



SAP on Cloud | Hyperscale. Hyperspeed. Hypercare.

Bringing the Cloud Automation to SAP at a Top Integrated Energy Company

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Agenda

- Introductions
- Lemongrass Overview
- Integrated Energy Company's Cloud Automation
- Customers views on SAP on Cloud
- Cloud Operating Model
- Automation Framework
- MDO™ Minimized Downtime Operations
- Q&A



We are Lemongrass

Transforming the SAP Ownership Experience on Native Cloud



100% success rate for SAP to Hyperscale Cloud migrations



REDUCED COST OF SERVICES

Up to 50% cost reduction

IMPROVED AVAILABILITY AND RESILIENCE

Average 99.99% availability

WORLD CLASS SECURITY

NIST and CIS accreditation

IMPROVED AGILITY AND INNOVATION

2,500 innovations per year

CLOUD NATIVE

Direct access to all Cloud native services

DEVOPS FOR SAP

Landscape optimization and increased change frequency

CLOUD AGNOSTIC AUTOMATION

AWS, Azure, GCP



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Gold Microsoft Partner



Google Cloud



Integrated Energy Company

Bringing Cloud Automation to SAP

- The Operation of SAP on the Cloud is very different from operating it on-premises.
 - Lemongrass’s assessment identified opportunities for Cloud Automation Enhancements providing better Security, Availability, Supportability, and Agility for the business.
 - It was vital to make SAP always available, Lemongrass was engaged to bring in the foundational elements to ensure effective, efficient operations.
- Lemongrass’s solution was to
 1. Rebuild the foundational elements for Automation.
 2. Introduce Cloud Infrastructure Automation for SAP, leveraging native tools
 3. Adopt an Automation Framework to reduce planned downtime.
 4. Take full advantage of the Cloud Native and Open-Source technologies to enable a reliable, agile, and resilient SAP environment.



Integrated Energy Company

Cloud Automation

- **Completed – Automation**

- Tech Foundation Automation:
 - Improvement in Security Posture (For DEV/QAS)
 - Multi Account/VPC Landing Zone Rollout
 - Standardized Image Creation
- SBX 2021 Built
- DEV 2021 Built & Migrated
- QAS 2021 Built & Migrated
- HA Deployment Automated

- **Planned – Automation**

- PRE 2021 Build & Migration
- PRD 2021 Build & Migration
- **Operations as Code**
 - System Provisioning
 - **MDO™ (Minimized Downtime Operations)**
 - **System Refresh**
 - Start/ Stop
- SolMan

- Definition, Configuration, and maintenance of New **Tools and approaches**
- **Capabilities** focus on IaaS, FinOps, SecOps, Automation
- New **SOPs** together with the steady-state teams' adoption



Customers' Views on SAP on Cloud



How to discover and remove barriers?



SAP runs cheaper in its own Data Center?



SAP workloads not Cloudy enough?



Siloed Ops - Not seeing promises?



Appears the same as running on-premises?



How to leverage native Cloud innovations?

"Customers seem to fully understand and leverage the Cloud only after, they've already moved to it"



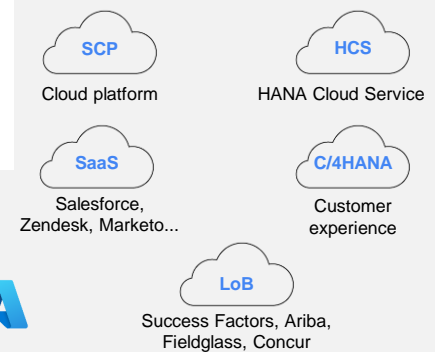


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Cloud Operating Model

Putting the Cloud in SAP

Cloud Native Enablement



Cloud Operating Model



Cloud Adoption



Lift and Shift

Basic Cloud benefits including scalability, elasticity, consumption billing

Modernize Operations

Leverage advanced capabilities for **Automation, Availability, Network, Performance** management, and **Flexible Commercial** models

Innovate and Accelerate

Tying SAP **Data sources** in with Other Data sources included unstructured data, Cloud Native generated data, 3rd party data (all **Gravity of Data**) and using advanced tools: Datalakes, AI/ML etc., = ROI

Enable systems of record to be systems of insight

Increasing **Agility**, decreasing time To **Value**, and enabling new **Insights**



Adopt a Cloud Mindset

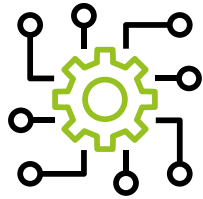
Getting SAP to the Cloud is not enough.

Define a comprehensive **Service Catalog**

...enabled by Tooling & **Automation**

...delivered by a **Cloud Operating Model**

.....underpinned by **experience and methodologies**



Technical Design – Landing Zone, Target Layout Design, System Design, Recoverability Design, *Tools and Automation, Operate Design. Technical Build, Test and GoLive.*
Lemongrass has the Proven Methodology for the Migration and Implementation with a 100% success rate.

