SERFF
DATA HOSTING PROPOSAL
revised 11-26-18

OVERVIEW

1. Project Background and Description

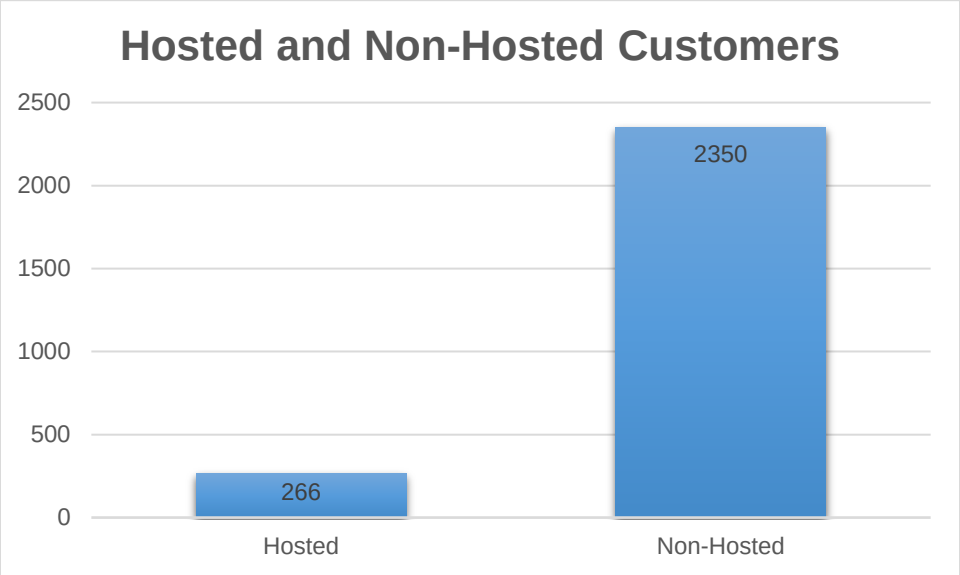
Since its inception, the System for Electronic Rate and Form Filing (SERFF) has operated in some form of a distributed application model. In the late 1990s, it was a fully distributed system with states and companies each hosting their own version of the SERFF application and databases. The architecture was initially developed to allay industry concerns about the NAIC housing the industry customers' data. The model proved both too brittle and too expensive to retain—creating high barriers to entry for both states and companies and plagued with continuous data issues as varying levels of technical skills within the customer base made keeping all the distributed databases up and in sync a difficult task.

By 2001, the NAIC had lowered the barriers to entry by redesigning SERFF as a web-based application, but industry and trades were still uncomfortable at having a single database maintained by the NAIC. Attempting to encourage both companies and states to use SERFF, the NAIC contracted with its first hosting provider to store state and industry data for those customers who wanted to use SERFF but were unable to devote the technical resources to hosting their own. Within a short time, the NAIC hosted the states, and the industry customers were split between two providers. This created some competition in the market and gave the industry a choice between hosting providers. But even though there was a choice between providers, data hosting was mandatory. This was an issue for those states interested in mandating SERFF given the concerns of small companies that felt data hosting fees were too steep to make SERFF viable for them.

