INDUSTRY BRIEF

Progress Apama

MANAGING ASSURANCE FROM CUSTOMER TO NETWORK TO SERVICE WITH COMPLEX EVENT PROCESSING

PROGRESS SOFTWARE

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INTRODUCTION

The communications industry continues to undergo tremendous transformation. Deregulation has reduced many of the market barriers among telephone, network, satellite and cable providers. In addition, digital convergence allows providers to move beyond their historical legacy to deliver services comprised of various combinations of voice, data, SMS, music and video. This convergence has created a virtual supply chain where providers now require greater visibility and control over their contributing services. The result is fierce competition among providers, who now target the same customers with a varied array of offerings. With worldwide wireless subscriber population now over 2 billion (and projected to grow to nearly 4 billion before the end of the decade) the battle is increasingly one in which providers compete to deliver multiple services across their networks. The demand for video, voice, and data, combined with personalized services, puts the subscriber in the driver's seat.

Given the market dynamics, communications service providers (CSPs) cannot succeed without a reliable and flexible OSS infrastructure that quickly provisions new services, offers Quality of Service (QoS) assurance, provides timely and accurate billing, and handles back-end mediation to service and content providers. Legacy systems designed around fixed locations, mature service offerings, and monthly billing cycles must transform themselves into dynamic operational and billing systems. In many environments, operations that might have taken days or weeks to complete in the past must now happen in minutes—or seconds. This increase in business velocity puts pressure on CSPs to improve their operational responsiveness in order to make situations that jeopardize customer loyalty a thing of the past.

Complex Event Processing is one technology that can help CSPs. It improves responsiveness by delivering unprecedented visibility and control of real-time business events. The Progress® Apama® Complex Event Processing platform works alongside your existing OSS/BSS systems while receiving and analyzing real-time network information regardless of type or location. With Apama's capabilities, organizations can now monitor, analyze, and act on the potentially massive amounts of event data generated by the different components of the communications infrastructure. Apama can help the CSP know the operational state of the network—and know it quickly enough to act. And with Apama, the service provider has access to tools that are optimized for real-time event correlation services that can transform low-level network data into operationally relevant information. Assurance, customer, network and service can be optimized to meet customer demands from convergent billing to service requests.

TELECOM BILLING

Service providers cannot deliver new services without commensurate enhancement to underlying billing capabilities. For emerging networks, content-based billing is a key requirement. In modern networks, communications providers often serve as intermediaries between content providers and subscribers, delivering the content without actually owning it. Content is often delivered on demand. Classic flat-rate or packaged billing models that cannot identify the content transported cannot apportion charges to subscribers based on what they consume. Nor can they execute the mediation required to compensate content providers. That means overcharging subscribers for services they don't want or giving services away at a discount, but still absorbing the mediation costs of compensating content providers. Also content-based billing must execute quickly since IP-based services permit the rapid accumulation of charges that can quickly reach pre-paid thresholds. Per the International Engineering Consortium (IEC) "to perform balance management and authorization for 3G services, the billing system must return a price for an ordered good or service in a sub-second timeframe."[1]

Industry experts predict growing significant demand for "real-time charging" that will supplant traditional mediation capabilities and is driven by the need to support new services on the network, together with pre-pay billing capabilities. With Apama, providers' billing systems can gather—in milliseconds—usage-specific billing information that ensures a service provider knows what is happening with respect to content type, customer, duration and location—and can apportion charges so that subscribers are billed appropriately. Additionally, the flexible Apama graphical development environment means that service providers can quickly adopt new bill models to address customer specific segmentations or other business requirements.

QOS AND SERVICE-LEVEL ASSURANCE

Meeting the service-level management demands of modern networks is a challenging task. Contracts with enterprise customers often specify minimum bandwidth availability, burst bandwidth availability, the uptime percentage commitment, associated penalties for not meeting those commitments, and QoS prioritization of traffic content. Monitoring compliance with such metrics is not an end-of-month reporting function—it is a real time monitoring and response operation. Furthermore, market pressures increasingly compel wireless service providers to continually modify offerings to accommodate the demands of subscribers, competitor initiatives and the generally accelerating demands for new products. Each new service or package of services must be implemented within the network with an understanding of service commitments and the impact of new services on existing offerings.

