



WYDE



BUILDING INTEGRATED BUSINESS SOLUTIONS

SCALING UP WYDE TO HANDLE 40 MILLION POLICIES

In Exacting Benchmark Test, Wynsure Performs with Huge Database of Individual and Group Policies and 400 Users

Whitepaper by

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ABSTRACT

A major insurance company asked Wyde to prove Wynsure's ability to handle a very large policy database. Wynsure was tested on a database of 40 million individual policies and 4 million enrollments spread over approximately 17,000 group policies. Policies included group supplemental insurance plans and individual life, health and disability worksite policies, all configured according to the insurer's specifications.

The test covered 14 backend transactions, such as issuance, endorsements and renewals, typically processed by end-users, with a load of up to 404 concurrent users. The goal was a response time of 750 milliseconds for most transactions. At the same time, the test also simulated straight-through processing for group and individual enrollments.

Benchmarking was completed in January 2013. CSS Corp., an independent testing organization, oversaw testing and load and automation scripting and provided analysis and reporting.

THE CHALLENGE

While Wynsure has been deployed successfully at insurers of all sizes, it hasn't been used to manage the largest policy databases that Tier One insurers have today and the even bigger databases they'll have in the future. The challenge was to show that Wynsure could easily handle such huge databases and turn in fast response times - under 750 ms for most transactions.

However, since no actual database of that size was available, Wyde's experts faced the challenge of designing a proof-of-concept test that would simulate real-world conditions with realism and credibility. The first challenge was creating an enormous policyholder database that would be a true representation of the insurer's book of business so that users could process typical transactions.

Next, the team had to design the test. Dry runs and smoke tests had to be run, and the results captured and analyzed. The analysis pointed the way to further improvements before the final test. Based on the results of the initial tests, software and hardware had to be tuned for maximum performance.

WYNSURE PRODUCT DESIGN

Wynsure is an end-to-end multiline insurance system. Comprehensive and flexible, it is a fully supported component-based solution. It efficiently manages end-to-end processes with business-capable rules configuration and straight-through processing. Wynsure is used by 25 life, health and property-casualty insurers and reinsurers in North America, Europe, Asia and Africa.

The Wynsure architecture includes IIS (Web server), WydeWeb (Windows-based application server) and MS-SQL-Server 2012 (database server). The architecture is horizontally scalable and supports multiple servers at each layer.

Users bring up the Wyde user interface from a web browser. The HTML page served from the web server has embedded in it an ActiveX control (WydeWeb.OCX). The WydeWeb ActiveX control opens a TCP/IP connection to the application server, where a process is initiated to handle the connection. The WydeWeb ActiveX control paints user interfaces, such as menus, buttons and RTF information text, from instructions or op-codes received from the server process. The server process, in turn, interacts with the database server to store and retrieve insurance data.

Wynsure 4.6 was the base product tested, with two features from 4.7 added (individual and ACORD group enrollment services).

Benchmark	Individual Quotes	Individual Policies	Group Policies	Enrolment Certificates
Year 1	25,000	17,000,000	7,500	1,500,000
Year 10	56,949	40,085,111	17,685	3,536,933

BUILDING THE BENCHMARK TEST

Wynsure team first created a baseline of 100 policies that reflected an accurate sampling of the insurer’s actual book of business. The baseline of product configurations was based on client specifications. It was crucial to have an accurate mix of true group policies and individual worksite policies.

Next, the team designed a new tool that replicated this sample of 100 policies to create a policyholder database of the desired size. The tool uses partial data model replication techniques. The team replicated the data in stages. The result was a very large policy holder database that mirrors the insurer’s book of worksite and group business.

HP hardware was selected because Wyde test environment and many Wynsure users run on HP servers. The HP Solutions Center in Atlanta was selected as the data center. HP supplied application, web and database servers, as well as infrastructure support services.

Fourteen common transactions were created under the categories of New Account Setup, New Business and Policy Maintenance. Each transaction had a number of simulated concurrent users, with a grand total of 400.

