

Communication – As Easy As One, Dos, Trois

An Executive Brief



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EXECUTIVE SUMMARY

Information about business processes, customers, network status, and external suppliers is critical for Communications Service Provider (CSP) business success. A CSP's products and services use different sets of data for different business requirements both internally and externally. For example, provisioning, billing and monitoring the quality of customer services require automation in the form of Operational Support Systems and Business Support Systems (OSS/BSS). Each of these systems uses data, some of which is unique to only one system and some of which is common to all. As part of daily operations, the equipment forming today's networks generates a lot of information that must flow freely into many different OSS and certain BSS. Additionally, CSP work teams use network and systems data to address a variety of business tasks that often are not addressed via automated means. Finally, organizations outside the CSP, whether they are trading partners, regulatory bodies or even shareholders, require access to portions of a CSP's data to meet a growing number of unique business requirements.

Data and the flow of data between CSP work groups and external organizations define the "information challenge" within the converging communications, computing, media, entertainment and advertising market. The crux of the problem is tied to delivery of the right information, in the right format and definition, to the right places, at the right time. As such, the information challenge is a real business concern that drives day-to-day operational decisions faced by all CSPs globally, regardless of size or area(s) of focus.

For information to flow properly between systems or organizations, the involved data must have the same meaning for all parties concerned. If it doesn't, additional effort must be expended in translating the format and usually the syntax of the data at one or both ends of the information exchange. When required, this usually adds additional time and expense to any business process, especially within today's real time business environment.

The information challenge is a major industry concern when the exchange of information fails somewhere along the information supply chain. Without addressing this problem, increasing operational efficiency becomes difficult or impossible, as too much effort and expense must stay focused on keeping the flow of data running smoothly. In today's environment, the flow of critical business data can become disconnected because the systems, and even work groups, do not communicate the same information from one step to the next. A simple information exchange, which should be as easy as "one, dos, trios," has become anything but simple or easy.

This report looks at the global CSP information challenge and identifies ways for addressing this problem by focusing on what Stratecast views as industry best practices for data exchange.

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THE INFORMATION CHALLENGE

The lifeblood of a CSP is information. Within any provider, vast amounts of information are used continuously through the day-to-day business of delivering services, which in turn creates significant amounts of new information about customers, about network operations, and about how a CSP operates its business. All of this information can be catalogued and stored to assist a growing number of processes. For example, each CSP service offering requires different data sets associated with the negotiation, provisioning, activation, monitoring and billing processes to name a few. Facilitating the flow of data into an “information stream” suitable to support these processes requires automation in the form of OSS and BSS.

Typically, an OSS or BSS uses data from other systems and/or network equipment to accomplish a business task. Each system involved in a process then generates additional data to be passed to yet other systems. When a process completes, or aborts due to a variety of potential problems, the data from each system aiding the process is generally collected, aggregated, sorted and/or collated into a stream of information that can be used for a variety of business management needs. Not all data generated by a process is logged or mapped. Some data may be common between many systems and some may not. Additionally, the equipment that forms a communications network comes with a considerable level of data generating capabilities that, when added to systems data, can create a mind boggling heap of worthless detail or a critically-needed, high-value stream of information.

Different work teams within a CSP—purchasing, network engineering, marketing or finance—all use and generate different sets of data according to each group’s business needs and the systems they use. Often these needs change with little advanced notice. Outside organizations including suppliers, trading partners, regulatory bodies and even shareholders, need access to portions of a CSP’s operational data as well.

Effectively using customer and internal management data in both a micro-sense (system-to-system, within a department or group, etc.) and macro-sense (across the CSP and or externally) is a difficult challenge. It requires increased business attention, as automation of processes and work functions continue to define success in today’s changing business climate. Data, and the flow of data, are today’s “information challenge” for the converging communications, computing, media, entertainment and advertising marketplace.

The information challenge is not just about volume. Data storage capacity today is relatively cheap compared with the past, and accessing data via high-speed networks is no longer a monumental and costly task. The information challenge, however, is taking the huge volume of data generated by day-to-day business for an enterprise, or for a CSP, and turning it into information that is useful and accessible by all systems, internal work teams and external partners.

Because the information challenge affects the entire CSP, including entities outside of its corporate boundaries, developing an information strategy can be challenging due to the number of potential stakeholders, each with different interests at hand. To truly address the information challenge, a comprehensive information strategy must be driven from the top. Only in this manner can executives and the whole of the organization be provided with one holistic and meaningful view of the business and the information that runs it.

The information challenge is a communications problem involving delivery of the right information to the right places at the right time for making critical and necessary business decisions. It resides with all CSPs globally, even those that have taken steps to reduce the issues associated with today’s business complexities. This challenge has a real cost component that adds up across an organization. These costs include not only increased operational expenses, but also unrealized revenues from products and services that are not getting to market as quickly as possible. Controlling such costs can be the difference between realizing a healthy profit and suffering a disappointing loss. Business success for the long-haul is focused on how well a CSP manages the data that defines its internal operations and its association with both customers and suppliers.

