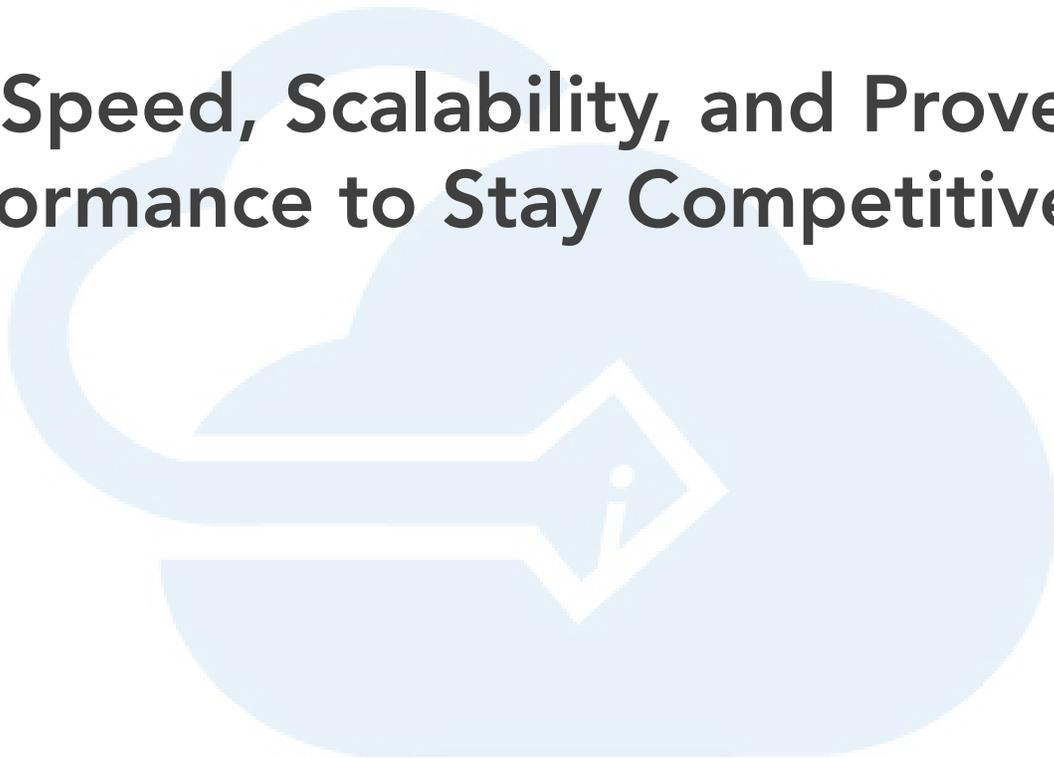




# DaaP: Diamond as a Platform

Insuresoft™ Diamond System™  
and Microsoft® Azure™ White Paper

**The Speed, Scalability, and Proven  
Performance to Stay Competitive**



## 1.0 Technology Right for Today, but Built for Tomorrow.

Insurers who are competitive today, yet preparing for tomorrow, are demanding solutions that will enable rapid innovation and responsiveness through the ease of automation. The future-proof solutions are digital, scalable, have high-performance, are cloud-based, and capable of handling heavy transaction volumes with a large numbers of users. These solutions should also easily integrate with external partners and backend systems.

The Insuresoft® DaaP System™ unifies the insurance lifecycle, with one digital insurance platform, allowing insurers to freely connect with data from existing and new systems. DaaP (Diamond as a Platform) is a customer-centric core insurance system that provides the ability to innovate freely with products and services across multiple distribution and engagement channels—including all policy, billing, and claims interactions.

DaaP offers a fully automated and integrated solution for the real-time processing of inquiries, quotes, claims, and billing and is the industry leading high-performance and scalable digital insurance platform. DaaP provides a user-friendly experience utilizing RESTful API, enabling rapid innovation and integration.

### Proof in the Numbers.

DaaP delivers exceptional scalability while maintaining a high level of service. This paper begins with how the Diamond and Microsoft Azure partnership has formed a powerful, affordable software-as-a-service (SaaS) solution.

- **Scalability:** Running one web and one business node, 365 days per year, 24 hours per day, the DaaP system scales linearly up to 16 million policy transactions annually, with ten nodes per tier.\*
- **Proven Performance:** Based on 3 transactions per policy per year, a mid-sized DaaP system can comfortably support 5 million active policies.\*

*\*See Appendix D: Disclaimer for more information.*

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## In the digital insurance marketplace, today's insurers require cloud-based applications that are:

- **Service Oriented Architecture (SOA).** Loosely coupled, highly adaptive systems should meet the challenges of dynamic business and customer needs.
- **Enterprise Capable.** Enterprise-capable systems should process data quickly and reliably.
- **Scalable.** As an insurer grows, throughput needs and user loads also grow. Applications should deliver fast, efficient performance, even when asked to process more data for more customers.
- **Affordable.** Power and scalability should be delivered at a low purchase cost and ownership. Systems should maintain integration and maintenance expenses, while running on affordably priced hardware.
- **Flexible.** Integratration to systems with host and legacy applications should be open, interoperable technologies.
- **Easily Accessable.** Accessability should be available via the corporate network and securely over the internet.

