Adastra Oracle Migration to Azure

Kevin Harmer

About Adastra

Adastra: #1 Data / AI Partner

Microsoft Impact Awards Won: Analytics, AI, Data Platform Modernization, Financial Services, Manufacturing, Commercial
Microsoft Impact Awards Runner-Up: Partner of the Year, Global Analytics, Global Power BI, Migration, Customer Journey

Ability to Scale

With over 2500 GLOBAL staff, 500 CDN staff, and 500 Azure and Power Platform specialists, Adastra is ready to scale

Complete Stack Delivery

Azure Infrastructure, Azure App Dev, Azure BizApps (O365 / D365), Azure BI Analytics, Azure Big Data, Azure Data Science, and Power Platform

Proven Success

Adastra has the best record in Canada, successfully driving customer Azure adoption / ROI for over 200 organizations in the last two years

Agility

Adastra delivers for customers of all sizes: from SMC to Enterprise

Best Shore Delivery

Adastra's best shore delivery model ensures top global experts can be applied to any project and provides offshore economies of scale for heavy lift tasks, with global teams working in partnership with our on-location experts.
Adastra offers global 24 / 7 delivery and support, through our NA, EUR, and ASIA teams.

Adastra's Deep Microsoft Partnership

Microsoft Solutions Partner
Data & AI
Azure

Specialist
Windows Server and SQL Server
  Migration
Analytics

Microsoft Solutions Partner
Infrastructure
Azure

Specialist
Windows Server and SQL Server
  Migration

Microsoft Solutions Partner
Digital & App Innovation
Azure

Specialist
Low Code Application
Development

Microsoft Solutions Partner
Business Applications

Specialist
Low Code Application
Development

Adastra: Go-To Partner for Data & AI

- **10x** Impact Award Winner

- **12x** Impact Award Runner-Up

- **2x** Global Impact Award Runner-Up

- Advanced Specialization for   Azure Analytics

- Advanced Specialization for Azure Migration

- Azure Migration Factory Partner

- Microsoft Fabric 50 Partner

- Product Team Collaboration Partner across Fabric / Databricks / Synapse / Purview products

Adastra Azure Specializations

AZURE FOUNDATION

cloud adoption framework, well architected framework, tenant design, resource naming, service tag approach, network architecture, governance design, tco analysis, hybrid network implementation, devops integration, azure foundation implementation, iac automation, …

AZURE APP / DATA

app / data assessment, app / data decisioning (lift / shift vs modernize), app / data architecture, api architecture, microservices architecture, app/ data security design, migration roadmap, migration execution, iac pipelines, devops integration, …

AZURE SECURITY

security assessment, identity strategy, role based access, secrets management, encryption, data loss protection, api management, private zone configuration, siem / soar integration, policy enforcement, security implementation …

AZURE ANALYTICS

analytics assessment, analytics architecture, analytics roadmap, data zoning, enterprise model design (kimball, inmon, data vault), ETL data pipelines, persona enablement, citizen report development, trusted data as a service, …

AZURE LAKEHOUSE

lakehouse assessment, data lake design, Hadoop integration, pyspark data engineering, ELT pipelines, spark delta lake, spark streaming, serverless compute, devops integration, …

AZURE AI / ML

advanced analytics assessment, cognitive service integration, r&d model training / testing, mlops implementation, ai / ml pipelines, data science workbench automation, devops integration, …

POWER PLATFORM

citizen development assessment, power platform governance, roles / responsibilities, environment strategy, CoE kit, canvas / model apps, power automate flows, power automate rpa, power platform dataverse, power bi datasets / reports, …

AZURE DATA GOVERNANCE

data governance assessment, data catalog, data classification, data sensitivity, data use governance, data privacy, data lineage, master data management, data quality management, reference data management, …

AZURE INTEGRATION PAAS

integration paas assessment, api management, logic workflows, service bus management, event grid distribution, peer to peer patterns, pubsub patterns, managed file transfers, iot telemetry streaming, iot edge device management, ...

Adastra's Azure Team

500 Azure Specialists (400 D&A, 100 CORE)	**75 Azure Architects (55 D&A, 20 CORE)**	**50 Azure Data Scientists**
250 Azure Certified Resources	**275 Azure Data Engineers**	**125 Power Platform Specialists**

Adastra's Global Presence

Adastra Offices

CANADA
Toronto
Calgary
Ottawa
Vancouver
Montreal

UNITED STATES
Los Angeles
Miami
New York

AUSTRIA/ SLOVAKIA
Bratislava

CZECH REPUBLIC
Prague

GERMANY
Frankfurt
Wolfsburg
Hanover
Munich
Magdeburg
Darmstadt

BULGARIA
Sofia
Varna
Plovdiv

GREECE
Thessaloniki

THAILAND
Bangkok
Chiang Mai

Countries where we have delivered projects

8
Countries

22
Offices

500+
Customers

2,200+
Professionals

40+
Countries where we have delivered projects

20+
Languages supported

Realize Your Data-Driven Destiny

For 20+ years, customers have trusted Adastra to design and deliver comprehensive data-driven solutions that fuel efficiency, innovation and long-term success. Our diverse set of Superpowers transform the way organizations utilize their data, unlocking its full potential.

Our Customers

Applied AI
- Gen AI Deployment
- AI/ML Production

Data Insights
- Business Intelligence
- Data Analysis
- Internet of Things

Data Mastery
- Data Security
- Data Governance
- Data Engineering

Strategic Visioning
- Business Consulting
- Cloud, Data & AI Strategy

Digital Transformation
- Application Innovation
- Software Engineering
- Hyper Automation

Cloud Enablement
- Cloud Migration & Optimization
- Managed Services

ADASTRA'S Superpowers

Data is the heartbeat of every organization - it brings strategy to life and enables great customer experiences.

