

Tyler Technologies

Distributed Central Service Configuration Options

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Presentation of Problem

During the planning and configuration phases of SessionWorks Judge Edition, there are a number of variables which can affect the installation and configuration of the Central Service and Judge Edition location. Variables such as the number of judges, the number of courtrooms, and whether the judges are assigned fixed courtrooms, or if they move from courtroom to courtroom based on the nature of the sessions they are hearing affect the configuration options.

Sample Scenario

Judge Smith hears cases in Courtroom 1A on Mondays, but Tuesday mornings, the judge will hear cases in Courtroom 3b and in the afternoon will be in Courtroom 3c.

Judge Jones hears cases in Courtroom 3b on Monday morning, and on Tuesday, the judge spends all day in courtroom 1A, and Wednesday afternoons is in Courtroom 3c.

Solutions

This document offers architectural solutions, along with their benefits and drawbacks, to the situation where there are multiple judges who are assigned to hear cases in different courtrooms on different days, or times of day. This will allow the client to make the best decision based on their business needs, to satisfy their users, while fitting within their means and requirements.

Configuration by Courtroom

Central Service installed in the courtroom, configured with the location as a resource

This configuration is comprised by a single SessionWorks Central Service, which runs on the PC which sits on the bench. In its configuration phase, the resources selected would typically be the courtroom where the PC is currently located, which would also be set on the court session within the case management system. From a hardware perspective, this would require a single PC to run the service for each courtroom where Judge Edition is to be used.

This configuration provides the benefit of being the best solution for data recovery and network interruptions. Once the data is downloaded to the courtroom PC, no connectivity is necessary to hear the cases which were scheduled at the time of the download. This configuration also provides for the highest delivery speed of data and documents, since they are pulled directly from the hard drive (for the judicial officer) and delivered as quickly as the networking equipment will allow to the other PCs within the courtroom.

There are pitfalls to this configuration, however. Such as a signed-in judge can see all of the court sessions that are to take place within the designated courtroom, but could not see their own session in other courtrooms. Judges would also have to share configuration elements (document favorites and auto-replacement text) with each other. Finally, the judge's (user's) perspective, if the session needs to be moved to a different courtroom for any reason, the session would need to be edited within the case management system, then refreshed in the new courtroom. This causes delays while the data and documents are retrieved in the new courtroom.

Summary

A single PC, sitting on the bench in each of the courtrooms, would act as the Central Service for the courtroom, with the courtroom configured as the sole resource, and share configuration and preferences among all the judicial officers

Pros

- Better local disaster recovery (not impacted by temporary network connectivity failures or issues)
- Fastest performance to serve data and documents to the bench as well as other PCs within the courtroom

Cons

- Judges can only see all of the sessions for the current courtroom, not just their own, potentially in other courtrooms
- If a session is moved to a different courtroom, a full data retrieval (session, case and documents) for the new courtroom is required
- Configuration shared among all judges. Favorite documents, auto-replacement entries, etc.

