

April 2005

PREPAID POSTPAID CONVERGENT CHARGING

White Paper

The traditional segmentation of prepaid and post-paid is no longer relevant nor is it economically justifiable to have two completely separate systems for these categories of users. This white paper describes the evolution into one converged charging and revenue management environment for all segments of an operators business.

Contents

1	Executive summary	3
2	Mobile Networks of Tomorrow	4
2.1	New Services – Many Services	5
2.2	New Partners – Many Partners	5
2.3	New Segments – Many Segments	6
3	Charging Capabilities to Meet New Market Needs	8
3.1	Realtime Charging	8
3.2	Account Centric Architecture	9
3.3	Pricing Flexibility	13
3.4	Segmentation Flexibility	15
3.5	Scalability and High Availability	16
4	Convergent Charging and Business Support	17
4.1	The History of Business Support Systems	17
4.2	Two-layer Architecture	18
4.3	Business Horizontal	18
4.4	Charging Control	20
5	Conclusion	21
6	References	22

1 Executive summary

The simple segmentation of mobile subscribers into prepaid and postpaid is no longer valid. Nor is it economically justifiable to have two completely separate systems for users who simply have differing payment methods. Like any mature industry today's telecom operators can utilize standardized business support systems to improve customer management, enhance cost efficiency and avoid duplication of data and functionality.

This is achieved with a two-layered architecture for Convergent Charging and Business Support; comprising a telecom specific Charging Control and an industry generic Business Horizontal. This will bring competitive advantages in marketing capabilities, cost efficiency and financial risk management. Charging will become an integral part of service delivery to meet users need for spending control and operators need for credit control. This also brings additional advantages of customer intimacy, elimination of revenue leakage and a more direct interaction with operators' business support systems. Users will be free to select payment options, prepaid or postpaid, based on the personal preferences and credit history.

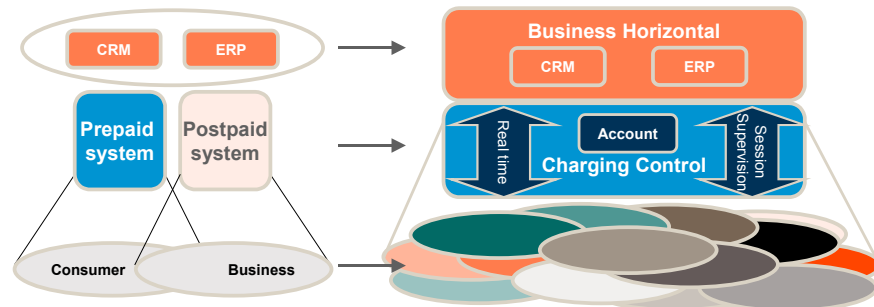


Figure 1 Evolution into a Convergent Charging and Business Support

The Charging Control handles the telecom specific processes. It is account centric and includes functionality such as rating, subscriber account balance, mediation and realtime session supervision.

The Business Horizontal handle the industry generic business processes and includes functionality such as invoicing, accounts receivable, customer handling, product handling, and order handling. It is based on industry generic Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) software. Result: legacy billing systems will no longer be needed.

2 Mobile Networks of Tomorrow

Competition is becoming more intense as mobile penetration reaches saturation and new competitors enter the scene. The evolution from 2G to 2.5G and 3G mobile networks will result in many new and entirely different market scenarios. The mobile communications business arena is getting far more complex from both the technical and the commercial perspectives. Learning from the Japanese experience has shown that both services and operator partnerships will be numbered in the thousands.

The operators of tomorrow will face tough competition, where the battle will go far beyond coverage and handset substitution.

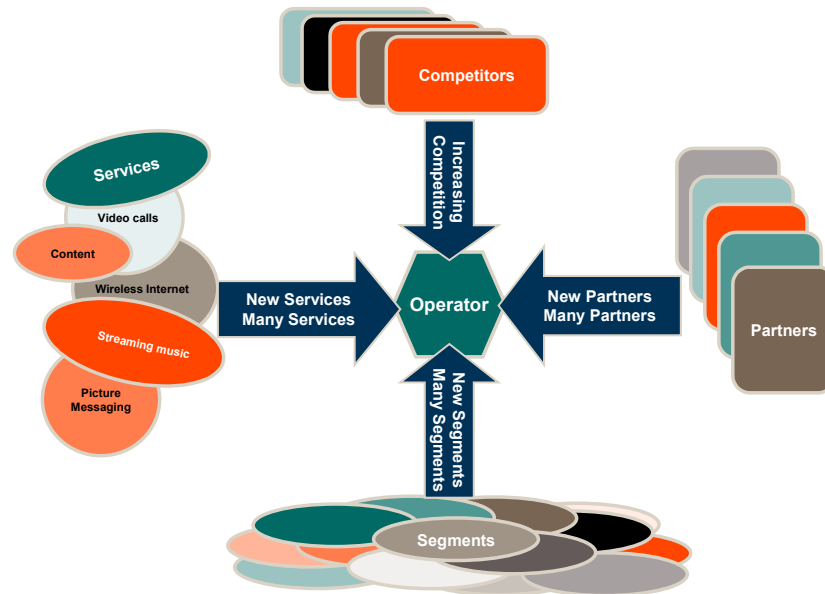


Figure 2 A new business environment for mobile operators

Price pressure on traditional services such as voice and text messaging is already a fact of life. New players will appear with new money making ideas, while existing mobile players will extend their businesses into new areas. New alliances will be formed to boost business and competitiveness.