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Understanding the Problem

The information challenge is not new in telecom. Even in the days of CSP monopolies, data concerns were present. With global telecom market liberalization, however, many players (incumbent CSPs, new entrants, and successful CSPs from other geographies) now operate within increasingly crowded markets. Growth objectives are met by offering innovative products and services, but as competitive forces drive innovation up, they also push prices down. For CSPs to compete, they must operate as efficiently as possible with existing service offerings and continuously bring new products to market.

Automation is critical for achieving operational efficiency and in the quick introduction of new service offerings. Most OSS/BSS were implemented to address various automation needs. Additional automation, however, only increases the information challenge. Not only are there more systems using more data, but that data must now be shared between systems, in many cases at near real time, all without human intervention. To date, many of the efforts to address the information challenge have been aimed at decreasing integration costs between systems and with network/IT equipment.

Integration costs are often associated with bringing a new OSS/BSS online or with the merging of two companies' systems after an acquisition. Other integration challenges include working with a new trading partner or offering a new service. Information exchange between CSP departments is crucial, but often difficult, because of the need to translate data into different formats or definitions for different business purposes. For example, a CSP purchases a piece of network equipment the vendor calls "EquipmentProvider SuperSwitch 2008 Model A237 Revision 6-3." Within the CSP, the purchasing department may refer to this same piece of equipment via a purchase order number. The network engineering department may refer to it as the new "SuperSwitch." Within the various automated systems, this same equipment item may be defined as the "Device092008", "SuperSwitch2008-004", "EPSS2008", or any other designation or combination of names. As the number of parties that deal with this piece of equipment increase, so do the potential ways in which this device can be referenced.

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While this example may seem extreme, it unfortunately occurs repeatedly and regularly throughout the global communications marketplace. Real-world cases have found the same device referred to by tens or hundreds of different names within the same organization. Translating the naming designation of an equipment item to match the needs of each system referencing it without some level of naming convention, quickly becomes difficult and costly. An obvious solution in reducing this complexity is to initiate a strategy involving a unique identifier for each equipment item that can be referenced by all users accessing any data associated with this device. Implementing such a strategy, however, is often easier said than done.

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In addition to the systems integration issues CSPs must regularly address, market liberalization has driven both competition and cooperation between providers. Competition fuels the need for efficiency and automation, as previously discussed. Cooperation pushes the information challenge outside the bounds of a CSP. In today's marketplace, services and content, actually delivered by other companies, is regularly "purchased" by a CSP for delivery to its customers. For instance, a CSP may sell mobile phone service and bill for that service, but the actual service is provided by another operator. Television access is another example. Many CSPs now partner with cable and/or satellite companies to provide a triple or quad play bundle of service offerings that include video, digital voice, broadband internet access and mobile services. These examples clearly show that a CSP must not only handle the information challenge within its own systems, it must be able to seamlessly interact with systems from other CSPs.

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Addressing the Challenge

Incremental progress in reducing integration costs is continuing, particularly with regard to OSS/BSS integration. A variety of integration architectures and approaches now include an Enterprise Service Bus (ESB), Enterprise Application Integration (EAI) and more recently Service Oriented Architectures (SOA)¹. These approaches reduce, but do not eliminate the difficulties or the costs associated with data integration as they do not address the underlying data architecture².

An additional step toward lowered integration costs lies within the bounds of a common data model. Several months ago Stratecast stated that “As SOA implementations proliferate, CSPs are recognizing that without careful attention to data architecture, integration remains difficult. For this reason, an emerging priority for CSPs and the vendors that serve them lies in resolving data mismatches and in creating a formal structure to effectively validate OSS/BSS data through a common data model³.”

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The most recognized communications industry data model is the TeleManagement Forum’s (TMF) Standard Information and Data model (SID). Stratecast found that 82% of responding CSPs in a recent survey⁴ used a common model and the vast majority of these organizations reference the SID.

The TMF SID is a model. It leaves the actual utilization details up to the implementing organization. The Stratecast survey reflects this fact, with most companies using the SID as their common model “starting point” and then tailoring it to the unique needs of their organization. A “common” model implemented across an organization brings many benefits, but losing some of the industry-level commonality raises several integration issues that are beyond the scope of this report with both internal OSS/BSS and with content suppliers/partners as commonly expressed when referencing the SID.

Realizing the Benefits

The information challenge for CSPs today revolves around the huge volume of data that is generated by its network, the services riding the network, and the systems supporting a variety of business/operational concerns including customer care, service provisioning, network monitoring and billing. This data must be aggregated, correlated, and sometimes translated into useful information streams that can be applied throughout the organization and in select instances, shared with groups outside of the CSP.

