



All-Mode Application Architecture Meets the Need

April 23, 2010



SpeechCycle is the leading provider of Rich Phone Applications (RPAs)

- Rapidly growing award-winning innovators in self-service transformation
 - Deloitte's 67th fastest growing company in North America (2700%)
 - VC funded software company founded in 2001; based in New York City



- Experts in speech science, software development and voice platform design



- Processing millions of automated phone transactions for leading service providers
 - We triple call automation rates with our Rich Phone Application (RPA) platform
 - We automate calls that are typically handled by live agents (6-8 AHT)
 - We provide full suite of applications for service providers that are deeply integrated with OSS/BSS systems
 - In 2009, SpeechCycle virtual agents processed 100 million voice self-service transactions
 - We cut tens of millions of dollars of cost out of service provider operations

RPAs are a high-growth category of software solutions that orchestrate enterprise and web systems with natural language dialogs to enable high service provider ROI through unmatched call automation rates

Amdocs Virtual Agent RPAs vs. Conventional IVR

Rich Phone Applications (RPAs) deliver superior customer experience that drives higher levels of customer adoption over conventional IVR-based applications.

Traditional IVRs

- Traditional IVRs take a long time to build and provide only surface-level enterprise integration
- IVR flows are a snapshot in time that often get out of synch with other interaction channels. Keeping them in synch takes a significant amount of money and resources
- The hand-off between IVRs and live agents is inefficient and is a significant source of customer frustration

Virtual Agent RPAs

- Virtual Agent RPAs fully extend the value of existing CRM software to the dominant customer touch point.
- Virtual Agent RPAs seamlessly transition calls to live agents – every Virtual Agent interaction becomes an integral part of the customer profile
- Asynchronous transaction execution optimizes the customer experience by shortening the time to resolution
- Personalization ensures highly relevant and in-context caller experience
- Self-improving dialog management through continuous updates based upon user-generated input – not ship and forget model!

- The Expectation

- People are beginning to *expect* cross-modal integration.
- To provide the most effective customer service, [Speech](#) > [Web](#) > [Chat](#) > *etc.* should all be aware of each other in real time.

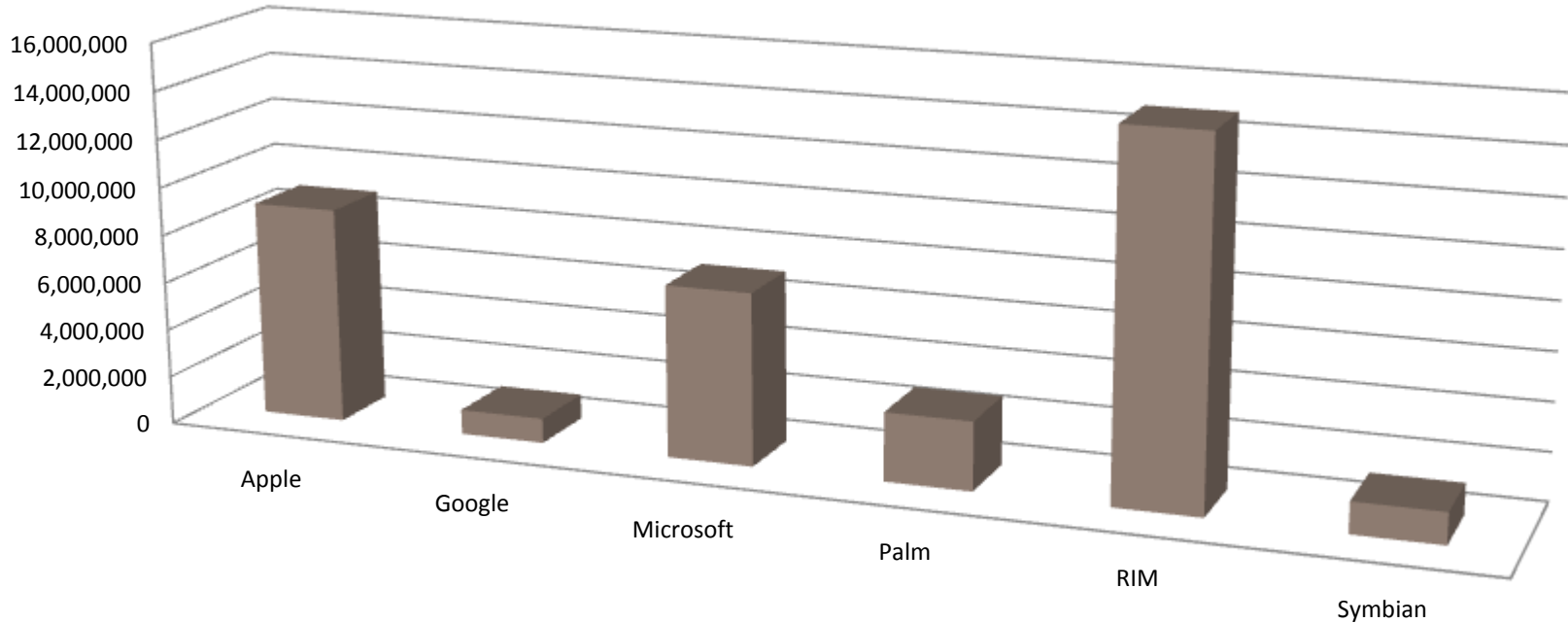
- The Problem

- Speech is “different.”
- Existing speech development methodology does not extend gracefully to other modes.