Data flow diagram

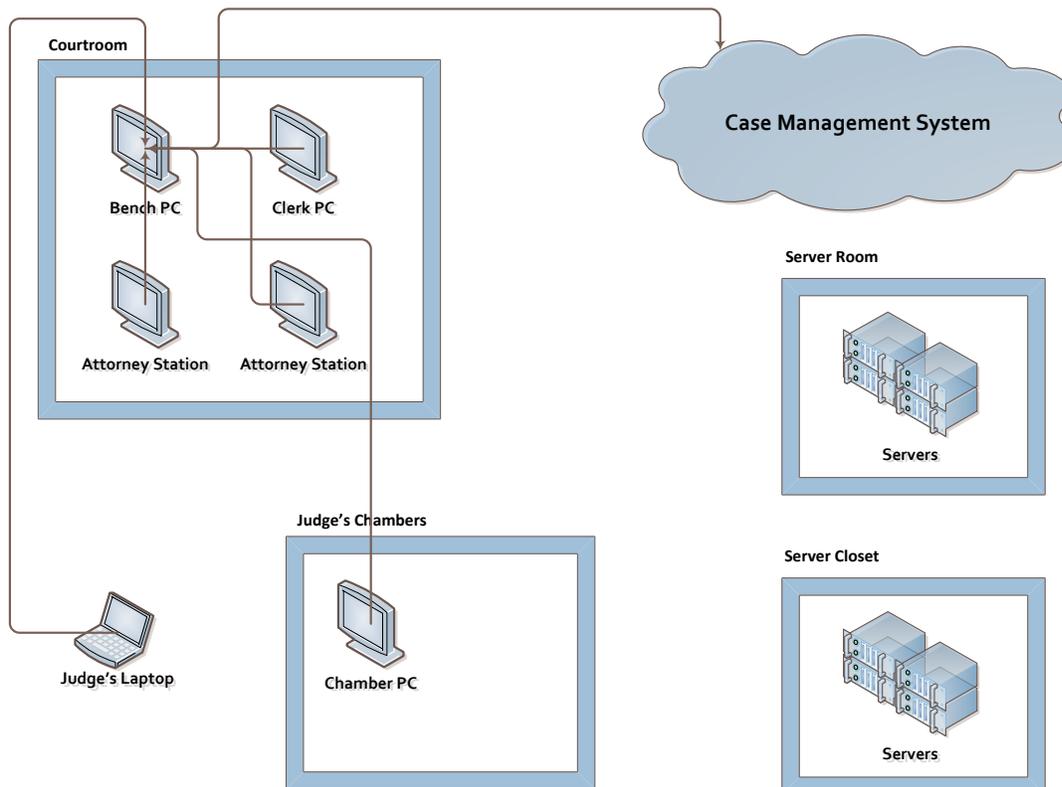


Figure 1 - Bench PC acting as the Central Service

Configuration by Chambers

Central Service installed in chambers, configured with the judge as a resource

This configuration is comprised by a single SessionWorks Central Service, which runs on the PC located in the judge's chambers. In its configuration phase, the resources selected would typically be the judicial officer who will preside over the session, which would also be configured as a session resource within the case management system. From a hardware perspective, this would require a single server to run the service for each judicial officer who will use Judge Edition.

This configuration provides the benefit that a judicial officer would see only their own sessions, as well as work with their own preferences and configuration elements (document favorites, auto-replacement entries, etc). The judges could also preview their upcoming sessions at a glance, be that later the same day, or a completely different day, since only sessions where the judge is assigned as a resource would be downloaded.

However, there are issues with this configuration as well, such as the PC in the judge's chambers would need to be left on overnight. It would also place the onus on the networking equipment between the courtroom and the chambers to maintain connectivity and keep court running. In the event of a networking failure between the two points, court would effectively be halted. A quick triage step could be to physically transport the chambers PC to the courtroom in the event of an emergency.

This configuration also introduces the possibility of a slight time penalty, since all of the documents and courtroom data would have to be served over the network to PCs in the courtroom.

The connection from the courtroom back to the chambers PC would be done using the "[Location Picker](#)" feature of Judge Edition.

Summary

Each judicial officer would have their own assigned Central Service, running on the PC in their chambers. From the courtroom, users would connect to the central service in the judge's chambers. This preserves the judge's preferences and configuration regardless of their session's location.

Pros

- Judge sees only sessions that are relevant to them, as well as their full calendar of sessions
- Judge's configurations are maintained and applied regardless of courtroom
- Courtroom reassignment of a session is not impacted

Cons

- Judge's chamber PC must be left on overnight
- Dependent on networking hardware between the courtroom and chambers
- Slight performance penalty retrieving all data and documents over the network