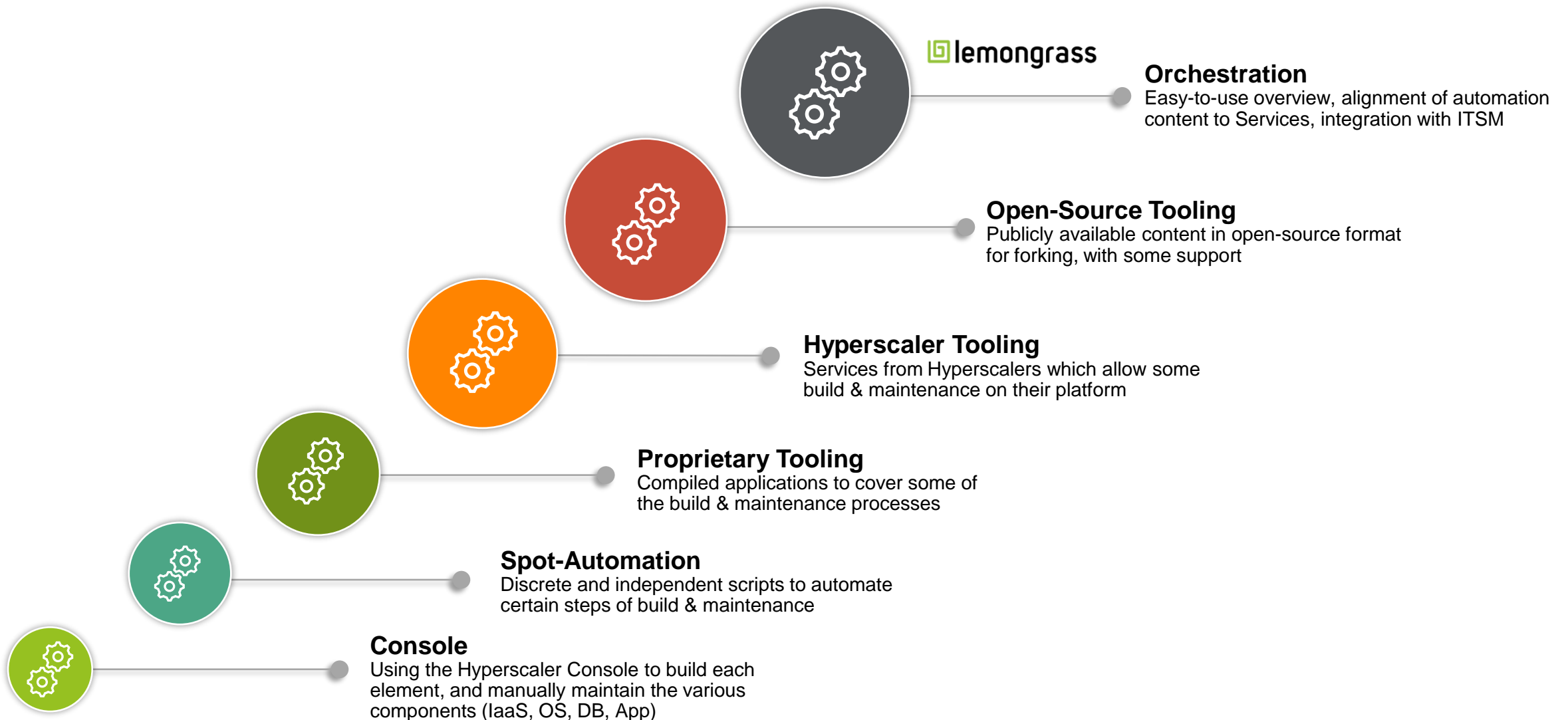




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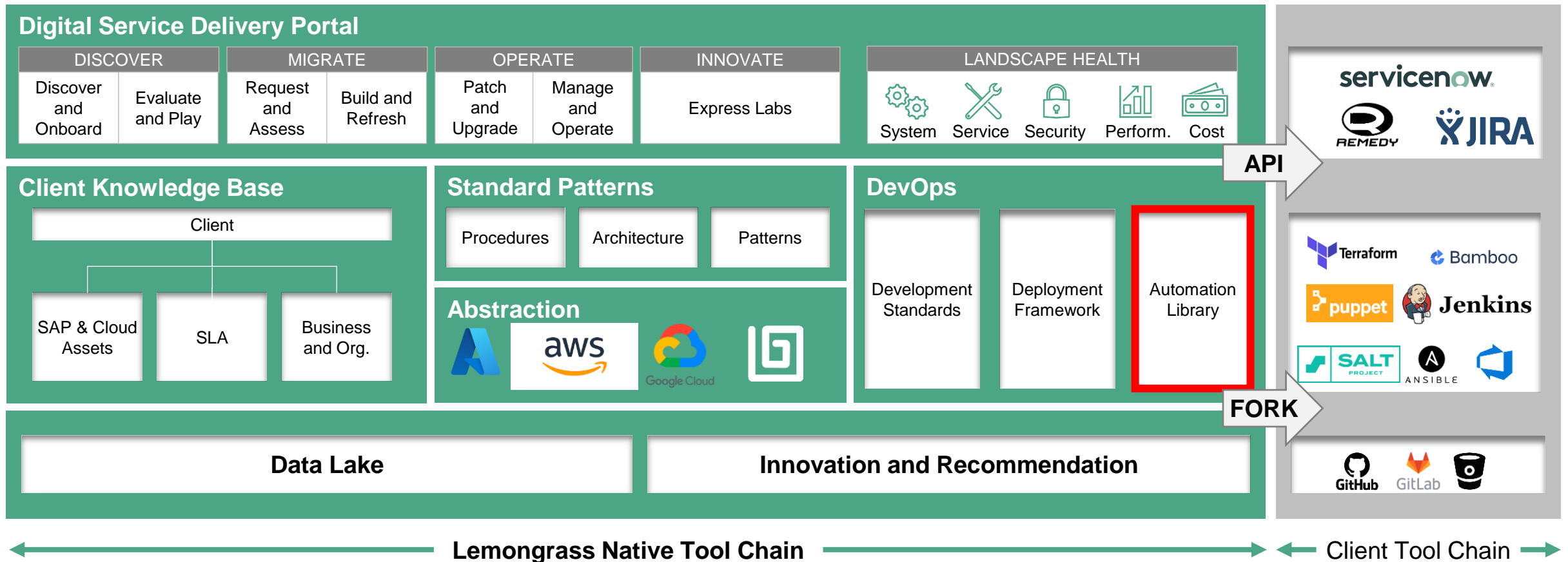
Automation

Lemongrass as a Differentiator in Cloud Automation



Enabled by High-Levels of Native Automation

Built on Cloud native technology, LCP(Lemongrass Cloud Platform) provides unified Cloud orchestration management, operations and rapid access to new innovations on Cloud with any tool chain



LCP 3.0 : Integrated Automation Platform



Customers are in Full Control

- Choice of hyper-scaler, region, and CI/CD pipeline
- Multi-Tenant or Dedicated Clusters

