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Cross Industry 2.0 New Business Models: The Business Challenge and Orchestrating OSS BSS for New Revenue

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Executive Summary

For anyone who has experienced the convenience that smartphone 3G technology affords, life is very different now than when communications were facilitated using a 2G+ voice and text service plan. The mobile communications environment, blended with smartphone features and combined with access to an increasing array of applications for business and leisure use, is the new norm. But fixed line connectivity hasn't gone away as it too plays a strategic role with mobile access networks, especially as bandwidth capacity in many parts of the world reaches traffic-carrying limits. Hence, the evolving network infrastructure and technological enhancements of user devices bring innovative ways to meet customer demand—from a fixed or mobile connection—and at a business enterprise or consumer level across combinations of prepaid, postpaid and real-time arrangements.

Today's reality, as perceived by the paying customer, involves mobile content services with an assumed "always available" connection. Other perceptions include faster download speeds, more efficient ways to transport data from anywhere to anywhere and continuously advancing virtualization. Still others include better interactive services such as mobile-video; multi-language instantaneous translation; voice-to-text; text-to-voice; visual email; multi-user collaborative reality (gaming, business applications); online secure data storage; single user sign on; and even user-defined usability options. Finally, today's reality implies an enriched customer experience which will place even more demands on existing business processes and systems. The rapid rate of change in bringing this list of service options to market, however, makes it almost impossible to predict what life could be like three years, seven years and even 10 years from now.

While nothing is for sure, in the coming months, multi-industry collaboration facilitated by ongoing advances within the user device and Communications Service Provider (CSP) sectors will profoundly change the customer experience. Long-held business models centered on technology will yield to alternative ways on multiple fronts. For a growing global CSP base, especially as cloud-based services come into mainstream focus, collaboration and business innovation will be the dominant strategic factors, instead of the glamour of technology alone, to account for long-term business success.

This report consists of two components:

- Part 1 focuses on the definition of Cross-Industry 2.0, the new business models involved, the continued demands from customer life-changing services, and how cloud-based capabilities fit into the big picture defined by the converging IT, telecommunications, advertising, content, and application marketplace.
- Part 2 describes how support for new business models requires new functionality that traditional Business Support Systems (BSS) and Operations Support Systems (OSS) were not designed to deliver. It shows how one supplier—Infonova—addresses the partnering functionality these new business models require, using a multi-tenant concept-to-cash platform. It also shows how this strategy works via two customer use studies: one involving consumer-focused integrated utilities management, e.g. "Smart grid" and another involving multi-media communications.

Part 1 – The Business Challenge

Better Access to the Customer – A Quick Peek at the Retail Sector

Amazon.com, from its founding roots in 1995, enabled a revolution for the way retail goods are bought and sold. This is centered around the company's on-line book-selling experience that includes its now famous "suggestions and recommendations" offer to every customer based on deep analysis of the purchase histories of others. From this success, Amazon.com now provides an online platform known as Amazonservices to address the concept-to-cash process for retailers selling products in 25 different categories. For small business and large retailers, the Amazonservices platform, as shown in Figure 1 below, delivers the means to display goods to a virtual customer audience; offers a way for customers to purchase products; fulfill any purchase order or provide notification to a seller that an order needs to be fulfilled by them; collects customer payments; and performs partner settlement.

Figure 1 – Amazonservices Concept-to-Cash Business Process

Source: Amazon.com

- Amazon provides an **online platform (PaaS)** known as **Amazonservices** to address the concept-to-cash process for 19,000 retailers selling products in **25 different categories**, some of which include:
  - Books, music, DVD, video
  - Baby, beauty, health & personal care, jewelry & watches, clothing & accessories
  - Camera & photography, electronics, personal computers, software, cell phones & accessories
  - Grocery & gourmet food, musical instruments, office products, toys & games
  - Home & garden, sports & outdoors, automotive, tools & hardware

Source: Amazon.com, Stratecast

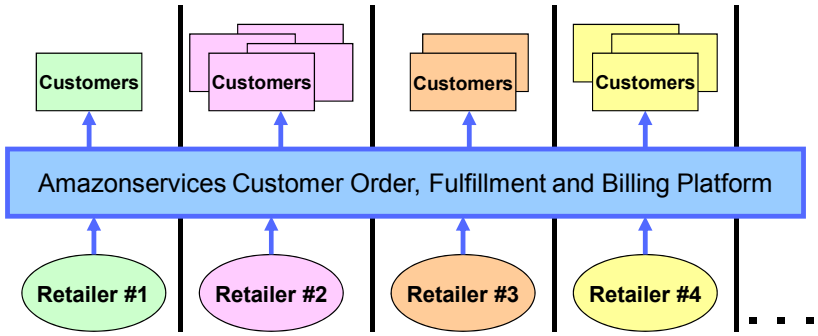
Through the Amazon.com brand, noted for its easy-to-use merchandise ordering and fulfillment process, Amazonservices instills confidence in the consumer that they will get what they paid for; and in the retailer that they will collect on what they sell. Today, the platform supports thousands of Small Medium Enterprise (SME) companies and some large retailers as a cost effective way to address the key business functions of online retailing. The Amazonservices concept-to-cash platform comes with important attributes that are essential for any collaboration strategy, including:

- **Simple New Seller Set-Up** – A new retailer can be set up on the Amazonservices platform in a matter of hours following initial signup.

- **Customer Interface** – Customers can view a seller's inventory, make selections by adding items to an online shopping cart, and come away with a "feel" of dealing directly with the company from which they purchased their product selections. Amazonservices, as part of service enablement, is revealed only if the seller desires.
- **Order Fulfillment** – The retailer is notified of an order for shipment from which it can be fulfilled directly by the retailer or, if previously arranged, via Amazon.com's logistics process.
- **Secure Partitioned Data** – Customers can access the goods or services of any retailer through Secure Sockets Layer (SSL) technology provided as an "https" online connection for a customer accessing any selling portal enabled by the platform. **The retailer has visibility to the customers that reach out to its virtual store. However, enabling complex business scenarios, such as sharing customer information or collaborative product offers between retailers, is out of scope today.**
- **Simple Payments Processing** – Customers pay for purchases via electronic funds transfer, usually as a credit card transaction. **In the simple Amazonservices environment, there are no provisions for recurring charges or trial options.**

Following a unidirectional flow, as shown in Figure 2 below, the platform works well for a growing number of market segments offering durable goods where each retailer works independently from other retailers with its unique customer base. The platform is designed to give a look and feel like big-time IT to even the smallest retailer without the cost of establishing such infrastructure.