## Achieve More with the Diamond Cloud Advantage

Insuresoft's Diamond System has been engineered to scale, integrate, and evolve as your business grows. The union of Insuresoft's Diamond System and Microsoft Azure platform guarantees access to the latest advances in security, performance, and infrastructure, and accelerates implementation time while dramatically reducing infrastructure cost. The Diamond System offers significant scalability and power when running on Azure's modern platform-as-a-service (PaaS) architecture.

## 1.1 Why DaaP is the System of the Future

Speed to market and reduced TCO (Total Cost of Ownership) are key drivers when selecting a digital insurance platform. The comprehensive, Diamond solution is highly flexible and scalable and tackles the challenges of speed to market and reduced TCO.

The inception of Microsoft Azure App Service has provided an opportunity to create even more accessible and extensible applications that can be quickly implemented. Diamond is SOA (Service Oriented Architecture) based and the evolving SaaS model allows our customers to deploy rating, underwriting, submission management, and policy processing services in multiple configurations, quickly.

### 1.1.1 The Diamond System Features

The Diamond System is a digital insurance platform, with complete policy processing, billing, and claims functionality, engineered exclusively for insurers. The Diamond System automates policy and claims processing. It is the user-friendly, reliable, and cost-effective way for insurers to manage and book business.

The Diamond System extends policy processing and inquiry capabilities directly to an insurer's appointed independent insurance agents in real-time via digital distribution channels. By leveraging Insuresoft's agency web portal, insurance carriers experience profitable growth due to reduced cycle times associated with new business submissions and lower policy servicing costs. Insuresoft's agency web portal's highly intuitive user interface leverages a logical, tab-based entry schema and color codes required fields so that an end user requires minimal training to be effective.

**The Diamond pre-configured product is not limited to but provides the following functionality:**

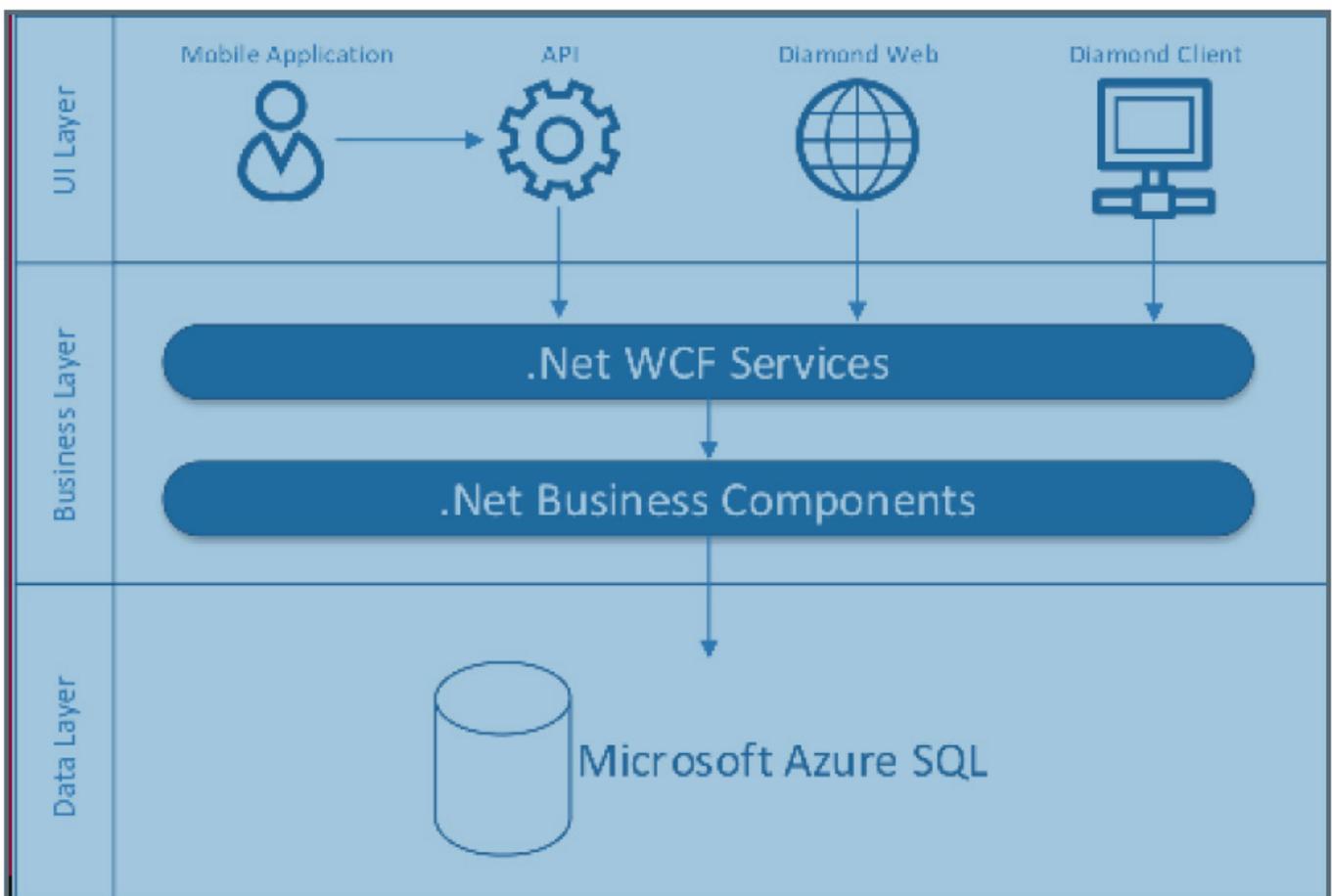
- Quoting, Rating and Issuance of New Business
- Policy, Billing and Claims inquiry
- Endorsements
- Cancellation
- LexisNexis – MVR, CLUE and Credit ordering
- Print Forms
- Billing Information
- Billing Future
- Payments
- History
- Search
- Archive
- Quote Summary

