



RAD Modernization

Roadmap Recommendations

OAS Proposal

July 2024



RAD Data Modernization Exec Summary



RAD Team Training Opportunities



Microsoft Azure Data Engineering

Key Training Topics

- Azure Blob Storage
- Azure Data Factory
- Azure Functions
- Azure DevOps
- Azure Logic Apps
- PowerShell
- Azure Data Fabric
- Power BI



databricks

Databricks Data Engineering

Key Training Topics

- Lakehouse Fundamentals
- Data Science & Engineering
- SQL Analytics
- Databricks Administrator



Snowflake Data Engineering

Key Training Topics

- Snowflake Data Engineering
- Snowflake Administration
- SnowPro Certification



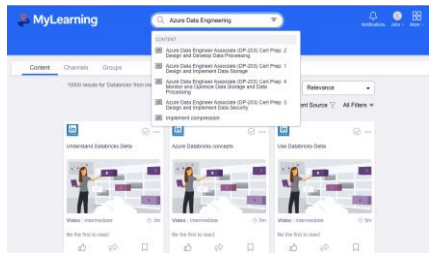
1. Training Topics Available

- ✓ Azure Data Engineering
- ✓ Databricks
- ✓ Snowflake

2. Open Browser to the Internal UHG Training Site:

➤ <https://uhg.edcast.com/>

3. Use the search box on the above site to search for and participate in training options that are available



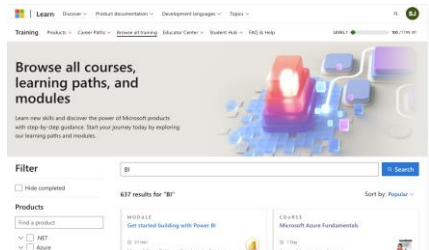
1. Training Topics Available

- ✓ Azure Data Engineering
- ✓ Databricks

2. Open Browser to the Microsoft Learning Site & Log-In using your MS ID:

➤ <https://learn.microsoft.com/en-us/training/browse/?terms=BI>

3. Use the search box on to search for and participate in training options that are available



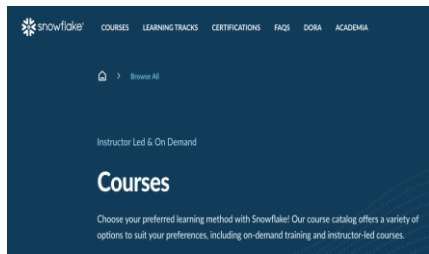
1. Training Topics Available

- ✓ Snowflake Data Engineering
- ✓ Snowflake Administration
- ✓ SnowPro Certification

2. Open Browser to the Snowflake Learning Site and register:

➤ <https://learn.snowflake.com/en/courses/>

3. Look for specific courses or follow Learning Tracks to pursue desired Snowflake training



RAD Modernization Recommended Roadmap



Solution Definition & Design

Program Management Milestones:

- **Start Date:** August 12, 2024
- **End Date:** October 4, 2024 (8 weeks)

Key Outcomes:

- Define cloud solution patterns identifying the cloud tech stack and appropriate usage of each tool
- Build out cloud infrastructure to support pilot prototype development
- Build pilot prototypes for cloud solution patterns based on tech stack definition
- Detailed solution design for data acquisition & data integration to populate Broze, Silver, and Gold data into RAD Data Platform for all data sources
- Detailed estimation of effort for Dev, Test, and Deployment phase of program



Data Platform Dev, Test, & Deployment

Program Management Milestones:

- **Start Date:** October 7, 2024
- **End Date:** February 21, 2025 (~20 weeks)

Key Outcomes:

- Finalize and implement end-to-end cloud infrastructure components
- Develop, test, and deploy cloud solution patterns for data acquisition & data integration to populate Broze, Silver, and Gold data into RAD Data Platform for all data sources
- Define & implement the HCP Data Catalog based data consumption model for RAD Data Platform
- Automate deployments of infrastructure & code using terraform and CI/CD capabilities in Github