Figure 2 – Amazonservices Retail Concept-to-Cash Platform



- The Amazonservices platform supports the concept-to-cash process for thousands of small retailers and some large ones too. Key functions include:
  - **Web-based customer interface** to provide a full display of a retailer's product catalog
  - **Billing** (simple transaction processing, no ability to support recurring charges)
  - **Fulfillment** request management
  - **Revenue Settlement** between suppliers and customers
  - **Customer Returns and Complaints** with product quality and delivery
  - **Secure Data Partition** between retailers, but shared customer management is not facilitated

Source: Stratecast

This cloud-based Platform as a Service (PaaS) offering, though extremely beneficial for many businesses, has its limitations. For example, if retailer #1 and retailer #2, as previously shown in

Figure 2, want to bring their product offerings together to create a "super offer" that would benefit common customers, the Amazonservices platform does not address this requirement. Additionally, if human services and technology needed to come together at time of fulfillment to establish a service-oriented end product, such as a broadband connection or mobile data service with various forms of content, the Amazonservices platform would not be the right choice.

The Amazonservices platform, as with all software applications, comes with design boundaries. It was not created to support purchase of CSP-offered communications services or to address multi-industry collaboration by enterprises offering products and services to their customers. **With advancing changes in technology and communications capabilities, a more robust solution to meet these and similar business requirements is sorely needed for the evolving telecommunications marketplace. It must, however, retain many of the same attributes as the Amazonservices platform, especially to meet multiple tenant operator needs, independently or in collaboration, according to business definition.**

Today's Business Model – Network Connectivity with Content

Anyone who has experienced interactive video, any number of applications for advanced mobile devices, high-definition IPTV, voice-based Web search, mobile banking, mobile TV, and distance learning say that, compared to the way things were just a very few years ago, these services have improved life for them in many ways. This is most recently evidenced by the rapid increase in data usage traffic on both fixed and mobile networks, as users and enterprises alike take advantage of traditional voice and text services, along with more advanced capabilities including mobile applications, user-generated and studio-produced video, interactive entertainment/training, and now, cloud-based applications for both personal and business consumption.

On this basis, customer "life changing" services can best be summed up as any combination of network capabilities, content, and user device features that address customer lifestyle preferences tied to business, social or personal interest categories. These complex offerings involve a number of capabilities, alone or together. They are facilitated today, especially for the mobile world, through network technology advances and user device evolution—smartphones and netbooks.

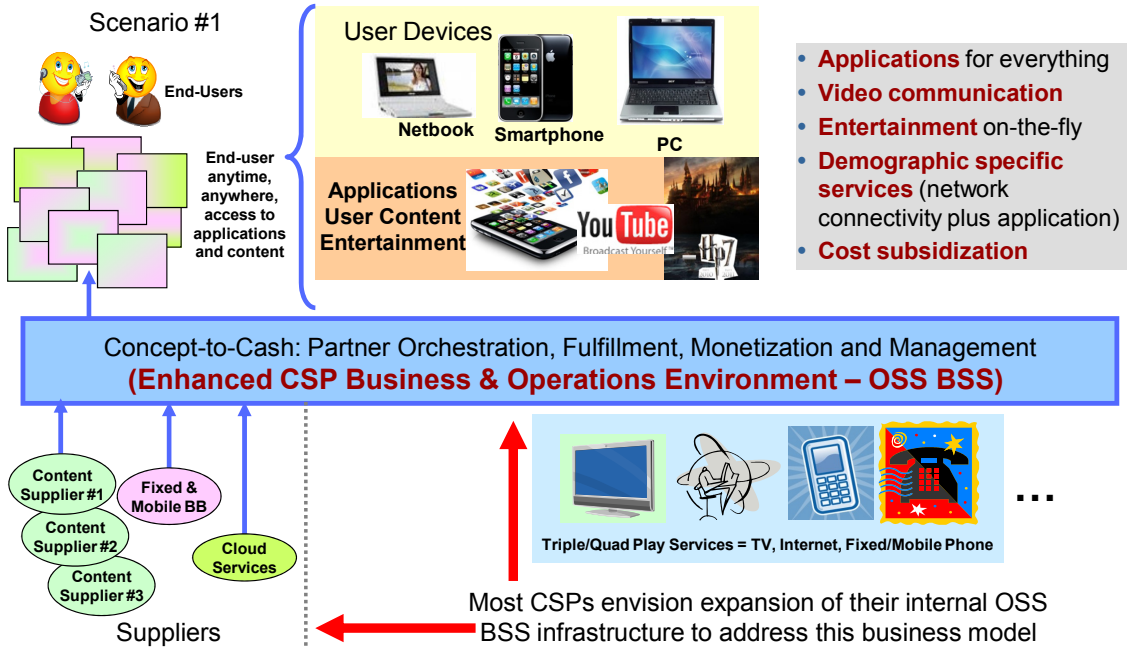
For CSPs doing business more than 30 years, each likely deployed a suite of OSS and BSS to address the service order, fulfillment, billing, and assurance functions needed to meet the various technology and customer support needs of circuit-switched voice services over a fixed-line network. With each new technology deployment (e.g., mobile voice, mobile data, and broadband) a new suite of OSS BSS were added. This was done because it was either too difficult to enhance the installed systems with new requirements or because regulatory constraints forbid integrated operations.

Today, systems integrators and solution suppliers point to provisioning, billing and supporting the new business and operations requirements for the services just mentioned as a major reason for convincing CSPs to upgrade installed systems and to refine key business processes. As shown in Figure 3 below, **consumers and enterprise customers want the cost benefits of a triple-play or even quad-play service bundle from the same supplier. They want other services including entertainment on-demand, applications for everything, and a network connection that is always available. Enterprise customers especially want the flexibility of adding application or computing capacity "on-demand" during peak periods of need. Nearly all have no concept of the complexities associated with each of the major OSS and BSS functions required to meet such service needs, nor do they care.**

Keeping installed systems and processes sufficiently able to maintain the different technology silos each were deployed to support requires a significant level of maintenance resources. Upgrades to meet new business needs and solution requirements add to this challenge, regardless of any cost improvement plans to upgrade or consolidate installed systems and/or processes. The crux of the problem is within the CSP community at large; as it continues to follow the same business model it has done for the past 120 years.

CSPs still sell technology, at the user device and network level, albeit to an increasingly more sophisticated customer audience. Installed OSS and BSS, along with all associated processes, are optimized to address the needs of this model, which limits what they can do when business changes. This challenge is increasingly evident by the latest business requirements to sell IT-based technology such as applications, platforms and computing resources via on-demand "cloud services".