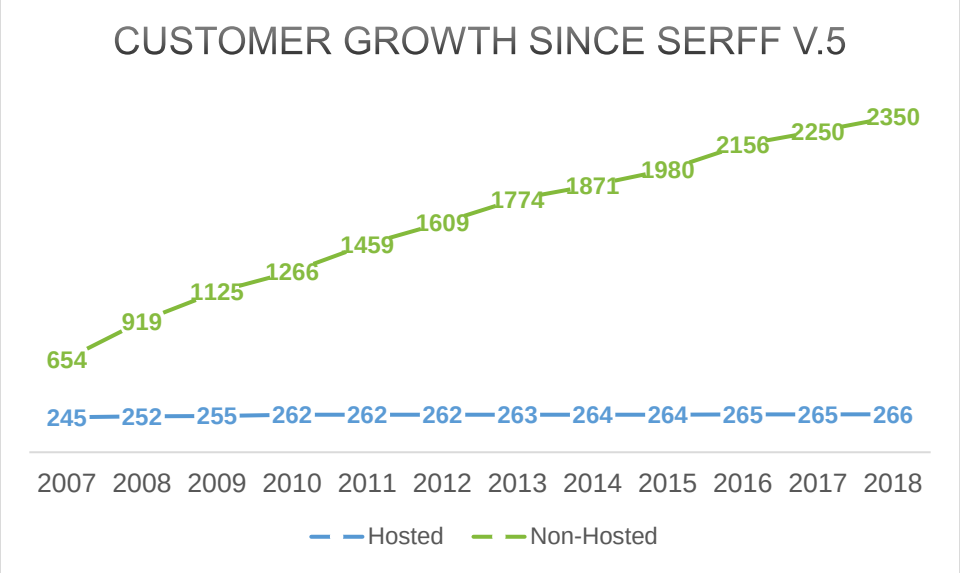
In October 2006, SERFF was rebuilt on a Java/Oracle platform that was consistent with the NAIC architecture at the time. SERFF v.5 made data hosting optional, thereby removing the barrier for states to mandate the use of SERFF. Companies that chose not to have a provider were informed that the NAIC would not delete filing data but that states may at some point in the future decide to implement records retention, at which point the NAIC would need to comply. Customers were given the option to create a portable document format (PDF) version of each filing they submitted to store on their own network, thus ensuring they always had a copy of the filing. For those customers who wanted to continue to have a separate repository for their data, the NAIC used Oracle tooling to replicate data between the NAIC and each hosting provider. The NAIC developed and maintains the replication client, replication service and a hoster client (a version of the SERFF user interface where hosted customers can log in to see their data). The NAIC provides these tools to the data hosters at no charge and also provides database and systems support for troubleshooting when issues arise. With a few exceptions, the model has worked well for the past 12 years.

To encourage industry customers to continue to use a hosting provider, the NAIC made certain features available only through the data hoster. A handful of reports, Export Tool and the ability to create an electronic version of paper submissions were only offered to customers via a client provided to the data hosters by the NAIC. That artificial boost to the hosted offering may have allowed the hosting providers to retain more of their clients, but

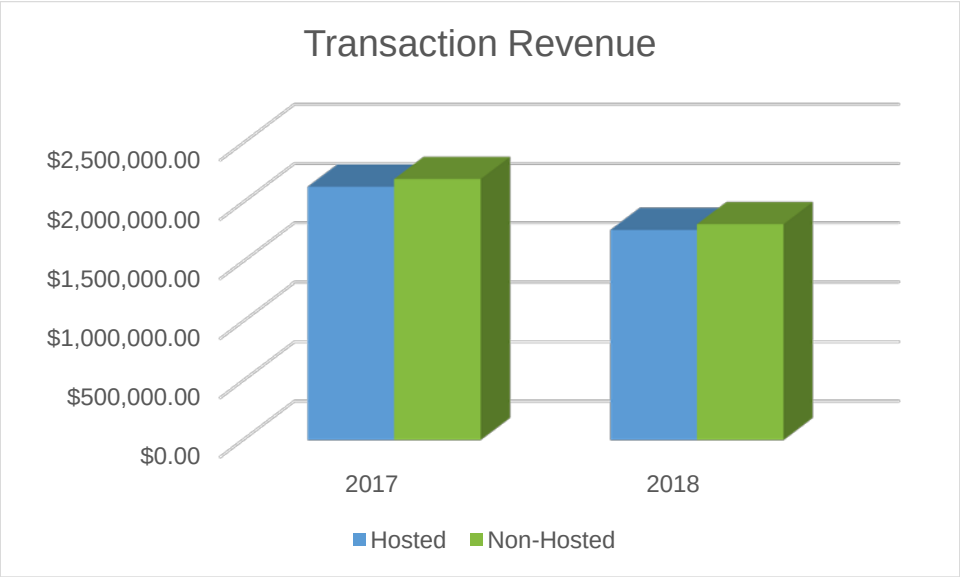
the vast majority of companies joining SERFF from that point on chose not to use a hosting provider at all. Nearly 90% of the current customer base is not hosted; of the 10 % that are hosted, more than 90% used SERFF prior to 2006, when a hoster was required.



