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Error-free Design: Why Owning Service Complexity Benefits the Business

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Introduction¹

Arguably, the two most important elements of serving the enterprise market with high-tech solutions are instilling confidence upfront in the sales process, and following through on the recommendations resulting from that process. In other words, communications service provider (CSP) sales teams must possess both the knowledge for determining what solutions and services will best address their prospective customers' needs, and the skill to compile them in a custom-tailored manner. The provisioning and implementation teams, in turn, need to know that the service designs that get handed down to them will work as promised. There are other important factors to delivering complex network services, but getting the design right from the start improves the odds that all will flow properly from there.

That sounds like a lot of pressure to put on the sales engineers and solutions architects who design services. And it is. In addition, the pressure to get the design right increases as the complexity of the services increases. With the growth of cloud, hosted, multi-national and multi-technology solutions, complexity has reached new heights. However, the associated pressure it puts on sales and delivery teams is unnecessary.

While it has never been easy to flawlessly design and deliver networked services, tools have evolved along with service complexity to make the process smoother and more accurate. This report tells the story of how Sprint teamed with its requirements-to-order software solutions partner, Netformx, and transformed from a company with 10 percent of its service designs sent back for rework, to a company with almost no rework.

To be clear, this transformation did not happen overnight. Sprint and Netformx began working together to improve Sprint's service delivery capabilities almost seven years ago. The industry and the enterprise customers it serves have evolved since then. The difference between the evolution of the network and telecom industry as a whole, and the evolution of what Sprint calls its Design-to-Win initiative, is that the mission to create a flawless process for service design and delivery never diverged. It proceeded incrementally, without waiver, toward its stated goal, whereas the industry vacillated among competing priorities. Seven years later, the design process, while always a work in progress, has nearly reached its optimal level of accuracy. As network equipment and services change, the rules governing how solutions are built will also change.



¹ In preparing this report, Stratecast conducted interviews with Mike Fitz, vice president of Business Solutions Commercialization at Sprint; and two executives from Netformx: Ittai Bareket, CEO; and John Trembley, vice president of marketing and product strategy.

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

The industry spent many years avoiding the idea of mass customization. At the time, it was a wise position to take. Its collective goal, then, was to do the opposite, and streamline processes by creating services of universal appeal. That is not what enterprise users want. They want individually tailored service capabilities. So, Sprint has now embraced the idea of mass customization for the enterprise, and has focused on implementing the processes and safeguards that allow it. This initiative is supported by Netformx' DesignXpert product, as well as some customization work specific to Sprint. DesignXpert is a graphically-driven desktop application for design and proposal generation.

Why 100 Years of Circuit Design Does Not Provide an Advantage

CSPs used to be the smartest people in the room, when the room was a potential client's conference room, and they were pitching their networking wares. They may still be the smartest, but now they

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have company; the customer's internal team is pretty knowledgeable as well. Today, enterprise customers are not impressed when the salesperson takes their "what if" questions about potential solutions back to the office for a skull session with the engineering team to see if certain scenarios are viable. The sales team needs to make the call in real time, while it has the customer's attention, and

show why it can be trusted with the enterprise's critical communications needs.

CSPs also used to be the only game in town, but today they have company there, too. Delivering a flawed solution that results in rework and delay simply sends potential customers knocking on someone else's door.

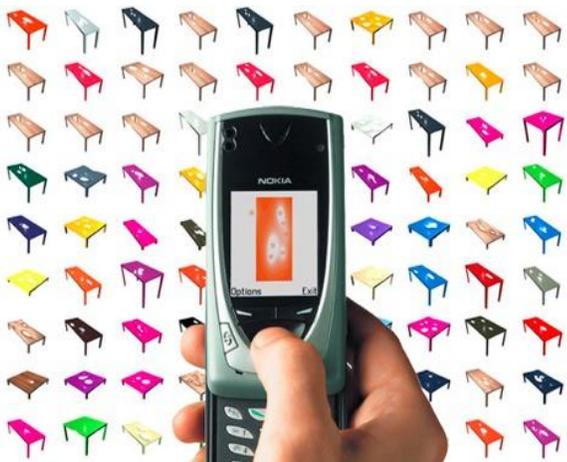
On average, according to Netformx, the industry error rate for service design is as high as 40 percent. This rate is not only unacceptable for today's services; it will render the sales pitch for delivering cloud and other on-demand models untenable. CSPs need to be confident in their service designs. The people in charge of the downstream processes must be equally confident they can provision the designs they are given, and that the services will work as intended when implemented on or before the agreed to service availability date.