The most obvious benefit in accomplishing this task comes from the work aimed at simplifying or even resolving the information challenge, including the efforts described above. If the information challenge is reduced, systems work together better, automation is increased and the organization is more likely to operate efficiently. Efficiency leads to lower operating costs and ultimately higher profits. Groups within a CSP get the information they need to do their jobs. Partnering with other providers to offer additional products and services becomes easier. Customers are more pleased with the service support they receive. Shareholders enjoy the rewards of profitability. Even regulators get the information they need.

Much of the above discussion treats data and information as if it has a short-term lifespan. However, new regulations around the world now require retention of much of this data for long-term use, primarily for law enforcement mandates⁵. While the goals of the new laws are primarily to fight terrorism, this wealth of information

1. Please see Stratecast report “*OSSCS 07-03: Service Oriented Architecture Overview and Best Practices for Telecommunications.*” For copies of this and other Stratecast reports referenced in this document, please contact your account executive, email inquires@stratecast.com or call +1-877-463-7678.

2. In this discussion, data architecture includes the size, structure and format of the data fields, as well as the syntax and naming nomenclature of the data values.

3. See Stratecast report “*OSSCS 08-05: Reducing OSS/BSS Integration Costs Through Common Information Modeling.*”

4. Ibid.

5. See Stratecast reports “*SPIE 2007-37: Global Network Surveillance Demands Drive New OSS Practices*” and “*SPIE 2007-43: Regulatory Mandate for Data Retention – DRAGON of a Challenge.*”

can become a huge benefit for CSPs that embrace a holistic data management approach and take advantage of such storage requirements to support any number of evolving business needs where an aggregated view of such data can add business value⁶.

One emerging OSS/BSS functional area is Telecom Information Management and Analysis⁷, which deals with how a CSP manages this large amount of data, but also how a CSP can effectively utilize it. The benefit comes from analysis of the data for a wide variety of business intelligence purposes, including auditing, marketing, customer assurance and strategic planning. One particularly powerful use of this data lies with predictive analytics feeding marketing strategies⁸.

Using operations data longer term creates new issues, some of which are beyond the scope of this paper, but some involve the same solutions as with integration between OSS/BSS. In particular, the use of a common data model insures the structure of the data from different sources is the same when it is collected, when it is first reviewed and when it is archived. There is another step, however, that must be taken to fully utilize this data short-term and for the long-haul. The next step is defining what the data means.

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The Next Step

For an information exchange to work, the data must have the same meaning for all parties involved. The communication between a parent and child is a simple example of this concept. If they are talking to each other, they have defined how to exchange data. They both understand the structure and the rules of the language they are speaking. But if the words used in the exchange do not have the same meaning to each party, the information exchange fails miserably. More specifically, if the child exclaims that their best friend is “bad”, the parent may have concerns about this friend, while the child is trying to convey that they like the friend and think the friend is “cool” and important in their circle of involvement.

Ultimately the information challenge arises because information exchanged between systems, work teams and/or other companies, fails somewhere along the communication pathway. A number of approaches for addressing this issue have been tried and proven with various levels of success. One approach, offered in a variety of forms by several vendors⁹ today, essentially adds a translation layer. This approach can be illustrated by how communication occurs at the United Nations. A speaker delivers a message in their country’s native language and all the listeners receive a translated message in their own language. Assuming the translator accurately interprets the original information correctly, the same message is provided to a number of people speaking many different languages, which would otherwise be next to impossible to deliver.

The translation method works very well in some instances; however, the drawback is that there must always be a translator involved for the information exchange to be successful. Translation also has problems with synonyms or words that can be used *at times* interchangeably. Unfortunately it is often difficult to know when to use one word and when to use a synonym.

A simpler approach is to skip the translation step and just speak the same language. It is often said that mathematics is the universal language. This may be because humans didn’t invent it...they discovered it. Mathematicians know math is the same in the United States, in China, in France and even in other galaxies. Whether you speak English, Spanish or French, $(5 + 7)/2 = 6$ and Pi is still approximately 3.14159.

OSS/BSS must receive data in a particular format and syntax hence, to further communication between systems, interconnection using a common information bus and appropriately defined messaging protocols still does not

6. Stratecast believes that CSPs can meet the specific needs of recent data retention directives such as the European Union Data Retention (EUDR) and keep pace with the use of such data at an individual level to protect privacy rights of individuals. At the same time, with no additional effort regarding data storage requirements, this data in an aggregated state can shed significant insight into how customers use services, which could then feed to a number of internal departments.