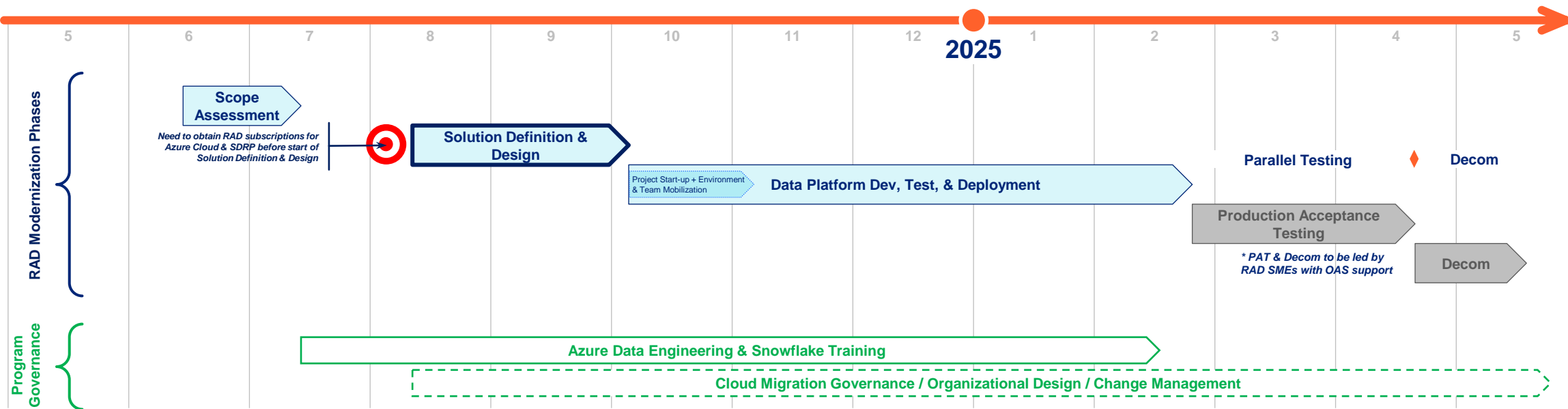
PAT & Decommission

Program Management Milestones:

- **Start Date:** February 24, 2025
- **End Date:** May 16, 2025 (~12 weeks)

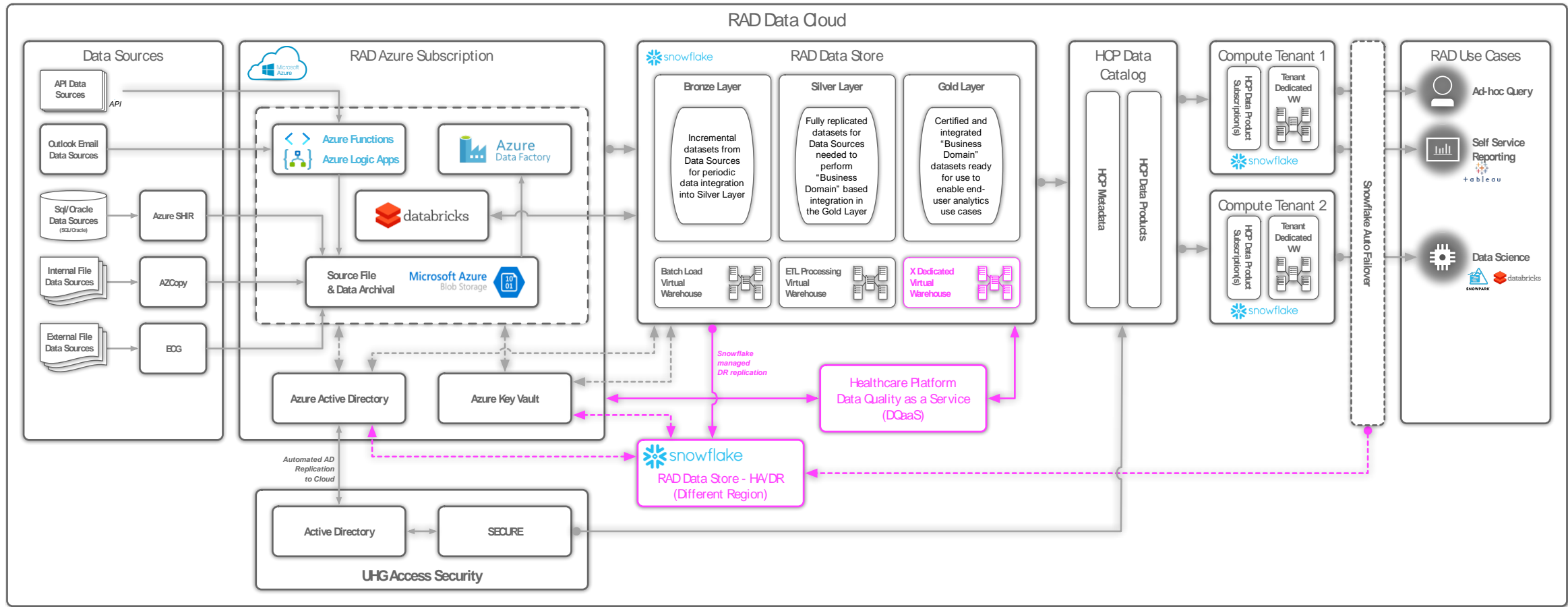
Key Outcomes:

- Parallel testing and validation of cloud data pipelines to ensure data outcomes are equivalent to current state expectations
- Parallel testing of data consumption use cases to ensure continuity compared to current state
- Decommission of on-premises solution after complete sign-off of PAT

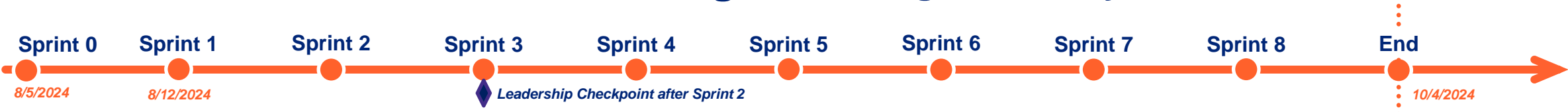


RAD Modernization: High-level Implementation Solution Architecture

Design a centralized data repository which acts as a data lake to store data from diverse data sources in its raw format. It ensures high quality, consistency and formatted for transformation, loading and analysis.



Phase 1: Solution Definition & Design Planning Summary

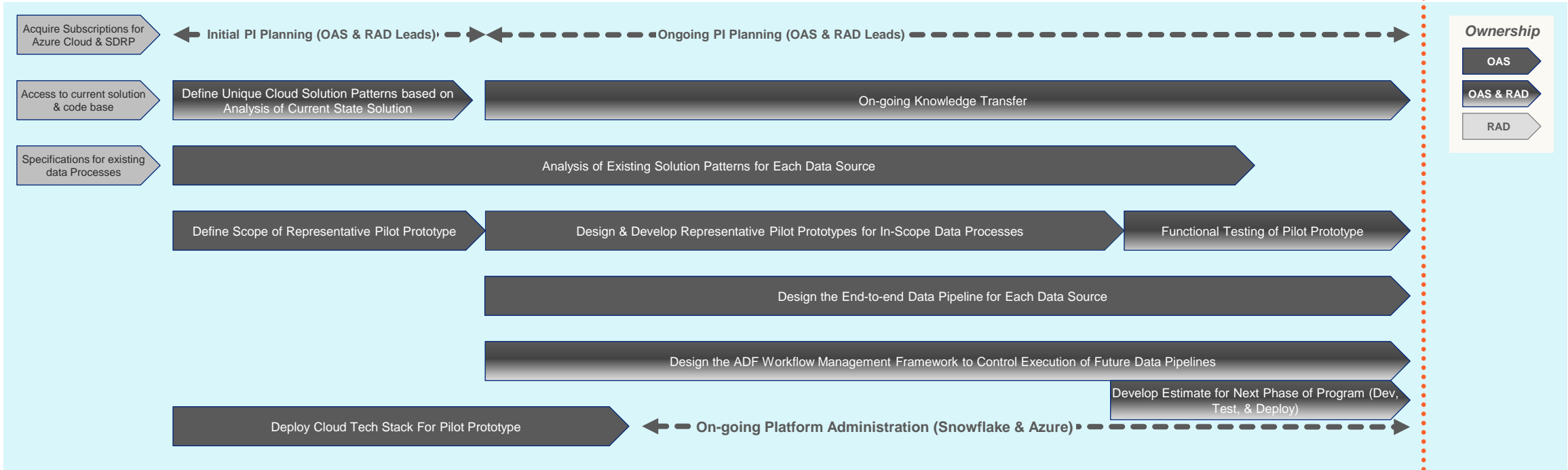


Sprint 0:

- Initial team ramp up of core team (RAD SMEs & OAS) to work on Migration.
- Coordinate with RAD SMEs to get OAS team access to current state solution environments (data sources, Altrix, SQLServer, Reporting, etc)
- Work with RAD SMEs to collect the current state code base for analysis.