A recent survey (Appendix A) showed that many of these same customers were unaware that hosting had become optional in 2006 and may be paying for hosting services because they think it is required rather than that they feel they need the service. In the past 11 years, the net growth of hosted customers is 21, which averages slightly less than two new hosted customers per year.



Despite its low growth, hosting services are used by some of SERFF's largest and oldest customers. Until 2017, more revenue was generated by the relatively small number of hosted customers than non-hosted. And the combined hosted customers nearly send as many transactions through the system than do the combined non-hosted customers.



2. Proposal Scope

NAIC is undergoing a shift in its technology and is looking to modernize the architecture of its systems in order to maximize product features, performance and reliability. In the next two years, SERFF will be moving to a new platform. The current version relies heavily upon Oracle technology to achieve replication of data from the NAIC SERFF database to the hosting providers. Currently, NAIC application development teams are being encouraged to explore options that move NAIC systems away from Oracle, which is likely to require a significant level of effort on the NAIC's part to create the same hosting model within a new architecture.

This proposal attempts to outline a solution, based on customer needs and NAIC architecture standards, to re-platform SERFF without the overhead and maintenance the NAIC currently incurs to provide a data hosting option. Offering additional features to both hosted and non-hosted customers will also be considered. No cost estimates are included with this proposal, although consideration to how the solutions would be funded and supported are offered at a high level. Additional analysis will be done as the scope is narrowed. ***It is important to note that the NAIC has decided not to turn on the delete portion of the new State Data Retention (SDR) feature until a proposal has been approved and all necessary data identified and safe-guarded against deletion where appropriate. The states can still mark filings for deletion and those filings will be deleted when that portion of the feature is turned on.***

3. Data Hosting Proposal

The NAIC's efforts with a new data hosting proposal will be focused on simplifying SERFF's currently complex architecture while still providing the necessary services to its customers. The NAIC also seeks to minimize the future cost to NAIC for the data replication technology and to recoup some of the future cost by charging for the technology and support it has heretofore provided to the two data hosters for free. The assumption is that the NAIC will turn on the following features (for industry customers) in the SERFF user interface that have previously only been available via a data hoster: 1) Reports; 2) Search/Export Tool; and 3) the ability to create Paper Filings. After discussing the options with the SERFF Advisory Board during its Nov. 15 meeting, the Advisory Board recommended that the proposed solution would be that the NAIC hosts company data, effectively eliminating the cost of supporting the current data hosting architecture.

The minimal growth in hosted customers since data hosting became optional for SERFF customers would indicate that the concerns over NAIC housing rates/forms data has waned considerably from the high sensitivity that drove SERFF's architecture for two decades. It may be time to consider a single database, with web services available, so that any customer could access its data from a single NAIC source. In this option, the NAIC would no longer support the database replication currently in place for data hosters.

In order to safeguard against filing loss should a state implement its records retention strategy for SERFF filings, the NAIC will modify the current State Data Retention feature to remove the selected filings from the state's view but still allow the industry customer access to its filings. In essence, the filings would be "deleted" for the state in that they would no longer see those in any views or be able to search for them. But the company would still have access; the filings would not be deleted from the NAIC database. These filings would not be available for public access as, from the state's perspective, they have been deleted.

Pros

- It simplifies SERFF's architecture.
- It allows SERFF the most flexibility to provide new features quickly.
- It provides a low-cost hosting solution to companies that need it, without the current overhead.
- It could be combined with the existing web services solution (Alternate 2 below) to allow more choices for the industry customers.

Cons

- It may further reduce the data hoster's customer base, which could disrupt competition between data hosters.
- It may cause concern for industry customers still wary of the NAIC housing their data.

4. Affected Parties

States: The states will be affected in the short term by this proposal because the SDR feature cannot be turned on until a solution is determined. No data will be deleted from the NAIC SERFF database until the NAIC can be certain the SERFF industry customers have a solution for their data storage needs going forward.

SERFF Hosted Customers: The industry customers could potentially be affected if they still have concerns about the NAIC hosting their data. Most should find it easier and more convenient because they will be able to access the Export Tool, Create Paper Filings and Reports from the same URL.