## 1.1.2 The Diamond System 5.0 Architecture

Insuresoft's holistic approach to Diamond.NET development has resulted in a very flexible, scalable, reliable, robust and loosely coupled architecture. Diamond's WCF (Windows Communication Foundation) service layer is architected to fully exploit the power of WCF. By developing applications against our WCF service layer customers are relieved from the burden of dealing with multiple underlying communication technologies like .NET remoting, ASP.NET Web services and MSMQ (Microsoft Message Queuing).

Diamond WCF services are built to promote interoperability with other platforms as well as other pre-WCF Microsoft technologies. Diamond WCF services lend for seamless development of multiple UI's vis-à-vis thin client, thick client, smart client and mobile, thereby fostering a simplified programming model ensuring reduced maintenance and TCO.

**Figure 1.1: Diamond System Architecture**



## 1.2 Why Insurance Companies Need Microsoft Azure

Microsoft Azure cloud services maximize the power and cost-effectiveness of the Insuresoft's Diamond System, delivering the performance and scalability that growing insurance companies need:

- **Scalability.** The Diamond System is a multi-tier application that scales economically by adding virtual resources to the web and business logic application tiers, rather than requiring the implementation of an entire new system to support demand, reducing the cost per transaction.
- **Interoperability.** Based on open standards and component-based technologies supported throughout the industry, Diamond as a Platform will interoperate smoothly with existing systems while providing a secure foundation for future migrations. Solutions based on Azure Cloud technologies protect your present IT investments even as they open up the flow of strategic decision-making information.
- **Affordability.** The Diamond System scales from the minimal test harness to the very large farmed server scenario. Single-node systems can be scaled-up with more memory and processing power, or scaled-out with many nodes.
- **Manageability.** Microsoft Azure takes care of all hardware, OS, and platform patching requirements. DaaP further reduces the cost and complexity of deploying and administering Insuresoft Diamond Systems through the use of streamlined consoles and workflows within the Insuresoft Composer configuration tool.
- **Faster Innovation.** The Diamond System uses application components built into the Azure platform to cut the amount of time it takes to bring new features to market.

As of November of 2017, Insuresoft and Microsoft conducted a series of live performance tests.\* The remainder of this white paper discusses the nature and results of those tests.

*\*See Appendix D:Disclaimer for more information.*

## 2.0 Demonstrating the Power of the DaaP System

In November 2017, Insuresoft and Microsoft conducted benchmark tests designed to demonstrate that the DaaP System, running on Azure App Service, offers plenty of performance and availability to support the needs of large insurance companies. Insuresoft's goal was to test the capacity of a single app server and determine transaction throughput. With this ability to scale linearly, the system could handle the needs of the largest and busiest insurance companies in the U.S.

The tests measured how well DaaP meets our strict performance targets. The level of performance was assessed by measuring server response times over incrementally increasing user load simulation. Tests were performed at the Microsoft Technology Center in Atlanta, GA.

