



Consulting Services for GE GIS product line

Diagnostics¹ for Smallworld*

Monitoring Solutions in general are designed to ensure greater reliability and utilization, improved operations, enhanced security and reduced costs without impacting the performance of the system. This constant overview presents real-time status and inconsistencies in a dashboard that managers can quickly review as to how the system is used and it facilitates improved engagement between administrators and users.

Diagnostics is a vertically-based monitoring tool - not to be confused with monitoring tools that look at systems horizontally. Horizontally-based monitoring tools can tell you that there is a problem with any IT system, but they cannot tell you what the exact problem is in that specific system. Diagnostics on the other hand can intrinsically tell the customer exactly what the problem is inside Smallworld* - relevant to any customer desiring to monitor their GE Smallworld* GIS. For example, when uptime of the server/service becomes an issue, both the vertical and the horizontal solutions can identify the problem - but to get to the root of the issue one needs to dig vertically into the specific system and sometimes pretty deep. The picture below illustrates how only a purpose-built vertical monitoring solution is able to provide actionable insights into a single domain, coexisting with a horizontal monitoring solution that provides basic insights across all systems.

Diagnostics out-of-the-box can facilitate a proactive approach to monitoring. Diagnostics acquires granular information about the performance and use of GE Smallworld* and presents that information in easy to understand dashboards and charts to assist customers by informing and alerting them to compromising activities. Diagnostics provides a real-time constant overview of GE Smallworld* usage and can prevent severe implications if it breaks down, is improperly used or does not perform to expectations.

Innovative and Flexible operator environment

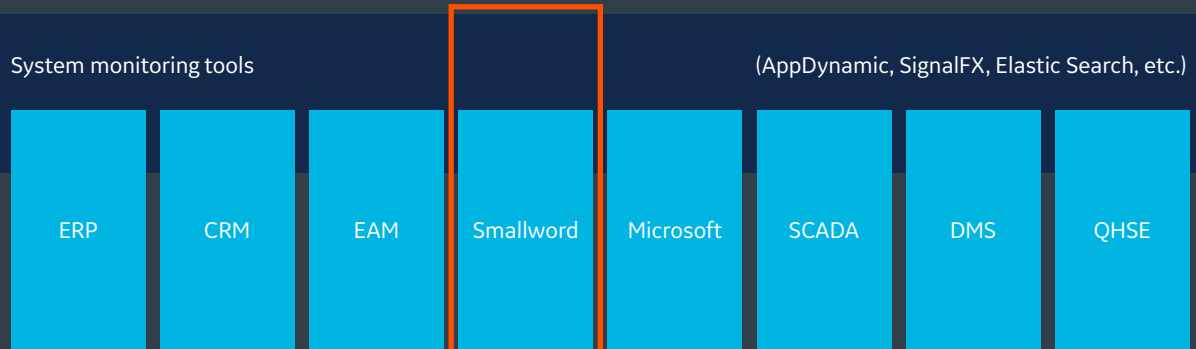
Move beyond just guessing how your production environment is performing and know precisely what is happening. Detailed information on performance, networks, downtime, quality, business processes and more - visualized and made easy for you to understand. Getting a holistic, comprehensive view of how your GE Smallworld* environment is performing at any given time is essential in keeping focus on the most critical tasks and not wasting time.

Keep track of what's most important

What are the used or unused features? Are features being used properly as per training? Managers want to understand whether the investment made was

“Save time
by speeding
up your
Smallworld*
environment”

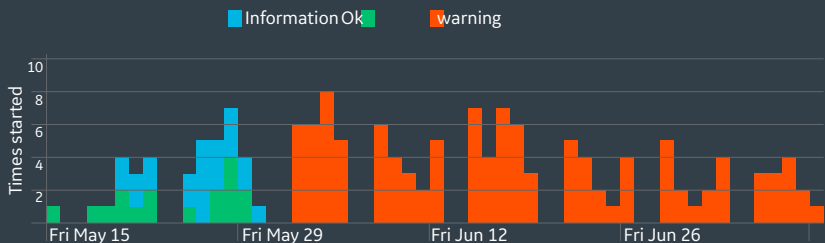
very little overlap



Application monitoring

Immediately see when a release breaks your application

Times started



worth it. One of the most important features in Diagnostics is the ability to log the whole range of activity within the GE Smallworld* environment. No need to run complicated queries or wait for other people to run reports for you. Your dashboard is always up to date with real-time data, configure KPI's and insights to match the needs of every user in your company. It is a hyper-flexible environment designed to meet your needs in monitoring.

