



AZURE MIGRATION METHODOLOGY

CLOUD FOUNDATION IS THE BEGINNING OF THE JOURNEY

LAYING THE FOUNDATION

Establishing core cloud capabilities...

- Accounts and subscriptions
- Connectivity
- Identity and security
- Cloud Services
- Cloud Operation
- Financial management
- Regulatory compliance

MATURING THE FOUNDATION

Operating in a hybrid world...

- Mature cloud services (e.g, containers and microservices)
- Policies and governance embedded in automation
- Key SaaS, PaaS implementations
- Cloud migration factory repeatable and ongoing
- Cloud native for new development
- Cloud Center of Excellence (CoE) accelerating cloud adoption

EVOLVING CLOUD CAPABILITIES

...towards a cloud enabled environment for our customers.

- Scalability, agility and ability
- Resilient, stable and secure platform
- Self-provisioning and automation as a rule
- Reduced development cycles (time to market)
- Pay for what you use
- Governed disruption
- IT as a partner of the business innovation

OBJECTIVES

Beginning with the end in mind

“Our vision is to build an integrated, cloud foundation that supports customers as they go through their transformation.”

WHY US?

- We understand what it takes to develop an effective cloud strategy and execution
- We have cloud practitioners ready to help our customers
- We have completed a number of IT transformations in the last 5 years
- We have provided advisory services to many of our clients
- We have been involved in many strategic programs. These engagements have allowed us to gain insights into operations and existing systems as well as enables us to understand how the cloud strategy ties into broader business strategy, and what operational, regularity, financial and cyber implication they need to consider
- Strategic alliances and our status as a CSP allow us to better address customer needs

BENEFITS TO CUSTOMER

- Our expertise acquired from repeated engagements
- Subject matter expertise who understand the technical implications to cloud financial modeling, and cloud specific operating models
- Our familiarity with customer environments, position us to deliver value from day one
- Our access to an extensive partner ecosystem to provide input on migrations, optimization and cost control in the cloud
- Our team understands how to develop an executable strategy and willing to stand behind that strategy through execution

CLOUD ADOPTION FRAMEWORK

Ensure appropriate funding to build and maintain our ecosystem

- F1 Ensure funding to support approved enterprise roadmaps
- F2 Match funding to support business requirements
- F3 Measure value of investment
- F4 Funding for asset reliability upgrades

Ensure adherence to standards and tightly manage exceptions

- E1 Build medium-to-long term view of requirements to determine service classification
- E2 Improved coordination, prioritization and governance within teams
- E3 Enhanced program tracking mechanisms

Ensure the appropriate skillsets to build and maintain the environment

- D1 Well defined roles and responsibilities
- D2 Key roles filled
- D3 Mindset challenges addressed



Upgrade technology to build digital foundation

- A1 Migration to business enabling solutions
- A2 Standard technology designs/patterns
- A3 Service catalogs

Ensure the cloud aligns to the organization's security resiliency, and compliance requirements.

- B1 OnPar security framework
- B2 Assume security in process, procedure and work plans
- B3 Automate security into base builds as code

Ensure our environments our maintainable and availability is our standard language

- C1 Streamlined and predictable clearance processes
- C2 Streamlined internal maintenance processes via DevOps

CLOUD FOUNDATION AND ARCHITECTURE FRAMEWORK

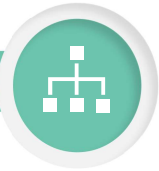
01



Accounts and subscriptions

- Establish account structure and segregation based on roles
- Account structure and segregation
 - Environment ownership
 - Billing and administration

02



Connectivity

- Establish connectivity and networking foundations in the cloud; back to on premise
- Hybrid networking
 - Network design in the cloud
 - Redundancy
 - IP address management and subnet design

03



Identity and Security

- Define identity and access policies while integrating with on premise authorization system
- Access policies
 - AD integration
 - Environment hardening
 - Vertical specific compliance

04



Cloud Services

- Implement initial set of service offerings and associated administrative controls
- Initial service catalog in cloud provider
 - Environment setup
 - Resiliency and setup
 - Service administration

05



Identity and Security

- Implement initial governance and operational dashboards
- Governance
 - Operational monitoring
 - Resiliency and availability
 - Responsibility framework
 - Automation

06



Financial Management

- Build a cost reporting/metrics model for cloud resources
- Reporting
 - Metrics
 - Cost Optimization
 - Financials

07



Regulatory Compliance

- Design regulatory compliance framework to implement appropriate cloud controls
- Cloud regulatory framework
 - Regulatory and compliance controls
 - Compliance reporting



