

NetIQ AppManager Plus NetIQ Operations Center

A Powerful Combination for Attaining Service Performance and Availability Objectives

This paper describes an end-to-end management solution for essential business services that combines systems-level monitoring with service-level federation, mapping, measurement and communication. By adding the NetIQ® Operations Center business service management platform to the industry leading system and application monitoring capabilities of NetIQ AppManager®, IT organizations gain a powerful, service-level view of their environment that reveals the business implications of events in the infrastructure, so administrators can respond before events affect business operations.

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Overload and Isolation: The Limits of Systems- Level Monitoring

Advanced monitoring solutions such as NetIQ AppManager provide IT organizations with essential visibility into the health and performance of all the systems, applications and infrastructure components that contribute to a business service's creation and delivery. Without device-level monitoring, there is simply no way to know a service is in peril before the service desk lights up, or to pinpoint the system-level cause of a service-level failure.

Sophisticated device-level monitoring tools can collect and report a great range of events and data points, but in large environments with thousands of servers and applications, two structural problems emerge:

- **Data overload**—*The sheer volume and velocity of systems-level monitoring data streams makes it difficult to identify the high-priority events that signal a developing infrastructure problem with the potential to impact an important service.*
- **Data isolation**—*Most IT organizations use a variety of tools to instrument and monitor different parts of the environment. The inevitable result is that monitoring data flows into separate, isolated silos, making it difficult to assemble a business service's relevant health and performance information in a single management view.*

These structural problems create several operational challenges for your IT organization:

- *Prioritizing a response that quickly and efficiently addresses systems-level changes in health and performance before they impact service quality.*
- *Even when systems have collected and reported explanatory data, identifying the root cause of service-level incidents can be difficult. The additional time required for analysis and resolution translates directly into longer outages and intervals of reduced quality.*
- *Despite the presence of best-in-class monitoring solutions for systems and applications, service-impacting events continue to cost organizations between one and two percent of revenue annually.*

One conclusion is inescapable: In large IT environments, best-in-class monitoring capabilities alone are insufficient to ensure very high levels of service availability and consistent fulfillment of service level agreements (SLAs). Your IT organization needs a single, integrated service-level view of the systems-level state and performance across all monitoring silos, with automated correlation and near-real-time alerting when any event or data point threatens service quality.

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An Integrated NetIQ Solution: NetIQ AppManager Plus NetIQ Operations Center

With the addition of NetIQ Operations Center, NetIQ offers a complete, tightly integrated solution that extends the industry-leading capabilities of NetIQ AppManager and other popular monitoring technologies with true, enterprise-class business service management.

NetIQ Operations Center monitors, maps and measures complex infrastructure and mission-critical business services. It gives you the end-to-end visibility and decision context necessary to drive higher service quality and availability, and to communicate those achievements effectively to the business. It integrates readily with existing technology investments, optimizes data center resources, supports the flexible adoption and management of new technologies and provides a business-centric view of technology in the data center.

The service measurement capabilities of NetIQ Operations Center ensure that IT organizations can easily track their performance against SLA commitments.

