



Industry Profile:

Appistry® EAF for the Intelligence Community

Helping Intelligence Agencies Achieve New Levels of Insight

Executive Summary

High resolution satellites, multi-modal sensors, and other input sources are driving an explosion in data available to the Intelligence community. At the same time, today's global security environment is driving the need to more rapidly turn data into insight and effective action. Processing more data, faster, presents a considerable challenge.

Intelligence agencies cannot afford delays in uncovering actionable insight through data- and compute-intensive applications such as signal intelligence, geospatial intelligence and cryptanalysis. At the same time, agencies and their commercial suppliers must work within operationally constrained environments. Unfortunately, traditional IT approaches simply fall short when it comes to providing a solution that can reliably process massive amounts of data in a timely fashion without overburdening agency budgets and labor resources.

Appistry Enterprise Application Fabric (Appistry EAF) provides a "scale without fail" application environment that enables intelligence agencies to run large-scale data-processing applications more quickly, easily and cost-effectively than previously possible. By building scalability, dependability and manageability into the application layer itself, Appistry EAF insulates mission-critical applications from underlying infrastructure failures, while empowering agencies with new levels of scale, agility and cost-effectiveness to meet the intelligence demands of today and tomorrow.

Why Appistry EAF for Intelligence Applications?

- 1 Drive new techniques from lab to analyst more quickly
- 2 Eliminate proprietary hardware and management overhead costs as barriers to mission success
- 3 Identify more intricate patterns of activity by enabling more sophisticated data analyses
- 4 Meet future intelligence needs by easily scaling existing analyses or adding new analyses

The Challenge: Failure Is Not An Option

Intelligence agencies face enormous pressure to meet ever-increasing mission demands. With national security at stake, failure is simply not an option. To meet their objectives, agencies rely on technology to help them quickly process massive amounts of data into insights that can be acted upon before a threat becomes a crisis.

However, with threats intensifying at the same time that data sources are expanding, traditional approaches struggle to keep up. If data-to-insight latencies continue to increase, analysis innovations that lead to intelligence breakthroughs may be stifled. The end result will be agencies that are “treading water,” rather than moving forward in new directions that may ultimately make the difference between mission success and failure.

Solution: Appistry Enterprise Application Fabric

Appistry Enterprise Application Fabric is a software-based environment for running time-critical, CPU-and/or data-intensive applications (e.g. geospatial and signal intelligence) on a self-healing network of commodity-grade computers. Appistry EAF creates a next-generation “scale without fail” grid environment by building scalability, dependability and manageability into the application layer. This approach insulates fabric-based applications from the underlying physical infrastructure and its frailties, so intelligence applications can survive inevitable infrastructure failure without loss of data or interruption of service. Overall, unlike traditional grid technology, Appistry EAF enables cost-effective scaling without sacrificing application dependability or manageability.

Appistry EAF: Next-Generation Platform for Intelligence Applications

Appistry EAF software makes it easy to achieve mission objectives by predictably and reliably executing large-scale intelligence applications. Appistry EAF automatically organizes machines to maximize scalability, balance load across the computing infrastructure, and compensate for hardware and software failures. Because Appistry EAF does all of this dynamically, in a fully distributed manner, no single point of failure exists in the application fabric and all work is completed successfully—on time, every time. Furthermore, new computers can come online and existing computers can fail, all without interruption to running applications and without manual operator intervention.

Limitations of Traditional Approaches

Some agencies have looked to traditional technology approaches, including “big iron” and traditional (first-generation) grid computing, to meet their needs for additional data-processing capacity. Unfortunately, these approaches demand serious trade-offs among fault-tolerance, manageability and cost-effectiveness that severely limit agency effectiveness.

“Big iron” vendors have had great success in the past serving the Intelligence community; however, the challenge today is to deliver an application environment that is simultaneously scalable, dependable, manageable, and affordable in order to maximize agencies’ technology and business agility. Meeting that challenge requires a next-generation approach.

Challenges Posed by First-Generation Grid Computing

Manageability Traditional grid computing produces high overhead costs through poor manageability, requiring that each resource in the grid be managed separately rather than as a single, virtual system.

Deployability First-generation grids are often difficult to deploy, requiring significant manual intervention to bring resources on line and unwieldy re-architecture to get existing applications up and running.

Predictability While grid computing has proven tremendously valuable for academic pursuits that have comparatively relaxed requirements, a more manageable, “real-time” grid is required to meet the demanding needs of intelligence agencies.

Fault Tolerance First-generation grid software provides little or no consideration for fault-tolerance, and therefore is a poor solution for time-constrained, mission-critical intelligence applications that require reliable and timely execution of computing tasks.

Challenges Posed by “Big Iron”

Manageability Specialized hardware and the associated proprietary operating systems typically require esoteric skills for application development and maintenance, driving up operating costs over the long term.