CHANGE MANAGEMENT CONSIDERATIONS

AZURE OPERATING GUIDELINES

GUIDELINES	RECOMMENDATIONS
Project Concept & Requirements	<ul style="list-style-type: none">• Engage early and maintain alignment with the right stakeholders• Work with the client to develop and verify scope and requirements meet their needs• Incorporate costs for implementation and maintenance in the planning and budgeting process
Governance	<ul style="list-style-type: none">• Establish steering committee for major projects that has appropriate representation from business and IT.• Use regular cadence of steering committee and other project meetings to identify and address key decisions / tradeoffs between cost and functionality• Identify business and IT stakeholders are held accountable for functionality as well as cost delivered to the customer(both CapEx and OpEx costs)• Ensure the right level of expertise and skills are available to the project team
Cost Control	<ul style="list-style-type: none">• Establish budgeting/cost model for each project and determine NPV, where appropriate• Roll up all project financials to a strategic road map• Estimate and more thoroughly examine options for implementation, not just at the start of the project, but on an ongoing basis• Identify project success metrics and determine process for monitoring them
Execution	<ul style="list-style-type: none">• Build up and maintain a set of good baseline metrics on cost and project processes• Consistently monitor work done based on metrics and optimize process for large programs over time• Develop field change evaluation process• Plan resources and how they are utilized most optimally across multiple programs – consider shifting to a “facility upgrade” based model for major changes vs. the current project-based model

AZURE OPERATING GUIDELINES

DETAILED ACTIONS

Key Mindset Shifts

- Accountability / ownership of outcomes
- Greater understanding of financial implications and stewardship of financial resources
- Encourage questioning assumptions, navigating through org boundaries and initiating cost-benefit conversations with the business
- Believe in our ability and obligation to fix broken processes
- Clarify expectations and opportunity for everyone to participate or leave
- Focus on major needs instead of corner cases

Responsibilities (incl. metrics & incentives)

- Clarify functions and responsibilities for each team with associated KPIs
- Ensure accountability that enforces functional separation
- For each team, identify and own key processes including plan/build/run/maintain
- Define roles and KPIs for each team in key processes (e.g., architecture design, project execution)
- Improve discipline around documentation and knowledge management

Skills

- Expect managers to have technical expertise
- Develop knowledge in network technology with greater depth within core network and firewall design and management
- Source key talent from carriers / other large service providers instead of other enterprises / rest of customer
- Ensure that job criticality is matched with appropriate skillsets instead of tenure in the organization