7. See Stratecast report “*OSSCS 06-09: Telecom Information Management and Analysis – A New OSS/BSS Function.*”

8. See Stratecast report “*OSSCS 08-06: Predictive Analytics Powers Communications Service Provider Marketing Strategies.*”

9. See Stratecast report “*OSSCS 08-05: Reducing OSS/BSS Integration Costs Through Common Information Modeling.*”

guarantee the information flowing from one system can be interpreted correctly by the receiving system. Data must be understood correctly by both systems via a standardized naming convention or use of translation mechanisms. If a commonly understood naming convention is not used, a translation step, as just explained, must be included in any message exchange strategy. Without question, such reliance on translations will be the highest risk and most concerning part of any data integration and communications implementation.

NAMING NOMENCLATURE

The information challenge affects all CSPs, big and small, in all regions of the world. Many are actively trying to address this challenge by implementing SOA and storing data utilizing a common data model, often with the TMF SID as a starting point. But what are CSPs doing about the “next steps”: turning the conceptual SID model into a real set of data structures and defining how to create and interpret data that represents the real world?

Returning to an earlier example, a CSP purchases a piece of network equipment. This device may be referenced by a number of different names both within and without the organization. In fact, it may be referred to by a large number of different names. How is this situation handled in the real world?

In recent discussions with CSPs, vendors and systems integrators, Stratecast identified three main approaches as most often used when discussing data architecture or more specifically, naming conventions. These are:

- No Naming Convention
- Internally-defined Naming Conventions.
- Standards-based Naming Conventions.

In some cases Stratecast found that portions of a CSP were using one convention and other departments yet another. While such a strategy will not be successful in the long run, it is possible that some level of all three approaches is in use today at many operators. However, standardization around a single approach will need to be internally agreed upon before end-to-end data flow between network operations and an organization’s business management groups can be achieve long-term on-going success.

No Naming Convention

Business Justification

The simplest way to address the naming convention challenge is to ignore the use of any naming assignment. For example, when describing equipment, or the placement of equipment within the organization, coordination between work teams is no longer a necessity. This approach is always dependent on a level of data translation and/or workaround whenever information is exchanged between systems and/or between work processes.

Within the “no name” convention, a network device, described by the example above, is likely to be referenced by several different names across the organization. In many cases, it may be simple enough to work through this challenge by not relying on the device name in order to provide status and management detail about the device. For example, a provisioning system may use less ambiguous information, such as the IP address along with similar technical identifiers to recognize and communicate with a specific network node. In other situations, however, this approach leads to confusion resulting in a rather difficult exchange of information, especially across an automated interface. In this case, the “EquipmentProvider SuperSwitch 2008 Model A237 Revision 6-3” is now known by a variety of different names. Each and every use of the device involves an extra work around or syntactical translation.

As the number of systems and work teams requiring access to an equipment item or that need information about an equipment item, increases, the cost of positively identifying each device significantly increases. Information from various systems quickly becomes difficult or impossible to correlate, eliminating the potential strategic business intelligence value of the data. For example, if system “A” reports details about “Device092008”, system “B” itemizes data about “SuperSwitch2008-004” and group “C” lists information about “EPSS2008,” what is it that recognizes these names really refer to the same device?

Benefits and Potential Drawbacks for Using a “No Name” Approach

The benefits of using a “no name” approach along with the potential workarounds and/or translation (both content and syntax) of data when passing from one system to another includes:

- Very little or no up-front implementation time.
- Minimal coordination with or enhancements to deployed systems.
- Avoidance of extensive overheads in maintaining a “master” level of naming identity.

The potential drawbacks of a “no name” approach are:

- High on-going and long-term management costs as data must be constantly monitored and reviewed for accuracy.
- Translation or workarounds are essential with all information exchanges between systems; both internal and external to the organization.
- Difficulty in correlating information to meet various business needs such as pattern recognition for fraud control, business intelligence, and revenue/margin management.
- Difficult to increase automation levels within existing processes or to modify processes to address business change.
- Difficulty improving process efficiencies due to ongoing translation needs whenever new combinations of data are required to address new business needs.
- Difficulty utilizing information generated for strategic benefits.
- Difficulty in communication within and between work groups and within the organization as a whole, as there is no common way to identify resources.

Internally-Defined Naming Conventions

Business Justification

In this approach, a CSP embarks on a company-wide effort to consistently name or identify a material asset. This may be done within a single work group or it may span multiple work groups across the organization. For instance, a CSP may recognize that its lack of an internal standard for naming equipment is hindering its ability to increase levels of automation and to operate more efficiently. As a first step, it may decide on a simple naming convention. For example, all devices that are switches start with “SWITCH_” and then end with the date purchased. “EquipmentProvider SuperSwitch 2008 Model A237 Revision 6-3” becomes “SWITCH_20080115-001”, indicating that this is a switch and it was the first switch purchased on January 15, 2008.

This overly simple convention solves the problem associated with defining a name for the device, but reveals others when additional insights about the attributes of it are needed. All systems and groups that need to know about or use this switch now have a single way to reference it. Translation is not needed unless a system expects the naming syntax in a specific order because it was designed to recognize equipment differently from the internally agreed “standard” name.