- What we'll cover

- Lessons Learned
 - Mobile Troubleshooting
 - Extending Modes
 - Problems with Time
 - Reorganizing our IP
 - Reorganizing our development process
- A Use Case

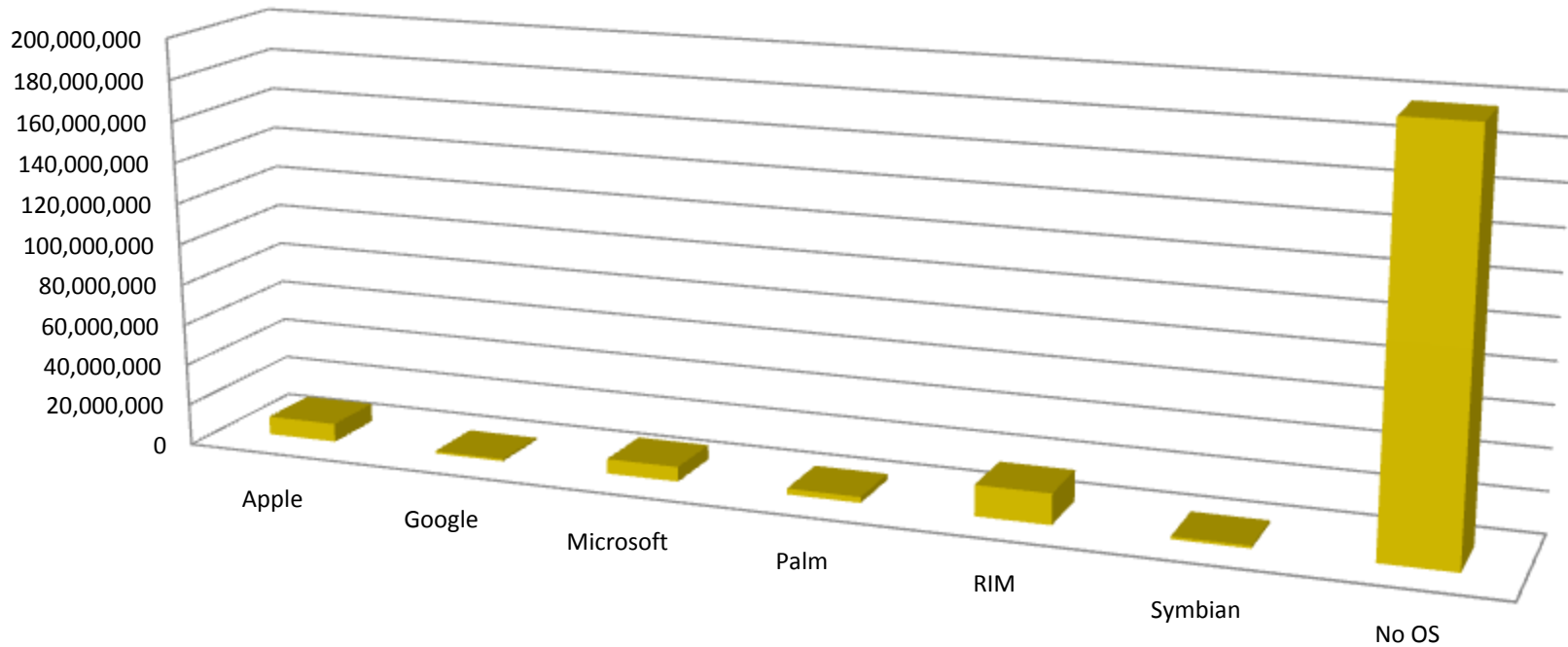
Smart Phone Distribution



October, 2009

Source: ComScore

Smart Phone Penetration



October, 2009

Source: ComScore

- *Background: Technical troubleshooting*

- *Internet*
- *Video*
- *Telephony*

- **Wireless problems**

- Lost Internet
- Slow & Intermittent
- Unblocking websites
- Password reset
- Email problems
- No signal
- Spotty signal

- **Troubleshooting Steps**

- First-time setup
- Moving equipment
- Antenna troubleshooting
- Connection manager software
- Error message analysis
- Password/Credentials reset
- International roaming

- **Unique Challenges to Wireless**

- Storms
- RF interference
- GSM interference
- Parties
- Cave dwellers

- **Calling back from another phone**
- Session bookmarks
 - ID caller, then jump to the last step taken
 - Potential for continuing on the web
- What about adding even more modes or channels?
- Would not scale because:
 - Hard to build
 - Hard to maintain
 - Hard to extend
 - Almost impossible to explain

Mode	What now?	Time-Limited
Speech	Some VXML app	Yes
Agent	A butt in a seat	Yes*
Web	The web	No
Mobile Web	Your smart-phone's browser	No
Web IM	Instant messenger	No
Mobile IM	IM client on phone	No
SMS	Mobile keyboard or T9	No
Live Chat	Web-based chat window with human	No
Bot Chat	Web-based chat window with robot	No