The challenge in this environment is to improve cost-efficiency, while continuing to offer new services that are attractive and easy to use. The ability to target, attract and retain customers in a variety of segments, quickly adapt to changing market conditions - will be vital.

Pricing, and charging, will be central to create unique and attractively priced service offerings.

2.1 New Services – Many Services

We see a new commercial arena emerging, in which a service delivery platform is a vital component to exploit the many new opportunities for service creation and partnerships.

To play a key role in this arena the mobile operators must ensure that their services have value, are easy to use, and provide an assured revenue stream.

Mobile users will be offered a huge variety of services and content. It will be paramount to ensure that the user is comfortable, recognizes the service value and feels in control when using the services.

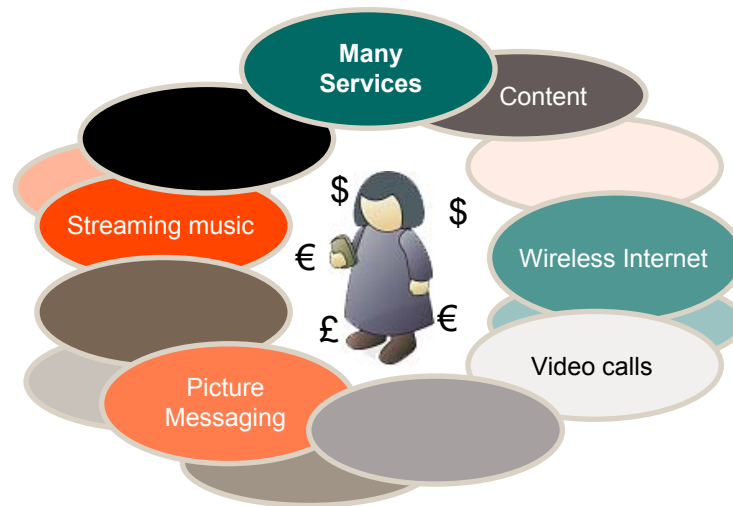


Figure 3 Users require spending control to feel comfortable to consume new services

Given that competition is intensifying and it is becoming easier to change service provider, a positive overall user experience is essential to build customer loyalty.

One important aspect of this is spending control. The pricing of a particular service must be instant and easy for the user to understand. Realtime spending control will enable users to access pricing information quickly and easily so, for example, they know the cost of a particular session. Users are often reluctant to use a service if the pricing is unclear.

2.2 New Partners – Many Partners

In building up a portfolio of attractive, valuable services, mobile operators will form a large number of new partnerships with many different commercial agreements. Operators will need mechanisms enabling them to be flexible in

their business relations with partners to ensure that all parties are properly compensated for their contribution in the value chain. Furthermore, this multiple partner management and revenue sharing has to be achieved in a cost-efficient manner.

Any revenue-sharing agreement – whether based on proportion of network functionality, distribution capabilities, customer care or the value of the service or content itself – must be supported by a realtime credit control mechanism.

Operators need the flexibility to handle any combination of pricing structures and rates to meet today’s competitive challenges. At the same time, they need to offer users control over spending while delivering attractive, valuable services.

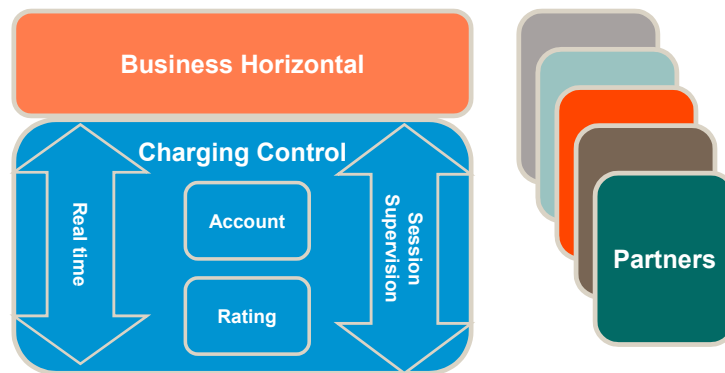


Figure 4 Account centric realtime charging control is required to manage credit risks when dealing with many partners

If content is delivered to users who are not credit-worthy, operators do not only risk of revenue loss, based on their own fixed infrastructure costs, but also run the risk of owing money to third parties. To avoid losing money, operators need to have realtime credit control mechanisms to prevent credit overruns and manage their credit risk.

