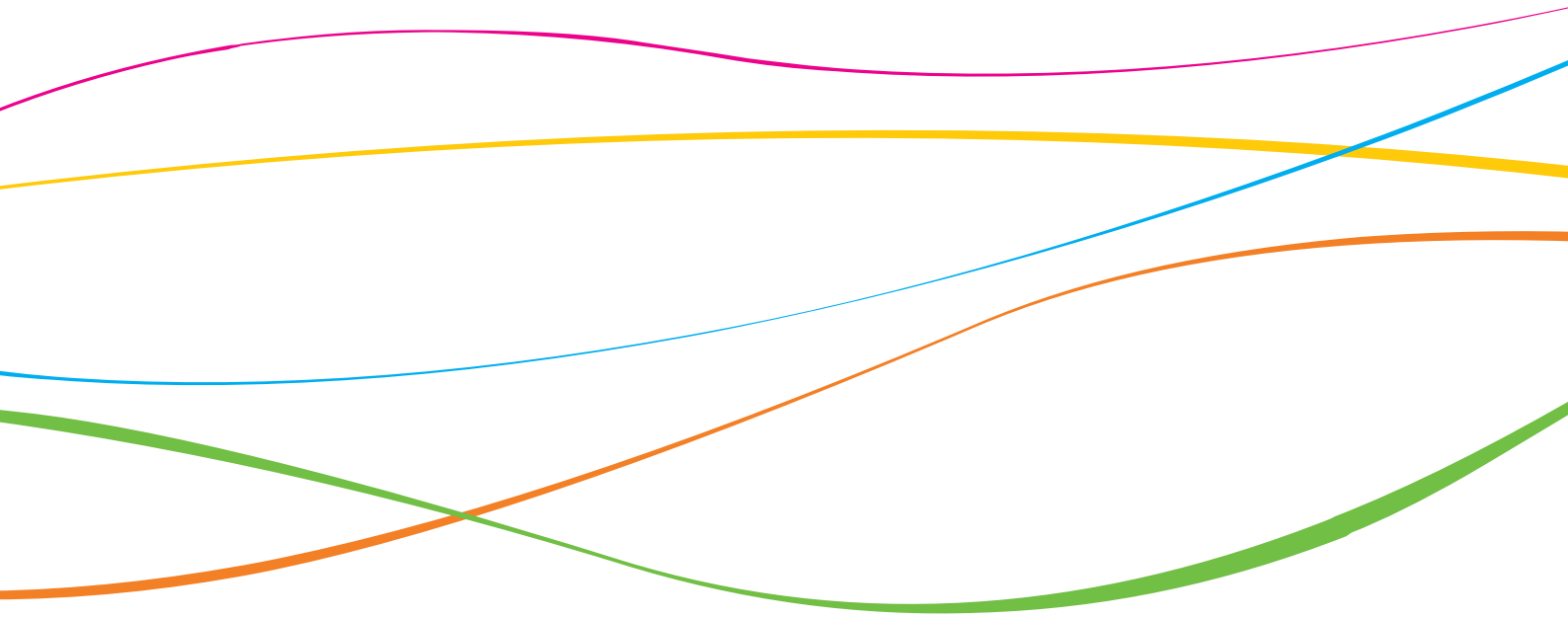# Comverse Multi-Dimensional Policy Management

White Paper

New Rules For A Smarter, Faster, More Active Mobile World

Why a Multi-Dimensional Approach to Policy Management is Needed to Achieve Increased Revenues and Satisfied Customers

This year, the world-wide 3G customer base is expected to surpass one billion. In 2012, 4G subscribers will surpass 30 million. These mobile customers are active users, taking advantage of the latest fast mobile broadband technologies, smart devices, as well as data cards and more complex applications.

Undoubtedly data traffic has skyrocketed in the last few years; however revenues are not keeping pace. This has been mainly driven by 'flat-rate' pricing models which succeeded in hooking customers to data services, but now are inhibiting data revenue growth. To understand this, let us consider the evolution of the industry:

| Penetration Service | → | Mass Service | → | Ubiquitous Service |
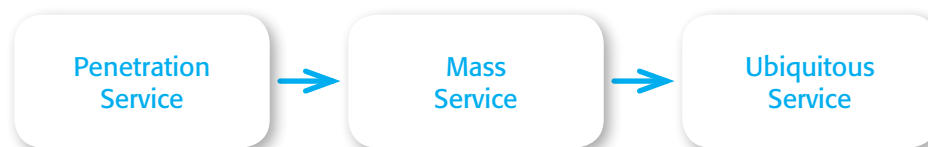
Flat pricing was appropriate in the Penetration Service phase, but the industry clearly has moved on into the Mass Service phase (beyond just connectivity). The market will reach the Ubiquitous Service stage quickly through developments such as the Mobile Internet. These services will provide connectivity between a plethora of users, applications and devices, including machine-to-machine applications.

