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EXECUTIVE SUMMARY

Frost & Sullivan research indicates that approximately 75% of all US mobile subscribers now own a smartphone. For post-paid-only subscribers, that figure rises to nearly 90% penetration. The proliferation of smartphones has led to a dramatic rise in a variety of messaging services, namely short message services (SMS) and Internet Protocol (IP)-based peer-to-peer (P2P) mobile communication services.

Leading cross-platform messaging applications offered by over-the-top (OTT) providers such as WhatsApp and WeChat have billions of monthly active users and continue to report strong growth rates. Even with the emergence of these communication channels, SMS continues to remain a preferred mobile communication service around the world. The Cellular Telecommunications Internet Association's (CTIA) 2016 Industry Survey, for example, indicates that over 1.9 trillion text messages were exchanged in the United States alone over the last year. Moreover, Frost & Sullivan estimates that text communications have an 'open rate' of over 90%, which is higher than both email and OTT applications. The popularity of SMS is largely driven by the availability of the SMS client in all mobile phones and the overall simplicity and versatility of text services.

Frost & Sullivan believes the SMS market will continue to see a variety of opportunities triggered by both human and application interactions. While peer-to-peer (P2P) messaging remains strong, a broad range of application-to-person (A2P) and peer-to-application (P2A) use cases have emerged as important growth drivers for text messaging. The inherent flexibility of SMS makes it an attractive option for serving the communication needs for a variety of application categories. Some examples of these services include:

- Alerts and notifications sent from third-party content providers
- SMS-based digital marketing, advertising, and re-targeting services
- Automated, machine-driven intelligent text applications such as chat bots
- Application Programming Interface (API)-driven messaging in connected environments such as smart homes
- In-app messaging, which refers to the ability to send and receive text messages from within mobile and desktop applications

SMS continues to serve the communication and collaboration needs of consumers and businesses. However, there is a need to integrate messaging with various modern communication technologies to ensure that it remains relevant. This white paper will highlight how in-app messaging—defined as the ability to send and receive text messages from within mobile applications—is a powerful use case that can help messaging stay relevant in emerging mobile and connected scenarios. It will explore the role and importance of APIs in supporting next-generation communication services. Additionally, Frost & Sullivan will examine how AT&T is driving the relevance of messaging through its In-App Messaging API and Webhooks enhancements. Finally, this paper will analyze the AT&T DriveMode application and AT&T's Amazon In-App Messaging Echo Skill service to uncover how the in-app messaging API can be used in emerging mobile and connected environments.

IN-APP MESSAGING: A DISTINCT GROWTH OPPORTUNITY

The Proliferation of Mobile Apps

The number of available applications for iOS and Android device platforms has increased from less than 500 to more than 2 million in a short span of 8 years. An average smartphone user now has more than 100 applications on his or her mobile phone (including pre-installed applications that ship with the phone) and spends more time on popular mobile applications than on the Web. The availability of a large number of free applications, an outstanding user-experience, real-time information update capabilities, and a well-developed application monetization ecosystem are the key reasons for the staggering growth of smartphone applications.