2.3 New Segments – Many Segments

The multitude of content and services that can now be offered over mobile networks is leading to an ever more diverse mobile communication market. Correct market segmentation and targeting of services are vital to winning the battle for market share, revenue and profit. The traditional segmentation into post-paying and prepaying users is no longer valid.

Consumer research shows that there is no longer any difference in the sophistication of services delivered across these traditional segments. WAP- and MMS-based services are used as much in the prepaid segment as in the postpaid segment.

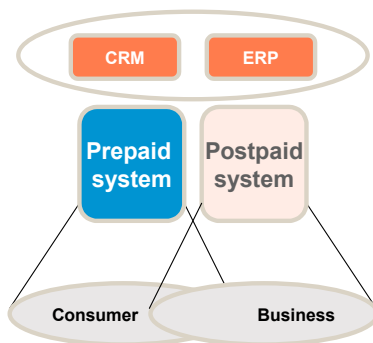


Figure 5 Today, two separate systems grown from an old segmentation model

Today, operators incur additional costs by having to adapt their service solutions to two different charging environments. It is not economically justifiable to keep two charging domains that no longer represent the actual market segmentation. The current market situation is both fragmented and volatile where user segments emerge, grow, decline and may then disappear or evolve into a further definable segment. With this increasingly segmented market, it is vital for operators to be able to identify the different subscriber segments and subgroups that they can target with respect to revenue and margin. Operators should be able to identify subscriber behavior and usage patterns, and analyze profitability in each group. The charging system must be able to accurately report the revenues, which each subscriber is generating.

Operators need to continue the convergence process between post- and prepaying subscribers to ensure that ultimately, this converged charging environment will support true realtime charging, and provide spending control for the user and credit control for the operator.

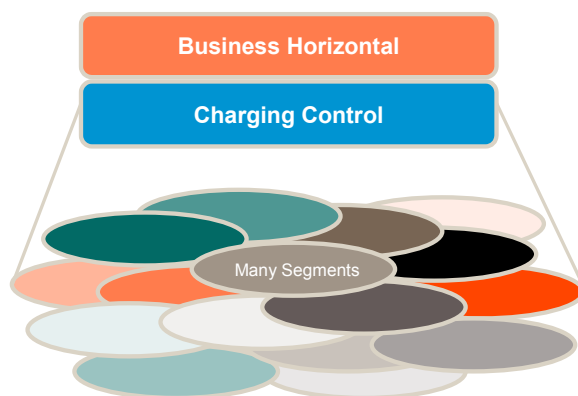


Figure 6 Convergent Charging and Business Support to efficiently target many new segments

Ericsson believes that for operators to successfully address a wide range of segments and to build relationships with individual users, an account centric

approach is required. This will allow Customer Relationship Management (CRM) systems in the Business Horizontal to directly interact with the telecom specific systems in the Charging Control layer.

3 Charging Capabilities to Meet New Market Needs

There are a number of key capabilities required in a charging solution to enable operators to meet the new market needs. These are:

- Provide Realtime Charging, giving users spending control and operators the means to prevent credit overruns and manage credit risk.
- Be based on Account Centric architecture, to enable realtime charging and to make interaction with systems in the Business Horizontal possible.
- Provide Pricing Flexibility, enabling new products, promotions and prices to be quickly and cost efficiently brought to the market.
- Provide Segmentation Flexibility to allow service offerings to be targeted towards the right user segments to maximize profitability and service uptake.
- Provide High Availability and Scalability. As charging is an integral part of service delivery it must be continuously available and match the performance and capacity need of a growing network.

These key capabilities are described in more detail in the following sections of this chapter.

3.1 Realtime Charging

Realtime spending control enables users to understand how each service is priced and provides instant information on the full cost of services at the time of use. This enables users to monitor their spending and to feel that they are in control.

Realtime charging was introduced to eliminate potential credit overruns by prepaying users, by enabling operators to verify that users have sufficient funds on their accounts before the service can be consumed.

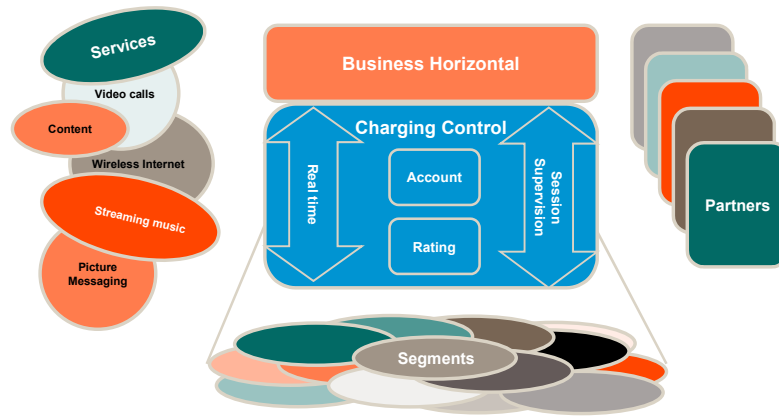


Figure 7 Spending control for users and credit control for operators with realtime account centric charging control

As operators bring third-party content and service providers into the value chain, it is vital that the charging solution fully supports credit control based on an account centric model that instantly checks if the user has sufficient funds before actually providing the service. Failure to provide credit control can leave the operator with a loss of revenue and debts towards content providing partners.