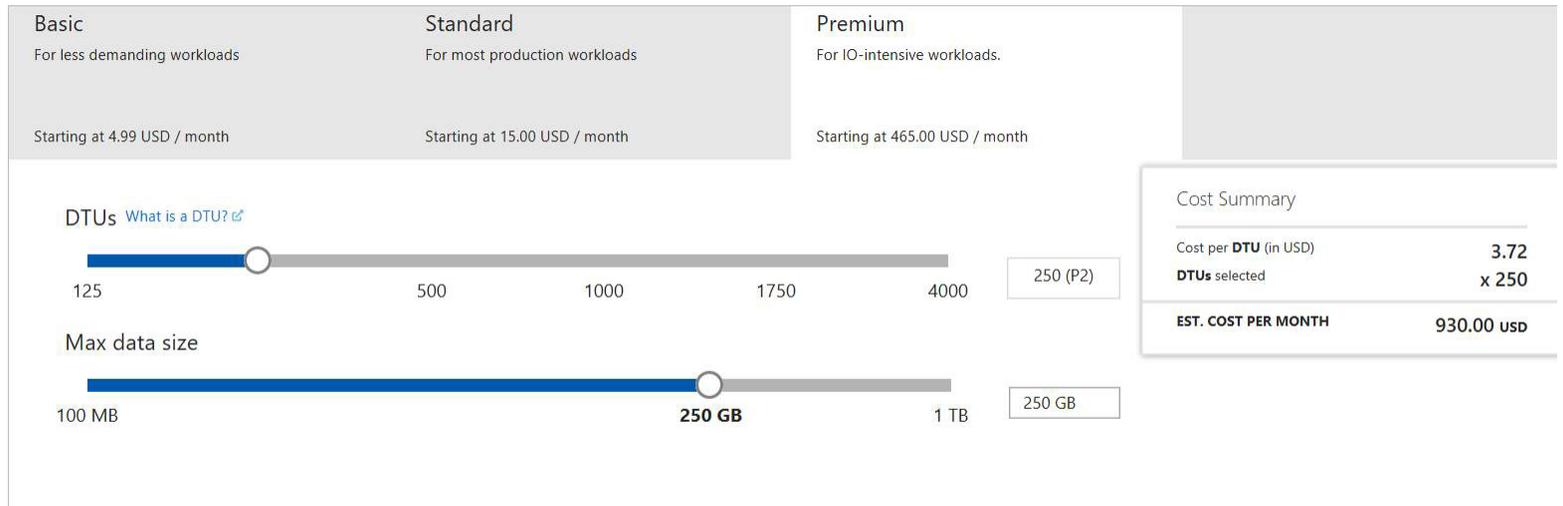
### 2.1 Test Environment

**Software and hardware used in the tests is listed in the following tables.**

| Software                                 |
|--|
| Neotys NeoLoad 6.1 User Simulator        |
| DaaP System                              |
| Microsoft Azure Web Application Services |
| Microsoft Azure SQL Server               |

| Server                | Description                             |
|-----------------------|---|
| Web/Application Nodes | Premium 2 V2 Azure Application Services |
| Database              | Premium 2 Azure SQL (250 DTU)           |

## Figure 2.1: Azure SQL Configuration



## 2.2 Test Script

The test script exercised the basic features of the Diamond System and represented the type of load a typical user would generate. The primary tests performed were as follows:

- This test walks through the Diamond screens to add a new client and submitted a policy. The test continues to walk through the Diamond screens to enters a driver, a vehicle, and a few coverages. The test then enters the billing information. After the entire policy is entered, the test clicks the rate button followed by the issue button creating all billing and forms information.

NeoLoad (A Neotys Product) was used to record the test and simulate load as shown in the following screen capture. For more information about the usage scenarios and the information submitted for each one, see "Appendix A: Diamond Usage Scenarios."

### Figure 2.2: NeoLoad Test Script User Interface

NeoLoad enabled testers to set the following variables for each test run.

- **Number of users.** The number of simultaneous users that the script would emulate as using the system. This showed how well the system performed at a variety of load levels, ranging from one to 100 simultaneous users.
- **Wait time per user per step.** The delay in seconds before the script would submit the data for each screen. It takes real users much longer to enter data in the Diamond System user interface than it takes the test script to do so. Simulated data entry time was added to make the test more closely follow a real-world situation. Data entry times were based on the average time it took an experienced customer service or clerical representative to enter policy information in the user interface.
- **Wait time between each user login.** To simulate a real-world situation the test script adds users every so many seconds since users login to the Diamond System at different times.

## 2.3 Test Results

With one Premium 2 V2 web server, one Premium 2 V2 business server, running against a Premium 2 Azure SQL 250DTU, DaaP System could easily support 3 million transactions per year. Given a configuration of ten application servers for both web and business tiers, the DaaP system is capable of processing approximately 16 million policy transactions per year. At an average of 3 transactions per year per policy, the DaaP system can scale to 5 million in-force policies.