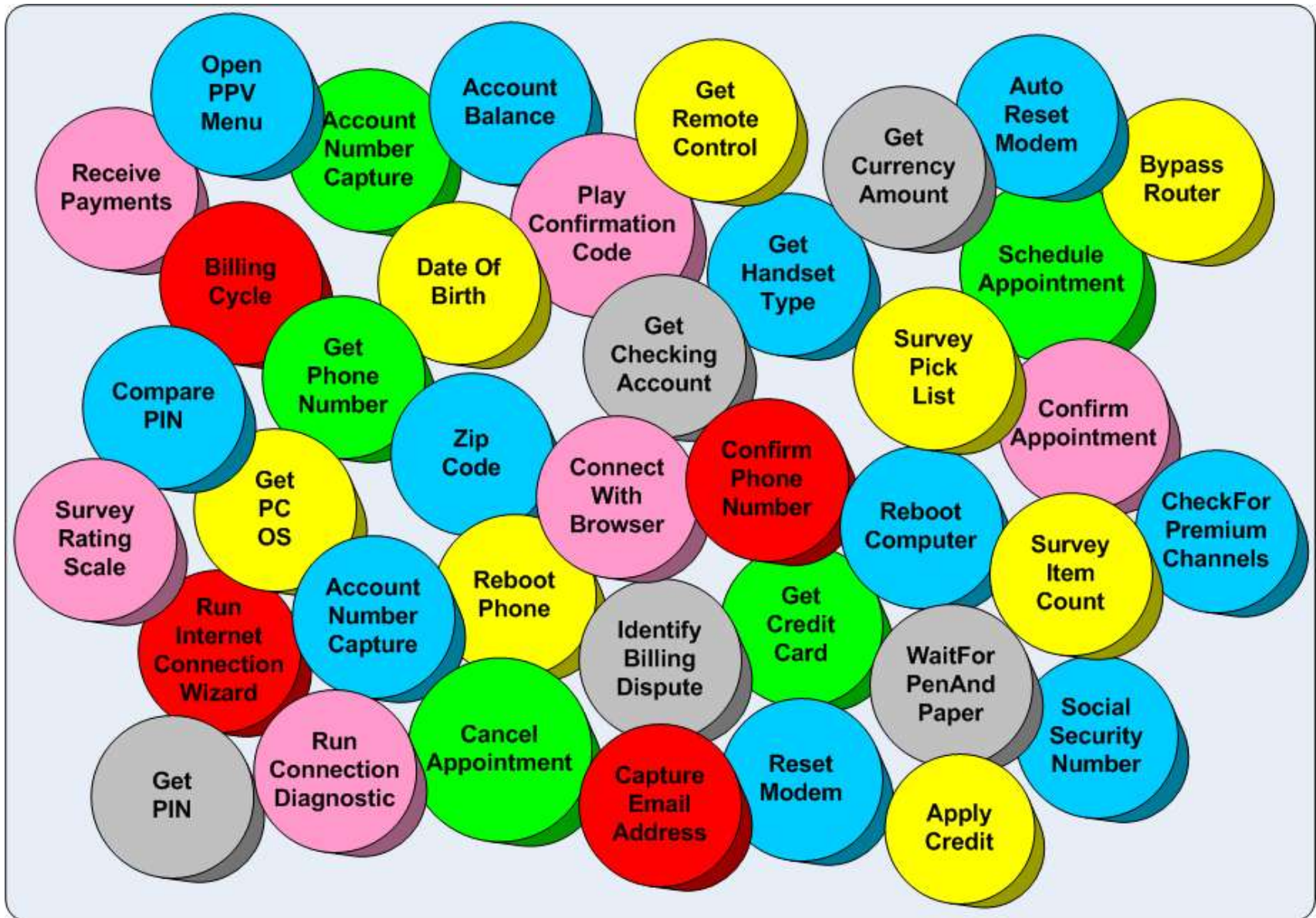
Time keeps on slippin', slippin', slippin'...

