

# A TECHNICAL INTRODUCTION TO TDC BRIDGE™

## SUMMARY

TDC BRIDGE™ is a Communications as a Service offering that enables mobile customers to talk to businesses as easily as they talk to friends. The TDC BRIDGE™ platform implements the Modern Call Model™: Conversations start with texting, before escalating to voice or video conversations if appropriate. The platform integrates with corporate data sources, artificial intelligence, and multiple messaging networks so contact center agents can recognize and respond to callers with mass personalization. No app development is required. The results are great conversations, better outcomes and the best relationships.

## OVERVIEW

Designed to be a post-unified communications service, TDC BRIDGE™ enables business phone lines to work like a smartphone to address mobile callers. Agents can use text, calls, link and photo sharing to make conversations easy and convenient. TDC BRIDGE™ connects to many messaging networks, including SMS and social, enabling two-way messaging conversations between the business and the mobile customer. It connects to legacy voice and video systems to escalate conversations from messaging when appropriate. TDC BRIDGE™ connects to data sources, both cloud and legacy, to create and consume customer data. Finally, a rich set of automation facilities allow workflow and external software integration for high efficiency and high customer satisfaction.

TDC BRIDGE™ differs from unified communication systems because it uses messaging versus voice to handle communications, initiating conversations with a text instead of a voice call, and allowing inbound text messages. Instead of a voice to start a session. With auto-attendant answering and call routing, employees or automations drive the customer to the right agent with a minimum of



caller input. Conversations are transferred easily between agents at the text session layer, so callers are not forced to provide information multiple times, and dropped calls are minimized. Conversations can be escalated to voice at any time, virtually eliminating on-hold and greatly reducing the peak/average staffing problems of most centers.

## CORE FUNCTIONALITY

TDC BRIDGE™ uses two-way conversational SMS text messaging for mass personalization. This means a company can tailor its products and services to meet the specific needs of individuals, groups, or segments. Agents can escalate from messaging to voice, video and HTML5 apps using the click to call button. The platform blends automations and live agents to enhance the natural intelligence of the agent. The open architecture and scalable digital workforce platform is designed to make adding, upgrading and swapping components easy. By allowing conversational and observational automations, agent workload is reduced, because it carries on conversations in their place. Each conversation is automatically stored and can connect to legacy databases and the cloud. Additionally, the platform fetches context from data connections to support sessions.

- Automatically detect and translate human languages
- Messaging translations from machine to near real-time human
- Escalate to voice conversations with third party translators/interpreters
- Secure messaging for private/regulated conversations
- Multi-Authenticate visitors using voice prints and government issued ID
- Complete REST API for all resource Open and scalable bot architecture

## MESSAGING SESSIONS AND CONVERSATIONS

Automated conversations can be used at the beginning or the end of a session, or on behalf of an agent when requested. Both proprietary and third-party software can be used to create automations. Common uses for conversational automation include after-hours self-help, collection of help tickets, and post conversation surveys.

- **Connects to messaging networks to enable two-way conversations and notifications**
  - Built in high-velocity SMS over toll free and long codes
  - Connections to social networks over API
  - Extensible to Web Pages, widgets, new networks
- **Establish and maintain sessions**
  - Messaging networks have no sessions
  - Hooks for start of conversation, end of conversations
  - Support for post-session de-bouncing
- **Session level device**

- Metrics, reporting and management at session level
- **Complete conversation history saved**
- **Automatically builds customer contact list**
- **Primarily inbound device for customer contact**
  - Not an outbound marketing, short-code SMS service
  - Not limited to customer support use cases; open vendor lock-in and bot proliferations. Automations can be implemented with any proprietary third-party service

## AUTOMATIONS

Automations and integration into workflow are provided through an external automation server. The automation server allows for scaling, selection and control of chat-bots and software independent of TDC BRIDGE™, with both synchronous (scripting) and asynchronous (event-driven) interactions models available.

TDC BRIDGE™ connects to external data sources to act as a source of context-sensitive data. REST and OData APIs provide raw access to resources for external systems like Salesforce, and can be pushed into over 80 third-party targets. External data can be displayed to the agent with easy to customize views.