## 2.4 Tiers

Below are the suggested configurations based on tier.

| Tier | Business Servers | Web Servers | SQL Servers<br>(Diamond, Print,<br>Publisher) | Virtual Machine | Storage Account |
|------|------------------|-------------|---|-----------------|-----------------|
| 1    | 10@P2V2          | 10@P2V2     | 3@P2 250 DTU?                                 | 1@A4M_V2        | Standard LRS    |

## 3.0 About Insuresoft

Insuresoft provides fully automated insurance software solutions, to property and casualty insurance carriers in North America. Our flagship product, the Diamond System™, is a complete digital insurance platform that includes automated policy, rating and underwriting, billing, claims, workflow, agency management and reporting features. The Diamond System can be tailored to fit your particular needs, from stand-alone modules to the full, integrated enterprise back office solution.

## 4.0 About Microsoft

Microsoft (Nasdaq "MSFT" @microsoft) is the leading platform and productivity company for the mobile-first, cloud-first world, and its mission is to empower every person and every organization on the planet to achieve more.

To find information about Microsoft, see: <http://www.microsoft.com/>

To find information about Microsoft in the insurance industry, see:

<https://enterprise.microsoft.com/en-us/industries/insurance/>

To find information about Microsoft Azure, see: <https://azure.microsoft.com/en-us/>

## Appendix A: Diamond User Scenarios

This section describes the user scenarios that were tested. For an online demonstration of the Diamond System interface and workflow, see: <http://www.insuresoft.com/diamond>

With the Diamond System, in order to start the application process for an insurance product, the user logs in and lands on the Task List screen. The user then selects Policies/New Policy/New Client as shown in the following screen capture:

**Figure A.1: Task List**

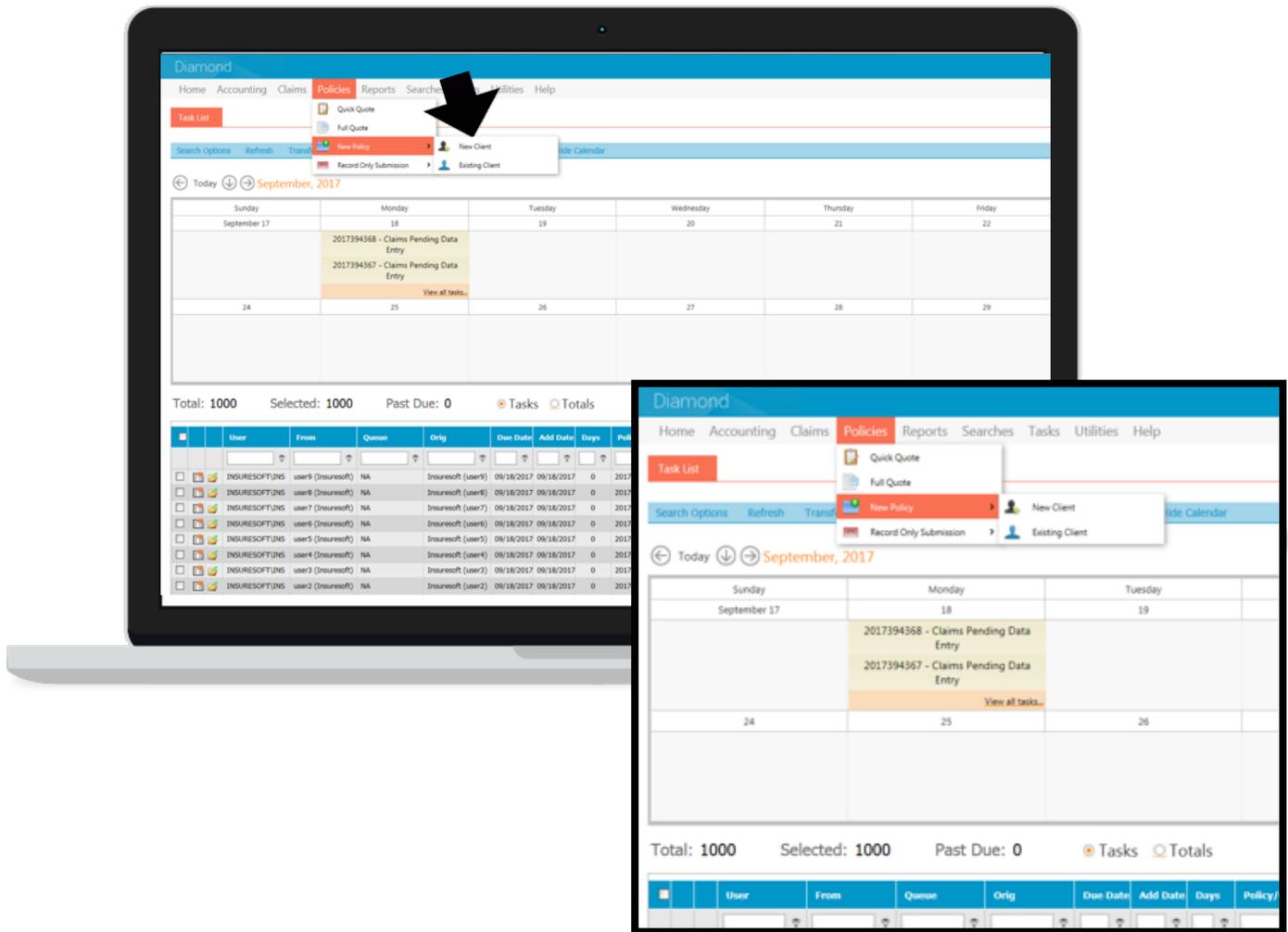


Figure A.2: New Client