Currently the gap between growth and revenues is huge, representing a significant untapped revenue source. Additionally with high-data traffic, CSPs are faced with network congestion issues which have a negative impact on the quality of service – and which results in poor customer experiences and additional losses in revenues.

So how can Communication Service Providers (CSPs) capitalize on the mobile broadband uptake? The answer lies in adjusting the way network bandwidth is managed by enforcing tighter controls via smarter policies. Pricing structures should evolve as well, but not in a manner that creates a negative experience. Providers need to adopt a new approach, employ new "rules of the game."

These rules must consider the customer experience at all points. This requires a multi-dimensional approach to policy management – which can only be accomplished by linking the network with the Business Support System (BSS) ecosystem. This approach encompasses charging, notifications, bandwidth management, optimization, and filtering to assist CSPs in keeping service and quality promises, realizing revenues and staying competitively relevant.

On The Bandwidth Bandwagon

All of this growth in mobile broadband is taking place on limited pipes. Today's bandwidth "strain" includes congestion from unlimited plans, increased traffic, and new bandwidth intensive applications and services. Additionally, users on emerging IP-based and 4G networks are taking full advantage of constant connectivity to high-bandwidth services.

Network bandwidth has the _potential_ to continue to deliver a quality customer experience, providing users (even heavy users) with access to what they want, when they want it. This potential will be realized by powering up to a multi-dimensional approach to policy management.

This involves taking all aspects of the customer relationship into consideration when defining and enforcing policies. While the BSS world has long defined authorizing and pricing policies, it can adopt smarter policy enforcement by linking network, location and device aspects of policy with BSS information.

This allows CSPs to achieve flexible data network management and control, while providing an optimal customer experience. They also are able to enforce new policies in real time based on changes to any factors including:

- Network conditions
- Content
- Time of day
- Device capabilities
- Application
- Customer preferences

For instance, CSPs can reduce bandwidth of heavy applications during peak usage time of day through policies and incentives such as:

Offering off-peak access to certain sites free of charge	Providing free applications	Offering discounted rates for off-peak usage

Additionally, by tying into the BSS ecosystem, providers are able to sell traffic management and user experience capabilities to third parties. These groups then provide content and applications to both residential and business users (in a wholesale model). By doing so, CSPs are able to:

- Reach effective service monetization
- Deliver immediate, reliable, cost-effective services along with a high-quality customer experience to an increasing customer base
- Break out of the flat-rate trap

The industry is ready for this move; 57 percent of CSPs worldwide agree that the flat-rate model is unsustainable for next- generation IP-based services. Additionally, 71 percent recognize that converged policy-based billing will be essential to increasing profitability from IP-based value-added services (VAS).[1]

However, given that most providers currently rely on a patchwork of discrete legacy systems (silos), the rich customer data within their BSS ecosystems becomes fragmented. This means there are multiple disconnected views of subscriber and product information – which impedes many of the innovative traffic management approaches outlined above. This also increases charging complexity– and results in many other lost opportunities for increased customer service and revenues. Instead, in a siloed world, creating effective links between BSS and the network is immensely challenging.

Slaying the Silos

Siloed ecosystems drive charging complexity especially across converged services. This forces continued reliance on the flat-rate, "all-you-can-eat" approach to billing. While this may seem to reduce complexity, this approach has become limiting– and possibly even harmful as it kills innovation and leaves no avenue for service providers to monetize their network investments.

In essence, in perpetuating a siloed approach, providers are taking the pragmatic approach of "bridging yesterday, today and tomorrow with software systems designed in the past."[2] They realize their existing legacy architecture remains crucial for day-to-day operations and do not see a clear way towards the future without affecting the present. At the same time, CSPs recognize these siloed, heavily customized environments are ill-equipped to support the ubiquitous real-time nature of next-generation data services.

Although moving away from silos and towards convergent-policy based BSS is not easy, providers will have to transform their back offices by adopting convergent systems that are:

- Designed to keep the customer experience central
- Able to work as one with the network
- Adaptable to new and emerging business models
- Open
- Standards compliant

These efforts are crucial to allowing CSPs to charge for and manage data services successfully– while enabling them to capitalize on their greatest assets: networks and customers.