Prevent Data Corruption

Often not following proper business processes can cause data corruption. Real-time data monitoring (RTDM) is a process through which an administrator can review, evaluate, and modify the addition, deletion, modification and use of data on software, a database, or a system. It enables data administrators to review the overall business processes and functions performed on the data in real-time, through graphical charts and bars on a central interface/dashboard.

Alarm Management for faster resolution

Imagine reaching system limits that cause usage disruption and potential system downtime. Diagnostics is the most advanced alarm system in the GE Smallworld* environment where alerts about users, networks, file sizes, super files,

checkpoints, versions and latency can preempt problems before they happen. When not following defined business processes, generate an immediate alert, and then investigate the generated alert so that it can be resolved.

Improved User Engagement

When assessing various alerts or improper software use, advance notice of potentially compromising situations is appreciated by users. Preventing user from making mistakes and completing tasks on time is the key to successful software usage. Bad user behavior or potential lost work is pre-empted resulting in a positive impact on both productivity and user satisfaction due to this interaction.

Data logging to keep the history

Keeping historical data allows the customer to investigate past activities. Data is stored in a "Big Data" database where it is easy to create dashboards to visualize trends based on raw data. Use initial data to determine the baseline for databases, application usage, performance and software configuration. Compare this baseline and subsequent baselines to visualize the improvements and changes made to every released GE Smallworld* environment; Gradually make incremental improvements. Make migrations easier and reduce expensive customizations by excluding non-used functions in the upgrade process.

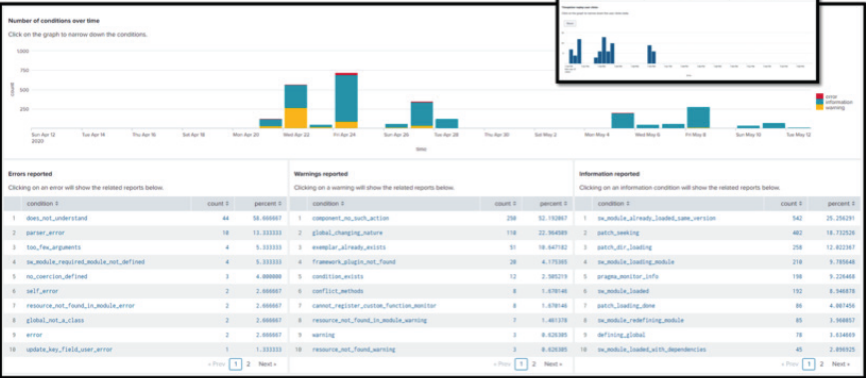
Intuitive Reporting

Managers always wish to see an overview of the system whether it be dashboards or reporting, which is why these are critical functions in Diagnostics. Easily keep track of all your production data and discover opportunities for improvements with daily, weekly or monthly reports on time usage, downtime, quantities and cycle times. Diagnostics keeps track of all errors, including errors not seen by the user.

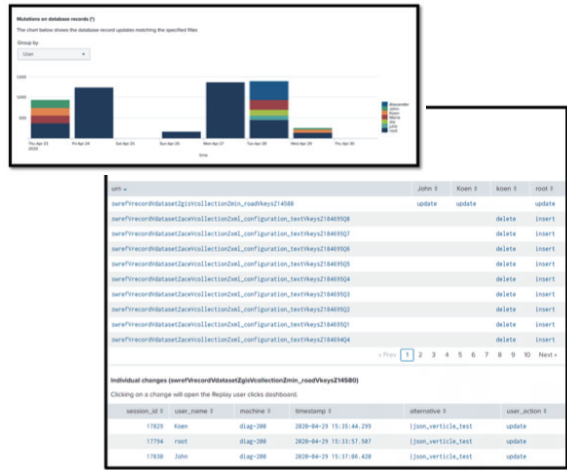
“Increase user satisfaction through increased performance and less downtime”

Use case: tracebacks

Can be used to help troubleshoot issues during upgrades and in day-to-day operations. Can provide logs and assist GE Support with resolving the issue up to 50% faster.



Use case: conflict investigation





Diagnostics Customer Use Cases

Reports and Queries run time

Challenge: A Telecommunications company regularly runs an extensive query and update process to their Smallworld database. This type of update could only be run at night or in non-productive hours. As the database grew in size this update would take longer and eventually would spill over into production hours and affect the overall performance of the system and user productivity.

