Modernize workloads to optimize IT with reliability —
Prakash Somani
Global Offerings Executive
How ready were you for COVID-19?

Disposition of enterprise:

- **Inoperable**
  - Business processes cannot operate
  - Unable to satisfy customer demand
  - No employee working flexibility

- **Survivor**
  - Few business processes continue
  - Forced to switch to new channels to survive
  - Significant delays in dealing with customer demand
  - Limited subset of previous offerings
  - Limited employee working flexibility

- **Capable**
  - Core business processes continue
  - Minor delays in dealing with customer demand
  - Most previous offerings still available
  - Most employees have working flexibility

- **Mature**
  - All business processes continue
  - No delays in dealing with customer demand
  - All previous offerings still available
  - All employees have working flexibility

- **Transformer**
  - All core business processes operate without issue
  - Ability to scale into new markets without issue
  - Employees can work from anywhere

Characteristics:

- **Response**
  - Business processes cannot operate
  - Unable to satisfy customer demand
  - No employee working flexibility

- **Outcome**
  - Business Closure
  - Business Liquidation
  - All Employee Lay-offs

- **Characteristics**
  - Limited impact to core business
  - Limited impact to employee productivity

- **Outcome**
  - Short-term Business Closure
  - Reduction in revenue
  - Major Employee Lay-offs

- **Characteristics**
  - Limited impact to core business
  - Limited impact to employee productivity

- **Response**
  - Core business processes continue
  - Minor delays in dealing with customer demand
  - Most previous offerings still available
  - Most employees have working flexibility

- **Outcome**
  - Limited impact to core business
  - Limited impact to employee productivity

- **Response**
  - All business processes continue
  - No delays in dealing with customer demand
  - All previous offerings still available
  - All employees have working flexibility

- **Outcome**
  - Limited impact to core business
  - Limited impact to employee productivity

- **Response**
  - All core business processes operate without issue
  - Ability to scale into new markets without issue
  - Employees can work from anywhere

- **Outcome**
  - Transformed into new business opportunities
  - High revenue growth
  - Additional employees onboarded to support demand

Low  Digital transformation maturity  High
Organizations are embarking on modernization journeys for a variety of reasons

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<th>Business agility</th>
<th>Risk and compliance</th>
<th>Skills</th>
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<td>New business models</td>
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<td>Aging workforce</td>
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<td>Legacy optimization</td>
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<td>Audit compliance</td>
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<td>Infrastructure cost optimization</td>
<td>Improved user experience</td>
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<td>Speed to market</td>
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<tr>
<td></td>
<td>Improved resiliency</td>
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<td>Improved flexibility</td>
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<td></td>
<td>Reduced vendor lock-in</td>
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Risk and compliance
- Security-rich environment
- Improved application stability
- Audit compliance
- Regulatory requirements adherence

Skills
- Unavailability of skillset for legacy applications
- Aging workforce
The right modernization journey will enable your company to survive and emerge a leader.

Your customers demand better experiences. They expect service and speed.

Your competitors are now cloud-native capable. They are innovating and disrupting faster.

Your stakeholders are increasing expectations. They want technology to meet business goals.

Position for the future

- Innovate
- Speed to market
- Discover
- Scale

Enable your agility and readiness

- Efficiency
- Risk and Security
- Resiliency
- Lower costs
Challenges have resulted in only 33% of enterprise workloads moving to cloud

- Deep linkages between applications and data
- Complex data integration models
- Cloud management and security strategy across cloud providers
- Application to cloud incompatibility
- Lack of visibility and control to realize value from cloud strategy
- Inadequate skills in containers, microservices, DevOps and APIs
- Not all applications need to exploit the capabilities of cloud

Sources: IBM MD&I, Move to Cloud Survey, July 2019
Containers are the enabling technology of the future

Container services market will grow by **21%** by 2022

- Improved application quality
- Faster responses to market change
- Faster time-to-market

Red Hat OpenShift is one of the **top three** preferred container technologies

Container adoption is significantly increasing

**50%** Enterprise applications will be deployed in a containerized hybrid cloud or multicloud environment by 2023.

**65%** Enterprises will aggressively modernize legacy systems with extensive new technology platform investments through 2023.

Sources: IBM MDI Study 2019, 2020

Sources: IDC’s Predictions for Cloud for 2020 and Beyond, IDC CIO Agenda 2020 Predictions
Application containerization affinity assessment determines the feasibility of containerization

- **Industry filter and domain model-based fitment**
  - Applications in digital transformation scope
  - Applications influenced by consumption patterns (market influenced versus fixed)
  - Applications in API harvest scope and marketplace apps
  - Possibility of lift and shift containerization

- **Technology characteristics analysis**
  - 12-factor alignment (low, med, high) versus re-factor effort
  - Platform service customizations (KB services vs custom)
  - SW containerization – ready vs custom
  - Scalability versus elasticity needs
  - Platform vendor interoperability
  - Infrastructure configurability and automation

- **Operational characteristics analysis**
  - Consumption patterns versus elasticity needs
  - SLA models
  - Security requirements versus achievability, such as shared container service and compliance
  - Automation level – low, medium or high versus incident insights

- **Operational affinity**

- **Architecture Affinity**

- **Input**

- **Application workload**
Business case

CoolStore, a leading online retail store, created an application for its customers where the customers can browse the catalog, add items to the cart and complete the purchase. This simple monolithic application uses Java EE and MySQL database.

With time, the number of customers using the online retail application had increased because the application had become considerably slow. But because of the monolithic architecture, any update of the application was time consuming and difficult. Consequently, the client was facing four significant challenges.