An ecosystem comprised of multiple silos makes it impossible to deliver a responsive, meaningful customer experience. Policies too often are haphazard, uncoordinated, or even conflicting. As this is not sustainable for a vigorous-growth future, silos must be dismantled in order to move forward.

---

1. Yankee Group, "Thinking Beyond Flat-Rate and Stovepiped Business Models," January 2009
2. Yankee Group, "Building the Anywhere Software Experience," August 2009

Evolving Towards A Multi-Dimensional Approach To Policy Management

To increase revenues while keeping promises to subscribers, providers must leverage a multi-dimensional approach to policy management that considers multiple aspects:

- subscriber data
- plan/product data
- application needs
- device capabilities
- network conditions
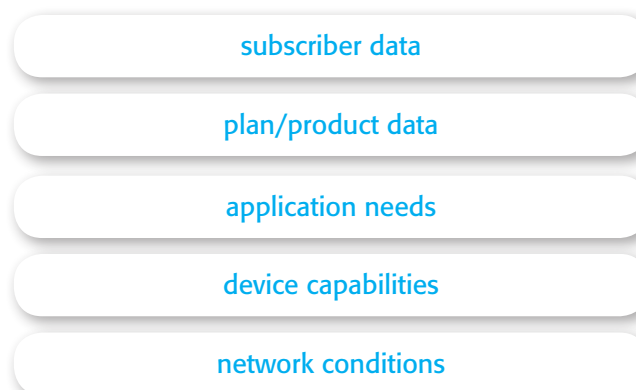
This is true in today's 3G world, and will become even more important as the world evolves to 4G/LTE/IMS. As that occurs, subscribers increasingly will be accessing multiple services within a single session, enjoying on-demand content downloads, and expecting service continuity across devices and networks.

To unlock the value and true potential of these powerful networks, policy management must be governed on many levels. It also must work end-to-end with an ability to "react in real time to business rules-based subscriber policies, as well as network policies such as bandwidth management and capacity management."[1]

This approach synchronizes customer and product data with the network to enable the enforcement of policies based on context: customer preferences, financial status, peak and off-peak hours, location, customer plans, etc.

Therefore, when viewed as a multi-dimensional capability, policy management moves beyond being "owned" solely by the network department, requiring IT aspects. It is crucial now more than ever that these two departments work as one, so providers can define rules once and apply them transparently. However, simply bridging the network and IT with yet another system creates yet another silo, defeating the real objective of moving the CSPs business forward; a solution that unified the network with IT is essential.

With such an approach, CSPs will have the capability to charge based on any combination of quality of service, type of service, and subscriber profile information.

For example, with a unified approach, CSPs can encourage loyalty and satisfaction by offering network priority to a premium subscriber, or alternatively discounted rates. They also can allocate network priority better for certain high-value services (such as video streaming) based on defined parameters in an effort to reduce network clogging.

These dynamic solutions to optimizing resource allocation create a seamless and consistent customer experience, while increasing loyalty and reducing churn. However, they are only possible when BSS and policy management are unified and work as one seamlessly with the network. This unified approach provides a comprehensive real-time view of subscribers and products that enables the dynamic enforcement of innovative policies.

---

1. Yankee Group, "Building the Anywhere Software Experience," August 2009

Powerful Possibilities

Today, optimizing the customer experience is a critical success factor. Customers are enticed by new nimble market entrants and shaped by experiences with the Internet. Therefore, they want personalization, flexibility, quality, and innovation with telecom products. They also want the ability to manage their spending with their CSP.

Most consumers do not consider (or understand) how many bytes are used while web browsing or sending e-mails. This inevitably has led to bill shock issues with subscribers who are on usage-based data plans (as opposed to flat-rate, all-you-can-eat plans), which can result in churn.

