



Protera

Building Excellence & Sharing Best Practices for SAP Migrations to Public Cloud



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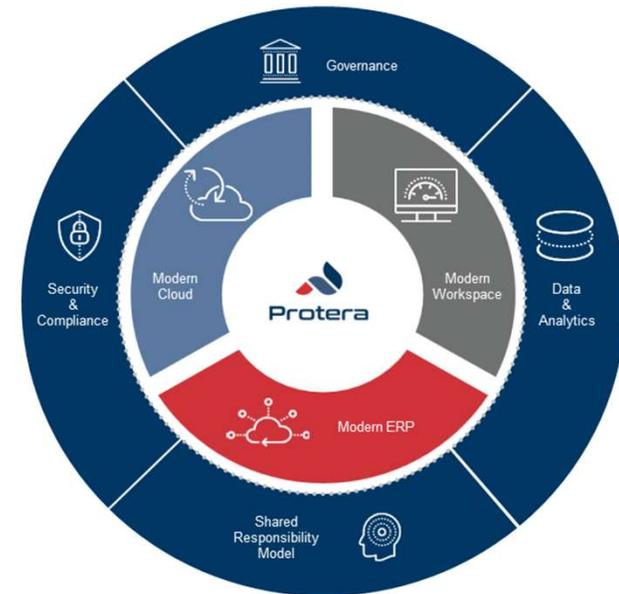
AGENDA

- Protera – Introductions
- Classic & Common – Cloud Migration Questions
- Best Practices –
 - SAP Applications Migration Approach
 - Cloud Adoption Framework/Well Architected Review
 - Migration Methodology, Plan & Sequencing
 - Automated Migration & Transformation
- SAP Migration Patterns
- SAP Testing during Public Cloud Migration Projects
- Migration Case Studies
- Q&A



The Next Generation Cloud Modernization Company with over twenty years of innovation, organic growth, and service excellence

| | | | | | | |
|----------------------------|-------------------|----------------------------------|-----------------------------------|-----------------------------|------------------------------------|----------------------------|
| | | | | | | |
| Founded as SAP consultancy | SAP certification | AWS partnership Partner ID #1675 | World's first SAP on public cloud | Microsoft Azure partnership | Internal Cloud Management Platform | Pamlico Capital investment |
| 1998 | 2008 | 2011 | 2012 | 2015 | 2016 | 2020 |



Assess and Design

- Discovery & Dependency Mapping
- Well Architected Review
- Cloud Adoption Framework



Implement & Modernize

- Cloud Migrations
- Well Architected Implementations
- Transformation & Modernization

Manage, Secure & Govern

- Proactive Managed Services
- Continuous Improvement
- Cost and Security Governance



SAP® Certified in Hosting Services
 SAP® Certified in Mobile Operations Services
 SAP® Certified in Cloud Services
 SAP® Certified in SAP HANA® Operations Service
 SAP® Certified in Application Management Services



Gold Cloud Platform
 Gold Datacenter
 Gold Data Analytics
 Gold Cloud Productivity
 Silver Security