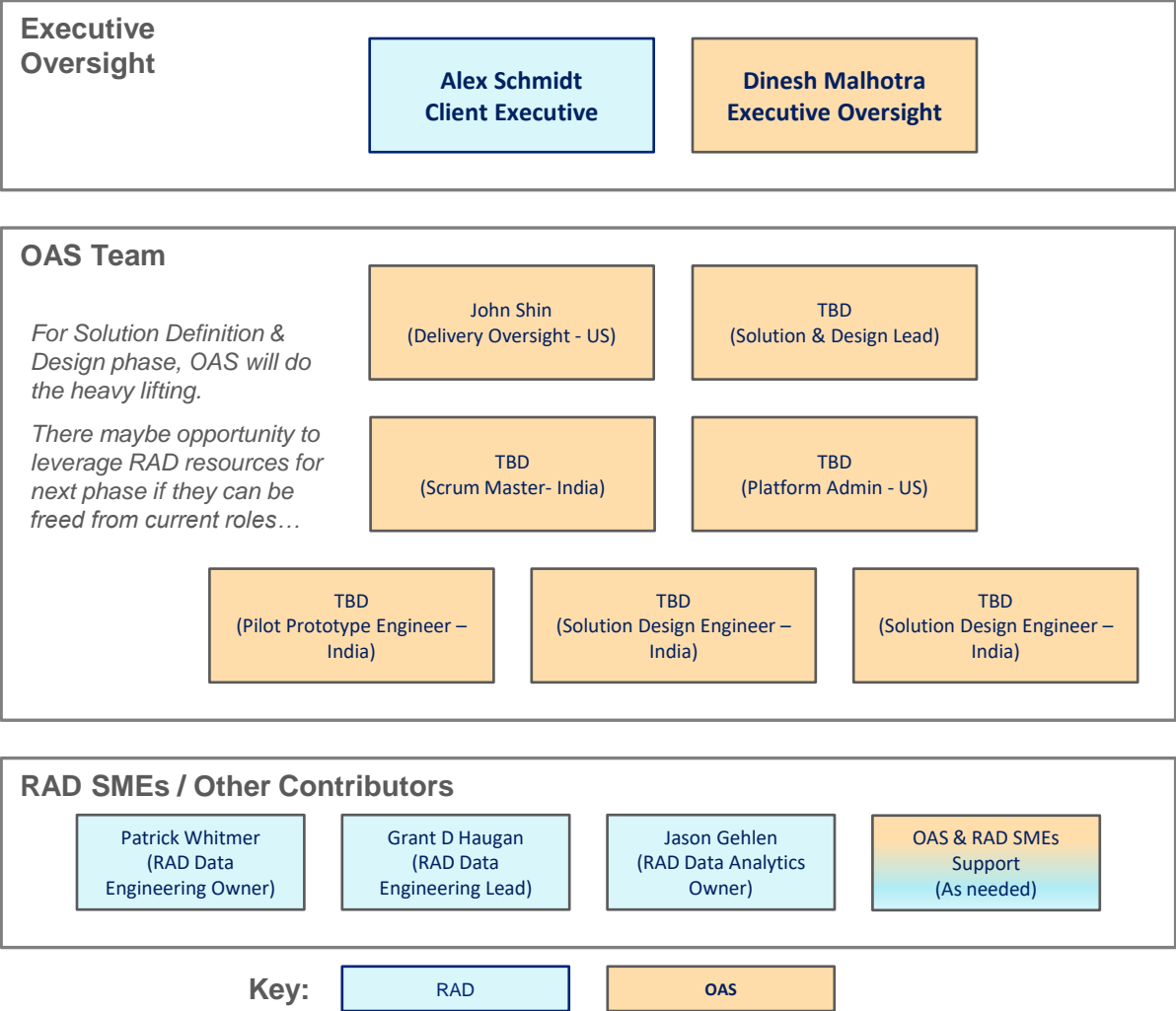
Dependencies & Assumptions:

- RAD will obtain Azure Cloud subscription and SDRP tenant before the start of project
- Access to current solution and code base to be provided by RAD to OAS team at the start of the project
- RAD will provide available specifications for the existing data processes on the current solution
- Data ETL is expected to require complete re-development based on targeted cloud technologies
- Bronze & Silver layer data architecture will need to be defined and refined versus current state
- Gold Layer data objects and structure will remain consistent with current state



Proposed Staffing, Roles and Responsibilities:

Solution Definition & Design Phase



High-level Task	Details	Owner
Project Schedule / Logistics	Project plan, discovery meetings, weekly status meetings, governance meetings, major checkpoint sessions etc.	OAS + RAD
Environment Readiness & Onboarding	Ensure environments are setup for OAS work; on-boarding logistics support for OAS resources	RAD
Infrastructure Configuration and Setup	Perform on-going configuration and administrative setup of Snowflake and Azure Cloud subscription to enable the development and implementation of the NEW cloud-native solution	OAS w/ support from RAD SMEs
Access to Current Solution & Code Base / Specifications	Ensure OAS resources are given access to the current solution and existing code base to be able to perform analysis to translate to a cloud-native solution	RAD
Define Unique Cloud Solution Patterns based on Analysis of Current State Solution	Analyze the current state solution to identify unique solution patterns that need to be defined based on the new cloud tech stack involving Azure Cloud and SDRP/Snowflake. Define the cloud solution pattern including the cloud tools & capabilities to be used to implement various components of the cloud solution pattern.	OAS w/ support from RAD SMEs
Design, Develop, & Test Pilot Prototypes for In-Scope Data Processes	Identify the scope of the pilot prototypes and perform the end-to-end design, development, and testing of the cloud-based solution patterns implementing the pilot prototype solution.	OAS w/ support from RAD SMEs
Design the ADF Workflow Management Framework to Control Execution of Future Data Pipelines	Design and prototype the framework using ADF to provide workflow management functionality that is consistent with capabilities and features currently enabled for RAD along with applicable best practice features.	OAS w/ support from RAD SMEs
Develop Estimate for Next Phase of Program (Dev, Test, & Deploy)	Based on the outcomes of the Solution Definition and Design effort from this phase of the program, perform a detailed estimation of the overall effort involved in the next phase of the program – “Data Platform Dev, Test & Deployment”	OAS w/ support from RAD SMEs
Transition of knowledge to MRIS SME's	Transition of knowledge to MRIS SME's	OAS + RAD
Review and signoff	Review and signoff of respective artifacts, deliverables at appropriate phases	RAD

Program Commercials Summary



Program Phase	Start Date	End Data	Duration in Weeks	Cost Type	Paid To	Projected Costs
Scope Assessment	6/17/2024	7/12/2024	4	Labor	OAS	\$12,000 (Fixed)
Solution Definition & Design	8/12/2024	10/4/2024	8	Labor	OAS	~\$192,000 (T&M)
				Cloud Infra (Azure Cloud & SDRP)	OptumTech	~1,500 per month
Data Platform Dev, Test, & Deployment	10/7/2024	2/21/2025	20	Labor	OAS	~\$480,000 (T&M)
				Cloud Infra (Azure Cloud & SDRP)	OptumTech	~1,500 per month
Production Acceptance Testing	2/24/2025	4/18/2025	8	Labor	OAS	~\$74,000 (T&M)
				Cloud Infra (Azure Cloud & SDRP)	OptumTech	~3,000 per month
Decommission of Current Solution	4/21/2025	5/16/2025	4	Labor	RAD	Owned by RAD
				Cloud Infra (Azure Cloud & SDRP)	OptumTech	~3,000 per month + ~10% annual growth

NOTE:

- “Data Platform Dev, Test, & Deployment” phase estimate will be re-estimated as outcome of “Solution Definition & Design” phase
- Infrastructure cost for Azure Cloud and SDRP will be direct chargeback from Optum Tech
- Future infrastructure cost forecast for Azure Cloud & SDRP will be estimated as part of “Solution Definition & Design” phase

Q&A

Duration of segment

Appendix

Additional details for reference

Inventory of data sources

Data Sources for RAD Data Services

Source System	Daily	Weekly	Monthly	Quarterly	Yearly	Data Acquisition Pattern					Grand Total
						Flat File	Rest API	SQL/ Oracle	Smartsheet	ECG	
Adobe Sign		x				1	0	0	0	0	1
Ariba			x			2	0	0	0	0	2
CBRE			x			3	0	0	0	0	3
Concur			x			0	0	1	0	0	1
Cority	x					0	0	1	0	0	1
eGRC	x		x			4	0	0	0	0	4
ESG				x	x	20	0	0	0	0	20
Field Glass		x				0	4	0	0	0	4
Hire Right	x					1	0	0	0	0	1
HR/PeopleSoft/AP	x		x			3	0	2	0	0	5
Hubstar		x				1	0	0	0	0	1
IT Reseller			x			0	0	0	0	1	1
Lenel	x					0	0	1	0	0	1
M&A	x	x				0	0	1	1	0	2
Mercury	x					0	32	0	0	0	32
Noosh	?	?	?	?	?	1	0	0	0	0	1
One-Click	x					0	0	1	0	0	1
Oracle Cloud	?	?	?	?	?	0	1	0	0	0	1
OT Datahub			x			0	2	0	0	0	2
SESH	x					0	1	0	0	0	1
Grand Total						36	40	7	1	1	85