Mobile broadband cost control should be enforced in real-time to cap exposure, which becomes even more significant when roaming or using bandwidth-intensive services enabled by IP-based and 4G networks. Offering account control to subscribers (consumer or enterprise) can raise the satisfaction bar. When CSPs understand the "whole" customer and his or her real-time usage patterns, they are able to offer more meaningful solutions, control financial exposure, and reduce churn.
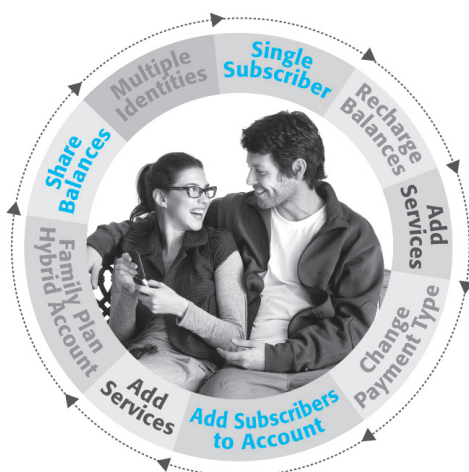
CSPs need to respond quickly and efficiently to meet the individual needs of each customer (as outlined in the illustration), across any customer touch point (web, POS, call center, device).

This requires the ability to access subscriber information quickly at any given time (ideally that information has been updated in real-time), including:

- Profile information
- Which devices are being used
- Which services are being accessed
- Usage thresholds/quota consumed
- His or her location
- Who the customer is in different roles and contexts
- Account status
- Payment mode
- Spending controls
- Device compatibility
- If age-appropriate filters exist

When this holistic view of the subscriber is blended with network knowledge and backed by a multi-dimensional approach to policy management, CSPs can maximize the business potential of next-generation networks. Benefits of such an approach include:

Development of Innovative Business Models	• Hybrid, multi-account/single number, and complex group accounts
	• Accurate, personalized, context-aware charging
	• Marketing/communications

| **Subscriber Driven Policy Controls** | • Subscribers can set policies around personal spending, or set flexible spending limits for group accounts, thus avoiding bill shock |

| **Customer-Centric Offers** | • Allow for the sharing of minutes and services with individual spending limits, mixing business and personal accounts, and more |

Being able to structure these types of plans and business models with the appropriate policies wrapped around them ultimately leads to increased revenues.

A multi-dimensional approach to policy management also gives CSPs more power to provide customers with relevant choices, and prevent possible bad customer experiences. Consider these examples:

A premium subscriber is attempting to stream a video during off-peak hours

- This is desired behavior; given that the service provider's BSS and policy management systems work harmoniously, this preferred behavior can be encouraged by offering the customer a temporary bandwidth boost at a discounted rate.

A subscriber is reaching his/her data plan quota

- The service provider can send an SMS notification informing the customer of this to avoid bill shock which can lead to churn; or, the provider can use this opportunity to promote an upgrade to a more relevant data plan, or to suggest the customer pays for additional data usage via pay-as-you-go model.

This is all possible through better-managed networks – particularly supported by systems that enable a multi-dimensional approach to policy management.

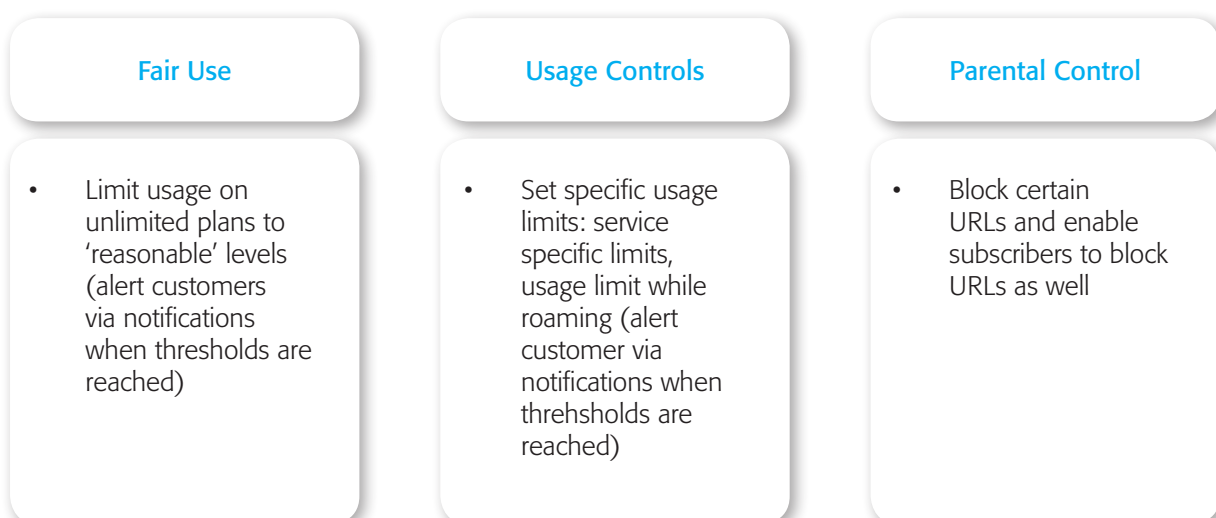# Unification, Convergence, Teamwork: The Solution Evolution

In order for system providers to deliver and monetize customer-centric next-generation services that leverage a multi-dimensional approach to policy management, they first must employ a unified approach to BSS. BSS unification plays a critical role in CSPs' convergent infrastructure strategies. Imagine the efficiency gains from implementing a single system that can manage campaigns intelligently, accept an order, provision, rate, and charge all services regardless of location, access point and payment type. A single data model is fundamental to such a system – and is the only way to set "new rules for the game" as demanded by marketplace evolution.

