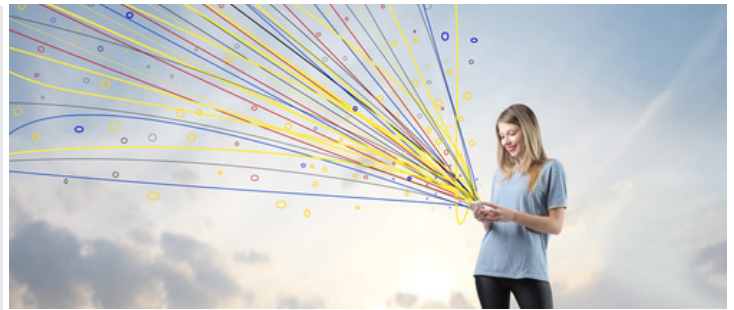


THRUTU PLATFORM

RICH MOBILE CONTENT SHARING

CLOUD-BASED WHITE-LABEL SERVICE OFFERING



- Managed offering with a large installed user base
- Hosted service for wireline and wireless operators
- No equipment to buy, install, manage or maintain
- Assistance in branding and launching white label
- Built on our patented cloud-based technology
- Full geographic redundancy of server instances

Not much has changed in voice telephony since the invention of the mobile phone. Meanwhile, the foundation of this key revenue source is under attack. Over the top service providers are marginalizing respected network operator brands with rich communications services. These offerings leverage the explosive growth in smart mobile endpoints and ubiquitous unlicensed wireless access, increasingly relegating the phone number from the status of primary user ID to something that simply appears on the top of a monthly bill. Metaswitch delivers immersive communications solutions that help combat the threat of OTT. Successfully deployed under the Metaswitch Thrutu brand, we are now extending a unique opportunity to white-label this service.

WHAT IS THRUTU?

Thrutu is an extensible and flexible client / server solution for delivering impulsive in-call content sharing and rich multimedia interaction between two calling parties. Hosted and maintained by Metaswitch, Thrutu enhances normal voice calls, enabling users to exchange a wide range of information and perform collaborative activities with each other at the touch of a button - all in real-time and within the context of a conversation.

The Thrutu client is available for mobile devices based on Android, Apple iOS and BlackBerry OS, which includes today's most popular smartphones. A set of default Thrutu action buttons is supplemented by additional functions that individual users can install from Thrutu Central, a brandable button directory. Our simple, abstracted, application programming interface (API) enables independent software vendors around the globe to quickly and easily add new buttons to our extensive library. Thrutu Central also affords white-label providers the opportunity to extend unique, bespoke, features to their user base or target customers.

Featuring location-based services, personal mobile payment options and games, Thrutu enhances a standard phone call, providing an engaging and immersive communications experience. This supplies the foundation for increasing the number of mobile-to-mobile calls, extending call hold times and boosting billable data megabytes on licensed wireless spectrum. With your brand name and identity, the client application is suitable for device pre-installation, or can be easily downloaded from your own app store or any one of the supported market places.



Enabling Rich Contextual Content Sharing at the Push of a Button

WHAT CAN THRUTU DO FOR YOU?

Thrutu is an impulsive in-call content sharing application. Before Thrutu, an individual wishing to transfer an image, their location or contact details would have to exit the handset's dialer application window, then find and start one or more disparate service or application. Independent of the underlying phone call, the user would have to identify the called party in a contacts list, find their arbitrary user ID or re-enter the phone number to initiate this second service. A cumbersome process and more steps that most people will tolerate. A subscriber could cut the call short while they fumble through this process, but by then the moment has passed. More often than not, they just won't bother at all.

With Thrutu, the task of sharing rich contextual information is quick and easy. Buttons are readily accessible during the call, making them a natural extension of the phone call. With the service inherently tied to the mobile phone number (MSISDN), Thrutu establishes a relationship between the calling and called parties based on this unique global identifier, eliminating the need to enter any further contact information prior to sending content.

The platform, however, can provide far more than just content sharing - it can allow real-time interaction, delivering an immersive communications experience that enriches a plain old voice call. Thrutu maintains a connection-oriented two-way data session between callers, enabling collaborative activities such as white boarding, games and shared web searches.

