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XURA

## Digital Communications

The Chatbot Communication Revolution  
and Telco Messaging Gateways



# The Chatbot Communication Revolution and Telco Messaging Gateways

Exposing the network's core assets elevates APIs from a development technique to a significant commercial opportunity

## We have reached a new tipping point

The mobile industry appears to have reached a new evolutionary point at which significant and irrevocable changes take place. This is the result of multiple smaller factors all converging into a new and irreversible development. These factors include the technological shift separating the operating system from client applications that drove the development of a huge number of specialized services. Then, followed by the impact of these specialized services on subscriber behaviors.

When the consumer's primary interaction with technology was with a PC, the separation of the desktop operating system from applications set the stage for what was to come decades later with sophisticated smartphones and the rise of apps. Users immediately adopted the concept that they could modify the utility of the PC with the installation of specific software they wished to use for gaming, word processing or graphic design.

The previously closed gardens of the mobile handset applications were breached with the rise of app stores and subscribers were instantly familiar with the notion of customizing the functionality of their handset to suit their needs. The millions of apps downloaded for evaluation were often discarded or simply forgotten. The blockbuster success of certain apps was the result of consumers circumventing chargeable calling and messaging activity. Thus we saw the rise of Skype, WhatsApp, Facebook Messenger, Telegram and iMessage to name a few.

Changes in consumer behavior with the adoption of OTT apps are interesting to note. Initially, mobile phones were primarily used for voice calls and texting augmented the person to person interactions. When over the top messaging apps removed the texting expense, consumer behaviors shifted away from voice calls as the primary method of interaction. Engaging in a voice call is now considered an investment in time and attention that many are unwilling to make unless both parties agree beforehand. In fact, for many younger subscribers, voice calls are a very personal option for them.

## The coming chatbot communication revolution

Most significant big technological jumps forward are the result of making something easier and more natural than what it replaced. Chatbots offer a method of frictionless, natural subscriber interaction. In fact, younger audiences preferred way of communication with companies, brands or enterprises is via chat. Today we have a population of subscribers who are very comfortable communicating via text using a variety of applications for different communities of users. Their usage is fragmented across a range of apps that only seem to be getting more complex. This is the ideal condition for the explosion of chatbots.

The mobile industry seems primarily distracted by OTT messaging apps such as WeChat, WhatsApp, Telegram and Facebook Messenger dominating consumers' online conversational lives. It is rather easy to envision a world in which this conversation landscape could seamlessly be augmented with services provided by chatbots. The same opportunity exists for the operator to open their network via APIs and augment their RCS services with chatbot functionality. This would have a dramatic impact on the era of the app.

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## What are chatbots?

Chatbots are computer programs that mimic conversation with people using artificial intelligence (AI). They can transform the way you interact with the internet from a series of self-initiated tasks to a quasi-conversation. While chatbots have existed since the 1960's, technologies supporting them have improved radically in the last few years. Developments in natural language processing, improvements in artificial intelligence, the adoption of Application Programming Interfaces (APIs) and the shift towards messaging in general have placed us at the point where chatbot technology is 'good enough' to take off as a mass market service. While they are still far from passing the Turing Test, chatbot technology is adequate to hold conversations, and solve specific problems.

Chatbots are typically comprised of two primary elements; the gateways or adapters enabling interaction with messaging platforms, plus the natural language interface and artificial intelligence engines that generate sentences and enable the promise of a meaningful conversation. Bots can be programmed to read and write messages that carry out automated actions. The automated actions may be initiated by the subscriber or as a response to external triggers when combined with further contextual information.

Thinking about external trigger opportunities for a chatbot, consider that properly authorized systems theoretically could have access to all relevant information about the subscriber such as calendars, contacts, purchases, search history, messages, preferences and location. What is really compelling right now is the opportunity to use meaningful real time contextual information combined with very affordable processing power to create something interesting on a mass market scale. Additionally, as machine learning continues to develop, assembling intelligent scripts will enable even moderately mathematical developers to create seemingly magical functionality.

While the "chat" part of the interaction may seem superficial, the seamless and ubiquitous interface promises to disrupt a range of technologies including search engines, social networking, customer relationship management and application development among others. Chatbots will become personal assistants and on-demand conversational partners that provide helpful services. Over time, interaction will provide chatbots with additional contextual data that it will use to learn and offer additional services. Bots infused with the ability to "learn" from conversations will continuously improve their ability to determine what people want and how to respond.

## How will chatbots be used?

Initially, chatbots offer to improve the customer service experience without the need to augment expensive department staffs. In the CRM context, chatbots are already used in a variety of automated ways to respond to customer questions including frequently asked questions pages, automated phone robots, social media and Q&A forums.

Although the chat interface is important, the really interesting part is the intelligent computation that will take place in the background and may surface a variety of different user scenarios including:

- On-demand conversation
- Pop-up contextual services
- Intelligent notifications
- Application interaction (filtering, prioritizing or scheduling)
- IoT device interaction

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Depending on what the bot is designed to accomplish, it could schedule appointments, send reminders, order food on demand, book a table or order a cab. Instead of using an app designed by the cab company to book a car, the consumer would just interact with a chatbot to do it for them. In a similar way, functionality of multiple apps may be almost completely replaced with simple chat interactions such as stock tracking, weather forecasts, traffic reports, internet searches etc.

While we are very early in the chatbot revolution and most AI systems are under development, different categories of bots are expected to have specialized functionality. Content bots will gather and share news or weather content. Monitor bots will notify the consumer when specific contextual triggers occur such as flight delays, household alarms or other IoT related events. Commerce bots will enable simple purchasing such as take out dinners. Finance bots will enable interaction for banking and money services. Other enterprise grade bots will enable automated interaction with business workflows such as operations, finance, sales, human resources or administration. IoT bots will be designed to interact with smart homes, cars and devices. And, as the number of bots increase, personal master bots will be designed to prioritize and manage your interactions with the bot world.