1. The client wasn’t able to adopt the latest technologies and apply analytics to get insights from the data the client was gathering.
2. The cost of running the application exponentially increased as he was not able to optimize the resources.
3. Cloud adoption was difficult because dependencies and complex architecture of the application.
4. Patching, bug fixing and commissioning and decommissioning of the computing environment was difficult and they were not operating in an optimal and efficient environment.
To overcome these challenges, the management of the online shopping decided to modernize their shopping portal by adopting container technology and Red Hat OpenShift.

This move supported the growing business and improved the global customer experience. As a result, they were able to increase portability, have platform independence, roll out new versions faster and improve operational simplicity with security and compliance requirements.
**Business Considerations**

- Run applications anywhere with confidence and minimum to no configuration changes
- Scaling made easy to run on hybrid cloud and support cloud burst
- Efficiently manage new deployments and rollback using infra as code and zero-touch principles
- Ability to secure the entire stack using security solutions tailored to meet regulatory requirements out of the box and as part of the DevSecOps model
- Reduce the cost of operations (hypervisor, database, middleware and services)
- Improved resiliency. Container orchestration automates management, deployment, scaling, networking and availability

**ROI Calculator**

- Provide view of current and future expenses across the stack
  - Application Dev and maintenance
  - Physical infrastructure
  - Licenses for middleware components
  - Management services
  - Exclusions – Data and storage

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<th>Capital Investments</th>
<th>3 Year State</th>
<th>3 Year Future State</th>
<th>3 Year Transition Plan</th>
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<tr>
<td>New Hardware Purchases</td>
<td>$1,48,146</td>
<td>$ -</td>
<td>$ -</td>
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<tr>
<td>New VMware License Purchases</td>
<td>$33,600</td>
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<td>$ -</td>
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<tr>
<td>Virtualization support and maintenance</td>
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<td>$87,859</td>
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<tr>
<td>RHEL Subscription</td>
<td>$2,43,699</td>
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<td>$1,54,289</td>
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<tr>
<td>OpenShift Subscription*</td>
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<td>$6,54,188</td>
<td>$3,93,304</td>
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<tr>
<td>Red Hat Consulting (Optional)*</td>
<td>$ -</td>
<td>$54,840</td>
<td>$54,840</td>
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<tr>
<td>FTEs (Developers and Admins)</td>
<td>$1,91,52,000</td>
<td>$1,47,63,000</td>
<td>$1,47,63,000</td>
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<tr>
<td>Middleware Subscription</td>
<td>$6,10,066</td>
<td>$6,10,066</td>
<td>$6,10,066</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$2,03,33,647</strong></td>
<td><strong>$1,60,27,254</strong></td>
<td><strong>$1,60,08,517</strong></td>
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<tr>
<td><strong>TCO/Year</strong></td>
<td><strong>$67,77,882</strong></td>
<td><strong>$53,42,418</strong></td>
<td><strong>$53,36,172</strong></td>
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</tbody>
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**FTE Recouped Value**

| Total Savings | $43,06,392 | $43,25,130 |

*Savings projected for a small environment of around 30 physical devices (current state) is around 21% in OPEX costs in 3 years

Savings are similar for both - a big bang move or a gradual move considering staggered licensing costs in the newer model

*Not included in the total cost; training cost has been excluded as well
Modernize once with innovate-anywhere agility with the IBM model

**Business requirements**

- Build on virtually any cloud
- Improve visibility and control across hybrid and multiclouds
- Help ensure application and data portability with no lock-in
- Optimize on the best-fit cloud model and vendor

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<th>Hybrid multicloud platform</th>
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<td>Consistent stack and management for multicloud</td>
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<th>Foundation</th>
<th>Common Services</th>
<th>RHEL</th>
<th>OpenShift</th>
<th>Multi-cluster Management</th>
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**Infrastructure**

- On-premises
- Private
- IBM Cloud
- AWS
- Microsoft Azure
- Google Cloud
- Edge

**Business outcomes**

- Innovate faster with greater agility
- Create more insights from data
- Improve return on investment (ROI) and competitive edge

IoT = Internet of Things, ML = machine learning, RHEL = Red Hat Enterprise Linux
IBM Garage Method for Cloud

The IBM Garage™ helps you accelerate the transformation of your IT infrastructure and business applications to multicloud through intelligent insights, automation and integration with cloud provider ecosystems.
Use IBM Garage principles to iteratively migrate and modernize

**Co-create**
Modernization roadmap
- Select criteria for migration and modernization
- Prioritize execution based on business and technical drivers
- Get recommendations on target state and disposition

**Co-execute**
Modernization, design and execution
- Identify and finalize modernization activities
- Prove modernization process though operational adoption

**Co-operate**
Implement, test and scale
- Deliver at scale using the Factory model
- Develop value realization

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IBM is your trusted modernization partner

Integrated multi cloud offerings
Pre-integrated offerings across application modernization strategy, move, build and manage functions

IBM industry accelerators, packages and platform ecosystem
Industry-specific modernization platforms (banking, insurance, telco, retail, travel and transportation)

IBM Garage Method for Cloud
A proven framework that accelerates your journey to multicloud with high confidence – includes workflows, steps, activities, practices and tooling guidance

Automation, machine learning and cognitive analytics
Intelligent recommendations and automation for secure, faster and cost-optimized migrations and application modernization (Cloud Transformation Insights, Engineering to Cloud)

Migration and modernization patterns to suit the drivers and expected outcomes
Wide range of patterns including re-host, re-factor, re-platform and re-architect to meet business needs and technical strategy
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