Data flow diagram

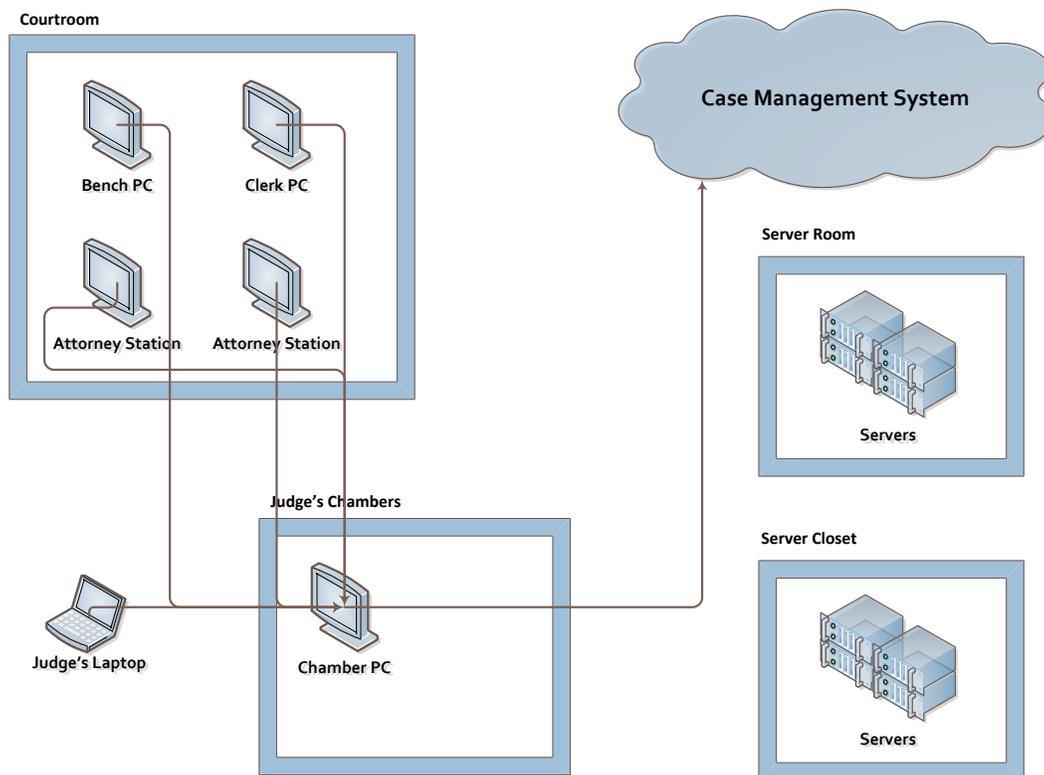


Figure 2 - Chambers PC acting as Central Service

Hybrid Courtroom/Chambers Configuration

Central Service both on the bench and in chambers, with the chambers PC acting as primary and the bench PC as failover connection

This solution is characterized by having two separately configured SessionWorks Central Services running on two separate computers; one on the bench serving the courtroom, and one in the judge's chambers, each configured in the "[Configuration by Courtroom](#)" and "[Configuration by Chambers](#)" respectively. From a hardware perspective, this would require multiple computers to run the Central Service, one for each judge in chambers, and one for each courtroom.

Using the "[Location picker](#)" dialog, everyone in the courtroom would connect to the judicial officer's chambers PC as a default, and use that as the primary Central Service. Should there be an issue with the connection (network, service issues, hardware, etc), they can then fall back to using the courtroom's PC as the central service and court can be held. This also provides the same level of disaster recover from the [Configuration by Courtroom](#) as well as the [Configuration by Chambers](#) options.

However, doing so does add cost as far as possible hardware requiring purchase, or software licensing if changes need to be made to existing equipment. As well, the data and documents would be downloaded to both locations every night, in order to assure their availability for the next day's sessions.

Additionally, this solution adds complexity to the judge's day to day use of Judge Edition. The judges must be trained to only connect to the location on the bench PC in an emergency. Otherwise, confusion will arise when they add a SessionManager comment on the location in their chambers and it doesn't automatically appear on the PC on the bench. This would be the case since they are served by two distinct locations. A refresh would have to occur for both PCs to display the same data.

Summary

The PC that is on the bench, as well as in the judicial officer's chambers would have a Central Service installed and configured, both retrieving data overnight. The primary central service for a session would be the judge's, with the possibility to fall back to the courtroom's central service should there be issues connecting to the chambers PC.

Pros

- Combines the benefits of the "[Configuration by Courtroom](#)" and "[Configuration by Chambers](#)"
- No downtime in case of networking issues

Cons

- All data and documents are downloaded twice during the overnight process
 - Once to the bench PC
 - Once to the chambers PC