A Short Description of the In-app Messaging Functionality

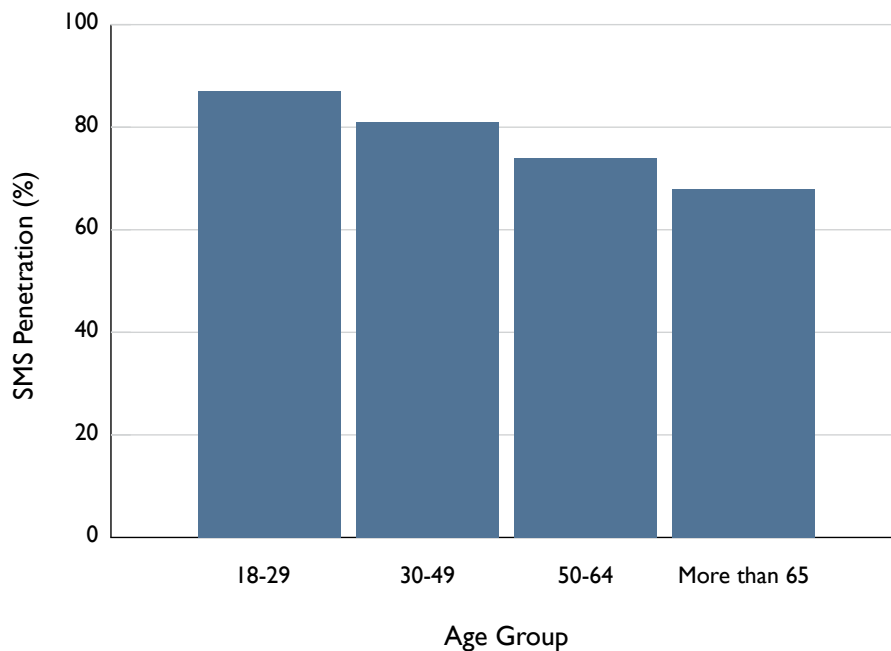
In-app messaging allows users to send and receive SMS and multimedia messaging service (MMS) while a user is active within a mobile application. It allows users to initiate text messaging-based conversations with other mobile users. It can also be used to deliver marketing messages to users of mobile applications. When combined with Webhooks—a user defined Hyper Text Transfer Protocol (HTTP) mechanism for event notifications—in-app messaging can deliver advanced functionality that leads to improved interactions from within an application.

STATE OF MOBILE MESSAGING

ADOPTION TRENDS AND GROWTH DRIVERS

Exhibit 1 shows the SMS adoption rates in the United States

SMS Adoption Rates, US, 2016



Source: Frost & Sullivan

Exhibit I shows the percentage of users that send or receive SMS every month in the United States. As depicted in exhibit I, SMS penetration continues to remain high among all age groups. SMS is the preferred mobile service for sharing short, time-sensitive content. There are a variety of reasons why SMS penetration remains strong. Unlike OTT chat services, SMS users do not need to be connected to the Web to send or receive a message. Moreover, in order for users of OTT chat services to exchange messages they must have the same application on their devices. Thus, SMS enables more ubiquitous communication. Additionally, mobile operators are increasingly including unlimited messaging as a standard component of their service plans. Finally, the business use of SMS for services such as mobile alerts (in verticals such as banking, retail, and logistics) is increasing, which contributes to the popularity of SMS.

NEXT-GENERATION USE CASES AND THE ROLE OF MOBILE OPERATORS

Mobile operators have been instrumental in supporting the growth of text messaging by:

- Establishing network interconnect agreements
- Integrating with third party SMS aggregators
- Promoting unlimited text messaging plans
- Offering business messaging solutions

While SMS and MMS are already used in automated services such as chat bots, alerts, and notifications from connected machines, there is a need to expand the use cases to a more diverse set of applications. One of the ways in which this can be done is by enabling the developer community to embed text messaging-based communication within their applications. For example, AT&T offers several text-messaging APIs for developers to allow them to embed text messaging capabilities in various connected environments. Examples of AT&T's text messaging APIs include:

- *In App Messaging API*: Allows users to send and receive text from within mobile applications using the user's AT&T mobile numbers
- *SMS API*: Sends SMS messages to one or more AT&T Wireless mobile phones in a single request
- *AT&T Text Button*: Allows visitors to Web sites that have the AT&T Text Button to share site content via SMS from their AT&T mobile phone number