SHATTERING CLASSIC DEPLOYMENT MODELS

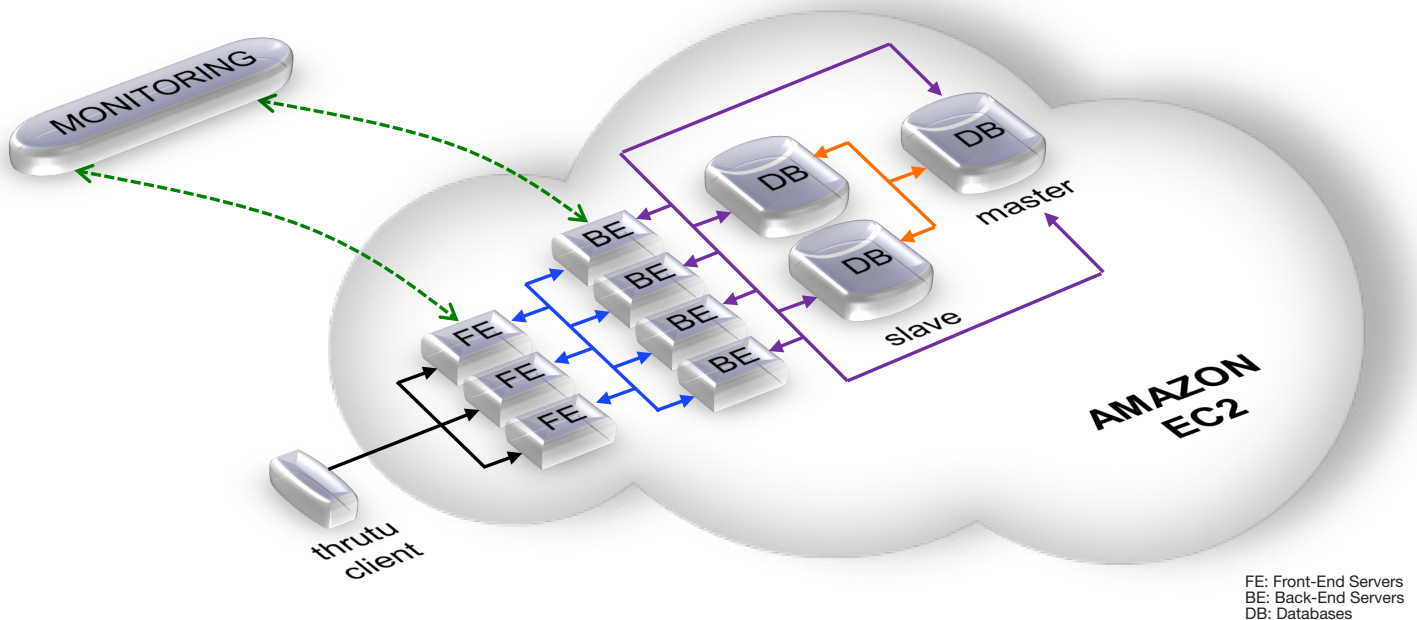
The Thrutu platform consists of a cloud-based server and multi-platform, interoperable, client software which is installed on a subscriber's mobile device. The solution enables operators to deploy their own branded version of this rich communication service experience - without any core underlying network infrastructure prerequisites, such as IMS or RCS.

Our servers feature a patented sharding processes which enable individual data processing instances and databases to dynamically dimension as the number of active users increases. This approach guarantees our ability deliver a highly scalable communications solution regardless of traffic loads.

OUR SERVERS HAVE THEIR HEADS IN THE CLOUDS

Metaswitch leverages Amazon's EC2 environment, which is capable of hosting massively scalable solutions that operate effectively and efficiently for many millions of users. The Thrutu service is hosted in Amazon's elastic compute cloud environment, taking full advantage of EC2's multi-geography distribution and its inherent resiliency.

While Metaswitch manages and maintains the service, leveraging cloud-based technology completely eliminates capital expenditure while ensuring that our customers - and yours - immediately receive the benefits of system enhancements and improvements. This common hosting platform also enables full interoperability, where desired, between all Thrutu-based services, regardless of the operator, enabling interworking between customer of disparate white label offerings.