Data flow diagram

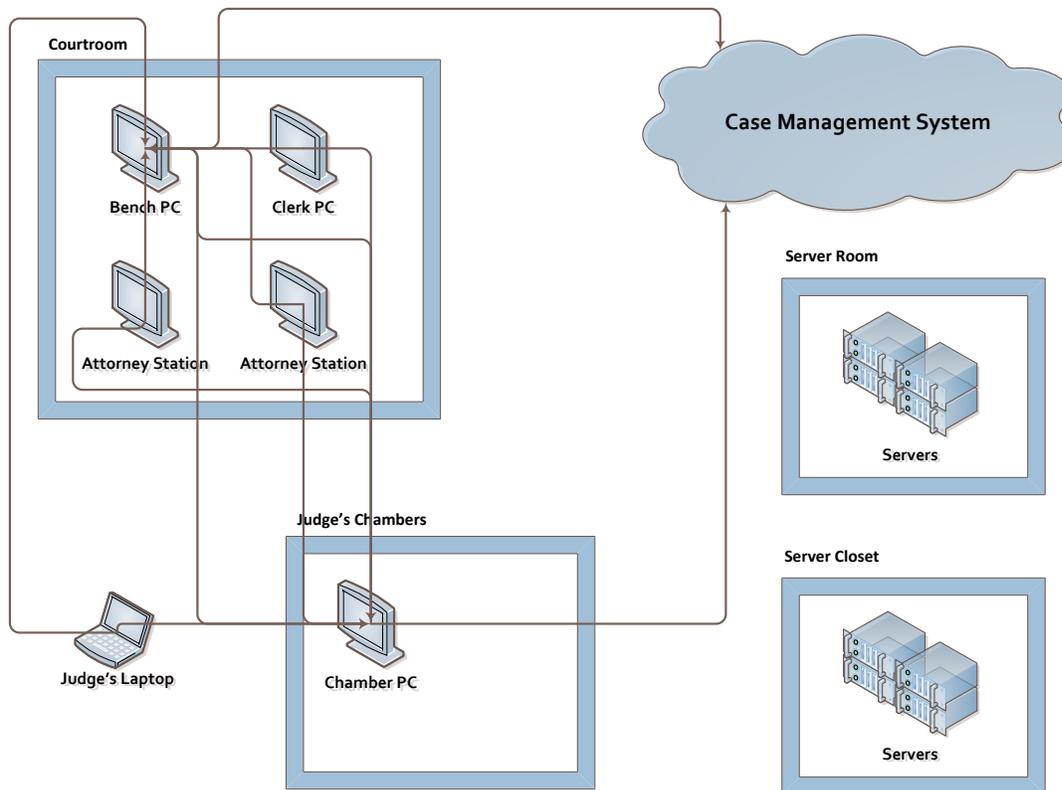


Figure 3 - Using both the Bench and Chambers PC as the Central Service

Judge Laptop

Central Service installed on the judge's laptop

This configuration requires that the SessionWorks Central Service run on a Laptop PC, which would be brought into the courtroom by the judicial officer. In its configuration phase, the resources selected would typically be the judicial officer to whom the laptop is assigned, and would also be configured as a resource on the session within the case management system. From a hardware perspective, this would require a sufficiently powered laptop for each judicial officer who will use Judge Edition. In this configuration, the judge's laptop would also act as the main PC for the judge on the bench, as well as in chambers.

This configuration is similar to the [Configuration by Chambers](#) option, whereas the judicial officer to whom the laptop is assigned is also the resource configured in the Central Service. As an added benefit, if the overnight download completes prior to the judge leaving the courthouse for the day, they could take the computer home and review their next day's caseload at their leisure. As for the other stations within the courtroom, they would choose to connect to the judge's laptop through the "[Location picker](#)" dialog.

However, the downsides are that the judge would have to carry the laptop into court with them, and set it up every time (plug into docking station, monitor, etc). There may also be additional costs (hardware and software) if the laptop is not used as a replacement computer for the chambers PC. There is also a much higher risk that the computer is turned off during the scheduled overnight process.

Summary

The judicial officer is assigned as laptop, to act as their own central service, much like the [Configuration by Chambers](#) option. Other PCs in the courtroom would connect to the laptop's central service at the start of the session. . This preserves the judge's preferences and configuration regardless of their session's location.

Pros

- Similar configuration to the [Configuration by Chambers](#)
- Judge has access to case data off-site if the refresh occurs prior to them leaving the courthouse

Cons

- Judges need to carry a laptop into court, and hook it up
- Additional hardware and software cost if the laptop is not a replacement of the chambers and/or bench PC and new hardware is needed
- Higher risk of machine being offline at scheduled update process

Data flow diagram

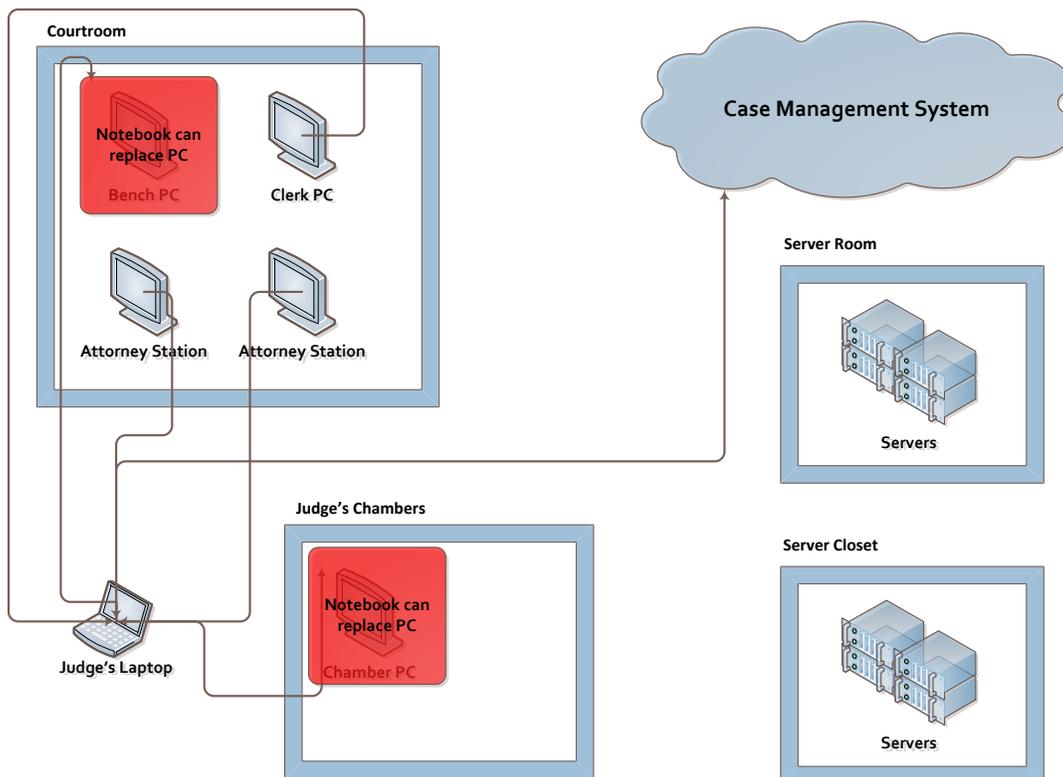


Figure 4 - Using the Judge's laptop as the Central Service

Single Terminal Server

Central Service installed on a single Terminal Service server with all courtroom (and/or judges) configured