3.2 Account Centric Architecture

Providing realtime charging as part of the service delivery, places demanding requirements on the charging architecture to be used in the Charging Control layer.

Two architectural options exist today: an invoicing centric architecture and an account centric architecture. These two architectural approaches have different functional blocks as their centerpieces, as highlighted in Figure 8.

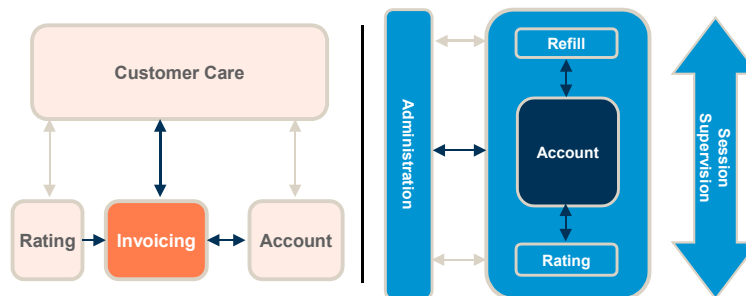


Figure 8 Comparison of invoicing and account centric architecture

In the invoicing centric architecture, traditionally used in postpaid billing systems, the invoicing module acts as the main engine working with the rated

transactions – retrieving account data, updating the account status and publishing data for customer care. Working in batch mode there is plenty of time and processing power for advanced discount calculations and grouping of charging data, but it also means that charging is done long after service delivery. The nearest this architecture can come to real time requirements is to implement 'hot billing' where the latency between an event and when the usage information is rated can be reduced to a few minutes. This is clearly insufficient for today's market requirements.

Furthermore, billing systems normally lack the advance CRM and ERP capabilities that can be provided by an industry generic business horizontal.

In the account centric architecture, used in prepaid systems, the account is the central entity. The account status is the key to delivering or denying the service. Funds are reserved on the account before service delivery is allowed to start. Each activity on the account can trigger additional actions, for example, granting bonuses. Other functional blocks retrieve information from the account for customer care or reporting purposes.

The account centric architecture is a prerequisite to enable session supervision. A session is established for every single activity. The session monitors the activity as consumption takes place, continuously deducting funds and, as long as the account has an acceptable balance, granting privileges to the involved network elements for continued spending. Usage is automatically stopped when users reach their credit limit. Session supervision makes charging an integral part of service delivery.

The account centric architecture also support a CDR based charging process for services and applications that do not have realtime charging capabilities.

The following subsections describe how the account centric approach increases customer intimacy and reduces revenue leakage. Session supervision is also described in more detail.

3.2.1 Customer Intimacy

The first step in creating customer intimacy is to understand the customer's needs. This involves analyzing the business horizontal (customer, account and product databases) to accurately determine user trends and preferences – and then to be able to act on this information.

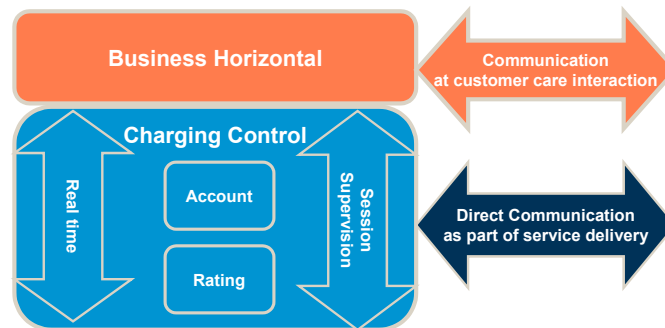


Figure 9 Account centric charging control enables direct user communication and product promotions a part of the service delivery

It is certain that the customer intimacy aspect of charging solutions develop further, for example relationship marketing where messages are personalized. It will be important to ensure that the right information is communicated to the user in the right way, at the right time. Incorrect timing can irritate the customer who will disregard the message. This has been a problem for many operators that have tried to push commercial messages via for example SMS.

Operators will need to compete for users' attention. They will need to find ways to convey their messages when users are most receptive with the goal to create a more direct and personalized relationship.

There is an opportunity to communicate information relevant to customers when they are actually using a service. In this way it is more likely that they will accept and appreciate the information without it intruding on their main objective of using the service. This is best done as part of the service delivery.