SERFF Non-Hosted Customers: These customers are not expected to be negatively affected by any of the proposed solutions and, in fact, may enjoy more features in SERFF (Create Paper Filings, Reports, Search/Export Tool) than they currently have access to at this time.

NAIC: NAIC staff currently develop and maintain the SERFF technology running at the data hoster sites. Because the hosters have a nearly identical user interface to SERFF, the NAIC must ensure that any new or modified features work both in the SERFF user interface and the hosted user interface. This creates additional development, testing and customer support. Eliminating the data hosting solution simplifies the entire system's architecture.

Data Hosting Providers: There are two companies that provide traditional hosting services to SERFF customers. These companies pay nothing to the NAIC to receive the technology to allow them to host SERFF customer data. Depending on the option chosen, they could lose some or all of their business or be required to pay to use NAIC-provided services for data hosting.

Third-Party SIS Users: These companies may expand their business if the current data hosting providers are unable or unwilling to adapt to new technology.

5. Data Hosting Survey

Initial input for this proposal came from the aforementioned survey conducted in fall 2018. The survey was developed after approximately 10 conference calls with hosted customers varying in size and length of time as a hosted customer. While SERFF shows 266 hosted *customers,* there are approximately 522 hosted *instances*. Many of SERFF's customers have more than one instance and in some cases, those instances represent a company or business unit within the customer group that make decisions independent of the group. Surveys were sent to all hosted instances in SERFF in an effort to gather feedback from as many hosted customers as possible.

Survey Highlights:

The NAIC received responses from 202 survey recipients, representing 39% of hosted instances and 68% of hosted customers.

24% of respondents did not know who their data hoster is.

84% of respondents indicated data retention/backups as a "very important" reason to use a data hoster, with 63% saying disaster preparedness/recovery was also "very important."

71% of respondents do not key data into another system, indicating that they are heavily reliant upon SERFF and a data hoster.

Usage on features only available via a data hoster (Reports and Search/Export tool) is variable. The NAIC's own usage queries show hosted customers seldom use the Reports feature but do use the Export tool to export data so that they can create reports of their own. Some companies use the Paper Filing tool to record filings that were submitted in paper, but that usage has declined. It appears companies use the tool for informational filings that the states do not want to receive in SERFF but the company sends in paper as a safeguard.

87% of the respondents use no other services at the data hoster beyond the NAIC-provided reports and Search/Export tool. 13% said they use other services, mostly the Paper Filing feature, but two companies indicated they get a data export from their hosting provider.

6. Implementation Plan

The implementation plan is highly dependent upon the NAIC's final cloud migration strategy for SERFF. If the current two-step strategy holds, the SERFF application will be migrated first with the Oracle database left on premises until it can be converted to another database tool and migrated to the cloud. This would allow more time to develop the proposed solution, and the current Oracle structure for replication would remain in place longer, delaying the potential impact to both hosted customers and data hosters.

Data migration will be a part of the implementation plan regardless of which solution is chosen. The NAIC will likely have to broker a uniform data model if data is to be moved from a data hoster to a new third party not currently in the hosting business. Likewise, a hosted customer that decides to license web services to pull its data out of SERFF for storage on its own platform will also need to understand the data model. Survey responses indicate that most hosted customers can go several weeks to a month without access to hosted filings as long as they can continue to access their filings through the SERFF user interface. This will give all parties more time to develop and test solutions.

A detailed implementation plan will be developed as the NAIC's cloud migration plan solidifies. However, any solution will require a careful analysis of the data and significant testing by all parties involved if data is to be moved from one hosting provider to another. The NAIC does not currently have access to paper filings created at the data hoster sites, so those will have to be migrated with the assistance of the current data hosters should changes to where SERFF customer data is stored be necessary.

7. High-Level Timeline/Schedule

The timeline is still unclear at this time. The NAIC is expected to solidify its migration plans for all systems by early 2019. If one of the proposed options is chosen prior to that point, NAIC staff can begin analysis that will assist in the delivery of a timeline/schedule soon after the migration plan is made available.

