



Request for Information

OAM25072S

NAICS: 541511

Custom Computer Programming Services

GraphQL

1. PURPOSE:

This Request for Information is not a solicitation, request for proposal, request for quote or invitation for bid; it is a market research tool. No proposals are being requested or accepted with this synopsis. Any responses submitted are strictly voluntary. The U.S. House of Representative (House) will not pay for any information that is submitted by respondents to this request and any information submitted will belong to the House.

2. INTRODUCTION:

The Office of the Clerk is seeking input from interested parties regarding the use of GraphQL to provide data and application services for a range of uses cases. GraphQL is currently being used for internal applications and is being considered for use as an API for partners to access Clerk data. As part of the process of evaluating solutions for these use cases, the Office wants to ensure that it has up-to-date information on tools, services, best practices and products related to GraphQL. The Office wishes to hear from industry experts, vendors, researchers and other Legislative Branch organizations on the current state of the art, tools, best practices and integration approaches for GraphQL Application Programming Interfaces (APIs) .

3. BACKGROUND:

The Clerk's Office currently uses GraphQL as part of its redevelopment efforts for the Legislative Information Management System (LIMS) Modernization Project. So far, GraphQL has provided us with flexibility to rapidly deliver new APIs for our modernized application and adapt to application changes without significant dependencies between application developers and service developers. Additionally, our GraphQL implementation meets our security needs and has provided acceptable performance in almost all situations.

The Office began evaluating GraphQL as an approach for its modernization efforts in early 2020. At the time, a few products and approaches were evaluated, and we settled on Hasura as a product for hosting our GraphQL endpoints. We developed a CQRS-style (Command Query Responsibility Segregation) architecture where queries are routed directly to the database through a set of translating views and mutations are routed through a set of backend services implementing our business logic layer (see Figure 1). Since that time the marketplace for GraphQL tools has expanded significantly and GraphQL practices have evolved with, e.g., the introduction of GraphQL federation, streaming and the emergence of improved integration tools like Relay. We wish to ensure that we are using current best practices, design patterns and tools as we mature and evolve our use of GraphQL for application development.

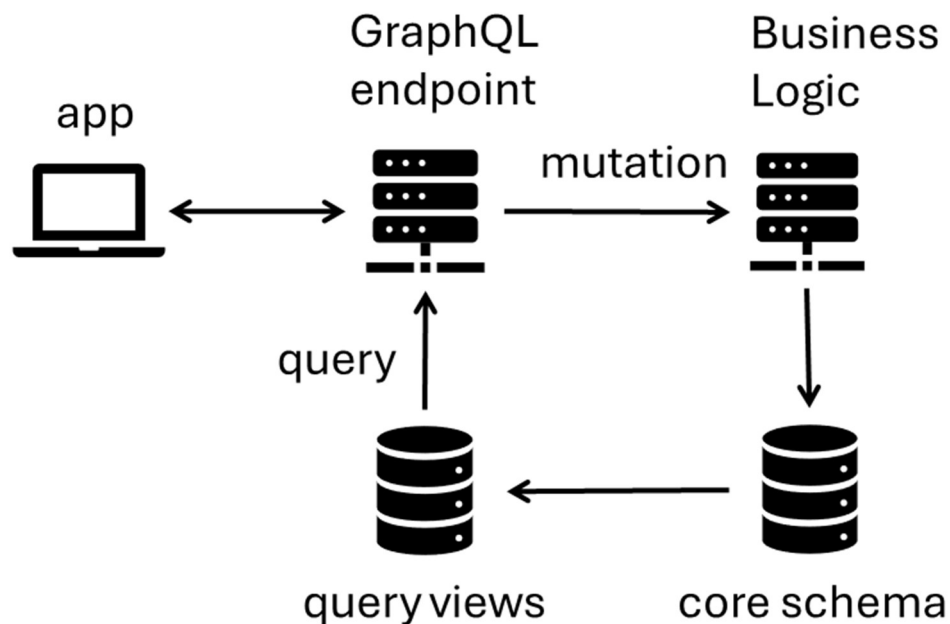


Figure 1- High level current architecture

In addition to using GraphQL for building internal applications we are evaluating its use as an approach to delivering application data and services to consumers outside of the Office. This would primarily be used to deliver data to other Legislative Branch partners such as the Government Publishing Office (GPO), the Library of Congress and the Senate. These use cases would generally use the same core data as our applications but provide only published data through the API in a form that matches the specific needs of our partners (see Figure 2).

