

New Generation of Service Delivery Platforms

Reducing Launch Risk and Safeguarding
Profitability with New Solutions for
Performance Management

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CA WILY TECHNOLOGY

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Executive Summary

Challenge

As more IP-based services are deployed on converged standards-based Service Delivery Platforms (SDPs), operators are facing new challenges in assuring top quality of both service and experience to end users and partners. The traditional network-based service assurance tools cannot provide the comprehensive real-time data required to support the strict SLAs for partners and 3rd-party content providers, dynamic capacity planning, and new revenue assurance and sharing models because of several factors. These factors are the distributed nature of SDPs, the separation of the service transport layer from the service execution (business logic), and the increasing use of IT-like standards and platforms.

Opportunity

A new kind of solution is emerging as an essential component of next-generation SDPs—a performance-monitoring enabler within the SDP architecture. This enabler must be able to collect the vital metrics from different layers and elements comprising the SDP environment, and correlate this data with real user-generated transactions in real time. Deep visibility into the services execution environment, ability to monitor data streams to/from the network and partner gateways, and understanding of the real end-user experience are becoming increasingly critical for the proper functioning of SDPs.

Benefits

A performance-monitoring enabler solution from CA Wily Technology safeguards delivery of services and assures customer satisfaction while reducing operational costs and overhead. This unified cross-components multi-platform solution offers the following key benefits to SDP operators:

- Real-time deep performance monitoring of SDP infrastructure, mission critical applications, and subscriber services
- Customer experience management correlated with service performance
- Visibility into SDP components added to service assurance and other OSS/BSS processes, providing real-time alignment of SDP operations with business and network operations
- Risk management of new service creation and deployment
- Support for major Java and .NET platforms and most common operating systems
- Ability to integrate with network management, and broader IT management solution based on standards (JMX, SNMP)

Introduction

Service Delivery Platforms (SDPs) and network migration to IP multimedia Subsystems (IMS) are strategic investments allowing operators to provide more innovative services to subscribers and businesses. At the same time they are disruptive to the traditional network-centric management solutions based on clear association of service, server, and operational ownership. SDPs and IMS separate management of delivery channels (the transport mechanisms for the service) from the management of the service value chain (the runtime relationship between the end-user, operator, content publisher, and service providers), making service performance management a distributed task. Moreover, each subscriber application class (video streaming, messaging, or VoIP) has a different model and data sources for providing service-specific performance metrics.

To overcome limitations of managing performance and availability of SDPs with traditional network-centric management tools, visionary operators making such strategic investments are looking for new solutions which are able to correlate in real-time customer experience with the performance of service execution and delivery. Only such solutions allow an operator to control cost of service performance versus revenue from subscriber's usage, analyze business impact of missing service level objectives, and take immediate corrective action.

CA Wily Technology meets such demand with a solution to safeguard delivery of services and assure customer satisfaction while operating an SDP at lower costs or performance overhead.

As operators begin to view assurance from a customer, in addition to a network, perspective, they are combining traditional network-facing assurance functions such as fault management and performance management with customer-facing assurance functions such as service quality management and customer care, enabling a more holistic view of the customer's experience of the service.

Shira Levine, IDC,
February 2008

Service Delivery Platforms as Strategic Investment

SDPs are complex, distributed software solutions providing the infrastructure and framework services for the rapid deployment, provisioning, execution, management, and billing of value added services independent of networks and devices. With SDPs each operator and service provider can use a commodity platform to launch and trial as many combined services as possible, using flexible and attractive charging models supported by a shared investment and with little impact on the network.

IMS is another strategic investment, allowing operators to get closer to the internet model and leverage network value into new, customer-centric services at lower operational costs.

While influenced by IT architectural concepts like J2EE and .NET, open APIs, SOA, and Business Process Management, any SDP solution is deployed as an overlay to core network elements and services. As such, SDP is becoming the responsibility of network operations teams. The adoption of standards-based software platforms in the network domain has already been advanced by network equipment providers who embed commodity application servers into their products to lower the cost while enhancing their features programmability and their integration capability.

In this new quest for providing value to their customers

- Are the network operations teams enabled with the right tools and methodologies to reduce the risk of SDP deployments into the network, launch new services, and monitor performance and availability of a complex, distributed, pure software infrastructure?
- Are they really in control of services runtime and able to report into business operations on their customers experience with the service or the level of usage of their network assets?
- If a problem arises, do service providers have the ability to triage the problem in real time and then do deep-dive diagnostics to facilitate fixing the problem?

SDP provides the service creation and execution environment, but it abstracts the complexities of telecommunication signaling and infrastructure from the application programmer. This brings with it new IT infrastructure components and the need to manage services with the same quality and reliability of SS7 and switched networks.