Comverse is the only player that provides all of the solution components to enable a multi-dimensional approach to policy management. By linking the Comverse® ONE™ Billing & Active Customer Management solution – the market's only single-system converged BSS - with its Mobile Internet HUB, Comverse delivers a truly powerful solution that allows telecom providers to manage all policy dimensions holistically and seamlessly.

The Comverse ONE solution unifies sales, marketing, ordering, customer management, real-time rating, charging, and billing around a single data model and product catalog, thus providing holistic real-time subscriber and product data. For example, providers can charge a premium tariff for video streaming or tiered pricing based on quality of service. When linked with Comverse Mobile Internet HUB, providers are able to:

- Define and enforce policy rules ONCE, enabling uniform resource utilization
- Empower premium customer experiences, e.g. increase bandwidth based on subscriber profile/usage patterns
- Optimize monetization policies, e.g. usage-based charging

This unique combination helps CSPs implement new data-based business models that are also customer-centric, allowing them to provide the right quality of service while capitalizing on the explosive growth in data traffic. The Comverse solution helps CSPs tackle issues such as:

Fair Use	Usage Controls	Parental Control
• Limit usage on unlimited plans to 'reasonable' levels (alert customers via notifications when thresholds are reached)	• Set specific usage limits: service specific limits, usage limit while roaming (alert customer via notifications when threhsholds are reached)	• Block certain URLs and enable subscribers to block URLs as well

Traffic Priority

- Better manage traffic
- Assign high-value services higher priority
- Prioritize premium subscriber traffic

Quality of Service

- Offer tiered QoS plans–different QoS per plan
- Temporarily boost bandwidth depending on the service

Network Resource Management

- Avoid or better control network congestion

With a multi-dimensional approach to policy in place, real value is unlocked, and providers can significantly enhance the user experience, increase premium revenue, and manage possible network congestion. Comverse allows providers to better manage network traffic, offer segmented price and data plans, prevent bill shock for subscribers, deliver quality of service guarantees, and impose fair use limits. CSPs are able to consistently and efficiently manage end-customers – from the network all the way to the bank – as evidenced by the following examples:

ACHIEVED:

Monetize and manage bandwidth access

- A convergent CSP in Poland is supporting bandwidth management with authorization, rating and charging policies to decrease bandwidth when a subscriber - regardless of payment type - has reached a certain threshold
- They now can free up network capacity while encouraging subscribers to recharge for increased bandwidth access

ACHIEVED:

Limit financial exoposure without sacrificing subscriber experience

- A leading CSP in Europe is mixing prepaid and postpaid concepts and real-time balance management to provide access to high quality services (to all subscribers) by carefully extending credit up to certain limits (then requiring a recharge)
- Customer response has been positive as shown by a significant increase in service uptake

ACHIEVED:

Targeted marketing

- A leading CSP in India is measuring real-time subscriber usage to trigger discount policies
- Revenues have increased by 33 percent

Forward-thinking CSPs such as these have been able to be in the right place at the right time with the right tools ready to capitalize on their assets: networks, services and customers.

New "rules" certainly are necessary to keep pace with the rapid evolution of today's telecom industry. Moving away from siloed data and taking a multi-dimensional approach to policy management is crucial. Fortunately, with the power of the Comverse ONE Billing & Active Customer Management solution linked with Comverse Mobile Internet HUB, this multi-dimensional approach is achievable, available and ready to take CSPs into the future.

About Comverse

Comverse is the world's leading provider of software and systems enabling value-added services for voice, messaging, mobile Internet and mobile advertising; converged billing and active customer management; and IP communications. Comverse's extensive customer base spans more than 125 countries and covers over 450 communication service providers serving more than two billion subscribers. The company's innovative product portfolio enables communication service providers to unleash the value of the network for their customers by making their networks smarter.

For more information please visit www.comverse.com