

ATTACHMENT 6: Technical Environment

The NJKiDS application is based on the J2EE platform with multiple logical tiers: the presentation, business, and database and integration tiers.

The NJKiDS web application framework is built on J2EE Model View Controller (MVC Model 2) pattern. This pattern uses a controller servlet between the browser and the JSP pages (or servlet content for AJAX calls) being delivered.

The controller centralizes the logic for dispatching requests to the next view based on the request URL, input parameters, and application state. The controller also handles view selection, which decouples JSP pages and servlets from one another.

Model 2 applications are easier to maintain and extend, because views do not refer to each other directly. The Model 2 controller servlet provides a single point of control for security and logging and encapsulates incoming data into a form usable by the back-end MVC model.

NJKiDS application has two IBM p series hardware devices dedicated to HTTP Servers in a clustered environment. The load balancer will distribute the load between these two HTTP servers. In case one HTTP server is down, all the requests will be routed to the other HTTP server and thus, providing for high availability of service. These HTTP Servers work in conjunction with application servers. The WebSphere Application Server V9.x supports a variety of web servers. The web servers direct traffic from users' browsers to the applications running in WebSphere via the WebSphere plug-in to be installed on the Web servers. For NJKiDS, it will act as a router, deciding what traffic will be forwarded to WebSphere and what traffic the Web server itself will handle. This workload management process also takes care of failover and backup servers in the event that one cluster member should fail.

Zones	Network Components	Description
4	Local Area Network (LAN)	Site location specific. The LAN traffic is routed out of a site location through the DHS Enterprise Network or Wide Area Network.
3	Wide Area Network (WAN)	A site location's backup network path to the DHS Enterprise Network and can access the Enterprise Core applications and State legacy application and network services. Through the use of firewalls and router access control lists, network traffic will be restricted to only allow access to authorized applications and network services.
2	Enterprise Network	A site location's primary network path to the DHS Enterprise Core applications. Through the use of firewalls and router access control lists, network traffic will be restricted to only allow access to the NJKiDS application and network services.
1	Enterprise Core	The Enterprise Core consists of network connectivity between various tiers and systems. Through the use of firewall access control, network traffic will be restricted to only allow access from network to server and server to server.

The following software specifications of the Array Networks AVX 10650 with multi-home vAPV are utilized in NJKiDS.

Software Specifications

- Layer 4-7 Load Balancing: This feature is configured to enable the vAPV on an AVX 10650 to use a Virtual Interface Protocol (VIP) address to load balance web traffic to web servers based on URLs.
- Sticky Cookies: This feature will be configured so that if the vAPV determines that a client is already served by a particular service, it will place the client request on that service, regardless of the load balancing criteria specified by the matched content rule. If the vAPV determines that the client is not stuck to a particular service, it will apply normal load balancing to the content request.
- SSL/TLS Termination: This feature will be configured so that when an entry is created in a proxy list to define the flow between an SSL module and a client, the module will operate as a virtual SSL server by adding security services between a web browser (the client) and the HTTP connection (the server). All inbound SSL flows from a client will terminate at an SSL module in the vAPV.

Once the connection is terminated, the SSL module will decrypt the data and send it as clear text to the vAPV for a decision on load balancing. The vAPV will then transmit the data as clear text to the NJKiDS HTTP server. Thus, for an inbound request, the communication after vAPV will be through HTTP and not HTTPS protocol

- HTTP Compression: This feature will be configured to enable the vAPV to compress HTTP text data returned to clients through the SSL compression module. Compressing HTTP response data will improve performance.

Server Software

- IBM WebSphere 9.0.5: The NJKiDS application will be deployed on the IBM WebSphere Application Server 9.0.5. The NJKiDS application will provide for deployment in the form of an EAR (Enterprise Archive) file.
- IBM HTTP Server: IBM HTTP servers will be used as Web servers for the NJKiDS application. The Web server receives requests from a user and directs them to an appropriate application server for further processing.
- Atlassian Bitbucket: Bitbucket is the versioning software used for version control of software artifacts and documents. All project related documents, source code and EAR files will be maintained in Bitbucket.
- WebSphere MQ 9.1: NJKiDS application will use WebSphere MQ as the integration broker to interface with the AOC's FACTS application.
- Oracle 12c: All NJKiDS data requirements are served by an Oracle 12c database.
- TOAD: Quest Software's TOAD will be used to develop PL/SQL stored procedures.

NJKiDS Client Workstation

- The application is designed for use with Microsoft Internet Explorer 11.0 and above.
- The application is designed to support a resolution of 1024 x 768 or greater.
- The browser must be JavaScript-enabled.
- The browser must have cookies enabled.
- Using HTTP, client calls to the server are stateless. The required information, like user details, case details etc. will be kept within HTTP Session object in the web container of the application server.
- Access to NJKiDS data structures is accomplished using encapsulation, an abstraction layer that encapsulates all data access logic and presents a uniform interface to the business tier. This provides data transparency to the business application and enables code standardization.