8. Other Options

Alternate Option 1: Retain data hosters with a new data replication architecture

With this option, the NAIC would continue to support the two data hosters with a replication strategy independent of Oracle technology but similar in that it would continue to be a database-driven solution, rather than web services. There would be little disruption for the hosted customers, although there may be some limited access to hosted filings data during the anticipated data migration. While this option preserves the current hoster relationship and would cause the least risk of disruption to the hosted customers, it continues to place the burden to develop and support a hosted solution on the NAIC. Continuing the current architecture limits the NAIC's ability to adapt quickly to changes requested by state and industry SERFF customers. As a result, this option is the least desirable.

Pros:

- It maintains existing relationships between the NAIC and data hosters, and between data hosters and hosted customers. This is a benefit to the data hosters and the hosted customers, but not necessarily to the NAIC or the non-hosted customer base.
- It has the potential to be the least risky option in terms of change or disruption for the hosted customers and data hosters.

Cons:

- The NAIC continues to bear the burden of data replication costs, as well as support and maintenance of the technology.
- The NAIC is tightly integrated with data hosters who are solely dependent on the NAIC for their technology. This reduces the NAIC's ability to adapt SERFF quickly as is the problem with the current technology shift.
- Finding a new database-driven solution may take longer and be more costly because the NAIC is new to non-Oracle database tools.
- It limits the possibility that industry customers will be offered additional features/services. To this point, the current data hosters have done very little to provide additional services to hosted customers. Preserving this model will likely reinforce that practice.
- The tight integration and dependent nature of this solution has caused the NAIC not to offer it to other potential hosting providers, limiting the competition for the data hosters.

Alternate Option 2: NAIC Builds REST services for Data Hosting

With this option, instead of the NAIC providing the replication client, replication service and hosted user interface as it does today, data hosters would use the web services to pull their hosted customers' data. Data hosters would have to build their own API data client and user interface to replace the ones provided by the NAIC.

Pros

- Implementing this option would be easier than the current database-driven solution. The NAIC is very familiar with REST services and can write/modify services fairly quickly.
- These web services can be licensed by SERFF customers to host their own data. This solution would be simple and generic enough that insurance companies could host their own data if they chose to do so.
- Third parties already offering services through SIS could also license the hosting service(s) to provide additional options for customers who want to have their data hosted outside the NAIC.
- There would be less overhead for the NAIC.
- SERFF would have more flexibility without the burden of the existing highly integrated data hoster solution.

Cons

- This option will be more complicated for the current data hosters, which in turn could cause issues for the hosted customers.

- There is a greater risk that one or both of the current hosting providers may decide to discontinue offering SERFF data hosting, which could be a major disruption for their customers. However, this could be offset by other companies that take advantage of the web services to offer their services in this area.
- While a web service solution reduces the overhead NAIC currently has for its hosted solution, it does not eliminate it.
- Building web services before the redesign of SERFF will most likely cause service users to do additional work during the redesign as the data structure and/or application workflow may change.

9. Next Steps

While a large number of hosted customers responded to the survey, additional communication with this group needs to occur to determine if there are any other issues that should be considered before a solution is selected. The NAIC proposes to do this with a series of conference calls to give hosted customers the opportunity to ask questions and voice concerns. Those calls will be scheduled for early December.

Once input from the conference calls is gathered, the Advisory Board will review the information and make a final recommendation to the NAIC Executive Committee.

The current data hoster agreements have been reviewed and the existing expirations within those agreements are consistent with the timeline now being considered; they may need to be extended if the cloud migration takes longer than anticipated. These agreements will need to be re-written or terminated once a solution is determined.

The NAIC will need to work closely with the current data hosters to further explain the proposal and discuss future responsibilities, technical needs and skillsets required to support the new solution.

The REST API must be evaluated to ensure all required hosted data is available via the service(s).

With agreement from the hosted customers, the NAIC would prefer to migrate industry paper filings from the hosters to the NAIC so that they may then be migrated to the appropriate hosted solution when the time comes. This is simply a means to ensure that there is no data lost as hosted customers choose a new solution and, possibly, a new hosting provider.