Your Application Your Way

- Generic UI Types that enable rapid deployment
- Low code declarative environment to enable faster customer customization
- Flexible Roles & Permissions Setup

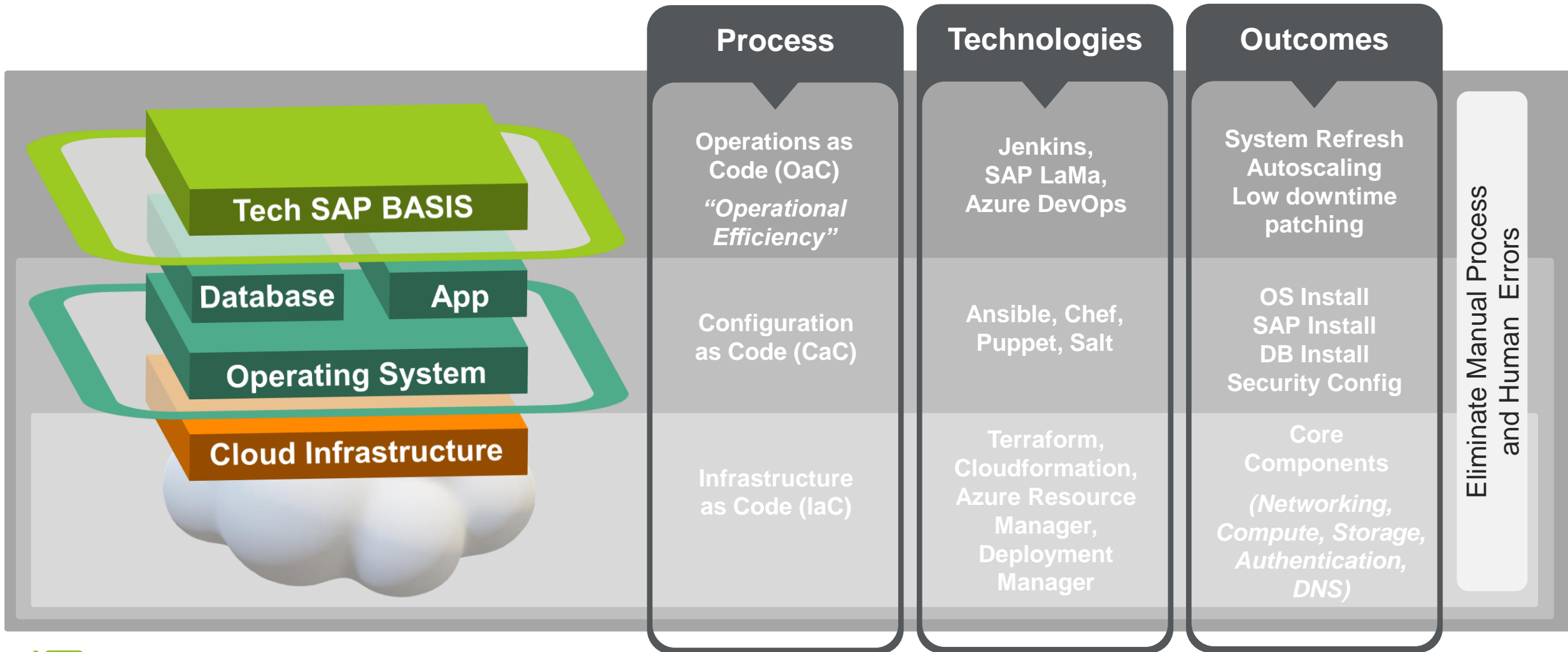
One Application to Integrate Them All

- Integrate Existing Pipelines & Automation
- Discovery of Customer Accounts, Infrastructure, and Applications



Modernize SAP Operations

Key Technologies



Automation Capabilities

Automated Server Copy

SAP Aware Start/Stop

Application Server Auto Scale

OSS Note Import

Environment Rebuilds

Automated HANA Patching

Automated Server Resize

Auto DR Failover

Auto OS Patching

Auto DB Patching

Infrastructure as Code

- Automate infrastructure provisioning
- VM deployments
- Storage configuration
- Network configuration

