



Photo: Courtesy of US Air Force Military Archives

BY: ISRAELI AIR FORCE
CENTERITY SYSTEMS, INC.

“With the All-in-One visibility of Centerity Monitor, the Israeli Air Force is now able to monitor and maintain its critical information systems far more effectively while realizing significant cost savings.”



CENTERITY SIMPLIFIES THE ISRAELI AIR FORCE'S CRITICAL INFORMATION SYSTEMS MONITORING

ENTERPRISE SYSTEM FULLY INSTALLS IN 4 WEEKS, REDUCES CRITICAL MTTR BY 80%

Protecting the security of a nation in the middle of one of the world's most unstable regions leaves no room for error. The mission of the Israeli Air Force (“IAF”) is to defend the existence, territorial integrity and sovereignty of the State of Israel, to protect the inhabitants of Israel and to combat all forms of terrorism which threaten its daily life. To accomplish this, the IAF's IT infrastructure needs to be at the highest state of readiness possible in order to coordinate all of the Air Force's assets and resources.

The IAF implemented Centerity's IT and BSM performance & availability monitoring platform to efficiently maintain its IT assets, proactively prevent disruptions and effectively reduce mean-time-to-restore (“MTTR”) via Centerity's Business Service Management (“BSM”) capabilities to define and collectively manage critical processes.

This paper addresses: (1) Industry Best Practices for establishing an efficient Enterprise-Class Monitoring Solution; (2) IAF's Requirements; (3) New Solution Selection Process and Findings; (4) Implementation of Centerity; and (5) Business Impact of the Centerity deployment.

BACKGROUND

The IAF's infrastructure is composed of thousands of elements across physical, networking and application layers. The heterogeneous nature and complexities of managing large systems with many non-standard elements is a daunting task. IAF's infrastructure is no exception.

The IAF used a variety of tools from different vendors to monitor different aspects of its infrastructure. That tool selection created separate silos of information by monitoring layer and by department with no cohesive view of cross-layer or intra-organizational impact. This situation hampered the IAF's ability to be proactive in addressing potential problems and inefficient root cause analysis led to greater downtime with longer MTTR. This was unacceptable to the IAF.

INDUSTRY BEST PRACTICES

The goal of enterprise-class monitoring is to maintain the highest level of system availability possible while reducing MTTR as much as possible. By doing both, IT departments can cut down on IT operating expenses and more efficiently allocate resources. More importantly, achieve these goals means that the organization as a whole can better achieve its core objectives and business goals by minimizing the impact to the organization and ultimately increase service availability.

Monitoring solutions manage the performance and availability of IT infrastructure from the physical layer (e.g., network switches, routers, firewalls, load balancers, servers and passive equipment like IP cameras, UPS, and alarms), to the networking layer (e.g., WAN, LAN, VOIP) and finally to the application layer (e.g., operating systems, CRM systems, ERP systems, databases); however, this is only the start. In today's complex environments, it is insufficient to monitor elements alone.

Business Service Management (“BSM”):

To achieve goals of high availability and low MTTR, proactive intervention and automated analysis of business processes is essential. A best practices solution must be able to define what key business processes exist, what elements are contained therein, present real-time health views of such business processes and have the ability to analyze problems based on the relationships between elements in different service layers of the infrastructure. By analyzing problems in a business process context, organizations can be proactive in fault prevention and efficient in problem solving fixing problems before these become failures. This function is key to giving executives



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broad visibility into their operating environment while at the same time giving administrators detailed views for deep inquiry and analysis.

User Experience (“UE”): In order to detect and fix potential performance issues before these become critical, best practices dictate that synthetic transactions of complex user interaction scenarios be conducted in real-time so that alerts and reports of this experience can be generated. This allows for the baselining of normal activity, performing trend analysis against that baseline and generation of alerts/reports on deviations from the norm. Ultimately, the goal is to detect, analyze and fix performance issues before the end users is ever aware of these.

Single Pane of Glass Visibility: In order to provide a holistic view of the entire IT environment, a monitoring platform should consolidate and correlate all the monitored metrics from all layers and aspects of the environment including metrics from external monitoring modules; better still, these modules should be included in a unified platform so no integration is required. This single viewpoint enables executives to view the entire environment at a single glance while allowing administrators to drill down into those views for detailed

inquiry and analysis.