## Chatbot impact on apps and websites

Sketching future scenarios using prior technology experiences is easy. For example, browser software largely replaced the desktop user interface as the simpler alternative. Websites largely replaced PC applications for the same reason. And, recently, alternative apps have practically taken over the role of embedded mobile handset functionality. So, when chatbot technology offers to replace handset app functionality in a simpler, lighter weight way, you can assume that messaging bots will eventually assume part of the role of mobile apps. Bots will become new apps and bot stores will be the next version of app stores.

Future predictions about an artificial intelligence powered super utopia in which we live carefree lives of intellectual pursuits are bound to fail. The adoption of technology and transition of subscriber behaviors is far too complex. What is highly probable is that there will be a significant period of time in which the chatbot trend evolves. Organizations that are prepared to take advantage of this transition in technology and behavior will benefit greatly.

## How mobile operators can leverage the chatbot revolution

This transition provides mobile operators with the opportunity to position themselves at an important point in the interaction between the subscriber and bot technology with messaging gateways providing chatbot functionality to either SMS or Rich Communication Suite (RCS) users.

The operator has several key advantages that only they can provide and should be emphasized when delivering communication services. These include network reliability, global interoperability, service ubiquity and subscriber trust enabled by security and privacy management.

In addition, exposing core network functionality using APIs provides a strategic advantage for the mobile network operator by enabling the role as a Data as a Service provider which offers an important secondary revenue stream. Telecom APIs allow the operator to expose a broad range of critical data or functional resources to third parties or the OTT's themselves as they provide services to end-users. These end-users may be direct consumers or enterprise customers creating B2B services. This is the concept that is the critical technological driver behind "Bot Stores" and "RCS App Stores".

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RCS technology also provides several significant advantages. RCS delivers consumers an experience beyond voice and SMS by providing them with instant messaging or chat, live video sharing and file transfer across any device, on any network, with anyone in their mobile address book. RCS is session based and offers built-in multimedia support unlocking possibilities beyond SMS and basic IM which were previously restricted to particular software or clients. RCS is also available across a wide range of handsets and on the desktop which provides mass market and opportunities for interconnection across service providers. Bots are a natural addition to augment this way of communication.

## Telco messaging gateways

Telco messaging gateways provide a strategic advantage for the mobile network operator by enabling them to use APIs as a controlled method to expose a range of core assets to third parties. This allows the operator to take on a role as Data as a Service provider and benefit from the important secondary revenue stream this may provide.

Data that may be exposed via APIs include everything from functions such as M2M, WebRTC, SMS, Rich Communication Suite, location, voice control, subscriber data, identity management or number provisioning to core network QoS information for reporting on service delivery states.

Exposing the network's core assets in this way to be reused, shared and monetized through APIs elevates application programming interfaces from a development technique to a significant commercial opportunity. And even though this opportunity is built on top of complex technical infrastructure that includes data from legacy and third-party systems, it must be considered and managed as any product would be.

## RCS API gateway overview

Rich Communication Suite (RCS) API Gateway provides a unique approach to telco application development: each application is implemented as a "virtual client" by the RCS solution gateway, appearing to the core as a regular RCS client, and is controlled by the developer using web services. This approach makes life easy for developers: they don't need to be telco experts or invest time in learning how IMS, OMA messaging or SIP works. Complexity is hidden behind a set of web based APIs, one of the most successful paradigms used both in Internet and enterprises.

The RCS Solution Gateway helps carriers monetize RCS easily. Integration with the core network is based on the RCS UNI, avoiding the overhead, delays and costs of traditional approaches:

- Services are subject to the same controls as RCS subscribers: security, policy, interception
- RCS UNI is a very well understood and tested interface, independent from the core
- Existing IMS and RCS servers are used, with no ad-hoc configuration
- No requirements over provisioning or other OSS/BSS systems
- A subscriber just needs a RCS enabled terminal to access applications and services, no extra software or specific configuration is needed

As a result, services are fully under carrier control, and existing procedures and systems can be re-used.

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The use of RCS UNI means that a complete testing cycle for each application is unnecessary, as the bulk of network integration has been completed by the RCS Solution Gateway platform. Thus, the relationship with developers can be more “Internet-like” than the traditional model requiring long periods of testing usually applicable only to larger developers. The operator does not need to diverge from its strength, traditional values, and the focus on a clear business strategy.

The RCS Solution Gateway’s lightweight approach to network integration enables it to be deployed even in pilots/trial. Overhead is minimal, and pilots are enriched with genuinely useful services which help to disseminate RCS benefits inside service provider organizations, and allow the exploration of business models and developer engagements, before a full launch.

## We are Xura

We offer our customers a pathway to next generation digital technology. Our thinking unlocks the possibilities of no boundaries communications.

Xura has held patents in the gateway technology area since 2010 that enable IP messaging to interact with and take advantage of core network functionality in the same manner as chatbot interactions.

The Xura RCS API Gateway was awarded at the GSMA RCS DevChallenge 2011 and includes features such as file transfer (audios, pics) and geolocation push to enrich potential use cases for plain text chatbots.

For almost 30 years, we have been working with mobile network operators and enterprises all over the world, helping them to meet the needs of tomorrow’s multi-device, multi-services consumers.

We offer clever ways to financially realize opportunities from existing technology, while guiding customers to richer communications solutions by creating innovative products and services to disrupt digital.

We help 8 out of the top 10 global operators reach over 3 billion endpoints.

We are the enabler making the future of digital communications services happen.

Xura. We think beyond.

XURA

**For more information**

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