Hybrid Cloud Services

Sybase to SQL Server on Azure Migration with Low Risk

IBM Services

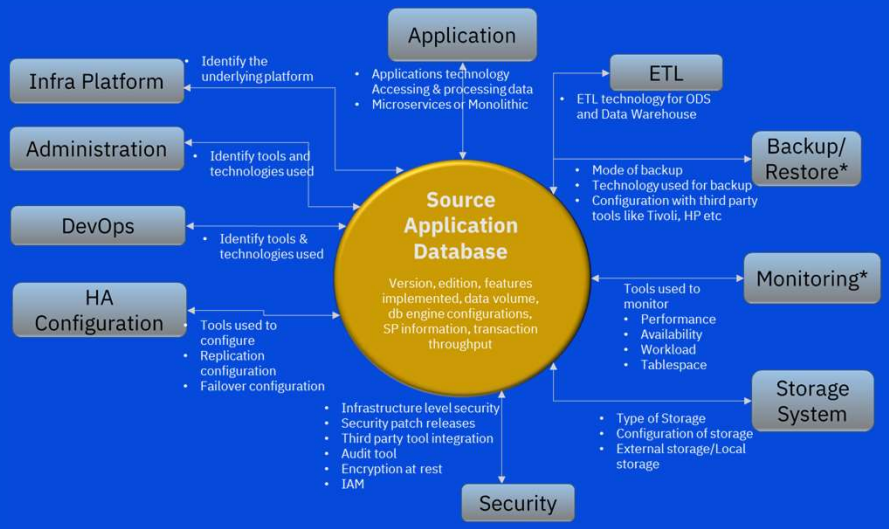
Agenda

1. Key Challenges With Sybase
2. Key Obstacles to Migrate Out
3. IBM and Microsoft Azure Comprehensive Solution
4. IBM’s End to End Solution
5. Business Case
6. Next Steps
7. Partner with IBM for full enterprise reinvention

Key Challenges With Sybase

- End of Mainstream Maintenance (EoMM) by 2025
- High Licensing and Infrastructure Management Cost
- No real Innovation (last major release 16.0 was in 2015)
- No Cloud readiness
- Limited Skilled resource

Key Obstacles to Migrate out of Sybase



MIGRATIONS ARE COMPLEX

- Sybase is legacy DB, thus much more discovery, assessment, and efforts required
- Across the schema, data, SPL, extension packs etc.

SYBASE SKILLS

- Developing new skills (related to target DB) may impact business
- And is time consuming

SAP BASED SOLUTIONS

- Sybase is tightly coupled with SAP based software tools (as member of SAP Business Technology Platform)
- SAP based solutions / tools also need to migrate / integrate

OTHER FEATURES AND TOOLS

- Investment in backup tools, security tools, custom scripts etc.
- Cursor Scope, Case Sensitivity, Reserved Keywords, Dynamic SQL etc.

IBM and Microsoft Azure Comprehensive Solution

Considering nearest compatibility and Azure SQL DB comes out to be the best option as target database.

