FHIR at Scale Taskforce (*FAST*)

Technical barriers to FHIR solutions scalability

Tiger Team Name: Directory, Version and Scale

As of April 25, 2019

\*\*Teams to focus first focus on A. and B., and later on C.

|  | 1. What is the technical barrier identified? | 1. Why is this a barrier to scalability? | 1. What exiting industry efforts are working to remove this barrier (if any)? |
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|  | **Versioning: Multiple versions and production** | Creates need for trading partners to support multiple versions of FHIR and therefore creates a significant challenge for multiple trading partners that may be supporting individually different versions of FHIR  No guarantee of backward compatibility across versions except for those resources which are normative  Regulatory recognition of multiple versions of FHIR creates further confusion  Solutioning notes:   * Support normative resources across multiple versions * Support transformation across versions where forward and backward compatibility is not comprised * Regulation names one version for certification and allows adoption of future versions as long as existing applications can be supported | Move to normative resources  Regulatory support for certification base and requirements for backward compatibility of future versions  FHIR community working on  transformations where possible between versions of a resource |
|  | **Versioning: Continued evolution of standard** | Continued evolution of the standard to support new functionality creates timing and adoption challenges (for instance, new operations on a server and lag time to get all to support it; vendors support different functions at different times meaning capability statement needs to be reviewed)  *FAST* Framework capacity (resources and processes) to keep pace with HL7 FHIR evolution  Industry use of different versions and interplay with capability statements  Solutioning notes:   * None, standard will continue to evolve until mature and stability achieved | Continued interest in maturing standard so core resources are normative |
|  | **Versioning: Variable adoption of the standard** | Different vendors adopt support for various resources and to just read or read/write  Challenges with current-ness of capability statements (barrier twofold: maintenance of statement and periodicity of pulling/processing statement)  Solutioning notes:   * Directory aspects related to Capability Statement (rules, registry) | None |
|  | **Versioning: Multiple versions comprising the record for a single patient** | Depending on architectural models deployed for receiving and storing data:  Applying any kind of decision support across patient record  Communicate record to another entity | None |
|  | **Versioning: Complexities created by Profiles that are version specific** | Extensions, profiles, and implementation guides are version specific. This creates complexities when supporting multiple versions of FHIR and migration from one version to the next. This is a substantial implementation issue. | As the most commonly used resources become “normative” we expect this issue to be minimized.  Structured definition supporting multiple versions may be leveraged for certain use cases. |
|  | **Versioning: Complexities created by Extensions** | New version of FHIR introduces new content that impacts the definitions of the extensions or how the extensions are used (in Imp Guides / resources) | As the most commonly used resources become “normative” we expect this issue to become moot. |
|  | **Versioning: FHIR versioning of RESTful APIs may differ from general industry definitions** | Because FHIR uses slightly different definitions in particular on versioning than the standard for RESTful APIs it creates additional complexities for organizations that are implementing and supporting both FHIR API and other RESTful APIs not based on FHIR. | Unknown |
|  | **Directory Services: Endpoint Identification** | No current standard or implementation provides a reproducible method for finding a FHIR endpoint and its associated characteristics (that go above and beyond capability statement content) | Numerous efforts to incorporate FHIR endpoint information into existing directory services – for example - Sequoia, DirectTrust  May be an aspect of ONC Certification final rule - *Service Base URL (a.k.a endpoint)* |
|  | **Directory Services: Endpoint Characteristics** | Currently no standard or implementation that specifies additional endpoint attributes. These include, but are not limited to: trust framework, authentication requirements, FHIR version(s), supported services, certification and testing. | FHIR endpoint resource supports some attribute information. FHIR endpoint resources is not normative.  Specific directory implementation – see point 8 – may define some additional attributes. |
|  | **Directory Services: Currency and Accuracy of Directory Endpoint Information** | Currently no standard process for keeping endpoint published information current and validating its accuracy. This creates uncertainty in using any directory of endpoints. | May be an aspect addressed by ONC final rule |
|  | **Directory Services: Restricting Access to Endpoint Information** | The DVS Tiger Team anticipates that certain endpoints will not be generally available (regardless of authentication) and any directory service may need to restrict discoverability for those specific endpoints. This may be necessary to minimize attacks on these endpoints by the malicious third parties. | Unknown |
|  | **Scaling: *Items TBD*** |  |  |
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