Unified Platform: A unified platform is necessary to enable BSM at a reasonable cost and to ensure system deployability, flexibility, scalability and maintainability.

Real-time Dynamic Data: Dynamic thresholds are necessary for trend analysis and to eliminate false positives from static thresholds thus focusing administrators on credible alerts that deviate from normal performance trends.

High Availability and Disaster Recovery: For organizations that cannot tolerate any loss of visibility or availability, solutions must provide for active-active and active-passive availability options.

Virtual Environment Coverage: With the increasing use of virtualization, these environments must be monitored in-depth; however, the added layer of abstraction and shared physical elements create many challenges. In addition, dynamic changes in allocated resources can make it difficult to determine what the normal boundaries of operation are; nonetheless, monitoring of these complex virtual environments is a must in order to give organizations a holistic view of its infrastructure.

Cloud and SAAS Coverage: With increasing use of resources in the cloud, a best practices platform will provide for the monitoring of these resources, whether the cloud is public or private, for SLA compliance. Without visibility into such resources, any system view would be incomplete. Cloud coverage should also include coverage for SaaS applications such as Salesforce that can be provided through user experience functionality.

CMDB and Asset Management: Integrated Configuration Management Databases (“CMDB”) are essential to understanding the infrastructure being monitored and in efficient problem solving. A CMDB is key to the discovery, storage and tracking of the configuration information about each element. The CMDB can be part of the monitoring platform or a third-party system provided it is tightly integrated.

Ticketing Management: A ticketing mechanism must be able to track and manage tickets from creation through escalation and resolution. These functions can be part of the monitoring platform itself or a third-party system provided it is tightly integrated.

IAF’S REQUIREMENTS

Description of Infrastructure: The IAF’s environment includes a wide range of devices and technologies, both standard and non-standard such as physical and virtual servers with a variety of operating systems, databases, storage units, network devices, applications, KVM and media.

Description of Current Tools Used: The IAF used a variety of monitoring tools from different vendors in order to monitor every part of its environment. This situation created silos of information and segregated resolution efforts. Furthermore, it generated a lot of false alarms, reactive verses proactive responses and poor visibility into the real status of operational processes.

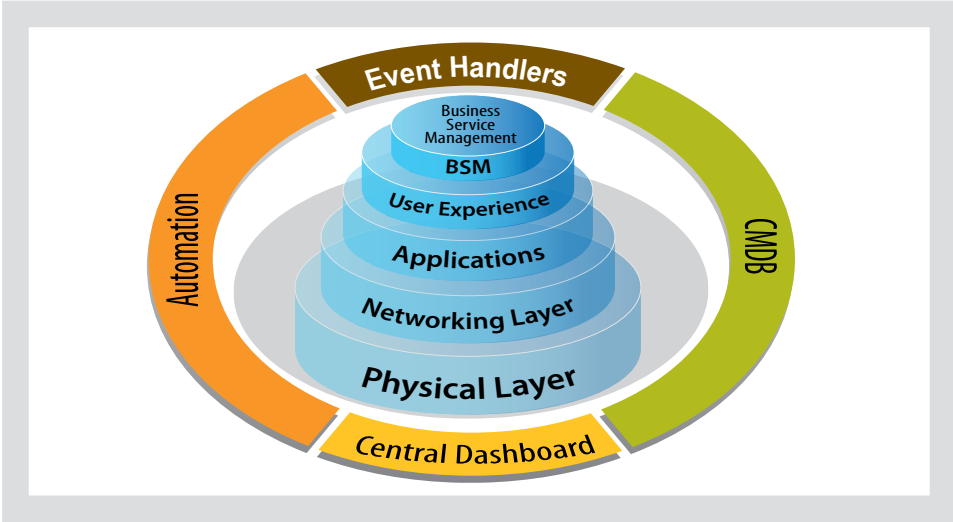
Description of Problem(s):
Integration Challenges: Due to the number of tools used, integration was difficult, costly and in many cases just not possible. Due to this lack of integration, visibility to and correlating activities between elements was inadequate. Moreover, because of the integration issues, BSM and real-time visibility to business processes was not possible.