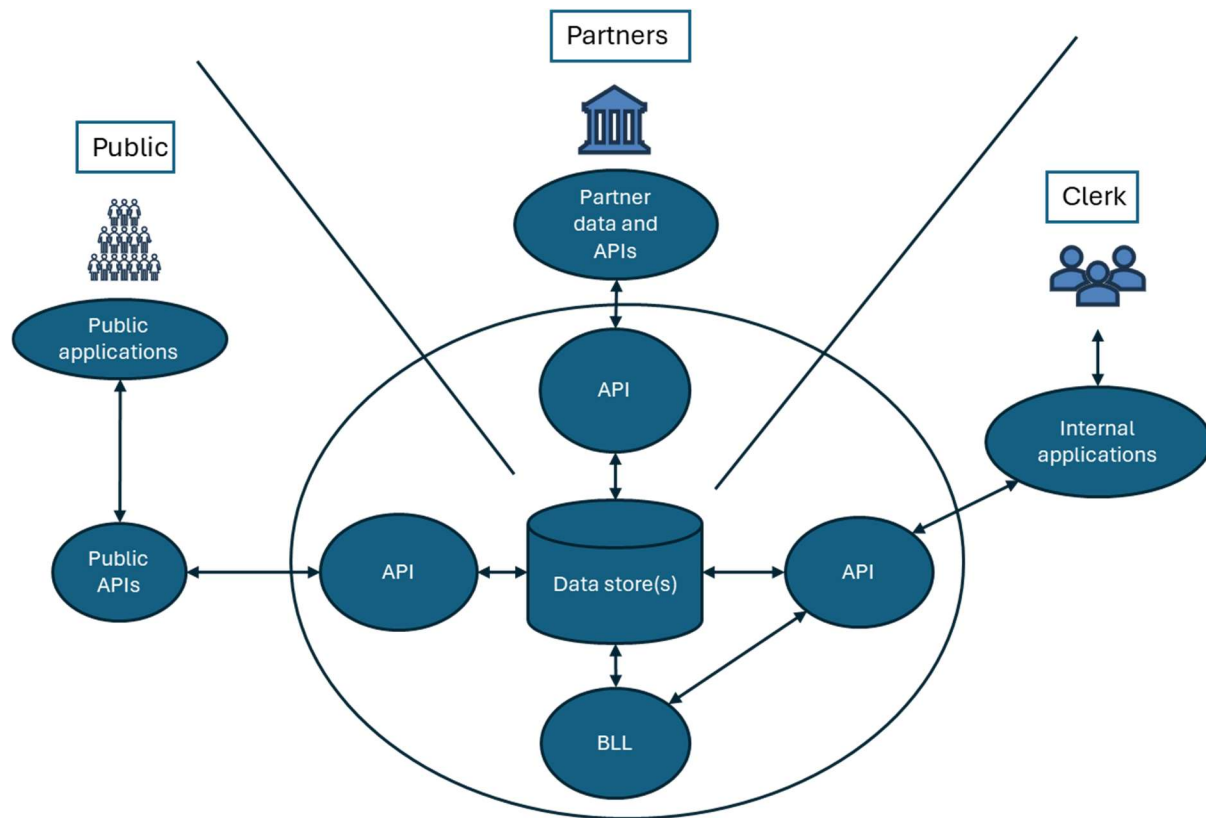


Figure 2 - Conceptual architecture for future data delivery.

The current technology for internal applications uses React with Apollo client for user interfaces, Hasura for GraphQL services, ASP.NET core web APIs with EFCore for business logic and PostgreSQL for the database (see Figure 3). ASP.NET is a familiar technology stack for our organization and has met our needs well so far. We use multiple RDBMS platforms in our systems, but PostgreSQL meets our needs and there are a number of managed services we can use to support our cloud deployments.

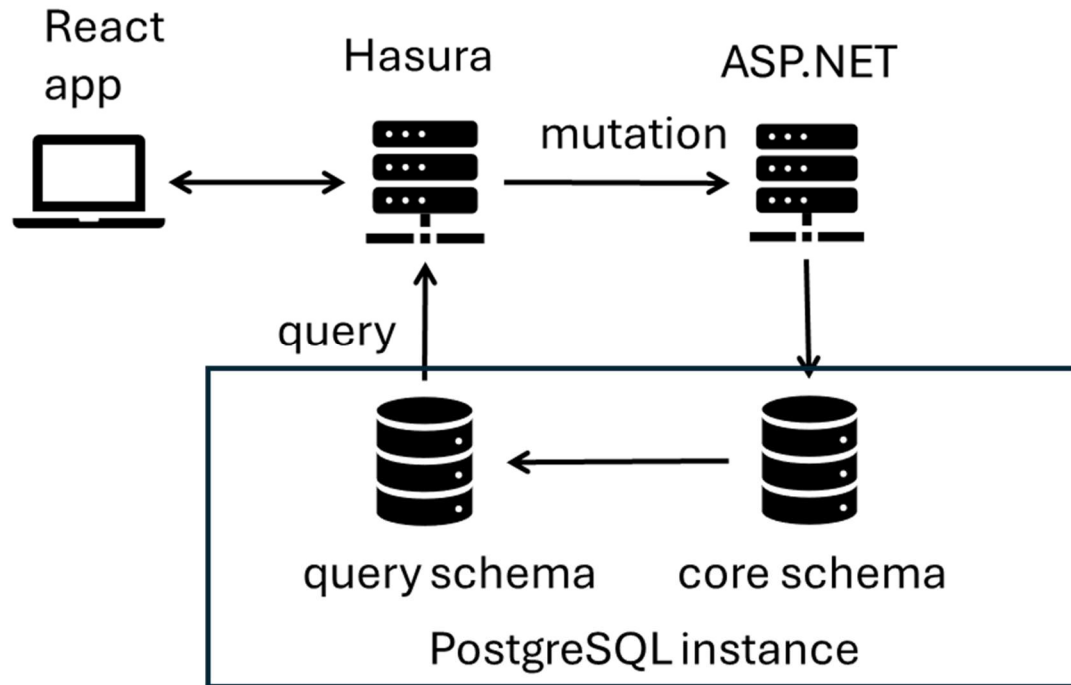


Figure 3 - Current technology stack.