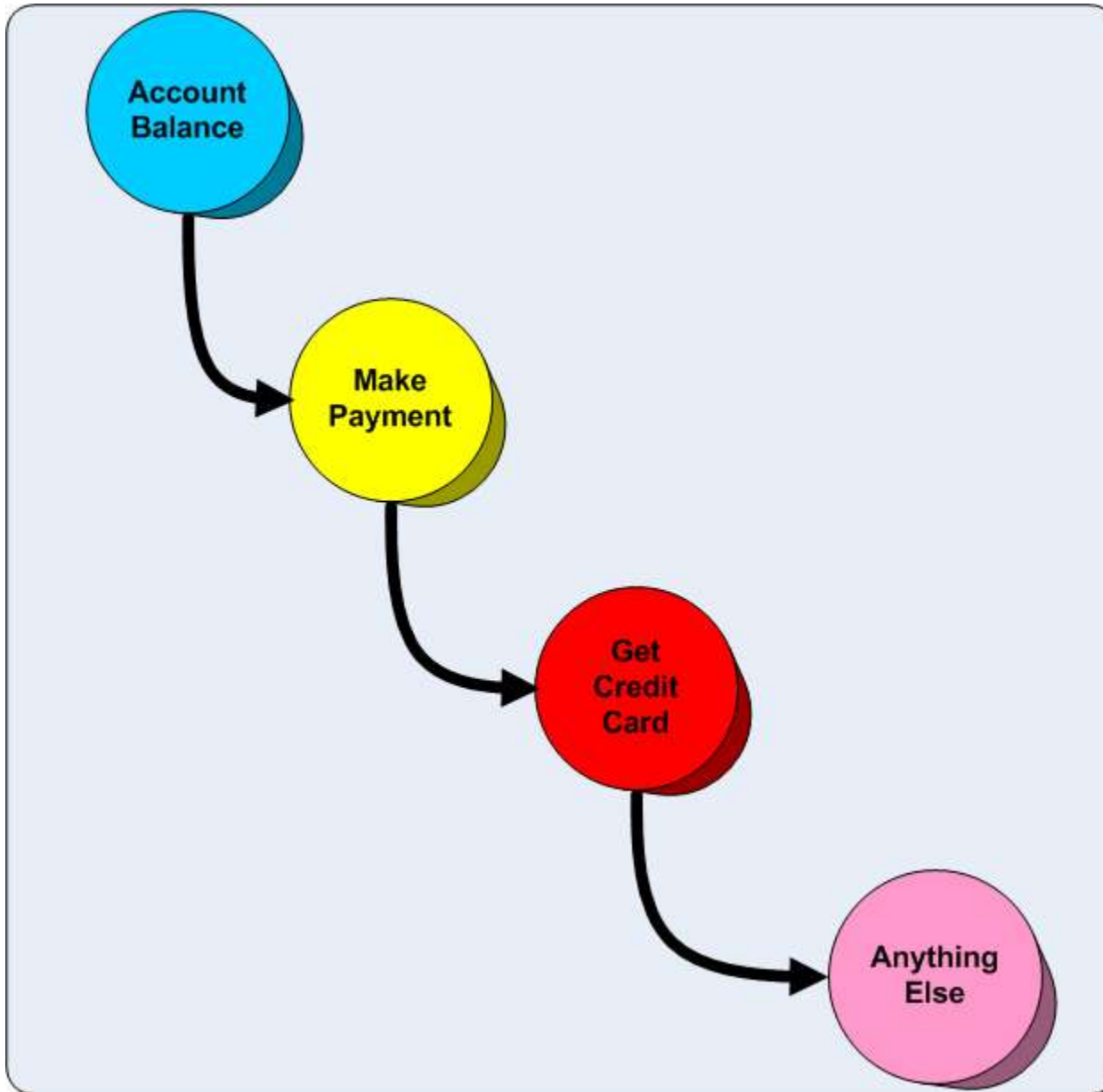
1. No documentation capabilities
 2. Options list limitations
 3. Information dominance
 4. No indefinite pauses
 5. Reliable go back/undo
 6. Timeouts carry significance
- VXML handles most of this
 - Reporting is usually based on speech issues