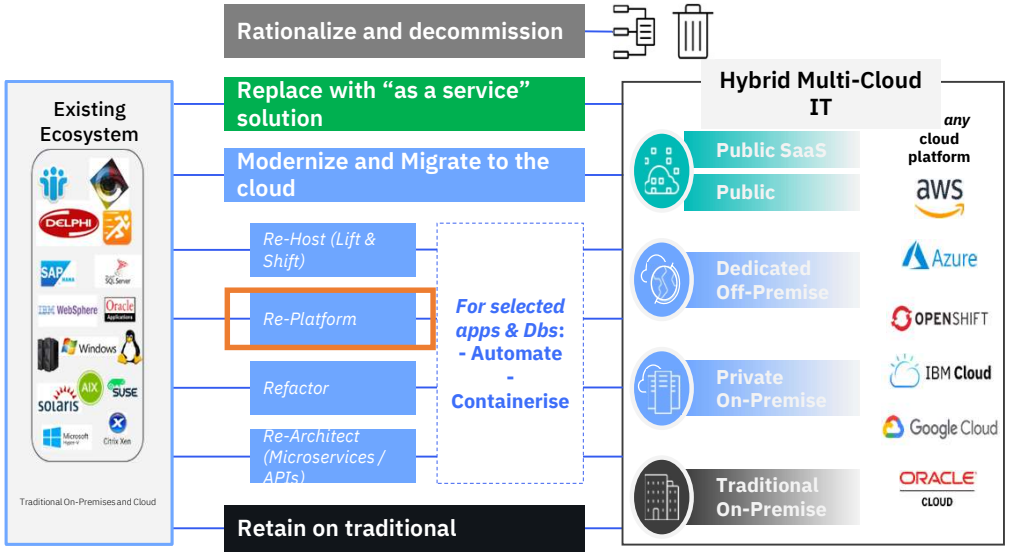
Azure SQL DB for Sybase migration

Azure SQL Database named among the top 3 databases of 2020 by DB-Engines

Fully managed and always on the latest version of SQL	Flexible, Serverless compute and Hyperscale most demanding workloads	Layers of protection, built-in control & intelligent threat detection keep data secure	Build and deliver modern, intelligent apps faster
• Eliminate configuration complexity. Managing HA, Tuning, Backups • Accelerate solution development • Never worry about updates, end of support	• Break the resource limitations • Allows storage to grow as needed and enables to back up data instantaneously • Restore your database in minutes	• Data is always Encrypted • Most comprehensive compliance coverage • Multi-layered protection with built-in security controls	• Built-in AI feature • Supports windows / Mac / Linux • Implement CI/CD with Azure DevOps or GitHub • Simplify .NET app integration with native support

*Source – Azure SQL Database

IBM's Comprehensive Services Solution for Application & Data migration and modernization



No Capex

Optimize costs (serverless) with compute

Minimal risk of migration using SSMA

IBM's end-to-end Sybase to Azure SQL DB migration approach powered by tools and accelerators

IBM has a comprehensive toolset & technology guidance addressing all stages of the program

Guiding Principles

- **Adopt a Lean Agile approach to delivery**
- **Incremental Value Realization**
- **Minimum Viable Architecture (MVA)**
- **Technical & Cultural Coexistence**

Understand Current State

IBM One Discovery Scripts (Galapagos, SCMD)* for discovery of middleware, utilization and affinity

Assessment Questionnaire for discovery of current state

Cloud Advisory Disposition Analysis, cloud service model, value Vs efforts and ROI

Cloudscape to capture performance data for network devices and relationship between them

AIM is Augmented Intelligence in Cloud Migration.

Analyze Current State

CAST Application Intelligence Platform (AIP) to analyze database code block (SPs, triggers) and tables and their interrelation ship

IGM4C –Container Advisor Advise on candidate applications for containerization with minimal data.

Schema incompatibility analysis **Microsoft SQL Server Migration Assistant (SSMA) for Sybase – Migration Analyzer**

Migration Strategy

Architecture Guidance for target state architecture definition covers NFRs like performance, security, availability, manageability and scalability

DB Containerization guide comprising deployment patterns, NFR consideration etc.

Co-existence & Interoperability play book with various integration patterns for co-existence of old and new system

Decision trees for database migration approach , modernization pattern decision, DB selection