For over 20 years, Adastra has been driving our customers forward leveraging Data & AI as a guiding light and business enabler.
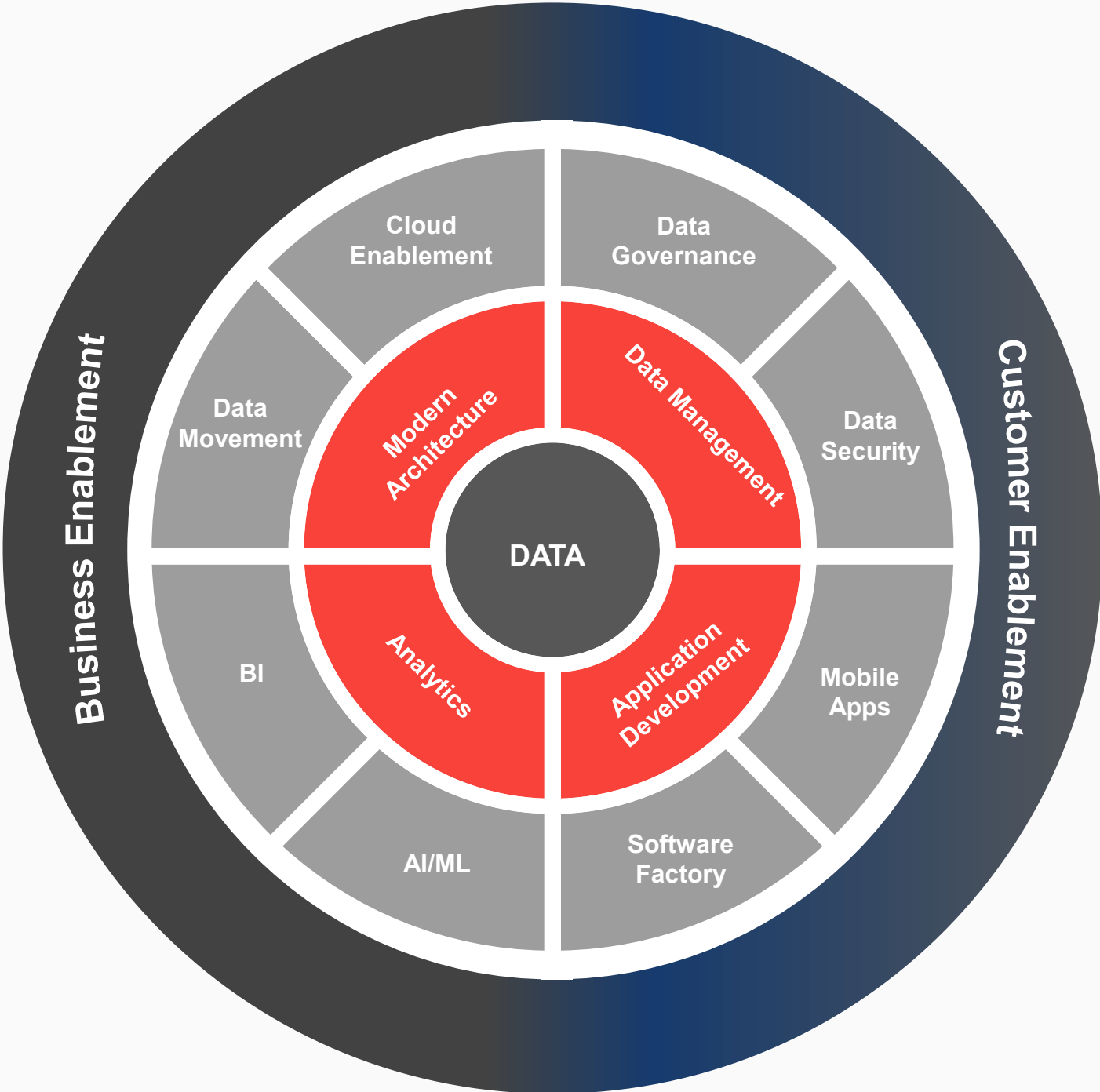
Impact at Customers

400% Business Growth Facilitated by an Azure Cloud Migration at large logistics company

8x faster system integration

400% business growth facilitated

140 virtual machines migrated to Azure

70% improvement in data acquisition speed using Lucid and GenAI for Microsoft Fabric Modernization.

Processed **1.3TB** of POS transaction data from the last 2.5 years.

Over **2 billion** item transactions over 190 supermarkets.

400x reduction in turn-around time for POS data onboarding

20x increase in development speed.

10x cost savings.

Manufacturing process optimization decreased CO2 emissions and shipment costs by 20%

20% decrease in shipment costs

20% lower CO2 emissions

Adastra Azure Offers

Azure Data Integration

Azure Integration PaaS Framework	Accelerate guaranteed message delivery for A2A, B2B, EDI, and MFT use cases, using Adastra's iPaaS framework built on Azure Logic Apps / Service Bus.
Azure Ingestion Framework	Accelerate batch / streaming data to Azure, using Adastra's ingestion framework based on data factory / spark + kafka; metadata driven with resiliency.
Azure IoT Framework	Accelerate IoT integration using Adastra's IoT framework built on Azure IoT Hub / IoT Edge, supporting Edge and Azure IoT Central patterns.

Azure Analytics Modernization

Azure Synapse Modernization	Implement Centralized DaaS or Data Mesh using Adastra's framework for fully integrated pipeline / sql / spark on Azure Synapse Analytics.
Azure Lakehouse Modernization	Implement Centralized DaaS or Data Mesh using Adastra's framework for bronze / silver / gold data lake zones managed by Azure Synapse / Databricks.
Azure Enterprise Search	Facilitate search and analysis of large volumes of unstructured data using Adastra's search framework on Azure Cognitive Search / Power BI.
Advanced Analytics Enablement	Facilitate your advanced analytics in Azure journey thru governance, R&D workbench, and MLOps phases using Adastra's framework.

Azure Core / App Modernization

Azure Landing Zone	Establish or improve design for an Azure tenant, with the right security, network, and governance design, using Adastra's cloud adoption framework.
Azure App Modernization	Assess and modernize your application hosting, leveraging Azure App / Kubernetes services, while supporting edge governance thru Azure Arc.

Azure Data Platform Migration

Azure SQL Migration	Lower database platform costs / risks by modernizing on premise DB's (SQL, Oracle, DB2, Sybase, …) using Adastra's accelerated migration.
Data Warehouse Migration	Unleash new cloud analytics capability by migrating your premise data warehouse to Azure Synapse Analytics using Adastra's accelerated migration.
Hadoop Migration Framework	Improve performance and reduce complexity by modernizing your Hadoop environment to Azure, converting to data lake / spark / sql processes.

Azure Data Governance

Azure Purview Implementation	Enable data democracy and risk mitigation, and position for future data use governance, thru Adastra's Azure Purview implementation.
Better Together Data Governance	Extend Azure Purview to cover Master Data Management, using Adastra's Purview / Ataccama connector, thereby completing the Azure DG loop.

Power Platform

Power Platform Governance	While Power Platform enables citizen solutions, ensure management and guardrails using Adastra's Power BI / App / Automate governance framework.
Power BI Migration	Facilitate mass migration of legacy reports to Power BI, using Adastra's migration accelerators / methodologies.
Power Automate RPA	Thru Adastra process mining, identify manual time intensive processes that are candidates for automation, then /w Adastra help convert to RPA.
Power App Deployment	With Adastra, drive transformational change by piloting interactive Power Apps and training users, to unleash app development by analysts.

Additional Technology Offers

Azure Intelligent Data Platform: Integration Offers

D365 Data Integration	Leverage Adastra's D365 Data Integration framework to integrate D365 Data, in real-time, with Azure's Intelligent Data Platform. Leverages Azure Data Lake trickle feed to integrate data in real-time, for D365 / Other integrated analytics.
SAP Data Integration	Leverage Adastra's SAP Data Integration framework to integrate SAP Data, in real-time, with Azure's Intelligent Data Platform. Supports SAP ECC, SAP HANA, SAP BW, and SAP Cloud Platform sources.
Salesforce Data Integration	Leverage Adastra's Salesforce Data Integration framework to integrate Salesforce Data, in real-time (via API or streaming patterns), with Azure's Intelligent Data Platform. Leverages API calls or Push Topics / Bayeux to achieve real-time.
Workday Data Integration	Leverage Adastra's Workday Data Integration framework to integrate Workday Data, in real-time, with Azure's Intelligent Data Platform. Supports multiple Workday instance integration, and includes Workday / Azure IDP integrated security.
Guidewire Data Integration	Leverage Adastra's Guidewire Data Integration framework to integrate Guidewire Data, in real-time, with Azure's Intelligent Data Platform. Enables analytics on Guidewire data, and optionally leverages the Synapse Insurance template.
Maximo Data Integration	Leverage Adastra's Maximo Data Integration framework to integrate Maximo Data, in real-time, with Azure's Intelligent Data Platform. Enables self service and advanced analytics on assets, projects, and work. Supports batch and streaming patterns.
OSISoft PI Data Integration	Leverage Adastra's OSISoft PI Data Integration framework to integrate OSISoft PI real-time telemetry data with Azure's Intelligent Data Platform. Includes an OSISoft PI tiered architecture, for performance / consistency at scale.