Solution: Diagnostics was used to determine that one query was taking the majority of the time in the process. Diagnostics suggested caching the query results and improving database indexes.

Benefit: The update process now runs more efficiently in the nightly timeslot and finishes before peak user productivity is impacted.

Upgrade Planning

Challenge: Customer is getting ready to upgrade a customized Smallworld environment. The customization consists of several expensive to maintain user productivity tools.

Solution: Data about what functions are used most commonly and by how many users can be gathered and analyzed using Diagnostics to record every user action within Smallworld.

Benefit: By using the insights that Diagnostics can provide, the customer decided to retire up to 30% of the customizations that were deemed not used by their users, saving the long term costs associated with maintaining code that was no longer used.

Operational Success

Challenge: A user has difficulties operating the system due to unexpected behavior. They key user tries to reproduce the situation but is not able to and the situation remains unresolved.

Solution: The past action path is shown by Diagnostics, so the key user can review the user steps and provide clearer instructions or ask the developers for a code fix.

Benefit: User engagement and satisfaction will increase due to more fruitful interactions, user success will improve due to higher bug fixing rate, both leading to improved overall productivity

System Performance Optimization Service from GE Digital

Performance is one of the key factors to determine the success of a system implementation

- Do you ever think your system is just too slow?
- Are you concerned that your hardware is approaching its limits?
- Are you planning a customization or bulk data load and want to measure its effect on performance?
- Do you want to keep an eye on performance with regular health-checks and monitoring tools?

GE Digital has a service solution to meet your needs...

System Performance Optimization Service

With the System Performance Optimization Service solution, our customer service team applies its technology knowledge and experience to analyze the Smallworld* database component performance—and all the elements around it that can affect the final application performance. With this analysis, we can determine the optimum parameters and architecture for your system.

After a Smallworld* database is populated and used by a customer in a production environment, the default database parameters are often no longer appropriate for the current size or the current object set. In this situation, reviewing the database parameters can allow us to improve your database performance.

Phase I

Define a set of procedures to be executed in order to analyze your Smallworld* system performance and to determine whether or not the configuration is appropriate.

Phase II

Analyze the results and identify opportunities for improvement.

Phase III

Propose recommendations for actions to be performed on the system and present reports to you including the following:

- Establish a benchmark for your system and compare it to current performance levels



- Analysis of read/write speeds to your database
- A breakdown of hardware capacity and how close you are to system limits
- Checks on drainage of Unique Values from the database
- Analysis of wasted space within the database and recommendations on how to maintain a healthy database
- Set a baseline for your system performance from which to measure future improvement or degradation

- Recommendations for architecture enhancements and potential improvements from upgrading
- System monitoring tools to keep tabs on the health of your system

Phase IV

Monitor the system with automated monitoring scripts and regular health-checks.

With all this information, you can weigh the pros and cons, costs, and a projected milestone plan which you can then present to your management level for final decision and approval to move ahead with the recommended improvements.



Consulting Service Package from GE Digital

Comprehensive Analysis

With the Consulting Service Package, our customer support team applies its deep domain expertise and technology skills to analyze your Smallworld* database component performance (System Performance Optimization Service). In addition to the System Performance Optimization offering, this package also includes an additional 200hrs of support per year*

This comprehensive analysis is done as part of the System Performance and Optimization service. A complete Health Check Assessment report, including performance assessment and recommendation, will be provided at the end of the analysis. The report will include the following:

- Establish a benchmark for your system and compare it to current performance levels
- Analysis of read/write speeds to your database
- A breakdown of hardware capacity and how close you are to system limits
- Checks on drainage of Unique Values from the database
- Analysis of wasted space within the database and recommendations on how to maintain a healthy database
- Database size, locks and integrity
- Memory parameters

- Alternative and checkpoint review
- Performance analysis of internet-deployed solutions
- Set a baseline for your system performance from which to measure future improvement or degradation
- Recommendations for architecture enhancements and potential improvements from upgrading
- System monitoring tools to keep tabs on the health of your system

In addition to the Health Check, this package includes two user conference passes and 200 additional support hours per year* which can be used for:

- On demand support
- What if analysis
- Upgrade gap analysis
- Support related to customizations

* The 200 additional support hours must be used within the year and cannot be transferred to the next year.

Contact Us
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¹ Provided by our partner Realworld-Systems

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