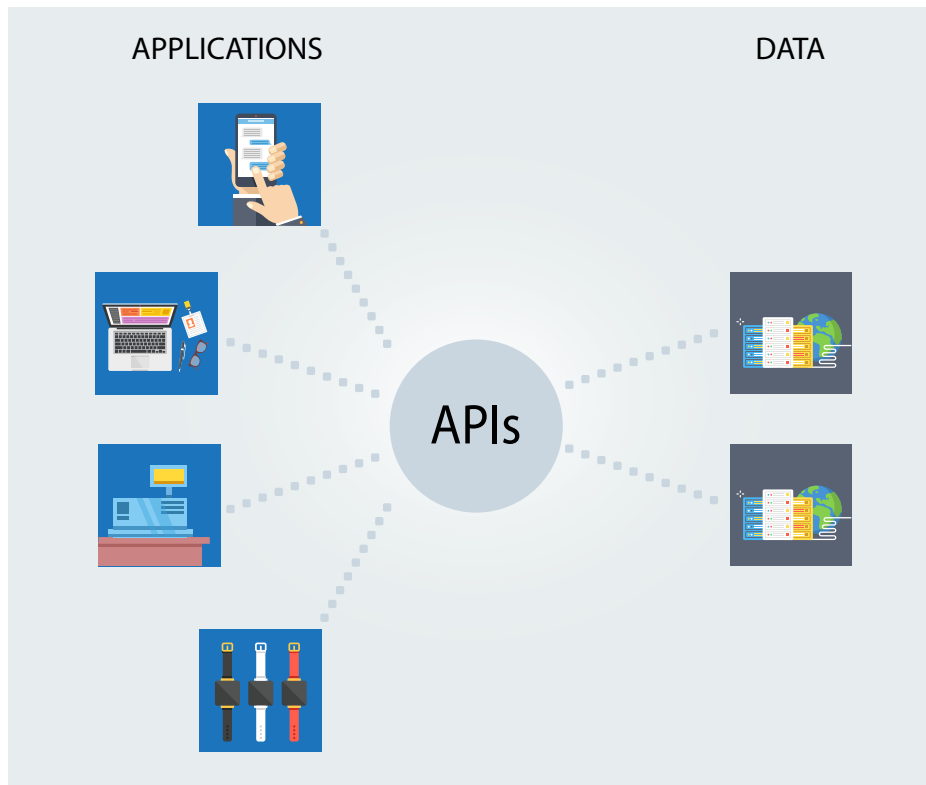
Industry leaders like AT&T are supporting the relevancy and growth of text messaging in an era where consumers have a variety of communication options and may not always default to SMS for simple text-based communication on their mobile phones.

INTRODUCTION TO APIs

OVERVIEW AND DEFINITIONS

APIs are a set of routines, protocols, or tools for building software applications. They provide an easy and secure way for developers to connect with different technologies and use the exposed data or capabilities within their applications. APIs abstract the underlying complexities of the technologies they provide access to and have emerged as a preferred mechanism to connect business processes, services, and content to internal and external parties in a structured manner across the Web and mobile environments.

Exhibit 2 depicts how APIs connect internal enterprise data with external applications.



Source: Frost & Sullivan

IMPORTANCE OF APIS IN A DIGITAL WORLD

APIs as Tools for Digital Transformation

Today's business environment is characterized by rapidly changing technology, evolving industry standards, evolving customer demands, and the frequent introduction of new products and services. In this environment, businesses must transform themselves into agile, nimble organizations that can successfully stave off competition from new market entrants and adapt quickly to changing customer needs.

The importance of APIs in this rapidly evolving competitive environment cannot be overstated. Every business with a digital strategy uses APIs to either connect with technologies that are essential to their operations or to deliver the value embedded in internal systems to customers, partners, and employees. As businesses seek to drive positive, transformational changes in their operations, APIs provide an effective mechanism to improve service delivery and drive innovation.

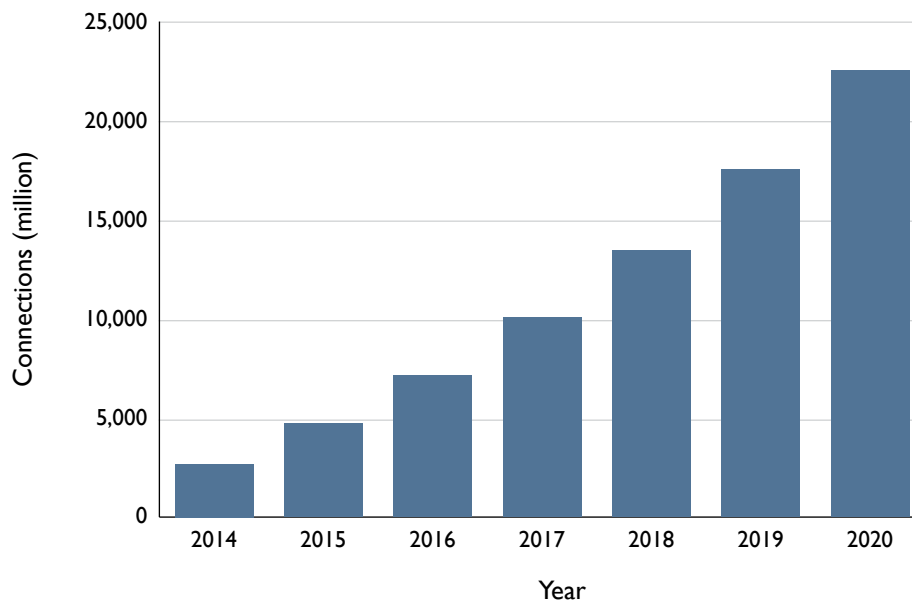
APIs, for example, can help deliver consistent and personalized cross-channel experiences to consumers across the Web, mobile, and personal wearable environments in order to strengthen brands, drive customer engagement metrics, and improve customer satisfaction levels. Similarly, businesses can leverage APIs to enable inter-department data sharing, which has proven to dramatically improve the speed of business decision-making.