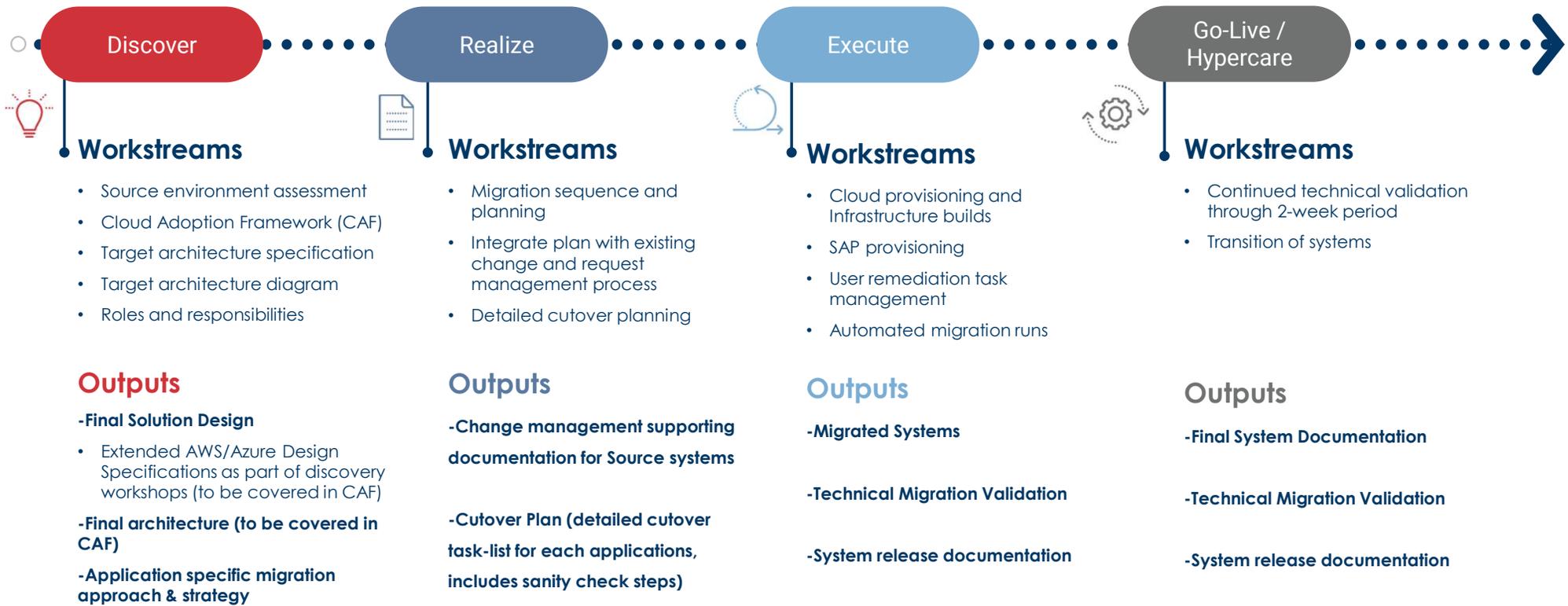


CLASSIC QUESTIONS FOR SAP CUSTOMERS IN CLOUD JOURNEY

- What should be my first step to cloud adoption?
- Should I change DB Platform to HANA or S/4 HANA while moving to cloud?
- How can I make my "lift and shift" project least disruptive and most cost optimized?
- How can I make sure that team is using latest cloud platform features for my deployment?
- How can I get the most economic value out of my SAP on cloud investments?
- What should I test during my cloud migration projects ? What is minimum required?
- How can I minimize my time and resource investment & complying to my governance requirements?
- How can I minimize my business downtime while going to cloud platform?
- How should I engage my IT and Business organizations after adopting SAP on cloud journey?
- Many more questions