This solution consists of a single server running the Central Service, located in a server room or hosting facility. In its configuration phase, the resources selected could be either the list of judicial officers, or a list of the courtrooms where Judge Edition will be used. A combination of the two would also work (configure both judicial officers and locations). From a hardware perspective, this would require a single server powerful enough to handle the load from the number of simultaneous users.

This solution does provide the biggest ease of configuration and management, with a single server which needs any administration from IT or users, where all judicial officers and courtrooms are configured. If the server is on the same physical network as the document store, it would make for quick and efficient transfers over the network.

The issues with this configuration, however, are that it does create a single point of failure for all affected courtrooms and judges, should the server or its connectivity go down at any time. It also has the potential for creating a funneled point of network congestion should there be a number of documents requested simultaneously from a number of courtrooms. Selection of a court session to view within Judge Edition would potentially be crowded and difficult to use. This is because all court sessions for all courtrooms would be displayed on the same screen. Even if there are few sessions, unless the resources are specified in the name of the session, it would be difficult to know which the correct session to select is.

Summary

A single server would have the Central Service installed, and configured to have all judicial officers and/or courtrooms for which it will serve.

Pros

- Ease of configuration and management of a single environment
- Speedy overnight data retrieval if on the same physical network as the document store

Cons

- Possible higher cost of licensing operating system
- Shared configuration and preferences
- No data redundancy if all of the data is on a single server
- Possible network traffic congestion during heavy use and loads across all courtrooms
- High risk of data overload when viewing calendars

Data flow diagram

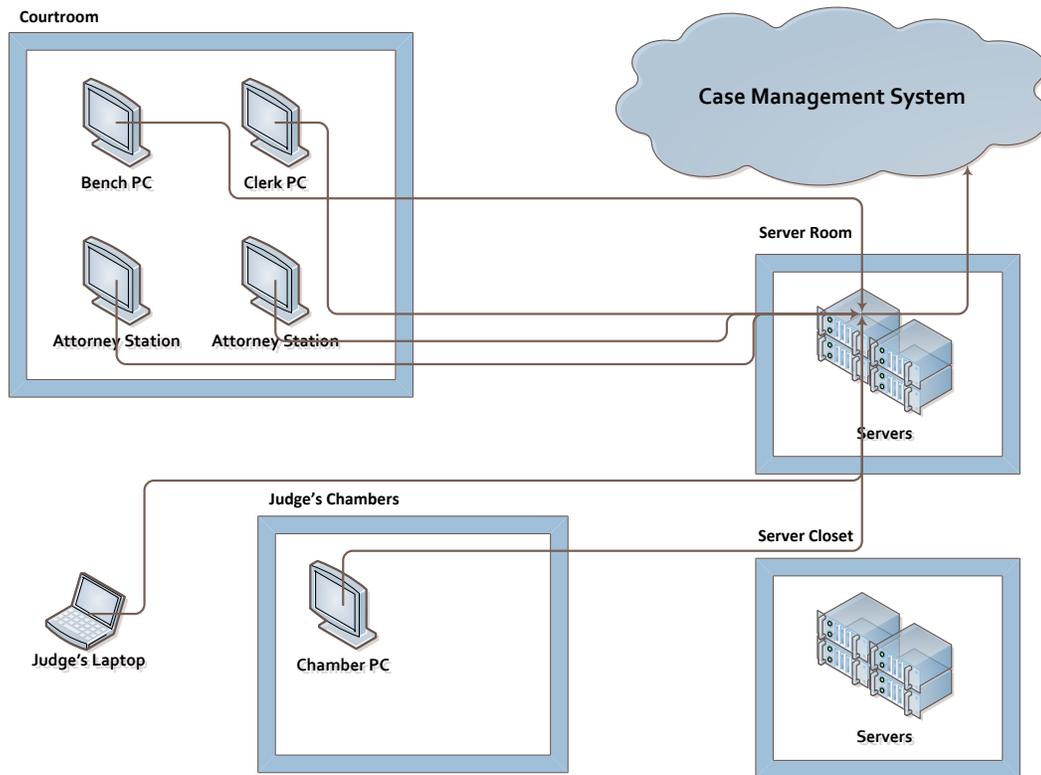


Figure 5 - Using a single Terminal Server as the Central Service

Multiple Terminal Servers

Central Service installed on one instance of Terminal Service per judicial officer

This solution consists of a number of servers running the central service within a server closet (or possibly the server room). In its configuration phase, the resource selected would be the judicial officer for whom the server is to be used.