Migration Execution

Execution steps and tools guidance

Schema conversion **SSMA Schema Converter**

SPL Migration : **SSMA Code Conversion - Business Logic**

Data Transfer : **SSMA Code Conversion - Data Migrator**

Co-existence : **SSMA Migration Tester for Testing**

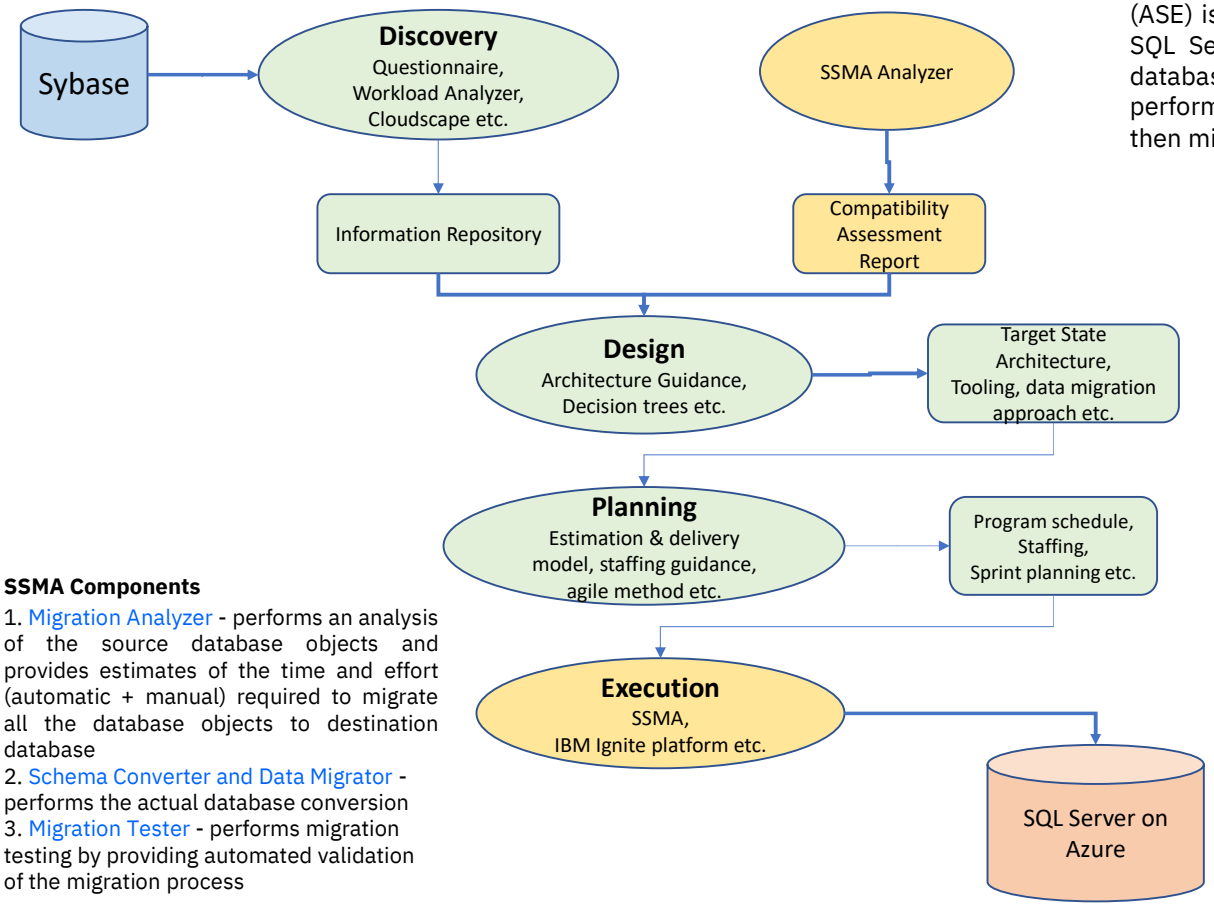
Post Migration

IGNITE platform for testing

NFR testing & validation

Cut-over & route the traffic to new DB

Overall Migration Approach and Automation

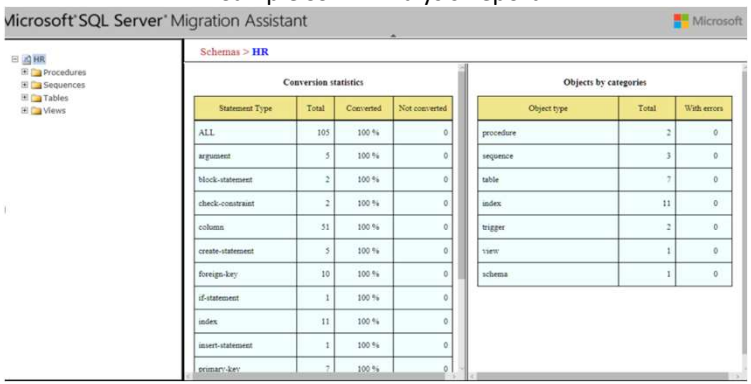


SSMA Components

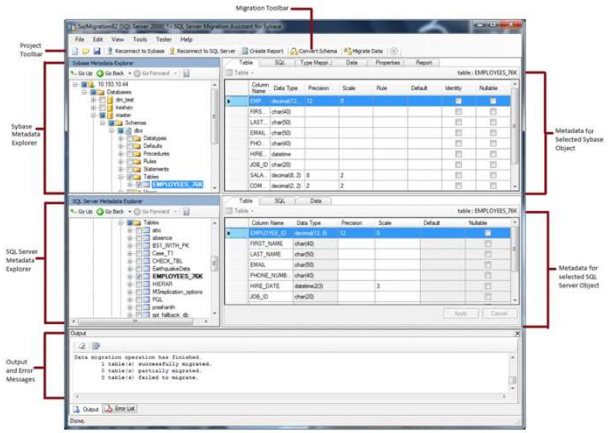
1. Migration Analyzer - performs an analysis of the source database objects and provides estimates of the time and effort (automatic + manual) required to migrate all the database objects to destination database
2. Schema Converter and Data Migrator - performs the actual database conversion
3. Migration Tester - performs migration testing by providing automated validation of the migration process

SQL Server Migration Assistant (SSMA) for Sybase Adaptive Server Enterprise (ASE) is a comprehensive tool that helps to migrate Sybase ASE databases to SQL Server database. By using SSMA for Sybase ASE, review of data and database objects can be done, assessment of databases for migration can be performed. It initially migrate database objects to Azure SQL Database, and then migrate data.