Figure 3 – CSP "Enhanced Services" OSS BSS Strategy



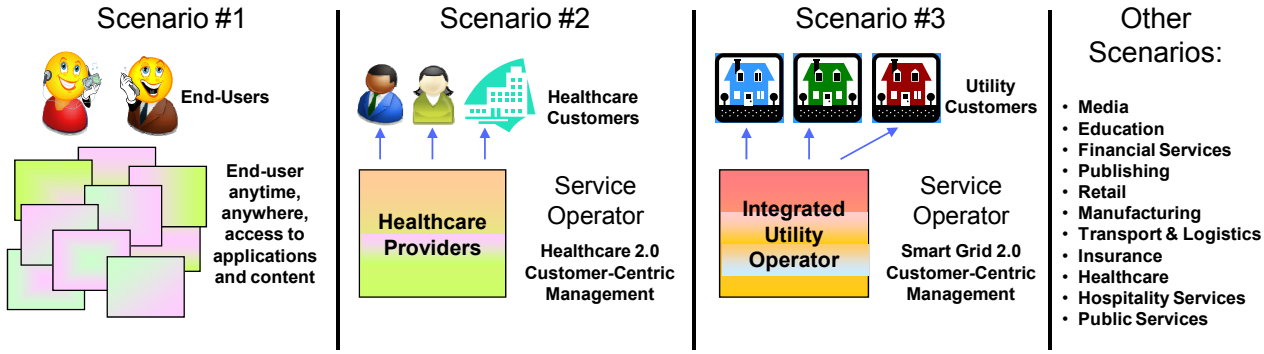
Source: Stratecast

Stratecast believes the latest capabilities in computing capacity, online data storage, broadband connectivity for both mobile and fixed-line connections, and certain BSS OSS advances now enable CSPs to expand their business focus in significantly new ways. This is dependent, however, on each organization recognizing the changing market conditions and customer attitudes affecting its market quickly enough to execute needed redirection. **To this end, for the CSPs involved, it means upgrades to existing business strategies along with the associated systems and operational processes.**

Business Support for Cloud Services is Challenging Existing Systems and Processes

CSPs today continue to use silos of OSS BSS to meet the service needs of their mass market and enterprise customer base. However, times are changing, especially within the SME customer market. For example, if a healthcare operator came to a CSP for a solution that could address its remote monitoring, transport, mobile access and data collection/storage needs, the CSP's IT department would likely build a specialized solution to meet all business and technology requirements. If a second request from another healthcare group came with needs different than the first, a new team of IT specialists would probably establish a custom solution and support effort for this customer. If more requests came in from other enterprise customers, each with different communications-related requirements as shown in Figure 4 below, this bespoke approach would not only be cost prohibitive but unmanageable, regardless of resource availability and customer involvement.

Figure 4 – Simultaneous Support of Multiple Business Models



- **Different business models** involving **multiple suppliers/partners** and diverse business needs; require a **new approach** to business support.
- **Traditional OSS BSS** were **never designed** to simultaneously address **wholesale** and **retail** business scenarios with **real time interfaces to both the end customer and each supplier/partner.**
- **Key requirement:** Address **business** and **operations** needs of **multiple unrelated industries** for the concept-to-cash process (plus others) from a **common platform**. Remember that **network connectivity** is only **part of each service offer**.

Source: Stratecast

A common thread that runs within several industries is the need to enhance the goods and services produced from many organizations with those of the communications marketplace to create new or improved customer-focused solutions. Already, mobile services added to some parts of the healthcare industry are making the patient-doctor experience better, as data from laboratory tests and medical imaging scans are centered on the patient instead of the healthcare clinic or hospital. In addition, remote monitoring of heart pacemakers, blood glucose meters, and prosthetic devices combine to deliver an end-to-end understanding by healthcare professionals of a patient's total medical condition thus creating an "enriched patient experience". At the center of this new way of doing business is a dedicated set of mobile communications links (and not just Wi-Fi), encrypted data collection functions and secure data storage processes offered by a growing number of CSPs in North America, Europe and Asia Pacific. Critical for long-term success is a means to support such services in a cost-effective, highly automated, and secure manner with the ability to provide adjustable controls to rapidly address changing market conditions.

A second point is the dependence of each industry on the communications marketplace to deliver a repeatable and cost-effective means to combine the communications-enabled products and services from one organization with those of another, where it makes business sense to do so. For example, is it fair to expect a better driving experience by combining "smart" toll booths with instrumented road sensors designed to minimize traffic problems, all the while engaging with an insurance company offering usage-based auto coverage? Could remote monitoring allow caregivers of critically ill or geriatric patients to offer better, more individualized help, while at the same time increasing responsiveness when it is needed the most? Will retail services become more cost-efficient by empowering inventory control and mobile banking to eliminate the front end check-out process—the largest cost item for any retailer? Can online retailing be improved so that a customer can start a purchase transaction online and finish at the retailer's storefront? Can a customer start a transaction at one retailer's website, and then finish at a partner's store when it involves an offer with components from both suppliers? Will management of a household's total utilities consumption cost-effectively combine, for all concerned, with more efficient ways to control usage based on individually set parameters—the "smart grid" concept?

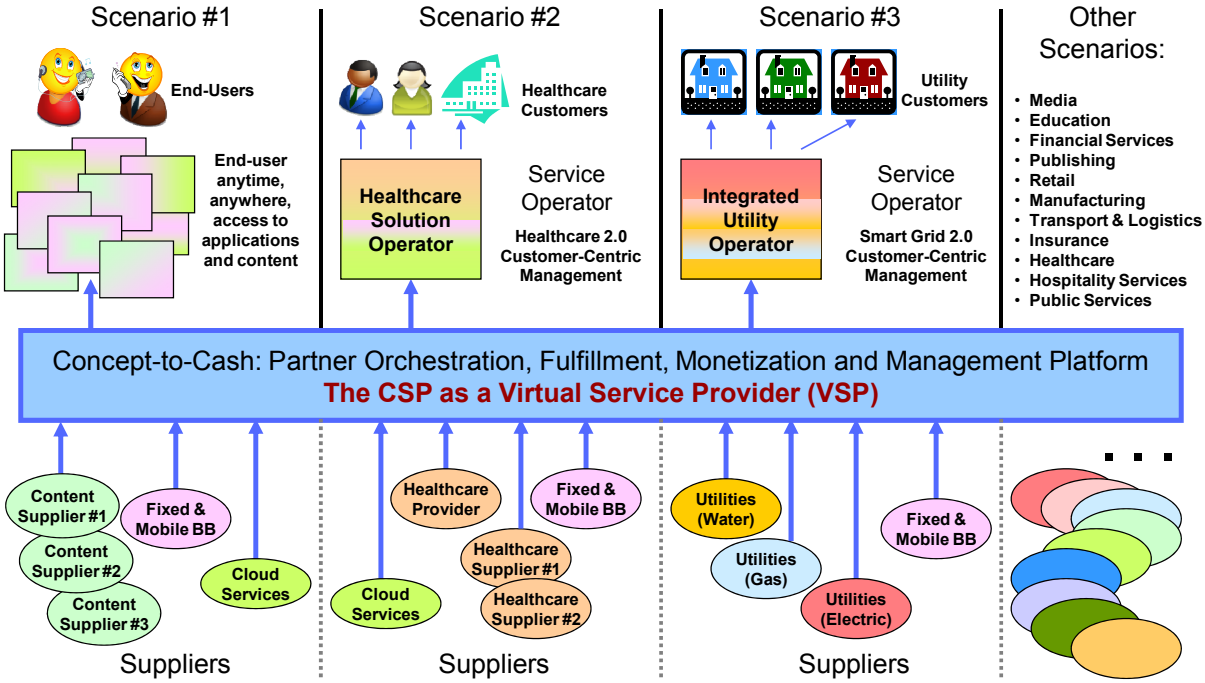
The challenge CSPs now face is how to best support the evolving communications needs of these industries in a consistent and cost-effective manner. Stratecast believes it is still too early to know just how far such business models will go. **In all likelihood, communications-enabled goods and services from multiple enterprises in multiple industries, especially those involving mobility, will be the next level of "normal" for the world over. No doubt this will involve change to both installed systems and current processes.**