This approach makes data correlation between work teams and systems much easier. The name, however, reveals very little about the device itself other than it is a switch of some sort and the date it was purchased. Different work teams still need to understand different details about “SWITCH_20080115-001”. For example, one group may need the electrical parameters associated with the switch and the physical dimensions. Another group may only care about the capabilities of this switch and which services may be offered from it. Still others, such as the finance group may only care about the monetary value of this piece of equipment and how it is to be depreciated over time.

Each of these additional business requirements may be accessible via other data fields, such as those shown in Figure 1, below.

Figure 1

Example of Additional Detail Using Multiple Data Fields

Field Name	Data Value
DeviceName	SWITCH_20080115-001
DeviceType	SuperSwitch
DeviceVersion	A237

Source: Stratecast

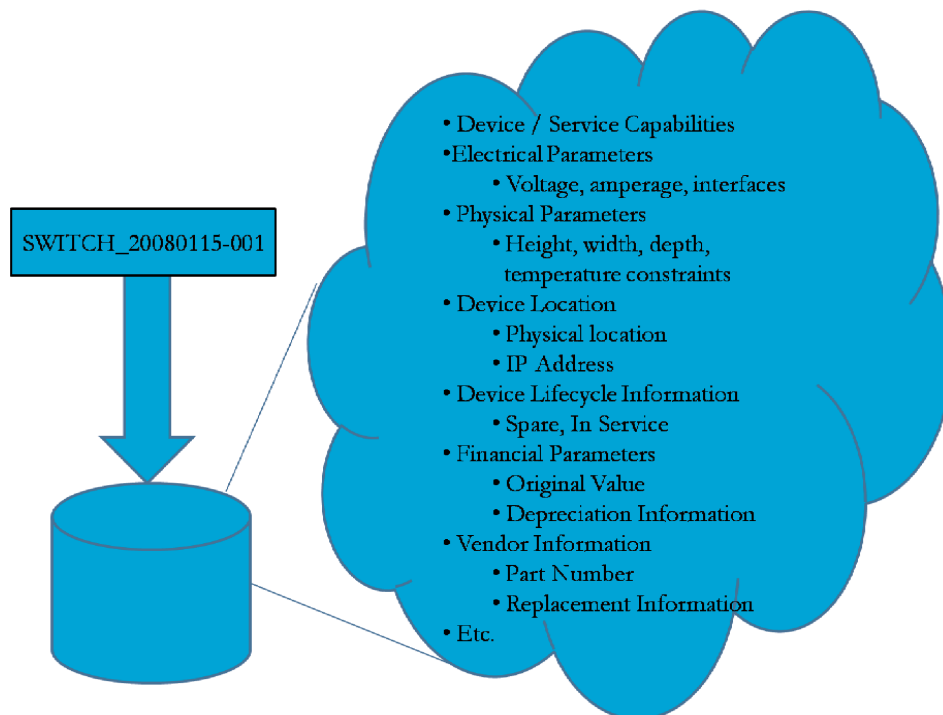
If a need arises to communicate informational attributes about this switch, an ever expanding and varying list of data fields associated with the switch will then be needed. At this point, the simple in-house naming convention begins to break down, as each new data field will also require some type of common naming convention to effectively communicate the added information to all concerned systems and work teams across the organization. The “simple” internally-defined naming convention quickly becomes complex, difficult to implement and challenging to consistently maintain whenever a change or enhancement occurs with the device itself.

An alternative to the just described option involves the use of a naming identifier for uniquely defining both the device and a complete set of descriptive details about the device, including its location, and usage. Essentially, a CSP defines a unique naming identifier for the equipment item as previously described and then establishes a master equipment item descriptor database that the naming identifier “points to.” This database can then house the information that is needed by every work team in the organization and for every system. This concept is shown in Figure 2 below.

With a single identifier and a single company-wide data store, a wealth of information is now readily available to any person, automated system or work group. Engineering can now get the information it needs utilizing the same identifier that finance department users have for obtaining the information they require.

Figure 2

Additional Detail - Example Switch Definition Using an Identifier



Source: Stratecast

The identifier concept can be expanded beyond just equipment into other areas important to a CSP including customers, products, services, network connectivity and geographic locations.

While this concept sounds simple, implementation challenges are daunting. The initial design of the identifiers and the data to be stored will be difficult, but the ongoing maintenance of both the data and the naming convention will be critical if this approach is to be successful. Existing and planned new systems must be updated to utilize the new information strategy. The internally-defined naming conventions themselves, as well as the data, must be maintained and evolved as the nature of the business, technology and services evolve. Adherence to the naming conventions must be assured, in systems and throughout the organization, or a CSP can quickly end up with inconsistent and meaningless data. Adherence auditing will likely need to be automated to be successful in the long-term, adding another challenge to be overcome.