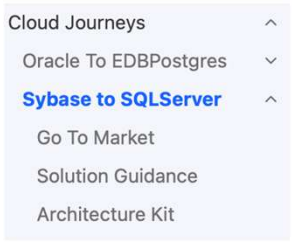
Sample SSMA Analysis Report

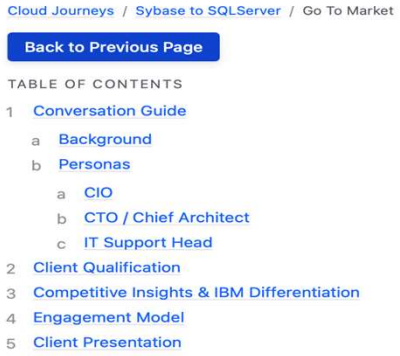


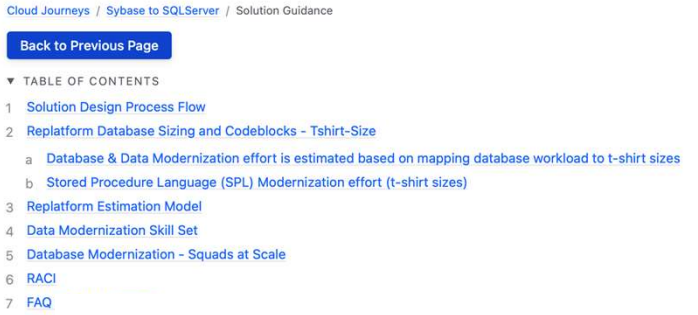
SSMA User Interface

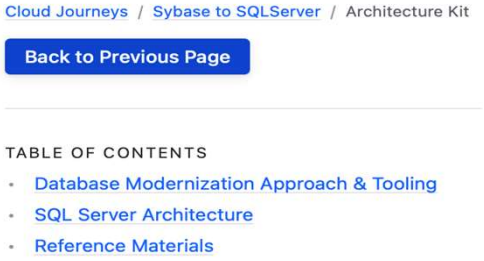


IBM Offering





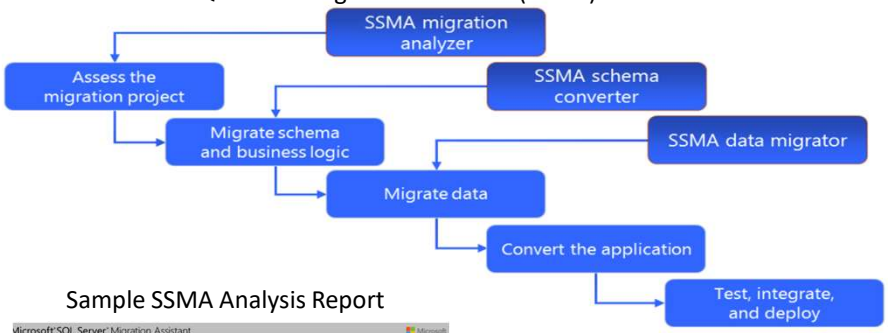




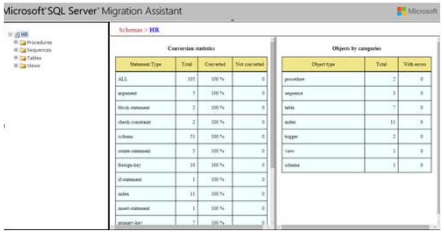
- Go-to-market package
- Architecture Guidance
- Migration approach
- Proof of Technology
- Estimation Guidance
- Staffing Guidance
- Tools & Accelerators Guidance
- Reference Implementation

Solution Design Process Flow

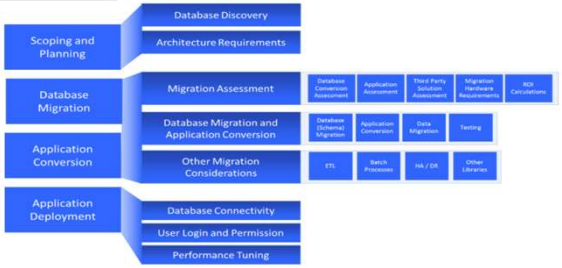
SQL Server Migration Assistant (SSMA) Overview



Sample SSMA Analysis Report



DB Migration Approach



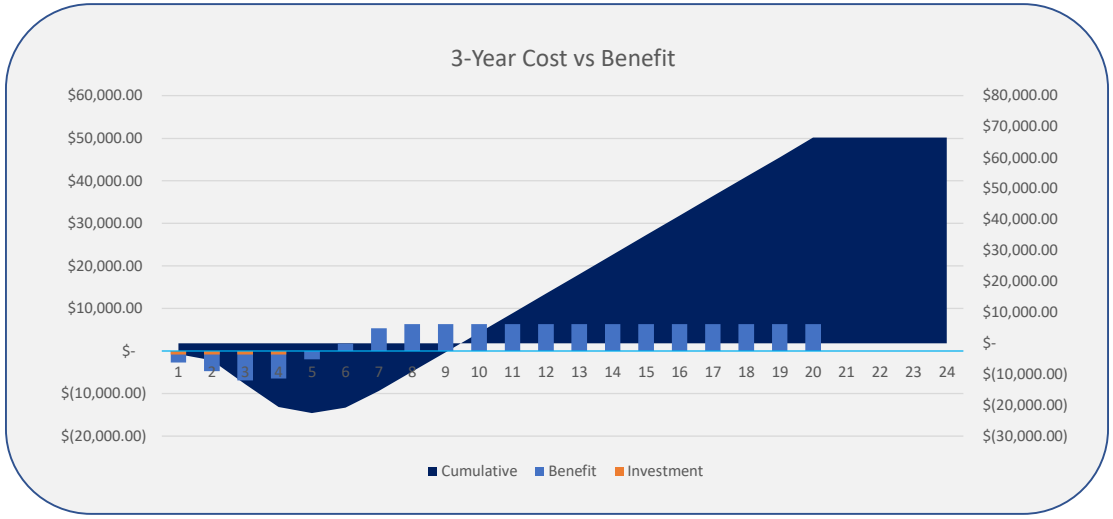
Business Case – Based on 6 Month Cycle Over 3 Years