APIs and the Internet of Things (IoT)

The IoT value-chain includes chipset and module vendors, device vendors, application providers, system integrators, network providers, and many other industry participants who work together to develop, deploy, and manage IoT. The value of IoT is only realized when 'things' (or connected endpoints) can share data with enterprise software systems to enable smarter and automated decision-making. This can be accomplished through APIs that provide a standard to exchange data and services over remote connections. By allowing sensor-based endpoints to connect to cloud-based platforms, APIs are enabling the vision of hyper connectivity. As the connected revolution continues to unfold, Frost & Sullivan expects the use of APIs by IoT endpoints to increase dramatically.

Exhibit 3 shows global IoT connections from 2014 to 2020.

IoT Connections, Global, 2015-2020



Source: Frost & Sullivan

APIS IN A MOBILE WORLD

New technologies are driving the growth of innovative mobile applications, fundamentally changing the way we live, communicate, conduct business, and interact. The following outline some important ways in which APIs are used in mobile-only or mobile-centric environments:

- *Driving the app economy:* APIs are the foundation for the digital and the app economies. The majority of popular mobile applications connect to backend data or processing services through APIs. Some examples of common APIs used in mobile applications include messaging, payments, advertising, maps, authentication, product catalogs, and product availability. A significant number of leading APIs in mobile are provided by network operators and are used by developers to embed network capabilities in their applications to deliver a differentiated customer experience.

- *Supporting mobile-based interactions with IoT devices:* IoT allows both consumers and businesses to deconstruct old, inefficient processes and reconstruct processes through the use of technology in an efficient and reliable manner. APIs are allowing consumers to manage a variety of connected products (such as smart lighting systems, residential security systems, connected cars, home appliances) from their smartphones. Moreover, APIs support a variety of business use cases for IoT. For example, field technicians can proactively identify degrading parts or performance and initiate procedures for repair or replacement based on sensors installed in equipment. APIs also provide IoT asset owners with the ability to manage network connectivity for cellular IoT deployments from their smartphones.

THE FUTURE OF APIS

USING APIS TO DRIVE BREAKTHROUGHS IN BUSINESS PERFORMANCE

Disruptive innovation is creating entirely new markets, often transforming existing markets and displacing established competitors that are slow to adopt new ways of doing business. Businesses must adapt quickly to market changes and evolving customer needs. A well-designed and properly implemented API strategy can deliver the following benefits to companies:

- *Spur sustainable innovation:* APIs allow businesses to introduce new products, capabilities, or features without disruptions to existing operations. APIs also allow businesses to generate internal efficiencies and improve internal processes through ease of information sharing. This enables just-in-time decision-making and reducing fulfilment times.
- *Improve the customer experience:* By collating customer data from internal and external sources through APIs, businesses can deliver personalized service experiences in physical and digital environments. Additionally, by analyzing the data from the various API layers, companies can generate insights that are essential to improving the customer and the partner experiences.
- *Allow businesses to leverage the potential of IoT:* IoT will fundamentally change the ways in which business is conducted. For example, Frost & Sullivan research indicates approximately 60% of the top 100 product manufacturers and more than 40% of the top 100 process manufacturers will offer some form of product-as-a-service offering by 2020. By providing the necessary foundational elements to support connectivity-driven business models, APIs will remain important across industry verticals and use cases.