For example, notify users of the cost of sending a message and their account balance (to help them control spending), and at the same time advise that by sending another five messages today, they will get 10 messages for free. This requires realtime charging and session supervision, so that the communication is done as part of the service delivery. If the same types of messages are pushed at any other time, the user may feel that they are being intruded upon, and complain.

3.2.2 Revenue Leakage

Frequently in the legacy billing data is lost, discarded or put on hold in so-called 'suspense'. The revenue leakage caused by this lost data can occur at several points in the revenue management process, as illustrated in Figure 10.

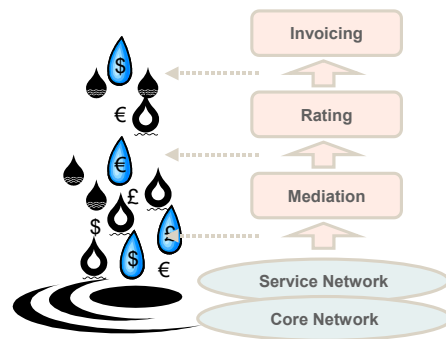


Figure 10 Revenue leakage points

Research indicates that anywhere between 1 – 15% of total revenue can be lost in this way. Apart from causing a significant impact on the bottom line, this is also a source of incorrect bills, which put a strain on customer care centers and potentially damage the operator-customer relationship. The account centric approach with realtime charging essentially eliminates revenue leakage.

3.2.3 Session Supervision

The mandatory need to monitor funds in real time for prepaid services resulted in an account centric architecture. As well as having an account working in real time, a mechanism to monitor calls (sessions) in real time was also needed in order to provide sufficient credit control. This mechanism is known as Session Supervision.

Session Supervision ties together service delivery with Account and Rating. It constantly monitors all service deliveries and ensures that no credit overruns take place. This process involves continuously rating the cost of the service, checking that there are sufficient funds on the account, and updating the account.

Lets take a video call as an example, to illustrate how session supervision works. The first thing that happens when a user make a video call is that session supervision rates the event based on an assumed duration and attempts to reserve funds on the user account. If this is successful, then service delivery start. The ongoing video call session is then monitored and if the call duration exceeds the original assumption further funds are reserved from the account. Furthermore, if the tariff changes whilst the call is in progress the session will be re-rated and the corresponding funds will be reserved from the account. The reserved funds are then finally deducted from the user account when the video call ends. However, if the user reaches his credit limit during the video call, then session supervision disconnects the call and deducts the funds from the account. This prevents credit overruns from happening.

Session Supervision must support content, data and voice services delivered over both mobile and wireline access networks, whether broadband or narrowband.

In the account centric architecture, the Session Supervision function continuously processes the data as a part of the service delivery. Failure to process data will result in a decision not to establish or to terminate the service. Session Supervision either deducts the funds from the account or does not grant access. As a result, credit is fully controlled, revenue leakage is eliminated and users get spending control.

3.3 Pricing Flexibility

Users will choose from a variety of tariff schemes, which may include bonus awards, discounts, time, volume, service and content charges. This requires flexibility in pricing and packaging of services and content so that they appeal to users individual preferences by offering value for money. Service providers must be able to charge for content and services both individually and as bundled packages, tailored to specific segments.

3.3.1 Content, Service and Bearer Charging

There are many different charging models in use on the market today – per event, per session, content-based and value-based, to name a few. However, they all fall into one of three levels: content charging, service charging and bearer charging.

Figure 11 illustrates these levels and gives examples of services utilizing different combinations of each. The three levels can be viewed as a value chain, where the recommendation is to charge for the content or data service as high up in the value chain as possible, to make the price understandable and fair for the users.

Operators must have full flexibility in setting up the charging in the different layers for all different services, as the charging of many content and data services will be based on a combination of these levels.

	P2P MMS	Goal MMS	Ring-tones	News	Streaming
Content	Zero	Subscription per goal or per week	Per piece	Subscription per month	Per view
Service	Per message	Zero	Zero	Zero	Zero
Bearer	Zero	Zero	Per kb	Per kb	Zero

Figure 11 Examples of different services utilizing different levels

Bearer Charging

Bearer charging occurs when the users are charged for the actual medium, which carries the service, rather than the service, or content being delivered over it. An example is charging for GPRS bytes when customers use the wireless Internet.

When using bearer charging it should be possible to zero-rate the service or content, or both.

Service Charging

Service charging occurs when the users are charged for the enabling service (for example, person-to-person text- or picture messaging, streaming and location-based services).

When using service charging it should be possible to zero-rate the bearer or content charging, or both.

Content Charging

Content charging occurs when the users are charged for the actual experience or value the users receive from the content and not the underlying technologies. This charging model should be used wherever possible. Examples of content and data services that would greatly benefit from this charging level are content-to-person MMS (such as sports clips) and mobile games.

To increase the adoption of new content and data services, it is important that users understand the value basis of the charging, agrees that it is worth the cost and trust that they price they pay is correctly charged.