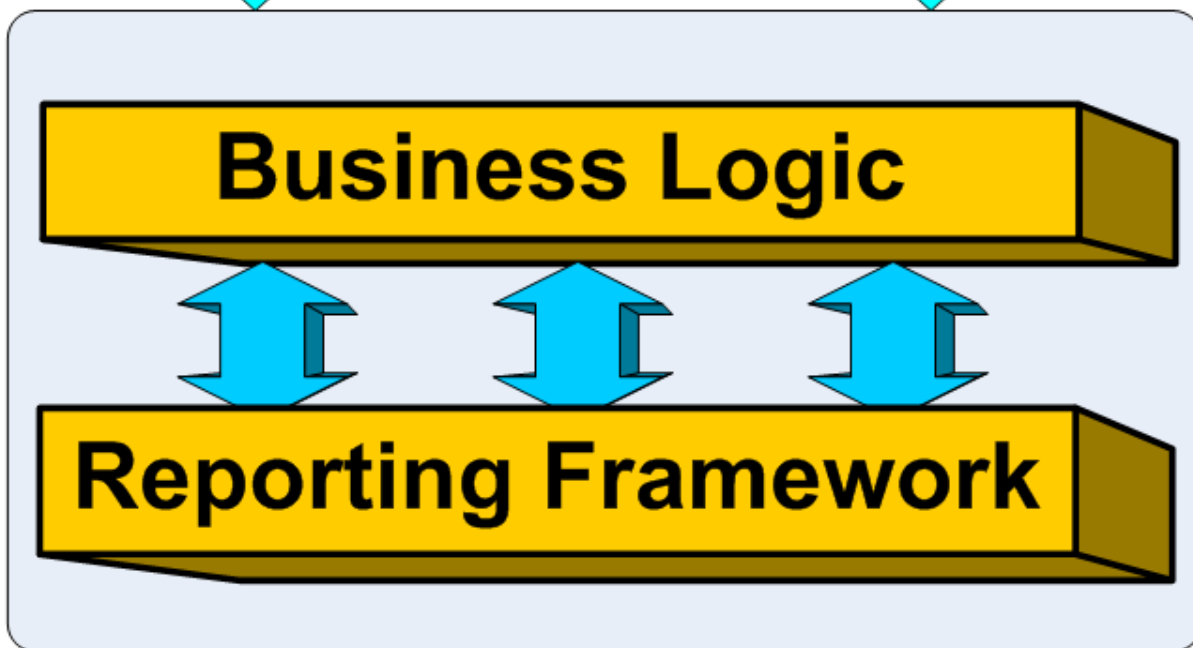
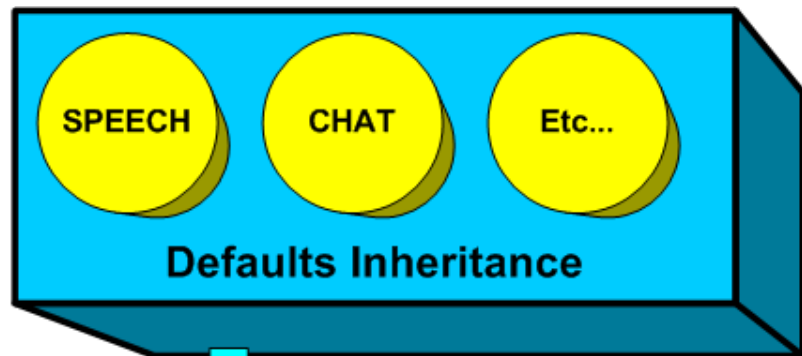
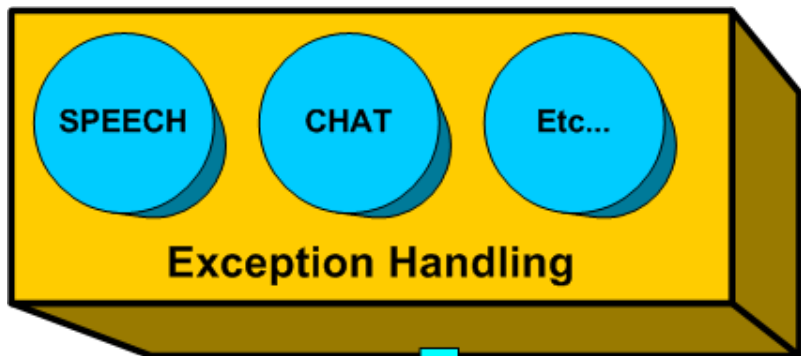
Development process

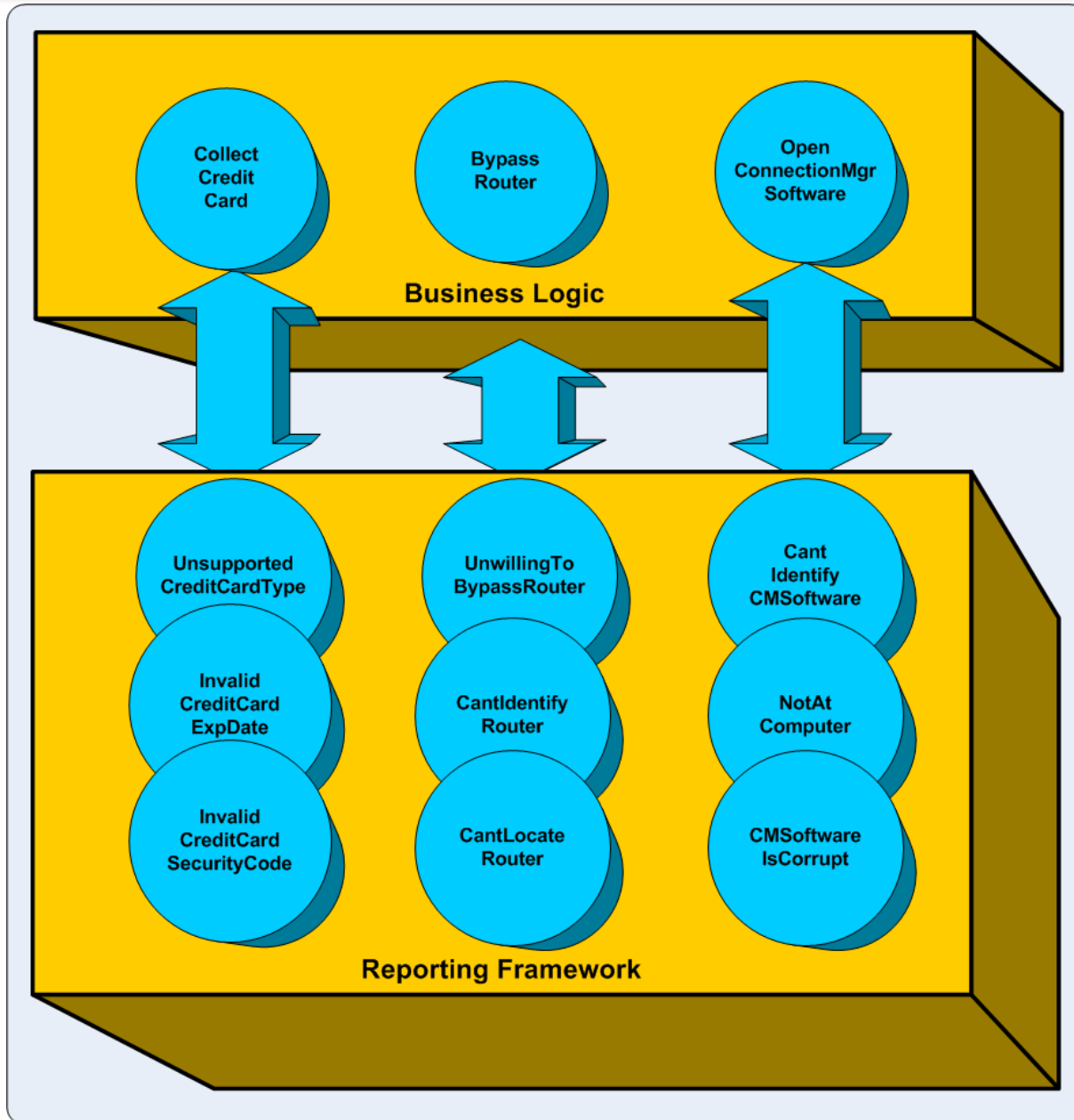
- The old, “good” way
 1. Business analysis
 2. User research
 3. Sunny-day dialogue design
 4. High-Fi prototype
 5. Usability testing
 6. Pilot
 7. Tuning
 8. Production
- But now: 😞
 - Exception handling is baked into your app for speech
 - Inheritance has it’s fingers all the way into the pie
 - Any reusable modules are still crafted for speech only
 - Structures to handle time-dependencies are baked in
- If we’re to build multi-channel apps from the beginning, we have to:
 1. Identify, define and name and individual business function that can execute correctly for any mode
 2. Abstract mode-specific functionality away from the common business flows
 3. Establish a unified reporting framework that is mode agnostic