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Downtime: For the IAF, any infrastructure downtime is unacceptable. With the existing tools in use, it was difficult to perform trend or impact analysis; therefore, the IAF could not be proactive in anticipating and solving problems. Also, without a capacity to define and manage by process, it was difficult to anticipate how elemental failures impact other elements and ultimately impact critical operational processes.

High MTTR: For the IAF, high MTTR is unacceptable. Due to the absence of business process level management, views of element states across service layers was not available and false positives were common. Routinely, the Network Operation Center (“NOC”) would receive alerts from all elements in a business process flow even though just one element was responsible for the

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process failure. Thus, IAF's MTTR was unacceptably high.

Maintenance: Maintenance time and costs were higher than desirable. Due to the disparate tools being used, maintaining each on different vendor release schedules made it difficult to plan for upgrades. Also, these disparate tools made integration efforts challenging and very inefficient. Lastly, having multiple vendors to negotiate with led to higher fees for both professional services and support in general.

Flexibility and Scalability: Due to the number of tools used, every initiative to enhance or expand coverage was challenging. A lot of internal and vendor professional services were required to accomplish even the smallest of projects. Given the mandate of the IAF, infrastructure flexibility and scalability are organizational imperatives.

Disaster Recovery: One mandate of the IAF NOC team is to ensure the availability of vital infrastructure to support military and logistical operations. Thus, no downtime is acceptable for the monitoring systems that keep everything coordinated and operational. With the lack of a unified monitoring platform, this was not possible.



“Because of its fully featured, unified platform, Centerity was able to deliver next-generation BSM at a fraction of the cost while increasing business service availability and reducing MTTR by up to 80%.”

Photo: Courtesy of Israeli Air Force Military Archives

BSM: The ability to manage “operational services” is imperative so it’s clear what the impact of one element being down means to other critical applications in the process flow; however, BSM was not possible given the tool set currently deployed. IAF wanted a holistic view of its processes and how the performance of certain elements impacted the performance of others.

Virtual Machine Visibility: Due to the use of virtual technologies in its infrastructure, the IAF needed a platform that would also allow for the monitoring of virtual and physical environments in a holistic manner.

High Current Operating Costs: Due to the lack of a unified solution and the difficulty of correlating alerts between these point solutions, the cost of compensating for these deficiencies via custom software and additional human resources was very high. Also, as these tools requiring engineering resources to specialize on different tools with different interfaces, additional human resources were needed to overcome these inefficiencies as well.

Increased Downtime and Higher MTTR: The inefficiencies created by separate tools that were not highly integrated or correlated had a negative operational impact due to increased downtime, high MTTR and general operational disruption. This occurred because of an inability to be proactive in evaluation of cross-element failures and to do cohesive root cause analysis.

Disaster Recovery (“DR”): The IAF’s DR methodology for its monitoring tools was essentially manual as each system had its own backup and recovery approach. This led to long restart cycles and visibility gaps. This was unacceptable to the IAF.

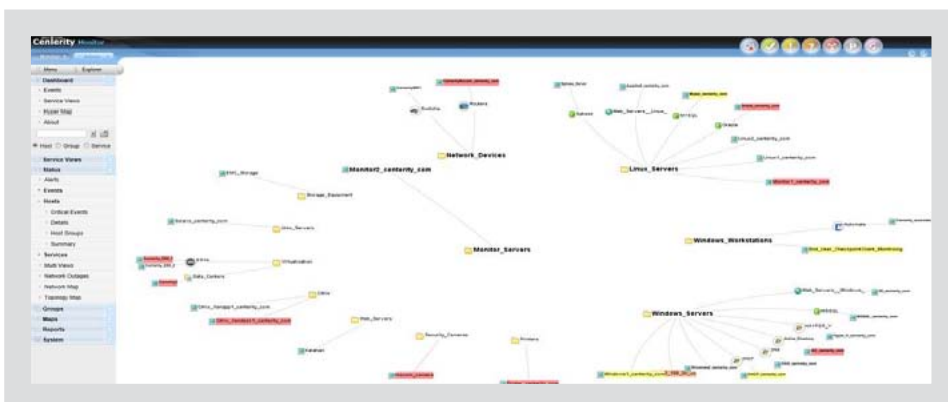


Figure1: Hyper Map View

NEW SOLUTION SELECTION PROCESS

Requirements:

The IAF wanted a single, unified platform that would offer “single pane of glass” visibility not only to administrators but to commanders needing a top-down view of operational services status. The IAF also wanted to implement BSM process views to increase monitoring efficiencies and effectiveness across service layers and departments.