A New Strategy for CSP Business Management

The greatest challenge for the CSP community is that the OSS BSS support requirements to deliver new business operations places an increased load on an array of "silo-focused by technology" systems. These systems were never designed to simultaneously address the real-time interactive needs of SME retail customers and wholesale suppliers. They also were not designed to support network-based connectivity combined with partner-provided applications, platforms and computing capacity delivered as cloud-based services.

Borrowing from the Amazonservices approach and applying it to the problem for industry collaboration from a common vein of communications enablement, Figure 5 below provides a functional definition for an "Enterprise Business Enablement Platform", initially geared to support the concept-to-cash process. In each scenario, some level of communications functionality is required, thus making the CSP an ideal candidate to meet the cross-industry business challenge. It places the CSP squarely within the Cross-Industry 2.0 world, if it can administer this function in a cost-effective manner. **Such organizations are then positioned as essential enablers of multi-industry services and products—something well beyond the stereotypical "dumb pipe" label often discussed today within many CSP circles.**

Figure 5 – Enterprise Business Enablement Platform



Source: Stratecast

The Business Enablement Ecosystem

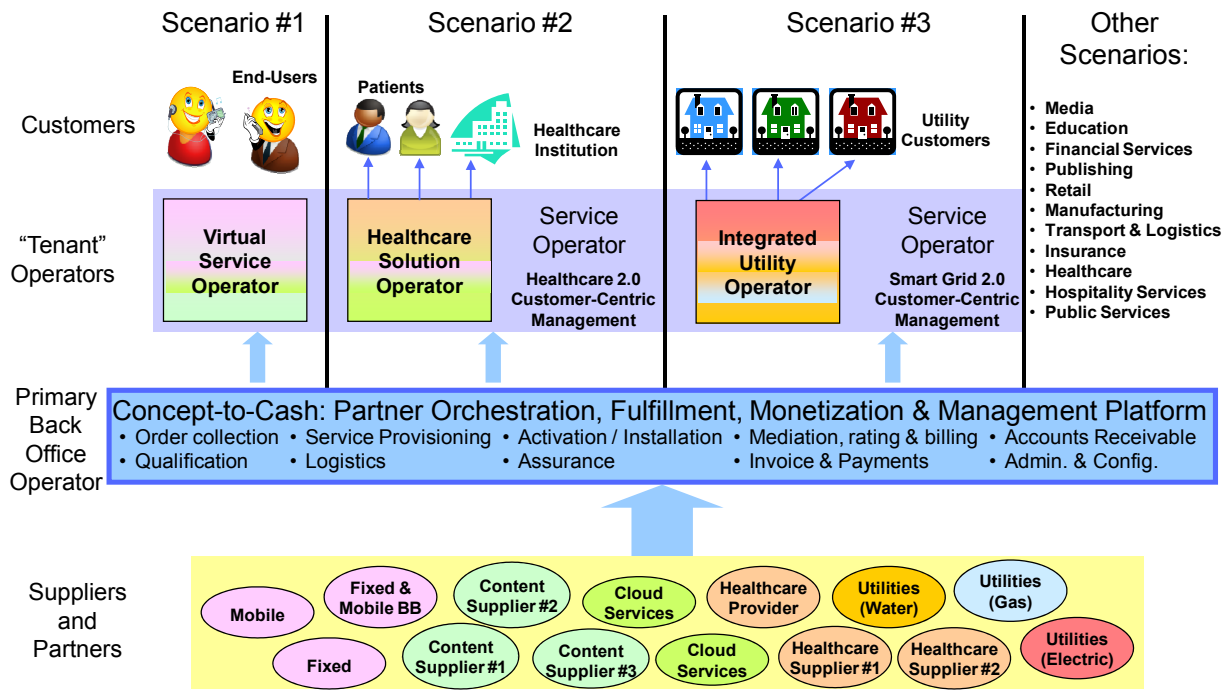
The Enterprise Business Enablement Platform creates a way for industries such as healthcare, utilities, logistics and a host of others to aggressively bring the capabilities of the CSP community to bear in advancing their business strategies. From the perspective of a CSP, this level of need demonstrates that new business models to augment traditional voice and data connectivity revenue are a foregone reality. It means that as business evolution accelerates, CSPs can implement multiple business models, which will ultimately play a major role in the race to keep customer satisfaction high and to tap new revenue sources from the business evolution opportunities now at hand.

Shown in Figure 6 below are the potential combinations of suppliers, partners, providers, and customers. There are three layers to this strategy namely:

- **Front Office and Direct Interface to Customers** – "Tenant" operators that use the enterprise enablement platform to deliver goods and services to their customers. Examples of tenant operators include Mobile Virtual Network Operators (MVNOs), retail operators, wholesale customers and any other Virtual Service Operators (VSO).

- **Enterprise Business Enablement Platform Operator** – This is the operator of the platform and party responsible for orchestrating supplier capabilities through the concept-to-cash process. This may be a service provider, wholesale aggregator, service bureau provider or any other Virtual Service Provider (VSP). This layer must address all business support functions (order management, customer interaction, business controls, billing and service quality management) from each of the supplier sources and orchestrate the network technology interaction requirements (provisioning, activation, and application & service quality monitoring).

Figure 6 – Enterprise Business Enablement Ecosystem



Source: Stratecast

- **Suppliers and Partners** – Suppliers of network connectivity and interactive content from different enterprises within multiple industries. Generally, several suppliers come together to deliver the capabilities needed to address the support requirements for services sold by tenant operators. The significance of this proposition is that any supplier can also be a tenant – hence the term "partners".