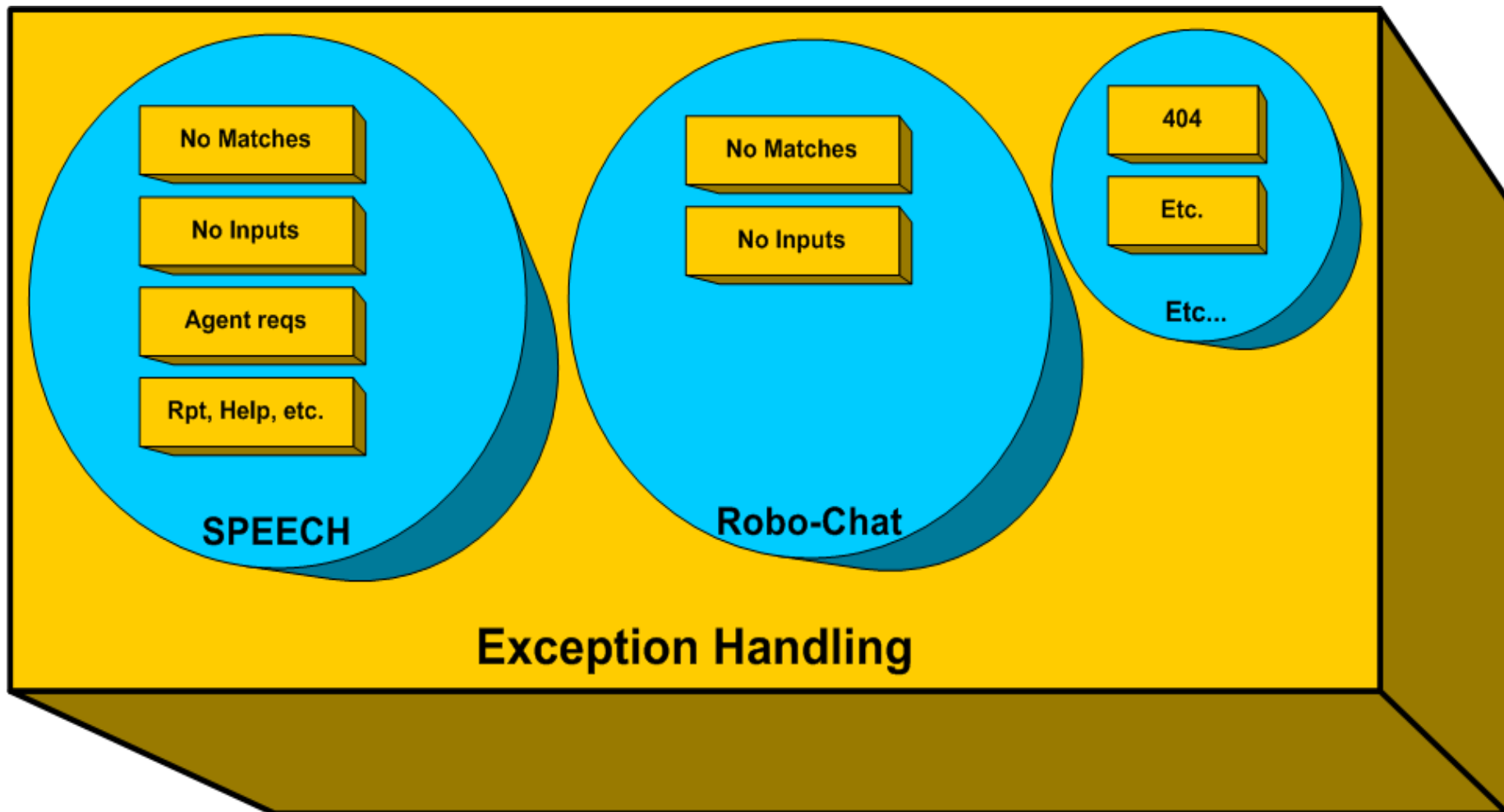
Atomic Interaction Providers. Also, bubble gum.







