Contoso Inc. Mortgage Lending Modernization Case

Contoso Inc. is a leading mortgage solutions and services provider with comprehensive product offerings for their clients – some of the large Lenders and Banks as well as small regional lenders. Leading banks and lending institutions across US leverage Contoso's services for Titles, Valuations, Property Appraisals, Property Preservation related processes. These processes are currently managed by Contoso with its legacy monolithic platform – StarBoard.

StarBoard was initially built in year 2006 with Microsoft .NET 2.0 technology stack and a three tier SOA architecture and was since upgraded to .NET 3.5. StarBoard platform consists of following modules:

1. Lender Portal – a multitenant portal for lenders/banks to submit mortgage servicing orders to Contoso e.g. Title insurance request, Title search requests, property valuation orders, property inspection and appraisal orders, etc.
2. Appraiser Portal – Contoso has a vast nationwide network of Qualified Appraisers who receive work orders for mortgage services from Contoso. Appraisers are able to accept/reject orders, submit property inspection reports, valuation forms, etc. through the appraiser portal.
3. Mortgage Management Desktop – Contoso's internal staff manage the lenders/banks' service orders and processes through this internal application. Mortgage Management Desktop contains rich features for tracking all the mortgage service requests from banks, delivery of completed documents (property inspection reports, title insurance, etc.) to banks, generation of invoices to charge banks with the service fees, etc.
4. StarBoard Web Services – Most of the business capabilities of StarBoard platform are processed through SOAP/WCF web services (~45 Services) that provide a layer of abstraction from the DB, however critical business logic is delegated to database layer stored procedures
5. Enterprise Mortgage OLTP DB – All of Contoso's applications use a monolithic Enterprise Mortgage DB (SQL Server 2014) as their backend. The DB uses various ETL jobs to post updates to other functions like Accounting AR/AP, CRM databases.
6. Integrations – Contoso's mortgage platform also integrates with external systems through batch as well as real time interfaces, e.g. Wire Transfer and Check Processing files with Bank of America, Address Standardization APIs, Title Search Services, Document Signing services, etc.

Current State Challenges:

Starboard is architecturally constrained to support the growth of its Lenders and Banks as the US mortgage activity is witnessing strong momentum. Contoso has encountered several outages due to the unreliable infrastructure currently managed out of their self-managed data center. Lenders demand rapid customizations to their processes, which currently results in a 3-month development/testing effort for Contoso followed by a long release cycle to mitigate any adverse impact of change to other lenders. Lender Banks have also been concerned about data isolation and data security since currently all Banks' data is managed through a single monolithic DB and there is also the concern of Borrower's PII data being inadequately secured. Client banks also had unique customization and configuration needs, most of which impacted the frontend and the web services layers.

For some of the large client Banks, Contoso had to eventually standup a replica of production infrastructure to meet some of these physical data isolation needs, mitigate availability and stability issues, and address customization requests for some of their key clients. Due to this approach, there are now 18 production instances of StarBoard Applications and Web Services dedicated to their large client Banks and a shared instance for smaller regional banks, with all of these instances sharing a common

database. Multiple production instances have resulted in unreasonable cost as well as manageability issues. The complex nature of integrations with internal and external systems through SSIS jobs makes it difficult to change or optimize the DB.

The Contoso Inc. StarBoard engineering team of 40 members broadly consists of Enterprise Architect, 3 UI Teams including UX designers, UI developers; 4 Web Services and Integration teams and a shared Data Management team. Teams claim to be doing Agile delivery with monthly releases of UI, Web Services and Database changes. Infrastructure is managed by an Enterprise IT team.

Contoso Inc.'s Ask:

1. Based on the above summary of Contoso Inc.'s current state, what are your thoughts on the key architectural constraints or problem statements ?

2. Based on the above summary of Contoso Inc.'s current state, what would be your recommendation for future state architecture solution leveraging modern cloud native patterns and Azure services.

3. Contoso Inc. wants to realize the benefits of any potential cloud modernization early and more iteratively rather than wait for 18 to 24 month modernization cycle. What would be the possible approach to provide them with early and iterative value realization.

4. Contoso Inc. sees this as an opportunity to address not just the architectural constraints but also take a leap forward with their engineering methods as well as restructure the engineering unit. What should be the future state structure for their engineering teams and what engineering practices should Contoso consider?

As a Cloud Solution Architect, create a short solution proposal addressing Contoso Inc.'s ask above.