APIS AND MOBILE OPERATORS

Frost & Sullivan forecasts suggest that over 90% of the US population will own a smartphone by 2018. Advancements in network and device technologies, coupled with the proliferation of sophisticated consumer and enterprise mobile applications, continue to aggressively drive data usage on mobile devices. However, the majority of mobile data services consumed on smartphones and connected tablets is currently provided by over-the-top (OTT) service providers, which suggests that a significant amount of value in the mobile data value chain may bypass telecom service providers. In order to prevent this disintermediation, mobile operators are increasingly leveraging network APIs to collaborate with third-party application developers.

Network-initiated or network-supported APIs allow developers to embed advanced, network-supported functionality within mobile applications. They also help reduce the cost of application development and support. From an architecture

perspective, the primary benefit to the developer is the ability to access these services without the need to maintain a unique connection to each back-end network element. Frost & Sullivan's research indicates that continued growth in next-generation mobile services—including mobile advertising, mobile commerce, mobile messaging, and location-based mobile services—will drive network APIs for Web and native applications.

MOBILE API GROWTH EXPECTATIONS

A mobile application can make several thousand API calls per month. Frost & Sullivan expects an increase of over 200% in the volume of API calls made by mobile devices by 2020. The key drivers for this growth include:

- *Availability and expansion of public and private APIs:* Leading Web-based content providers such as Facebook, Google, Twitter, and eBay and leading cloud service providers such as Amazon, Microsoft, and Google continue to see significant usage of their public and private APIs. All of these leading companies have invested in new APIs to support emerging communication methods across digital, mobile, and IoT environments.
- *Strong focus of leading mobile operators:* A number of leading mobile operators such as AT&T offer network-based APIs and are continually adding new capabilities to their API platforms to support advanced functionality.
- *Continues enterprise focus on digital and mobile-first strategies:* Most enterprises are early into their digital and mobile expansion strategies. As enterprises across the board continue to prioritize a mobile-first strategy, their usage of internal, public, and private APIs is expected to increase substantially.

AT&T'S API STRATEGY

INTRODUCTION AND OVERVIEW

AT&T has adopted an open network platform architecture and provides access to core network services for third party application providers. The company offers a self-serve API platform that enables HTML5 and native mobile applications to access the AT&T network and system capabilities through Representational State Transfer (or RESTful) public APIs. Moreover, AT&T provides a sandbox environment that provides developers with a hands-on test bed to try APIs at no cost. Frost & Sullivan believes AT&T has successfully cemented its network into an integral part of the mobile innovation ecosystem by allowing developers to easily integrate network capabilities into their mobile applications.

INTRODUCING THE AT&T IN-APP MESSAGING API

AT&T's In-App Messaging API allows application developers to embed messaging capabilities within their applications. Responses to the messages can be received, read, and responded to from within the In-App Messaging API-enabled application. The key capabilities of the In-App Messaging API include:

- *Send and receive messages from within the application:* Developers can create applications that use the In-App Messaging API to send a message from the user's AT&T mobile number. There is no need for users to toggle between different screens in order to send text messages. Because messages are sent using the user's AT&T mobile phone number, the recipients know the source and are more inclined to open them.
- *Message destination flexibility:* Messages can be sent to both AT&T and non-AT&T mobile numbers, and to short codes and email addresses.

- *Group messaging capabilities:* Messages can be sent to up to 10 numbers at once, leading to improved collaboration and social experiences.
- *Cloud-based experiences:* With In-App Messaging API, app users are provisioned with an AT&T cloud message inbox that stores sent and received messages for up to 90 days.

WEBHOOKS FOR IN-APP MESSAGING EVENTS NOTIFICATIONS

What is Webhooks?

Webhooks are simple event notifications that are delivered via HTTP POST. They are user-defined HTTP callbacks that allow Web pages or applications to POST a message to a developer-provided URL when certain events (or actions) take place. Webhooks have emerged as one of the key technologies that help to make the Web more interactive and more programmable. The key benefits of Webhooks include:

- *Timely event notifications:* Webhooks notifications are sent as soon as they are received or triggered by an event, which makes them more efficient for the provider and the consumer.
- *Efficiency:* Webhooks eliminate the need for developers to continually poll for data and maintain a persistent server-to-server connection. This leads to more efficient use of computing cycles and throughput.