- Conversational automations for self-service
- Converses automatically with customer, off-loading agent
- Triggered on session start and end, and on-demand (minions)
- Minion bots do small tasks: collect address, register customer, patient, or entity
- Observational bots for real-time backend software
- Listen to conversations and whisper agents
- Integrates with enterprise software for event triggering
- Open and Scalable Digital Workforce Architecture
- Open bot-server architecture avoids vendor lock-in
- Consolidates automations (fixes the “dirty little bot” problem)
- Architecture invariant to scale, cloud deployable
- Connects to all major AI APIs: Lexx, Watson, Google AI.API

## SECURED MESSAGING

Transitions a conversation from one messaging network (typically SMS) to a secured page on the mobile browser. Secured messaging data can be wiped remotely, and can be used in HIPAA/FINRA contexts.

Simple operation:

- Agent presses padlock to send secure link to visitor

- Visitor clicks link and opens into the mobile browser
- Link expires with session
- Sessions can be secured from any network including social

## AUTHENTICATION ( ROADMAP )

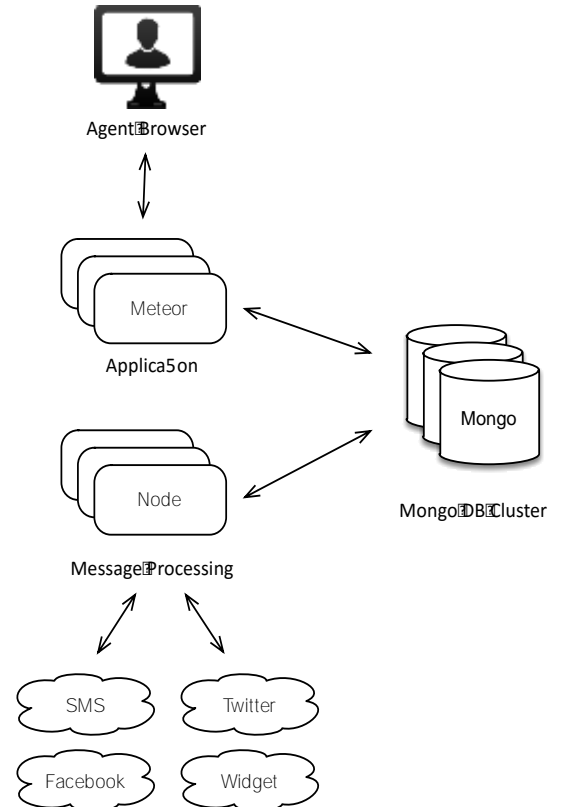
- Full biometric authentication for visitors
- Visitors voice-printed on every voice interaction
- We accept Government issued IDs for validation
- Information loaded into personal profile from ID
- Can be re-validated with a selfie
- On-boarding is safe, seamless and effective
- Agent initiates on-boarding, sends link to customer
- Customer opens secured page, takes picture of ID, selfie
- System validates visitor
- Agent calls customer to thank him for registration, voice printing the customer, closing the authentication loop.
- Agent screen notifies when visitor is failing voice print

## DESIGN OPINIONS

- Design for the generic smartphone, no apps required
- Phone, SMS, mobile browser and camera
- Assume none of our client's technology in the hands of the customer
- Support an open architecture for automations
- Designed for any customer contact, not just support
- Be a good target of software, not just an application
- Maximize population penetration
- Use the mobile phone number as the unique ID
- Don't automate at the expense of the customer experience

## TECHNICAL STACK

- Application Tier
  - Meteor.js, HTML 5, Jade, client side mini-mongo
  - Mobile responsive and data reactive client side
  - Application high availability cluster, full cloud design
- Messaging Tier
  - Redundant node.js messaging micro-services
- Data Tier
  - High availability mongoDb cluster
  - Encrypted at rest
  - Hosting
  - Hosted version on DO, AWS and private cloud available



## HOSTING

- Primary : Digital Ocean
- Dedicated instance options
  - Rackspace, AWS, Private Clouds
  - Ubuntu 14.4
- Agent Browser
  - TLS 1.2, 1.1, 128-bit AES Database
  - MongoDB 3.2, H/A Failover, Hidden 3<sup>rd</sup> node
  - Encryption at Rest on Request
- App / Mongo / Node
  - Whitelist, Floating External Ips
  - Comprehensive logging, auditing, and intrusion detection

## USER AUTHENTICATION AND AUTHORIZATION OPTIONS

- Support for integrations with
- LDAP
- SAML
- OAuth
- OpenID
- OpenID Connect
- SON Web Tokens (JWTs)
- REST
- Custom rules to implement password complexity following recommendations of [www.owasp.org](http://www.owasp.org)

