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Measuring the Customer Experience Gets More Teeth

Stratecast Perspectives & Insight for Executives (SPIE) - 2008-17



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MEASURING THE CUSTOMER EXPERIENCE GETS MORE TEETH

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INTRODUCTION¹

With the advent of customer lifestyle services as defined in Figure 1 below, significant emphasis has been placed recently on the real-time aspects of rating/charging and also on provisioning/activation—two parts of the three-legged stool defining today's end-to-end customer management strategy. However, less emphasis has been given to the third leg—gaining insight about the total customer experience and in understanding the level of quality with which services are consumed. Today's complex services don't always work as promised due to a long list of possibilities; within the network, with other suppliers and even with the end-customer's user device (wireless handset, set-top box, or broadband connection). Customers generally don't care why they experience problems and are certainly irritated if restoring their service takes very long. If a customer (consumer and/or business customer) endures repeated "negative service experiences", they will naturally churn to other operators they perceive as delivering a better and more reliable deal.

As Communications Service Providers (CSPs) increase focus on the customer and in transforming their internal business processes, systems and way of doing business into a more customer-centric approach, different tools and a different business mindset are ultimately required. In this week's SPIE, we note the third leg of the customer-centric business management stool, which involves measuring the customer experience. This report explains why an intense focus on the customer, via measurements of the customer experience, is critical to business transformation. We also highlight the latest customer experience measurement capabilities just announced by Sunrise Telecom.

INDUSTRY CONVERGENCE IS TRANSFORMING THE WAY BUSINESS IS ACCOMPLISHED

Shown in Figure 1 below, strong market forces are having a profound effect on the way CSPs conduct business as today's realities are pushing new capabilities and new ways of reaching out to the customer.

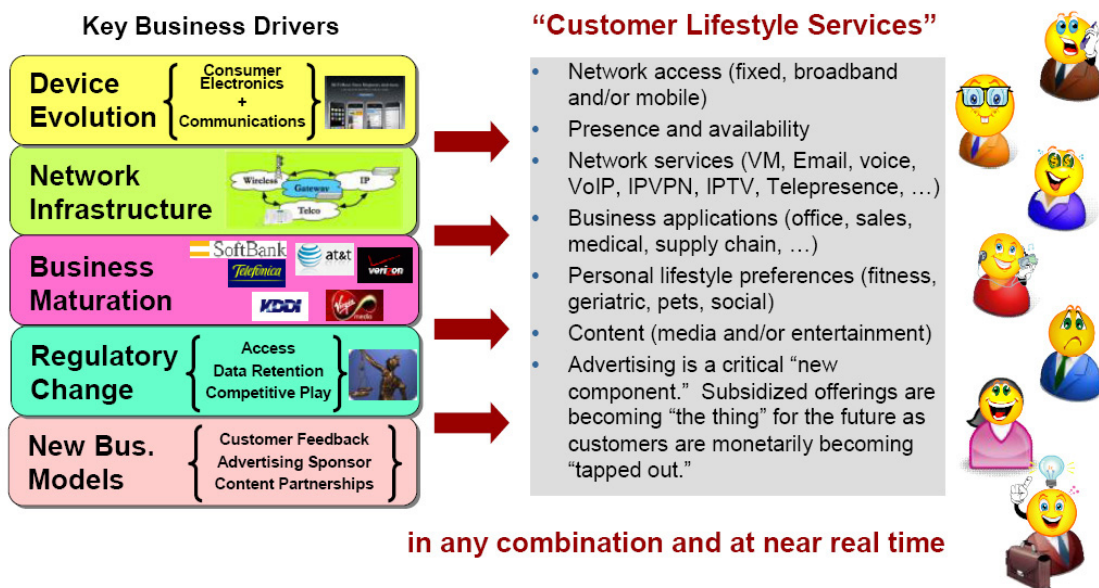
Business customers and consumers finally have choice, in network access, in service definition, in payment plans, in how they interact with media/entertainment content, and in how they see improvements to their day-to-day lives. For example, in the last half of 2007

1. In preparing this report, Stratecast interviewed Michele Campriani, General Manager of Sunrise Telecom's Protocol Product Group.