Cross-Industry 2.0 BSS Requirements

The key attributes for enabling the vision described by Figures 5 and 6 above require a platform to not only be cost-effective and easy to use in setting up new business opportunities, but it must also provide flexibility and responsiveness to changing business conditions. More specifically, it should:

- **Support Unrelated Businesses** – Just like the Amazonservices model, each unrelated supplier/partner would address its customers in a secure manner. Each supplier/partner, as a tenant, would need to take advantage of white-labeling capabilities so they can operate under their own branding. The communications needs of each supplier/partner would be addressed with combined broadband network connectivity (wireless and fixed-line) and additional functionality, as needed, from either the supplier or in combination with other suppliers.
- **Provide Fully Automated Processes** – The business process steps for enabling an end-customer of both the supplier/partner or service operator rests in simple and fully automated work steps. It must allow end-user customers to make service selections, which are then implemented in a flow-through manner with minimal or no intervention. For the network connectivity part, most fixed-line broadband connections require resource scheduling and

physical installs; however, customers expect mobile broadband to activate "while they wait". Once network connectivity is available, other service options are expected to automatically provision and activate.

- **Supply Essential Business and Operations Support Functions** – Key business functions including customer interaction, product review and selection, purchasing, solution delivery, trouble management and billing are needed to address the business relationships between suppliers, tenant operators and customers. The Enterprise Business Enablement Platform's solution delivery function would interface with each supplier's systems to satisfy customer requests. For example, the platform would interface with a CSP's order management system and related OSS BSS to meet the network connectivity portion of a solution offer, as well as link to other supplier/partner interfaces.
- **Integrate with Existing CSP Processes and Systems** – While efforts continue to improve the combined network access and content services processes for every CSP today, the Enterprise Business Enablement Platform would be "free standing" relative to existing CSP processes and systems. It would interface with these as needed, using open standards such as taking advantage of the flexibility offered through JavaEE and Web services (SOAP, XML).
- **Facilitate Ease of Use in Establishing New Business Scenarios** – Allow tenant operators to change service offers by adjusting the type of content or level of detail contained within each offering. For example, allow a simplified means to update medical results documentation or device specifications. Allow a simple means to add new suppliers of other components to establish new services or update existing ones, and provide the capability to easily add the associated pricing, including discounting or bundled offers.
- **Enable Adjustable Business Controls** – Bring a level of policy-based usability control to any offered service according to business need. Allow certain functions to execute only when other events have transpired. Policy could be applied by suppliers, tenant operators and, in some cases, end-user customers. These, like any policy-based usage scenario, could contain a time-based or action-based usability component or financial definition.
- **Incorporate an Open Standards Orientation** – Use the most recent advances in software development technology to keep the Enterprise Business Enablement Platform easy to work with through open interfaces and discovery methods. This implies two technical needs. First, a data architecture consistent across all components of the platform. Second, involve the most advanced technology tools for both the platform and systems interfaces.

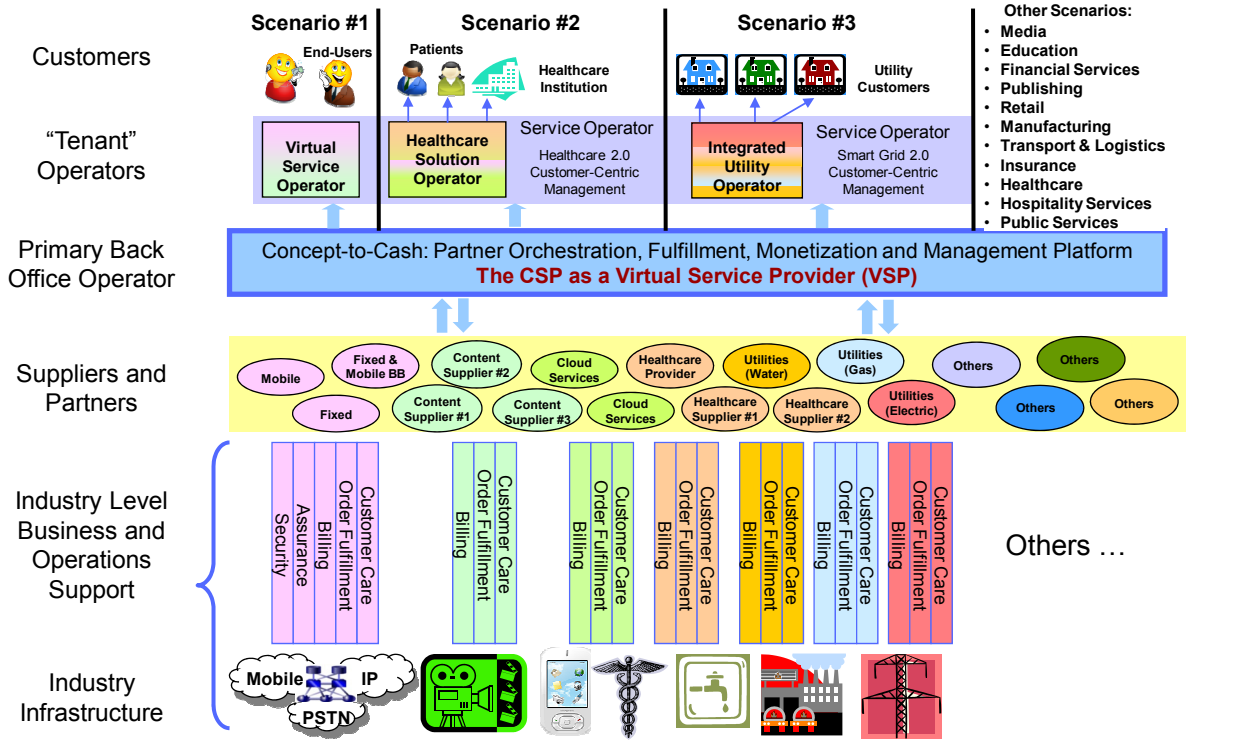
Stratecast believes the cross-industry 2.0 strategy represents how all network operators need to think from now on. Some CSPs have "caught the vision". They are engaged in deep partnerships with similar forward-thinking suppliers to re-design service offer fulfillment and activation to operate in real time (seconds, minutes) rather than more traditional segments of weeks and months. At the same time, these CSPs must also push their supplier community to continuously advance solution offers to meet both internal and external business requirements. **The concept of cross-industry services is still new for many CSPs, so there is hope the organizations that have not yet embraced it will soon realize that the business model that has served them well for the past 120 years will not profitably do so much longer.**

Part 2 – Orchestrating OSS BSS Involvement for New Revenue

Realizing the Cross-Industry 2.0 Vision

For many CSPs, the Enterprise Business Enablement Platform is a step into new territory, and likely an alternative that may not have been considered by most organizations in the current quest to simplify operations, lower costs, improve customer satisfaction, and build new revenue streams. While the Enterprise Business Enablement Platform may seem like another BSS OSS silo, as shown in Figure 7 below, it is an enabler that satisfies a different set of business objectives than what a traditionally defined suite of BSS OSS was meant to do.