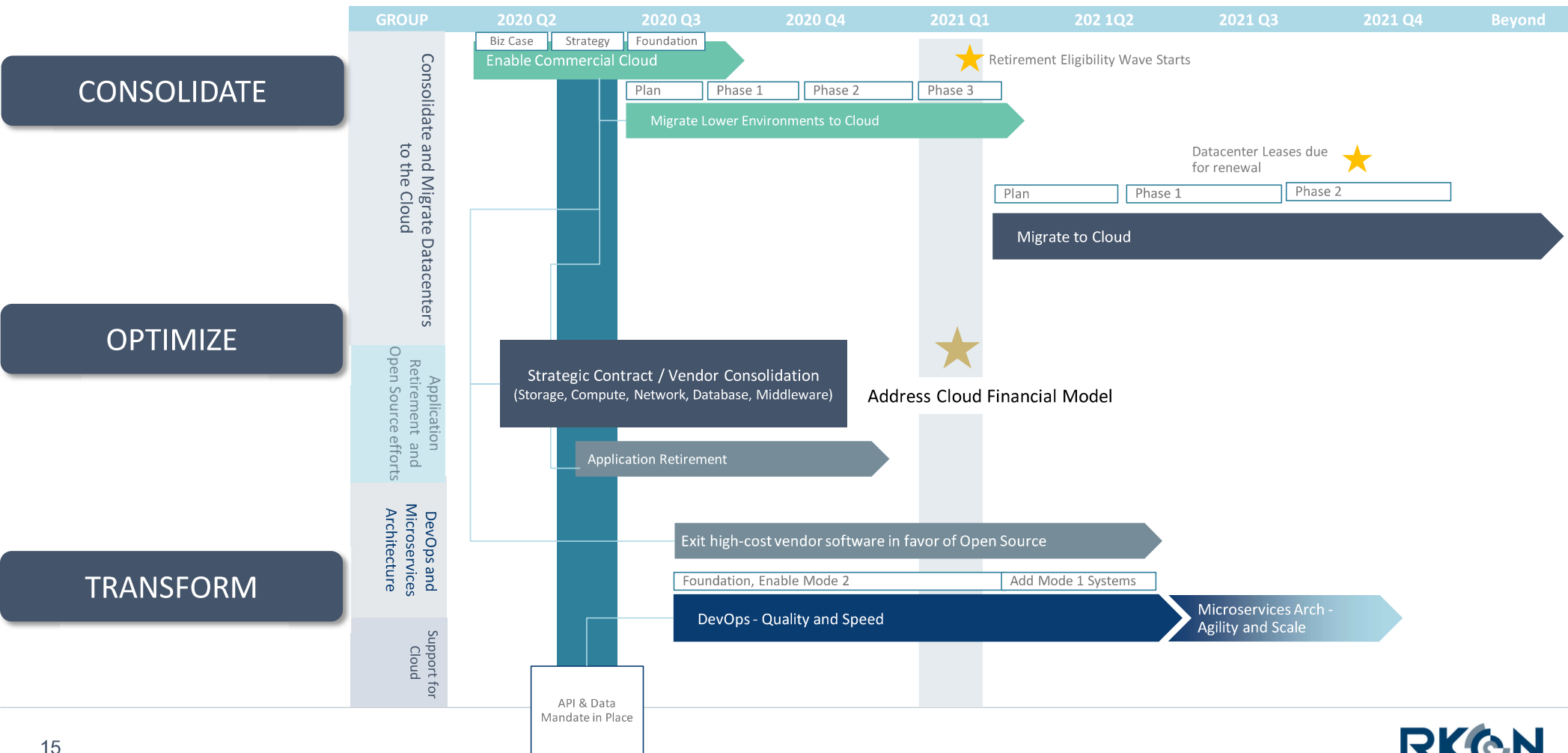


PROOFS & DELIVERABLES

PROOF: TECHNICAL ARCHITECTURE SIMPLIFICATION

	Costs	Benefits	Challenges	
CLOUD STRATEGY	Retire Applications & Servers In Progress	\$\$ (100% expense) <ul style="list-style-type: none"> Inventory systems/document impacts Retire ~300 applications (59% complete) Decommission infrastructure (400 servers) 	\$\$ <ul style="list-style-type: none"> Reduced licenses, hardware maintenance contracts, application/infrastructure support; avoided patching/lifecycle/migration costs 	<ul style="list-style-type: none"> Obtaining accurate mapping of applications to supporting infrastructure. Migrating users to new applications when needed
	Consolidate Data Centers In Progress	\$\$ (90% Cap / 10% Exp) <ul style="list-style-type: none"> Migrate remaining systems from legacy data centers to modern data centers Decommission legacy DC infrastructure 	\$\$ <ul style="list-style-type: none"> Reduced hardware maintenance contracts, infrastructure support, facilities O&M 	<ul style="list-style-type: none"> Cannot exit facilities entirely due to network needs
	Build Cloud Native Foundation In Progress	\$ (60% Cap / 40% Exp) <ul style="list-style-type: none"> Build security/access controls Build connectivity/data pipeline Configure cloud environments (AWS) Deploy monitoring/service mgmt. tools Deploy cloud dev/deployment tools Complete migration pilot 	Reduced Project Costs (varies by project) <ul style="list-style-type: none"> New systems: Can deploy in cloud (80-95% faster/50-95% cheaper); smaller build/support teams (~10% reduction in project overhead; TBD avoided increase in labor) Existing systems: Can move to cloud (see below) 	<ul style="list-style-type: none"> O&M = 100% net new expense (subscription model—\$1M+ YTD) Migration pilot requires up front expense Projects/migration efforts may require investment in additional foundational cloud capabilities
	Migrate Existing Systems to Cloud Not Started	~\$M 2019+ (varies, mostly expense) <ul style="list-style-type: none"> Assess footprint, determine strategy on per-system basis (e.g. keep on prem, move to DCs, migrate as is, refactor, etc.) Execute strategy based on per-system cost/benefit (targeting 60% of systems) Integrate cloud/PG&E systems as needed to maintain functionality 	~\$M over 10 years (varies by system) <ul style="list-style-type: none"> Cost benefits: Avoided capital lifecycle costs; reduced HW maintenance for redundant dev/test/DR infrastructure; reduced facility lease/operating costs; reduced license/ support costs (varies system to system) Other benefits: Native encryption/high-availability; automated infrastructure updates/ security patching without downtime/outages; vendor support for products moving cloud-only 	<ul style="list-style-type: none"> Requires cloud foundation System assessment/discovery requires up front expense Some systems will require re-architecting to deliver benefits Annual expense subscription replaces existing expense O&M (annual/periodic) and capital lifecycle (every 5-10 years)
	Deploy New Systems in Cloud In Progress	Varies by Project <ul style="list-style-type: none"> Near Term: Field Mobile, Analytics, Contact Center Scheduling & Dispatch, others Longer Term: Billing, ERP 	Varies by Project <ul style="list-style-type: none"> Reduced implementation/O&M costs enables higher net benefit for LOBs With minimal cost, can benefit from cloud-native capabilities/scale (e.g. AI, machine learning, image/language processing = dollars in cloud vs. millions to build) 	<ul style="list-style-type: none"> Requires cloud foundation and integrations with on-prem systems O&M is 100% net new exp. (cloud subscriptions/app licenses)

CLOUD JOURNEY - EXAMPLE





RKON

THANK YOU