This option is very similar to the [Configuration by Chambers](#) and [Judge Laptops](#) options, where each judge has their own dedicated hardware, or virtual machine (VM), without the potential issues of hardware being outside of IT's realm (power, network availability for overnight process, etc).

However, there is likely an additional cost in hardware and/or software as far as licensing, as well as storage and processing power, since each machine/VM would need to be powerful enough to be capable of running the overnight process without it running over into the day's court session(s). If a document is requested from the bench at the time of a walk-in, the server also needs to be powerful enough to quickly process and respond with the document, as to not hold up the court session.

Summary

Multiple servers are used to manage the Central Services, typically with one server per judicial officer. This option is very similar to the [Configuration by Chambers](#) and [Judge Laptops](#) options while placing the Central Service's computer's administration solely in IT's hands

Pros

- Similar to [Configuration by Chambers](#) and [Judge Laptops](#)
- Hardware/Server environment is controlled by IT, preventing chance of machine being off during the overnight process

Cons

- Possibility of additional costs involving additional hardware and software licensing
- If virtualized, the server needs to be powerful enough to process the documents during the overnight process
- A virtualized server also need to respond within an acceptable amount of time to "just in time" requests (walk-ins)

Data flow diagram

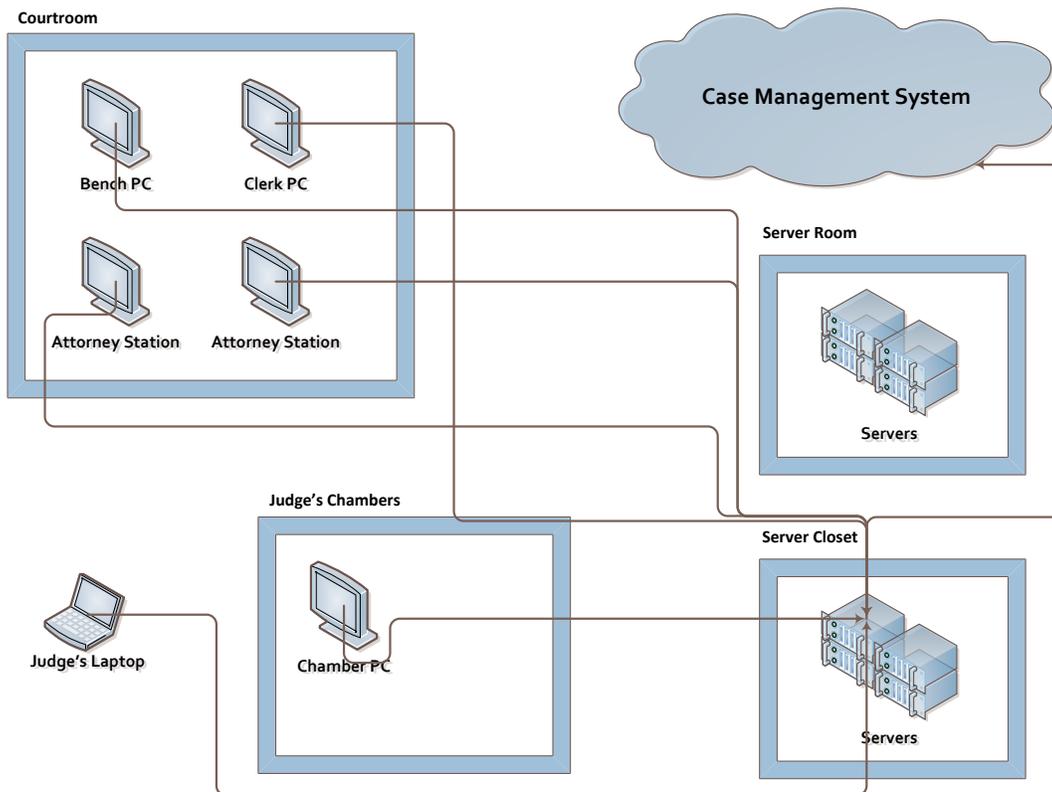


Figure 6 - Multiple Terminal Servers acting as Central Services

Definitions and Sample Screen Shots

Location picker

A dialog box which allows a client installation to connect to multiple Central Services from a list of configured options

The list of configured locations available to a PC running Judge Edition is displayed to the users at startup, prior to signing on to the application. If there are no locations configured for the PC, then the location specified at the time of installation is used, and sign-on screen is displayed.



Figure 7 - Sample location picker, showing favorites and all locations

Resource Configuration

Resource screens allow customers to configure Judge Edition differently for various scenarios, such as Configuration by Courtroom.