There are two distinct and more significant drawbacks to this approach that can not be overcome in a practical manner. First, OSS/BSS vendors need to support the in-house naming convention, which must be thoroughly researched for all systems whether installed or planned for purchase. Second, the exchange of data with another CSP will likely require semantic translation to maintain data continuity between organizations, as trading partners are likely to implement different naming designations within the systems that each will use to exchange business transaction data. At a minimum, lack of a common naming convention and standard information infrastructure would cause confusion if one CSP regularly issued management status reports to another and the reference points in such reports (e.g. network interfaces, common equipment, or location definitions) were named differently. Operational examples of the types of naming mismatches commonly found today include: lease of network capacity from one CSP to another and the originating/terminating locations are not adequately identified; the definition of originating/terminating traffic between carriers, especially when this is data traffic; and 3rd party content reconciliation if provided to multiple CSP delivery sites.

Overall, this approach holds better promise than the “no-name” convention but still lacks significantly in its ability to satisfactorily address the most critical requirement of supporting the exchange of information between systems and work groups within and without a CSP’s organizational boundaries.

Benefits and Potential Drawbacks for Using an Internally-Defined Naming Convention:

The benefits of using an internally-defined naming convention include:

- Reduces and in many cases, eliminates the need for workarounds and translations for information exchanges *within* the organization.
- Reduces integration costs between automated systems and between work groups *within* the organization.
- Eases the difficulty in correlating *internal* information to meet various business needs such as pattern recognition for fraud control, business intelligence, and revenue/margin management.
- Retained information can be used for strategic business intelligence purposes.
- Allows increased automation levels within existing processes or to modify processes to address business change, as long as the processes do not involve external entities.
- Opens up new areas to improve process efficiencies.

The potential drawbacks of an internally-defined naming approach are:

- Expensive and difficult to successfully implement; the risk of a failed implementation is unnecessarily high.
- High on-going and long-term management costs as data must be constantly monitored and reviewed for accuracy and adherence to the naming convention.
- Adherence auditing likely needs to be automated for long-term success, adding to both the initial expense and ongoing maintenance costs of this approach.
- Difficult and expensive to gain OSS/BSS and network equipment vendor support for a “home-grown” approach if it is too different from the vendor’s naming structure.
- Translation or workarounds are essential for all information exchanges involving systems *outside* of the CSP, leading to higher integration costs.
- Difficulty correlating any *external* information with internal information to meet various business needs such as pattern recognition for fraud control, business intelligence, and revenue/margin management.

- Difficulty improving process efficiencies when processes involve trading partners and/or external entities due to ongoing translation needs whenever new combinations of data are required for addressing new business needs.
- No software to enforce consistent or standardized naming results across the organization, hence there is a strong propensity for much of the data to be meaningless and unreliable.

“Standards-Based” Naming Conventions

Business Justification

A “standards-based” naming convention seeks to provide the same benefits of the internally-defined approach, while eliminating some of the costs and interoperability problems between organizations. It is “standards-based” because the identifiers and their meaning apply across company boundaries and, in some cases, across global boundaries for both suppliers and partners.

This approach is similar to that shown in Figure 2 above. The key difference is that the naming convention (the identifiers) and information infrastructure are provided by an external supplier. This overcomes several difficulties. First, the difficulties designing an approach to the naming problem have already been solved. Implementation becomes much easier, as the supplier will likely have implemented the solution previously. Second, data maintenance is performed by the vendor. Third, OSS/BSS supplier support is easier to obtain, as a subscriber of this naming convention would not have to modify its systems each time a new name was added. Finally, the naming convention provided to all subscribers would work with all other entities, both internal and external to a given organization.

Stratecast is aware of only one supplier offering this type of a solution. Telcordia’s Common Language Information Services (or Common Language for short) provides a single meaning for key types of data so that information exchange can occur with no need for translation and no need for custom integration between systems taking advantage of the Common Language solution.

Benefits and Potential Drawbacks for Using a Standards-based Naming Convention:

The benefits of using a standards-base naming convention include the following:

- Reduces and in many cases, eliminates the need for workarounds and translations involving an information exchange, *internally and externally*, to the organization.
- Reduces integration costs between automated systems and between work groups both *internally and externally* to the organization.
- Eases the difficulty in correlating information (both *internal* and *external*) to meet various business needs such as pattern recognition for fraud control, business intelligence, and revenue/margin management.
- Retained information can be used for strategic business intelligence purposes.
- Allows CSPs to leverage industry-wide investment in software, standards and information content.
- Allows increased automation levels within existing processes or to modify processes to address business change, regardless of whether these processes are entirely *internal* or involve *external* entities.
- Opens up new areas to improve process efficiencies.
- Implementation and maintenance of all naming definitions is provided by the vendor; the risk of a failed implementation is much lower.
- Works within the CSP, as well as with other CSPs and external suppliers, including equipment vendors.
- OSS/BSS vendor support for the approach is easier (and less expensive) to obtain.
- Equipment vendor support is easier (and less expensive) to obtain.