Service Monitoring with NetIQ Operations Center

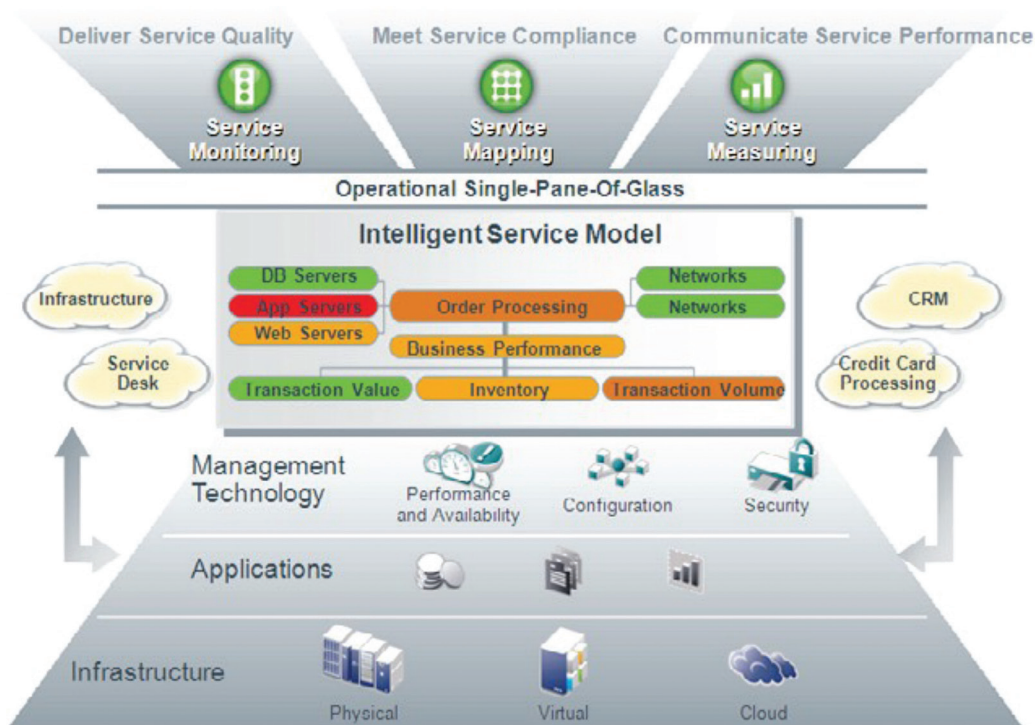
NetIQ Operations Center does not replicate the monitoring capabilities of existing management tools; it consolidates, reconciles and correlates all those freestanding information silos into a live, end-to-end, single-pane-of-glass management view, no matter how complex, distributed or heterogeneous the underlying infrastructure is. Using rule-based, automated prioritization and weighting, NetIQ Operation Center integrates technical health and performance metrics with business-level goals and priorities within its monitoring view, allowing your IT staff to accurately and efficiently prioritize its response to changes in service states.

Service Measuring with NetIQ Operations Center

NetIQ Operations Center measures service level quality and reports performance against SLA commitments, both in historical context and in near real time. It supports collaboration between IT and the business organization with configurable dashboards you can easily tailor to any business role or information need, transforming complex views of the IT infrastructure into easy-to-understand business communications. The service measurement capabilities of NetIQ Operations Center ensure that IT organizations can easily track their performance against SLA commitments. Built-in predictive algorithms forecast SLA compliance trends and alert administrators of developing service level issues before they can impact the user experience.

Service Mapping with NetIQ Operations Center

NetIQ Operations Center draws on all available sources of infrastructure information—physical inventory data, interdevice communications, network topology mapping—to automatically build a service-model view of the environment and maintain it through synchronization with change and configuration management. With a built-in configuration management system (CMS), federated configuration management database (CMDB) and a fully integrated approach to discovery and dependency mapping, NetIQ Operations Center can map the most complex physical, virtual, cloud and multisourced infrastructures to create a clear path to service compliance.



NetIQ Operations Center provides integration with virtually any monitoring or management solution through more than 70 integration modules.

Fig. 1

NetIQ Operations Center architecture. Key: CRM = Customer relationship management, DB = database.

Key Features

- **Universal integration**—NetIQ Operations Center provides integration with virtually any monitoring or management solution through more than 70 integration modules, including those for NetIQ AppManager Control Center and individual query databases (QDBs), each of which surfaces all the target application's functional capabilities.
- **An automated state-driven service model**—NetIQ Operations Center automatically generates and updates a service model of the infrastructure that captures each component, its near-real-time state, the services it supports, and the relationships between components and services. This state-driven model provides the basis for monitoring, managing and visualizing the IT services that support your organization's key business services.

When you deploy NetIQ Operations Center in a large IT environment that you have instrumented with NetIQ AppManager or virtually any other systems or network management solutions, the improvement in business service availability and SLA attainment is rapid and dramatic.