Figure 7 – BSS Orchestration for Customer and Supplier/Partner Support



Source: Stratecast

There are several industry suppliers that have organized and orchestrated end-to-end BSS OSS solutions to help CSPs, engaged in a traditional communications technology services model, to be more effective in addressing the customer order, service delivery, billing, and service assurance functions. All of these solutions are focused, at minimum, on improving the concept-to-cash process for communications services; and, at best, on support of network connectivity services combined with third-party content. These solutions have rarely been implemented in an end-to-end fashion from a single supplier, at least not with the Tier 1 operators, for business reasons that are beyond the scope of this report. Most were initially targeted at specific demographics or technology silos (cable, fixed-line, mobile, broadband data), but now all claim to address a multi-technology business environment. Few, however, talk about support for enterprise customer needs within the externally-focused context discussed throughout this report and as shown by Figure 7 above.

The Enterprise Business Enablement platform is an orchestration layer requiring significant abilities to interface with a CSP's established OSS BSS environment and the systems of other industry suppliers/partners. While it may feel like ANOTHER BSS or OSS SILO, it is clearly very different, with an external-facing horizontal orchestration purpose rather than service support for an internal-facing BSS or OSS vertical function such as billing, self care, provisioning or assurance.

Based on recent insights gleaned from the strategic annals of several Tier 1 and Tier 2 CSPs, Stratecast believes that a horizontally-focused business enablement platform will help address the rising new generation of enterprise customer needs. This is especially important as cloud services gain traction throughout the IT departments of all industries.

Infonova R6 Platform – A Generation Step Change

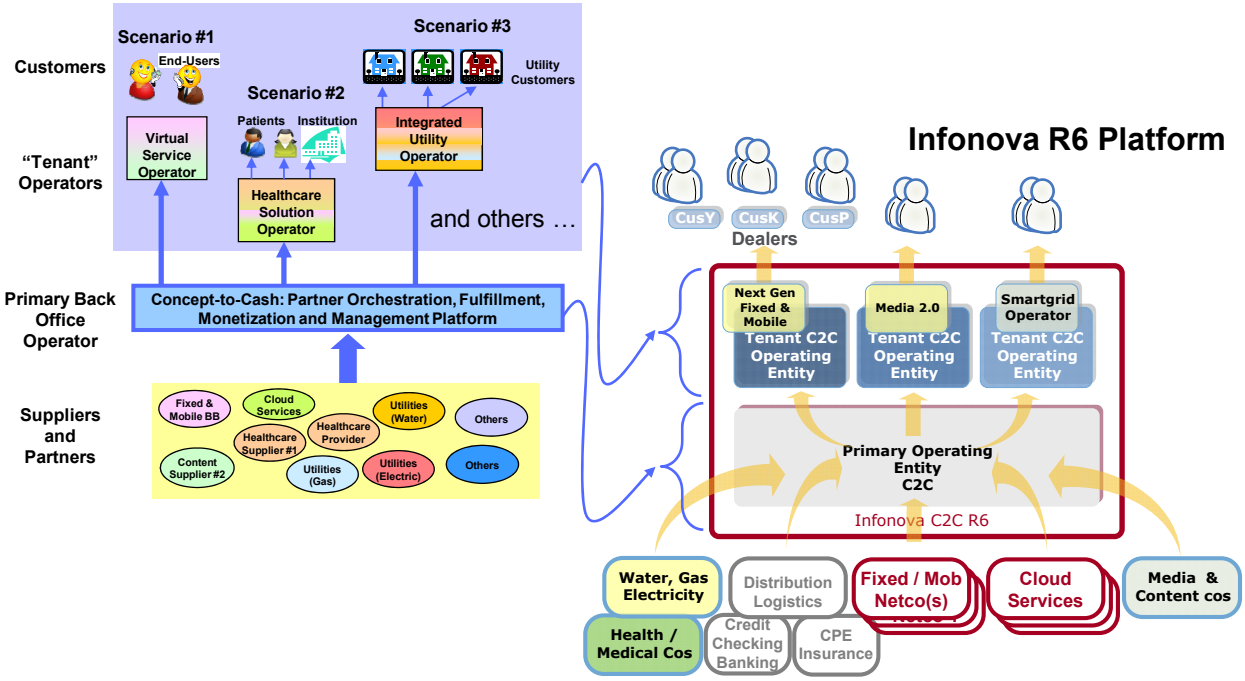
The Enterprise Business Enablement Platform is an interface between the end-customer or business-enabling tenant operator and the goods or services provided by various industry-specific suppliers/partners. It must be more than an industry vision, long-term strategic goal, or discussion point if the CSP community plans to meet the operations needs of enterprise customers engaging in cloud-based services, or in offering network connectivity-enabled products to their customers.

The Infonova R6 platform offers front and back office support to satisfy multi-layer business models now faced by several CSPs today. It includes the ability to address triple and quad-play bundling, tenant-based white label services, wholesale products, and advanced partner models. It is designed to meet the operations needs of existing business models and new ones through the flexible aggregation of legacy and content-based services. Shown in Figure 8 below, it addresses the needs of each layer of the cross-industry 2.0 value chain from Customer → Tenant Operator → Primary Operator → Supplier/Partner. More specifically:

- **Tenant Operators** – Infonova R6 offers tenant operators a unique brand image with regard to front office activities. Unlike the Amazonservices platform, it provides support for the combined product definition of goods or services from multiple supplier/partners. It delivers support for marketing campaigns, brand management, initial sales, product management, business rule configuration, and first-level customer inquiries. It also addresses the financial functions involved with credit verification, billing for one-time or recurring transaction-based needs with user-defined policy controls and collections.

- **Primary Back Office Operator** – Infonova R6 provides all OSS BSS functions to support end-customer and/or tenant operator needs. OSS functions include order collection, qualification, provisioning, logistics, activation, and second-tier trouble support. Addressable business management functions include customer care, mediation, rating & charging (for prepaid, postpaid and real-time), invoicing, accounts receivable, payments, and business administration. Infonova R6 accomplishes all of these functions through a JavaEE platform architecture that facilitates a solution design involving interfaces with external systems by way of simplified Web services (SOAP, XML), and through its ability to encapsulate and orchestrate legacy interfaces.

