



White Paper

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The evolving role of toll-free services

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Executive summary

The toll-free industry has experienced a remarkable evolution since the first 800 numbers allowed consumers to make calls without charge. Once valued for their cost avoidance and vanity number branding, toll-free numbers are now at the heart of the modern multi-modal e-commerce experience. With this evolution, a vibrant and dynamic toll-free ecosystem of voice, unified messaging, texting, advertising, and marketing companies have found ways to connect businesses with their consumers, and use analytics to gain new insights into their markets.

CSF's SaaS platform is used to provision more than 50 percent of all toll-free numbers and perform over 70 percent of all transactions in the industry. For more than 25 years, customers have relied on our 8MS® Cloud solution to help them continuously redefine the toll-free industry. This white paper explores our insights into how toll-free numbers have brought value in the past, how they are used today, and to share our vision of the future. We will also explore threats to the toll-free ecosystem that need to be addressed, and suggest a path forward that will ensure continued productive innovation, evolution, and growth for the industry.

The evolution - From “free” to “enhanced”

Over the past 50 years, the toll-free industry has evolved. With the convergence of wireline, wireless, and enhanced VoIP services, new technologies have added value to how businesses connect with their customers and provide new analytical data about their markets. With the growth of broadband e-commerce, mobile data, and flat rate VoIP calling plans, many have expected that the toll-free voice industry would simply fade away. Nothing could be further from the truth. The toll-free voice and vanity number business is alive and growing, with new advertising models, personal enhanced services, marketing analytics, texting, and unified messaging helping to drive renewed growth in the industry.

“The toll-free voice and vanity number business is alive and growing.”

When first introduced in 1967, toll-free voice services (commonly called 800 services) were an instant hit with businesses using catchy vanity phrases and “free” calling to attract new and existing customers alike. Providing an easy-to-remember toll-free number for sales and support was good practice for successful companies, and many landmark businesses through the years have made these numbers the center of their branding and advertising strategy. Popular toll-free numbers such as 1-800-FLOWERS, 1-800-THE-CARD, and the jingle from 1-877-KARS-FOR-KIDS have proven to be both memorable and wildly successful.

In the early years of toll-free voice service, and before deregulation, each Regional Bell Operating Company (RBOC)¹ controlled a specific 800 number “block,” making the selection of specific vanity numbers and the ability of a business to change carriers virtually non-existent. During these early days, toll-free number provisioning was easy, as single carrier routing, number portability, and the need to manage numbers in bulk was less important and could be done using manual and less automated processes.

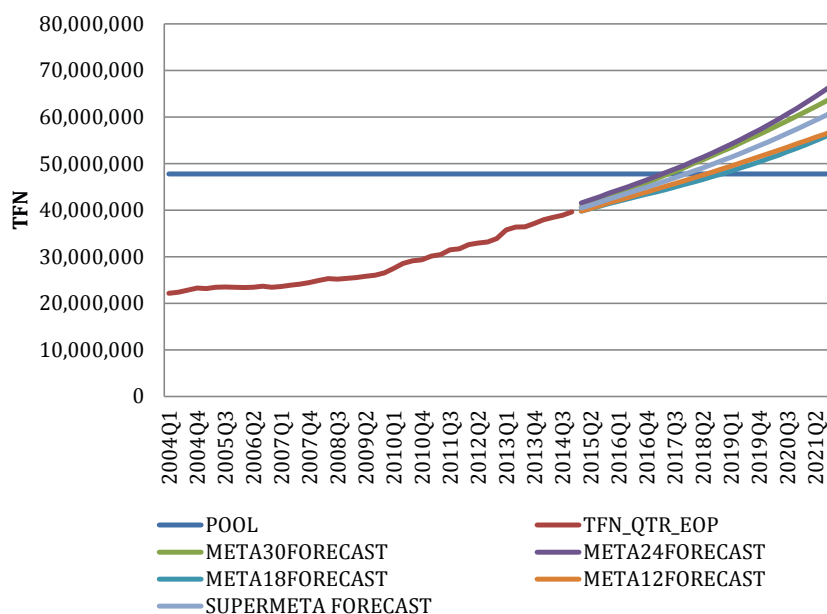
¹ More information on RBOC – Wikipedia: https://en.wikipedia.org/wiki/Regional_Bell_Operating_Company

“RespOrgs are licensed entities certified to manage toll-free numbers and interact with the SMS/800 registry.”