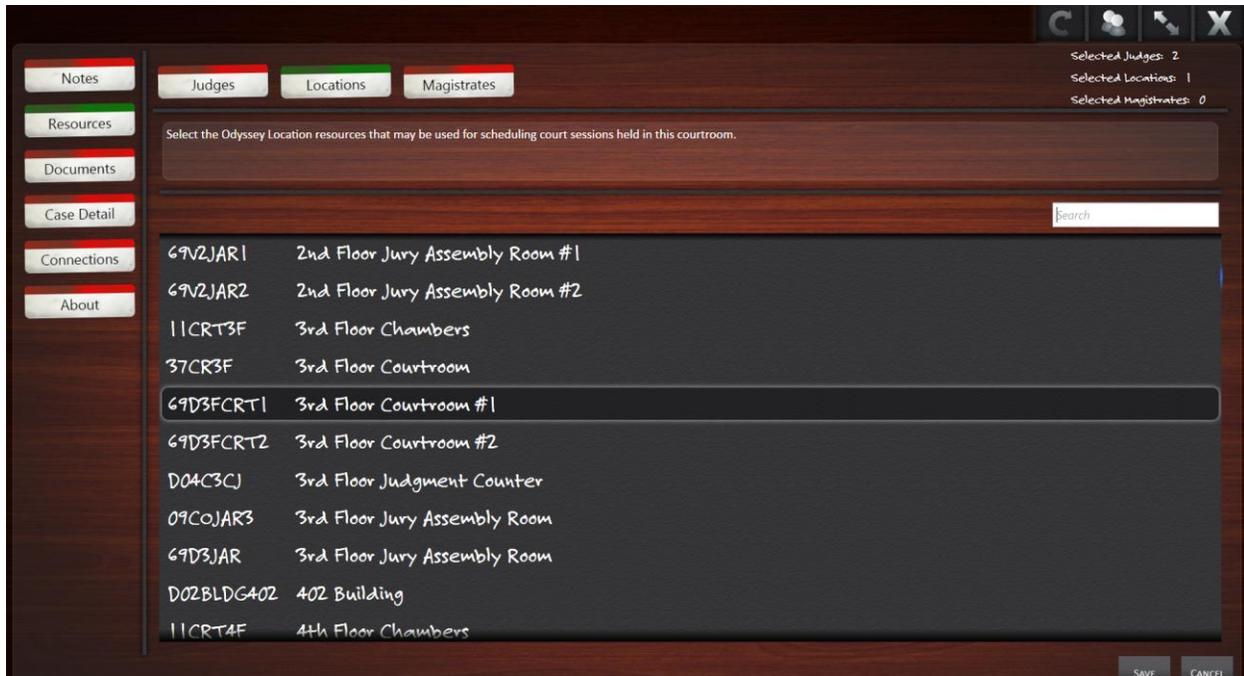


Figure 8 - Sample Configuration by Courtroom

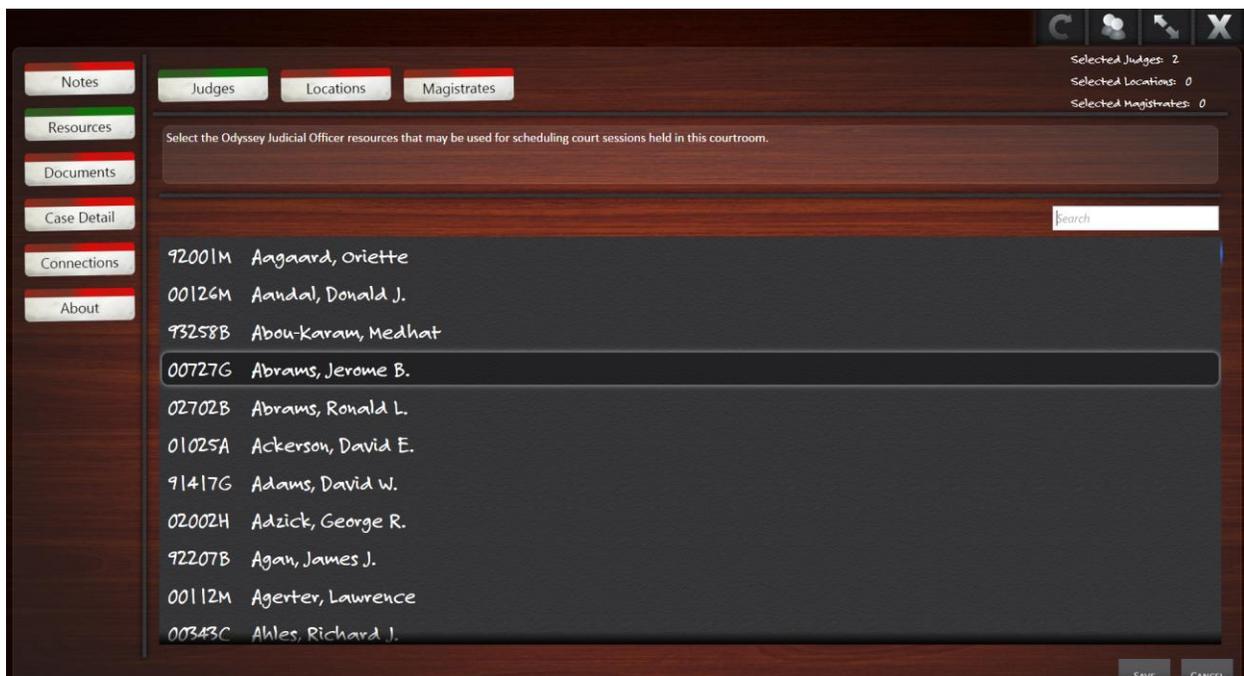


Figure 9 - Sample Configuration by Chambers

Moving pieces

A listing of different equipment locations that can be affected by different configurations