Inputs considered for ROI

Total DB	100		DB Compatibility	70%
	% distribution	#DBs	# cores/DB	Sybase Edition
VS	30%	30	4	Standard
S	25%	25	8	Standard
M	30%	30	16	Enterprise
L	10%	10	32	Enterprise
XL	5%	5	64	Enterprise

Financial Summary

	6-Quarter	3-Year	5-Year
Total Savings	$(15,669.60)	$ 15,830.40	$ 53,630.40
Total Investments	$ 3,300.00	$ 3,300.00	$ 3,300.00
Net Value *(GP less Investments)*	$(18,969.60)	$ 12,530.40	$ 50,330.40
NPV *(Net Present Value)*	$(17,816.55)	$ (3,205.14)	$ 7,747.04
ROI	-575%	380%	1525%
Payback Period in Years	2.22	2.11	2.11



Engage to Execute : Next Steps

Standard 5 step approach for database modernization at enterprise level

1
Discuss your Data Management Strategy and pain points

+ Dig deeper into the biggest challenges and opportunities
+ Share ideas on how the organization can accelerate value realization.

1 – 2 Weeks

2
Collaborate to jump start data service transformation and value realization

+ Understand the current App/DB landscape with level of standardization & automation
+ Understand levels of adoption of open source and non-proprietary software
+ Identify business transformation areas for maximum impact
+ Build value realization plan and associated KPIs

1 – 8 Weeks

3
Attain a unified vision of success and a clear path to realization

+ Engage & Agree with Key stakeholders on a unified vision of success.
+ Execute Minimum Viable products across identified business processes and systems . Migrate a set of sample databases to SQL DB
+ Validate and fine tune recommendations, actionable roadmaps to an Enterprise Scale

8 – 16 Weeks

4
Prepare to scale the value proposition to the organization

+ Execute Data Services Transformation efforts to enterprise scale.
+ Refine the approach based on feedback from early executions. Evaluate objective KPIs from initial executions
+ Define standard processes and procedures
+ Train existing teams of DB support teams to manage the updated environment
+ Modernize data beyond conventional users and enable innovative business models

4 – 24 Months

5
Evolve your Roadmap as new opportunities arise

+ Continuously measure progress against the defined value outcomes
+ Resolve barriers limiting the ability to realize the defined value outcomes.
+ Enhance agility to evolve solutions to the demands of business and the innovations of technology

> 24 Months

Exemplar Duration for 100+ Databases

Partner with **IBM** for full enterprise reinvention

IBM has the know-how, framework, methods, and technology needed to guide client on a full transformational journey.

Trusted Partner for Transformation

Deep Industry Experience

Hybrid and Multi-Cloud Expertise

IBM Tools, Methods, and Accelerators

Transformation Driven by Business Outcomes

Virtual Work Practices and Culture

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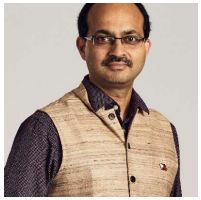

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CTO – Chief Technology Officer
HCS – Hybrid Cloud Services
OM – Offering Manager
OA – Offering Architect