TOPICS OF INTEREST

Based on our current experience and future plans, there are a few specific areas where we wish to have information from outside experts to ensure that our use of GraphQL meets our long-term objectives.

DEVELOPER EXPERIENCE

One of the key reasons to use GraphQL is developer productivity. This includes reducing churn between service development and UI development by placing more control over data integration in the hands of UI developers and other data consumers. The processes for designing and implementing schemas, integrating services and integrating databases are critical to team productivity. Providing a simple, repeatable and testable approach for evolving our schemas and integrating changes is a key area of interest.

MAINTAINABILITY

Related to developer experience is the overall maintainability of our GraphQL APIs. We need to minimize accidental breakage through schema mismatches and have simple, repeatable, patterns for adding new data and modifying APIs. Our tooling must encourage the use of best practices and help developers find and fix problems quickly.

CONFIGURATION MANAGEMENT (CM)

It is important that all application configurations are simple to maintain and are easy to integrate with our CI/CD (Continuous Integration/Continuous Delivery) processes. All system configuration, such as the state of the schema and integration points with other services, must be captured as part of our regular CM processes and packaged with our software deliveries. It must be possible to associate a specific schema or configuration easily with a software release and to be able to capture and restore the exact state of a release from any point in time. We deploy systems using Kubernetes and use Helm to manage the configuration of our deployed systems. We require that all deployments be fully automated using our Helm charts.

OPERATIONAL SIMPLICITY

All system components must be manageable in a containerized environment and observable using standard log and metrics collection tools. We are in the process of migrating our metrics collection to Prometheus. We package our software as docker images and deliver software to all of our environments using Helm and Kubernetes. All technologies we use must support building, packaging, deploying and observing all components in this environment.

SECURITY

All of our systems require authenticated access and we use standard OAuth2 authentication flows and JWT bearer tokens to authenticate access to all system components. All tools must support these approaches and work seamlessly in cloud environments and private networks. All internal applications are self-hosted and any tools we adopt must be able to be self-hosted and deployed in a private network.

FLEXIBILITY

The ultimate goal of using GraphQL in our systems is to be able to deliver new capabilities quickly on a stable and consistent platform. We want to provide as much control and flexibility as possible to our developers and partners without compromising the integrity of our data or our ability to manage it. The preceding areas all support this goal by providing simple and repeatable way to deliver new APIs while ensuring their consistency, stability and security. This area especially applies to patterns and best practices that we can leverage to ensure that it is easy to consume our APIs and adapt to changes.

DATA REUSE

Many of our applications use similar or related data in different contexts. For example, our internal application for managing the bill lifecycle uses information about Members, but it is not the authoritative source of Member data. Likewise, we have other applications that manage Committee work that consume data from external sources such as the Library of Congress but

present the information in context for users of the Committee application. In addition to looking for ways to deliver data to partners we are also looking at ways to integrate data from multiple sources in our applications and reuse data from the same source in different contexts.

4. SUBMISSION OF RESPONSES:

- Vendor questions regarding this RFI must be emailed to Kevin.Morris@mail.house.gov not later than 2:00 PM Eastern Time, **July 15 , 2025**. Responses to vendor questions will be released as an amendment to this RFI.
- Vendors should submit all responses in searchable PDF format or MS Word format Responses should not exceed **10** pages.
- Responses shall be submitted via e-mail to Kevin.Morris@mail.house.gov not later than 2:00 PM Eastern Time, **July 31, 2025**.

5. DISCLAIMER

This RFI is issued solely for information and planning purposes and does not constitute a solicitation. Responses to this notice are not offers and cannot be accepted by the House to form a binding contract. Respondents are solely responsible for all expenses associated with responding to this RFI. Responses to this RFI will not be returned. Information contained herein is subject to change. Respondents will not be notified of the result of the review. Failure to submit a response to this RFI in no way precludes a vendor from participating in any competitive solicitation the CAO may issue in the future.

6. RESTRICTION ON DISCLOSURE AND USE OF DATA

- **Responses that include data, including proprietary data, that the vendor does not want to disclose to the public for any purpose, or used by the CAO except for evaluation purposes for this RFI, should include a title page marked with the following legend:**

“This response includes data that shall not be disclosed outside the House and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this response. This restriction does not limit the House's right to use information contained in this response if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets numbered [insert number(s)].”

- Respondents should then mark each sheet of data to be restricted with the following legend:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this response.”

- The House is not subject to the Freedom of Information Act nor the Federal Acquisition Regulations (FAR).
- Your interest in doing business with the House is greatly appreciated.