MIGRATION APPROACH

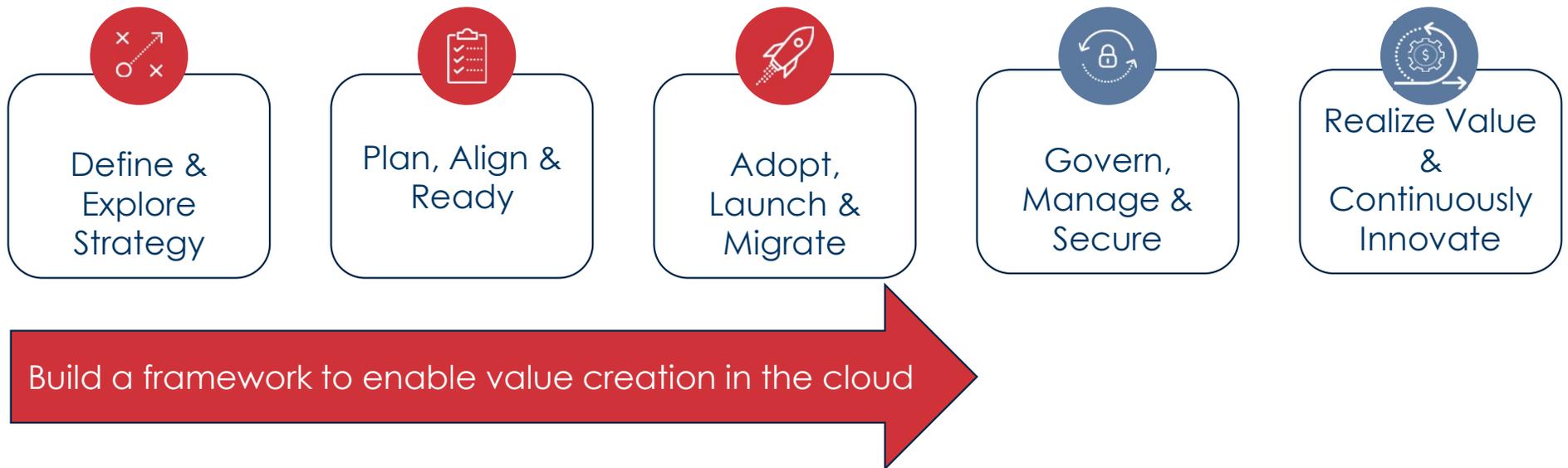


One-time Phases

Phases Repeat Per System

PROTERA CLOUD ADOPTION FRAMEWORK

Protera will walk through the CAF methodology to begin to define a customized cloud strategy, outlook, and landing zone.



DISCOVERY DATA COLLECTION

Discover



| PRE-REQUISITES | SESSION WORKLIST | DELIVERABLES |
|------------------------|--|--|
| Project Kickoff | <ul style="list-style-type: none">Tools Approvals by InfoSec (FFU)Tools Procurement / LicensingProject Team OnboardingAccess & CredentiallingBuild & Update AWS or Azure Software Media RepositoryTools DeploymentIntegration Testing & Readiness CheckInfoSec Sign-offDiscovery Tools deploymentSource System data collectionDocumentation TransferData Review & Approvals to Transfer | <ul style="list-style-type: none">Protera Arion Discovery DataAzure Migrate Source DataAWS Application Migration Service Setup |



DISCOVERY ANALYSIS

Discover



| PRE-REQUISITE | SESSION WORKLIST | DELIVERABLES |
|---|--|---|
| <p>Discovery Data Collection</p> | <ul style="list-style-type: none"> Application Inventory Validation Application Architecture, Landscape, Technical Documentation Review Release/Version/Patch Level review Interfaces, Application Dependency Review Output Management AppSec & InfoSec Requirements Migration Strategy by Application, Move Groups Project planning & finalization Cutover plan and schedule Change Management procedure review Break-out sessions as required | <ul style="list-style-type: none"> Finalized App Inventory Target Architecture & Design App Migration Methodology GAP Analysis App Migration Project Plan App Communication Plan App UX Plan App Operations Handover Plan |



WORKSTREAM – REALIZE

Realize



| PRE-REQUISITES | SESSION WORKLIST | DELIVERABLES |
|---------------------------|--|--|
| Discovery Analysis | <ul style="list-style-type: none">Project Plan Development & FinalizationChange & Request Management Procedure ExecutionMigration Move Group FinalizationMigration Downtime PlanningTarget Cloud Architecture ReviewTarget Application Landscape/System ReviewFinal InfoSec Review & ApprovalAutomation Deployment and Finalization | <ul style="list-style-type: none">Final Project PlanFinal Cutover PlanFinal Deployment PlanFinal Communication Plan |