The potential drawbacks of a standards-based naming approach are:

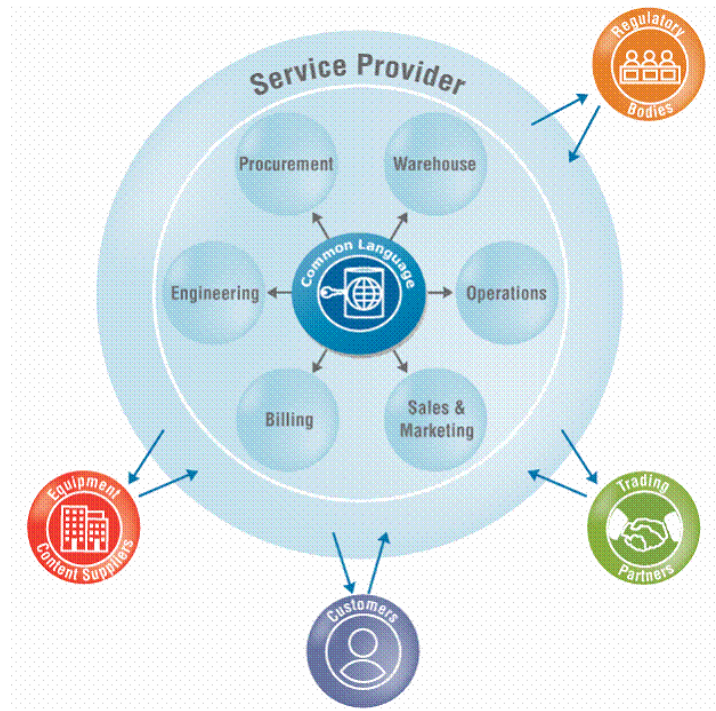
- Up-front implementation fees and ongoing licensing fees.
- If all communication is internal to one organization, overall costs may be more expensive than a locally managed naming approach.
- May involve translation costs for information exchanges between a subscribing organization and partner/supplier that may not address the standard naming convention.

TELCORDIA'S COMMON LANGUAGE NAMING SOLUTION

The Telcordia Common Language solution provides a “standards-based” naming convention, and an information infrastructure covering four areas that affect every CSP: equipment, location, connections and services. It provides a data infrastructure to define the format and structure of the data, a data dictionary and syntax rules. This eases the information challenge as all parties now have the same understanding of the information to be exchanged either between systems or between work groups. Identifiers are not only unique within a particular CSP, but in every case, globally as well. This allows their use within a CSP, and with external entities, including partners and various suppliers as shown in Figure 3 below.

Figure 3

Local View of Common Language



Source: Telcordia Technologies, Inc.

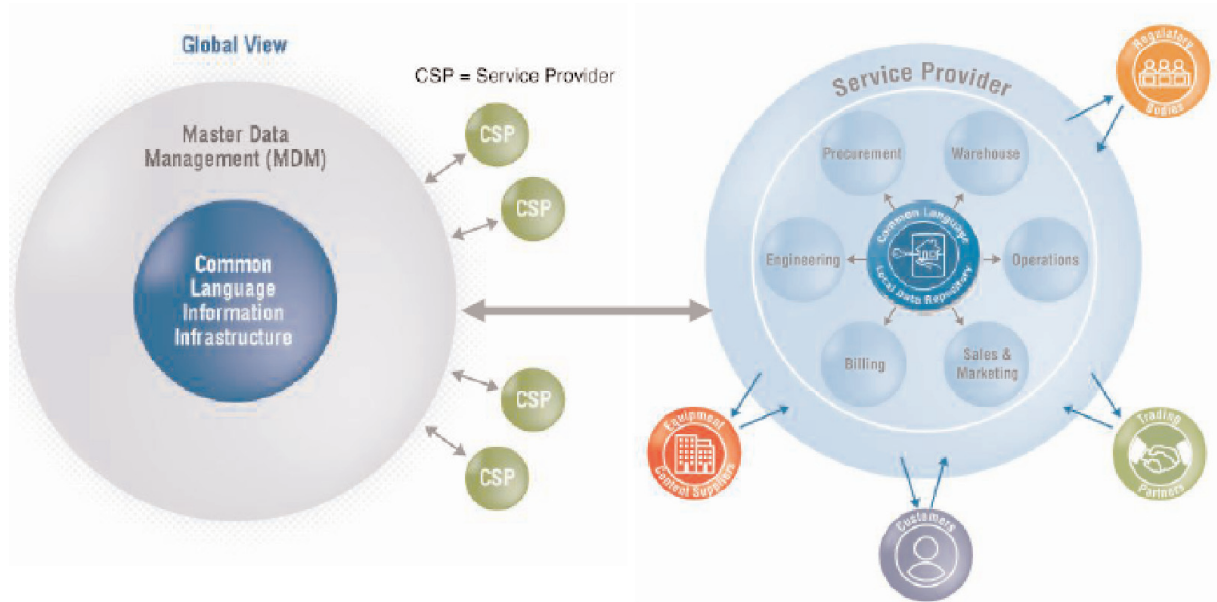
Common Language keeps the data up-to-date by publishing and distributing changes to all affected parties. It also provides a single source for all data objects. Stratecast believes that as the single source for all its defined data objects, this strategy provides one of the most important characteristics of the Common Language naming approach. As a sole source for naming definition, Common Language equates to no semantic translations for data exchange between systems or work groups internal or external to any organization.