Answering the "what if" questions from enterprise customers while on-site and in real time has not always been possible. This shortcoming was not the fault of the CSP. Nor was it the fault of the sales engineer. The tools were lacking for on-site sales engineers to accurately apply the hundreds or thousands of rules related to the configuration options from various versions of vendor equipment that may affect a design. In addition, the CSP's and the customer's own requirements and rules must be considered. These can be just as numerous and onerous as rules for the network.

Fault for less-than-optimal service design and delivery lies not only with the untidy documentation of pre-determined rules; but also stems from a lack of discipline and rigor around the interplay between departments and functional processes, along the path from design through provisioning, to delivery. Furthermore, service attributes are too easily changed by too many people to properly maintain a consistent view of a service. Even when services were implemented properly in the past, over time a fault would occur or a change request would be generated; and, to resolve the issue, downstream personnel would alter the configuration via an equipment or feature change. These changes did not always filter back to the database of record, and the configuration became out of sync with the intended design.

While the on-demand characteristics of cloud services drive additional need to eliminate rework in the provisioning process, other factors come into play. Cloud-based and other off-net or multi-national services add higher dimensions of complexity. They introduce a new mix of ecosystem partners that have their own rules for how services are put together and how they are priced. Sprint, for example, partners with Microsoft and Cisco for hosted Unified Communications services; and with CSC to deliver infrastructure-as-a-service.² The CSC partnership signaled Sprint's willingness to rely on an established cloud partner for infrastructure services, and to support them over its own backbone network. Sprint said it would not have been able to deliver services through these partnerships without the service design capabilities it found through Netformx's DesignXpert system.

Adding partners also complicates the cost-plus revenue model that many service providers have adopted for pricing cloud and hosted services. To deliver services that include elements from third parties, CSPs must know not only their own costs, but the costs of their partners. This level of visibility does not often exist. Yet, this is how cloud services of the future will be delivered. To avoid creating an environment in which design and delivery turn into a free-for-all of guesswork regarding cost, compatibility, availability, and viability, a solid and accessible design-to-implement tool is essential. Most importantly for the CSP, its sales team must know which partner-enabled services it can offer discounts on, during the contract negotiation phase, and which ones it cannot, in order to maintain overall margins on an enterprise service package.



Some mass customization is easier than others.

As CSPs move to address vertical segments of the enterprise space better—something they all say they want and need to do—they must be able to build solutions in ways unique to each enterprise customer. From each according to its requirements, to each according to its expectations. To do this, Sprint is working to enable mass customization for the enterprise. This requires its systems to have checks and balances that prevent design mismatches between the assignment or configuration of a device and the rules built to govern them. This not only prevents errors and rework, but can also identify creative ways to tie devices together to meet unique requirements.

Sprint's version of mass customization relies on the rules and product definitions it has created with Netformx over several years. Their mass customization objectives are to increase the accuracy of designs, and allow Sprint to build custom solutions for each enterprise, as required—which is most of the time. To meet these objectives, teams from both companies painstakingly developed rules for every existing Sprint product and service, as well as new products and services as they are developed. These rules are combined with the Netformx product solution, KnowledgeBase, a content library with 545,000 products and their definitions, including specifications, validation rules, pricing, ordering information, and discovery mappings, in addition to more than 2.45 million configuration

² For reference to Sprint's relationships with Microsoft and CSC, see Mike Fitz video Q&A at <http://www.netformx.com/1/115>.

rules. Netformx rules provide configuration, validation, error handling, and product recommendations for new or replacement products.