With toll-free firmly established and deregulation a strong motivator, the Federal Communications Commission (FCC) made toll-free numbers portable in 1993. This change established the SMS/800 national toll-free database, and enabled customers to switch service providers while retaining ownership of their toll-free numbers. Using 1980s technology and regulated by the FCC, SMS/800 Inc. (now Somos, Inc.)² established a national registry for toll-free numbers, and a network of Service Control Points (SCPs) to manage call routing and carrier selection. SCP owner operators were licensed to run the SMS/800 database and Signal System No. 7 (SS7) signaling components needed for call routing, and a new licensed entity, called the RespOrg³, was formed.

Toll-free RespOrgs, or Responsible Organizations, were licensed entities certified to manage toll-free numbers and interact with the newly created SMS/800 national registry. RespOrgs were initially carriers that managed toll-free numbers on behalf of their customers. Later, other players—including those in the vanity numbers business, marketing industry, and even large toll-free end users—became RespOrgs all sharing the objective of acquiring, managing, and routing their toll-free numbers as strategic assets. During the early 1990s, CSF developed the first version of 8MS Cloud (formerly 8MS) to help simplify and automate the toll-free number management, provisioning, and porting process. The software was initially licensed and hosted by the RespOrg on large Unix systems with database connections to SMS/800 maintained by that same entity.

Between 1993 and 2000, the quantity of working toll-free numbers grew rapidly from 3.2 million in 1993 to more than 20 million in 2000. New toll-free codes were issued to meet this demand, including the 888 area code in 1996, the 877 code in 1998, and the 866 code in 2000. The following years continued to see additional growth with the quantity of working toll-free numbers growing more than 26 percent, from 22.7 million in December 2006 to over 28.8 million in November 2010. With the pool of available toll-free numbers dangerously low, the FCC opened the 855 code in October 2010 and the 844 code in December 2013. With more than 43 million toll-free numbers in use by late 2016, the FCC has ordered Somos, Inc. to issue a new 833 toll-free area code starting April 22, 2017.



This graph shows different forecast models for when current toll-free number resources will be exhausted. They vary from the second quarter 2017 through the fourth quarter of 2018.⁴

² More information on Somos – Wikipedia: https://en.wikipedia.org/wiki/Somos,_Inc.

³ More information on RespOrg – Wikipedia: <https://en.wikipedia.org/wiki/RespOrg>

⁴ Forecasting Utilization of Toll-Free Numbers, Somos SMS/800, March 2015 — https://www.nationalnanpa.com/pdf/SNAC_TFN_Exhaust_Analysis_Mar15.pdf

Toll-free Growth and e-Commerce

With this growth in toll-free numbers, the number of RespOrgs that are licensed to acquire and manage toll-free numbers through the SMS/800 national database has also increased from less than 100 in the 1990s to approximately 500 today. RespOrgs can be carriers, enhanced services providers, call centers, those in the vanity number business, or even large enterprise customers. Why the accelerated growth? Simply put, the toll-free industry had evolved in new and exciting ways. Online retailers and advertising firms quickly took advantage of the virtual nature of toll-free numbers to establish a neutral and omnipresent geographical presence, and to enhance their global branding. The growing field of data analytics has also found an important application by using toll-free numbers to help businesses better measure and focus their marketing programs. Today, toll-free numbers support complex advertising and campaign tracking, and are used as a communications vehicle to seamlessly support the customer journey.

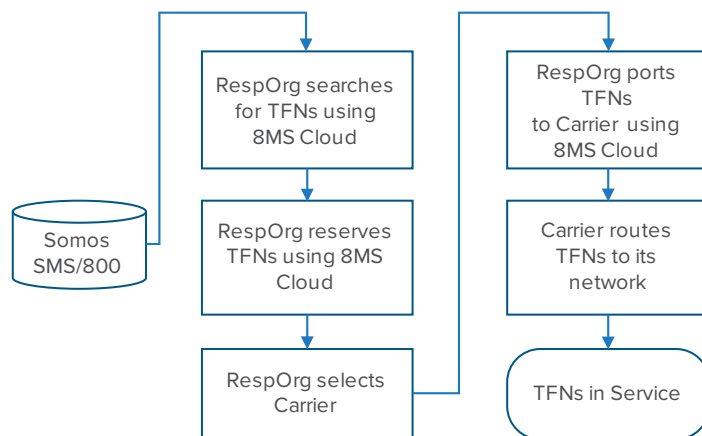


Complex analytics using toll-free numbers integrate and track offline channels—including newspaper, radio, and TV—with digital channels, such as e-commerce, email marketing, and social media, to test and improve marketing return on investment.