[1]www.iec.org

Apama provides the real-time tools that can capture network events, determine the operational significance of those events through highly sophisticated, real-time analytics and correlation and then deliver actionable response. And it can do so in milliseconds. With Apama's adapter framework, network operators have a mechanism to correlate different event types—at all levels of the network—rather than being restricted to analysis of individual events or events of a single type like many element management systems. Additionally, Apama's event processing language naturally captures temporal relationships among events with none of the programming machinations required of many languages. This greatly facilitates the establishment, implementation and modification of crucial time-centric QoS metrics that ensure that content-based routing/delivery, round trips and other measurements meet requirements as defined within SLAs.

TELECOM SECURITY AND FRAUD DETECTION

Market estimates of telecom fraud range between $35–$40B dollars annually, a loss of 3–5% for service providers. Whether through organized crime or individual hackers, the open architecture of new networks leaves them prey to sophisticated communications predators. Such predators can overwhelm networks with denial-of-service attacks, poach and spoof user IDs, alter IP packets to illegitimately use bandwidth or conduct other activities that put subscribers at risk or constitute theft of service from the service provider. Service providers cannot deploy bullet proof networks because:

1. One-hundred percent (100%) security cannot be achieved.

2. Open, flexible access is prized by subscribers.

3. New services are continually introduced, requiring continual update of security practices.

The only 100% secure network is likely one that nobody uses.

Absent 100% security, the optimal solution is 100% vigilance. Apama enables telecom service providers to monitor what is happening on the network in real time, execute sub-second analysis that can identify events or event patterns suggesting something is amiss and trigger alerts or responses that pre-empt damage. With Apama, service providers can leverage an event processing platform that has been proven in the most demanding of environments—algorithmic trading financial services—for executing such real-time network monitoring and analysis. Apama enables organizations to automate and deploy new fraud detection algorithms and perform both the attribute and temporal analysis that identifies out-of-norm patterns based on time of day, location, user ID or other established benchmarks. And with Apama, the analysis happens in milliseconds, helping to minimize the damages to both network provider and subscriber.

LOCATION-BASED SERVICES

Wireless subscriber mobility prompts many to suggest that service providers can reap significant revenues from deployment of location-based services in certain application areas. E-911 initiatives—increasingly mandated by regulators—are perhaps the most noteworthy. But others abound as well for fleet management (truck, taxi or car), inventory tracking within supply chains (RFID), hazardous waste monitoring, the tracking of children in amusement parks and other specialized applications. Increasingly, enterprises will seek out cost-effective providers of such services rather than implement customized, expensive home-grown deployments.

On the horizon, location-based services, in which advertisers make targeted promotions with real-time offers, will require service response well beyond existing solutions. By combining temporal (time-based) and spatial (GIS/GPS) events alongside subscriber preferences, CSPs can offer their advertisers "in-the-moment" response to network users for their services.

With Apama, telecom service providers can aggressively market an array of specialized location-based services based on the location of consumer wireless or mounted telematics devices within networks. Apama's sophisticated analytics can quickly execute the geo-coded triangulation needed to more precisely position the location of wireless signal transmission. Whether for emergency response, track and trace of asset/people movement or the marketing of local goods and services tied to the consumer location, Apama provides an event processing platform that enables telecom service providers to flexibly deliver a whole host of location-specific services.

SUMMARY

Regulatory, economic and technology changes have roiled the telecommunications market over the last decade. That dynamic environment is not going to change. Mobile usage is growing; the demand for new forms of on-demand content will continue to expand; and IP delivery will continue to supplant the classic PSTN networks of days gone by. CSPs need a robust and agile infrastructure to compete successfully.

Complex Event Processing provides the foundation for such capabilities. With Apama, the CSP has access to a unique event processing language paradigm and graphical development environment that ensure it can respond to real-time requirements with the agility to adjust to changing business conditions. Apama is the kind of platform that will soon become essential to an intelligent, next-generation communications network.

PROGRESS
SOFTWARE

Worldwide Headquarters
Progress Software Corporation, 14 Oak Park, Bedford, MA 01730 USA
Tel: +1 781 280-4000 Fax: +1 781 280-4095
www.progress.com

For regional international office locations and contact information, please refer to www.progress.com/worldwide