Webhooks and AT&T's In-App Messaging API

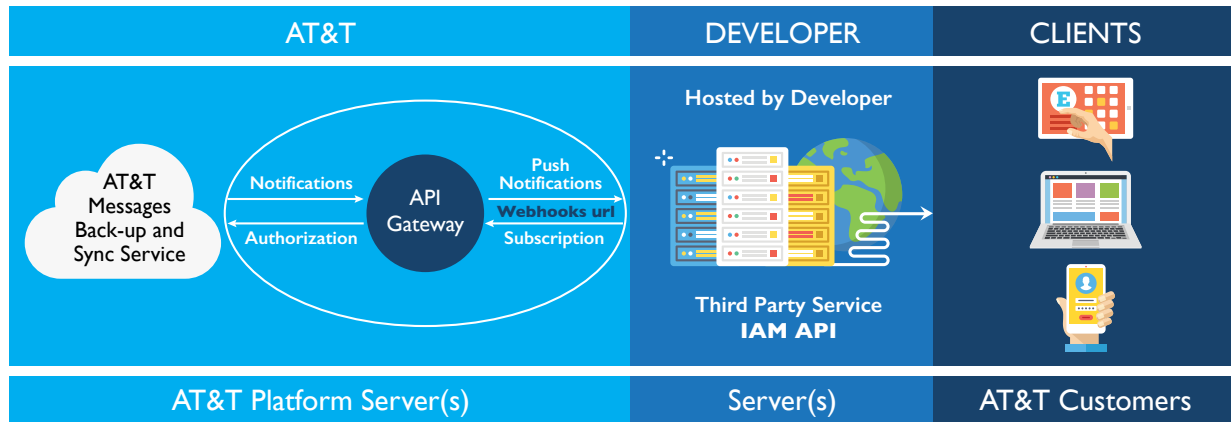
Features

AT&T has added Webhooks notification capabilities to the In-App Messaging API. In lieu of polling for updates, developers can receive push notifications as new events occur in applications and services that use the In-App Messaging API. This allows for immediate and near real-time event processing, which leads to a faster, improved customer experience with mobile applications.

Key features of Webhooks when used as an extension to the In-App Messaging API include:

- *Support for push messaging:* The Webhooks extension enables push messaging notifications from the AT&T Cloud Message Service between AT&T's API Gateway and third-party applications and services.
- *Multiple notification types:* Notifications can be triggered when messages are deleted, sent, or arrive to or from the subscriber's AT&T Cloud messages inbox.
- *Unified support for subscriber notifications:* Developers do not need to configure multiple URLs because they can support multiple subscriber notifications through a single URL configured to receive notifications.
- *Strong authentication and user consent:* Users of Webhooks and applications based on the In-App Messaging API have to go through a consent process before application functionality is enabled. The AT&T API gateway is used to authenticate the subscriber using the OAuth 2.0 authentication management API.

Exhibit 4 shows how Webhooks works with AT&T's In-App Messaging API.



Source: AT&T, Frost & Sullivan

Developer Benefits

Webhooks is significantly more efficient than polling in terms of effort and overhead. The advantages of using Webhooks with the In-App Messaging API include:

- Webhooks is a scalable and proven technology that is optimized for developer hosted services.
- It enables notifications for one-to-many clients as soon as they are received or triggered by an event.
- It offers the ability to subscribe to notifications on behalf of multiple end-users via a single Webhooks channel.
- Efficient push notifications significantly reduce the impact of battery life of the mobile device.
- The Webhooks architecture implemented by AT&T allows clients to be easily added or removed to the notifications subscription.

Getting Started

For developers interested in using the AT&T In-App Messaging API, there are a few simple steps outlined below:

- *Create an account at the AT&T Developer Program Web Site:* Create an account with AT&T or sign into an existing account.
- *Get application credentials:* Register the application's name with AT&T, select the appropriate in-app messaging API, and provide the application with the App Key and App Secret that are used to authenticate the app with AT&T.
- *Get authentication code:* All APIs provided by AT&T use the OAuth 2.0 framework. Developers can use the AT&T provided OAuth sample code to get the access token.
- *Enable Webhooks:* Subscribe to receive notifications. This involves registering a callback URL (notifications URL) for the application, creating a notification channel, and creating notification subscriptions by obtaining user consent by using the appropriate methods provided in the Webhooks Notification API.