When using content charging it should be possible to zero-rate the bearer or service charging, or both.

3.3.2 Realtime Bonuses

As competition erodes margins for established services, operators need to stimulate wider use of the established services. If the operator is to increase revenues they have to encourage users to start using new services. Additional to the benefits of the new services itself, bonuses, incentives, rewards and imaginative tariff plans are the tools to boost take-up of these new offerings.

The challenge is also to make offers that stimulate and reward increased usage; otherwise they just result in revenue loss for operators.

Giving users bonuses and rewards and notifying them in real time increases both usage and customer satisfaction. Sending the user a message telling him that his usage of the service is being rewarded by the next video call being free will encourage further use of the service. Alternatively sending a message when a call is completed that says the call was free will reaffirm the value the customer is getting from the operator.

Realtime bonuses are a powerful tool for service differentiation to avoid price wars and to stimulate usage and revenues.

3.4 Segmentation Flexibility

Knowledge about customer demographics and behavior is vital in segmenting and identify the right services and the right target segment.

As users will switch segments from time to time, flexibility is required in the charging environment. There is also a need to identify the revenue, margin and user behavior of the various segments. This demands close integration of charging and business support systems.

Retaining and increasing the value of customers over a number of years is a challenge in a competitive market. Creating incentives for users to stay with the operator can be achieved both with loyalty programs and cross-product bundles.

Successful loyalty programs demand the ability to capture usage information, give rewards and communicate suitable future rewards that are of value for the user. This, in turn, requires a flexible bonus engine in the realtime charging system, and CRM for customer profiling.

Cross-product bundles and discounts also make a customer more loyal to the operator. Giving the users better prices if they subscribe to several services not only means more revenues, it also creates customer retention. Operators need a charging system capable of handling any service and access method to be able to do cross-product discounts and bundles.

To achieve this requires efficient and timely analysis of usage information and spending patterns. The data resides both in the business horizontal and in the charging control layer. This requires close integration between the account in the charging control and the powerful analytical tools, in business horizontal, which can retrieve, analyze user trends, traffic patterns, and many other predictions, which are the basis for promotions to attract and retain users.

3.5 Scalability and High Availability

As charging becomes an integral part of service delivery this places high requirements on the charging system in terms of scalability and availability.

Scalability is necessary to guarantee that the system can handle increasingly complex charging as subscriber numbers and the range of services increase. It is vital that additional volumes and complexity do not degrade realtime operation. Any latency introduced can impact service delivery and ultimately, revenue flows.

As the charging system is an integral component of the operational fabric it must provide high availability to guarantee service delivery and revenue capture. Rating and updating user accounts in real time must be continuous processes to minimize credit risks. In the worst case, if the system is degraded or not available, the operators must decide whether to deny service and lose the revenue or allow services to continue with the risk of not knowing if the user is in credit.

Monitoring many thousands of sessions simultaneously is a complex and cumbersome task. Prepaid systems have been managing this issue for several years, and have reached a point where the technology is able to cater for tens of millions of users. It also offers the same level of pricing and discounting capabilities as found in postpaid billing systems.

The account centric approach, where charging is done in real time as an integral part of service delivery puts high requirements on Scalability and Availability. The products in the Charging Control layer, involved in service delivery, must have the same Scalability and High Availability performance and resilience as the telecom network. Realtime integration points shall be avoided to meet the requirements for scalability and availability. Using standard pre-verified products that in an integrated way handle rating, subscriber account balance and session supervision solves this.

4 Convergent Charging and Business Support

Convergent charging and business support solutions should be realized using a two-layer system architecture, consisting of a Business Horizontal and a Charging Control layer.

The Business Horizontal will handle the more industry generic business processes and include functionality such as invoicing, accounts receivable, customer handling, product handling, and order handling.

The Charging Control will handle the telecom specific processes and include functionality such as rating, subscriber account balance, mediation, and realtime session supervision.

4.1 The History of Business Support Systems

As an industry mature it becomes easier to take an abstracted view of its processes and to look for synergies and similarities with other established industries. As with revenue management processes and solutions in other more mature industries, a turning point has been reached in the mobile communications industry where a new perspective is required.

There is an unquestionable need for a charging solution capable of handling all users in real time, independent of their payment option. This is a need that legacy billing solutions – designed for postpaid invoicing – cannot handle, but one that has been the basis of prepaid systems from the outset. An additional driver in the rationalization of mobile communication revenue management is the wasteful duplication of capabilities. Many functions which exist in the legacy, monolithic billing & customer care system are also found in the operators Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP): the so-called Business Horizontal.

Ten years ago, when many of today's leading mobile operators started out, the available off-the shelf business support products – such as CRM (customer care, customer administration, subscriber management, customer profiling, etc.) and ERP (accounts receivable, management reporting, invoicing) systems – did not fulfill the mobile industry's capacity demands.