The service model's power lies in its flexibility. Objects can represent physical elements such as a server or application, or logical entities such as an online trading service. The model also captures the ways in which objects interact—the way response time data relates to server-to-server communication, for instance.

- **A federated configuration management database (CMDB)**—NetIQ Operations Center federates configuration information from frontline management tools, creating a live CMDB without replicating any of the source data. Support for discovery, reconciliation and synchronization automates the CMDB, creating a configuration management service (CMS), an essential resource for managing change and enforcing configuration standards.
- **A socially networked configuration management system**—The NetIQ Operations Center configuration management system exposes CMDB management and change processes to communities of concerned users through interactive services based on familiar social networking techniques.
- **Configurable Web 2.0-based dashboards**—Easily configured role-based dashboards provide user access to NetIQ Operations Center service information. The dashboards integrate, correlate and display real-time data feeds from all monitoring and management tools in the environment.

These dashboards are bi-directionally interactive, allowing you to control and command the tools that directly manage the environment.

Improved Service Quality, Diagnostic Speed and Operational Efficiency

When you deploy NetIQ Operations Center in a large IT environment that you have instrumented with NetIQ AppManager or virtually any other systems or network management solutions, the improvement in business service availability and SLA attainment is rapid and dramatic. Most organizations report a 75 percent reduction in service-impacting events. The combined solutions commonly reduce the time to solution for incident root cause analysis by 90 percent. Combining NetIQ Operations Center with NetIQ AppManager also aligns incident and event response efforts with business priorities, contributing to an improvement in IT resource utilization. In most cases, you can achieve alignment with business objectives within 90 days of deployment and continue to enrich the deployment over time.

End-to-End Service Management with NetIQ AppManager and NetIQ Operations Center

To understand how these improvements are possible, let's look at how NetIQ AppManager and NetIQ Operations Center integrate and interact with other monitoring tools and business data sources to help ACME Manufacturing's IT organization improve the availability, performance and SLA compliance of a critical business service.

ACME has developed an order processing service to monitor and manage customer orders across the entire fulfillment process, from order entry through raw material acquisition, production scheduling, delivery and billing. This is a complex, multistage process in which each major sub-process has its own management systems, applications and supporting IT infrastructure.

To manage the infrastructure, ACME has deployed various monitoring tools, including NetIQ AppManager, which provide a large volume of information about the health and performance of the individual servers, applications, network devices and traffic. Yet the availability and performance of the overall order processing service has not been satisfactory.

Recurrent problems have impaired order entry, production and invoicing, with significant impacts on cash flow. Incident resolution has often required many hours of effort by many members of different technology management teams, in part because they must gather monitoring data and correlate it across multiple management silos to assemble a complete view of infrastructure events and business impacts.

To create that view in near real time, ACME's IT organization has deployed NetIQ Operations Center as a single point of integration and management for all the incoming information about ACME's environment, the services IT supports, and the quality of service IT is providing.

Here's how that order processing service appears to the IT staff now.