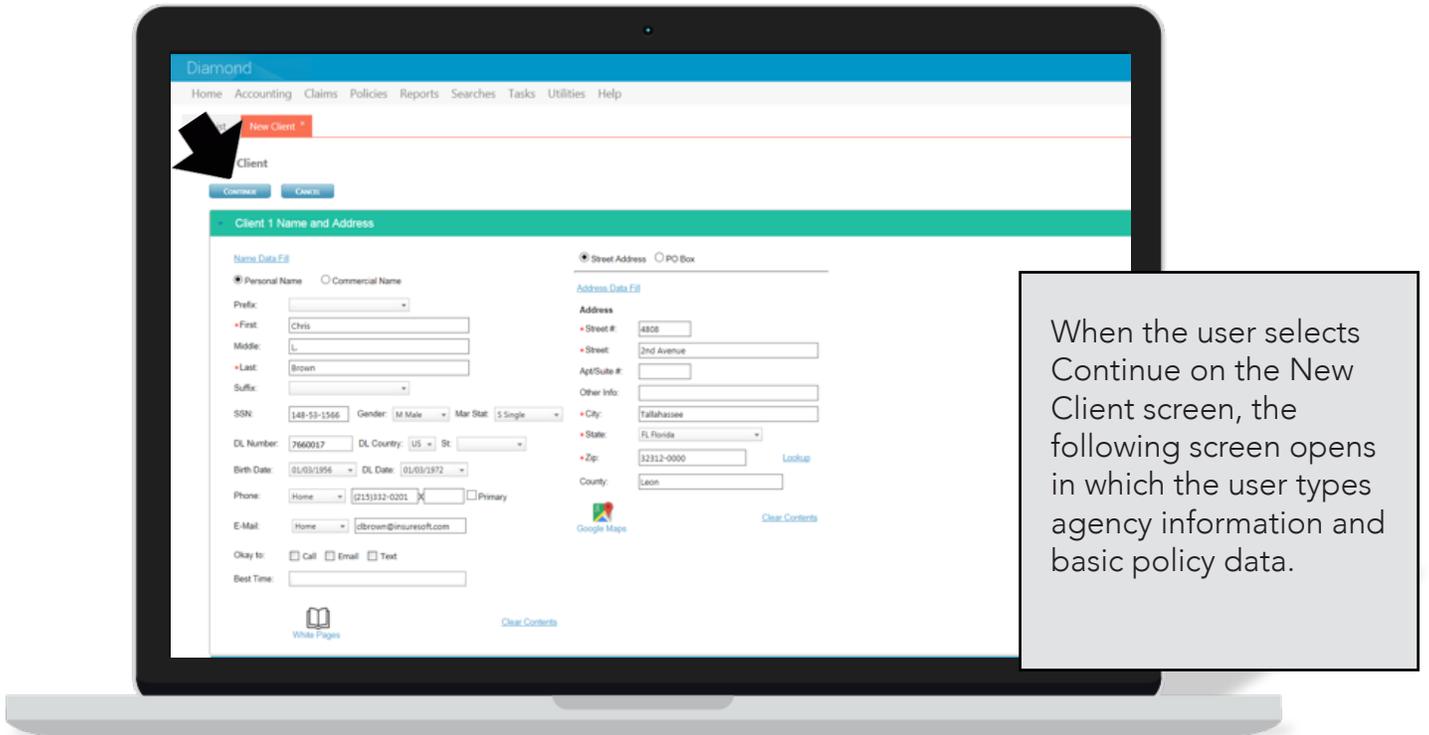
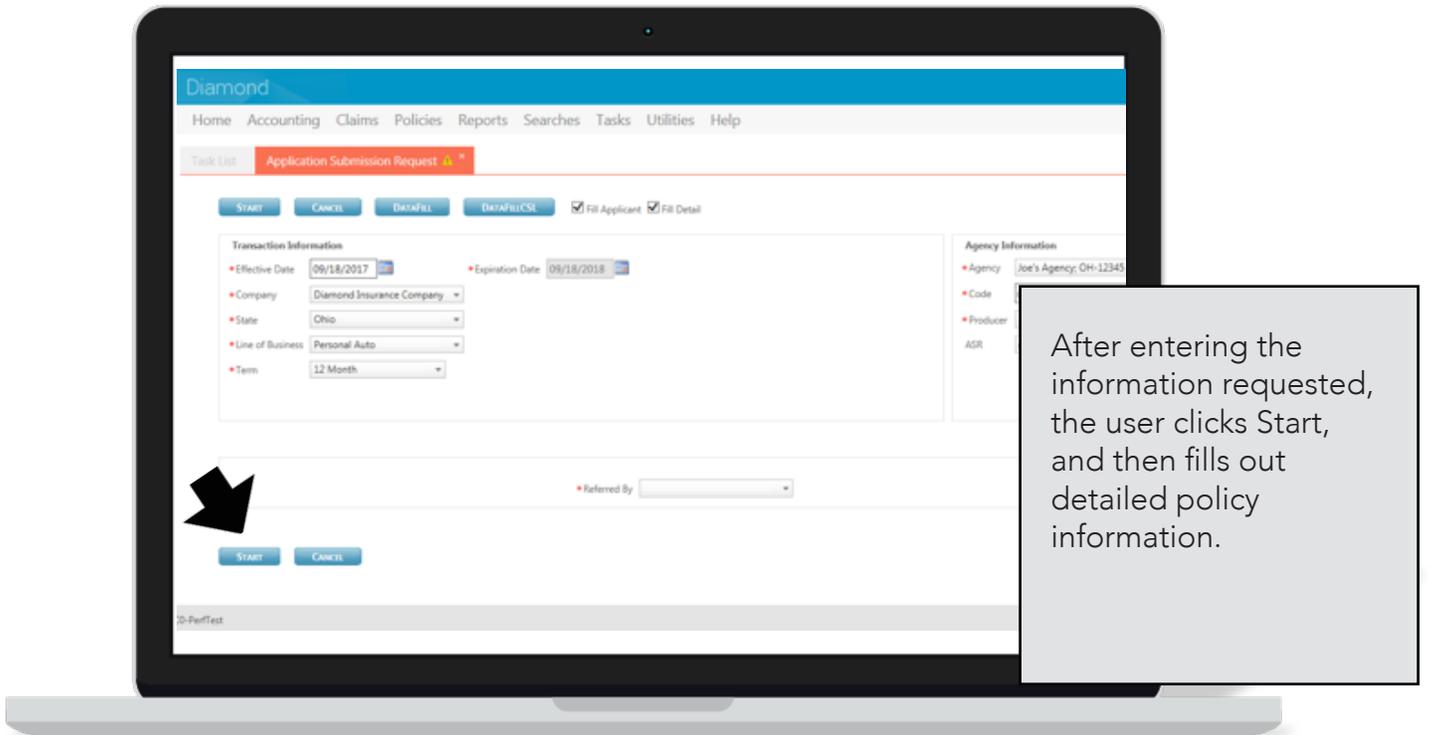
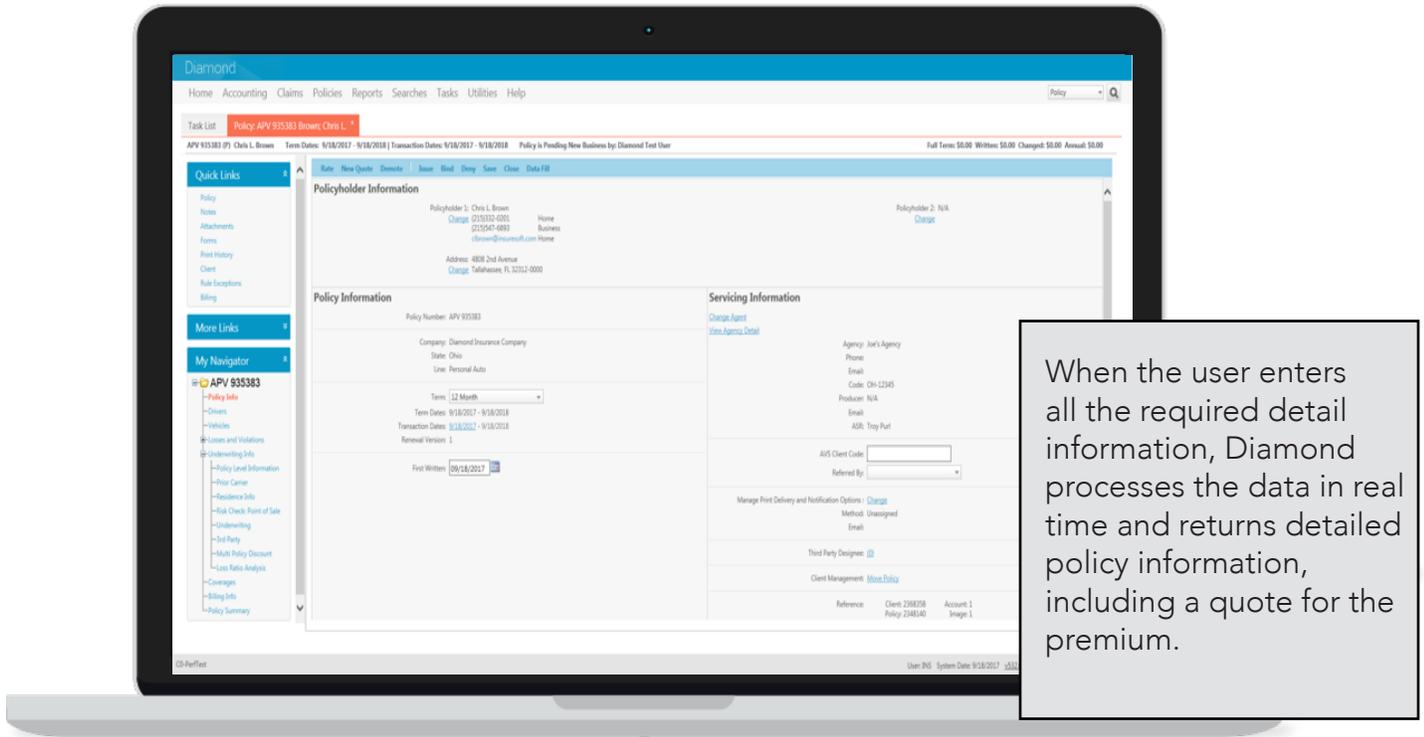