As a result, so-called point products (specialized products quickly constructed to solve urgent needs) were developed to support the emerging mobile telecom enterprises. These solutions have been continuously expanded and extended with a bolt-on approach creating a legacy architecture that is very difficult and expensive to maintain and operate.

Coupled with the evolution of today's matured 'off-the-shelf' CRM and ERP systems means that integration with telecom-specific systems is both possible and desirable.

4.2 Two-layer Architecture

The enhanced capabilities of today's CRM and ERP system in the areas of invoicing, product definition and order handling provide good and cost-efficient solutions for mobile operators.

Specialized end-to-end retail billing systems, tightly integrated with the telecom network are becoming obsolete.

Furthermore, leading CRM and ERP solutions enable a single business support solution with single data repository for all customers, products and orders.

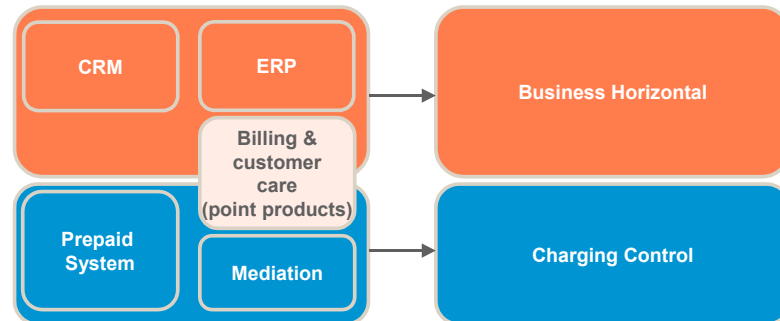


Figure 12 Architectural development

As shown in Figure 12, this is resulting in an evolution towards standardized Business Horizontal, connected over open interfaces to a telecom-specific and network-adjacent environment containing charging support.

This architecture makes legacy point billing products redundant and removes the high costs of operations and capital expenditure.

4.3 Business Horizontal

The business horizontal is built around common core data, which defines the operators' products, orders and customers by using industry standard CRM and ERP systems. This significantly shortens time to market, reduces risk of error and simplifies system upgrades, as no data is replicated on different systems and applications. All applications and user categories (customer care, technical support, financial staff, subscribers accessing a self-service application etc) use this common data repository, but with the safeguard that

different users (or groups of users) can have different views of the data depending upon their defined privilege level.

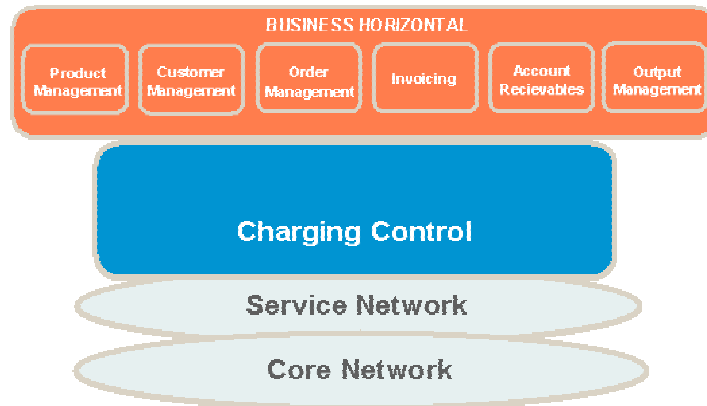


Figure 13 The Business Horizontal based on CRM and ERP system

New processes can be added to this coherent platform without redesign of existing processes and data models.

The customer relationship management functions for customer care, call center, service and order provisioning, marketing, etc seamlessly integrate with network and systems management applications.

Order management and fulfillment functions support the complete order management process to all customer categories and segments.

The account receivables functionality is based on standard account receivables processes. The receivables function requests the aggregated account balances from Charging Control which groups and formats the information into the required structures for invoice formatting, accounting etc.

Invoice details can be retrieved from the account history functions of the Charging Control and, when required it is possible for the account receivables and general ledger functions to drilldown to individual account details which are held in Charging Control.

Incoming payments are handled through standard payment/invoice functionality and invoice adjustments are performed according to standard accounting procedures.

Dunning letters may be generated through standard receivables functionality for customers who have not paid their bills. The credit control functionality of the business horizontal can send notifications to Charging Control to trigger barring of services. In a similar manner, when payment is received the service may be unbarred.

4.4 Charging Control

Charging control handles all telecom-specific aspects of service or product management, service provisioning and usage-related data aspects of revenue management.