Taking Charge of the End-to-end Process

Taking charge of a process is an engineering function. It is like taking on the role of lead systems integrator for a solution with many moving parts, and an equal number of potential points of failure. Taking charge is about ensuring a smooth process flow across all touch points. However, when a CSP takes responsibility for the end-to-end process of service delivery, it is doing something more substantial than engineering; it is seizing ownership of the customer relationship. This is important for continuity purposes, but it is equally important for establishing brand ownership. CSPs are at risk of losing some brand identity in emerging cloud models; hence, deftly managing the complexity of services, while hiding complexity from the end user, will solidify not only brand recognition, but the relationship behind it.

To take ownership of an end-to-end service, CSPs need to design, provision and deliver that service with the same accuracy, regardless of which partners are involved. Sprint has several hundred sales engineers and thousands of sales people responsible for bringing enterprise solutions to market—so, consistency is vital. According to Sprint, by using the Netformx DesignXpert tool, Sprint's own product definitions and rules, and a newly established rigor and discipline in executing downstream processes, it has eliminated rework and achieved error-free designs. DesignXpert has become an integral part of Sprint's product management group, and has allowed it to systematically apply rules to each design. Now, nearly 90 percent of its enterprise services are supported through DesignXpert.

In fact, the DesignExpert tool is built so that service designers need not know the origin of a service component. The component could be part of Sprint's own network or an infrastructure service from another partner. As long as the pre-built rules that govern optimization, compatibility and other guidelines are satisfied, a service can be provisioned without consideration of third-party suppliers—which, to designers, simply look like an extension of their own offerings. This transparency renders customers unaware of the service complexity and parties involved in the delivery. Given that many of Sprint's customers are multi-national enterprises, partners are generally required to fulfill a service. However, customers do not care about the details involved with designing services, and are most interested in the workability and reliability of the services they purchase.

Despite the increasing complexity of services and rules around them, governing everything from port configurations to business rules related to partnerships, Sprint explained to Stratecast that it can now answer the “what if” questions on the spot. For example, DesignXpert allows the sales engineer to run simulations to determine if certain scenarios can work. If a scenario works in DesignXpert, it will work in the network. Sprint stated that this empowerment of sales engineers is one of the most important benefits derived from the Sprint-Netformx solution. Such empowerment allows sales engineers to spend more time in the field, closing deals, than behind a desk, designing solutions. It is one of the variables that have led to Sprint's comfortable return-on-investment.

The elimination of rework, the more productive use of sales engineers' time, less time to win deals, and even the use of lesser-skilled personnel for some design functions, has led to marked productivity gains for Sprint. Productivity in the business solutions group alone, which includes sales and sales engineering, has improved by 30 percent, since it began designing services in DesignXpert. This does not include the efficiencies introduced downstream in provisioning and implementation,

which are no doubt significant given the elimination of rework that accounted for approximately 5 percent to 10 percent of orders.³

Sprint indicated that DesignXpert has also become an important teaching tool. By allowing sales teams to build mock solutions and test their viability, it raises sales team awareness of what is possible, and gives them more confidence in designing custom and complex solutions for the enterprise market. Sprint also stated that given this confidence and the skills to create custom solutions at the point-of-sale, sales team expertise has become part of its value proposition. From Sprint's point-of-view, the company's sales process is now disciplined, able to deliver consistent solutions that any other sales team can recognize, and provide service designs that meet the financial goals set by the company.

Customizing a Solution for Mass Customization

Sprint is a believer in customization, for its customers and for itself. In addition to the core piece of this solution, DesignXpert, Sprint subscribes to the Netformx KnowledgeBase, where its predefined product rules are stored. However, Sprint required Netformx to customize two related solutions. The first is a central repository called DesignCentral, which is a SharePoint Services-based solution for version management and control for the various project files and related outputs associated with a design project. Netformx also built a custom portal-based access mechanism called SalesXpert that allows sales teams and others to access product design information. The portal and repository helped Netformx meet Sprint's customized requirements for how it wanted its workflows to behave or how and where it wanted handoffs and other touch points to happen, for example.