Figure A.3: Application Submission Request



**Figure A.4: Policy Information**



**Appendix B: Test Results**

| User Count | Web Server Farm Size | Business Server Farm Size | Policy Transactions per Hour | Policy Transactions per Year | Response Time (Sec) | Policies in Force |
|------------|----------------------|---------------------------|------------------------------|------------------------------|---------------------|-------------------|
| 1          | 1 P2V2               | 1 P2V2                    | 190                          | 1,664,872                    | 0.861               | 554,957           |
| 25         | 1 P2V2               | 1 P2V2                    | 133                          | 1,161,896                    | 0.843               | 387,299           |
| 50         | 1 P2V2               | 1 P2V2                    | 265                          | 2,318,005                    | 0.92                | 772,668           |
| 50         | 1 P2V2               | 1 P2V2                    | 256                          | 2,245,808                    | 0.957               | 748,603           |
| 100        | 1 P2V2               | 1 P2V2                    | 498                          | 4,364,965                    | 1.21                | 1,454,988         |
| 100        | 2 P2V2               | 1 P2V2                    | 513                          | 4,490,772                    | 0.98                | 1,496,924         |
| 100        | 2 P2V2               | 1 P2V2                    | 512                          | 4,485,713                    | 0.978               | 1,495,238         |
| 200        | 2 P2V2               | 1 P2V2                    | 955                          | 8,363,212                    | 1.57                | 2,787,737         |
| 200        | 2 P2V2               | 2 P2V2                    | 991                          | 8,677,086                    | 1.26                | 2,892,362         |
| 200        | 3 P2V2               | 2 P2V2                    | 1,011                        | 8,859,422                    | 1.09                | 2,953,141         |
| 400        | 3 P2V2               | 2 P2V2                    | 1,517                        | 13,289,955                   | 1.393               | 4,429,985         |
| 400        | 3 P2V2               | 3 P2V2                    | 1,554                        | 13,610,469                   | 1.266               | 4,536,823         |
| 400        | 4 P2V2               | 3 P2V2                    | 1,588                        | 13,911,632                   | 1.152               | 4,637,211         |
| 400        | 5 P2V2               | 3 P2V2                    | 1,601                        | 14,023,230                   | 1.111               | 4,674,410         |
| 400        | 5 P2V2               | 4 P2V2                    | 1,604                        | 14,053,476                   | 1.1                 | 4,684,492         |
| 400        | 6 P2V2               | 4 P2V2                    | 1,612                        | 14,125,488                   | 1.074               | 4,708,496         |

## Appendix C: Glossary

|                     |   |
|---------------------|---|
| Application Server  | This is a middle-tier server that executes common application business logic. Application servers provide their greatest benefit in terms of enterprise scalability and business logic reuse.           |
| SOA                 | Service Oriented Architecture (SOA) is a methodology for systems development and integration where functionality is grouped around business processes and packaged as interoperable services            |
| Scalability         | This refers to the ability to add capacity to a system, such as support for additional users, by incrementally adding hardware and software without needing to redesign or re-deploy the entire system. |
| System Architecture | This is the underlying framework that provides the infrastructure on which the application runs.  |
| High Availability   | A highly available system to appear to the users as if it were operating continuously, even though failures have occurred.  |
| Reliability         | The system needs to be available to users a high percentage of the time in order to be considered reliable.   |
| Topology            | Topology is the physical setup for a test set. The topology describes the number and type of machines used, as well as which programs run on each physical box.   |

## Appendix D: Disclaimer

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