Configuration as Code

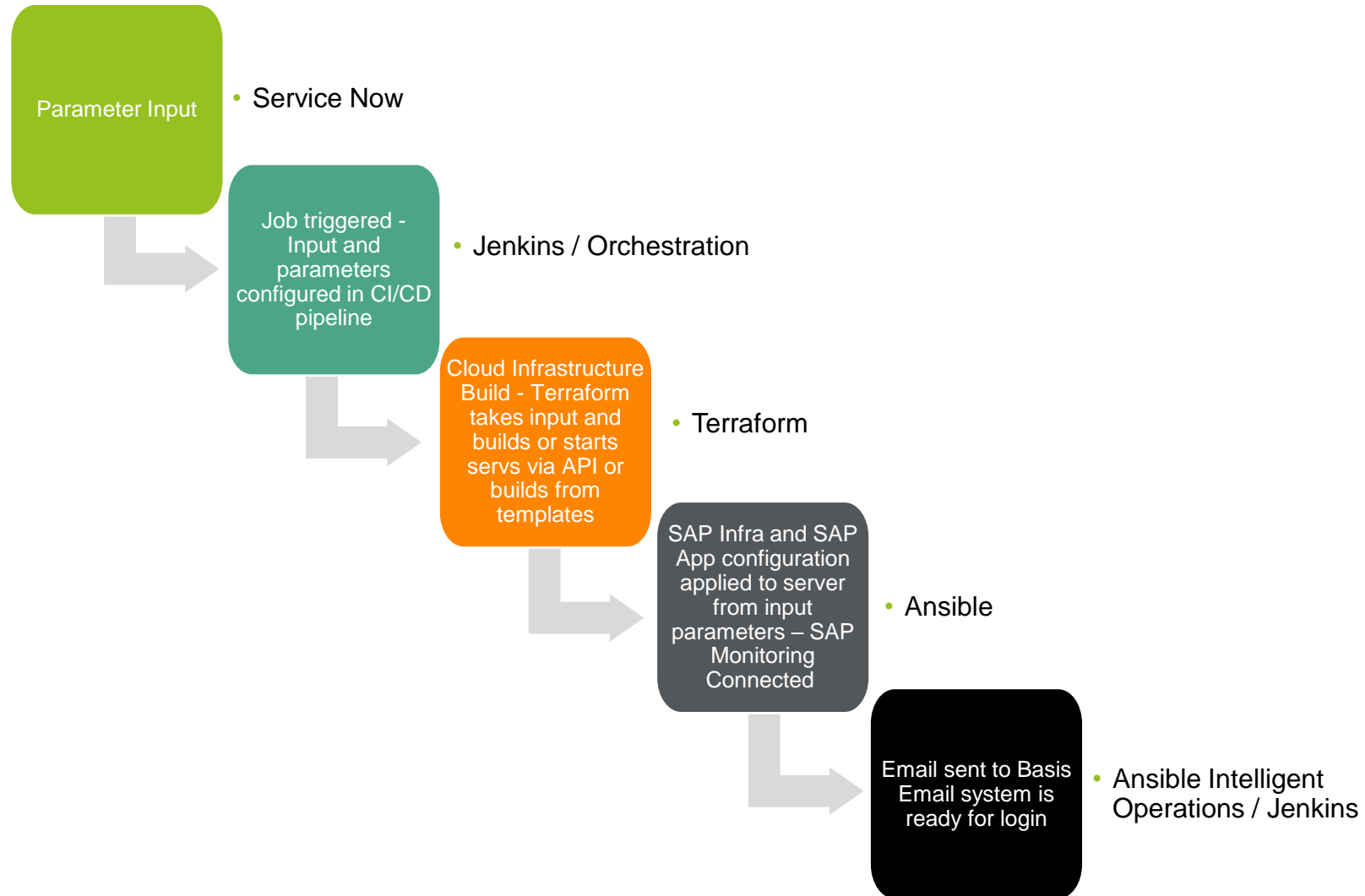
- OS parameters
- Auto install of DB
- DB parameters
- SAP application install
- Add-on installs
- Baseline security
- HA configuration
- DB replication
- Non-HANA log shipping

Operations as Code

- Bill of Materials
- Service Contracts
- Operational State
 - Confirm configuration
 - Validate patch levels
- Backup Status



Sample: SAP System Build Service

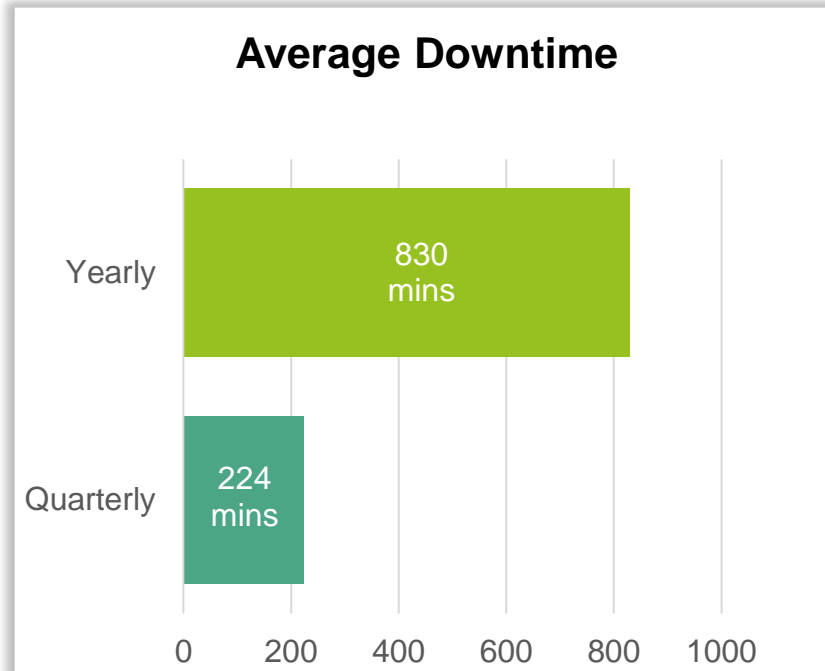
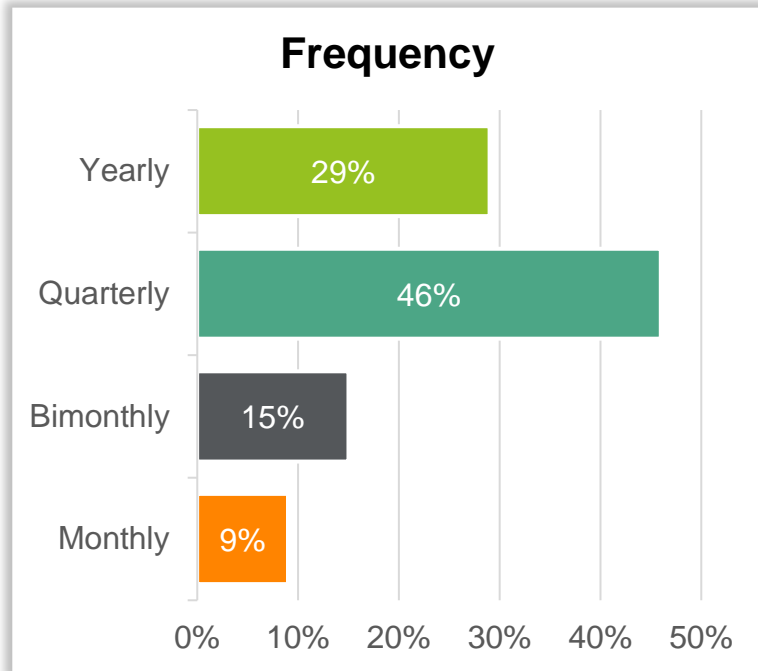




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Planned Downtime Challenges for IT Organization