Figure 8 – Infonova R6 Platform



Source: Stratecast, Infonova

Smart Grid Case Example

The service offers described in this cross-industry example have been deployed and are operational today. The example involves a public utility operator that also provides cable TV and triple play services.

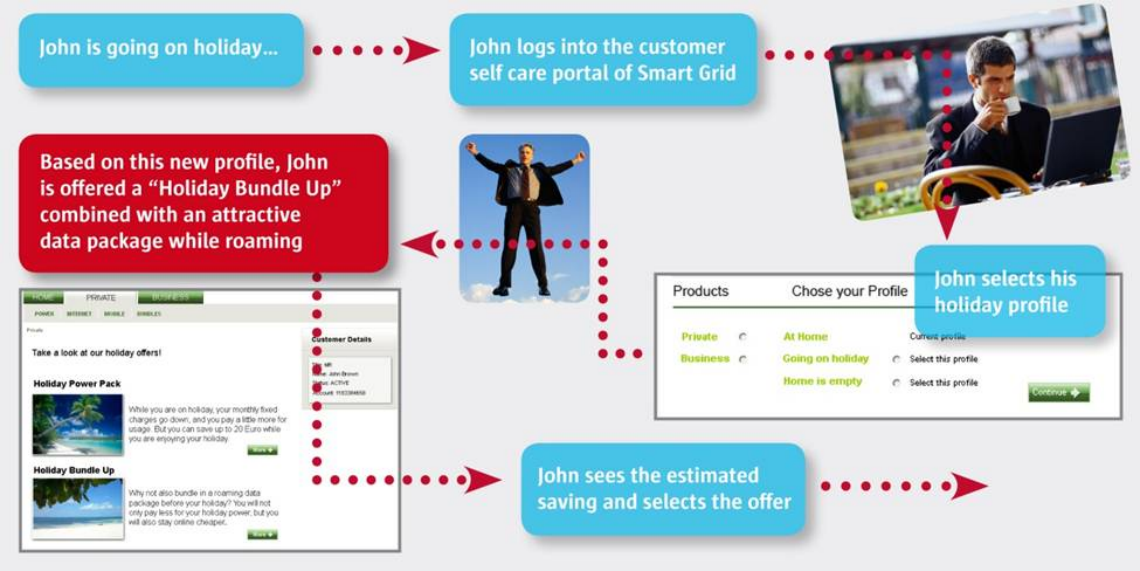
The utility operator recently established a fully integrated Smart Meter Data Management Aggregation system, which allows it to provide a consumption management offering for SME customers and local consumers of both organizations. This came from the need to go "green" and orchestrate multiple service types such as electrical power, gas, water, and telecommunications services as a single customer-focused offer. The operator believes it has delivered significant competitive advantage by using the Infonova platform and is planning to expand to other service areas soon.

In this case example, the key functions provided by the Infonova platform include: profile-based customer billing, zero touch provisioning of each service type, and demand management. Prior to a full launch of the consolidated multi-service offering, initial "user friendly" tests demonstrated how the utility operator could reduce peak demand and even reward customers for off-peak utility usage through incentives such as loyalty points and discounts. Similar incentives can be provided for its mobile roaming data services plan.

There are several ways in which customers may choose to engage with this solution, some yielding higher customer satisfaction value than others. One scenario, from the end-user perspective, consists of the following:

- A customer named John decides to go on holiday. Prior to leaving, as shown in Figure 9 below, he accesses the self care portal of the "smart grid" offering delivered by his utility operator. He selects his "holiday profile". Infonova R6 allows the operator to set up customer-selectable logic options such as "on holiday," "at home," "at work," or others that can be pre-defined by the customer with certain "usage parameters" either enabled or disabled. When a profile is selected, the pre-defined usage options become data points for business rule triggers.

Figure 9 – Customer "Smart Grid" Service Offer Process Flow (1 of 2)



Source: Infonova

- John browses further and notices there are different holiday packages, some of which carry appealing incentives for both energy consumption and roaming data/voice services. John selects a bundled holiday offer with savings on his electricity billing at home and use of mobile data when roaming. In this case, Infonova R6 provides the capability to execute special campaigns that are activated according to pre-set business rules and gives the flexibility to respond to the individual profiles of each customer in order to boost sales by customized offers.

- Two days after leaving home, as shown in the top portion of Figure 10 below, John receives a text message indicating his electricity consumption jumped to a higher than expected level. Infonova R6 allows the smart grid operator to set rules that automatically trigger messaging alerts when certain conditions become unusual. In this case, a message was generated and sent to the customer, who had chosen an "on holiday" setting, when the power consumption in his "empty" home suddenly went above a reasonable "holiday threshold". This alert enables John to call his neighbor to check on his home – just to make sure.

- Upon returning home, through his hybrid TV as shown in the bottom portion of Figure 10, John reviewed a graphical report of his electricity consumption. Infonova R6 provides the smart grid operator with a capability to define a variety of product and service bundles. The solution manages customer and product lifecycle information, as well as the products and services that are sold and consumed. This enables the platform to give a 360 degree view of the data. The

smart grid operator is able to provide real-time customer reports that show how individual usage compares against a neighborhood average and against the most efficient customer.

Figure 10 – Customer "Smart Grid" Service Offer Process Flow (2 of 2)

Source: Infonova

Multi-Media 2.0 Case Example

The service offers described in this multi-media example have been demonstrated in a Proof of Concept (POC) that was originally conceived to evaluate the operational requirements and opportunities of HbbTV capabilities. The POC involves collaboration between a European broadcast network operator and two media delivery, a.k.a. media content, operators. This hybrid TV example crosslinks linear digital TV content distributed in DVB networks with on-demand content delivered via a broadband IP connection.

The broadcast network operator, rather than a communications service provider, has deployed the Enterprise Business Enablement Platform – Infonova R6. The broadcast network operator delivers various business support functions for the service options offered, and for the customer interaction required from the CSP and from each of the media delivery operators. All of them act as suppliers

and tenant operators in this setting. These BSS functions include customer self care, provisioning and billing interactions between the customer and each supplier, as appropriate, to enable this integrated TV experience.

Specifics about the roles played by the broadcast network operator and each supplier are:

- **Broadcast Network Operator** – The TV portal broadcaster is enabled to extend its brand to the non-linear world as the TV portal is managed and controlled solely by the broadcast service provider—but it could also coordinate and orchestrate the correct grade access services from a CSP so that the customer receives the right VOD experience.
- **Media Content Provider #1** – Today TV, a typical public service broadcast operator, can now offer "OTT" VoD services.
- **Media Content Provider #2** – Star TV, a typical commercial broadcast service operator, offers paid video services.
- **Communications Service Provider (CSP)** – The CSP is able to guarantee delivery of the right high-speed network connection that, from a customer's perspective, is always available, always capable, and fully reliable. For this example, it is assumed the fixed-line broadband connection is in place.

