Application Architecture - Assessment Questions

Question	Why we ask?	How to score/rate? (1 lowest - 5 highest)	Weight?	What data can we pull to quantify?
What different types of technology/software stack are used at the organisation level? Ex. Microsoft, Java with JavaEE, Open source (PHP, Ruby, Scala etc.)	To understand the Tech Stack used to build the application	*1 - Stored procedures, PL/SQL, Standalone* *2 - Batch application, ETL* *3 - Proven web/mobile technologies, but not the latest* *4 - Proven web/mobile technology and latest*		Nature of the application and the technology stack used
What is type of technology used/choices made when it comes to licensed vs Open Source?	To validate the usage of enterprise licensed software vs open source solutions. Also to understand the current application stack, integrations, and frameworks.	*1 - Fully licensed software* *2 - Mix of open source and licensed* *3 - Completely open source but proven and time tested* *4 - Completely open source and new technologies used*		Nature of the application and the technology stack used
What are the different integration / middle-ware platforms are used at the organization level? Ex. Enterprise Service Bus (IBM, Oracle or Software AG), Message broker/MQ, MS BizTalk, Informatica ETL etc.				
What percentage of applications are components off the shelf(COTS) and how many of them are Vendor IPs?				
Does the app use any industry standard frameworks like Hibernate, Spring, Spring Boot, ReactJS, AngularJS etc? What other frameworks are being used?				
Does this have reporting? If yes, are they real time, batch, scheduled? What formats? Does the app has a any front end dashboard for publishing the report?				
What is your Web server, App server and other servers?				
Any applications on a demise path?				
Does this application have direct integration to end-user systems?				
Is this application hosted separate or co-hosted along with other applications?				
Does the App uses Middleware Messaging platforms?				
Does this application have a batch scheduler? If Yes, what is the batch schedule that is used?				
Does the App uses Data Cache platform?				
Does the App uses Data Access Layer platform to manage database connections?				
What are the internal / external end points? (E.g. REST/SOAP/RPC)				
Does the application uses API Gateway?				
Is this application for data entry or data visualization or both?				
Does your application has got any platform dependency such as Microsoft etc.?				

Does your application has dynamic configuration mechanism?	To validate the app configuration process; it is very critical for varying environments to keep config outside code and managed dynamically	1 - Config are defined along with code 2 - Config are dynamic managed through environment variables 3 - Config are dynamic managed outside code		Deployment jobs, code base and installation scripts to evaluate the configs
Please provide the architectural overview of the application? To detail the components and integration levels.				
What is the architectural pattern used for the application?	To understand the Architectural Pattern and other process/details related to app architecture	1 - Standalone /Reporting 2 - MVC 3 - SOA 4 - Microservices		Information can be gather through whiteboarding session and documentation if exist
Does the application has documented functional, technical architecture and design?		1 - No 2 - Yes, Partially 3 - Yes, Completely Available		
Does this follow a multi-tier architectural approach?				
Does the App has a monolith or a microservices based architecture?				
Do you follow any best practices in design and architecture for better availability, scalability, reliability and performance? Any documentation is available?				
Are designs and architectural artifacts being reviewed and conformed to standards on a regular basis? Do we have Architectural, Service and UX Governance Board?				
What security mechanisms are used such as Authentication, Authorization, Transport layer security and encryption?				
Are their clear roles and access privileges specified for application access? Do we use Fedrated Identity or open source IAM solutions?				
What is the response times for users (e.g <5 secs)				
How many transactions per second for backend servers/DB?				
What is the High availability (clustered/non-clustered) measurement? (e.g 99.99% etc)				
What data access mechanism is used? Via Files-FTP, JDBC -ODBC or REST-SOAP APIs				
Does this application have real-time data ingestion?				
Are the transaction handled consistently with data integrity? Is the error handling in place? Do we have Idem-potency solution to handle transactional integrity?				
Does the existing code is designed and written to support the HA, failover implementation?				
How is the session management implemented for Web applications?				
Are code reviews performed regularly? What tools are used for code reviews? Are they manual?				

How much is the code coverage? What tools do you use to measure code coverage?				
What type of application dependencies or integration points (inbound OR outbound) exist within?				
What are the key concern areas and critical factors for this application?				
Is there any Technology Upgrade planned in the near future?				
What type of audit or logging or traceability mechanism used for support and maintenance?				
What is the Database Architecture/model used?	To understand the DB Model for the application to be aware of the complexity that can be introduced by database design or implementation	1 - No DB applicable 2 - Monolith DB 3 - Shares DB schema with other applications 4 - Separate DB schemas 5 - Shard DB schemas		Information can be gather through whiteboarding session and documentation if exist
Does this application connect/handle any BigData?				
What third party data does the app interacts with? Volume/Velocity/Veracity/Variety/Value				
Does this app has a DB server separate or shared?				
What type of databases are used? RDBMS/No SQL				
What are the different types of NoSQL system maintained as of now?				
Are the databases configured for HA and Failover capabilities?				
Do you employ any database optimization techniques for superior performance?				
Are the databases replicated or sharded?				
Does this application requires metadata and master data changes for every release deployments?	To understand the metadata and master data changes for every releases and any challenges that may impact continuous deployment	1 - Metadata & Master Data changes have to introduced for every release - Highly Data Dependent 2 - Incremental update of Metadata & Master Data changes for every release - Medium Data Dependent 3 - Incremental update of Meta data & Master Data changes for every release - Rare Data Dependent		Release Notes and Release playbook activities are reviewed to identify the information.