The IAF chose to focus on enterprise-class solutions only as the non-enterprise solutions created the current inefficiencies it was experiencing. The initial evaluation process included the paper evaluation of vendors. After this initial evaluation, the IAF conducted extensive proof of concept (“POC”) trials with each of the three (3) finalists. The POCs covered a cross-section of all the IAF’s infrastructure. Each vendor was given sixty (60) days to install its solution and demonstrate that it could meet IAF’s stringent requirements of having (a):

- Unified Platform (or seamless integration of features)

- Single Pane of Glass Visibility and Drill Down Capabilities
- BSM Functionality
- Demonstrated Deployment Flexibility, Adaptability and Scalability
- Dynamic Real-Time Views, Maps, Threshold Alerts, Diagnostics and Analytics
- Disaster Recovery Methodology (Active-Active)
- Virtual and Physical Operating Environment Coverage
- Holistic Integration of all Components
- Increased Operational Availability and Reduced MTTR
- Reductions in:
 - » CAPEX
 - » OPEX
 - » Human Resources (dedicated and temporary) necessary to install, maintain and enhance
 - » Time necessary to complete installation, maintenance and enhancement tasks
 - » Risk to ongoing operations due to system complexity, inflexibility and non-scalability

Findings:

Based on the extensive reviews of the vendor offerings and the extensive POCs conducted, the IAF selected Centerity as its preferred solution. Centerity was the only vendor to offer a unified platform with single pane of glass visibility that enabled BSM at a realistic cost. While the other vendors could potentially offer BSM in theory, in practice, it was the IAF’s view that deployment and operationalizing BSM with the other vendors was not realistic due to the large integration challenges and excessive costs based on the many stand-alone features that would have to be purchased as separate solutions and integrated into a workable whole.

Centerity’s unified platform allowed its solution to be deployed in weeks whereas the other vendors’ solutions would required quarters or potentially a year or more to be deployed. This unified Centerity platform also allowed for dynamic alerting, reporting, diagnostics and analytics that could be correlated with the status of other elements in different service layers of the infrastructure stack easily thus providing for BSM and the business process management that IAF was seeking.

According to IAF estimates, when all costs were considered including CAPEX, OPEX, human/professional services, the time to operationalize and maintain the system and the risk to the organization of deploying an overly complex, inflexible and unscalable system, Centerity would have a TCO substantially less than the other enterprise-class solutions considered.