Patrick Kelly, OSS Observer,
November 2007

Problems Controlling Performance and Availability of SDPs with Just Traditional Network-Centric Solutions

To answer such questions, IT or network operation teams use the common language of performance. They use performance metrics to make decisions to address customer satisfaction level and service delivery costs or to better understand the availability level of the platforms and services they operate.

Progressive organizations already understand that good performance measurements are the enabler of service quality, and are looking for standards to guide them. Unfortunately, they are finding that the deployment of SDPs, IMS, and mobile services has outpaced what standard bodies can specify for performance measurement. SDPs move the service execution out of the network context. The service execution happens inside the SDP and depends on subscriber-related information (subscriber profile including the contractual Quality of Service) as well as network related information (network-connecting enablers that are available at the service execution time for the requested Quality of Service). The service execution on the software platform is what a subscriber really experiences. This is the only context in which an operator has the opportunity to make a difference.

If network operation teams want to understand what performance at service execution time is, and correlate that with business rules and network status, they need a performance monitoring solution that fits between these 2 layers (business processes and network resources) and is intimately integrated into an SDP's architecture.

Network-centric management solutions are not sufficient because they do not have the visibility into distributed software or service composition at runtime. Monitoring the service anywhere on an SDP must happen at those component interfaces where the service is contracted, at execution time when the service is delivered, and from the inside of each component, to gain insight into resource usage for executing the service. Traditional network management frameworks based on active probes pinging for response time or collecting performance metrics files will treat services or applications as technology silos disconnected from the rest of the environment. They can not "see" the functional components and the runtime behavior of a service (e.g. how do methods calls perform at component interfaces) or the dynamics of resource consumption (e.g. depletion of connection pools, constant increase in memory usage, sockets bandwidth, etc).

When something goes wrong on the SDP, what can a network manager do to identify the root cause of the problem before customers begin complaining about service degradation? Without visibility in the service layer, how can network operations teams stop this degradation?

Service and technology innovations require new operational solutions in order to assure the same high level of service quality as traditional networks offered.

Performance should be monitored at many levels, in order to get the big picture—not just at network element level, but also at the transaction level. Ideally, operators will increasingly look to real-time tools in order to respond immediately to issues rather than having to clear them up later, once the damage to their reputation has already been done.

Jessica Figueras, Ovum,
October 2007

CA Wily's Solution to Safeguard Delivery of Services and Assure Customer Satisfaction

Service Delivery Platforms, just like other mission-critical distributed software in operator's network such as billing engines, customer care systems or core network services, need a new generation of performance monitoring solution able to:

- Collect performance metrics from the inside of the service delivery components
- Collect performance metrics of back-end resources while their usage is driven by real user transactions or business processes
- Automatically discover a service as it is deployed on a platform and start monitoring its performance when and if the service is invoked by its subscribers
- Automatically detect changes in software components when services are replaced with newer versions, thus being able to correlate performance degradation with such events
- Meet the top-down approach for service Key Quality Indicators (KQI) and Key Performance Indicators (KPI) modeling, with the bottom-up collection of granular metrics and their aggregation to meaningful KPIs
- Monitor customer experience as services are invoked from the device and be able to tie this data back to the service execution processes running inside of the software platform

This approach not only monitors service performance, but also captures information that can be fed into decision processes fast enough to influence a service during its runtime. For example, monitoring how close a content provider is from reaching its allocated quota of messages can signal automatic contract renegotiation and prevent service interruption for subscribers who are currently downloading content from that provider. This results in revenue protection for operator and content provider as well as increased customer satisfaction.

Telecom operators must have visibility of the operation and execution of services in this new environment. They must establish processes to track the customer's experience of the service, including the ordering process and the execution of the service.

Peter Mottishaw, OSS Observer,
September 2007

Monitoring application and web service transactions combined with object-oriented modeling will provide more robust management to represent the new services created from the SDP.

Patrick Kelly, OSS Observer,
November 2007

To meet these requirements of managing SDP services performance, CA Wily Technology proposes a solution that is based on three core elements:

1. **CA WILY INTROSCOPE®** identifies when a problem occurs or is going to occur and provides the information necessary to fix the problem. It collects and aggregates data that is needed to assess performance and availability of services and resources of the SDP, and is compatible with the technology stacks chosen for various SDP implementations (Java/J2EE/JSLEE or .NET, SIP, XML/SOAP/Web Services, databases, and HTTP servers, etc.). It creates and stores consistent sets of data (metrics and transaction traces) reflecting real-time SDP infrastructure and services performance as they are invoked by subscribers or supporting processes. From this consistent set of data, CA Wily serves business or operations-focused dashboards, drill-downs into specific components performance and executes actions in support of business or network operations. Through custom or standard reference integration points, this solution can be integrated in any existing end-to-end service assurance or customer care and billing system extending their operational visibility to SDP services, a unique value proposition from CA Wily.
2. **CA WILY CUSTOMER EXPERIENCE MANAGER (CEM)** detects and analyses the real-time experience of a subscriber, identified by its Mobile Station International ISDN Number (if present in the http header) as transactions are executed through a web interface (e.g. a mobile portal, self-service portal, etc.). It can correlate these transactions with transaction traced and metrics collected by the performance monitoring enabler inside the SDP. CEM can also detect and analyze business-to-business transactions carried through Web Services invocations.
3. **SERVICE MODELING** is usually a SDP vendor or integrator-chosen methodology that analyzes service description and architecture, service level objectives, agreements, service operating constraints, and integration requirements with operations and business processes. It then derives a service monitoring model that contains the data sources for metrics collections, calculations for KPIs and KQIs as well as threshold definitions for SLAs. With the solution from CA Wily, the service model is implemented as a set of role-based, customized dashboards. Using a provided dashboard development kit, operators can map any metric into an active graphical control representing a specific element of the service delivery chain, both of business or technical types. By linking these controls and dashboards together for drill-down and correlation views, operators can build service models that are visualized and easy to monitor.

Using this unified, cross-components, platform-wide performance and availability monitoring solution, service providers benefit from:

- Real-time performance monitoring of SDP mission critical layers and subscriber services
- Customer experience monitoring and correlation with service performance
- Visibility into SDP components added to service assurance and other OSS/BSS processes providing real-time alignment of SDP operations with business and network operations;
- Risk management of new service creation and deployment
- Ability to integrate with network management, and broader it management solution based on standards (JMX, SNMP)

Operators can rely on CA Wily's solution for managing performance of their service platforms by monitoring and reporting on service levels much closer to real-time than any network performance standard specifies. In addition, CA Wily's solution offers the ability to quickly isolate and diagnose service performance problems.

Conclusion

CA Wily proposes that performance monitoring must become a core function of any SDP and that a performance monitoring enabler should be added to any SDP architecture. This solution reduces cost and complexity of SDP performance management by offering one enabler that can be integrated with many external management applications, services and processes making available the metrics collected from different functional components of the SDP, from subscriber services deployed on it, and user-driven interactions with these services. Having a built-in performance monitoring enabler as part of each SDP deployment lowers the risks of introducing new innovative services by detecting problems before they start affecting the real users, thus fulfilling SDP's promise of quick rollout of new services at lower costs. This makes the strategic investment into SDP a safe decision for operators.

CA Wily's performance monitoring solution is specially designed for portals, Web Services, and distributed and high-performance web execution environments, which are typical for most SDP solutions. CA Wily is the acknowledged leader for web application and server performance management in critical and complex deployments. CA Wily's performance instrumentation is standards-based and does not require application source code modification. It has the least impact on performance compared to any other solution for the same quality and depth of performance data it collects and analyzes.

CA Wily's solution is based on proven products that are currently used by all top 10 operators worldwide. CA Wily's Professional Services organization has deep expertise in rolling out performance and availability monitoring solutions in the most complex billing, provisioning, customer care, and services delivery environments.

About CA Wily Technology

CA Wily Technology is the market-leading provider of enterprise application performance management solutions. For telecommunication industry, CA Wily provides performance management software for standards-based service delivery platforms, subscriber services, business processes and related OSS/BSS infrastructure to help IT and network operations staff at telecommunications companies increase the availability and the performance of their applications and services, improve customer satisfaction, lower costs and assure revenue.

Through end-to-end visibility into customer transactions in real time, CA Wily's products enable organizations to successfully manage the health and availability of their critical applications and infrastructure. This means better customer service, more stable revenue streams, and higher it productivity. To learn more about CA Wily's telecommunications offering, visit <http://www.wilytech.com/solutions/industry/telecommunication.html>

To learn more, and see how CA software solutions enable other organizations to unify and simplify IT management for better business results, visit ca.com/customers.

CA, one of the world's largest information technology (IT) management software companies, unifies and simplifies the management of enterprise-wide IT for greater business results. Our vision, tools and expertise help customers manage risk, improve service, manage costs and align their IT investments with their business needs.

CA Wily Technology is the market-leading provider of Enterprise Application Management solutions. By delivering end-to-end visibility into customer transactions in real time, products from CA Wily Technology enable companies to successfully manage the health and availability of their critical web applications and infrastructure. CA's collaborative management approach allows enterprises to rapidly detect and diagnose application slowdowns and failures, and better assess the impact of application performance on business success. This means better customer service, more stable revenue streams, and higher IT productivity.