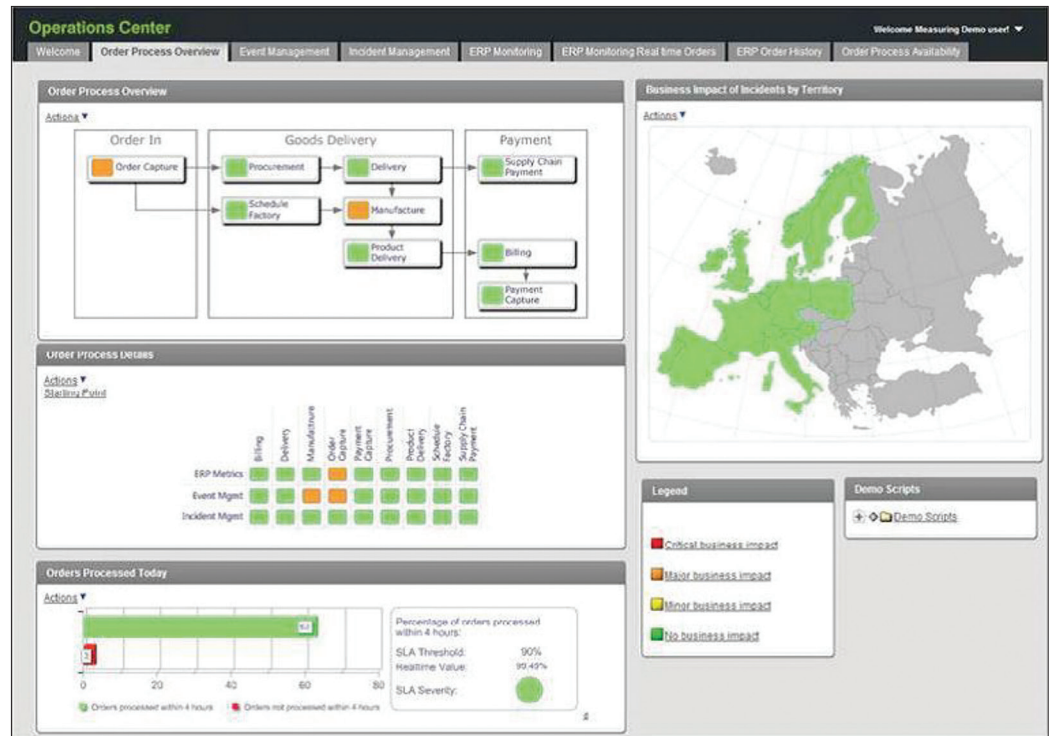


Fig. 2

A view of ACME Manufacturing's order processing service in NetIQ Operations Center

Correlating Events and Services

Figure 2 shows the high-level dashboard overview of ACME's order processing service as NetIQ Operations Center delivers it through its web-based portal. This view integrates data feeds from three sources:

- Systems and application event monitoring data from NetIQ AppManager
- An incident management system
- ACME's enterprise resource planning (ERP) system

NetIQ Operations Center correlates the raw feeds from these source systems based on a service model it creates automatically. Operations Center also interprets the feeds based on business rules that govern state determination and propagation.

Four portlets provide the core information content. At the upper left of Figure 2 (*previous page*), a Service Overview portlet provides health state readings for each stage or subsystem in the order processing lifecycle. It currently shows major alarms for two: order capture and manufacturing.

Directly below, the Order Process Details portlet shows status indicators for each step in the order processing sequence, and for each of the three monitoring data sources. This view tells us both NetIQ AppManager and the ERP system are signaling alarms for the order capture subsystem, while the manufacturing subsystem alarm originates solely from NetIQ AppManager.

At bottom left, an Orders Processed Today portlet notes the current number of orders processed within and beyond the target threshold of four hours after receipt. It also displays a real-time measure of performance against the overall order processing SLA: 90 percent of all orders processed within four hours. The current performance level of 95.45 percent is safely in the green zone.

Finally, the map at upper right is linked to the Incident Management system and indicates where users are reporting service quality issues. This tells us the alarm conditions that ACME's monitoring systems are reporting have yet to affect the user experience.