Challenges with Planned Downtime*



**= \$7K USD / Min
& not frequent
enough**

Nearly 75% of large US enterprises conducted system maintenance operations only 1 to 4 times a year

On average, IT leaders stated that planned downtime costed their organizations \$1.5M quarterly and \$5.6M yearly

* Source: Forrester Research Inc., "The Real Costs of Planned and Unplanned Downtime"

Usually, obtaining a downtime window is the main blocker for applying fixes





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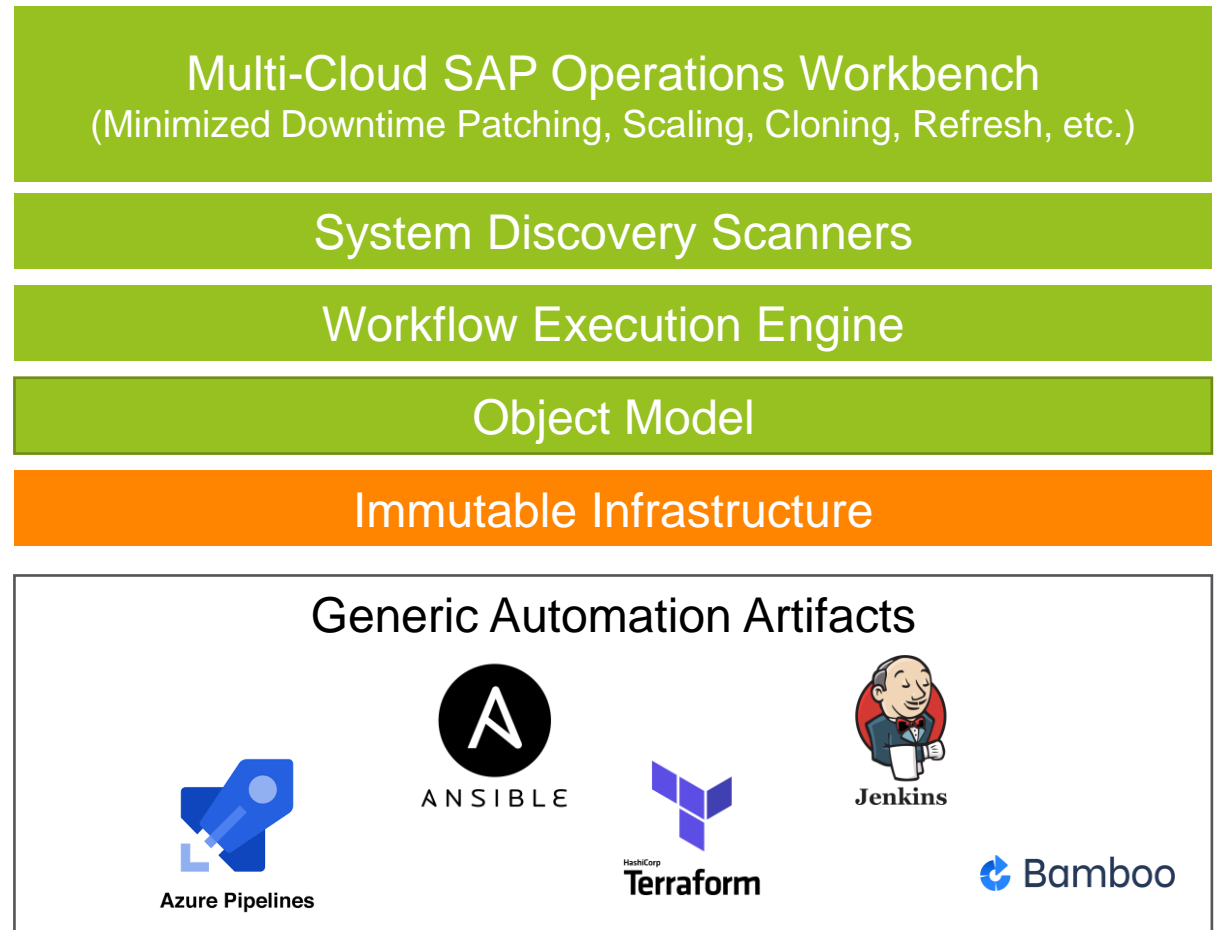
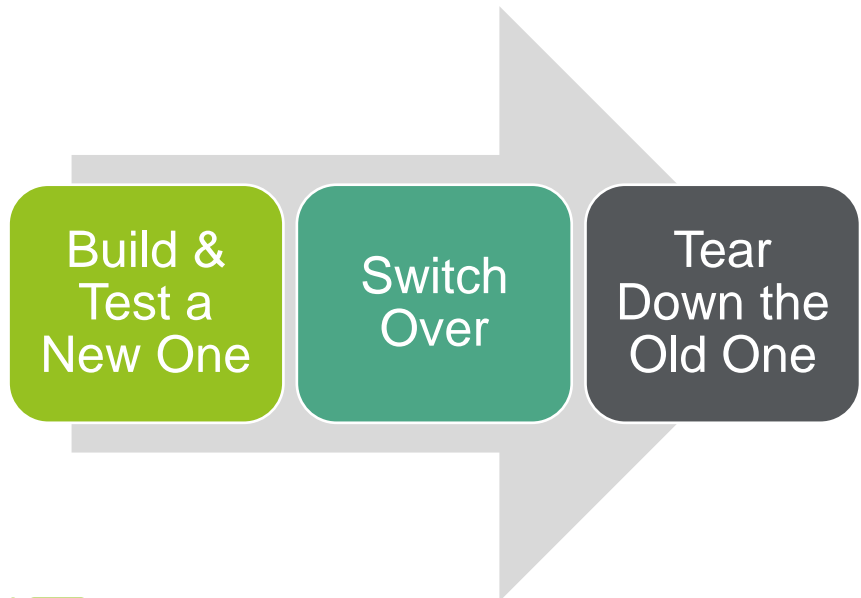
Minimized Downtime Operations (MDO™)*