EXECUTE

Execute



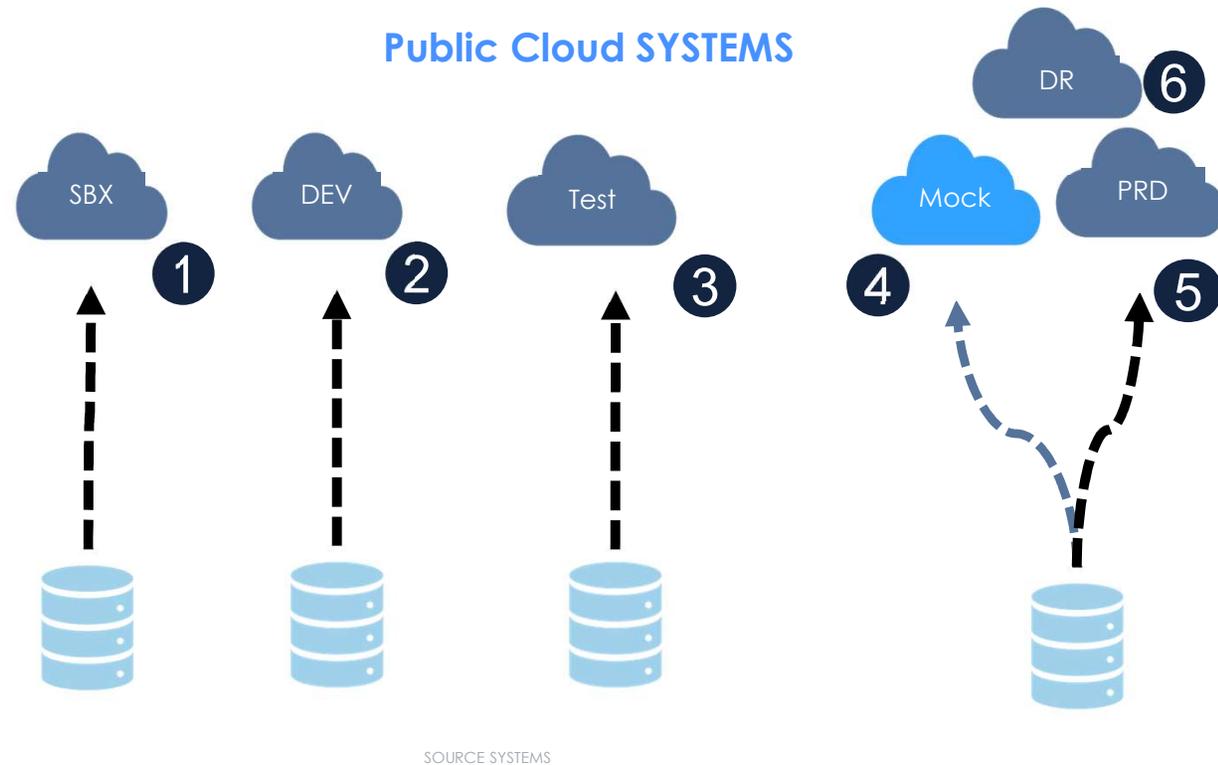
| PRE-REQUISITES | SESSION WORKLIST | DELIVERABLES |
|-----------------------|--|--|
| <p>Realize</p> | <p>Automated Deployment of Infrastructure</p> <p>Wave Group System Migrations:</p> <ul style="list-style-type: none">• Move Group 1• Move Group 2• Move Group 3• Etc. | <p>Target Infrastructure</p> <p>Migrated Move Groups</p> <p>System Release Documentation</p> <p>Move Group Testing</p> <p>Move Group Sign-off</p> <p>Updated Project/Cutover Plan</p> <p>Updated Issues Tracker</p> <p>Updated Risk Register</p> <p>PCR/Project CM</p> |



SYSTEM MIGRATION METHODOLOGY

- 1 Migrate SBX systems
- 2 Migrate DEV systems
- 3 Migrate Test systems
- 4 Perform MOCK run using PRD as source
 - Perform end to end testing
 - Capture/resolve issues due to migration
- 5 Migrate PRD systems
- 6 Build DR Functionality

Public Cloud SYSTEMS



**ALL systems in a System Type group migrated collectively at same time.
Discovery for application dependencies to confirm move groups.**