## INTEGRATION

### OUT OF THE BOX

Nearly all of TEN DIGIT's base functionality is available "out of the box", and does not require any involvement of the IT department or integrations into external systems:

- Two-way conversational SMS messaging for mass personalization
- Escalate from messaging to voice and HTML5 apps
- Blend automations and live agents
- Automatically detect and translate human languages
- Secure messaging for private/regulated conversations
- Connects to messaging networks to enable two-way conversations and notifications
  - Built in high velocity SMS over toll free and long codes
  - Connections to social networks over API
- Extensible to Web Pages, widgets, new networks
- Complete conversation history saved
- Automatically builds customer contact list
- Outbound and scheduled notifications
- Transfer visitors between agents and teams
- "Pin" visitors to agent or team for next session
- Supports BYOD by hiding agent cell phone number
- Quick Replies and Whispers

- Metrics: Sessions, delays, handling times, messages, simultaneous
- Complete session history, transcripts: Filtered by agent, team
- Comprehensive agent statistics, appropriate for text
- Textual word analysis
- Greetings and Hours
- Simple weekly work schedule
- Different announcements for working and off-hours
- Specify different automations for working and off-hours
- Optional additional greeting when agent assigned
- Signatures specified per agent

## INTEGRATION OPTIONS

TDC BRIDGE™ is designed to be a good neighbor to other software, and supports fetching and retrieving data from most legacy and modern data sources. The major integrations points include:

- Full data integration to TDC BRIDGE™ over REST, oData and GraphQL to all application resources:
  - Customer details
  - Whisper keywords
  - Complete message history
  - Sessions
  - Settings
  - Bot sessions, settings and transcripts
  - Scheduled outbound messages and campaigns
- Simple, form builder integration with over 80 different data sources
  - Legacy systems such as DB2, SqlServer and MySql
  - Cloud services such as WorkDay, ZenDesk and Salesforce
    - Custom messaging networks
  - Expert and vertical systems such as Meditech and Pokitdok
  - Custom data integrations available
  - Supports integrations between databases
- Conversational and observational observations with third party and proprietary automations

## DATA INTEGRATION

Four data integration options exist for TDC BRIDGE™:

- As a source of data for other information systems
- Fetching data from other systems to display on the agent's dashboard
- Storing session and transcript data in external sources
- As a target of external software to manage configurations and notifications

TDC BRIDGE™ exposes all of its internal resources over REST, oData and GraphQL as a source of data for other systems. For instance, any of the data collected by the system can be seamlessly represented as custom objects in SalesForce for inclusion in dashboards, or as triggers for other functionality.

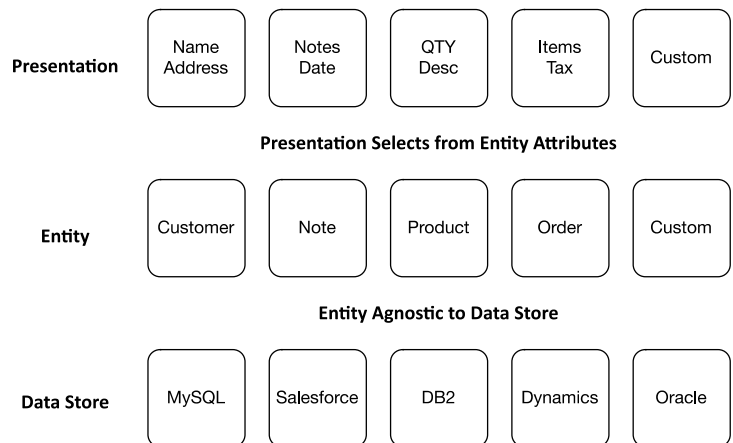


Figure 1: Three Tier Data Model

Context relevant data can be fetched from external data sources and displayed in the detailed chat windows between agents and visitors. Data display and management can be completely customized, or can be assembled with a three-tier form builder tool. TDC BRIDGE™ supports a three-tier data integration approach: data store, entities and presentation. Entities, such as contacts, patients, referrals and appointments, can be fetched from any appropriate data source and imported into the system with a standardized model view. These models can then be used to customize the view for the agents, providing a very quick and effective method of delivering data to the agent to support the conversation

Session notes and transcripts are easily exported into external systems. Any of the common data stores

## AUTOMATION OPTIONS

- Bash script, HTTP, IBM Conversational Dialog, Google AI API
- Npm packaging to manage bots
- Custom Socket.io connection to bot server