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| |  | | --- | | Architecture Principles  Microsoft Cloud for Healthcare | | Executive Overview: The architecture principles below were agreed upon by <customer> and Microsoft to guide decision making as we work together to enable digital transformation through technical capabilities delivered through the Microsoft Cloud for Healthcare. Many of the decisions around architecture, conventions, standards, etc. are difficult or costly to change, once implementation has begun. These architecture principles are to be used to ensure those decisions and day-to-day decisions are all aligned to an overarching enterprise architecture and strategy. Architecture Principles | | |  |  | | --- | --- | | **#** | **Definition** | | **1** | Principle  FHIR (R4) is the common baseline exchange of health data between the <customer>’s clinical application ecosystem and the Microsoft cloud.  Rationale  Healthcare organizations, standards bodies, governments, and technology companies all recognize the need to eliminate closed systems that store and process health data. A critical mass of those same establishments have pledged support and have begun to mandate the use of the FHIR specification as the standard to open and/or displace those systems.  Implications   1. All data flowing from the <customer> application ecosystem into Azure will be sent in the FHIR format. 2. All data flowing from the Microsoft cloud to the <customer> application ecosystem will be sent in the FHIR format. 3. Because not all systems and services with the <customer> environment support FHIR natively, conversion/mapping/etc. will be a requirement. 4. Similarly, not all Microsoft cloud services are able to interact with healthcare data in the FHIR format, requiring additional integration mechanisms (e.g. sync to Dataverse, export to Parquet). 5. Any deviation from this principle will require an exception approval. 6. Data not included in the HL7 normative FHIR specification will be examined for inclusion as a FHR extension. Incorporation as an extension will be based on its clinical relevancy. | | **2** | Principle  A repository of clinical information will be created and maintained in the Microsoft cloud (using Microsoft’s Azure API for FHIR service and its associated features - proxy, persistence layer, etc.) as the “source of truth” for clinical data in Azure.  Rationale  Microsoft’s reference architecture for healthcare data includes the Azure API for FHIR as the aggregate data repository for clinical information. The use of a FHIR-based repository as the core of the reference architecture is based on industry trends and regulatory policy in the US (and other countries throughout the world).  Implications   1. The clinical data repository must include the security, privacy, and compliance controls required for PHI. 2. <customer> will provide near-real-time updates to the repository to ensure that any application or service that leverages the repository has current information. | | **3** | Principle  Core clinical workflows will be completed within <PRIMARY EMR> versus being recreated in the Microsoft Cloud. These include scheduling, orders, clinical documentation (aka charting).  Rationale  Many of these workflows have rules, constraints, business processes, etc. that are implemented at an application layer in <primary EMR>, not in the data layer. Any attempt to re-create these workflows in the Microsoft cloud would likely require re-creating the same rules, constraints, business processes, etc. and keeping them in sync, adding complexity.  Implications   1. Alternative mechanisms of enabling workflow between the Microsoft cloud applications (e.g. patient service center and other CRM-based workloads) will be required. These could include things like deep-linking or “swivel-chair”. 2. Any clinical workflow that needs to be created in the Microsoft cloud will need an exception approval. | | **4** | Principle  The initiation of the “patient record” will live within the <primary EMR> application workflow and will flow into the Microsoft cloud via the architecture guided by these architecture principles.  Rationale  There is complexity around patient record creation and limitations with the <customer> application ecosystem that require that “creation” of the patient record to be initiated with <primary EMR>.  Implications   1. The initial patient record in the Microsoft cloud will always be created via an interface from <customer>. 2. Patients must be created in <primary EMR> and transferred to the Microsoft Cloud for Health prior to the creation of any related records in Azure. | | **5** | Principle  The prioritized list of clinical data exchange mechanisms between the <customer> application ecosystem and the Microsoft cloud is as follows:   1. Web service posts of FHIR resources between <interface engine> and Azure API for FHIR. 2. ETL of batch data in FHIR format. 3. Calling application specific APIs directly (these APIs would exchange data in FHIR format).   Rationale  Standardization of the data exchange mechanisms between the <customer> application ecosystem and the Microsoft cloud will decrease complexity and improve serviceability.  Implications   1. A scoring or some other sort of decisioning mechanism will be needed to determine when a lower priority option can be used. 2. Exception processes will need to be put in place to manage situations when one of the options in the list is not viable. | | **6** | Principle  Clinical information and other patient data stored in the Azure API for FHIR “source of truth” will not be replicated into additional data repositories in Azure unless necessary to provide required enrichment, analysis, processing, or workflows. Viewing from the source of truth will be utilized wherever possible.  Rationale  Minimizing copies of clinical information where possible is a best practice for:   1. Minimizing data flow and record synchronization complexity 2. Security and compliance management of sensitive data 3. Contain storage costs   Implications   1. The use of Sync Agent in Microsoft’s reference architecture for Healthcare Data does not assume or require that all data in Azure API for FHIR will flow into Dataverse for use with Dynamics 365 and Power Apps capabilities. 2. Gap-fit of functional requirements to Microsoft Cloud capabilities with identified minimum data requirements and target storage should inform data flow designs 3. Review gate needs to be established to validate the need based on requirements to replicate data to another store as a part of architecture and data flow review. | | |  | |