SAP TRANSFORMATION TO CLOUD PLATFORMS

Transformation methodology for SAP systems

| Step of Phase | LANDING ZONE | VM BUILD | VM CONFIG | PREP | DATABASE | APPLICATION | REPLICATION | CUTOVER |
|---------------|------------------|-----------------------------|----------------------------|-----------------------------|---------------------|-----------------------|---|--|
| Steps | WAN Connectivity | RHEL Linux Installation | Drive/File System Creation | Media Copy Server checks | HANA Installation | SAP appl installation | Initiation HANA System Replication (HSR) | System Health checks |
| | Subnets | ORACLE Linux Installation | Patching | Network checks | Oracle installation | App Parameters | | Source System Shutdown |
| | Security Groups | SUSE Linux Installation | Agent installs | Storage checks | MS SQL installation | App Configuration | ORACLE RMAN Replication | DB Encryption |
| | Resource Groups | Windows Server Installation | Kernel Parameters | | DB parameters | | SQL Server Replication | Target System Start |
| | DNS Mapping | | | | DB configuration | | Health check monitoring Alerting | Application Migration Sanity Check Business Process Testing |

Tooling



PROTERA – SAP MIGRATION PATTERNS

SAP NetWeaver AS ABAP

| |
|--|
| SAP Business Warehouse (BW) |
| SAP BW/4 HANA |
| SAP Customer Relationship Management (CRM) |
| SAP Enterprise Resource Planning (ERP) |
| SAP Fiori Frontend Systems (Fiori) |
| SAP Governance Risk and Compliance (GRC) |
| SAP Master Data Governance (MDG) |
| SAP Master Data Governance on S/4 HANA |
| SAP S/4 HANA |
| SAP Advanced Planning & Optimization (APO) |
| SAP Environment Health & Safety (EHS) |
| SAP Enterprise Warehouse Management (EWM) |
| SAP Landscape Transformation (SLT) |
| SAP Solution Manager |
| SAP Supply Chain Management (SCM) |
| SAP Supplier Relationship Management (SRM) |
| Additional Products.... |

SAP NetWeaver AS JAVA

| |
|---|
| SAP Adobe Document Services(ADS) |
| SAP Contract Lifecycle Management (CLM) |
| SAP Global Trade Services(GTS) |
| SAP NetWeaver Development integration (NWDI) |
| SAP Process Integration/Process Orchestration (PI/PO) |
| SAP AS Java Portal |
| SAP System Landscape Directory (SLD) |
| SAP Solution Manager |
| Additional Products.... |

Apache Tomcat

| |
|---|
| SAP Business Objects BI Platform |
| SAP Business Objects Data Services Platform |
| SAP Business Objects (CMS) |
| SAP Data Quality Management |
| Additional Products.... |

SAP Interfaces/Web Servers

| |
|--|
| Data Obfuscation |
| Data Provisioning |
| Syniti Data Steward Platform |
| SAP LiveCache |
| OpenText Archiving & Document Access (ADA) |
| CAL Reporting |
| BSI Tax Factory |
| SAP Dashboard |
| Paymetric |
| SAP iWarehouse |
| Redwood |
| OpenText Vendor Invoice Management (VIM) |
| SEEBURGER |
| SMTP Server |
| SAP Hybris e-Commerce |
| SAP Hybris Splunk |
| Additional Products.... |

Standalone Engines/Toolset Applications

| |
|---|
| Citrix |
| SAP HANA Cockpit |
| LDAP |
| Load Runner |
| WORKSOFT |
| SAP Landscape Virtualization Management (LVM) |
| SAP Access Control List |
| SAP EnableNow |
| SAP Front End |
| SAP Landscape Management |
| Tricentis LiveCompare |
| RF Console |
| SAP Value Lifecycle Manager |
| Wily Introscope |
| Xerox Mgmt Server |
| SAPRouter |
| System Refresh Automation |
| SAP SCM Optimizer |
| Terminal Server |
| Testing Tool |
| SAP LiveCache |
| Additional Products.... |

Protera Arion

- ✓ AWS Migration Services
- ✓ Azure Migrate – Source System Discovery
- ✓ Source System – Monitoring Data exports
- ✓ Arion Prepare & Explore
- ✓ Target DB Server Builds
- ✓ Target DB Installations
- ✓ Source to Target DB Replication Setup
- ✓ Azure Migrate – Replicate ready
- ✓ Pre-Migration capture (Arion + Test Tools)
- ✓ Target DB Takeover
- ✓ Target DB Encryption Setup
- ✓ Azure Migrate - Application Cutover
- ✓ Post-Migration Validate (Arion + Test Tools)