NOTE: Adastra also has experience integrating >200 additional sources (Peoplesoft, Infor, Yardi, JD Edwards, …) with Azure Intelligent Data Platform.

Virtual / Mixed Reality Offers

Hololens + D365 Guides	Leverage Adastra's framework for Hololens / D365 Guides deployment, to empower employees where the work happens by layering interactive guides and training through augmented reality. Improves employee efficiency, quality, and safety.
Hololens + D365 Remote Assist	Leverage Adastra's framework for Hololens / D365 Remote Assist deployment, to empower employee collaborative assistance where the issue occurs. Enables team collaboration via the assistee's real world view through augmented reality.
Azure Digital Twin	Leverage Adastra's framework for Azure Digital Twin (/w optional VR Headset) to create interactive virtual digital twins, covering real world places, processes, and people. Enables optimized operations, cost reductions, and improved products / experiences.

Adastra Supported Oracle Migration Patterns

Type	Oracle Source	Azure Target
OLTP Modernization	Oracle	Azure SQL
	Oracle	Azure Postgresql
OLTP Lift / Shift	Oracle	Azure Virtual Machine
EDW Modernization	Exadata	Azure Postgresql Citus
	Exadata	Azure Synapse
	Exadata	Azure Databricks

Why Migrate Oracle to Azure?

Innovation & Growth Benefits

Organizations that harness data, the cloud, and AI outperform their peers

~2X Operating margin   **>$100M** Additional operating income

Keystone Research CIO Survey

Infrastructure
80% reduction in administrative work

Remove patching, network setup, firewall configuration

Enable application innovation

Forrester TEI of Azure

Apps
Websites running in minutes

Remove the need to wait for servers

Improve app delivery time by 50%

Forrester TEI of Azure

Infrastructure
New data analysis approaches

With cloud, we collect data we couldn't before

Make personal connections that standout in a sea of information

Anheuser-Busch InBev

Achieve Differentiating Value

Security

6.5 trillion threat signals analyzed daily

3,500 security experts

$1 billion per year investment in security

Innovation

Intelligent capabilities, trained on millions of DBs

Only cloud with evergreen SQL, which never needs to be patched or updated

Only fully-managed service for any .NET app

Offers

Up to 5x less expensive than AWS

Azure Hybrid Benefit

Free Extended Security Updates

Leadership in performance and scale

Built-in Hybrid

Operate seamlessly across your datacenter and the cloud

Only cloud provider with end-to-end hybrid infrastructure

2.5M+ hybrid enabled Windows Servers through Windows Admin Center

Most comprehensive backward and forward SQL compatibility with Azure SQL DB Managed Instance

Layered Data Security Approach

Advanced Threat Protection

Information Protection : Data Discovery & Classification
Vulnerability scanning : Vulnerability Assessment
Threat Detection   : Advanced Threat Detection
Centralized dashboard : ASC Integration & OMS Integration

Access Management

Network access   : SQL Firewall + VNET Service Endpoints
Database access   : SQL & AAD Universal Auth + MFA
Granular permissions : SQL roles, permissions model

Data Protection

Encryption at rest   : Transparent Data Encryption
Encryption in use   : Always Encrypted
App data protection   : Row-Level Security and Dynamic Data Masking
Monitoring   : Auditing

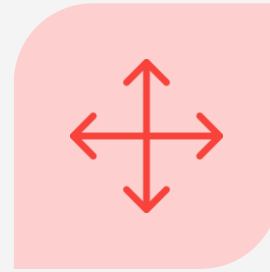**Compliance:** FedRAMP, HIPAA, PCI, EU Model Clauses, GDPR, UK G-Cloud, ISO

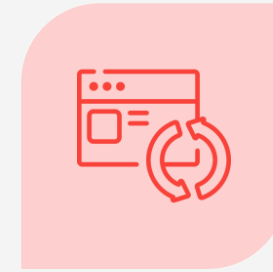# Resolve Current State Challenges

Datacenter
contracts expiry

Quickly integrate
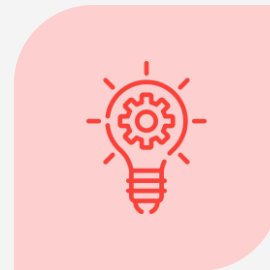acquisitions
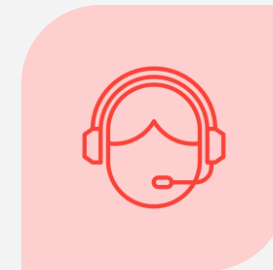
Urgent capacity
needs

Software and
hardware refresh

Security threats

Compliance

Application
innovation

Software end of
support

Modernization Decisioning

Azure Data Platform Options

Azure SQL Database	Azure Synapse Data Warehouse	Azure Database for PostgreSQL	Azure Database for MySQL	Azure Database for MariaDB

Database Services Platform

Intelligent
Advisors, tuning, monitoring

Flexible
Independent scaling of compute & storage, resource governance

Trusted
HA/DR, backup/restore, security, audit, isolation

GEO Replication

Azure compute

Azure storage

Globally Available in 54 Regions

- Power BI
- Azure App Services
- Azure Data Factory
- Azure Analysis Services
- Azure Machine Learning
- Azure Cognitive Services
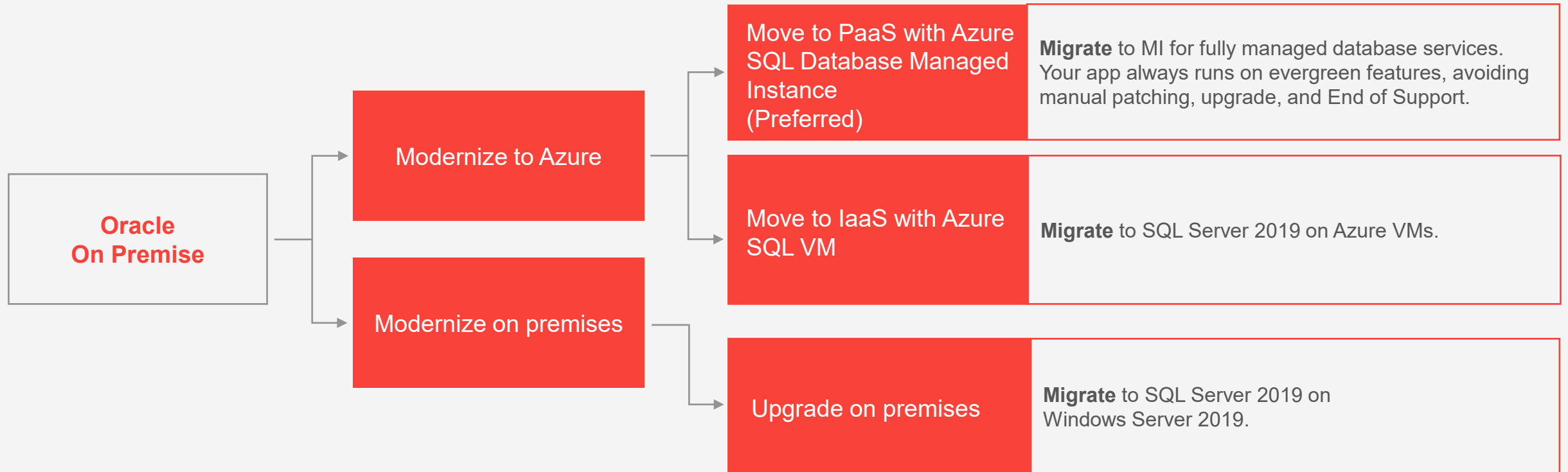- Azure Bot Service

Migration Options Targeting Azure SQL

Oracle
On Premise

Modernize to Azure

Modernize on premises

Move to PaaS with Azure SQL Database Managed Instance (Preferred)

Migrate to MI for fully managed database services. Your app always runs on evergreen features, avoiding manual patching, upgrade, and End of Support.