Please note that the insights and opinions expressed in this assessment are those of Stratecast and have been developed through the Stratecast research and analysis process. These expressed insights and opinions do not necessarily reflect the views of the company executives interviewed.

AT&T was the first CSP to embrace the Apple iPhone. Later, this device was introduced to several European countries and will soon become available in Asia Pacific. The iPhone has significantly advanced the way in which consumers think about mobile communications, entertainment downloads, surfing the net, and picture taking as multiple consumer electronic devices have now become one (mobile voice, music player, video, and picture taking/storage). It is very apparent that such user device evolution is just one of several factors working together for delivering even better lifestyle changing capabilities in the months to come.

Figure 1 – Market Factors Driving Business Transformation



Source: *Stratecast*

With such advancements comes concern, concern over effective customer experience monitoring and customer-centric service management. This involves real-time rating/charging, real-time provisioning/activation and timely customer experience management—the focus of this report. Progress is being made on many fronts in all three areas. For example, very recently within the Asia Pacific region a joint *Stratecast/telecomasia Magazine* reader survey² asked respondents to name the top four Business Support Systems (BSS) areas receiving the most attention within their respective organizations. Answers in order of priority were:

- Customer Experience Management
- Customer Care / Self-Care /e-Care
- Real time Rating/Charging
- Business Analytics / Business Intelligence

2. See cover story of the April 2008 edition of *telecomasia Magazine*, “*Gaining a 3600 View*,” found at http://www.telecomasia.net/article.php?id_article=7776. For additional insights regarding the survey results, please see “*OSSCS 09-03 Conference Summary: Stratecast and Frost & Sullivan Second Annual OSS BSS Asia Pacific Summit*.”

The survey also noted that only 1/3 of the CSPs represented in the survey had a CEM program and that the top three work groups utilizing CEM information (in order of priority) were Customer Care, Sales & Marketing, and Product Management.

WHAT EXACTLY IS CUSTOMER EXPERIENCE MANAGEMENT (CEM)?

Customer Experience Management (CEM) is the practice of collecting customer usage information from all practical sources (network traffic, network devices, content servers, and management databases) for the purpose of gaining deeper insight into customer service quality. It can also involve, when needed, the real-time monitoring of a customer's purchased services and in analyzing this data to note trends, preferences, and usage problems. CEM data can be used by both business and technical departments in accomplishing two specific goals:

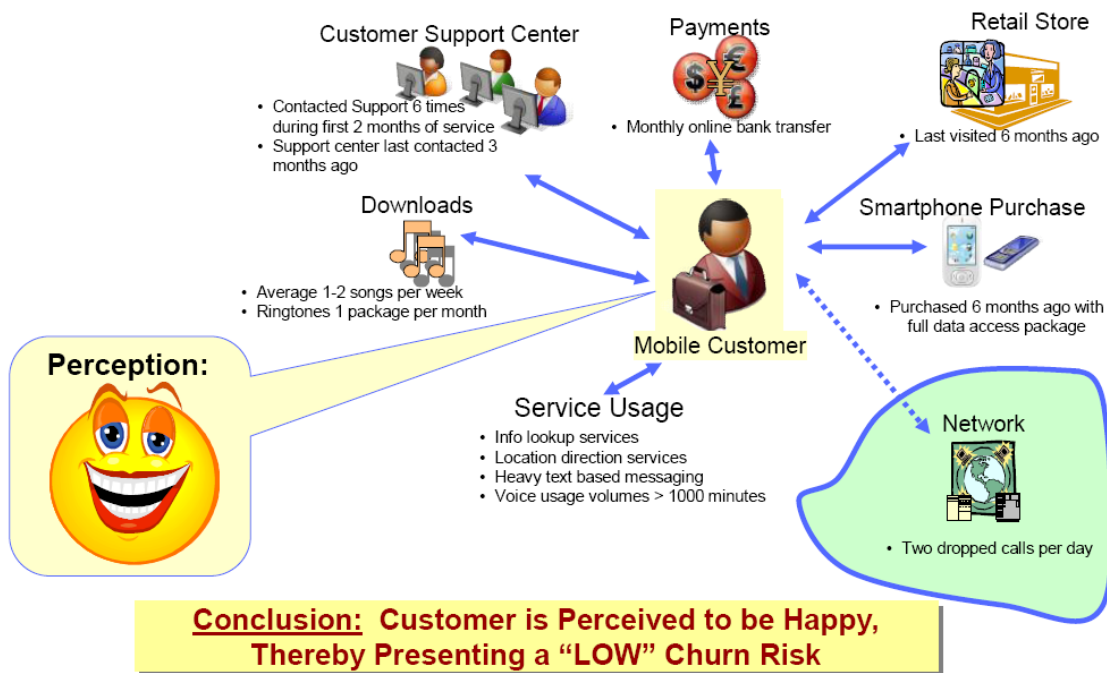
- **Establishing an Internal View of the Customer Service Experience** – Allows proactive improvement of customer service based on how the resources defining a service are used. This includes a number of issues such as:
 - Improving the trouble reporting process by coupling customer transaction data with network reported events.
 - Detecting configuration problems with a customer's mobile handset, which has been noted as the most significant source of technically-related customer complaints, especially as mobile data service usage has increased with 2.5G and 3G technology deployments.
 - Identifying which mobile handsets may not be compatible with certain downloaded content.
 - Noting customer preferences of certain network/content combinations over others.
 - Showing when composite data traffic between network confluence points trend beyond acceptable limits, potentially indicating abnormal usage conditions.
 - Understanding how many times a user fails to achieve successful launch of a data service whether it be email, web access or reaching a subscribed piece of content.
 - Delivers a way for CSPs to proactively market to specific customer needs, especially if analytics are applied from a business development perspective.
 - Helps in planning for network expansion by showing customer usage at an individual or composite service level.

- **Establishing an External View of the Customer Experience (generally phase II)** – Supplies customers with a means for understanding how use of their service subscription measures up to the definition prescribed by a business contract. Though providing an external view of service usage data offers customers an effective understanding of their service experience, due to the limited use of such data for CEM related business activities to date, most CSPs first develop internally-oriented CEM business practices and then expand a limited subset of such capabilities to key customers.

WHY CEM IS SO IMPORTANT, ESPECIALLY FOR MOBILE SERVICES

Work teams within the same organization contribute to different aspects of CEM. For example, as shown in Figure 2 below, the business management portion of most mobile CSPs today perform “customer analysis” by using churn information from billing records, customer support systems, trouble systems, and related “customer touch” systems/processes as a way of managing and improving the attractiveness of their services.

Figure 2 – Traditional Mobile Customer Churn Analysis



Source: *Stratecast*

Using traditional methods and data sources, a “business level analysis” regarding a mobile customer’s service experience could reveal the following regarding the likelihood of an established customer churning to another mobile operator:

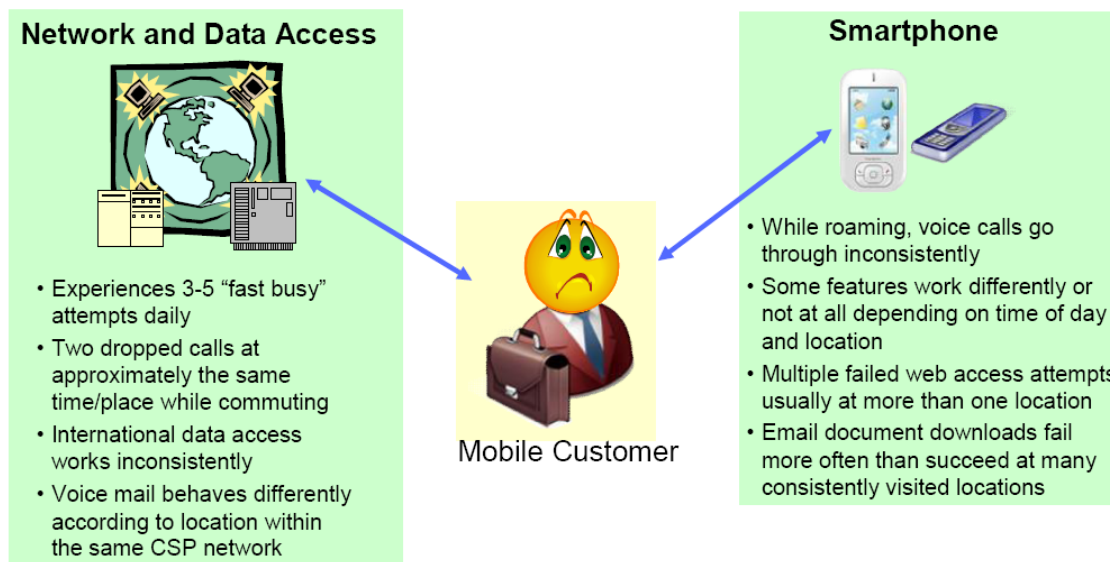
- **Service Usage** – Customer participates in heavy text based messaging and they use more than a 1000 calling minutes per month.
- **Smartphone Purchase** – The customer recently purchased one of the latest smartphones.
- **Contact with the Customer Support Center** – Customer has minimal interaction with the customer care group and that it has been awhile since the customer last called after initial service calls about “how do I use the service”
- **Visit to a Retail Store** – Customer visited a retail store within the last year
- **Payments are Regularly Scheduled** – Customer pays bill regularly through a monthly bank transfer

The business-level information just described, while important, only supplies a surface-level view of what is really happening to the customer when it is absent of network transaction

data. Unfortunately, this analysis is very “typical” and is often done after customers leave for a “better deal” or on the promise of “better service” elsewhere. **In addition, this type of analysis often has little effect if established business processes involve nothing in real-time to help customers overcome their service-related problems before they leave.**

Network signaling transactions are essential for managing every customer activity including switching on a handset, acknowledging the successful download of entertainment content (music, video or ringtones), understanding handset compatibility issues, and in directing the most complex multi-partner service definitions. When measurement data concerning how customers use their services is added to the churn analysis process previously described, a different picture is likely to emerge and different conclusions are likely to be realized as noted in Figure 3 below.

Figure 3 – Customer Experience Analysis Enhanced with Measured Data



Conclusion: Customer is SERIOUSLY planning to switch to a new CSP believed to have better service

Source: *Stratecast*

Additional CEM data measurements include:

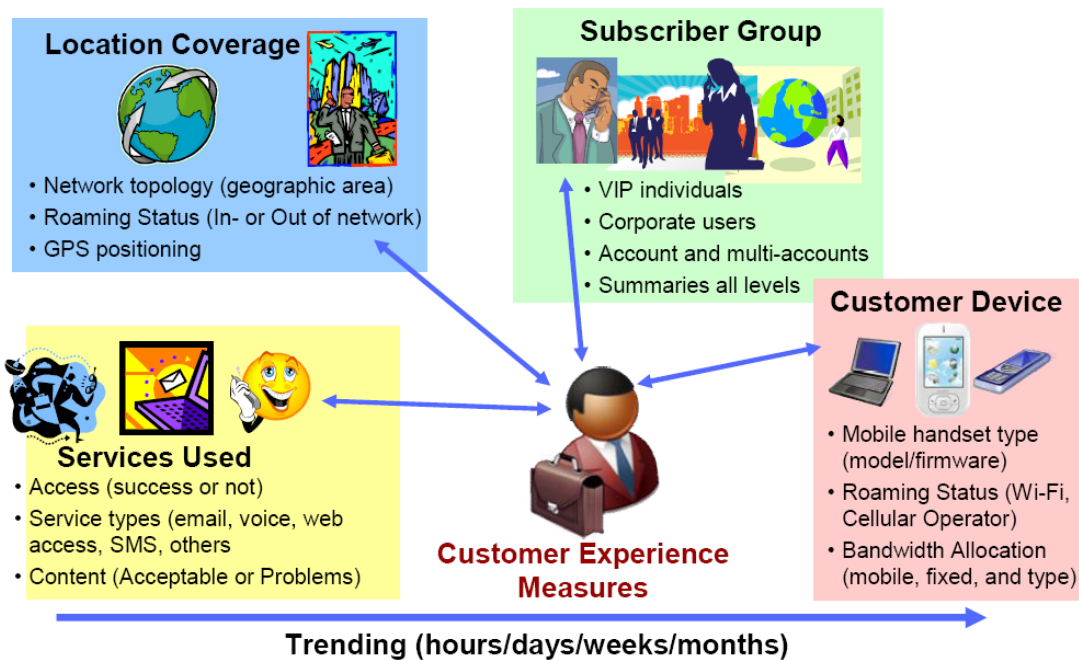
- **Signaling Network Call Path Data** – This provides voice call setup information concerning call attempts that successfully completed/failed, notes abnormal call terminations by identifying what network nodes were involved, recognizes the voicemail resources that were accessed and shows what (if any) call control peripherals assisted in subscriber usage validation. **Data of this variety is collected for every user placing or attempting a voice call over any mobile or fixed line network.**
- **Signaling Network Session Data** – Data session information notes success or failure of each data access session, Web access attempts and failures, identifies which network database was blocked or allowed various data service access attempts (email or content

downloads). If handset configuration problems are causing service access issues, each access attempt can be notably traced to the network node involved, and upon further validation of correct network operability, user device problems can be noted with specificity to the mobile device type and firmware assignment. This data is collected for every user accessing or attempting to setup a data session. It is independent of data that may also be collected directly from a customer's mobile device.

- **Mobile Device Data** – Delivers on-demand information as necessary about the customer service assignment and also access attempts/completions, usage of device-based functions that interface with the network, and related capabilities. Handset information would generally be used to support CSP-initiated on-demand trouble shooting needs. Due to limits on handset battery life and network capacity issues, continuous handset data readouts to a network-based system are generally not feasible. This method continues to be an ongoing area of research by both CSPs offering mobile services and the vendor community.

CEM, to be effective, uses data measurements involving a number of parameters as shown in Figure 4 below. Each of these can be analyzed and reported individually or they can be grouped to satisfy specific trouble-shooting, planning or marketing needs. All CEM data is time based. Measurements today may not look the same tomorrow or a week from now due to the dynamic nature of customer traffic volumes.

Figure 4 – Customer Experience Data Measures



Source: *Stratecast*

Examples of customer experience data relationships that would satisfy a variety of business needs today are:

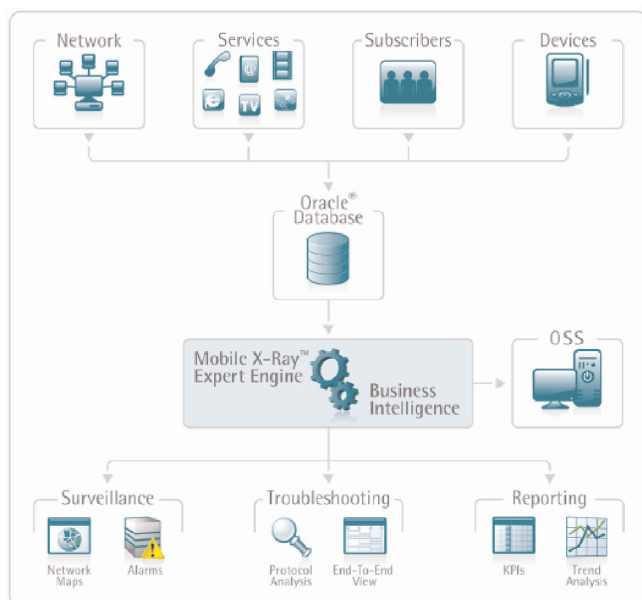
- **Mobile Content Downloads by Subscriber Group and Handset Type** – Customers regularly download ringtones, games, movies, and music. At times there may be incompatibilities between a mobile handset and the downloaded content. Details can be summarized for a group of customers or for a geographic area across a specific time period. Data can be presented by handset type and in some cases it can include the software/firmware version used by a mobile device. This data is available across any 2.5 or 3G mobile network and is generally collected via a passive probe collection strategy involving data collection at various network points.
- **Mobile Roaming Customers By Geographic Area** – Summary of roaming customers (subscribers that are not directly contracted with the network owner) by geography is important to understand ways to improve service coverage through increased network capacity (network planning) or to compare with current billing data generation (revenue assurance). Trending this information based on hourly and daily fluctuations in customer traffic is important for identifying potential bottlenecks, for example, at key places in a CSP network such as high-traffic public areas e.g. airports and train stations.
- **Mobile Service Usage by Corporate Hierarchy and Handset Type** – Summarizing voice or data service usage by corporate hierarchy (different work groups inside the same company) for each service provided to major customers is strategic for gaining insight into how to deliver the right package of services to meet specific business needs. Additionally, weekly or monthly trending is important for helping corporate accounts know when to make seasonal adjustments.
- **Mobile Customer Access Usage by Network Topology** – Network capacity is often designed and built based on demographic measures obtained from multiple sources. Summarizing customer service usage or network access attempts by geographic areas such as mobile cell sites are very valuable for confirming initial demographic assumptions and/or in making adjustments to existing network deployments. It can also confirm where new network capacity should be placed.
- **Fixed Line Network Data Correlation from Different Networks** – Correlate messaging data from a traditional voice calling network with that from IP-based data to answer critical business issues involving customer trouble management or billing inquiries.

Stratecast believes the time is now for taking transaction information from different data sources and applying it to better manage the customer service experience. The examples previously listed are just a few suggestions, which will vary according to the unique objectives of each organization engaging in a “customer first” business strategy.

MEASURING THE CUSTOMER EXPERIENCE – MORE REAL NOW THAN EVER BEFORE

Sunrise Telecom³ recently announced its Mobile X-Ray solution which, according to Sunrise, combines network signaling transaction data (e.g. SS7, SIP, others) with information from other sources to provide a correlated view of network, service, subscriber and device for the mobile data services environment. As shown in Figure 5 below, the Mobile X-Ray solution uses an Oracle-based expert engine to correlate the millions of network transaction usage records collected from its hardware-based monitoring and test solutions (3GMaster protocol analyzers). It then uses the Sunrise Traffic Analysis and Monitoring System (TAMS) as a centralized monitoring and reporting platform for summarizing key events and information for the CSP.

Figure 5 – Sunrise Telecom Mobile X-Ray Solution Offering



Source: Sunrise Telecom

What makes Mobile X-Ray different is that it comes from a protocol data analysis supplier with a business focus on marketing its solution to work teams beyond a CSP's network operations group. Mobile X-Ray is designed to provide a measure of the customer experience by aggregating and correlating mobile data transactions by IMEI⁴ and IMSI⁵. From here, any network-related details for any mobile data session, including user devices involved in each session, can be summarized.

The operational architecture of Mobile X-Ray is designed such that it can provide detail at the device or subscriber level for supporting pro-active problem solving, quick reaction to

3. Sunrise Telecom is based in San Jose, CA. Incorporated since 1991 it has annual revenue in excess of \$100M. The Sunrise Telecom Protocol Products Group, based in Modena, Italy, is responsible for the Mobile X-Ray solution offering.

4. IMEI – International Mobile Equipment Identifier is associated with mobile handsets that follow the 3GPP standards. For a mobile data session, the IMEI is assigned an IP address from which all data transactions can be followed.