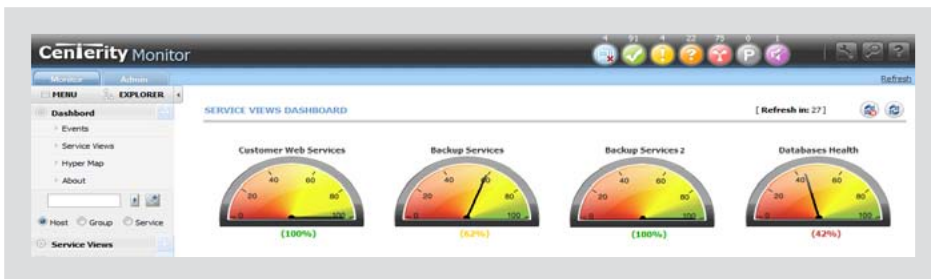


Figure2: Service View Dashboard

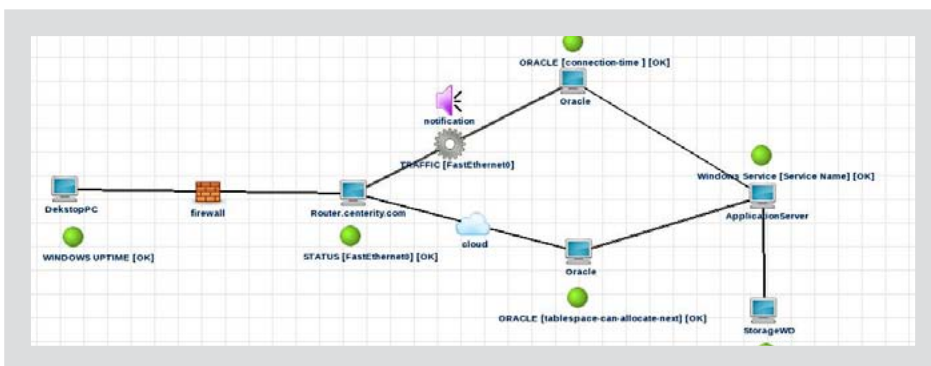


Figure3: Map View

IMPLEMENTATION OF CENTERITY

While the exact system sizing and configuration for this project cannot be shared, it is a very large and complex environment with many non-standard aspects. The Centerity Monitor solution was fully implemented including its synthetic user experience features. The system covers the entire information systems infrastructure including virtual environments. The project was completed in less than 4 weeks. The IAF had to assign one person to the project for implementation and today a single person allocates less than 20% of a their time for daily ongoing operations.

BUSINESS IMPACT OF CENTERITY

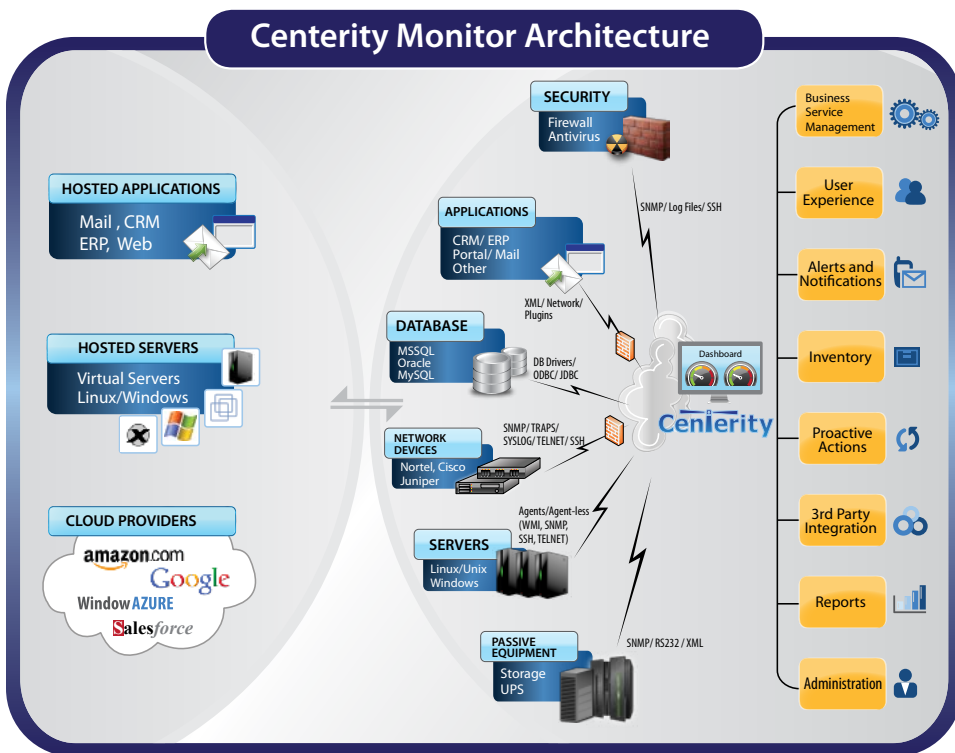
With the greater visibility and the process management afforded by the deployment of Centerity, the IAF can

now monitor and maintain its IT more effectively and at greatly reduced cost. The single most significant contribution of the Centerity system was being able to deliver true BSM at a reasonable cost through its unified platform. The ability to manage business processes, not just elements, had the single biggest positive impact on organizational and operational effectiveness. The IAF reports that it has increased system availability dramatically because it now has the tools to be proactive rather than just reactive. The IAF estimates it was able to reduce MTTR by up to 80%. Ultimately the IAF was able to deploy Centerity at a fraction of the cost in a fraction of the time.

The IAF concluded that Centerity was the most complete solution evaluated in terms of features, functionality and integration and had much greater value to the IAF in terms of visibility into its infrastructure with deployment flexibility and future scalability. The

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Centerity solution reduced the overall risk to the organization in terms of greater availability, reduced MTTR and by providing management deployment flexibility.



Centerity