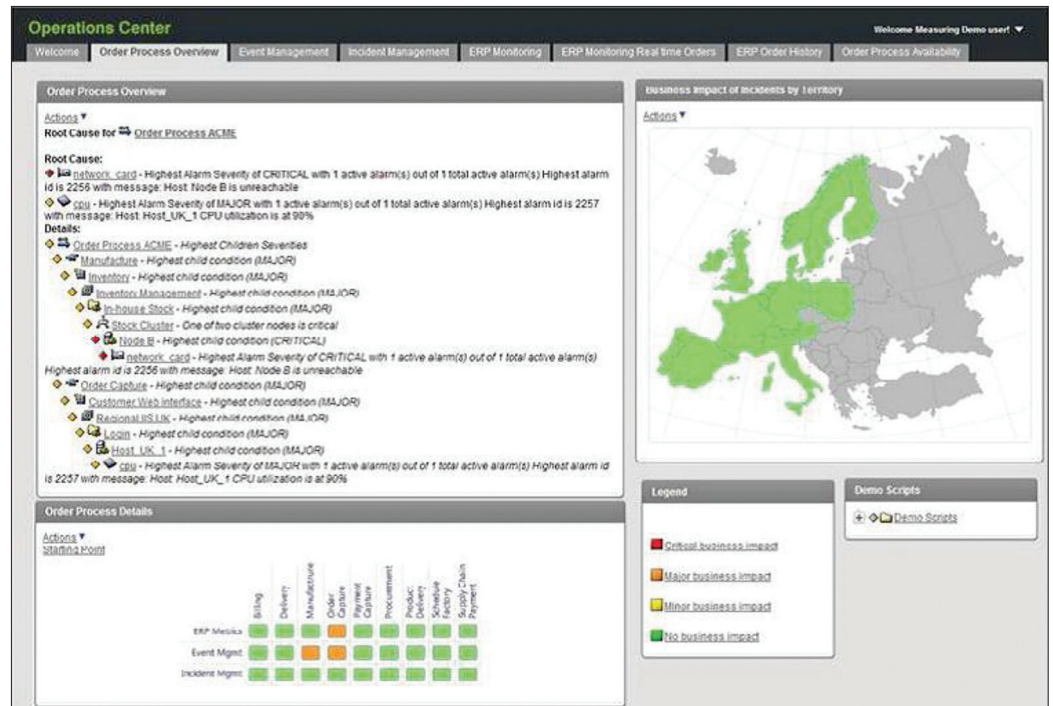


Fig. 3

A view of the monitoring system events that have triggered the current service health alerts

Rooting Out Root Cause

The two hierarchies that now appear tell us the manufacturing alarm relates to a network card failure in the B node of a server cluster running part of an inventory management system. Because the system is still available through the remaining cluster nodes, Operations Center has rated this as a major—not critical—alarm.

The order capture alarm relates to a 90 percent CPU utilization measurement in a web server supporting the login process for a regional customer interface application in the UK. Because NetIQ Operations Center has not yet correlated any customer complaints with this event, NetIQ Operations Center has also rated this alarm major.