Move to IaaS with Azure SQL VM

Migrate to SQL Server 2019 on Azure VMs.

Upgrade on premises

Migrate to SQL Server 2019 on Windows Server 2019.

Azure SQL Database Managed Instance:
The best destination for fully-managed SQL in the cloud

|	
Evergreen SQL	• Eliminates manual patching, upgrades and end of support
Best TCO	• Meets mission critical requirements • Costs 86% less than SQL Server on AWS RDS[1]
SQL Parity	• Full parity based on 100% code consistency, supporting source version back to SQL 2005
SQL Support	• Up to 99.995% availability SLA, industry's only business continuity SLA
PaaS++	• Machine-Learning based, intelligent performance and security on top of PaaS

The Synapse Option for Analytical Workloads

To effectively cover modern analytics, spark engines (for advanced analytics), sql engines (for structured analytics), and time series engines (for event telemetry analytics) are required.

Azure Synapse Analytics is the only cloud service to seamlessly integrate multiple engines, to deliver a unified modern analytics environment covering any analytics requirement.
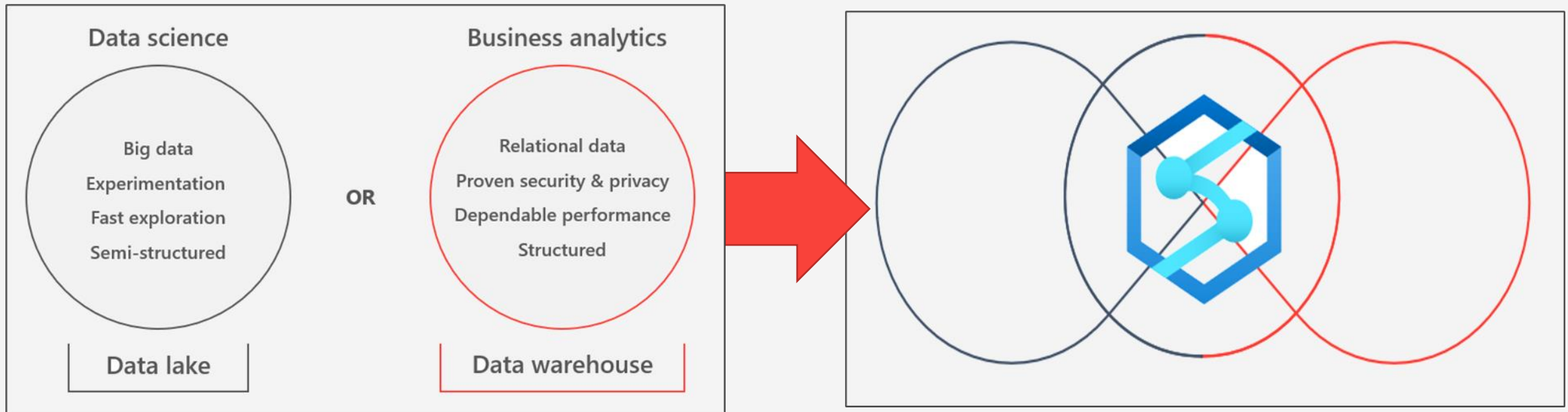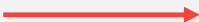
Oracle to Azure Modernization Approach
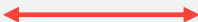
Migration Planning and Execution

Migration plan

TCO | Target workloads | Approach (e.g., Rehost) | Timelines
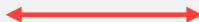
Assess → **Migrate** ↔ **Optimize** ↔ **Secure and manage**

Adastra: Azure Migration Partner

Best Practice Governance

Microsoft Cloud Adoption Framework for Azure

Guide's Adastra's Azure data migration, ensuring the right foundation for cloud data

Plan

Govern

Define strategy

Manage

Adopt

Ready

Oracle to Azure Data Journey

Source

Microsoft Azure

ORACLE
Instance 1

ORACLE
Instance 2

ORACLE
Instance 3

Discover / Assess / Convert

- SSMA for Oracle

or

Ora2PG

Migration

- SSMA for Oracle

Or

Ora2PG

- Azure Data Factory
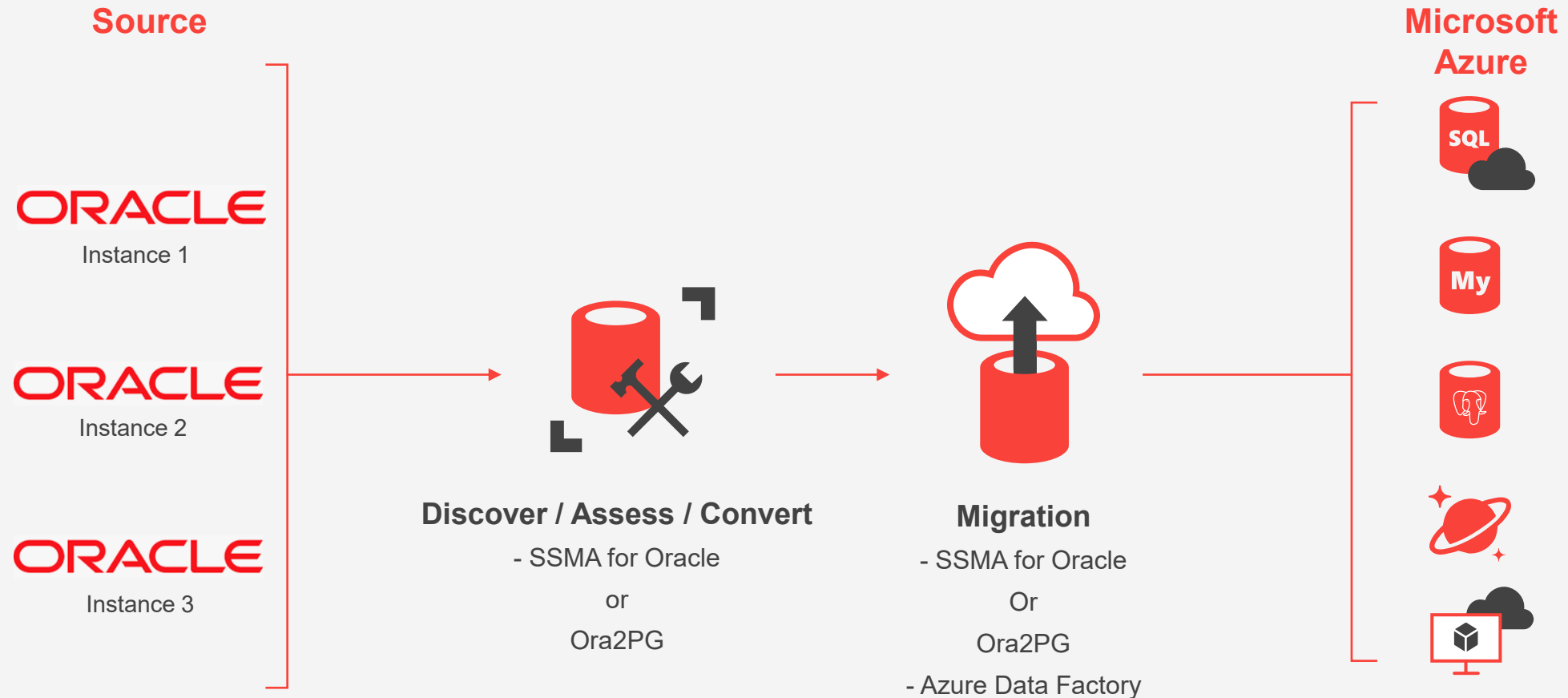
Seamless, end to end solution | Near-zero downtime | Resilient | Migrate at-scale from multiple sources