To make the test realistic, each Web service request had login credentials for the user corresponding to a Wynsure user. Therefore, every service call went through login, business transaction, and logout. Every service call had an assertion scripted to determine success or failure of that business scenario during the load-generation phase.

Separately, for STP testing, two out-of-the box Wynsure services individual subscription and group enrollment were deployed as SOAP Web services. The STP processes ran simultaneously with the online workflow processes. Load generation for these services was managed using LOADUI. SOAPUI scripts were built to be functional building blocks for the LOADUI project.

PRODUCTS TESTED

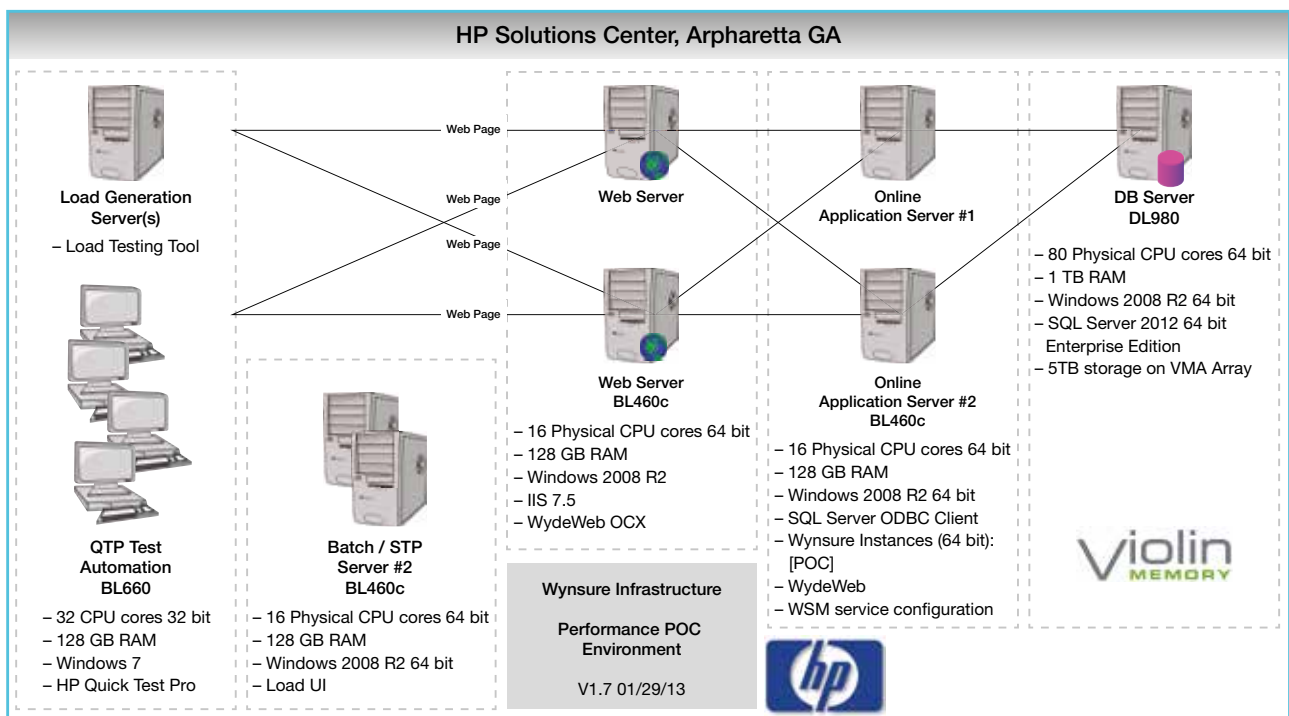
Individual Worksite Products

- Cancer
- Accident
- Critical Care
- Disability
- Term Life
- Whole Life

Group Products

- Cancer
- Accident
- Critical Care
- Disability
- Term Life
- Whole Life

Once the database was built and test scripts written, CSS ran several initial benchmark tests and reported on performance. Each transaction was analyzed to determine where the elapsed time was spent. This gave the Wyde team the information needed to tune the software and hardware for better performance.