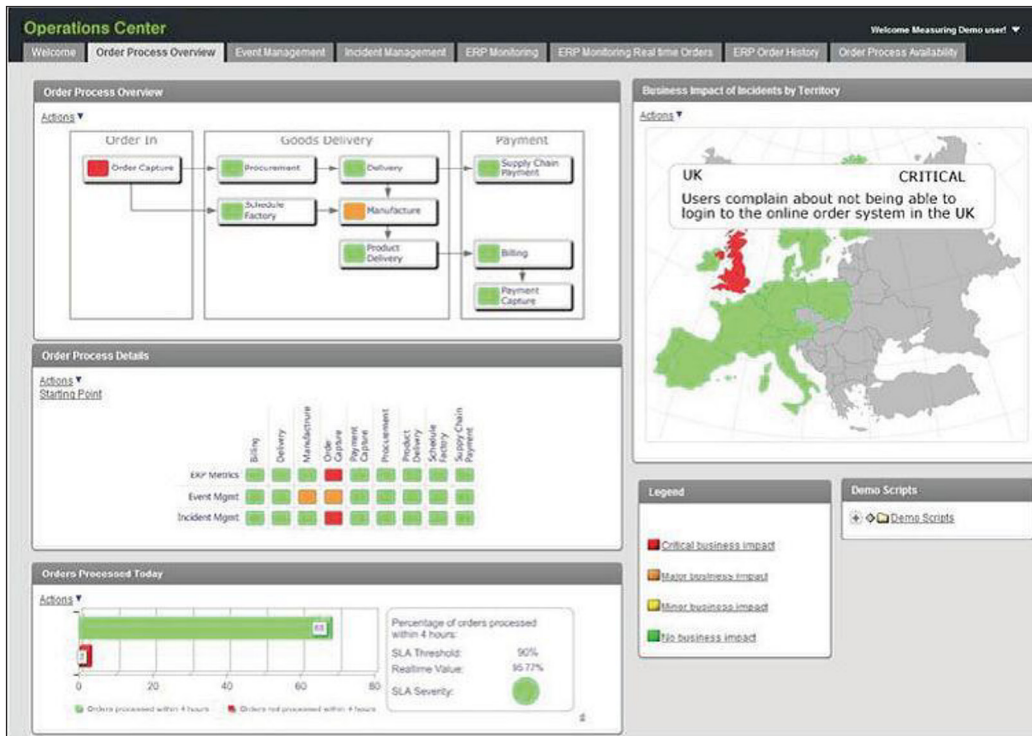


Fig. 4

An overview of ACME's order processing service showing a critical alarm

Incorporating Incident Management

If the IT organization doesn't respond before one of the reported events causes a negative impact on service quality, that impact will be visible through Operations Center as shown in Figure 4. The Business Impact portlet is now showing a critical alarm condition in the UK, while the Process Overview and Process Detail portlets locate that impact logically in the order capture subsystem.

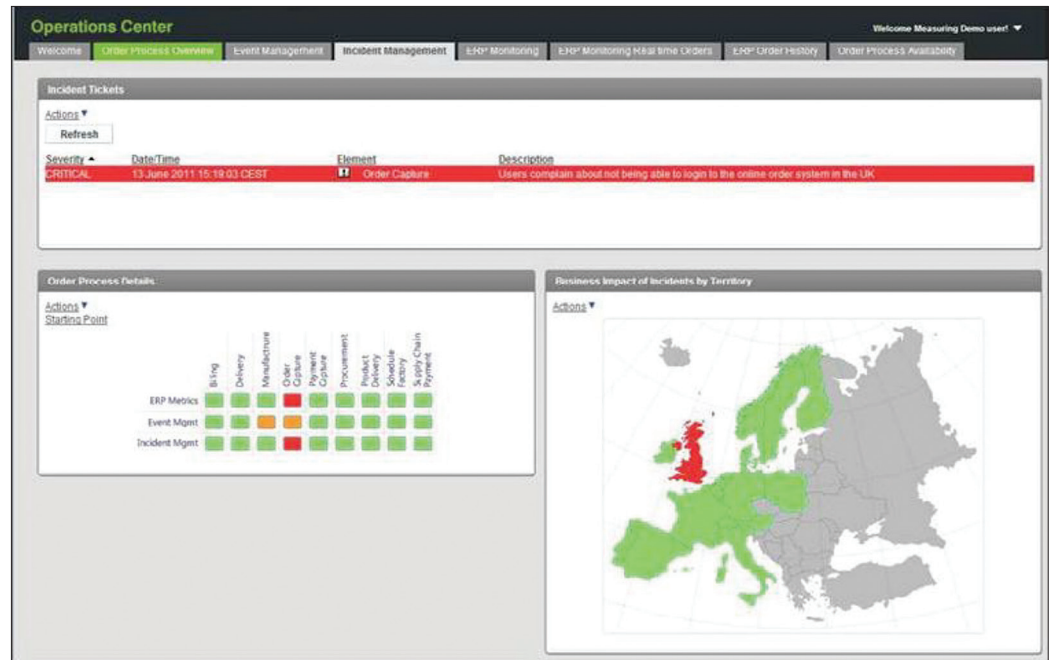


Fig. 5

An Incident Management detail view in NetIQ Operations Center

Because ACME has integrated NetIQ Operations Center with its incident management system, ACME can easily access detailed information about any open ticket, including, as we see in Figure 5, the timestamp, service subsystem affected and a description: *Users complain about not being able to login to the online order system in the UK*. Because the issue is now affecting users, Operations Center has issued a critical-level alarm based on this event and ACME's business rules for state assessment and propagation.

We learned earlier of high CPU utilization in a UK web server supporting user login to the online order subsystem. Now those users are reporting login problems. The two events are almost certainly related, but what is the business impact? Because ACME has integrated NetIQ Operations Center with its ERP system, that too is easy to see.