Phased Oracle Migration

4 weeks

6 - 8 week increments per release

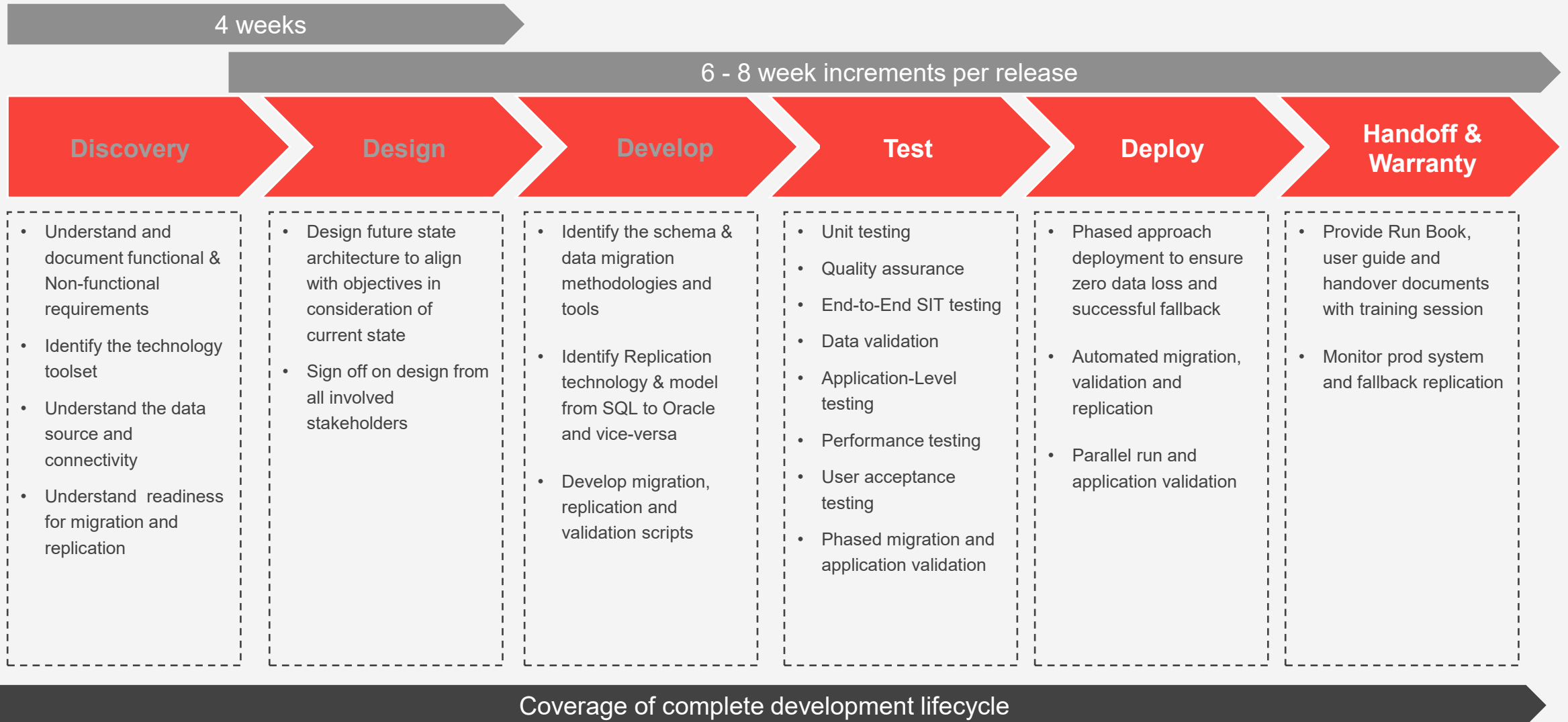| Discovery	Design	Develop	Test	Deploy	Handoff & Warranty

Discovery
- Understand and document functional & Non-functional requirements
- Identify the technology toolset
- Understand the data source and connectivity
- Understand readiness for migration and replication

Design
- Design future state architecture to align with objectives in consideration of current state
- Sign off on design from all involved stakeholders

Develop
- Identify the schema & data migration methodologies and tools
- Identify Replication technology & model from SQL to Oracle and vice-versa
- Develop migration, replication and validation scripts

Test
- Unit testing
- Quality assurance
- End-to-End SIT testing
- Data validation
- Application-Level testing
- Performance testing
- User acceptance testing
- Phased migration and application validation

Deploy
- Phased approach deployment to ensure zero data loss and successful fallback
- Automated migration, validation and replication
- Parallel run and application validation

Handoff & Warranty
- Provide Run Book, user guide and handover documents with training session
- Monitor prod system and fallback replication

Coverage of complete development lifecycle

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**Sample Scope:
Migrate Oracle to
Azure Postgres Citus**

Purpose

Migrate Oracle RAC database platform to Azure Postgres Citus multi node configuration, through to production.

Scope

Migration Design

- Define Azure Postgres Citus design specification (service / network architecture, config, security, environments, …)
- Define Azure Postgres Citus test plan (functional, integration, performance, acceptance, penetration)
- Validate Postgres Citus design and test plan with stakeholders (app owners / architecture / security / …)
- Provide run cost estimates and define detailed implementation plan

Migration Implementation

- Implement DEV Azure Postgres Citus environment, with governance, and migrate databases
- Perform functional testing on databases, post migration
- Deploy to SIT environment and perform integration testing on databases, post upgrade, with dependencies
- Deploy to PREPROD environment, and perform performance / acceptance / penetration testing
- Plan PROD deployment and validate cutover plan with all stakeholders
- Deploy to PROD environment, with multi region DSS, then validate and go live
- Provide runbook, post PROD deployment warranty support, and knowledge transfer throughout the engagement