5. IMSI – International Mobile Subscriber Identity is a unique number associated with all GSM and UMTS mobile handsets.

customer-reported problems and to show interaction of devices with new services, to name just a few of the multiple issues involved at the subscriber and device level. This subscriber-level detail is only made available for customer problem solving and trouble shooting due to the sensitivity of individual identity information.

As data is summarized to the service level, Mobile X-Ray can be used to monitor and fine-tune operation of new services, provide visibility of interactions between services and the network, and deliver summary-level statistics for various work teams such as customer care, marketing and network planning. At the network level, Mobile X-Ray provides the capability to zoom and focus on specific areas, from device to protocol level, for identifying potentially ineffective network nodes. It provides mass storage for raw data collection with a detailed view of 2G/3G/3.5G signaling information defined as Key Performance Indicators (KPIs).

Mobile X-Ray views information from the different layers of the network (including both the access and core) and it looks at more than just signaling information. When necessary, IP-based payload data can be viewed and summarized. As the number of mobile data service offerings expands, so will the use for solutions such as Mobile X-Ray.

Sunrise explained to Stratecast that it has had great success recently at a large EMEA-based mobile operator in correlating user transaction data between this operator's access and core networks. The purpose of which allows this operator to gain a better understanding of how its customers are using its combined voice and data services offerings. Within North America, Sunrise explained another operator is using its solution to correlate SIP-based VoIP traffic with SS7-based voice traffic to note wait times for customers calling into its customer care centers.

Given that Sunrise is presently working with some customers and with many more in various stages of discussion, the customer experience measuring process is beginning to gain traction and importance to the industry. What Sunrise provides is much more than simple data aggregation and reporting, because it supplies both the hardware to economically collect the data in real time and the software to aggregate this data into a manageable level of customer-centric information. This is validation that CSPs focusing on a customer first strategy have the right business emphasis when delivering today's complex customer services.

While Stratecast knows of other suppliers also working to create solutions for transforming the millions of daily network transaction usage details into usable business information, especially from an IP services perspective, Sunrise is already proving that the right combination of computing capacity, data storage, and technical insight can come together to address a major market need that is sure to significantly grow in scope and importance over the coming months.

Stratecast The Last Word

As we all know, the communications industry is in the midst of a major transformation involving not just the convergence of wireless and wireline network technologies, but also convergence with other industries. Communications, computing (IT), media, entertainment and even advertising are combining in ways that will forever change the way the world thinks about communications services.

Customer Lifestyle Services, for both consumers and business customers, is finally taking root. Such service packages—combinations of different forms of network access, presence, availability, network-based services (VM, email, VoIP, ...), application content, entertainment and even cross-subsidization from consumer opinion marketing—are creating an environment where customers have choices involving a myriad of service options from several different suppliers. All of these options are continuing to evolve and will eventually reach a point where they become independent of user device and network access type (mobile handset, fixed connection, computer and even TV).

Measuring the customer experience is vital for long-term sustainability of service quality and in understanding the effectiveness with which subscribed to services meet customer expectations. Customer experience management is difficult, requires the aggregation and correlation of literally millions of daily service transaction usage records, must be enhanced with customer care data, and can easily overrun current data storage capabilities. Nevertheless, it brings rich rewards through increased awareness of what service combinations customers really use, how to better understand what they may want in the future (predictive analytics), and to more easily address internal operations needs such as service planning, network planning, partner relationship management, strategic marketing,

Companies such as Sunrise Telecom have been deploying probe-based transaction data collection solutions for years in support of network operations. Launch of the Mobile X-Ray solution for mobile data services is an essential step forward in taking the customer transaction usage data concept from the realm of possibility to reality, especially for use by work groups other than network. While suppliers of both data collection tools and management summary applications have worked in this space for some time, a solid, cost-effective and reliable solution to the customer experience measurement challenge remains. Sunrise may just be the first to crack through the network messaging transaction data collection and information creation quagmire. So far its experience measurement solution looks promising, and its initial customers have expressed positive acceptance. **However, the burden of proof rests squarely with our industry as it continues to wrestle with the importance such solutions have in addressing the third leg of the customer-centric business management stool.**

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