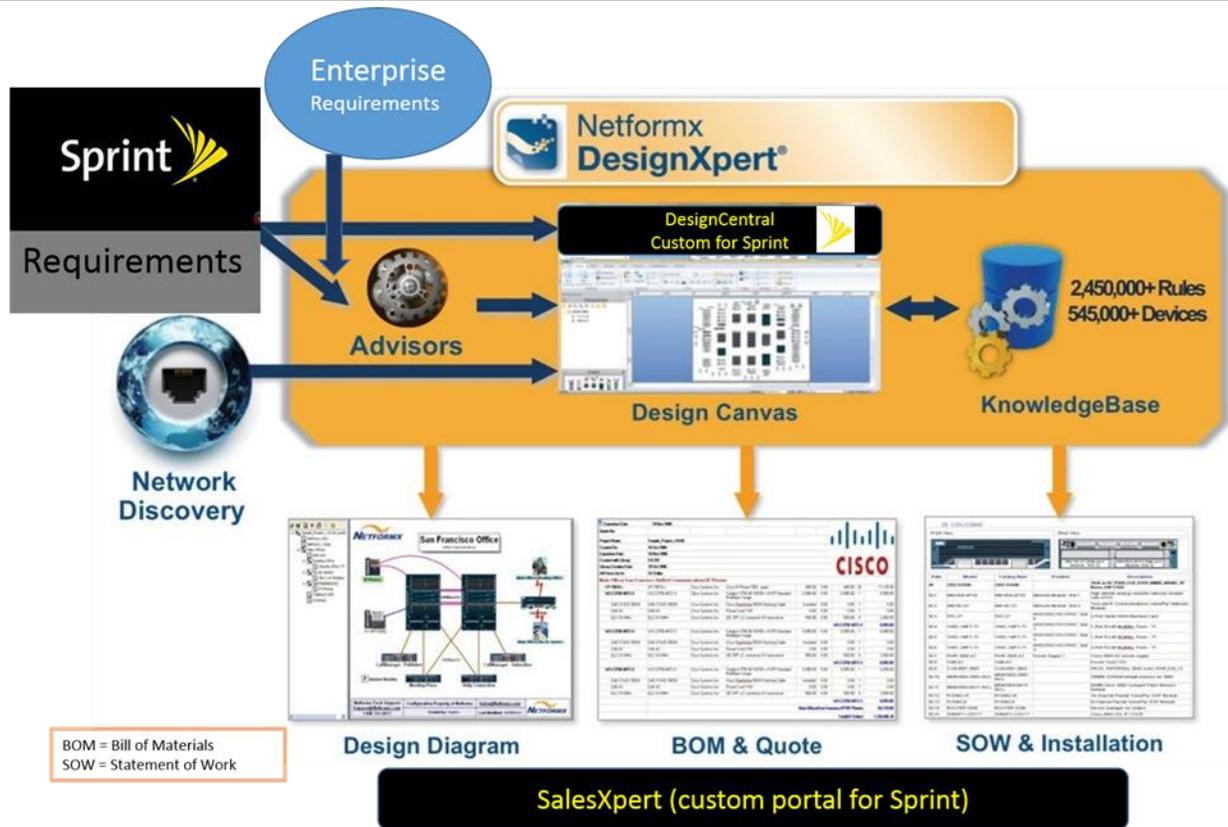
Shown in Figure 1 below, requirements from the enterprise customer, as well as Sprint's own service design rules, are fed into the DesignXpert desktop application, where they are matched with information contained in the Netformx KnowledgeBase repository of rules and device configurations. Sprint sales engineers have the option of leveraging targeted built-in advisors, which can walk a sales team through the requirements gathering phase, using guided questions. Designs can only be created if they match the pre-built rules and requirements of the enterprise and Sprint. DesignXpert then generates the necessary documents to create a contract, and explain the service. In Sprint's case, these are also accessible through the SalesXpert custom portal.