As an example, new web-based e-commerce sites use toll-free vanity numbers for customer care as an alternate ordering process for those who desire the live interaction of an attendant. Unified messaging, conference bridging, automatic attendant and find-me/follow-me services also use toll-free numbers. And with lower carrier costs, individuals are now in the position to have their own personal toll-free numbers at an affordable price.

Deregulation, and the increase in carriers with toll-free numbers, has also resulted in new ways to provide toll-free numbers to customers. For example, RespOrgs can automate their in-house and online ordering and provisioning processes through use of application programming interfaces (APIs) that are designed to make bulk changes to toll-free number records in the SMS/800 registry. For a carrier, having a competitive toll-free voice offering complements their VoIP, broadband data, unified messaging, wireless, and hosted services portfolios. End customers need this capability, and providers who have effectively bundled toll-free with other services enjoy outstanding competitive differentiation.

The complexity of provisioning and routing also evolved as RespOrgs sought new ways of managing toll-free traffic on their selected carrier networks to gain differentiation in a highly competitive marketplace. All RespOrgs must acquire and manage toll-free numbers in an effective manner, provision services through the SMS/800 national database, and route those numbers through the dedicated toll-free SCP network to long distance carriers that carry their toll-free traffic. CSF's 8MS software became widely used as the industry standard to help automate, simplify, and accelerate the toll-free provisioning process, including APIs to easily search, reserve, and activate toll-free numbers. With an increasingly larger number of RespOrgs needing CSF's solution, 8MS evolved to a hosted SaaS platform and became deployed as "8MS Web."



General 8MS Cloud workflow for acquiring and porting toll-free numbers (TFNs) to a carrier.

With increased portability between carriers also came the evolution toward multi-carrier routing on the same toll-free number. The need for carrier diversity, disaster recovery, and multi-carrier least-cost routing (LCR) drove this shift. Toll-free voice services now had the potential to be offered faster, more reliably, and at less cost. However, achieving these results required being able to create and manage very large and complex routing plans, and to manage and activate carrier services with multiple carriers on the same toll-free number. This increased level of complexity spurred the development of additional 8MS Cloud platform services including 8MS Cloud LCRGen, for creating toll-free least-cost routing, and 8MS Cloud Carrier Express to provide direct interfaces to carriers for activating and managing those carrier services. The core 8MS Cloud capabilities were also enhanced to make managing more complex routing easier, including multi-carrier templates for LCR, and disaster recovery.



Texting as a game changer for the toll-free industry

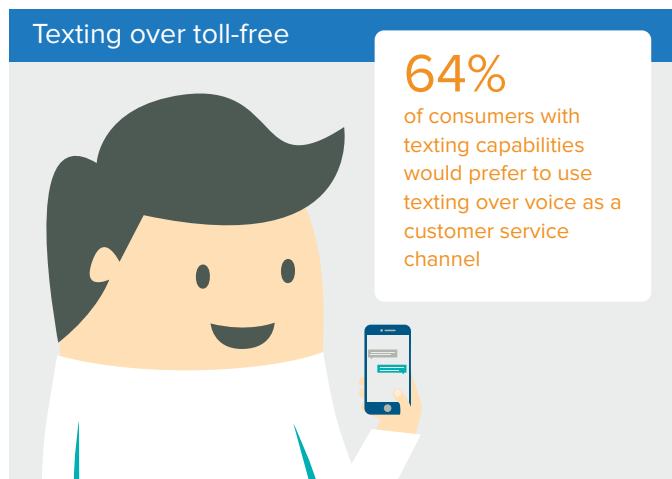
There are 23 billion text messages sent every day. In a dynamic and game changing development, toll-free numbers can now be text-enabled to complement existing voice services. According to Pew Research Center, nearly 92 percent of US adults carry text-enabled mobile phones, and 98 percent of smart phone users communicate by text regularly.