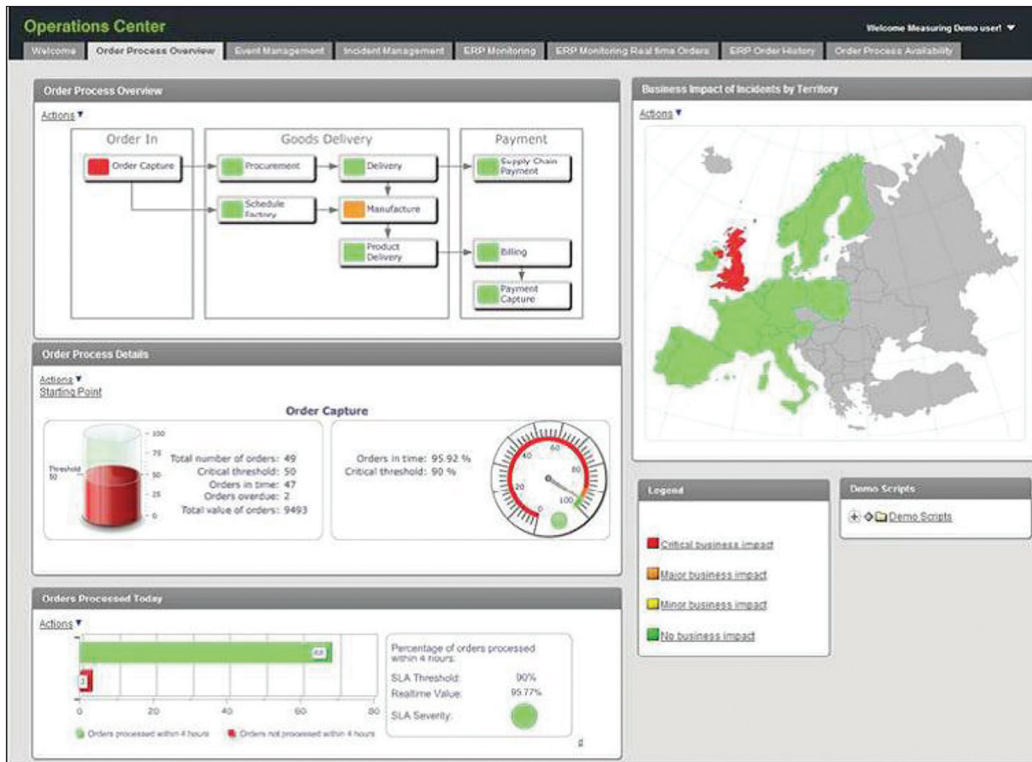


Fig. 6

An order processing service overview with near-real-time detail on the order capture sub-process gathered from the ERP system

Assessing Business Impact and Prioritizing Response

Because NetIQ Operations Center is integrated with ACME's ERP system, we can drill down into details of the current order capture processing queue. As we see in Figure 6, the order capture subsystem now holds 49 orders versus a minimum threshold of 50. This seems to confirm that the web server CPU issue is preventing new order entries, which will quickly affect sales and revenue.

With this information in hand, ACME's IT staff can clearly see that it has two sets of events impacting separate areas of the order processing service. One event is currently affecting users and will soon impact revenue and SLA compliance. The other event is not yet affecting

service performance or operations. Their priorities for incident response are equally clear, as are the nature and location of the root causes. Remediation can proceed quickly, accurately and efficiently.



Fig. 7

A view of SLA compliance trends for ACME's order processing service

Reporting SLA Compliance and Availability

By mapping NetIQ AppManager monitoring data to the relevant business services and enriching the service model with incident and operational data, NetIQ Operations Center is helping ACME's IT organization improve both its SLA compliance and its service's overall availability. NetIQ Operations Center is also giving the team the tools it needs to measure and report those improvements.

The Order Processing History portlet in Figure 7 shows the number of orders processed within the four-hour SLA interval (green) and the number that exceeded that limit (red) as two-month historical trends. Various other interval views are available.