At the application level, 24 improvements were made to Wynsure code that boosted performance for large installations. Many improvements already have been included in recent versions of Wynsure, and others will be included the next version (Wynsure 5.1).

At the database level, the team conducted a macro analysis of SQL Server 2012 running on the HP DL980 servers. The team brought in experts from HP and Microsoft to implement best practices for large-scale databases. Reconfiguring on both macro and micro levels boosted performance. Flash memory arrays were added to the database server.

FINAL TEST

CSS conducted the benchmark test on January 28, 2013, with a database of 44.1 MM. individual policies and 17,685 group policies. Some 404 virtual users performed all 14 transactions. At the same time, individual subscription group STP transactions were simulated a rate of 77 transactions per minute. Group enrolment STP transactions were run at 8 transactions per minute.

Results: Fast Response, No Failures

Average Response Time – Final Benchmark	
<750 milliseconds	74%
750 milliseconds to 1 second	11%
1 second to 1.5 seconds	14%
>1.5 seconds	1%

The response time was virtually the same no matter how many users were on. CSS wrote: “Wynsure easily scales to 400 users. The response times observed at low user loads (like three or four users) degrade only negligibly as the user load is increased to 400 users.”

The fastest transaction was “initiate a loan,” with 100% of page views under 750 milliseconds. The slowest was “jet issue individual policy,” with 57% under 750 milliseconds.

The test successfully simulated STP for group and individual enrollments at a rate of 478 and 4,620 transactions per hour respectively. Average response time for an individual subscription was 744 ms. With group enrolment, it averaged 870 ms.

Some 32,934 transactions ran without a single failure. No failures occurred because Wynsure is a single, integrated system.

Hardware performed without stress. CPU utilization on both Web servers was well within limits. Average CPU use varied between 20% and 25%.

The same was true of application servers. During the steady-state period with 400 concurrent users, average CPU use varied between 30% and 70%, averaging about 50%. During the test, 103 GB to 104 GB of free memory was available.

Average CPU use on the database server was under 50%. CPU use peaked at around 40% with 400 concurrent users. Adding flash memory arrays improved overall speed by about 10%.

LESSONS LEARNED AND APPLIED

Benchmarking gave the Wyde team valuable information on how to make Wynsure run fast and nimbly with a huge policyholder database of both individual and group policies.

Application and database indexes have been added to Wynsure core releases. Wyde has updated its project-implementation methodology.

The teams involved in the benchmark test will stay in place. The Wyde performance team is now a structural component of the Wynsure R&D organization in Paris. Future Wynsure



implementations will use the Wyde database team and CSS for performance testing.

While Wynsure was benchmarked in a Microsoft and HP environment, it can be deployed differently - for instance, on an IBM or Oracle stack.

ABOUT THE AUTHOR



CYNTHIA "CINDY" COLEMAN

Cindy is responsible for the global strategy and product marketing of Wynsure. She has extensive experience and knowledge with over 27 years in the insurance and technology industry. Prior to Wyde she spent 10 years leading product management, marketing and sales teams and 15 years in insurance business operations. Cindy has a deep understanding of the importance of bridging business challenges with technology solutions

ABOUT WYDE

An Mphasis Group Company

"Wyde is a market leader in policy administration software & solutions for group life & supplemental insurance. We are the creator of Wynsure, a proven software platform, at many of the leading insurance carriers in North America and Europe. We are headquartered in Bloomington, Minnesota, USA, with offices in Canada, a modern Research & Development Center in Paris, France, and Delivery Centers of Excellence in both Poland and India. Wynsure is a multi-language, multi-currency, easily configurable software product that offers end to end business solutions in hosted & cloud environments for the Group Benefits market. More information is available at www.wyde.com

ABOUT MPHASIS

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