Scalability “Big iron” servers typically create a rigid computing environment, making it difficult to scale up or down as needed or to share computing power across multiple applications.

Affordability Initial cost outlays and annual maintenance fees for specialized hardware are daunting, and purchase and delivery of proprietary, “big iron” boxes can take months, decreasing agility.

“By relying on the application fabric to provide scalability, reliability and manageability, we can leave our infrastructure concerns behind and focus on providing maximum value to our customers.”

Ray Helmering
Vice President, GeoEye

Why Choose Appistry EAF?

1 Drive new techniques from lab to analyst more quickly

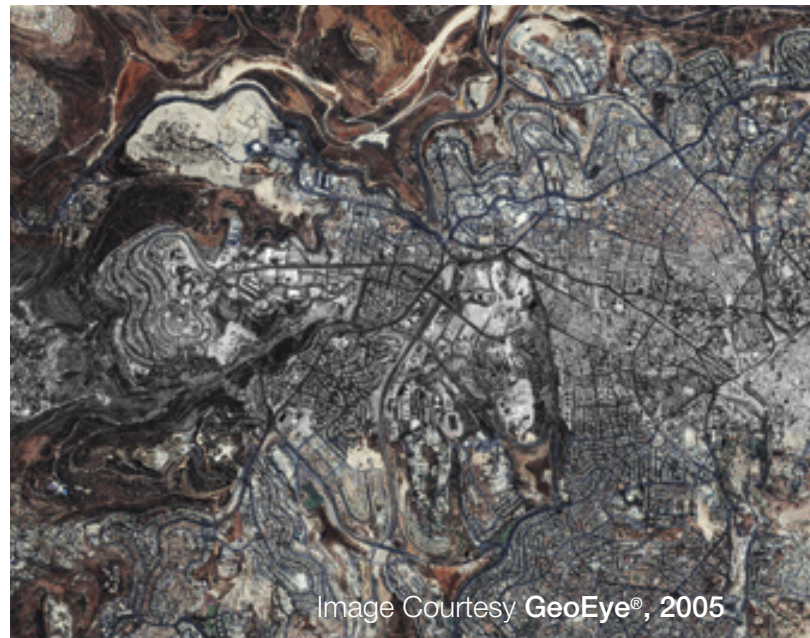
Appistry EAF transparently provides the characteristics needed to deploy production applications—scalability, dependability and manageability—making it quicker and easier than ever before to field new analytical techniques and applications. Algorithm developers and researchers need no longer be concerned with the intricacies of distributed computing; they simply focus on the unique functionality provided by their techniques and the rest is provided by the application fabric.

2 Identify more intricate patterns of activity by enabling more sophisticated data analyses

Appistry EAF’s simultaneous scalability, reliability and manageability enable intelligence agencies to enhance the sophistication of the analyses they perform – through innovations such as multi-dimensional data workflows that create a more collaborative analytical environment – without concern for the ability of the applications and infrastructure involved to keep up. And not only can a fabric-based environment keep up, it can do so with linear cost increases rather than periodic massive overhauls to accommodate new requirements.

3 Meet future intelligence needs by easily scaling existing analyses or adding new analyses

Appistry EAF delivers the scalability of grid computing, but with the dependability required for mission-critical applications. With an application fabric, additional computing capacity can be brought online to reduce the latency in existing intelligence applications or support enhancements and new applications by simply adding new commodity computers. Once the machines are physically connected, Appistry EAF performs all steps necessary to automatically assimilate the new resources into the production application fabric. These steps include installing the correct version of the operating system, Appistry EAF itself, and all applications being run within the fabric.



4 Eliminate proprietary hardware and management overhead costs as barriers to mission success.

Utilizing Appistry EAF lowers the cost of managing intelligence applications and the infrastructure that supports those applications.

- **Eliminates system failures** reducing application management overhead and unpredictability
- **Turns many commodity-grade computers into a network** of machines that can be scaled, viewed and managed as a virtual single system, eliminating the need to depend on expensive, proprietary hardware and allowing developers and system administrators to interact with an entire network of computers as if it were a single machine
- **Runs multiple applications on a single fabric** reducing the complexity of managing a portfolio of intelligence applications.

About Appistry

Appistry is the leading provider of application fabric software. Pioneering the next generation of grid computing, our products allow intelligence agencies and commercial customers to quickly and easily deploy large-scale, time-critical applications—for “real-time” analytics, high-performance computing (HPC) and high-volume data processing—as service-oriented applications reliably virtualized across a scalable “grid” of commodity-grade computers. As a result, we help them increase agility and responsiveness while lowering capital and operational costs. Appistry’s customer list includes GeoEye, Northrop Grumman and U.S. Intelligence Agencies.

For more information, or to schedule a no-cost/no-commitment application fabric impact assessment, please call us at 888-APP-0111 (888-277-0111) or send an e-mail to info@appistry.com.

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