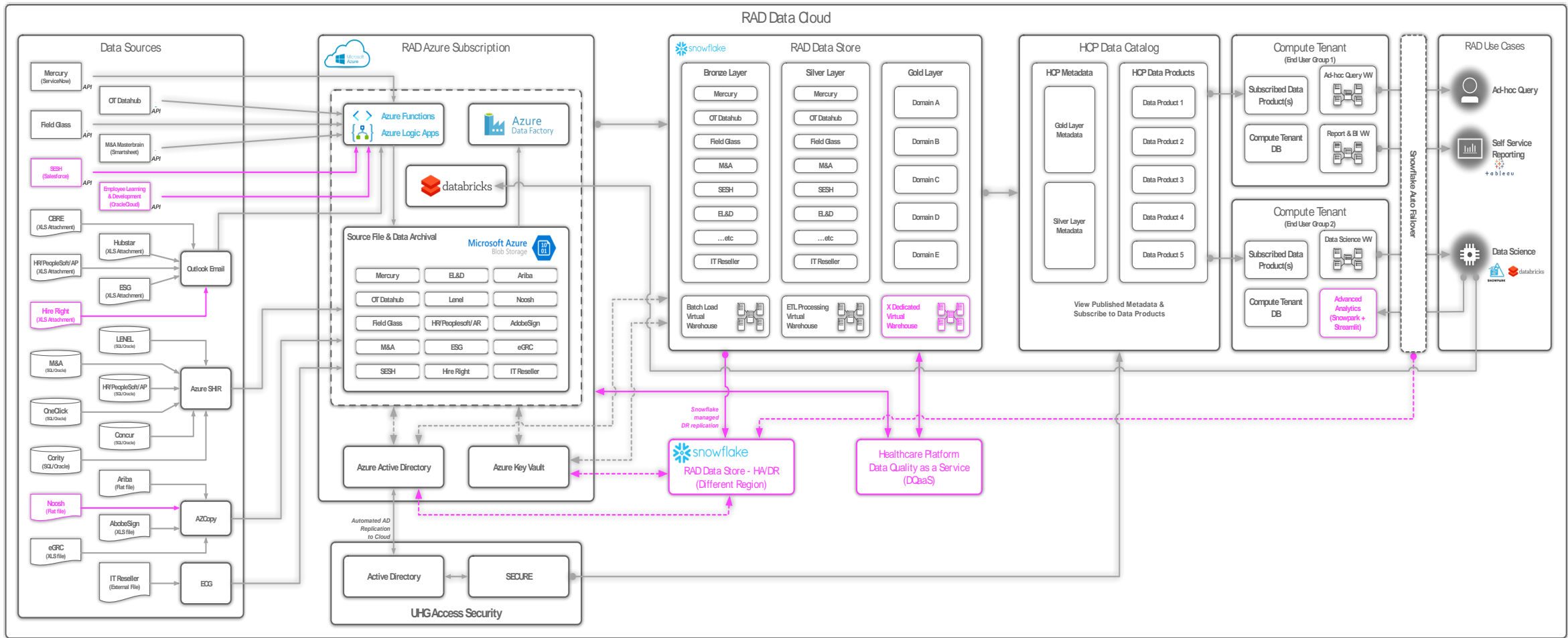
Inventory of data migration objects (SQLServer)

Data Objects for Migration from SQLServer

SQLServer DB											Grand Total	
	Bronze Layer		Silver Layer		Gold Layer		N/A - TBD		NULL - TBD			
	Table Cnt	Size in MB	Table Cnt	Size in MB	Table Cnt	Size in MB	Table Cnt	Size in MB	Table Cnt	Size in MB	Table Cnt	Size in GB
CorpSvcs_EOHS	30	6,080.11					7	1,681.84			37	7.6
CorpSvcs_RES	1	22.32	11	41,689.93	8	61,392.37	115	5,266.34	1	13.88	136	105.8
ESP_Spend	57	43,627.28	7	38,278.96	14	58,324.3	19	8,719.93	206	6,592.4	303	151.9
RES Archive									11	98121.56	11	95.8
Grand Total	88	49,729.71	18	79,968.89	22	119,716.67	141	15,668.11	218	104,727.84	487	361.1

RAD Modernization: High-level Implementation Solution Architecture

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Future State Slides

API Data Sources Architecture