***Patent Pending**

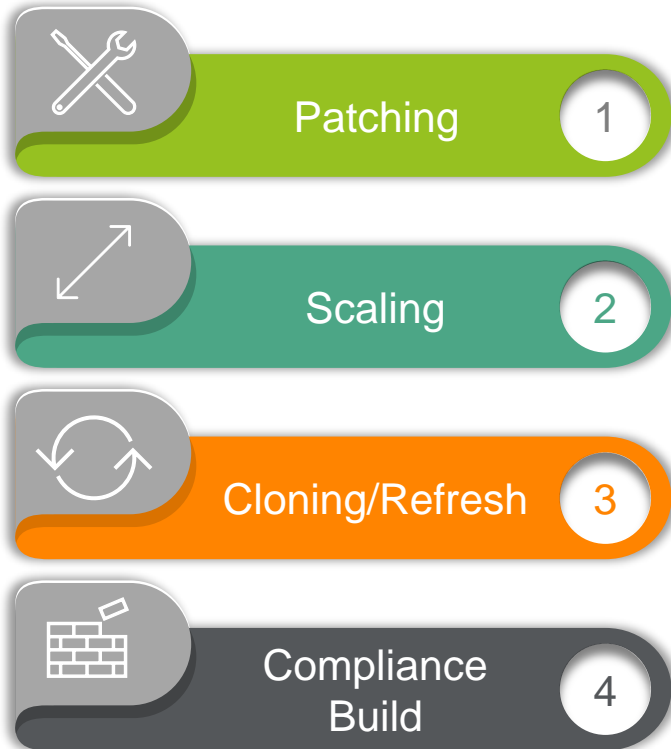
MDO™ (Minimized Downtime Operations) for SAP

A solution that allows customers or consultants to trigger, monitor, and schedule significant operations on SAP Systems and the infrastructure on which they reside, with:

- Very Low Complexity
- Very Low Effort
- Very Low Downtime



What Does MDO™ Do?

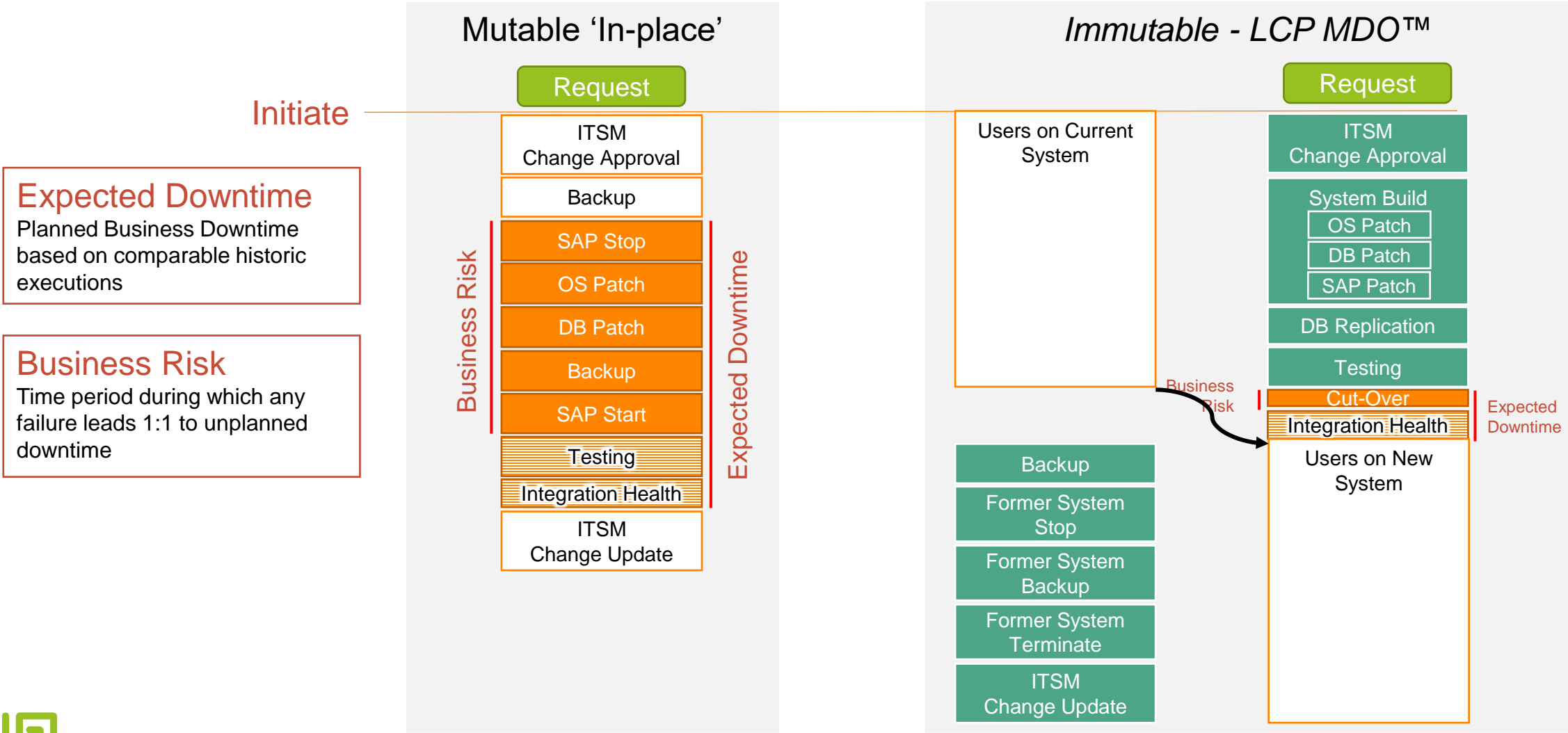


- Fail-forward patching/upgrade for OS, DB, and SAP Kernel patching
- Vertical scaling of SAP infrastructure (Compute & Storage)
- On-demand Horizontal App Server Scaling
- SAP system refresh
- Cloning to create a new SAP system
- Compliance build for ransomware prevention