Deliverables

Migration Design

- Validated technical design specification
- Validated test plan
- Validated detailed implementation plan
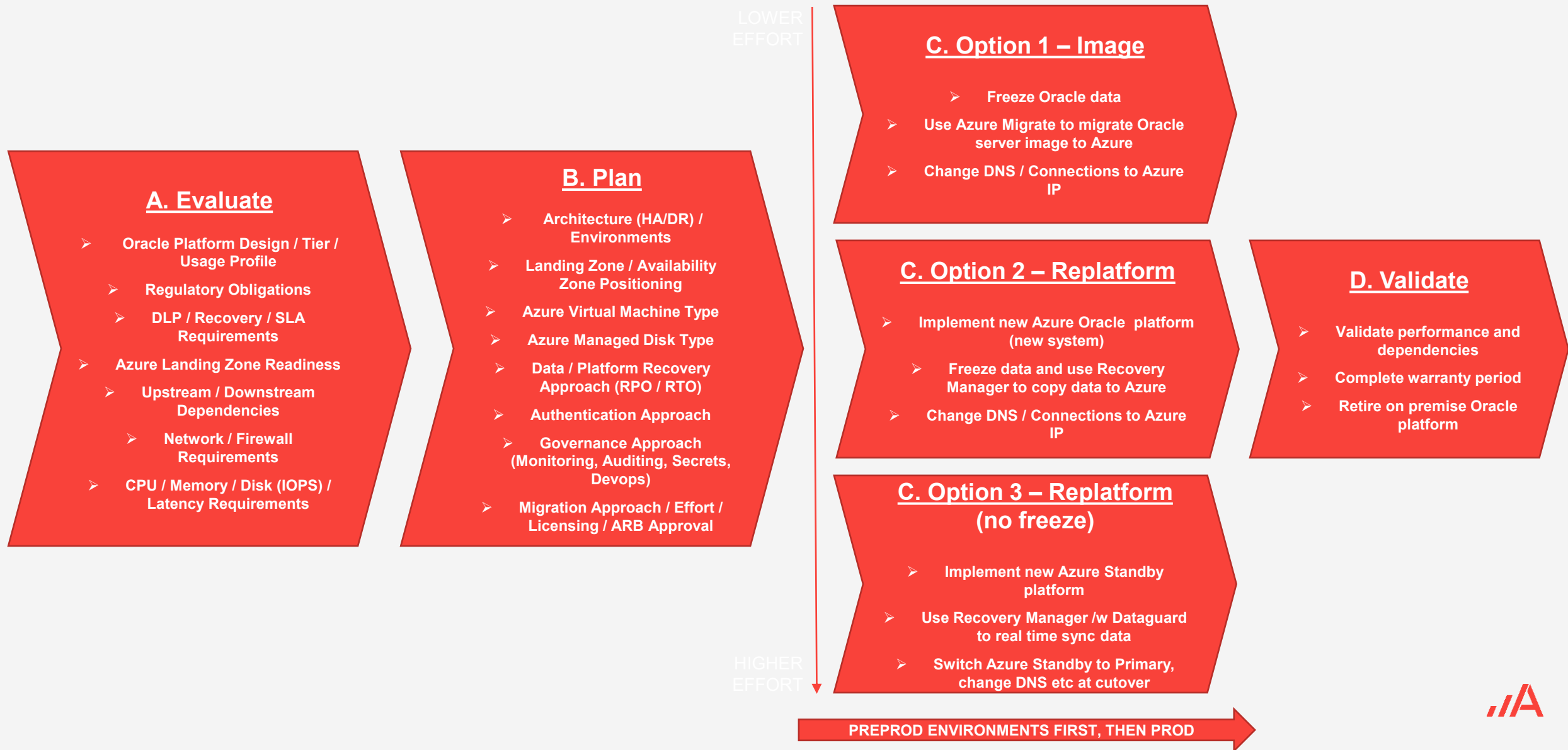
Migration Implementation

- DEV / SIT / PREPROD / PROD deployment
- DSS configuration in PREPROD and PROD
- Functional / integration / performance / acceptance / penetration test reports
- Detailed production implementation plan
- Warranty support
- Weekly knowledge transfer sessions
- Weekly project progression reports
- Operating runbook for solution

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Oracle to Azure Lift / Shift Approach
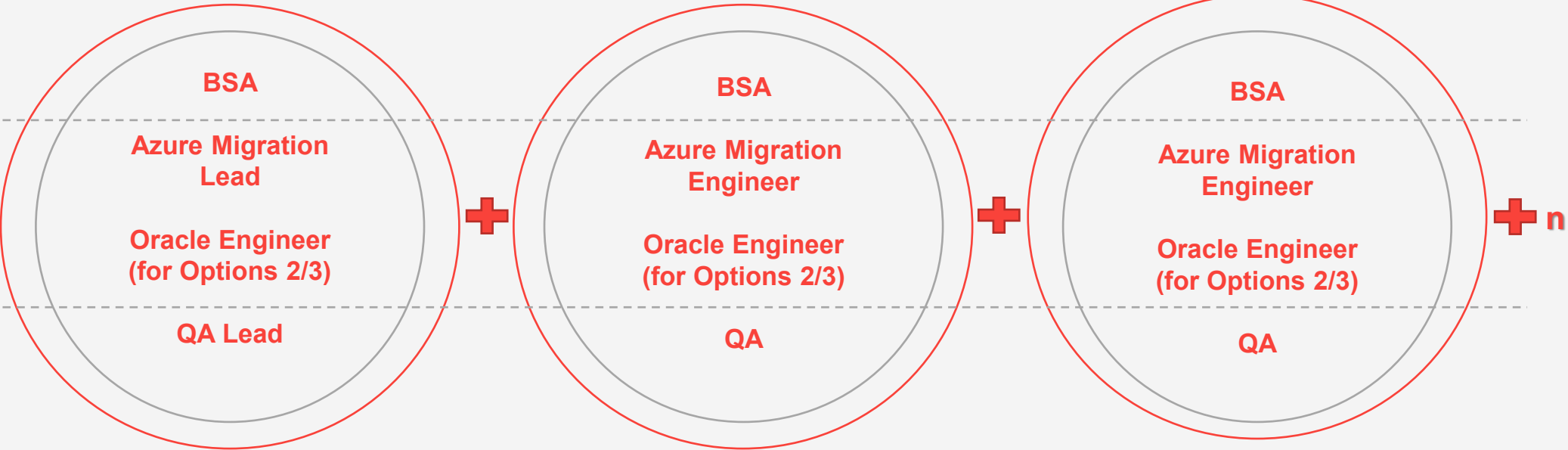
Oracle Migration Approach

A. Evaluate

- Oracle Platform Design / Tier / Usage Profile
- Regulatory Obligations
- DLP / Recovery / SLA Requirements
- Azure Landing Zone Readiness
- Upstream / Downstream Dependencies
- Network / Firewall Requirements
- CPU / Memory / Disk (IOPS) / Latency Requirements

B. Plan

- Architecture (HA/DR) / Environments
- Landing Zone / Availability Zone Positioning
- Azure Virtual Machine Type
- Azure Managed Disk Type
- Data / Platform Recovery Approach (RPO / RTO)
- Authentication Approach
- Governance Approach (Monitoring, Auditing, Secrets, Devops)
- Migration Approach / Effort / Licensing / ARB Approval

LOWER EFFORT

C. Option 1 – Image

- Freeze Oracle data
- Use Azure Migrate to migrate Oracle server image to Azure
- Change DNS / Connections to Azure IP

C. Option 2 – Replatform

- Implement new Azure Oracle platform (new system)
- Freeze data and use Recovery Manager to copy data to Azure
- Change DNS / Connections to Azure IP

C. Option 3 – Replatform (no freeze)

- Implement new Azure Standby platform
- Use Recovery Manager /w Dataguard to real time sync data
- Switch Azure Standby to Primary, change DNS etc at cutover

HIGHER EFFORT

D. Validate

- Validate performance and dependencies
- Complete warranty period
- Retire on premise Oracle platform

PREPROD ENVIRONMENTS FIRST, THEN PROD

Oracle Migration Team

Program Management

- **Executive Delivery Manager (10%)**
- **Project Manager (50% to 100%)**
- **Azure Lead Architect (50% to 100%)**

Evaluate and Plan

Migration Execution

Migration Validation

Core Pod

- BSA
- Azure Migration Lead
- Oracle Engineer (for Options 2/3)
- QA Lead

Optional: Pod 2

- BSA
- Azure Migration Engineer
- Oracle Engineer (for Options 2/3)
- QA

Optional: Pod 3

- BSA
- Azure Migration Engineer
- Oracle Engineer (for Options 2/3)
- QA

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Oracle VM Configuration in Azure