Pricing

Developers can get started with the AT&T In-App Messaging API at no charge. However, once an app is ready for production the charges may apply. See <https://developer.att.com/in-app-messaging/pricing-details>

Other Considerations

Given the variety of use cases that can be supported by the In-App Messaging API, it is important to ensure all of the stakeholders understand their roles and responsibilities in ensuring error-free operations. The key considerations for developers that use In-App Messaging API include:

- *Knowing where the messages can be sent:* For example, the ability to send messages to international mobile phones is currently not available.
- *Availability and getting user consent:* In-App Messaging API usage is only available to AT&T Wireless post-paid mobile phone users. User consent is required before sending messages.
- *Usage of AT&T Cloud Inbox:* The user must be provisioned with the AT&T Cloud Inbox in order to use the In-App Messaging API. This provisioning is done during the user consent authorization process.
- *Other considerations:* Other important considerations include adhering to the guidelines for message inbox management through message indexes, understanding inactivity timers, and properly setting up the Developer Hosted Server (DHS) to receive notifications from AT&T.

USE CASE EXAMPLES

USE CASE #1: AT&T DRIVEMODE

INTRODUCTION AND BACKGROUND

Distracted Driving

Distracted driving is a leading cause of automobile accidents in the United States. Frost & Sullivan's research indicates that that nearly 20% of drivers send or receive text messages when behind the wheel, and that number increases to more than 60% when drivers between the ages of 18 and 24 are considered. According to the Virginia Tech Transportation Institute, text messaging both increased the risk of a crash or near-crash by two times and resulted in the longest duration of drivers taking their eyes off the road.

AT&T DriveMode

In order to reduce the incidents of distracted driving due to cell phone use, AT&T launched the DriveMode application in partnership with tXtBlocker, a leading provider of solutions to prevent distracted driving. The DriveMode application is available for the iOS, Android, and the Blackberry platforms and has the following features:

- *Automated operations:* The application is automatically turned on when the user is moving at speeds of 15 MPH or more, and turns off shortly after they stop.
- *Prevent distractions from incoming text messages:* DriveMode silences incoming text message alerts and sends a text message reply letting the sender know that the user is driving and will respond when they are off the road. The automatic reply text message can be customized by the user.

- *Manage incoming phone calls:* For Android devices, phone calls can be diverted to voicemail and the sender receives an automatic text reply letting them know that the user is driving and will respond when they are off the road. The automatic reply text message can be customized by the user. Users can also set up an allow list, which lets them choose up to five numbers that they can call or receive calls from when DriveMode is on.
- *Parental alerts feature:* DriveMode also has a Parental Alerts feature that enables it to send text messages to responsible elders or parents if DriveMode, Auto mode, or GPS is turned off. Alerts can also be sent for other conditions or events related to DriveMode functionality and operations.

DriveMode In-app Messaging API Usage

The iOS DriveMode app uses Webhooks and In-App Messaging APIs for the text auto reply functions. When the DriveMode application is on and the user receives a text message, the AT&T Cloud Messaging service sends a notification via Webhooks to the tXtBlocker server letting the developer know that a new message has been received in the AT&T cloud inbox. The In-App Messaging API is used to send the auto reply message to the sender, which informs them that the user is driving and will get back to them once they are off the road unless the user has customized the message, in which case the custom message is sent. For Parental Alerts, the application uses the SMS text API to send notifications. Frost & Sullivan's research indicates a high level of customer satisfaction with DriveMode, which is a clear testament to the unique capabilities and practical usefulness of the DriveMode application

USE CASE #2: AMAZON ECHO IN-APP MESSAGING SKILL

INTRODUCTION AND BACKGROUND

Amazon Echo

Amazon Echo is a Wi-Fi-enabled smart speaker that connects to the cloud-based Alexa voice service to perform different tasks when issued with the appropriate voice commands. Echo can retrieve and audibly share content from many leading news and entertainment sites. It also has built-in support for leading music streaming sites, such as Pandora and Spotify, and can play music from streaming services such as Apple Music and Google Play Music from a phone or tablet. The speaker can also be used as a home automation hub to control other connected home appliances or devices. A wide range of built-in and compatible third-party services has made Echo the most popular smart speaker in the United States.