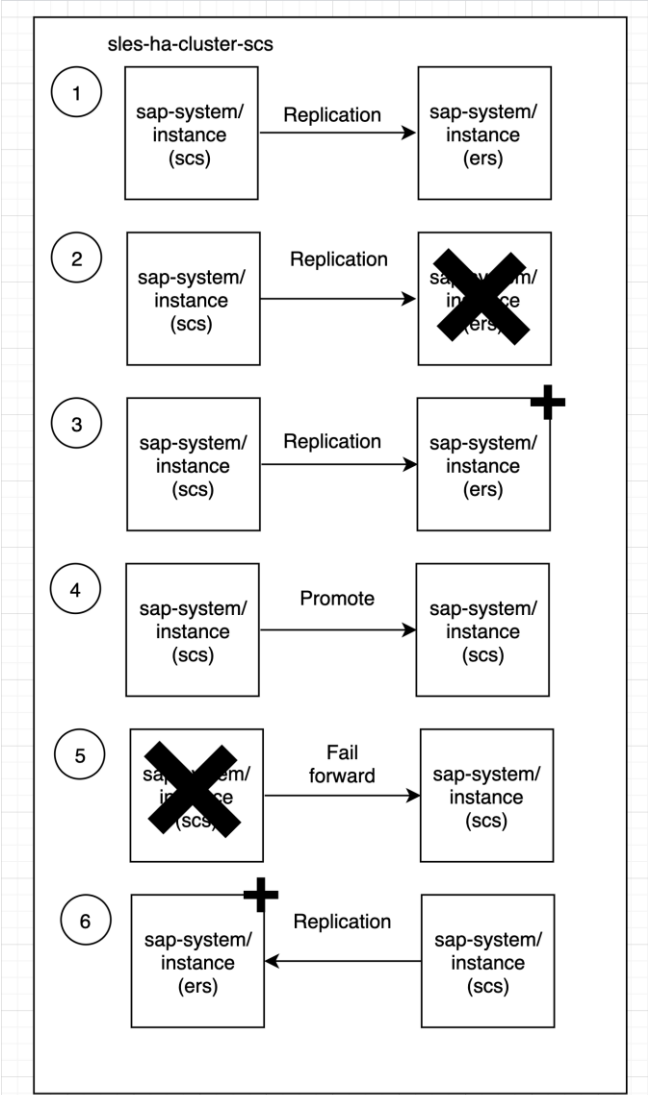
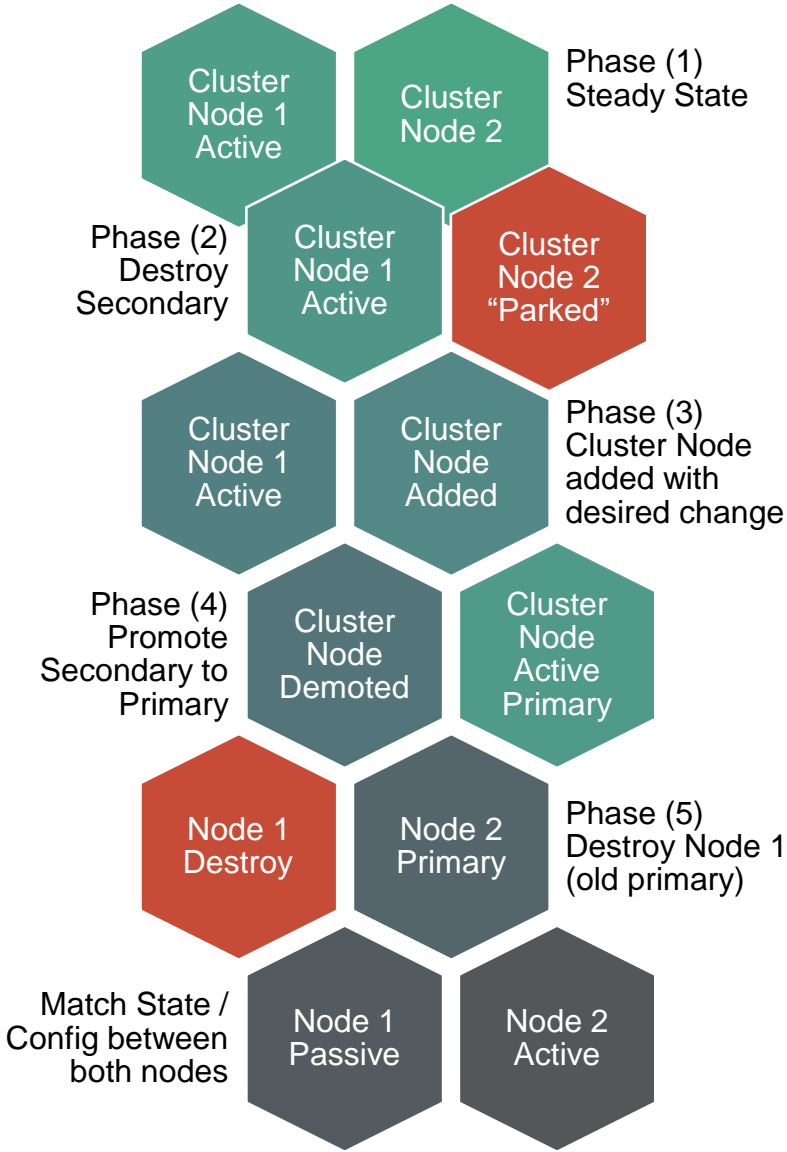