Protera Arion

- ✓ AWS Migration Services
- ✓ Azure Migrate – Source System Discovery
- ✓ Source System – Monitoring Data exports
- ✓ Source System – Technical exports (As applicable)
- ✓ Target DB Server Builds
- ✓ Target DB Installations
- ✓ Source to Target DB Replication Setup
- ✓ Azure Migrate – Replicate ready
- ✓ Pre-Migration capture (Test Tools)
- ✓ Target DB Takeover
- ✓ Target DB Encryption Setup
- ✓ Azure Migrate - Application Cutover
- ✓ Post-Migration Validate (Test Tools)



Protera Arion

- ✓ AWS Migration Services
- ✓ Azure Migrate – Source System Discovery
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- ✓ Target DB Server Builds
- ✓ Target DB Installations
- ✓ Source to Target DB Replication Setup
- ✓ Target System Builds
- ✓ Target Application Installations
- ✓ Pre-Migration capture (Test tools)
- ✓ Target DB Takeover
- ✓ Application Post Copy Steps
- ✓ Target DB Encryption Setup
- ✓ Post-Migration Validate (Test Tools)



Protera Arion

- ✓ AWS Migration Services
- ✓ Azure Migrate – Source Systems
- ✓ Monitoring Data - exports
- ✓ DB Server Builds (Interface App DBs)
- ✓ DB Replication Setup
- ✓ Azure Migrate – Replicate ready
- ✓ Pre-Migrate capture
- ✓ DB Takeover
- ✓ DB Encryption Setup (As applicable)
- ✓ Azure Migrate - Application Cutover
- ✓ Post-Migration Validate (Test tools)

Protera Arion

- ✓ Toolset Server Builds & Installations
- ✓ Toolset Servers – Management Setup
- ✓ Azure Migrate – For Standalone Engines



SAP TESTING DURING CLOUD MIGRATIONS

Why Testing is important for SAP Cloud Transformations:

- Identify and mitigate risks associated with migration to the cloud
- Ensure compatibility with existing systems and applications
- Ensure data integrity and accuracy
- Ensure that the migrated applications meet functional and non-functional requirements

SAP TESTING – GUIDELINES FOR CLOUD MIGRATION

Testing Strategies for AS-IS SAP Cloud Transformations

| Area of Testing | Scope of Testing |
|-----------------|------------------|
| UNIT | REQUIRED |
| DATA | REQUIRED |
| INTEGRATION | EXTENSIVE |
| SYSTEM | REQUIRED |
| PERFORMANCE | EXTENSIVE |
| SECURITY | REQUIRED |
| USER ACCEPTANCE | REQUIRED |

Protera can offer Testing services for any of the above areas as part of Transformation Add-On services.

Best Practices for SAP Transformation Testing

- Develop a comprehensive testing plan that includes all types of testing
- Test early and often
- Test data migration and integration with existing systems
- Automate testing wherever possible
- Document test cases and results thoroughly
Collaborate with all stakeholders, including IT, business, and end-users



Case Study



About Client: Marathon Petroleum

Marathon Petroleum Corporation is a refining, marketing, and transportation company headquartered in Findlay, Ohio.

To meet transformation goals of reducing CapEx and the on-premises footprint in line with sustainability targets, Marathon Petroleum selected **Protera** to transition their SAP landscapes to Microsoft Azure.



Challenge

- Reduce CapEx
- Modernize IT landscape while reducing footprint
- Optimize operations between data centers and cloud



Solution

- Migrate 100+TB of SAP S/4HANA, BW 4/HANA and non-SAP workloads to Azure
- Modernize platform and consolidate
- Ongoing cloud and SAP Basis managed services



Result

- Re-platformed over 450 systems on Azure in just 6 months from kickoff
- 12-hour cutover window for 120+ production systems

2022

Go-Live of 450+ systems on Microsoft Azure

Agile based development of 100% automated DR Testing

2021

Marathon Petroleum selects **Protera** for migration of their SAP and non-SAP workloads



“Our goal at Marathon Petroleum was to transform our enterprise systems by leveraging best-in-class native Azure technologies. With Protera, we have met our strategic objective to reduce costs while achieving consistent operational practices between our data center(s) and cloud.”