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For Common Language to truly be “common,” there must be only one rulebook that defines the structure, the syntax and the meaning. In addition, for an identifier to be globally unique there must be only one source of that identifier. Common Language solves these issues by using a Master Data Management (MDM) approach. MDM involves a single master copy of the data. There is never a question as to which source of the data is correct...the master copy always contains the correct data. Common Language maintains a global-master copy of all the data. Local copies of the data are available at any subscriber location and are kept up-to-date by continuous synchronization with the global-master. This global view of Common Language is shown in Figure 4 below.

Figure 4

Global View of Common Language



Source: Telcordia Technologies, Inc.

Stratecast has discussed MDM in previous reports¹⁰. MDM was described as the integration approach that provided the most benefits, but was hardest to successfully implement. In this case however, Common Language provides the data implementation, so the CSP receives the benefits without the difficulty.

It is important to note the relationships that Common Language and Telcordia have with industry standards organizations and within the telecom industry itself. Common Language leverages industry standards and is referenced by standards organizations including the American National Standards Institute (ANSI), the European Telecommunications Standards Institute (ETSI), the International Telecommunications Union (ITU), the Alliance for Telecommunication Industry Solutions (ATIS), the Internet Engineering Task Force (IETF), the International Standards Organization (ISO) and the TeleManagement Forum (TMF). Common Language is gaining increasing global support from equipment vendors, systems integrators, and software vendors.

10. "OSSCS 08-05: Reducing OSS/BSS Integration Costs Through Common Information Modeling" (July, 2007).

Stratecast The Last Word

The information challenge affects every CSP and by extension, every vendor that serves the global CSP community. Many approaches to reduce the challenge have been implemented or are in the process of implementation. While past and current efforts to increase automation and efficiencies and to reduce integration costs via architectural approaches and common data models are helping reduce the information challenge, they stop short of solving it. None of these efforts address the data architecture deeply enough...they don't define what the data means. For communication to occur, translation (i.e. integration) must be involved.

The next step involves the use of naming conventions to define the data and eliminate (or greatly reduce) the need for translation and integration. A naming convention is only as effective as its scope allows. A naming convention used only within the network engineering department breaks down as soon as communication outside that department becomes necessary. A "home-grown" naming convention used within a CSP is not effective outside the walls of the CSP. The only viable common naming convention is one that works globally, for all CSPs and the organizations that support them. A standards-based naming approach provides that next step.

How does this translate to the real world? While doing research for this paper, a number of common themes were found between CSPs, vendors and integrators, including:

- Naming convention and information infrastructure issues plague most CSPs and have grown more problematic with the global increase in competition and cooperation.
- "Home-grown" solutions most often fail.
- A standards-based naming convention provides a means for the following: reducing integration costs; better facilitating the consolidation of systems after a merger; improving operational efficiency; reducing operational costs; and improving data quality. This approach, as implemented by Common Language, provides what Stratecast views as the industry's best practices for information management.

Stratecast believes that a standards-based naming convention, as provided by Telcordia's Common Language, delivers a very useful next step. It addresses the key areas of equipment, location, connections and services—areas in which every CSP is affected by the information challenge. If the goal of a CSP is easy collaboration & communication between individual organizations or with their partners and even competitors, then the adaptation of Common Language can go a long way towards meeting these needs.

With a standards-based naming convention, communication is finally as easy as one, two, three.

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About Stratecast

Stratecast directly assists clients in achieving their objectives by providing critical, objective and accurate strategic insight, in a variety of forms, via an access-and-industry-expertise-based strategic intelligence solution. Stratecast provides communications industry insight superior to a management consultancy, yet priced like a market research firm. Stratecast's product line includes: Monthly Analysis Services [Communications Infrastructure & Convergence (CIC), OSS/BSS Global Competitive Strategies (OSSCS), Consumer Communication Services (CCS), and Business Communication Services (BCS)]; Weekly Analysis Service [Stratecast Perspectives and Insight for Executives (SPIE)], Standalone Research, and Business Strategy Consulting.