Alexa Skills

The Echo device has access to different 'skills,' or voice-based capabilities, that allow Alexa to interact with compatible devices or services using voice commands. Examples of skills include the ability to play music, answer general questions, and set an alarm or timer. Amazon also offers the Alexa Skills Kit, a collection of self-service APIs, tools, documentation and code samples that allow developers to build and integrate new skills, or voice-based experiences, to Alexa-enabled devices (such as the Echo device). Some examples of skills include the ability to:

- Control connected home devices, such as lights, switches, and thermostats
- Use a connected car service, such as BMW Connected
- Connect with any of the available food and drink related applications, such as recipe guides

- Perform financial transactions, such as checking bank balances or making credit card payments
- Access productivity and lifestyle assistance services, such as phone finder and email assistance
- Use travel and transportation planning and information management services

AT&T's Amazon Echo In-app Messaging Skill

AT&T has developed a Send Message skill that allows AT&T mobile subscribers to send text messages by issuing voice commands to their Echo devices. Users have to go through a simple registration process that involves sending a text message to a short code to register their consent to use the service. Users can then add up to 10 contacts that they can send text messages to by issuing voice commands to the Echo device. The voice command structure for using Alexa to send text messages to a contact named “Bob” is:

- User: “Alexa, ask AT&T to Text Bob”
- Alexa prompts: What would you like to say to Bob?
- User: “Would you like to meet for coffee”

In-app Messaging Skill API Usage

- When the appropriate voice command is issued, Alexa parses it and finds intent, which is an action that fulfills a user’s spoken request that matches the phrase. Through the intent, the name of the sender and the phrase to text are sent to AT&T.
- Once the phone number and the message body contents are determined by the developer (AT&T), an API call is made to AT&T to send a text message on behalf of the user.

Benefits of AT&T's Amazon Echo Texting Service

The benefits of the voice-based texting service offered by AT&T include:

- *Convenience:* Users don’t have to spend any time searching for their phones, opening up the text messaging application, or typing out the content. They can simply issue a voice command and the text message is sent. The service is extremely convenient and allows users to multitask when in a home environment.
- *Versatility:* All AT&T postpaid subscribers can use the voice-based texting service. Users can use the service to send messages that are outside of the pre-defined message templates.
- *A non-premium service:* There is no additional charge for AT&T customers to use the send message skill. This is an example of how, by extending voice-based messaging capabilities to customers, AT&T is driving the relevancy of messaging through new usage scenarios.

WRAP-UP AND CONCLUSIONS

IMPORTANCE OF APIS

APIs provide the most effective way for businesses to keep up with the relentless pace of technological changes taking place in their respective verticals. Businesses that prioritize API development will be able to respond quickly and effectively to the ever-changing needs of their customers and partners, while those that hesitate to commit to a digital future will inevitably fall behind.

Integrating social experiences with mobile applications helps drive user engagement levels and should be a priority for mobile developers. One of the ways in which this can be done is by leveraging the In-app Messaging API and the Webhooks enhancements from AT&T.

WORKING WITH AT&T

Frost & Sullivan views AT&T as an ideal collaborator for developers that want to support new communication mechanisms and integrate innovative capabilities within their applications. With the In-App Messaging API and the Webhooks extension, AT&T has made it extremely easy for developers to build interactive applications to support new text messaging use cases and it provides robust service and support capabilities throughout the end-to-end process.

CONCLUSION

The AT&T In-App Messaging API and the Webhooks enhancements are unique assets that are available to developers at a reasonable price point. Frost & Sullivan encourages developers to consider using these two technologies to increase user engagement with their applications. These APIs will help developers deliver a well-integrated communication and collaboration experience from within the traditional application environment, as well as through emerging devices. Early adopters have already seen the value in the In-App Messaging API. Frost & Sullivan believes that developers that collaborate with AT&T for its In-App Messaging APIs will be well equipped to drive future growth opportunities and enhance their competitive position. For more information on AT&T's APIs, visit <http://developer.att.com/in-app-messaging>.

EDITORIAL CONTROL

This Whitepaper was sponsored by AT&T. However, Frost & Sullivan has maintained full editorial control throughout the research and publication process.

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NEXT STEPS 

Schedule a meeting with our global team to experience our thought leadership and to integrate your ideas, opportunities and challenges into the discussion.



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