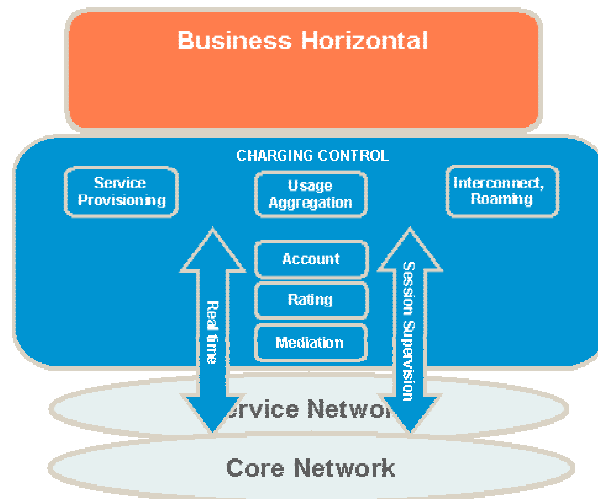


Figure 14 Charging Control - key capabilities

The following telecom-unique requirements make it mandatory to have an account centric Charging Control layer to be able to integrate the systems in the Business Horizontal in a telecom environment:

- session supervision to provide spending and credit control
- complex analysis of event data to determine pricing (in most other industries, product identification is linked directly to price)
- large numbers of events generating economic transactions. Complex Invoicing as a typical subscriber will generate a large number of charges. Charging control collects and processes the transaction data into a format suitable for the common ERP solutions
- content and service delivery over all types of access network, mobile or wireline, broadband or narrowband
- complex interfaces to network elements and requirements for telecom grade performance.

To meet these demands requires a deep understanding of both telecom and network infrastructure and the capability to design software, which incorporates all system characteristics to meet these stringent requirements.

5 Conclusion

The mobile industry is undergoing a radical paradigm shift with new market scenarios that will involve a multitude of services, many new partners and many new segments.

A convergent charging and business support solution enabling end-to-end revenue management processes will be the cornerstone of successful business for the operator, both in relation to its subscribers and its business partners. Users will be free to select payment options, prepaid or postpaid, based on their personal preferences and credit history.

To fulfill these criteria, the service provider will need to establish a single account centric charging environment capable of handling all user segments and to perform charging as an integral part of the service delivery. The transition to this converged environment is best achieved by an evolutionary stepwise approach, where existing investments and operator specific requirements are taken into account.

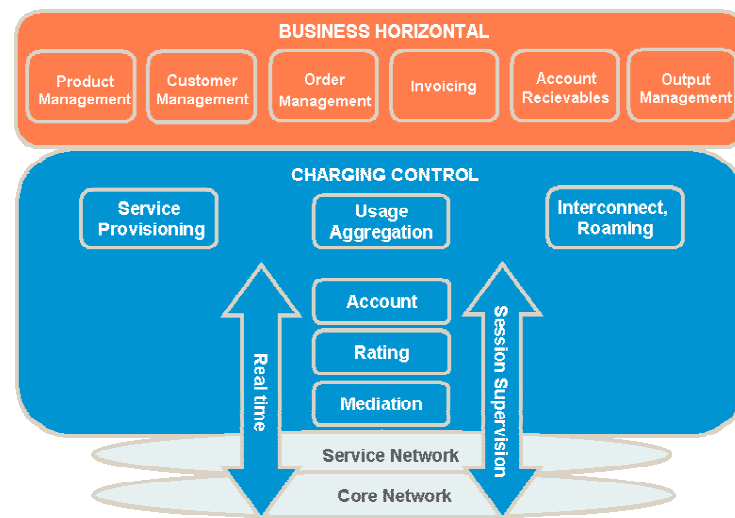


Figure 15 Convergent Charging and Business Support - the account centric approach

In realizing Convergent Charging and Business Support with the account centric approach, significant competitive advantages can be gained in the following three key areas: marketing capabilities, cost efficiency and financial risk management.

Improved marketing capabilities since charging is done in real time as a part of service delivery. Manage and target the right segments with the right products, promotions simplifies pricing. Customer intimacy is improved as communication with users is part of service deliver and can further drive usage

and service uptake. As users feel in control of their spending, their usage of services increases.

Increased cost efficiency will result as legacy billing systems become redundant. Convergent charging and business support creates one single way to handle all users independent of their payment options. As a result costs are reduced, both for operational and capital expenditures.

Improved financial risk management as charging is done in realtime as an integral part of service delivery. Providing operators with an efficient way to manage their credit risks and prevent credit over-runs. This is vital for profitable business in the new telecom world with many services, many partners and many segments.

6 References

- Evolution towards converged services and networks
http://www.ericsson.com/products/white_papers_pdf/convergence.pdf
- Key Business Issues in the Service Layer
http://www.ericsson.com/products/white_papers_pdf/service_wp_layer.pdf
- Mobile Multimedia
http://www.ericsson.com/products/white_papers_pdf/mobile_multimedia.pdf
- Enterprise communication trends, needs and opportunities
http://www.ericsson.com/products/white_papers_pdf/enterprise.pdf
- IMS - IP Multimedia Subsystem
http://www.ericsson.com/products/white_papers_pdf/ims_ip_multimedia_subsystem.pdf