Barry Huff, Manager IT





Case Study



About Client: Ingevity

Ingevity Corporation (NYSE: NGVT) headquartered in Charleston, SC, manufactures and sells specialty chemicals and carbon materials in the United States and internationally.



Challenge

- Reduce overall cost and complexity of SAP and non-SAP landscape
- Improving scalability, resiliency and performance



Solution

- Protera designed and sized landscape on Azure
- Ongoing managed services



Result

- 74TB migrated to Azure over 4 months
- Easily scale environment to meet business demands

2022

Security Governance
Continued SAP S/4HANA rollout

2022

SAP S/4 HANA Go-live for Warrington plant

2021

SAP S/4HANA transformation kickoff

2020

Go Live: 600+ systems migrated and deployed on Azure

2019

Ingevity selects **Protera** for the hosting of their SAP systems on Microsoft Azure to accelerate objectives



"We are not worried about the day-to-day operations, instead, we are looking forward and focusing on digitally transforming the business. Protera brings great tools and processes to the table, and as our cloud service provider, is running the show for us in the background."

Jody Barnes, Interim CIO, Ingevity





Case Study



About Client: L.B. Foster

Established in 1902, L.B. Foster Company is a U.S. headquartered provider of manufactured solutions that are used to build and support infrastructure throughout the world.



Challenge

- Sought to move from green screen JD Edwards to SAP
- Migrate SAP workloads within fixed deadline
- Match IT strategy and tools to innovative product line
- Create a proactive environment



Solution

- Migrate SAP workloads in 16 weeks
- Transform systems to SAP S/4HANA
- Adopt FinOps strategies to improve supply chain and impact bottom line



Result

- Improved speed and availability of systems
- Leveraging cutting edge SAP S/4HANA infrastructure
- Drive zero unplanned downtime
- Achieve data-driven strategy to support end users

2022

Expanding footprint on AWS cloud

2018

Replaced legacy user interfaces with SAP Fiori

2016

Implemented SAP S/4HANA

2015

LB. Foster selected Protera as a migration and SAP managed services provider



“When I go to bed at night, I feel much more comfortable knowing **Protera is supporting my SAP** environment and creates peace of mind.”

Brendan Verni, VP IT

LB Foster



Case Study



About Client: Greenskies

As a fully integrated commercial solar developer, Greenskies Clean Energy brings solar to companies and municipalities across the United States at little to no upfront cost.

To support and drive continued growth in a cyclical and competitive industry, Greenskies selected **Protera** to transition their SAP landscapes to AWS.



Challenge

- Reduce cost
- Modernize IT landscape
- Differentiate in a cyclical and competitive industry,
- Drive continued growth



Solution

- Migrated SAP systems to AWS
- Transformed to SAP S/4HANA
- Ongoing cloud managed services



Result

- 80% Cost savings / 60% time savings in HANA upgrades
- 6X Operations increase with only 2X workforce increase
- Aggregating analytics from S/4HANA, financial and homegrown applications

2021

AWS Footprint optimization

2018

SAP BOBJ from 2 tier to 3 tier

2017

Greenskies expands AWS Footprint
• Migration of on-premise SAP BOBJ landscape to AWS

2016

Go-Live –
SAP S/4HANA landscape

2015

Greenskies selects **Protera** for the Hosting of their SAP S/4 systems with the objective to rollout SAP internally and connect on-premise BOBJ



“Since 2015, our operating portfolio and our operations have grown six-fold, 600%, and we’ve only had to double our workforce to accommodate. Running SAP on AWS managed by Protera, we’ve been able to keep OpEx low, still hit our margins, and really thrive in the commercial solar industry.”

Eric Zenner, VP of IT, Greenskies



Schedule a discovery call with the Protera team



Jatin Oza
Director - AMS

Protera.com/contact-us