Support Management

Collab / Community	Chat
Confluence, yammer, jive	SYMPHONY, Lync

Project Lifecycle Management	Service Desk
Microsoft Visual SourceSafe 6.0, JIRA	servicenow, Remedy, JIRA Service Desk

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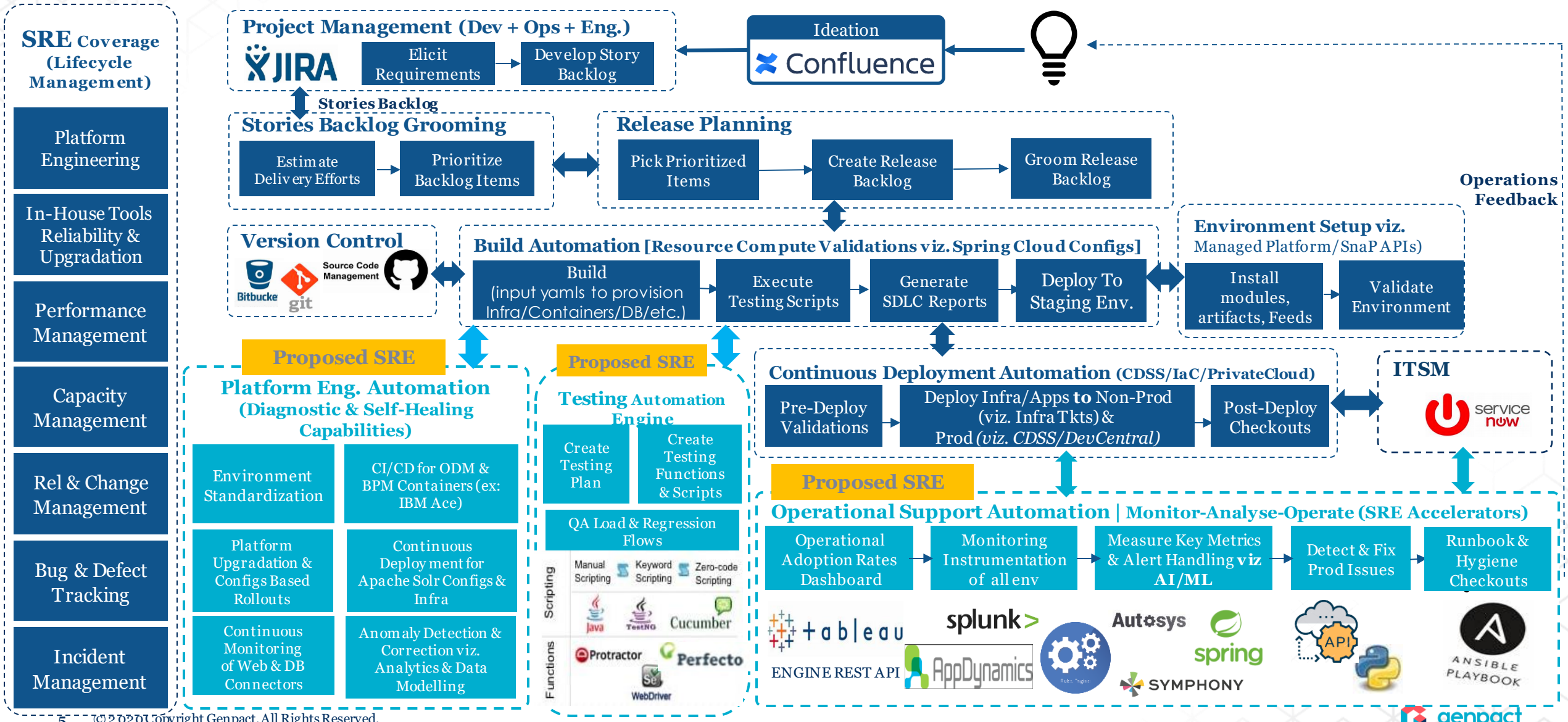
SRE Implementation Proposed Architecture

- SRE Ecosystem Wired Layout based on top of existing environment in MSWM



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