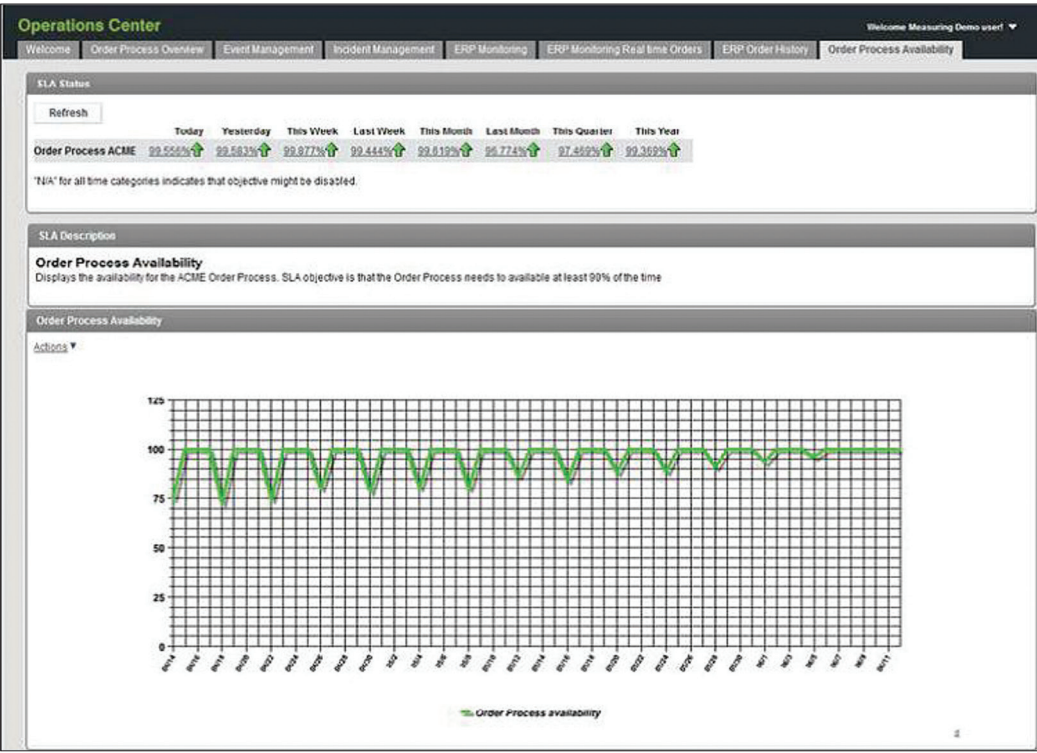


Fig. 8

A view of order processing service availability history

The portlet in Figure 8 shows availability history for the order processing service over the same two-month interval. Both these views are available to business users and management as well as IT, providing a single source of compliance information for all service stakeholders throughout the business.

By helping organizations align the technologies and hybrid delivery of services, only NetIQ delivers customer value at the speed of business.

Step Up to End-to-End Service Level Management with NetIQ AppManager and NetIQ Operations Center

In today's large IT environments, managing mission-critical business services with systems-level monitoring tools alone is next to impossible, even with industry leading solutions such as NetIQ AppManager. Too much information is simply coming at you too quickly, with too little business context. NetIQ Operations Center integrates and correlates the events and performance data streams from all your frontline management tools, creating real-time service-level views that you can easily tailor through configuration for a wide range of business and technical users. NetIQ Operations Center leverages your existing management tool investments, proactively monitors services to avoid quality-impacting events, and speeds root cause analysis when incidents do occur. It achieves all this at lower cost than business service management (BSM) solutions from the biggest four IT vendors while eliminating the risk of single-vendor lock-in.

For more information on how NetIQ Operations Center extends NetIQ AppManager capabilities to true business service management, contact NetIQ today at: **www.netiq.com**

About NetIQ

NetIQ is a global enterprise software company that meets the demands of hybrid IT with solutions for identity and access management, security and data center management. Our customers and partners can more easily manage IT complexity, reduce organizational risk, and capitalize on emerging opportunities. By helping organizations align the technologies and hybrid delivery of services, only NetIQ delivers customer value at the speed of business.

To learn more about our award-winning solutions, visit: **www.netiq.com**

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