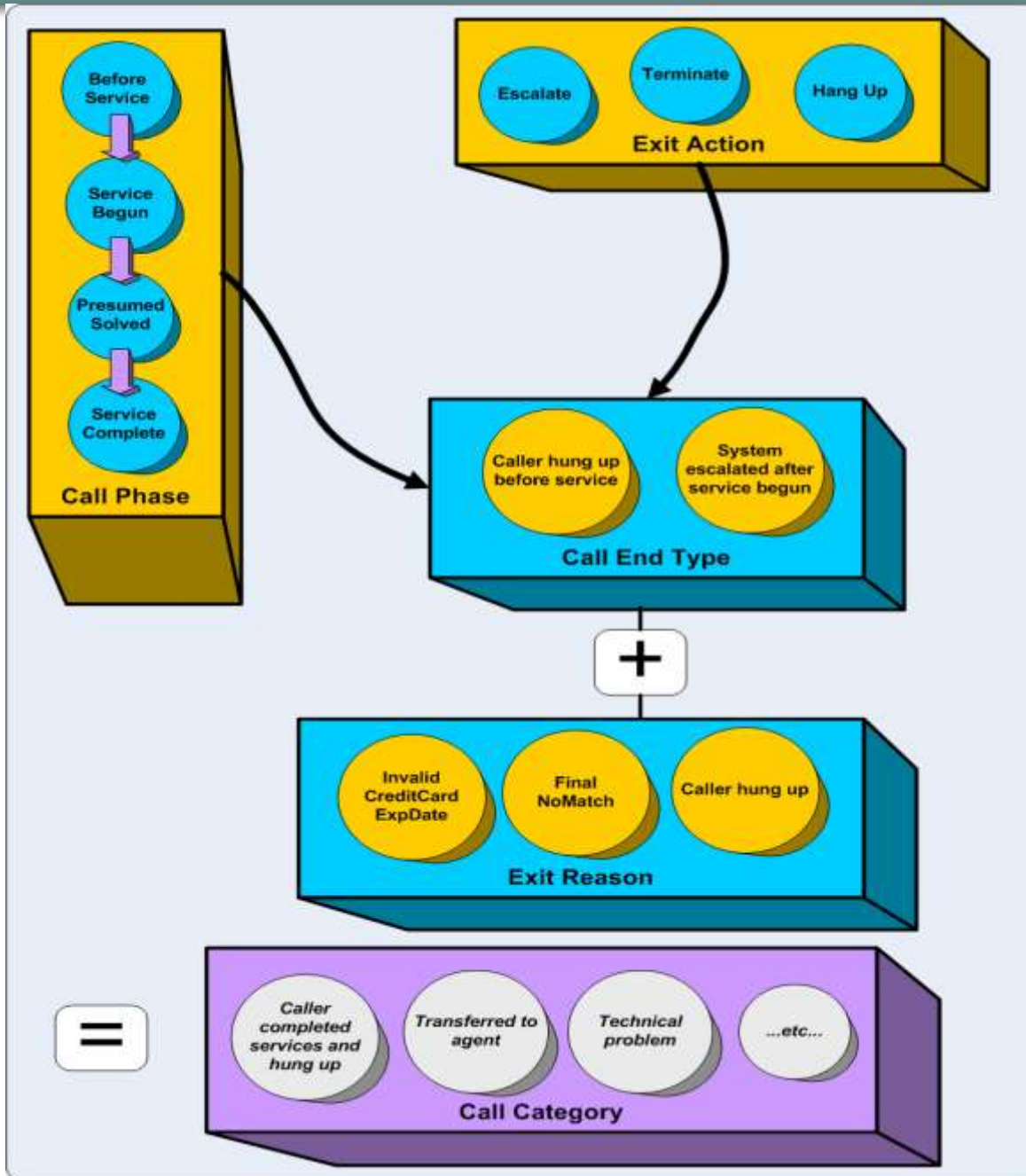


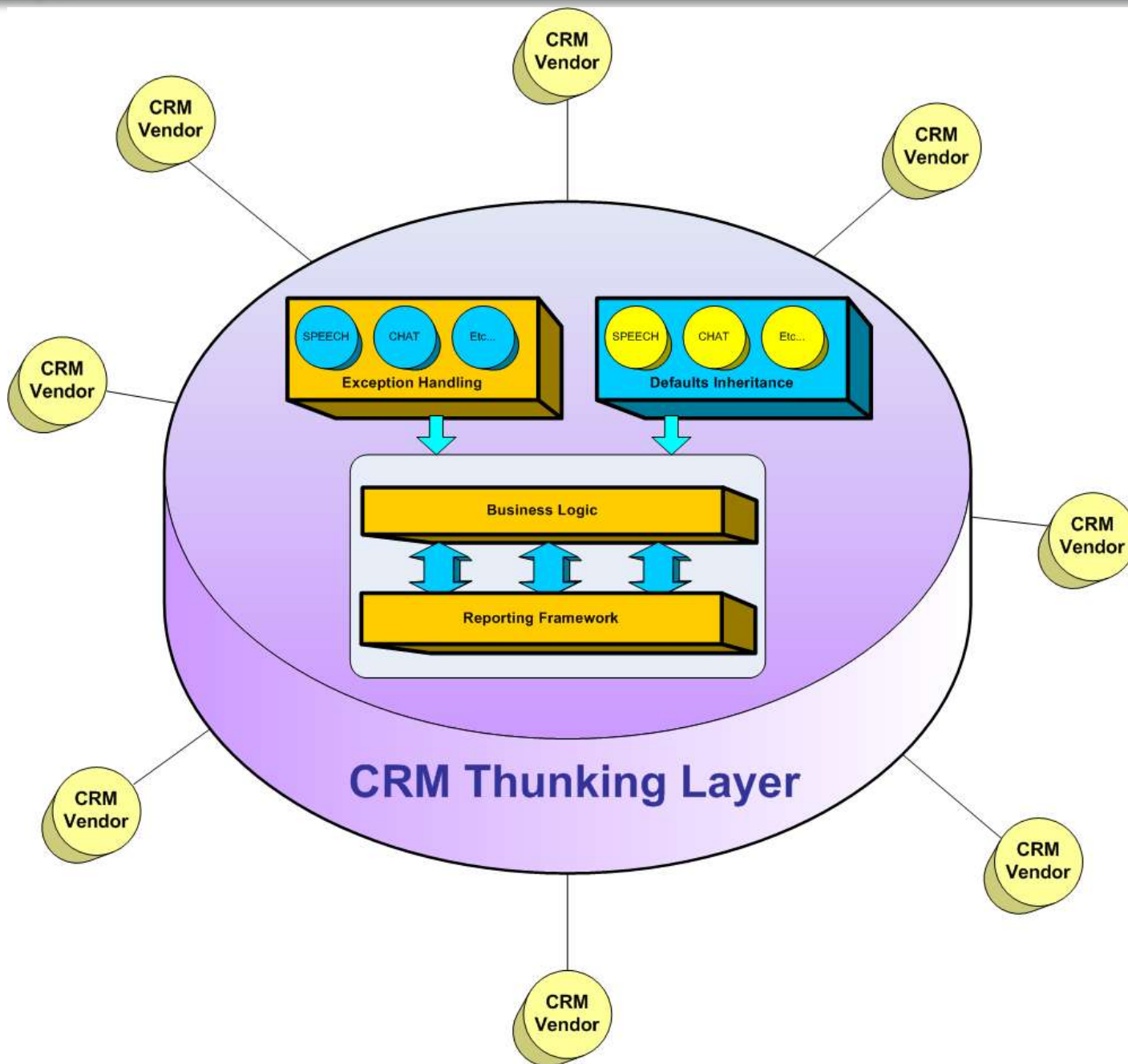


Reporting Categories

Speech Category	Agent Category	Visual Category
Caller completed services and hung up	Caller completed services and hung up	Completed service
Caller completed service and requested more services	Caller completed service and requested more services	Completed service and requested contact back
Caller hung up during call	Caller hung up during call	Ended session before completion
Caller transferred to an agent	Caller transferred to Tier-N agent	N/A
Technical problem	N/A	Technical problem
Caller escalated because of speech error	N/A	N/A
Classification problem	Classification problem	Classification problem
Zombie call	N/A	N/A

Implicit Categorization





A use case...



[WEB]
Julie wants to buy a smartphone so she researches on the web...

...she thinks she's narrowed it down but has a question. Clicks the 'CHAT' button

[AGENT CHAT]
Julie asks agent about 3G coverage the difference between data and text plans. Agent answers questions, then asks if he can call to complete the transaction.

[AGENT OUTBOUND CALL]
Agent calls Julie and completes the sale

MONDAY

[OUTBOUND IVR]
Initiates courtesy call after phone is provisioned. Offers help and Julie elects to have an email sent to her home address about setting up mobile email.

[OUTBOUND EMAIL]
Contains instructions for how to setup email on her handset.

WEDNESDAY

[SMS]
Several minutes after completing the smartphone app, Julie gets an SMS asking if the problem's fixed. She texts back, 'yes'

[SMARTPHONE APP]
Julie says yes and a moment later her Support App launches on its own and offers the 3 solutions. She chooses the most appropriate one and is able to synchronize emails to Outlook.

[INBOUND IVR]
Julie not seeing her emails in Outlook, so she calls support and gets a troubleshooting IVR. The IVR understands the problem and says there are 3 possible solutions. Would she like them sent directly to her smartphone?

FRIDAY

[OUTBOUND EMAIL]
Later that evening, Julie gets an email with a link to a survey. She decides to take it, and...

[WEB]
Clicks on the link, answers three short questions and goes to bed a happy girl.