Based on a study conducted by Harris Poll on behalf of OneReach⁵, 64 percent of consumers with texting capabilities would prefer to use texting over voice as a customer service channel. This trend not only underscores the importance of adding texting to complement existing voice services, but also the need for a consistent and secure process of enabling and managing texting and other future enhanced services utilizing toll-free numbers. With more than 40 million toll-free numbers in use, and approximately 500 licensed RespOrgs managing those numbers, such a process must integrate tightly with SMS/800 and the existing toll-free ecosystem.

⁵ The High Demand for Customer Service via Text Message – OneReach Report:
<https://onereach.com/resources/high-demand-for-text-message-2014-report>

For the past two years, CSF has enhanced 8MS Cloud to text-enable North American toll-free numbers. Dozens of RespOrgs now use this 8MS capability to interface with SMS/800 and the newly created Somos Texting and Smart Services (TSS) registry.

For more than 20 years, CSF and our customers have relied on the SMS/800 registry and its processes to insure toll-free numbers are acquired, spared, and exchanged in a standard, safe, and reliable manner. Also, the current process of using SMS/800 as a neutral FCC-sanctioned registry, and one where routing to carriers is done in an open and unbiased manner, ensures open and fair competition. This has allowed our customers, and the toll-free industry, to grow and productively evolve with new voice and enhanced services, and has had a positive impact in driving the US and North American economy forward. Essential to this process are the principles that only certified toll-free RespOrgs representing themselves and their end customers can manage, port, and control toll-free numbers; that registry services are provided by an unbiased third party; and that no provider or aggregator of services receives special competitive advantages that are not available to others. Without these three principles, the current toll-free ecosystem would not have succeeded.



The introduction of text-enablement of toll-free numbers offers the existing toll-free industry an additional opportunity to further grow and expand. Unfortunately, the three principles that have helped the toll-free industry grow and expand in an open and free manner for voice services are not yet being applied for this new texting capability⁶. Without a centralized registry insuring that numbers cannot be hijacked by an unauthorized source, the toll-free voice industry is itself threatened because all toll-free number owners are now at risk of having their security, branding, and customers compromised.

CSF Corporation and our customers have been victimized by this toll-free text “number hijacking,” which can be easily resolved by requiring the use of the standard Somos TSS registry for the registration and enablement of texting and other smart services on toll-free services. At CSF, we strongly believe that an open, safe, and methodical extension of the existing Somos SMS/800 RespOrg process for toll-free texting based on the TSS registry is in the best interest of the industry.