Reducing Planned Downtime

Mutable vs Immutable Operations



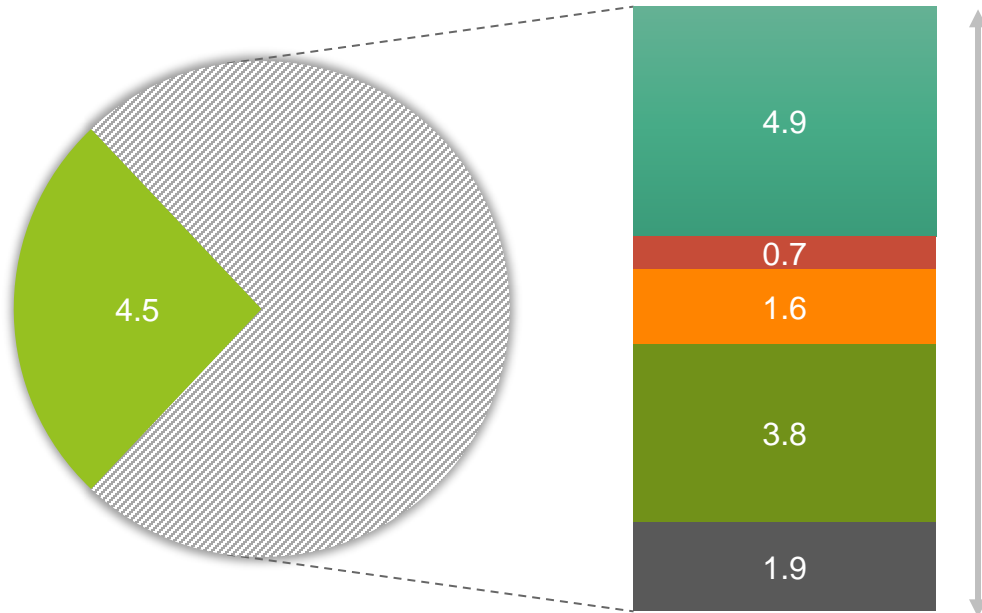
MDO™



MDO™ vs Non-MDO™ Maintenance

Data from Lemongrass Operate Non-MDO-enabled Customers

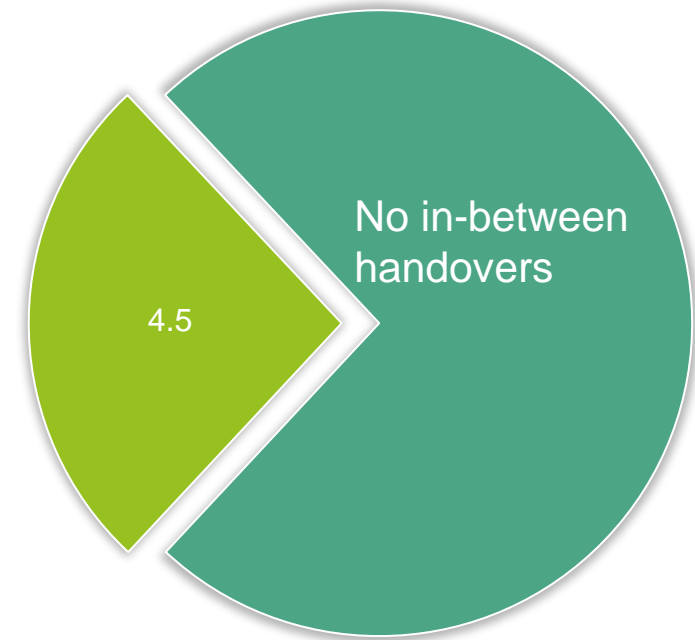
Typical Non-MDO-Enabled Maintenance Window Timeline (in hours)



■ Plan ■ Prep ■ Stop ■ Patch ■ Start ■ Post

Manual effort and multiple handovers amongst teams often result in long maintenance windows

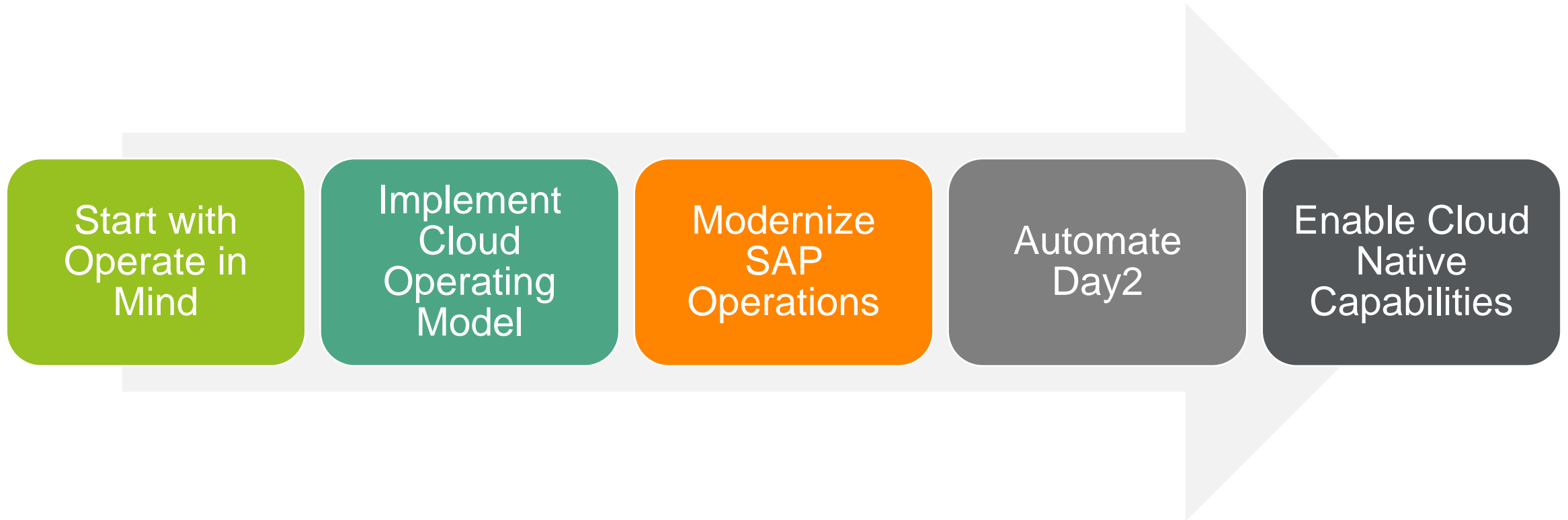
MDO-Enabled Maintenance Window (in hours)



■ Plan ■ Minimized Downtime Operation



Bring Cloud Automation to SAP





Q&A

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