As with the smart grid example, there are several ways in which customers can engage with this solution. One scenario, from the end-user perspective, is as follows:

- Susan and Bill live together with their son Malcolm. Each is watching TV, as shown in the top portion of Figure 11 below. Susan is absorbed by a documentary on Today TV, a public broadcast service, while Bill is watching a different show, but decides to purchase a movie on Star TV.
- Susan soon decides to watch a VOD documentary rather than the broadcast service she was tuned to previously. She can choose free or registration required content. After choosing the registration option, she is given multiple ways to complete the process and receive the requested video, as shown in the lower left portion of Figure 11. Infonova R6 allows the video supplier to engage in a direct viewer relationship, which ensures the transformation from anonymous mass audience to registered viewer and a new set of revenue opportunities. Susan also selects the inexpensive "HD Booster" option that is offered to her as part of the registration, so that she can enjoy her documentary with improved quality.
- Bill selects VoD content from the "Videowall" of Star TV and immediately notices an advertising banner inserted discretely in his content screen, as shown in the bottom right portion of Figure 11. Infonova R6 provides for the monetization of any business model related to hybrid TV services such as linear pay TV, free VOD, transactional VOD, subscription based VOD, and ad-funded VOD. Smart advertising is not limited to TV ads in the linear TV channel any longer, but extended to advertising banners in the broadcaster branded TV portal.
- A pre-roll ad runs before the start of Bill's movie, based on his set-top-box profile. Infonova R6 accounts for video ad insertion (pre-roll, mid-roll, post-roll) using device profiles, which opens up new options to increase advertisement revenues and customer loyalty through lower content payment costs.

- Malcolm can also decide to purchase some premium content, but his parents have set up his profile in a way that the real-time consumption is only possible when there are enough funds on his pre-paid balance.

Figure 11 – Media 2.0 Content Selection and Billing Review Process Flow

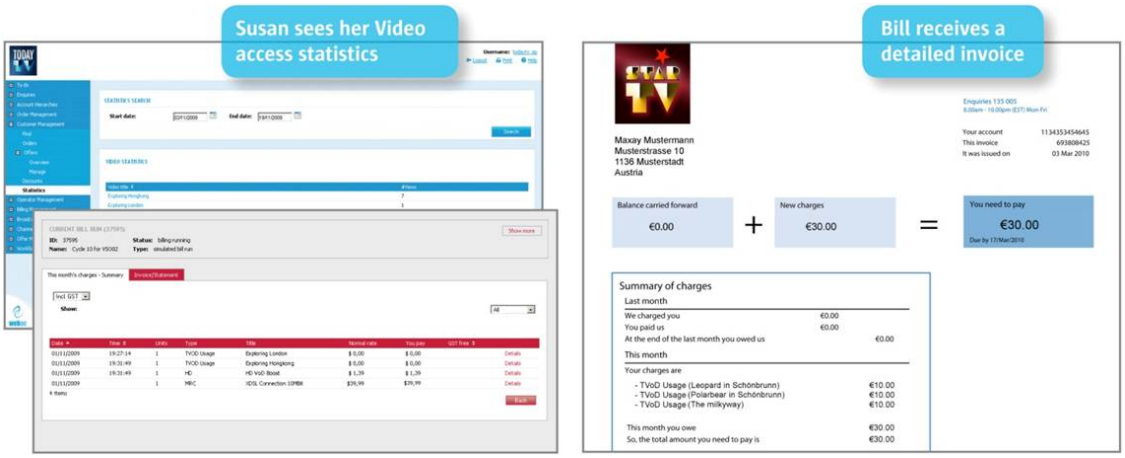
Source: Infonova

- Following the end of her show, Susan views the video access summary, which includes a detailed invoice for the HD Booster option that she purchased via her set-top-box, as shown on the left side of Figure 12 below. She is given an option to pay for these services via a credit card transaction or, because of her excellent payment history she can add these charges to her regular

monthly subscription billing for her broadband access service, payable at the beginning of each month.

- At the conclusion of Bill's show, he receives an invoice for the videos he purchased as shown on the right side of Figure 12. He too is given different options to pay immediately or add to his monthly broadband access service bill.

Figure 12 – Media 2.0 Billing Record



Source: Infonova

In all three cases, Infonova R6 enabled the aggregation of billing transactions, for on-demand content delivered from two different suppliers with those for the broadband access services (e.g. HD Booster service package). Based on partner agreements, the broadcast network operator, through Infonova R6, enables each media service operator to provide their own media services within a seamlessly integrated environment from the customer's perspective.

Stratecast
The Last Word

If industries such as education, healthcare, publishing, and social networking view significant new business opportunity by using the converging communications marketplace to make their goods and services more appealing or to create a better customer experience, then shouldn't this be a sign for all parties to line up with this collaborative approach to business? Remote healthcare monitoring, smart gird utility metering, and even the "app for everything" world of 3G mobility are perfect examples of why CSP transformation to deliver the best solution options from the end customer perspective are essential for long-term survivability.

Cross-industry 2.0 is then defined as the collaborative interaction of goods or services from one industry that, when placed together with those from another, create an impressively changing assortment of offerings that improve business efficiency and customer appeal. The one plus one equals three or more concept. This movement should bring new opportunity to all parties involved. But who has the most exposure, risk and upside opportunity? That will be determined through the creative insights from many working collectively and separately now and through the months ahead.

IT circles talk about cloud services, and some now deliver in various industries such as Amazon.com and even Intuit, the maker of TurboTax and Quicken—the back office expense management software for consumers and small business. But more is coming. The common thread? Simple information delivery through the fastest data transport available and a whole lot more, IF a CSP is ready to engage in new business models that are different from what has defined the telecommunications sector for more than 120 years.

Stratecast believes industry suppliers have maneuvered to establish end-to-end OSS BSS solutions that meet the *inward-facing business concerns* of the CSP community at large. While a great start, the Cross-Industry 2.0 approach goes one step further to meet the flow of *customer information and interactive communications between industry entities in an outward-facing role to address the collaborative business needs of enterprise-level customers*. Infonova R6 is a good example of how to address this business concern from a single platform, especially as the cloud-based solution concept gains strength within the IT channels of all industries. It is designed to work with multiple suppliers, partners and tenant operators that add business value to the service offerings delivered to consumers and enterprise customers.

We, as an industry, are at a crossroads collectively involving more innovative powers at our disposal—from our enhanced abilities to share information—than from the combined discoveries of the last few decades. The challenge lies in using these powers to better enable and more effectively create an environment of business opportunity geared to make life better for all in maturing markets and growth areas alike.

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