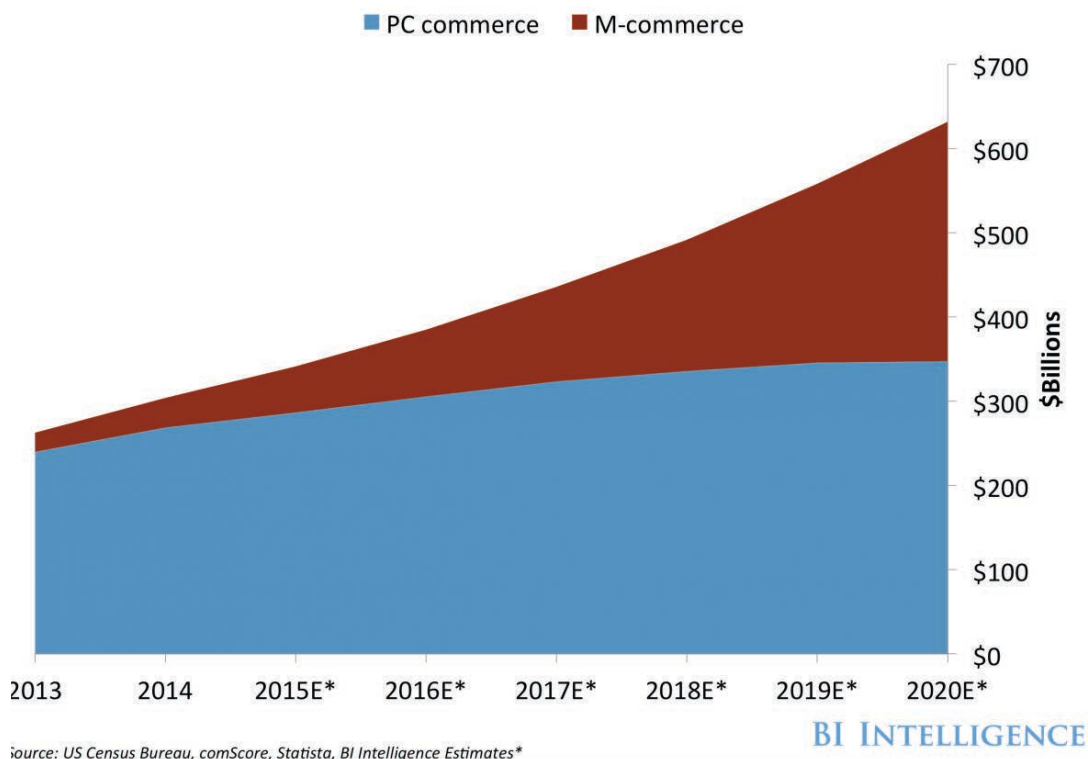
The future of toll-free – m-commerce

The toll-free industry, like any other, must continue to innovate and change to achieve future growth. No one knows exactly what the future will hold, but new, advanced applications for toll-free numbers and services— involving multi-modal voice, texting, and multi-media smart services—are at the forefront of this evolution. The continued convergence of wireline and wireless services, driven by an accelerated growth in mobile commerce, provides a strong economic driver. Texting with toll-free numbers through the Somos TSS registry, combined with new capabilities made possible by the continued global proliferation of smart phones, provide the technical catalysts for further mobile evolution.

⁶ Petition of Somos, Inc. for a declaratory ruling regarding registration of text-enabled toll-free numbers: <https://goo.gl/OYLhJq>

These strong mobile technology drivers are making a difference today. We are already seeing an increase in the use of toll-free numbers for digital marketing, and mobile search driven applications. Today, more than half of all phone calls made to businesses come from mobile advertising channels, with 70 percent of mobile users using click-to-call to connect with businesses directly from search engine results. With more than 73 billion calls being made from mobile search expected by 2018, we anticipate toll-free numbers to be used with texting and new multi-media services to redefine the mobile commerce user experience.

FORECAST: Mobile Share of E-Commerce



M-commerce will rise in the coming years as e-commerce grows to become a larger portion of total U.S. retail sales.⁷

Once again, the value of toll-free numbers is expected to evolve, and with it new challenges will arise for the way numbers and services are provisioned, managed, and activated. At CSF, we are committed to ensuring that our 8MS Cloud capabilities support and enable the provisioning, automation, and routing processes that RespOrgs will need as the industry continues to evolve.

⁷ The Business Insider; "The Rise of M-Commerce: Mobile Shopping Stats & Trends;" posted December 21, 2016 at <http://www.businessinsider.com/mobile-commerce-shopping-trends-stats-2016-10>

Conclusion

Throughout this paper, we have illustrated the evolution of the toll-free industry over the past 50 years, noting its resiliency and adaptability in a changing technical and economic environment. Key to this success has been a strong toll-free industry ecosystem that has provided innovation and open standards-based methodologies to insure interoperability, security, and fairness for all players.

For the past 25 years following deregulation, the Somos SMS/800 and TSS registries have ensured that toll-free number availability, portability, and vendor neutrality were maintained and encouraged. Being an effective RespOrg requires having the ability and technology to acquire, manage, and route toll-free numbers with confidence, optimized costs, and text-activated numbers. In the future, these challenges will also include managing and provisioning new multi-media and smart services. CSF is proud of the role that our 8MS Cloud platform services have played in helping our toll-free customers be successful. As a company, we are investing in the future to help RespOrgs continue to innovate and evolve moving forward. With a history of continuous progress—from traditional voice to e-commerce and m-commerce—the toll-free industry is alive and growing, thanks to a strong and resilient ecosystem.

About CSF

CSF Corporation is the leader in toll-free provisioning, texting, and least-cost routing (LCR). With more than 100 RespOrg and carrier customers, our SaaS platform, 8MS® Cloud, manages approximately 50 percent of all toll-free numbers and makes 70 percent of all provisioning changes in North America. With 8MS Cloud, our customers achieve, on average, 20 to 50 percent provisioning cost savings and reduce their monthly carrier costs by at least 20 percent.