Thrutu Cloud-Based Functional Server Components

A NEW PERSPECTIVE ON PLATFORM ARCHITECTURES

The Thrutu service is divided into independent, scalable, server instances that are spun-up dynamically within the Amazon EC2 environment. When combined, these individual server instantiations enable the platform to automatically grow in a linear fashion to meet real-time user demands and traffic loads.

Front-end (FE) servers perform the role of DNS load balancers, redirecting traffic into the Thrutu core based on patented dynamic sharding algorithms to enable two legs of a call to be correlated on the same back-end server.

Back-end (BE) servers set up Thrutu sessions, and handle data transfer requests from Thrutu clients, calling on the database of registered phone numbers to correlate calls and handle black-listing. Uploaded data from SMS-based data transfers is stored in Amazon S3 storage. Back-end servers also interface with multiple third-party SMS services used during client phone number registration.

Monitoring services – external to the Amazon deployment – maintain health checks on the entire service, issuing alerts to Metaswitch staff in the event of a system warning or error.




THRUTU: FRONT AND CENTER

With devices based on Android and BlackBerry operating systems, Thrutu integrates seamlessly into the native phone dialer, activating automatically whenever a phone call is made or received.

On iPhone, the Thrutu client includes outbound dialing capabilities that integrate with the native contacts application. An Apple push notification service (APNS) informs the subscriber when Thrutu is available on an inbound call, enabling the user to easily bring the Thrutu capabilities to the foreground, where they are readily accessible.

WE'VE GOT YOUR NUMBER

The global ID for Thrutu services is the phone number, or MSISDN. A user registers their number - which the client detects automatically where possible - and the Thrutu service validates it with an exchange involving an SMS message sent to the phone, thereby preventing number spoofing.

					
LOCATION Use your phone's GPS to share current location in real-time, even while you move around.	CAMERA Snap-and-share a photo in real-time.	GALLERY Share a photo that already lives in your album from a past experience.	CONTACT INFORMATION Share contact details, which appear instantly in the other caller's address book. No copy-and-pasting or related hassles.	"PROD" A new way to poke your friends.	"DOODLE" Share a sketchpad with a friend, add to a picture and save your drawings

Default Thrutu Client Buttons

In the event the SIM card is removed from the phone, the registration process is re-run to ensure that the individual client's registration continues to use the device's correct phone number.

MAKING THE CONNECTION

When a subscriber makes or receives a call, the client application, resident on the mobile handset, contacts the Thrutu service using standard HTTPS protocols. A server instance uses the called and calling phone numbers to look up the two parties in the Thrutu service database. If both parties' numbers are registered and activated Thrutu users, the server creates a session between the two, and the clients on both handsets make full in-call content sharing available.

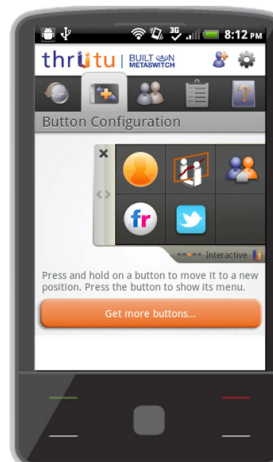
The server mediates a capabilities exchange between the clients, to ensure a graceful experience for both users irrespective of the client version or the set of Thrutu buttons installed on both handsets.

The client uses unlicensed (WiFi) spectrum for the data connection where possible, enabling Thrutu use on CDMA networks and optimizing the speed of data exchange. Where WiFi is not available, the client uses the licensed spectrum data capabilities open to it, whether 3G or 4G.

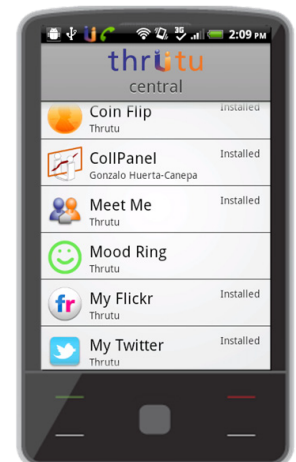
For simplicity and reliability, Thrutu uses standard protocols wherever possible. Data is broken into segments, compressed using GZIP where appropriate for efficiency and speed, and exchanged using HTTPS for secure, private transmission.