The diagram below shows a logical list of different physical locations and services, as well as any computers which may reside in that location, which will be affected by various configurations.

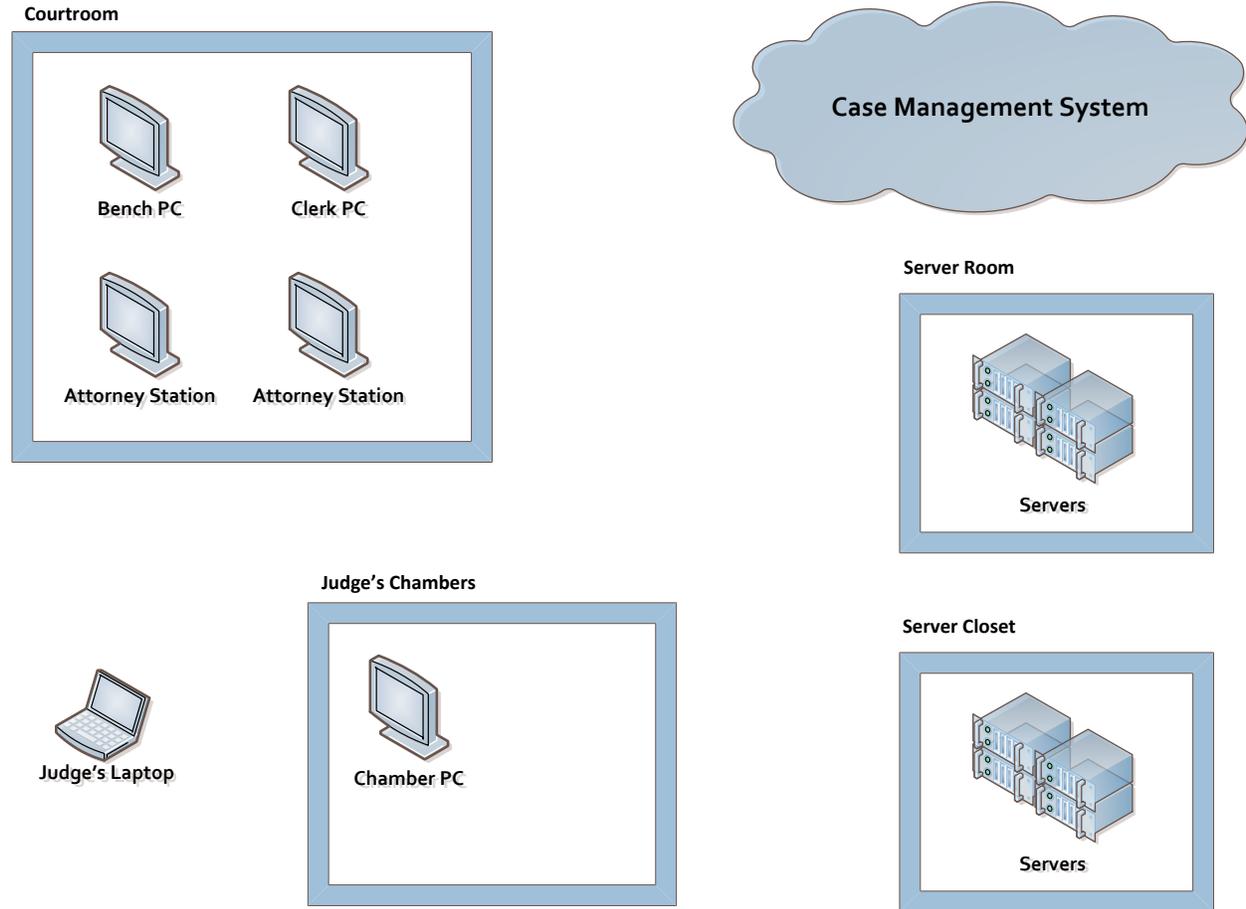


Figure 10 - Basic diagram of Judge Edition usage components

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