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Oracle Service Levels

|	
Level 1	No service interruptions even for single data centre or cloud provider failure • RTO & RPO Depends on application composition and ability to use underlying level 1 infrastructure services/components. During a failure scenario "the service" does not stop • Some users may need to reconnect as a result of a failure event: • Operational details, along with RTO & RPO can be documented in appropriate operational support materials
Level 2	No service interruption for single component failure within a data centre or cloud provider. 50% of clients will need to reconnect • RTO & RPO Depends on application composition and ability to use underlying level 2 infrastructure services/components. During a single component failure scenario "the service" does not stop • Some users may need to reconnect as a result of a failure event • Operational details, along with RTO & RPO can be documented in appropriate operational support materials
Level 3	Automated recovery for single component failure within a data centre or cloud provider. 100% of clients will need to reconnect • RTO & RPO Depends on application composition and ability to use underlying level 3 infrastructure services/components. During a single component failure scenario "the service" is unavailable until automated recovery is complete • All users will need to reconnect as a result of a failure event: • Operational details, along with RTO & RPO can be documented in appropriate operational support materials
Level 4	Manual recovery for single component failure within a data centre or cloud provider • RTO & RPO Depends on application composition and manual steps required to restore service. During a single component failure scenario "the service" is unavailable until manual recovery is complete • All users will need to reconnect as a result of a failure event: • Operational details, along with RTO & RPO can be documented in appropriate operational support materials
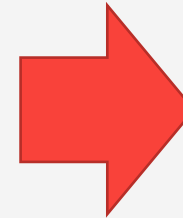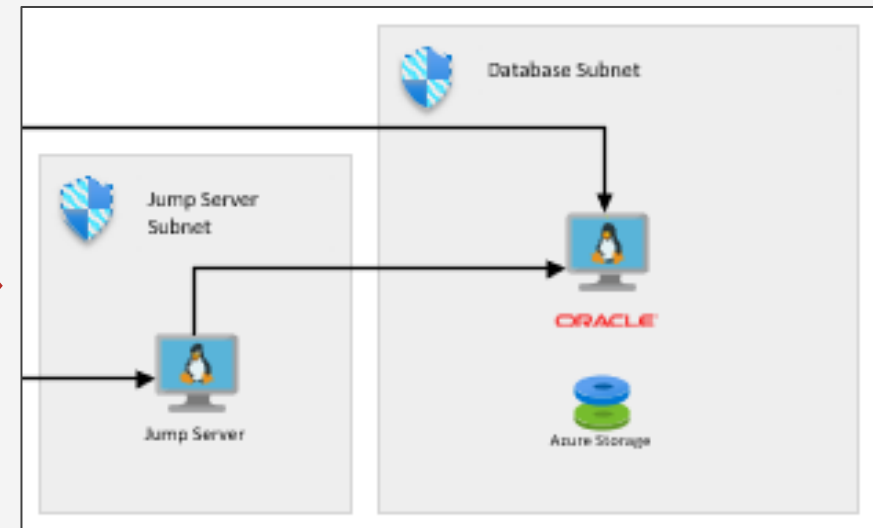
Level 4

Oracle Service Levels
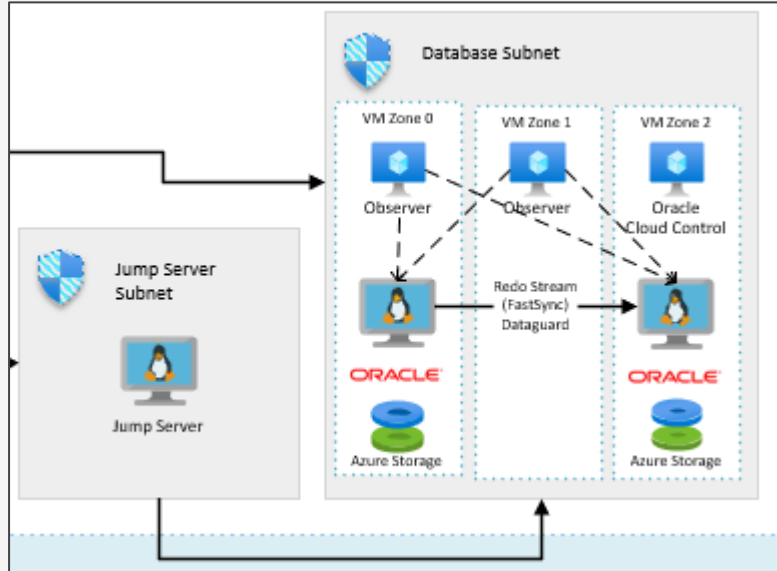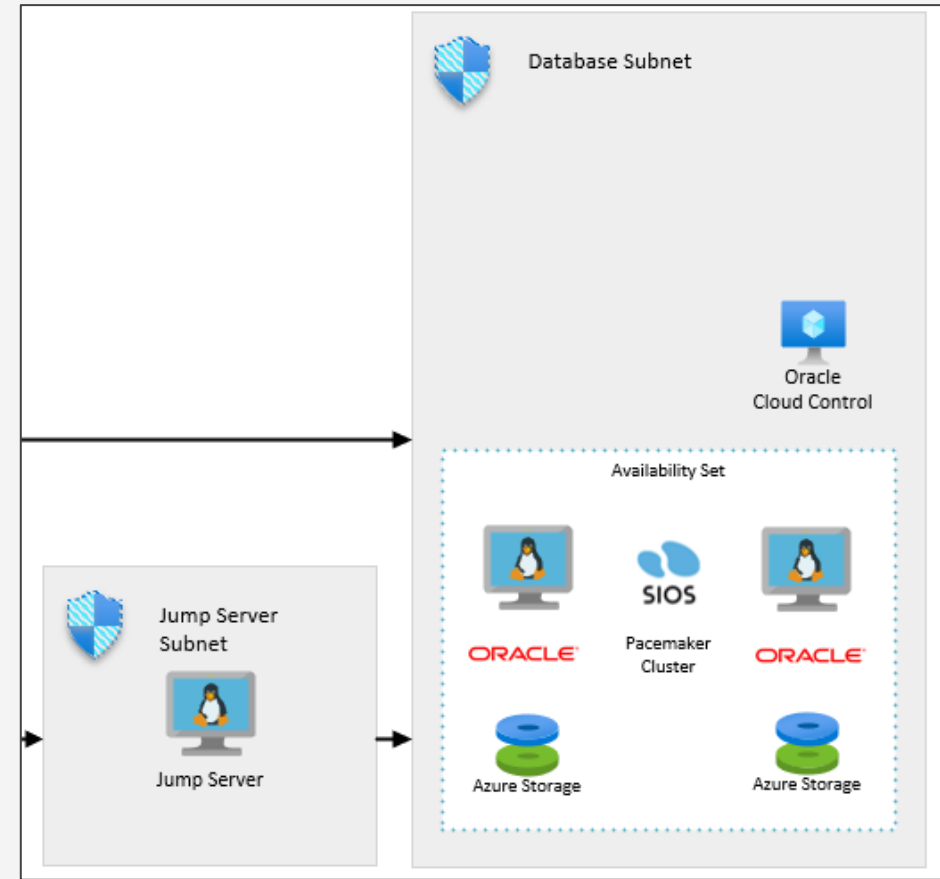
Oracle Service Levels
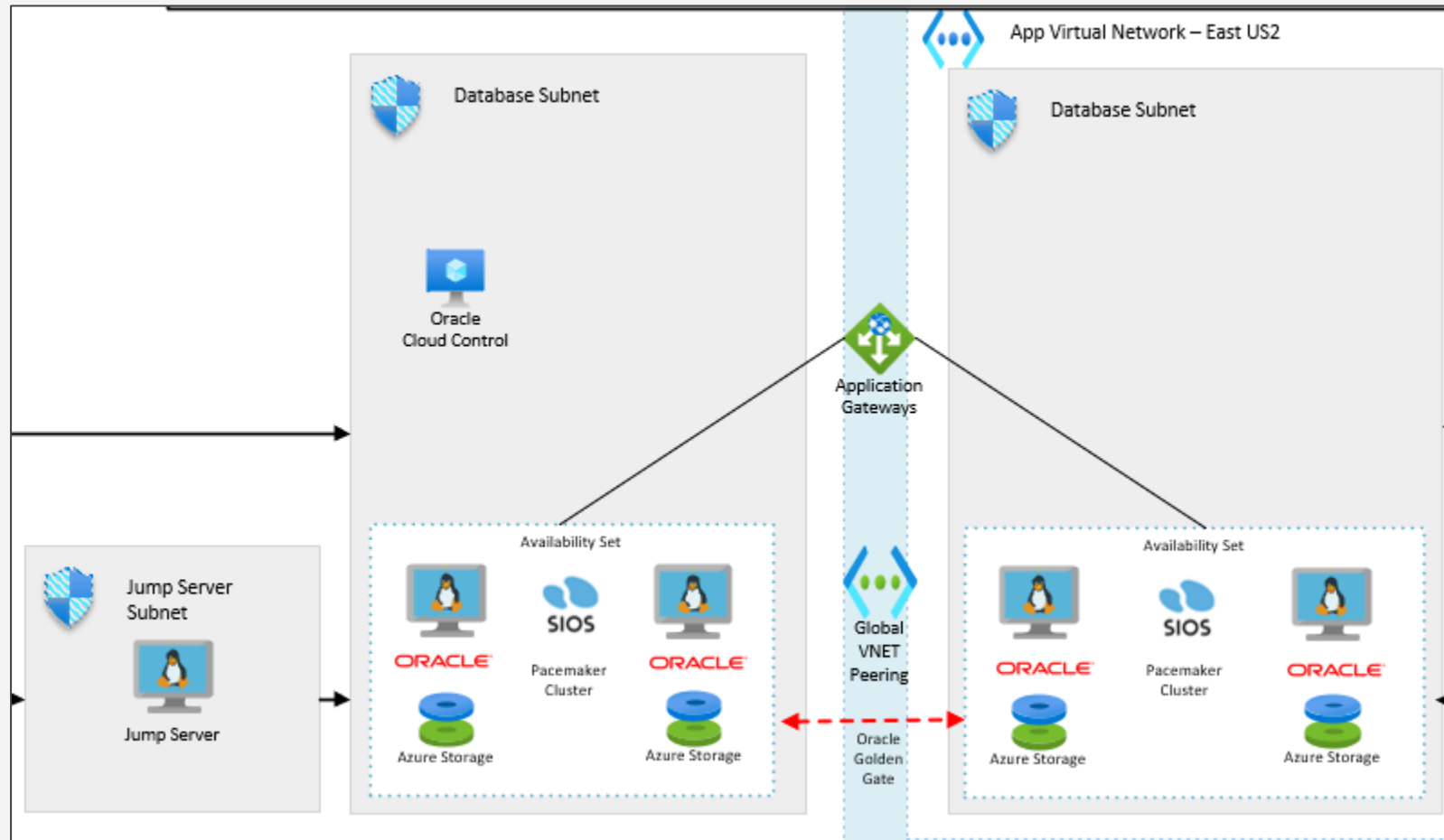
Oracle Service Levels (Dataguard Option)