NO THRUTU? NO PROBLEM.

To experience real-time, in-call, interactive content sharing, both handsets must be Thrutu enabled and have simultaneous access to a data connection alongside the voice call. In other circumstances, the Thrutu client falls-back to offering sharing via URLs forwarded through SMS or email. Images and other supported content are uploaded automatically to a Thrutu content server by the sender.



Make Thrutu a Unique Experience



A unique link embedded within the SMS or email points to where the information can be downloaded. In the event that data connectivity is not available in parallel with the phone call, data uploads and emails are queued until after the call is complete.

OUT-OF-CALL BUT NOT OUT-OF-LUCK

Along with delivering an innovative in-call offering, Thrutu extends this exclusive content sharing service to subscribers outside of a telephone conversation. The Thrutu platform enables users to access the same rich features and functionality, allowing carriers to keep their brand at the forefront of a total communications experience while combating the threat posed by alternative over-the-top (OTT) applications providers.

Thrutu notifies the receiving client using APNS (iPhone) or C2DM (Android), triggering an on-screen alert and audible tone. Once accepted, the two parties can send instant messages while having access to other Thrutu buttons. Most importantly, users can easily uplift to a voice phone call at the touch of a button, driving mobile switch minutes.

PUSH OUR BUTTONS

Enabling operator-specific capabilities that differentiate your service from the competition, the Thrutu client is downloaded with a set of default buttons that can be customized for each white-label provider.

New buttons are added by Metaswitch or independent software vendors to a brandable button directory: Thrutu Central. With a single click, users can download practical and entertaining features such as PayPal personal payments, shared search, Flickr or Twitter feeds, games and local weather information. Once downloaded, it is quick and easy to reorder or delete buttons, based on personal preferences. To further customize the experience for your users, Thrutu Central can offer bespoke, deployment-specific buttons that are only available on your white-label branded client.

PLUG-IN NEW FEATURES

Thrutu is not just an application – it's a platform for interactivity between two devices or users. Open application programming interfaces (APIs), together with the Thrutu software developers kit (SDK), enable 3rd. party independent software vendors to create innovative, new, Thrutu buttons and services. There are two types of button: Native and Web.

As native applications, native buttons access handset-specific features, such as the internal camera, exposing them to the Thrutu service. Conversely, Web buttons launch embedded browser sessions on both devices to present the desired functionality. Web buttons require no knowledge of device-specific programming languages and can be rapidly created and deployed using standard HTML, CSS and JavaScript. The Thrutu SimpleShare JavaScript library enables content such as internet pages to be easily shared, in real-time, between two parties. Native buttons must be installed on each endpoint while web buttons need only be implemented on one device.

HAVE IT YOUR WAY: OUR PRIVATE WHITE-LABEL SERVICE OFFERING

Metaswitch is extending a unique opportunity to private label this successful, infrastructure-agnostic, rich communications and content sharing service.

Network operators are under constant threat from over-the-top applications that attack core revenue streams and marginalize otherwise well-respected carrier brands. Our white-label Thrutu offering dramatically reduces your time-to-market for launching competing solutions that keep your company name and billable network services at the forefront of the communications experience for your existing or target customer base.

With no network infrastructure pre-requisites and no equipment to purchase, deploy or maintain, start-up costs are negligible. The client interface is renamed, re-branded and fully customized to the specific requirements of each individual white-label operator.

With our in-depth experience in distributing, marketing and promoting the Thrutu service, Metaswitch can also advise service providers on our key findings - valuable information you can exploit when launching your individual offering.

OPTIONS AND SPECIFICATIONS

SERVERS

- Hosted in the Amazon Elastic Compute Cloud (EC2)
- Managed and maintained by Metaswitch
- Patented scalability and resiliency with data sharding

CLIENTS

- Android 2.1 and above
- Apple iOS 4.0 and above
- Blackberry OS 5.0 and above

SECURITY & EFFICIENCY

- HTTPS
- GZIP data compression

OPEN DEVELOPMENT API

- Documentation available at <http://developer.thrutu.com>
- Native APIs are currently only available for the Android OS