Netformx utilizes three concepts encompassing its solutions, the first two of which it has delivered on for Sprint: design-to-win, design-to-implement, and design-to-profit.

- **Design-to-win:** This is how customer requirements are transformed into validated designs and proposals for enterprise customers. It increases the speed of the quote and sales processes.
- **Design-to-implement:** This enhances the design of everything service related, such as sites, buildings, floors, racks, cabling, network elements, devices and more; while simplifying the transfer of details around ordering, assembling, building, and provisioning to other systems and teams.
- **Design-to-profit:** The goal here is to maximize profitability by optimizing program and incentive participation while calculating its potential impact on margins.

³ Sprint's rework rate of 5-10 percent is not to be confused with or compared to the industry average error rate of 40 percent. Not all errors result in a full rework of the design.

Netformx DesignXpert Functional Diagram with Sprint Customizations



Source: Netformx/Stratecast

Netformx also addresses issues not yet mentioned, such as security vulnerabilities, identifying devices nearing their end-of-life, and identifying new requirements introduced by the customer. Its DesignXpert solution allows CSPs to create multi-phased solution proposals for addressing complex issues, over time or incrementally; and it supports environmentally conscious requirements on power consumption. Finally, it allows less-seasoned sales teams to rely on built-in selling advisors. These advisors provide step-by-step questions that solicit information for narrowing choices and leading to recommendations faster. With the help of suggestions refined through assistance from the network equipment manufacturers (NEMs), the selling advisors can help users better understand requirements, configure complex solutions, and identify cost-effective or profitable equipment alternatives.

In addition to helping sales teams create solutions from a technical standpoint, DesignXpert also helps them administratively by including design diagrams, a bill of materials (BOM), and a statement of work (SOW) that summarizes the customer's original requirements. This includes user-defined templates for documents and reports, formal quotes, network schematics, and work-order and implementation reports.

Stratecast The Last Word

Using the term error-free in the title of this report was admittedly gratuitous. There is no such thing. That does not mean perfection is not worth pursuing. Even falling short will get a company somewhere far better than it was when launching its pursuit. And nobody can say that CSPs do not need to get to a better place regarding their ability to deliver complex services.

Nevertheless, Sprint believes it is close enough to perfect to say error-free design is its mantra. If the company is 99.x percent error-free, as it declares, then it is welcome to claim the full 100 percent. The only thing in the industry with more reliability is the network itself. As praiseworthy as it might be to have reached this point after a sustained, disciplined effort over the past several years, it is not the most important accomplishment for Sprint, or for any other CSP that may have reached such a milestone.

Yes, an error-free design process saves money. It improves customer satisfaction and generates revenue faster. But, more importantly, it can help position any CSP as a leader in the next-generation of network solutions. It can be the first step in creating leaders that can not only dazzle during a sales call, but can take charge of end-to-end services over any network or infrastructure type, and from any source—and own it. Taking ownership for the complete solution allows the CSP to be the face of the service to the customer. It is what will keep CSPs from becoming the dumb pipe they are all afraid of becoming.

CSPs may live to regret wanting to be more than dumb pipes, because it is far less stressful to be a pipe provider than face large, demanding corporate customers, and answer not only for one's own mistakes, but for the mistakes of all partners involved in an implementation. However, that is the price for market leadership. And, it appears to be a price CSPs are willing to pay to keep their brands front and center, and to become better, more vertically integrated solutions providers to the enterprise market.

It has been a long struggle for CSPs to find the focus and discipline to achieve error-free anything beyond the network. Process and order management have not been their forte. But the design process is a great place to start. Sprint showed how process improvements truly flow downstream, and has proven many of the adages that instruct us about the importance of preparation, such as this quote from Abraham Lincoln: "I will prepare and someday my chance will come." The time has come again for CSPs.

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