Level 1
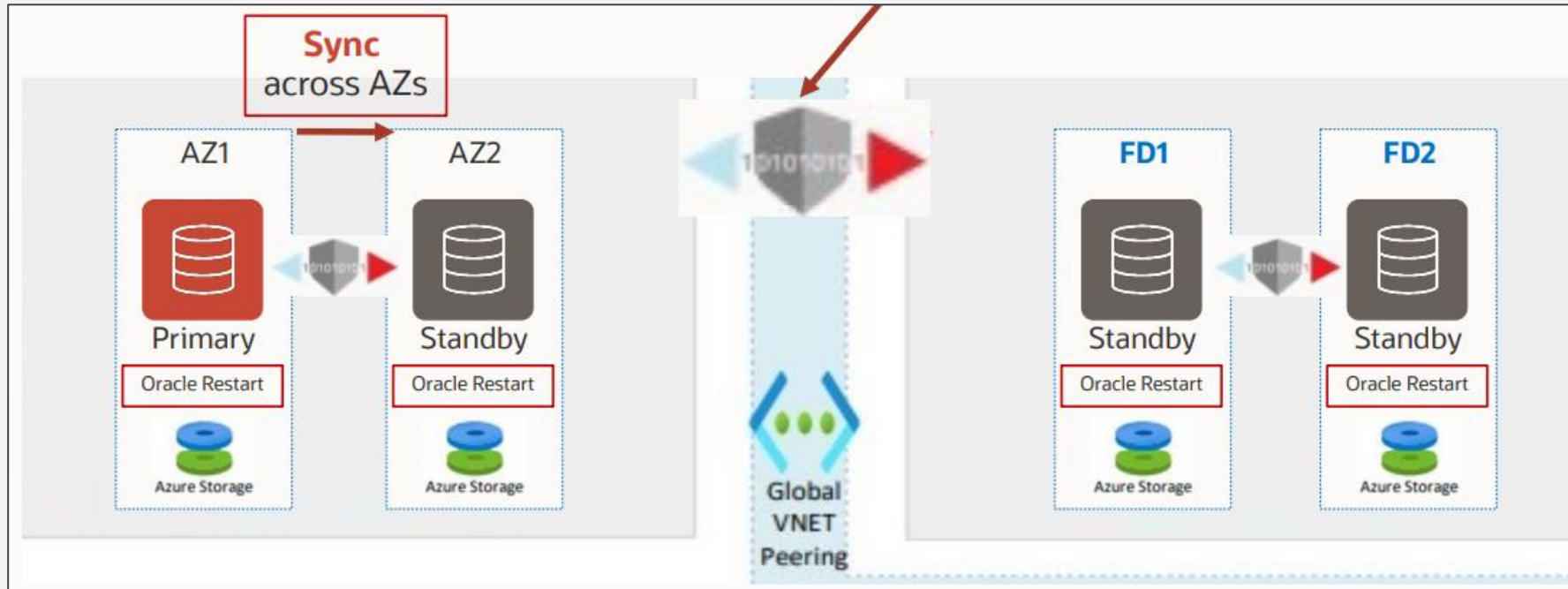
Getting Started

Adastra Oracle Migration Assessment / Pilot

- **Requirements Gathering:**
  - Functional
  - Non-Functional incl. Performance
- **Current State Inventory:**
  - Application
  - Database
  - Data
  - Views
  - Stored Procedures
  - ETLs (including Change Data Capture)
  - Reports
- **Prioritized Migration Backlog / Schedule**

- **Target Architecture:**
  - Service / Network Architectures by Type / Tier
  - Migration Patterns (Freeze, No-Freeze)
  - Sizing / Licensing
- **TCO to Productionize and Roadmap**
  - Azure / Operating Costs
  - Migration Costs
- **Governance Patterns**
  - Identity / access, encryption, secrets, siem / soar, recovery, audit, data loss protection, high availability, devops

- **Architecture Review Board Approval**
- **SQL Refactoring Analysis**
  - Leverage SSMA Tool
- **Detailed Migration Plan:**
  - Approach (incl. Testing/Validation)
  - Schedule
  - Resourcing
  - Cost
- **Decommissioning Plan**
- **Stakeholder Review**
- **Pilot Migration of One Simple Complexity Oracle Instance**

Oracle to Azure Assessment: 4w, $50k

Thank You!

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